

# *Planck* 2018 Results: Cosmological Parameter Tables

May 14, 2019

## Abstract

These tables summarize the results of *Planck* 2018 parameter estimation exploration results. They are based on *Planck* HFI data and *Planck* lensing, as well as additional non-CMB data as detailed in the main parameter papers.

## 1 Introduction

The tables are arranged in groups, firstly by cosmological model, and then by data combination. The name tags match those of the full chains also provided on the PLA. The names all start with **base** to denote the baseline model, followed by the parameter tags of any additional parameters that are also varied (as defined in the parameter paper). Data combination tags are as follows (see the parameters paper for full description and references):

Data tag	Data used
<b>plikHM</b>	Baseline high- $\ell$ <i>Planck</i> power spectra ( <b>plik</b> cross-half-mission, $30 \leq \ell \leq 2508$ ).
<b>CamSpecHM</b>	<b>CamSpec</b> high- $\ell$ <i>Planck</i> power spectra.
<b>CleanedCamSpecHM</b>	Foreground-cleaned <b>CamSpec</b> high- $\ell$ <i>Planck</i> power spectra.
<b>lowl</b>	Low- $\ell$ <i>Planck</i> temperature ( <b>Commander</b> , $2 \leq \ell \leq 29$ ).
<b>lowE</b>	Low- $\ell$ HFI <i>EE</i> polarization only ( <b>SimAll</b> , $2 \leq \ell \leq 29$ ).
<b>lensing</b>	<i>Planck</i> lensing power spectrum reconstruction. When used without other CMB likelihoods, it is marginalized over the theory CMB spectra given.
<b>BAO</b>	Baryon oscillation data from BOSS DR12, MGS, and 6DF.
<b>Pantheon18</b>	Supernova data from the Pantheon sample, with updated main distance file with heliocentric redshifts.
<b>JLA</b>	Supernova data from the SDSS-II/SNLS3 Joint Light-curve Analysis.
<b>Riess18</b>	Hubble parameter measurement from SHOES (Riess et al. 2018a, $H_0 = 73.45 \pm 1.66$ ).
<b>BK15</b>	Bicep-Keck (+Planck/WMAP) 2015 analysis (arXiv:1810.05216).
<b>zre6p5</b>	A hard prior, $z_{\text{re}} > 6.5$ .
<b>reion</b>	A hard prior, $z_{\text{re}} > 6.5$ , combined with a Gaussian prior, $z_{\text{re}} = 7 \pm 1$ .
<b>lenspriors</b>	Standard base parameters with $n_s = 0.96 \pm 0.02$ , $\Omega_b h^2 = 0.0222 \pm 0.0005$ , $100 > H_0 > 40$ , $\tau = 0.055$ .
<b>DESpriors</b>	DES cosmological parameter priors (flat on $0.1 < \Omega_m < 0.9$ , $0.03 < \Omega_b < 0.07$ , $55 < H_0 < 91$ , $0.5 < 10^9 A_s < 5$ , $Y_P = 0.245341$ and, if varied, $0.05\text{eV} < \sum m_\nu < 1\text{eV}$ ).
<b>CookeDH</b>	A Gaussian prior $\Omega_b h^2 = 0.0222 \pm 0.0005$ (conservative, motivated by Cooke et al. 2017).
<b>Cooke17</b>	A Gaussian prior on D/H (Cooke et al. 2017), mean and error adjusted to approximately agree with <b>CookeDH</b> for $N_{\text{eff}} = 3.046$ .
<b>Aver15</b>	A Gaussian constraint on $Y_P^{\text{BBN}} = 0.2449 \pm 0.0040$ (Aver et al. 2015).
<b>theta</b>	A Gaussian prior $100\theta_{\text{MC}} = 1.0409 \pm 0.0006$ (acoustic scale from <i>Planck</i> CMB without LCDM assumption).
<b>WMAP</b>	The full WMAP (temperature and polarization) 9-year data.
<b>DES</b>	DES 1yr, cosmic shear+galaxy auto+cross.
<b>DESlens</b>	DES 1yr, cosmic shear only.
<b>DESw</b>	DES 1yr, galaxy auto+cross only.

The high- $\ell$  *Planck* likelihoods have TT, TE, EE variants from each spectrum alone, plus the TTTEEE joint constraint. Note that unless **nnu** is specified in the file name, the neutrino mass sum is fixed to  $\sum_\nu m_\nu = 0.06\text{eV}$  (including for DES chains). Non-linear corrections are modelled with HMCode in all cases (including when using DESpriors).

Data likelihoods are either included when running the chains, or by importance sampling. Data combinations that are added by importance sampling appear at the end of the list, following the **post\_** tag. Note that the best fits are merely examples of parameter combinations that fit the data well; due to parameter degeneracies there may be other combinations of parameters that fit the data nearly equally well.

Beneath each table is the  $\chi_{\text{eff}}^2 = -2\log(\text{likelihood})$  for each best-fit model, and also the contributions coming from each separate part of the likelihood. Mean minus log likelihoods are also given, as  $\bar{\chi}_{\text{eff}}^2$ . The tables also give the  $\chi_{\text{eff}}^2$  of the various component parts of the likelihood, where quoted values are the best-fit and mean, standard



deviation (in the case of  $1\sigma$  tables), or effective degrees of freedom ( $\nu$ , defined by  $\sigma^2/2$ ). Normalization of likelihoods is arbitrary, i.e., a constant can be added to log likelihoods without affecting any results. Only some likelihoods normalize so that the number is immediately interpretable as similar to a  $\chi^2$  for some number of data points.

The  $R - 1$  value is also given, which measures the convergence of the sampling chains, with small values being better converged. The sampling uncertainty on quoted mean values are typically of order  $R - 1$  in units of the standard deviation.

Parameter constraints were calculated from Monte Carlo chains from **CosmoMC** using **GetDist** ([getdist.readthedocs.org](http://getdist.readthedocs.org)).

Parameters and derived parameters, along with the name tags used in the chain files, are briefly described in the tables below.

Additional nuisance parameters for each likelihood are described in more detail in the respective papers.

Parameter	Tag	baseline	Definition
$\Omega_b h^2$	omegab2	...	Baryon density today
$\Omega_c h^2$	omegac2	...	Cold dark matter density today
$100\theta_{\text{MC}}$	theta	...	$100\times$ approximation to $r_s/D_M$ ( <b>CosmoMC</b> )
$\tau$	tau	...	Thomson scattering optical depth due to reionization
$\Omega_K$	omegak	0	$\Omega_{\text{tot}} = 1 - \Omega_K$
$\Sigma m_\nu$	mnu	0.06	Sum of active neutrino masses in eV
$m_{\nu, \text{sterile}}^{\text{eff}}$	meffsterile	0	Effective mass in sterile neutrinos in eV
$w_0$	w	-1	Dark energy equation of state, $w(a) = w_0 + (1 - a)w_a$
$w_a$	wa	0	As above (perturbations modelled using PPF)
$N_{\text{eff}}$	nnu	3.046	Total effective number of massive and massless neutrinos (see text)
$Y_P$	yhe	BBN	Fraction of baryonic mass in helium (only if varied independently of BBN)
$\alpha_{-1}$	alpha1	0	Fully correlated isocurvature amplitude parameter
$A_L$	Alens	1	Amplitude of the lensing power relative to the physical value
$A_L^{\phi\phi}$	Aphiphi	1	Amplitude of the lensing reconstruction power relative to the physical value
$A_L^{\text{fid}}$	Alensf	...	Amplitude of the lensing power relative to a fixed fiducial spectrum
$n_s$	ns	...	Scalar spectrum power-law index ( $k_0 = 0.05\text{Mpc}^{-1}$ )
$n_t$	nt	Inflation	Tensor spectrum power-law index ( $k_0 = 0.05\text{Mpc}^{-1}$ )
$d \ln n_s / d \ln k$	nrun	0	Running of the spectral index
$\log[10^{10} A_s]$	logA	...	Log power of the primordial curvature perturbations ( $k_0 = 0.05\text{Mpc}^{-1}$ )
$r_{0.05}$	r	0	Tensor power spectrum amplitude ( $k_0 = 0.05\text{Mpc}^{-1}$ )
$H_0$	H0	...	Current expansion rate in $\text{km s}^{-1}\text{Mpc}^{-1}$
$\Omega_m$	omegam	...	Matter density (incl. massive neutrinos) today divided by the critical density
$\Omega_\Lambda$	omegal	...	Dark energy density divided by the critical density today
$\Omega_m h^2$	omegamh2	...	Total matter density today (incl. massive neutrinos)
$\Omega_m h^3$	omegamh3	...	$h \times$ total matter density today
$\sigma_8$	sigma8	...	RMS matter fluctuations today in linear theory
$S_8$	S8	...	$\sigma_8(\Omega_m/0.3)^{0.5}$
$\sigma_8 \Omega_m^{0.5}$	s8omegamp5	...	$\sigma_8 \Omega_m^{0.5}$ constrained by low-redshift lensing
$\sigma_8 \Omega_m^{0.25}$	s8omegamp25	...	$\sigma_8 \Omega_m^{0.25}$ constrained by CMB lensing
$\sigma_8 / h^{0.5}$	s8h5	...	$\sigma_8 / h^{0.5}$
$\sigma_8 / h^{0.5}$	rdragh	...	$r_{\text{drag}} h$ in Mpc
$\langle d^2 \rangle^{1/2}$	rmsdeflect	...	RMS CMB lensing deflection angle in arcmin (approx. using $2 \leq L \leq 2000$ )
$z_{\text{re}}$	zrei	...	Redshift at which Universe is half reionized
$10^9 A_s$	A	...	Power of the primordial curvature perturbations ( $k_0 = 0.05\text{Mpc}^{-1}$ )
$10^9 A_s e^{-2\tau}$	clamp	...	Parameter determining the small-scale CMB power
$Y_P$	yheused	bbn	Fraction of baryonic mass in helium
$Y_P^{\text{BBN}}$	YpBBN	bbn	Nucleon fraction in helium
$10^5 \text{D/H}$	DHBBN	bbn	$10^5$ deuterium-helium ratio from <b>Parthenope</b> BBN prediction (pre-Marcucci rates)
Age/Gyr	age	...	Time since the start of the hot big bang



Parameter	Tag	baseline	Definitions
$z_*$	zstar	...	Redshift for which the optical depth equals unity
$r_* = r_s(z_*)$	rstar	...	Comoving size of the sound horizon at $z = z_*$
$100\theta_*$	thetastar	...	100× Angular size of the sound horizon at last scattering
$D_M/\text{Gpc}(z_*)$	DAstar	...	Comoving angular diameter distance to last scattering
$z_{\text{drag}}$	zdrag	...	Redshift at which baryon-drag optical depth equals unity
$r_{\text{drag}} = r_s(z_{\text{drag}})$	rdrag	...	Comoving size of the sound horizon at $z = z_{\text{drag}}$
$k_D$	kd	...	Characteristic damping comoving wavenumber ( $\text{Mpc}^{-1}$ )
$100\theta_D$	thetad	...	100× angular extent of photon diffusion at last scattering
$z_{\text{eq}}$	zeq	...	Redshift of matter-radiation equality (massless neutrinos)
$k_{\text{eq}}$	keq	...	$[a(z_{\text{eq}})H(z_{\text{eq}})]^{-1}$
$100\theta_{\text{eq}}$	thetaeq	...	100× angular size of the comoving Horizon at matter-radiation equality
$100\theta_{s,\text{eq}}$	thetarseq	...	100× angular size of the comoving sound Horizon at matter-radiation equality
$D_{40}$	D40	...	$\ell(\ell+1)C_\ell^{TT}/2\pi$ at $\ell = 40$ in $\mu\text{K}^2$
$D_{220}$	D200	...	$\ell(\ell+1)C_\ell^{TT}/2\pi$ at $\ell = 220$ in $\mu\text{K}^2$
$D_{810}$	D810	...	$\ell(\ell+1)C_\ell^{TT}/2\pi$ at $\ell = 810$ in $\mu\text{K}^2$
$D_{1420}$	D1420	...	$\ell(\ell+1)C_\ell^{TT}/2\pi$ at $\ell = 1420$ in $\mu\text{K}^2$
$D_{2000}$	D2000	...	$\ell(\ell+1)C_\ell^{TT}/2\pi$ at $\ell = 2000$ in $\mu\text{K}^2$
$n_{s,0.002}$	ns02	...	Scalar spectral index at $k = 0.002\text{Mpc}^{-1}$
$r_{0.002}$	r02	0	Tensor/scalar ratio at $k = 0.002\text{Mpc}^{-1}$
$r_{0.01}$	rBB	0	Tensor/scalar ratio at $k = 0.01\text{Mpc}^{-1}$ (roughly BB peak)
$r_{10}$	r10	0	Tensor-scalar temperature $C_\ell$ amplitude at $\ell = 10$
$A_t$	AT	0	$10^9 A_t$ ( $k_0 = 0.05\text{Mpc}^{-1}$ )
$10^9 A_t e^{-2\tau}$	ctlamp	0	Parameter determining $\ell \simeq 100$ tensor $C_\ell$ amplitude
$H(z)$	Hubble{100z}	...	Hubble parameter at redshift $z$ ( $\text{km s}^{-1}\text{Mpc}^{-1}$ )
$D_M(z)$	DM{100z}	...	Comoving angular diameter distance to redshift $z$ in Mpc
$f\sigma_8(z)$	fsigma8z{100z}	...	Growth parameter $f\sigma_8$ at redshift $z$
$\sigma_8(z)$	sigma8z{100z}	...	$\sigma_8$ at redshift $z$
$f_{2000}^{143}$	f2000_143	...	Total temperature foreground power at $\ell = 2000$ in 143GHz $C_\ell$
$f_{2000}^{143 \times 217}$	f2000_x	...	Total temperature foreground power at $\ell = 2000$ in $217\text{GHz} \times 143\text{GHz}$ $C_\ell$
$f_{2000}^{217}$	f2000_217	...	Total temperature foreground power at $\ell = 2000$ in 217GHz $C_\ell$
$\chi_x^2$	chi2_x	...	$-2\log(\text{likelihood})$ for likelihood $x$ ; (most are normalized like a $\chi^2$ ).



# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Baseline model</b>	<b>24</b>
2.1	base_plikHM_TT_lowl_lowE . . . . .	24
2.2	base_plikHM_TT_lowl_lowE_post_BAO . . . . .	25
2.3	base_plikHM_TT_lowl_lowE_post_Riess18 . . . . .	26
2.4	base_plikHM_TT_lowl_lowE_post_zre6p5 . . . . .	27
2.5	base_plikHM_TT_lowl_lowE_post_BAO_zre6p5 . . . . .	28
2.6	base_plikHM_TT_lowl_lowE_post_Riess18_zre6p5 . . . . .	29
2.7	base_plikHM_TTTEEE_lowl_lowE . . . . .	30
2.8	base_plikHM_TTTEEE_lowl_lowE_post_BAO . . . . .	31
2.9	base_plikHM_TTTEEE_lowl_lowE_post_Riess18 . . . . .	32
2.10	base_plikHM_TTTEEE_lowl_lowE_post_zre6p5 . . . . .	33
2.11	base_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5 . . . . .	34
2.12	base_plikHM_TTTEEE_lowl_lowE_post_Riess18_zre6p5 . . . . .	35
2.13	base_CamSpecHM_TT_lowl_lowE . . . . .	36
2.14	base_CamSpecHM_TT_lowl_lowE_post_BAO . . . . .	37
2.15	base_CamSpecHM_TT_lowl_lowE_post_Riess18 . . . . .	38
2.16	base_CamSpecHM_TT_lowl_lowE_post_zre6p5 . . . . .	39
2.17	base_CamSpecHM_TT_lowl_lowE_post_BAO_zre6p5 . . . . .	40
2.18	base_CamSpecHM_TT_lowl_lowE_post_Riess18_zre6p5 . . . . .	41
2.19	base_CamSpecHM_TTTEEE_lowl_lowE . . . . .	42
2.20	base_CamSpecHM_TTTEEE_lowl_lowE_post_BAO . . . . .	43
2.21	base_CamSpecHM_TTTEEE_lowl_lowE_post_Riess18 . . . . .	44
2.22	base_CamSpecHM_TTTEEE_lowl_lowE_post_zre6p5 . . . . .	45
2.23	base_CamSpecHM_TTTEEE_lowl_lowE_post_BAO_zre6p5 . . . . .	46
2.24	base_CamSpecHM_TTTEEE_lowl_lowE_post_Riess18_zre6p5 . . . . .	47
2.25	base_plikHM_TE_lowE . . . . .	48
2.26	base_plikHM_TE_lowE_post_zre6p5 . . . . .	49
2.27	base_plikHM_EE_lowE . . . . .	50
2.28	base_plikHM_EE_lowE_post_zre6p5 . . . . .	51
2.29	base_CamSpecHM_TE_lowE . . . . .	52
2.30	base_CamSpecHM_TE_lowE_post_zre6p5 . . . . .	53
2.31	base_CamSpecHM_EE_lowE . . . . .	54
2.32	base_CamSpecHM_EE_lowE_post_zre6p5 . . . . .	55
2.33	base_plikHM_TE_lowE_BAO . . . . .	56
2.34	base_plikHM_TE_lowE_BAO_post_lensing . . . . .	57
2.35	base_plikHM_TE_lowE_BAO_post_zre6p5 . . . . .	58
2.36	base_plikHM_TE_lowE_BAO_post_lensing_zre6p5 . . . . .	59
2.37	base_plikHM_EE_lowE_BAO . . . . .	60
2.38	base_plikHM_EE_lowE_BAO_post_lensing . . . . .	61
2.39	base_plikHM_EE_lowE_BAO_post_zre6p5 . . . . .	62
2.40	base_plikHM_EE_lowE_BAO_post_lensing_zre6p5 . . . . .	63
2.41	base_CamSpecHM_TE_lowE_BAO . . . . .	64
2.42	base_CamSpecHM_TE_lowE_BAO_post_lensing . . . . .	65
2.43	base_CamSpecHM_TE_lowE_BAO_post_zre6p5 . . . . .	66
2.44	base_CamSpecHM_TE_lowE_BAO_post_lensing_zre6p5 . . . . .	67
2.45	base_CamSpecHM_EE_lowE_BAO . . . . .	68
2.46	base_CamSpecHM_EE_lowE_BAO_post_lensing . . . . .	69
2.47	base_CamSpecHM_EE_lowE_BAO_post_zre6p5 . . . . .	70
2.48	base_CamSpecHM_EE_lowE_BAO_post_lensing_zre6p5 . . . . .	71
2.49	base_plikHM_TE_lowE_lensing . . . . .	72
2.50	base_plikHM_TE_lowE_lensing_post_zre6p5 . . . . .	73
2.51	base_plikHM_EE_lowE_lensing . . . . .	74
2.52	base_plikHM_EE_lowE_lensing_post_zre6p5 . . . . .	75
2.53	base_CamSpecHM_TE_lowE_lensing . . . . .	76
2.54	base_CamSpecHM_TE_lowE_lensing_post_zre6p5 . . . . .	77
2.55	base_CamSpecHM_EE_lowE_lensing . . . . .	78
2.56	base_CamSpecHM_EE_lowE_lensing_post_zre6p5 . . . . .	79
2.57	base_plikHM_TE_lowE_lensing_BAO_CookeDH . . . . .	80
2.58	base_plikHM_EE_lowE_lensing_BAO_CookeDH . . . . .	81
2.59	base_CamSpecHM_TE_lowE_lensing_BAO_CookeDH . . . . .	82
2.60	base_CamSpecHM_EE_lowE_lensing_BAO_CookeDH . . . . .	83
2.61	base_plikHM_TE_lowE_lensing_CookeDH . . . . .	84
2.62	base_plikHM_EE_lowE_lensing_CookeDH . . . . .	85
2.63	base_CamSpecHM_TE_lowE_lensing_CookeDH . . . . .	86
2.64	base_CamSpecHM_EE_lowE_lensing_CookeDH . . . . .	87



2.65	base_plikHM.TT_lowl	88
2.66	base_plikHM.TTTEEE_lowl	89
2.67	base_CamSpecHM.TT_lowl	90
2.68	base_CamSpecHM.TTTEEE_lowl	91
2.69	base_plikHM.TT_lowl.lensing	92
2.70	base_plikHM.TT_lowl.lensing_post_BAO	93
2.71	base_plikHM.TT_lowl.lensing_post_zre6p5	94
2.72	base_plikHM.TT_lowl.lensing_post_BAO_zre6p5	95
2.73	base_plikHM.TTTEEE_lowl.lensing	96
2.74	base_plikHM.TTTEEE_lowl.lensing_post_BAO	97
2.75	base_plikHM.TTTEEE_lowl.lensing_post_zre6p5	98
2.76	base_plikHM.TTTEEE_lowl.lensing_post_BAO_zre6p5	99
2.77	base_plikHM.TT_lowl.reion	100
2.78	base_plikHM.TT_lowl.reion_post_BAO	101
2.79	base_plikHM.TTTEEE_lowl.reion	102
2.80	base_plikHM.TTTEEE_lowl.reion_post_BAO	103
2.81	base_plikHM.TT_lowl_lowE.lensing	104
2.82	base_plikHM.TT_lowl_lowE.lensing_post_BAO	105
2.83	base_plikHM.TT_lowl_lowE.lensing_post_Riess18	106
2.84	base_plikHM.TT_lowl_lowE.lensing_post_BAO_Riess18	107
2.85	base_plikHM.TT_lowl_lowE.lensing_post_Pantheon18	108
2.86	base_plikHM.TT_lowl_lowE.lensing_post_BAO_JLA_Riess18	109
2.87	base_plikHM.TT_lowl_lowE.lensing_post_BAO_Pantheon18	110
2.88	base_plikHM.TT_lowl_lowE.lensing_post_BAO_Pantheon18_Riess18	111
2.89	base_plikHM.TT_lowl_lowE.lensing_post_zre6p5	112
2.90	base_plikHM.TT_lowl_lowE.lensing_post_BAO_zre6p5	113
2.91	base_plikHM.TT_lowl_lowE.lensing_post_Riess18_zre6p5	114
2.92	base_plikHM.TT_lowl_lowE.lensing_post_BAO_Riess18_zre6p5	115
2.93	base_plikHM.TT_lowl_lowE.lensing_post_Pantheon18_zre6p5	116
2.94	base_plikHM.TT_lowl_lowE.lensing_post_BAO_JLA_Riess18_zre6p5	117
2.95	base_plikHM.TT_lowl_lowE.lensing_post_BAO_Pantheon18_zre6p5	118
2.96	base_plikHM.TT_lowl_lowE.lensing_post_BAO_Pantheon18_Riess18_zre6p5	119
2.97	base_plikHM.TTTEEE_lowl_lowE.lensing	120
2.98	base_plikHM.TTTEEE_lowl_lowE.lensing_post_BAO	121
2.99	base_plikHM.TTTEEE_lowl_lowE.lensing_post_Riess18	122
2.100	base_plikHM.TTTEEE_lowl_lowE.lensing_post_BAO_Riess18	123
2.101	base_plikHM.TTTEEE_lowl_lowE.lensing_post_Pantheon18	124
2.102	base_plikHM.TTTEEE_lowl_lowE.lensing_post_BAO_JLA_Riess18	125
2.103	base_plikHM.TTTEEE_lowl_lowE.lensing_post_BAO_Pantheon18	126
2.104	base_plikHM.TTTEEE_lowl_lowE.lensing_post_BAO_Pantheon18_Riess18	127
2.105	base_plikHM.TTTEEE_lowl_lowE.lensing_post_zre6p5	128
2.106	base_plikHM.TTTEEE_lowl_lowE.lensing_post_BAO_zre6p5	129
2.107	base_plikHM.TTTEEE_lowl_lowE.lensing_post_Riess18_zre6p5	130
2.108	base_plikHM.TTTEEE_lowl_lowE.lensing_post_BAO_Riess18_zre6p5	131
2.109	base_plikHM.TTTEEE_lowl_lowE.lensing_post_Pantheon18_zre6p5	132
2.110	base_plikHM.TTTEEE_lowl_lowE.lensing_post_BAO_JLA_Riess18_zre6p5	133
2.111	base_plikHM.TTTEEE_lowl_lowE.lensing_post_BAO_Pantheon18_zre6p5	134
2.112	base_plikHM.TTTEEE_lowl_lowE.lensing_post_BAO_Pantheon18_Riess18_zre6p5	135
2.113	base_CamSpecHM.TT_lowl_lowE.lensing	136
2.114	base_CamSpecHM.TT_lowl_lowE.lensing_post_BAO	137
2.115	base_CamSpecHM.TT_lowl_lowE.lensing_post_Riess18	138
2.116	base_CamSpecHM.TT_lowl_lowE.lensing_post_BAO_Riess18	139
2.117	base_CamSpecHM.TT_lowl_lowE.lensing_post_Pantheon18	140
2.118	base_CamSpecHM.TT_lowl_lowE.lensing_post_BAO_JLA_Riess18	141
2.119	base_CamSpecHM.TT_lowl_lowE.lensing_post_BAO_Pantheon18	142
2.120	base_CamSpecHM.TT_lowl_lowE.lensing_post_BAO_Pantheon18_Riess18	143
2.121	base_CamSpecHM.TT_lowl_lowE.lensing_post_zre6p5	144
2.122	base_CamSpecHM.TT_lowl_lowE.lensing_post_BAO_zre6p5	145
2.123	base_CamSpecHM.TT_lowl_lowE.lensing_post_Riess18_zre6p5	146
2.124	base_CamSpecHM.TT_lowl_lowE.lensing_post_BAO_Riess18_zre6p5	147
2.125	base_CamSpecHM.TT_lowl_lowE.lensing_post_Pantheon18_zre6p5	148
2.126	base_CamSpecHM.TT_lowl_lowE.lensing_post_BAO_JLA_Riess18_zre6p5	149
2.127	base_CamSpecHM.TT_lowl_lowE.lensing_post_BAO_Pantheon18_zre6p5	150
2.128	base_CamSpecHM.TT_lowl_lowE.lensing_post_BAO_Pantheon18_Riess18_zre6p5	151
2.129	base_CamSpecHM.TTTEEE_lowl_lowE.lensing	152
2.130	base_CamSpecHM.TTTEEE_lowl_lowE.lensing_post_BAO	153
2.131	base_CamSpecHM.TTTEEE_lowl_lowE.lensing_post_Riess18	154
2.132	base_CamSpecHM.TTTEEE_lowl_lowE.lensing_post_BAO_Riess18	155



2.133	base_CamSpecHM.TTTEEE_lowl.lowE.lensing.post.Pantheon18	156
2.134	base_CamSpecHM.TTTEEE_lowl.lowE.lensing.post.BAO_JLA_Riess18	157
2.135	base_CamSpecHM.TTTEEE_lowl.lowE.lensing.post.BAO_Pantheon18	158
2.136	base_CamSpecHM.TTTEEE_lowl.lowE.lensing.post.BAO_Pantheon18_Riess18	159
2.137	base_CamSpecHM.TTTEEE_lowl.lowE.lensing.post.zre6p5	160
2.138	base_CamSpecHM.TTTEEE_lowl.lowE.lensing.post.BAO_zre6p5	161
2.139	base_CamSpecHM.TTTEEE_lowl.lowE.lensing.post.Riess18_zre6p5	162
2.140	base_CamSpecHM.TTTEEE_lowl.lowE.lensing.post.BAO_Riess18_zre6p5	163
2.141	base_CamSpecHM.TTTEEE_lowl.lowE.lensing.post.Pantheon18_zre6p5	164
2.142	base_CamSpecHM.TTTEEE_lowl.lowE.lensing.post.BAO_JLA_Riess18_zre6p5	165
2.143	base_CamSpecHM.TTTEEE_lowl.lowE.lensing.post.BAO_Pantheon18_zre6p5	166
2.144	base_CamSpecHM.TTTEEE_lowl.lowE.lensing.post.BAO_Pantheon18_Riess18_zre6p5	167
2.145	base_CleanedCamSpecHM.TT_lowl.lowE	168
2.146	base_lensing_lenspriors	169
2.147	base_lensing_lenspriors.post.Pantheon18	170
2.148	base_lensing_lenspriors.post.agr2	171
2.149	base_lensing_lenspriors.post.conslmin40	172
2.150	base_lensing_lenspriors.post.agrlmax425	173
2.151	base_lensing_lenspriors.post.ptt	174
2.152	base_lensing_lenspriors.post.bfcl	175
2.153	base_lensing_lenspriors.post.agr2bfcl	176
2.154	base_lensing_lenspriors.post.linear	177
2.155	base_lensing_lenspriors.post.acc	178
2.156	base_lensing_lenspriors.post.agr2acc	179
2.157	base_lensing_lenspriors.post.takahashi	180
2.158	base_lensing_lenspriors.post.agr2takahashi	181
2.159	base_lensing_lenspriors.post.Apr6	182
2.160	base_lensing_lenspriors.theta	183
2.161	base_lensing_lenspriors.theta.post.Pantheon18	184
2.162	base_lensing_lenspriors.theta.post.agr2	185
2.163	base_lensing_lenspriors.theta.post.conslmin40	186
2.164	base_lensing_lenspriors.theta.post.agrlmax425	187
2.165	base_lensing_lenspriors.theta.post.ptt	188
2.166	base_lensing_lenspriors.theta.post.bfcl	189
2.167	base_lensing_lenspriors.theta.post.agr2bfcl	190
2.168	base_lensing_lenspriors.theta.post.linear	191
2.169	base_lensing_lenspriors.theta.post.acc	192
2.170	base_lensing_lenspriors.theta.post.agr2acc	193
2.171	base_lensing_lenspriors.theta.post.takahashi	194
2.172	base_lensing_lenspriors.theta.post.agr2takahashi	195
2.173	base_lensing_lenspriors.theta.post.Apr6	196
2.174	base_lensing_lenspriors.BAO	197
2.175	base_lensing_lenspriors.BAO.post.Pantheon18	198
2.176	base_lensing_lenspriors.BAO.post.agr2	199
2.177	base_lensing_lenspriors.BAO.post.conslmin40	200
2.178	base_lensing_lenspriors.BAO.post.agrlmax425	201
2.179	base_lensing_lenspriors.BAO.post.ptt	202
2.180	base_lensing_lenspriors.BAO.post.bfcl	203
2.181	base_lensing_lenspriors.BAO.post.agr2bfcl	204
2.182	base_lensing_lenspriors.BAO.post.linear	205
2.183	base_lensing_lenspriors.BAO.post.acc	206
2.184	base_lensing_lenspriors.BAO.post.agr2acc	207
2.185	base_lensing_lenspriors.BAO.post.takahashi	208
2.186	base_lensing_lenspriors.BAO.post.agr2takahashi	209
2.187	base_lensing_lenspriors.BAO.post.Apr6	210
2.188	base_lensing_lenspriors.BAO.theta	211
2.189	base_lensing_lenspriors.BAO.theta.post.Pantheon18	212
2.190	base_lensing_lenspriors.BAO.theta.post.agr2	213
2.191	base_lensing_lenspriors.BAO.theta.post.conslmin40	214
2.192	base_lensing_lenspriors.BAO.theta.post.agrlmax425	215
2.193	base_lensing_lenspriors.BAO.theta.post.ptt	216
2.194	base_lensing_lenspriors.BAO.theta.post.bfcl	217
2.195	base_lensing_lenspriors.BAO.theta.post.agr2bfcl	218
2.196	base_lensing_lenspriors.BAO.theta.post.linear	219
2.197	base_lensing_lenspriors.BAO.theta.post.acc	220
2.198	base_lensing_lenspriors.BAO.theta.post.agr2acc	221
2.199	base_lensing_lenspriors.BAO.theta.post.takahashi	222
2.200	base_lensing_lenspriors.BAO.theta.post.agr2takahashi	223



2.201	base_lensing_lenspriors_BAO_theta_post_Apr6 . . . . .	224
2.202	base_lensing_lenspriors_pttagr2 . . . . .	225
2.203	base_lensing_lenspriors_pttagr2_theta . . . . .	226
2.204	base_lensing_lenspriors_pttagr2_BAO . . . . .	227
2.205	base_lensing_lenspriors_pttagr2_BAO_theta . . . . .	228
2.206	base_lensing_DESpriors . . . . .	228
2.207	base_lensing_DESpriors_BAO . . . . .	228
2.208	base_lensing_DESpriors_CookeDH . . . . .	229
2.209	base_lensing_DESpriors_CookeDH_BAO . . . . .	229
2.210	base_plikHM_TT . . . . .	230
2.211	base_plikHM_TT_lowl . . . . .	231
2.212	base_plikHM_TT_lowl_post_BAO . . . . .	232
2.213	base_plikHM_TT_lowl_post_zre6p5 . . . . .	233
2.214	base_plikHM_TT_lowl_post_BAO_zre6p5 . . . . .	234
2.215	base_plikHM_TT_lowE . . . . .	235
2.216	base_plikHM_TTTEEE . . . . .	236
2.217	base_plikHM_TTTEEE_lowl . . . . .	237
2.218	base_plikHM_TTTEEE_lowl_post_BAO . . . . .	238
2.219	base_plikHM_TTTEEE_lowl_post_zre6p5 . . . . .	239
2.220	base_plikHM_TTTEEE_lowl_post_BAO_zre6p5 . . . . .	240
2.221	base_plikHM_TTTEEE_lowE . . . . .	241
2.222	base_CamSpecHM_TT . . . . .	242
2.223	base_CamSpecHM_TT_lowl . . . . .	243
2.224	base_CamSpecHM_TT_lowl_post_BAO . . . . .	244
2.225	base_CamSpecHM_TT_lowl_post_zre6p5 . . . . .	245
2.226	base_CamSpecHM_TT_lowl_post_BAO_zre6p5 . . . . .	246
2.227	base_CamSpecHM_TT_lowE . . . . .	247
2.228	base_CamSpecHM_TTTEEE . . . . .	248
2.229	base_CamSpecHM_TTTEEE_lowl . . . . .	249
2.230	base_CamSpecHM_TTTEEE_lowl_post_BAO . . . . .	250
2.231	base_CamSpecHM_TTTEEE_lowl_post_zre6p5 . . . . .	251
2.232	base_CamSpecHM_TTTEEE_lowl_post_BAO_zre6p5 . . . . .	252
2.233	base_CamSpecHM_TTTEEE_lowE . . . . .	253
2.234	base_WMAP . . . . .	254
2.235	base_WMAP_post_BAO . . . . .	255
2.236	base_DES_lenspriors . . . . .	256
2.237	base_DESlens_lenspriors . . . . .	257
2.238	base_DES_lenspriors_lensing . . . . .	258
2.239	base_DESlens_lenspriors_lensing . . . . .	259
2.240	base_DES_lenspriors_BAO . . . . .	260
2.241	base_DESlens_lenspriors_BAO . . . . .	261
2.242	base_DES_lenspriors_lensing_BAO . . . . .	262
2.243	base_DESlens_lenspriors_lensing_BAO . . . . .	263
2.244	base_DES_DESpriors . . . . .	263
2.245	base_DESlens_DESpriors . . . . .	264
2.246	base_DESwt_DESpriors . . . . .	264
2.247	base_DES_DESpriors_lensing . . . . .	264
2.248	base_DESlens_DESpriors_lensing . . . . .	265
2.249	base_DESwt_DESpriors_lensing . . . . .	265
2.250	base_DES_DESpriors_BAO_CookeDH . . . . .	266
2.251	base_DESlens_DESpriors_BAO_CookeDH . . . . .	266
2.252	base_DESwt_DESpriors_BAO_CookeDH . . . . .	267
2.253	base_DES_DESpriors_lensing_BAO_CookeDH . . . . .	267
2.254	base_DESlens_DESpriors_lensing_BAO_CookeDH . . . . .	268
2.255	base_DESwt_DESpriors_lensing_BAO_CookeDH . . . . .	268
2.256	base_plikHM_TTTEEE_lowl_lowE_DES . . . . .	269
2.257	base_plikHM_TTTEEE_lowl_lowE_DES_post_BAO . . . . .	270
2.258	base_plikHM_TTTEEE_lowl_lowE_DES_post_lensing . . . . .	271
2.259	base_plikHM_TTTEEE_lowl_lowE_DES_post_BAO_lensing . . . . .	272
2.260	base_plikHM_TTTEEE_lowl_lowE_DES_post_zre6p5 . . . . .	273
2.261	base_plikHM_TTTEEE_lowl_lowE_DES_post_BAO_zre6p5 . . . . .	274
2.262	base_plikHM_TTTEEE_lowl_lowE_DES_post_lensing_zre6p5 . . . . .	275
2.263	base_plikHM_TTTEEE_lowl_lowE_DES_post_BAO_lensing_zre6p5 . . . . .	276
2.264	base_plikHM_TTTEEE_lowl_lowE_DESlens . . . . .	277
2.265	base_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO . . . . .	278
2.266	base_plikHM_TTTEEE_lowl_lowE_DESlens_post_lensing . . . . .	279
2.267	base_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO_lensing . . . . .	280
2.268	base_plikHM_TTTEEE_lowl_lowE_DESlens_post_zre6p5 . . . . .	281



2.269	base_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO_zre6p5 . . . . .	282
2.270	base_plikHM_TTTEEE_lowl_lowE_DESlens_post_lensing_zre6p5 . . . . .	283
2.271	base_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO_lensing_zre6p5 . . . . .	284
2.272	base_BAO_Cooke17 . . . . .	285
2.273	base_BAO_Cooke17_Pantheon18 . . . . .	285
2.274	base_BAO_Cooke17_JLA . . . . .	286
2.275	base_BAO_Cooke17_Pantheon18_theta . . . . .	286
2.276	base_BAO_Cooke17_theta . . . . .	287
<b>3</b>	<b>Alens</b>	<b>288</b>
3.1	base_Alens_plikHM_TT_lowl_lowE . . . . .	288
3.2	base_Alens_plikHM_TT_lowl_lowE_post_BAO . . . . .	289
3.3	base_Alens_plikHM_TT_lowl_lowE_post_Riess18 . . . . .	290
3.4	base_Alens_plikHM_TT_lowl_lowE_post_zre6p5 . . . . .	291
3.5	base_Alens_plikHM_TT_lowl_lowE_post_BAO_zre6p5 . . . . .	292
3.6	base_Alens_plikHM_TT_lowl_lowE_post_Riess18_zre6p5 . . . . .	293
3.7	base_Alens_plikHM_TTTEEE_lowl_lowE . . . . .	294
3.8	base_Alens_plikHM_TTTEEE_lowl_lowE_post_BAO . . . . .	295
3.9	base_Alens_plikHM_TTTEEE_lowl_lowE_post_Riess18 . . . . .	296
3.10	base_Alens_plikHM_TTTEEE_lowl_lowE_post_zre6p5 . . . . .	297
3.11	base_Alens_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5 . . . . .	298
3.12	base_Alens_plikHM_TTTEEE_lowl_lowE_post_Riess18_zre6p5 . . . . .	299
3.13	base_Alens_CamSpecHM_TT_lowl_lowE . . . . .	300
3.14	base_Alens_CamSpecHM_TT_lowl_lowE_post_BAO . . . . .	301
3.15	base_Alens_CamSpecHM_TT_lowl_lowE_post_Riess18 . . . . .	302
3.16	base_Alens_CamSpecHM_TT_lowl_lowE_post_zre6p5 . . . . .	303
3.17	base_Alens_CamSpecHM_TT_lowl_lowE_post_BAO_zre6p5 . . . . .	304
3.18	base_Alens_CamSpecHM_TT_lowl_lowE_post_Riess18_zre6p5 . . . . .	305
3.19	base_Alens_CamSpecHM_TTTEEE_lowl_lowE . . . . .	306
3.20	base_Alens_CamSpecHM_TTTEEE_lowl_lowE_post_BAO . . . . .	307
3.21	base_Alens_CamSpecHM_TTTEEE_lowl_lowE_post_Riess18 . . . . .	308
3.22	base_Alens_CamSpecHM_TTTEEE_lowl_lowE_post_zre6p5 . . . . .	309
3.23	base_Alens_CamSpecHM_TTTEEE_lowl_lowE_post_BAO_zre6p5 . . . . .	310
3.24	base_Alens_CamSpecHM_TTTEEE_lowl_lowE_post_Riess18_zre6p5 . . . . .	311
3.25	base_Alens_plikHM_TE_lowE . . . . .	312
3.26	base_Alens_plikHM_TE_lowE_post_BAO . . . . .	313
3.27	base_Alens_plikHM_TE_lowE_post_zre6p5 . . . . .	314
3.28	base_Alens_plikHM_TE_lowE_post_BAO_zre6p5 . . . . .	315
3.29	base_Alens_plikHM_EE_lowE . . . . .	316
3.30	base_Alens_plikHM_EE_lowE_post_BAO . . . . .	317
3.31	base_Alens_plikHM_EE_lowE_post_zre6p5 . . . . .	318
3.32	base_Alens_plikHM_EE_lowE_post_BAO_zre6p5 . . . . .	319
3.33	base_Alens_CamSpecHM_TE_lowE . . . . .	320
3.34	base_Alens_CamSpecHM_TE_lowE_post_BAO . . . . .	321
3.35	base_Alens_CamSpecHM_TE_lowE_post_zre6p5 . . . . .	322
3.36	base_Alens_CamSpecHM_TE_lowE_post_BAO_zre6p5 . . . . .	323
3.37	base_Alens_CamSpecHM_EE_lowE . . . . .	324
3.38	base_Alens_CamSpecHM_EE_lowE_post_BAO . . . . .	325
3.39	base_Alens_CamSpecHM_EE_lowE_post_zre6p5 . . . . .	326
3.40	base_Alens_CamSpecHM_EE_lowE_post_BAO_zre6p5 . . . . .	327
3.41	base_Alens_plikHM_TT_lowl_lensing . . . . .	328
3.42	base_Alens_plikHM_TT_lowl_lensing_post_BAO . . . . .	329
3.43	base_Alens_plikHM_TT_lowl_lensing_post_zre6p5 . . . . .	330
3.44	base_Alens_plikHM_TT_lowl_lensing_post_BAO_zre6p5 . . . . .	331
3.45	base_Alens_plikHM_TTTEEE_lowl_lensing . . . . .	332
3.46	base_Alens_plikHM_TTTEEE_lowl_lensing_post_BAO . . . . .	333
3.47	base_Alens_plikHM_TTTEEE_lowl_lensing_post_zre6p5 . . . . .	334
3.48	base_Alens_plikHM_TTTEEE_lowl_lensing_post_BAO_zre6p5 . . . . .	335
3.49	base_Alens_plikHM_TT_lowl_lowE_lensing . . . . .	336
3.50	base_Alens_plikHM_TT_lowl_lowE_lensing_post_BAO . . . . .	337
3.51	base_Alens_plikHM_TT_lowl_lowE_lensing_post_zre6p5 . . . . .	338
3.52	base_Alens_plikHM_TT_lowl_lowE_lensing_post_BAO_zre6p5 . . . . .	339
3.53	base_Alens_plikHM_TTTEEE_lowl_lowE_lensing . . . . .	340
3.54	base_Alens_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO . . . . .	341
3.55	base_Alens_plikHM_TTTEEE_lowl_lowE_lensing_post_zre6p5 . . . . .	342
3.56	base_Alens_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO_zre6p5 . . . . .	343
3.57	base_Alens_CamSpecHM_TTTEEE_lowl_lowE_lensing . . . . .	344
3.58	base_Alens_CamSpecHM_TTTEEE_lowl_lowE_lensing_post_BAO . . . . .	345



3.59	base_Alens_CamSpecHM_TTTEEE_lowl_lowE_lensing_post_zre6p5 . . . . .	346
3.60	base_Alens_CamSpecHM_TTTEEE_lowl_lowE_lensing_post_BAO_zre6p5 . . . . .	347
3.61	base_Alens_CleanedCamSpecHM_TT_lowl_lowE . . . . .	348
3.62	base_Alens_plikHM_TT . . . . .	349
3.63	base_Alens_plikHM_TT_post_zre6p5 . . . . .	350
3.64	base_Alens_plikHM_TT_lowl . . . . .	351
3.65	base_Alens_plikHM_TT_lowl_post_zre6p5 . . . . .	352
3.66	base_Alens_plikHM_TT_lowE . . . . .	353
3.67	base_Alens_plikHM_TTTEEE . . . . .	354
3.68	base_Alens_plikHM_TTTEEE_post_zre6p5 . . . . .	355
3.69	base_Alens_plikHM_TTTEEE_lowl . . . . .	356
3.70	base_Alens_plikHM_TTTEEE_lowl_post_zre6p5 . . . . .	357
3.71	base_Alens_plikHM_TTTEEE_lowE . . . . .	358
3.72	base_Alens_CamSpecHM_TT . . . . .	359
3.73	base_Alens_CamSpecHM_TT_post_BAO . . . . .	360
3.74	base_Alens_CamSpecHM_TT_post_zre6p5 . . . . .	361
3.75	base_Alens_CamSpecHM_TT_post_BAO_zre6p5 . . . . .	362
3.76	base_Alens_CamSpecHM_TT_lowl . . . . .	363
3.77	base_Alens_CamSpecHM_TT_lowl_post_BAO . . . . .	364
3.78	base_Alens_CamSpecHM_TT_lowl_post_zre6p5 . . . . .	365
3.79	base_Alens_CamSpecHM_TT_lowl_post_BAO_zre6p5 . . . . .	366
3.80	base_Alens_CamSpecHM_TT_lowE . . . . .	367
3.81	base_Alens_CamSpecHM_TTTEEE . . . . .	368
3.82	base_Alens_CamSpecHM_TTTEEE_post_BAO . . . . .	369
3.83	base_Alens_CamSpecHM_TTTEEE_post_zre6p5 . . . . .	370
3.84	base_Alens_CamSpecHM_TTTEEE_post_BAO_zre6p5 . . . . .	371
3.85	base_Alens_CamSpecHM_TTTEEE_lowl . . . . .	372
3.86	base_Alens_CamSpecHM_TTTEEE_lowl_post_BAO . . . . .	373
3.87	base_Alens_CamSpecHM_TTTEEE_lowl_post_zre6p5 . . . . .	374
3.88	base_Alens_CamSpecHM_TTTEEE_lowl_post_BAO_zre6p5 . . . . .	375
3.89	base_Alens_CamSpecHM_TTTEEE_lowE . . . . .	376
<b>4</b>	<b>Ahiphi</b>	<b>377</b>
4.1	base_Ahiphi_plikHM_TT_lowl_lowE_lensing . . . . .	377
4.2	base_Ahiphi_plikHM_TT_lowl_lowE_lensing_post_zre6p5 . . . . .	378
4.3	base_Ahiphi_plikHM_TTTEEE_lowl_lowE_lensing . . . . .	379
4.4	base_Ahiphi_plikHM_TTTEEE_lowl_lowE_lensing_post_zre6p5 . . . . .	380
<b>5</b>	<b>alpha1</b>	<b>381</b>
5.1	base_alpha1_plikHM_TT_lowl_lowE . . . . .	381
5.2	base_alpha1_plikHM_TT_lowl_lowE_post_BAO . . . . .	382
5.3	base_alpha1_plikHM_TT_lowl_lowE_post_lensing . . . . .	383
5.4	base_alpha1_plikHM_TT_lowl_lowE_post_BAO_lensing . . . . .	384
5.5	base_alpha1_plikHM_TT_lowl_lowE_post_zre6p5 . . . . .	385
5.6	base_alpha1_plikHM_TT_lowl_lowE_post_BAO_zre6p5 . . . . .	386
5.7	base_alpha1_plikHM_TT_lowl_lowE_post_lensing_zre6p5 . . . . .	387
5.8	base_alpha1_plikHM_TT_lowl_lowE_post_BAO_lensing_zre6p5 . . . . .	388
5.9	base_alpha1_plikHM_TTTEEE_lowl_lowE . . . . .	389
5.10	base_alpha1_plikHM_TTTEEE_lowl_lowE_post_BAO . . . . .	390
5.11	base_alpha1_plikHM_TTTEEE_lowl_lowE_post_lensing . . . . .	391
5.12	base_alpha1_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing . . . . .	392
5.13	base_alpha1_plikHM_TTTEEE_lowl_lowE_post_Riess18 . . . . .	393
5.14	base_alpha1_plikHM_TTTEEE_lowl_lowE_post_zre6p5 . . . . .	394
5.15	base_alpha1_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5 . . . . .	395
5.16	base_alpha1_plikHM_TTTEEE_lowl_lowE_post_lensing_zre6p5 . . . . .	396
5.17	base_alpha1_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5 . . . . .	397
5.18	base_alpha1_plikHM_TTTEEE_lowl_lowE_post_Riess18_zre6p5 . . . . .	398
5.19	base_alpha1_CamSpecHM_TT_lowl_lowE . . . . .	399
5.20	base_alpha1_CamSpecHM_TT_lowl_lowE_post_BAO . . . . .	400
5.21	base_alpha1_CamSpecHM_TT_lowl_lowE_post_lensing . . . . .	401
5.22	base_alpha1_CamSpecHM_TT_lowl_lowE_post_BAO_lensing . . . . .	402
5.23	base_alpha1_CamSpecHM_TT_lowl_lowE_post_zre6p5 . . . . .	403
5.24	base_alpha1_CamSpecHM_TT_lowl_lowE_post_BAO_zre6p5 . . . . .	404
5.25	base_alpha1_CamSpecHM_TT_lowl_lowE_post_lensing_zre6p5 . . . . .	405
5.26	base_alpha1_CamSpecHM_TT_lowl_lowE_post_BAO_lensing_zre6p5 . . . . .	406



<b>6</b>	<b>mnu</b>	<b>407</b>
6.1	base_mnu_plikHM_TT_lowl_lowE . . . . .	407
6.2	base_mnu_plikHM_TT_lowl_lowE_post_zre6p5 . . . . .	408
6.3	base_mnu_plikHM_TTTEEE_lowl_lowE . . . . .	409
6.4	base_mnu_plikHM_TTTEEE_lowl_lowE_post_Riess18 . . . . .	410
6.5	base_mnu_plikHM_TTTEEE_lowl_lowE_post_zre6p5 . . . . .	411
6.6	base_mnu_plikHM_TTTEEE_lowl_lowE_post_Riess18_zre6p5 . . . . .	412
6.7	base_mnu_CamSpecHM_TT_lowl_lowE . . . . .	413
6.8	base_mnu_CamSpecHM_TT_lowl_lowE_post_zre6p5 . . . . .	414
6.9	base_mnu_CamSpecHM_TTTEEE_lowl_lowE . . . . .	415
6.10	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_post_Riess18 . . . . .	416
6.11	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_post_zre6p5 . . . . .	417
6.12	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_post_Riess18_zre6p5 . . . . .	418
6.13	base_mnu_plikHM_TE_lowE . . . . .	419
6.14	base_mnu_plikHM_TE_lowE_post_zre6p5 . . . . .	420
6.15	base_mnu_plikHM_EE_lowE . . . . .	421
6.16	base_mnu_plikHM_EE_lowE_post_zre6p5 . . . . .	422
6.17	base_mnu_plikHM_TE_lowE_BAO . . . . .	423
6.18	base_mnu_plikHM_TE_lowE_BAO_post_lensing . . . . .	424
6.19	base_mnu_plikHM_TE_lowE_BAO_post_zre6p5 . . . . .	425
6.20	base_mnu_plikHM_TE_lowE_BAO_post_lensing_zre6p5 . . . . .	426
6.21	base_mnu_plikHM_EE_lowE_BAO . . . . .	427
6.22	base_mnu_plikHM_EE_lowE_BAO_post_lensing . . . . .	428
6.23	base_mnu_plikHM_EE_lowE_BAO_post_zre6p5 . . . . .	429
6.24	base_mnu_plikHM_EE_lowE_BAO_post_lensing_zre6p5 . . . . .	430
6.25	base_mnu_plikHM_TT_lowl_lensing . . . . .	431
6.26	base_mnu_plikHM_TT_lowl_lensing_post_BAO . . . . .	432
6.27	base_mnu_plikHM_TT_lowl_lensing_post_zre6p5 . . . . .	433
6.28	base_mnu_plikHM_TT_lowl_lensing_post_BAO_zre6p5 . . . . .	434
6.29	base_mnu_plikHM_TTTEEE_lowl_lensing . . . . .	435
6.30	base_mnu_plikHM_TTTEEE_lowl_lensing_post_BAO . . . . .	436
6.31	base_mnu_plikHM_TTTEEE_lowl_lensing_post_zre6p5 . . . . .	437
6.32	base_mnu_plikHM_TTTEEE_lowl_lensing_post_BAO_zre6p5 . . . . .	438
6.33	base_mnu_plikHM_TT_lowl_lowE_lensing . . . . .	439
6.34	base_mnu_plikHM_TT_lowl_lowE_lensing_post_zre6p5 . . . . .	440
6.35	base_mnu_plikHM_TTTEEE_lowl_lowE_lensing . . . . .	441
6.36	base_mnu_plikHM_TTTEEE_lowl_lowE_lensing_post_zre6p5 . . . . .	442
6.37	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_lensing . . . . .	443
6.38	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_lensing_post_zre6p5 . . . . .	444
6.39	base_mnu_plikHM_TT_lowl_lowE_BAO . . . . .	445
6.40	base_mnu_plikHM_TT_lowl_lowE_BAO_post_Pantheon18 . . . . .	446
6.41	base_mnu_plikHM_TT_lowl_lowE_BAO_post_zre6p5 . . . . .	447
6.42	base_mnu_plikHM_TT_lowl_lowE_BAO_post_Pantheon18_zre6p5 . . . . .	448
6.43	base_mnu_plikHM_TTTEEE_lowl_lowE_BAO . . . . .	449
6.44	base_mnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18 . . . . .	450
6.45	base_mnu_plikHM_TTTEEE_lowl_lowE_BAO_post_zre6p5 . . . . .	451
6.46	base_mnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18_zre6p5 . . . . .	452
6.47	base_mnu_CamSpecHM_TT_lowl_lowE_BAO . . . . .	453
6.48	base_mnu_CamSpecHM_TT_lowl_lowE_BAO_post_Pantheon18 . . . . .	454
6.49	base_mnu_CamSpecHM_TT_lowl_lowE_BAO_post_zre6p5 . . . . .	455
6.50	base_mnu_CamSpecHM_TT_lowl_lowE_BAO_post_Pantheon18_zre6p5 . . . . .	456
6.51	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_BAO . . . . .	457
6.52	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18 . . . . .	458
6.53	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_zre6p5 . . . . .	459
6.54	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18_zre6p5 . . . . .	460
6.55	base_mnu_plikHM_TT_lowl_lowE_lensing_BAO . . . . .	461
6.56	base_mnu_plikHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18 . . . . .	462
6.57	base_mnu_plikHM_TT_lowl_lowE_lensing_BAO_post_zre6p5 . . . . .	463
6.58	base_mnu_plikHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5 . . . . .	464
6.59	base_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO . . . . .	465
6.60	base_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18 . . . . .	466
6.61	base_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_zre6p5 . . . . .	467
6.62	base_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5 . . . . .	468
6.63	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO . . . . .	469
6.64	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18 . . . . .	470
6.65	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_zre6p5 . . . . .	471
6.66	base_mnu_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5 . . . . .	472
6.67	base_mnu_CleanedCamSpecHM_TT_lowl_lowE . . . . .	473



6.68	base_mnu_lensing_lenspriors . . . . .	474
6.69	base_mnu_lensing_lenspriors_post_Pantheon18 . . . . .	475
6.70	base_mnu_lensing_lenspriors_post_agr2 . . . . .	476
6.71	base_mnu_lensing_lenspriors_post_conslmin40 . . . . .	477
6.72	base_mnu_lensing_lenspriors_post_agrlmax425 . . . . .	478
6.73	base_mnu_lensing_lenspriors_post_ptt . . . . .	479
6.74	base_mnu_lensing_lenspriors_post_bfcl . . . . .	480
6.75	base_mnu_lensing_lenspriors_post_agr2bfcl . . . . .	481
6.76	base_mnu_lensing_lenspriors_post_linear . . . . .	482
6.77	base_mnu_lensing_lenspriors_post_acc . . . . .	483
6.78	base_mnu_lensing_lenspriors_post_agr2acc . . . . .	484
6.79	base_mnu_lensing_lenspriors_post_takahashi . . . . .	485
6.80	base_mnu_lensing_lenspriors_post_agr2takahashi . . . . .	486
6.81	base_mnu_lensing_lenspriors_post_Apr6 . . . . .	487
6.82	base_mnu_lensing_lenspriors_theta . . . . .	488
6.83	base_mnu_lensing_lenspriors_theta_post_Pantheon18 . . . . .	489
6.84	base_mnu_lensing_lenspriors_theta_post_agr2 . . . . .	490
6.85	base_mnu_lensing_lenspriors_theta_post_conslmin40 . . . . .	491
6.86	base_mnu_lensing_lenspriors_theta_post_agrlmax425 . . . . .	492
6.87	base_mnu_lensing_lenspriors_theta_post_ptt . . . . .	493
6.88	base_mnu_lensing_lenspriors_theta_post_bfcl . . . . .	494
6.89	base_mnu_lensing_lenspriors_theta_post_agr2bfcl . . . . .	495
6.90	base_mnu_lensing_lenspriors_theta_post_linear . . . . .	496
6.91	base_mnu_lensing_lenspriors_theta_post_acc . . . . .	497
6.92	base_mnu_lensing_lenspriors_theta_post_agr2acc . . . . .	498
6.93	base_mnu_lensing_lenspriors_theta_post_takahashi . . . . .	499
6.94	base_mnu_lensing_lenspriors_theta_post_agr2takahashi . . . . .	500
6.95	base_mnu_lensing_lenspriors_theta_post_Apr6 . . . . .	501
6.96	base_mnu_lensing_lenspriors_BAO . . . . .	502
6.97	base_mnu_lensing_lenspriors_BAO_post_Pantheon18 . . . . .	503
6.98	base_mnu_lensing_lenspriors_BAO_post_agr2 . . . . .	504
6.99	base_mnu_lensing_lenspriors_BAO_post_conslmin40 . . . . .	505
6.100	base_mnu_lensing_lenspriors_BAO_post_agrlmax425 . . . . .	506
6.101	base_mnu_lensing_lenspriors_BAO_post_bfcl . . . . .	507
6.102	base_mnu_lensing_lenspriors_BAO_post_agr2bfcl . . . . .	508
6.103	base_mnu_lensing_lenspriors_BAO_post_linear . . . . .	509
6.104	base_mnu_lensing_lenspriors_BAO_post_acc . . . . .	510
6.105	base_mnu_lensing_lenspriors_BAO_post_agr2acc . . . . .	511
6.106	base_mnu_lensing_lenspriors_BAO_post_takahashi . . . . .	512
6.107	base_mnu_lensing_lenspriors_BAO_post_agr2takahashi . . . . .	513
6.108	base_mnu_lensing_lenspriors_BAO_post_Apr6 . . . . .	514
6.109	base_mnu_lensing_lenspriors_BAO_theta . . . . .	515
6.110	base_mnu_lensing_lenspriors_BAO_theta_post_Pantheon18 . . . . .	516
6.111	base_mnu_lensing_lenspriors_BAO_theta_post_agr2 . . . . .	517
6.112	base_mnu_lensing_lenspriors_BAO_theta_post_conslmin40 . . . . .	518
6.113	base_mnu_lensing_lenspriors_BAO_theta_post_agrlmax425 . . . . .	519
6.114	base_mnu_lensing_lenspriors_BAO_theta_post_ptt . . . . .	520
6.115	base_mnu_lensing_lenspriors_BAO_theta_post_bfcl . . . . .	521
6.116	base_mnu_lensing_lenspriors_BAO_theta_post_agr2bfcl . . . . .	522
6.117	base_mnu_lensing_lenspriors_BAO_theta_post_linear . . . . .	523
6.118	base_mnu_lensing_lenspriors_BAO_theta_post_acc . . . . .	524
6.119	base_mnu_lensing_lenspriors_BAO_theta_post_agr2acc . . . . .	525
6.120	base_mnu_lensing_lenspriors_BAO_theta_post_takahashi . . . . .	526
6.121	base_mnu_lensing_lenspriors_BAO_theta_post_agr2takahashi . . . . .	527
6.122	base_mnu_lensing_lenspriors_BAO_theta_post_Apr6 . . . . .	528
6.123	base_mnu_lensing_lenspriors_pttagr2 . . . . .	529
6.124	base_mnu_lensing_lenspriors_pttagr2_theta . . . . .	530
6.125	base_mnu_lensing_lenspriors_pttagr2_BAO . . . . .	531
6.126	base_mnu_lensing_lenspriors_pttagr2_BAO_theta . . . . .	532
6.127	base_mnu_lensing_DESpriors . . . . .	532
6.128	base_mnu_lensing_DESpriors_BAO . . . . .	533
6.129	base_mnu_lensing_DESpriors_CookeDH . . . . .	533
6.130	base_mnu_lensing_DESpriors_CookeDH_BAO . . . . .	533
6.131	base_mnu_DESlens_lenspriors . . . . .	534
6.132	base_mnu_DESlens_lenspriors . . . . .	535
6.133	base_mnu_DESlens_lenspriors_lensing . . . . .	536
6.134	base_mnu_DESlens_lenspriors_lensing . . . . .	537
6.135	base_mnu_DESlens_lenspriors_BAO . . . . .	538



6.136	base_mnu_DESlens_lenspriors_BAO	539
6.137	base_mnu_DES_lenspriors_lensing_BAO	540
6.138	base_mnu_DESlens_lenspriors_lensing_BAO	541
6.139	base_mnu_DES_DESpriors	542
6.140	base_mnu_DESlens_DESpriors	542
6.141	base_mnu_DESwt_DESpriors	542
6.142	base_mnu_DES_DESpriors_lensing	543
6.143	base_mnu_DESlens_DESpriors_lensing	543
6.144	base_mnu_DESwt_DESpriors_lensing	544
6.145	base_mnu_DES_DESpriors_BAO_CookeDH	544
6.146	base_mnu_DESlens_DESpriors_BAO_CookeDH	545
6.147	base_mnu_DESwt_DESpriors_BAO_CookeDH	545
6.148	base_mnu_DES_DESpriors_lensing_BAO_CookeDH	546
6.149	base_mnu_DESlens_DESpriors_lensing_BAO_CookeDH	546
6.150	base_mnu_DESwt_DESpriors_lensing_BAO_CookeDH	547
6.151	base_mnu_plikHM_TTTEEE_lowl_lowE_DES	548
6.152	base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_BAO	549
6.153	base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_lensing	550
6.154	base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_BAO_lensing	551
6.155	base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_zre6p5	552
6.156	base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_BAO_zre6p5	553
6.157	base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_lensing_zre6p5	554
6.158	base_mnu_plikHM_TTTEEE_lowl_lowE_DES_post_BAO_lensing_zre6p5	555
6.159	base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens	556
6.160	base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO	557
6.161	base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_lensing	558
6.162	base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO_lensing	559
6.163	base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_zre6p5	560
6.164	base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO_zre6p5	561
6.165	base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_lensing_zre6p5	562
6.166	base_mnu_plikHM_TTTEEE_lowl_lowE_DESlens_post_BAO_lensing_zre6p5	563
6.167	base_mnu_BAO_Cooke17	564
6.168	base_mnu_BAO_Cooke17_Pantheon18	564
6.169	base_mnu_BAO_Cooke17_Pantheon18_theta	565
6.170	base_mnu_BAO_Cooke17_theta	565
<b>7</b>	<b>nnu</b>	<b>566</b>
7.1	base_nnu_plikHM_TT_lowl_lowE	566
7.2	base_nnu_plikHM_TT_lowl_lowE_post_lensing	567
7.3	base_nnu_plikHM_TT_lowl_lowE_post_Cooke17_Aver15	568
7.4	base_nnu_plikHM_TT_lowl_lowE_post_zre6p5	569
7.5	base_nnu_plikHM_TT_lowl_lowE_post_lensing_zre6p5	570
7.6	base_nnu_plikHM_TT_lowl_lowE_post_Cooke17_Aver15_zre6p5	571
7.7	base_nnu_plikHM_TTTEEE_lowl_lowE	572
7.8	base_nnu_plikHM_TTTEEE_lowl_lowE_post_lensing	573
7.9	base_nnu_plikHM_TTTEEE_lowl_lowE_post_Cooke17_Aver15	574
7.10	base_nnu_plikHM_TTTEEE_lowl_lowE_post_zre6p5	575
7.11	base_nnu_plikHM_TTTEEE_lowl_lowE_post_lensing_zre6p5	576
7.12	base_nnu_plikHM_TTTEEE_lowl_lowE_post_Cooke17_Aver15_zre6p5	577
7.13	base_nnu_CamSpecHM_TT_lowl_lowE	578
7.14	base_nnu_CamSpecHM_TT_lowl_lowE_post_lensing	579
7.15	base_nnu_CamSpecHM_TT_lowl_lowE_post_Cooke17_Aver15	580
7.16	base_nnu_CamSpecHM_TT_lowl_lowE_post_zre6p5	581
7.17	base_nnu_CamSpecHM_TT_lowl_lowE_post_lensing_zre6p5	582
7.18	base_nnu_CamSpecHM_TT_lowl_lowE_post_Cooke17_Aver15_zre6p5	583
7.19	base_nnu_CamSpecHM_TTTEEE_lowl_lowE	584
7.20	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_post_lensing	585
7.21	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_post_Cooke17_Aver15	586
7.22	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_post_zre6p5	587
7.23	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_post_lensing_zre6p5	588
7.24	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_post_Cooke17_Aver15_zre6p5	589
7.25	base_nnu_plikHM_TE_lowE	590
7.26	base_nnu_plikHM_TE_lowE_post_zre6p5	591
7.27	base_nnu_plikHM_EE_lowE	592
7.28	base_nnu_plikHM_EE_lowE_post_zre6p5	593
7.29	base_nnu_plikHM_TE_lowE_BAO	594
7.30	base_nnu_plikHM_TE_lowE_BAO_post_lensing	595
7.31	base_nnu_plikHM_TE_lowE_BAO_post_zre6p5	596



7.32	base_nnu_plikHM_TE_lowE_BAO_post_lensing_zre6p5 . . . . .	597
7.33	base_nnu_plikHM_EE_lowE_BAO . . . . .	598
7.34	base_nnu_plikHM_EE_lowE_BAO_post_lensing . . . . .	599
7.35	base_nnu_plikHM_EE_lowE_BAO_post_zre6p5 . . . . .	600
7.36	base_nnu_plikHM_EE_lowE_BAO_post_lensing_zre6p5 . . . . .	601
7.37	base_nnu_plikHM_TT_lowl_lowE_BAO . . . . .	602
7.38	base_nnu_plikHM_TT_lowl_lowE_BAO_post_lensing_JLA . . . . .	603
7.39	base_nnu_plikHM_TT_lowl_lowE_BAO_post_lensing_Pantheon18 . . . . .	604
7.40	base_nnu_plikHM_TT_lowl_lowE_BAO_post_lensing . . . . .	605
7.41	base_nnu_plikHM_TT_lowl_lowE_BAO_post_Aver15 . . . . .	606
7.42	base_nnu_plikHM_TT_lowl_lowE_BAO_post_Cooke17_Aver15 . . . . .	607
7.43	base_nnu_plikHM_TT_lowl_lowE_BAO_post_zre6p5 . . . . .	608
7.44	base_nnu_plikHM_TT_lowl_lowE_BAO_post_lensing_JLA_zre6p5 . . . . .	609
7.45	base_nnu_plikHM_TT_lowl_lowE_BAO_post_lensing_Pantheon18_zre6p5 . . . . .	610
7.46	base_nnu_plikHM_TT_lowl_lowE_BAO_post_lensing_zre6p5 . . . . .	611
7.47	base_nnu_plikHM_TT_lowl_lowE_BAO_post_Aver15_zre6p5 . . . . .	612
7.48	base_nnu_plikHM_TT_lowl_lowE_BAO_post_Cooke17_Aver15_zre6p5 . . . . .	613
7.49	base_nnu_plikHM_TTTEEE_lowl_lowE_BAO . . . . .	614
7.50	base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_JLA . . . . .	615
7.51	base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_Pantheon18 . . . . .	616
7.52	base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing . . . . .	617
7.53	base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Aver15 . . . . .	618
7.54	base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Cooke17_Aver15 . . . . .	619
7.55	base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_zre6p5 . . . . .	620
7.56	base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_JLA_zre6p5 . . . . .	621
7.57	base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_Pantheon18_zre6p5 . . . . .	622
7.58	base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_zre6p5 . . . . .	623
7.59	base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Aver15_zre6p5 . . . . .	624
7.60	base_nnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Cooke17_Aver15_zre6p5 . . . . .	625
7.61	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_BAO . . . . .	626
7.62	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_lensing_JLA . . . . .	627
7.63	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_lensing_Pantheon18 . . . . .	628
7.64	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_lensing . . . . .	629
7.65	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Aver15 . . . . .	630
7.66	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Cooke17_Aver15 . . . . .	631
7.67	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_zre6p5 . . . . .	632
7.68	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_lensing_JLA_zre6p5 . . . . .	633
7.69	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_lensing_Pantheon18_zre6p5 . . . . .	634
7.70	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_lensing_zre6p5 . . . . .	635
7.71	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Aver15_zre6p5 . . . . .	636
7.72	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Cooke17_Aver15_zre6p5 . . . . .	637
7.73	base_nnu_plikHM_TT_lowl_lowE_Riess18 . . . . .	638
7.74	base_nnu_plikHM_TT_lowl_lowE_Riess18_post_BAO . . . . .	639
7.75	base_nnu_plikHM_TT_lowl_lowE_Riess18_post_BAO_Pantheon18 . . . . .	640
7.76	base_nnu_plikHM_TT_lowl_lowE_Riess18_post_lensing . . . . .	641
7.77	base_nnu_plikHM_TT_lowl_lowE_Riess18_post_BAO_lensing . . . . .	642
7.78	base_nnu_plikHM_TT_lowl_lowE_Riess18_post_BAO_lensing_Pantheon18 . . . . .	643
7.79	base_nnu_plikHM_TT_lowl_lowE_Riess18_post_zre6p5 . . . . .	644
7.80	base_nnu_plikHM_TT_lowl_lowE_Riess18_post_BAO_zre6p5 . . . . .	645
7.81	base_nnu_plikHM_TT_lowl_lowE_Riess18_post_BAO_Pantheon18_zre6p5 . . . . .	646
7.82	base_nnu_plikHM_TT_lowl_lowE_Riess18_post_lensing_zre6p5 . . . . .	647
7.83	base_nnu_plikHM_TT_lowl_lowE_Riess18_post_BAO_lensing_Pantheon18_zre6p5 . . . . .	648
7.84	base_nnu_plikHM_TTTEEE_lowl_lowE_Riess18 . . . . .	649
7.85	base_nnu_plikHM_TTTEEE_lowl_lowE_Riess18_post_BAO . . . . .	650
7.86	base_nnu_plikHM_TTTEEE_lowl_lowE_Riess18_post_BAO_Pantheon18 . . . . .	651
7.87	base_nnu_plikHM_TTTEEE_lowl_lowE_Riess18_post_lensing . . . . .	652
7.88	base_nnu_plikHM_TTTEEE_lowl_lowE_Riess18_post_BAO_lensing . . . . .	653
7.89	base_nnu_plikHM_TTTEEE_lowl_lowE_Riess18_post_BAO_lensing_Pantheon18 . . . . .	654
7.90	base_nnu_plikHM_TTTEEE_lowl_lowE_Riess18_post_zre6p5 . . . . .	655
7.91	base_nnu_plikHM_TTTEEE_lowl_lowE_Riess18_post_BAO_zre6p5 . . . . .	656
7.92	base_nnu_plikHM_TTTEEE_lowl_lowE_Riess18_post_BAO_Pantheon18_zre6p5 . . . . .	657
7.93	base_nnu_plikHM_TTTEEE_lowl_lowE_Riess18_post_lensing_zre6p5 . . . . .	658
7.94	base_nnu_plikHM_TTTEEE_lowl_lowE_Riess18_post_BAO_lensing_Pantheon18_zre6p5 . . . . .	659
7.95	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_Riess18 . . . . .	660
7.96	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_Riess18_post_BAO . . . . .	661
7.97	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_Riess18_post_BAO_Pantheon18 . . . . .	662
7.98	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_Riess18_post_lensing . . . . .	663
7.99	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_Riess18_post_BAO_lensing . . . . .	664



7.100	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_Riess18_post_BAO_lensing_Pantheon18	665
7.101	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_Riess18_post_zre6p5	666
7.102	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_Riess18_post_BAO_zre6p5	667
7.103	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_Riess18_post_BAO_Pantheon18_zre6p5	668
7.104	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_Riess18_post_lensing_zre6p5	669
7.105	base_nnu_CamSpecHM_TTTEEE_lowl_lowE_Riess18_post_BAO_lensing_Pantheon18_zre6p5	670
7.106	base_nnu_CleanedCamSpecHM_TT_lowl_lowE	671
7.107	base_nnu_lensing_lenspriors_BAO_Cooke17_Aver15	672
7.108	base_nnu_lensing_lenspriors_BAO_Cooke17_Aver15_post_Pantheon18	673
7.109	base_nnu_lensing_lenspriors_BAO_Cooke17_Aver15_theta	674
7.110	base_nnu_lensing_lenspriors_BAO_Cooke17_Aver15_theta_post_Pantheon18	675
7.111	base_nnu_BAO_Cooke17_Aver15	676
7.112	base_nnu_BAO_Cooke17_Aver15_Pantheon18	676
7.113	base_nnu_BAO_Cooke17_Aver15_theta	677
7.114	base_nnu_BAO_Cooke17_Aver15_Pantheon18_theta	677
7.115	base_nnu_BAO_Cooke17Marc_Aver15	678
7.116	base_nnu_BAO_Cooke17Marc_Aver15_Pantheon18	678
7.117	base_nnu_BAO_Cooke17Marc_Aver15_theta	679
7.118	base_nnu_BAO_Cooke17Marc_Aver15_Pantheon18_theta	679
7.119	base_nnu_BAO_Cooke17Adel_Aver15	680
7.120	base_nnu_BAO_Cooke17Adel_Aver15_Pantheon18	680
7.121	base_nnu_BAO_Cooke17Adel_Aver15_theta	681
7.122	base_nnu_BAO_Cooke17Adel_Aver15_Pantheon18_theta	681
<b>8</b>	<b>nnu+meffsterile</b>	<b>682</b>
8.1	base_nnu_meffsterile_plikHM_TT_lowl_lowE	682
8.2	base_nnu_meffsterile_plikHM_TT_lowl_lowE_post_lensing	683
8.3	base_nnu_meffsterile_plikHM_TT_lowl_lowE_post_zre6p5	684
8.4	base_nnu_meffsterile_plikHM_TT_lowl_lowE_post_lensing_zre6p5	685
8.5	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE	686
8.6	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_post_lensing	687
8.7	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_post_zre6p5	688
8.8	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_post_lensing_zre6p5	689
8.9	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE	690
8.10	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_post_lensing	691
8.11	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_post_zre6p5	692
8.12	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_post_lensing_zre6p5	693
8.13	base_nnu_meffsterile_plikHM_TT_lowl_lowE_BAO	694
8.14	base_nnu_meffsterile_plikHM_TT_lowl_lowE_BAO_post_Pantheon18	695
8.15	base_nnu_meffsterile_plikHM_TT_lowl_lowE_BAO_post_Aver15	696
8.16	base_nnu_meffsterile_plikHM_TT_lowl_lowE_BAO_post_Cooke17_Aver15	697
8.17	base_nnu_meffsterile_plikHM_TT_lowl_lowE_BAO_post_zre6p5	698
8.18	base_nnu_meffsterile_plikHM_TT_lowl_lowE_BAO_post_Pantheon18_zre6p5	699
8.19	base_nnu_meffsterile_plikHM_TT_lowl_lowE_BAO_post_Aver15_zre6p5	700
8.20	base_nnu_meffsterile_plikHM_TT_lowl_lowE_BAO_post_Cooke17_Aver15_zre6p5	701
8.21	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_BAO	702
8.22	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18	703
8.23	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_BAO_post_Aver15	704
8.24	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_BAO_post_Cooke17_Aver15	705
8.25	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_BAO_post_zre6p5	706
8.26	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18_zre6p5	707
8.27	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_BAO_post_Aver15_zre6p5	708
8.28	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_BAO_post_Cooke17_Aver15_zre6p5	709
8.29	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_BAO	710
8.30	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18	711
8.31	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Aver15	712
8.32	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Cooke17_Aver15	713
8.33	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_zre6p5	714
8.34	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18_zre6p5	715
8.35	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Aver15_zre6p5	716
8.36	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Cooke17_Aver15_zre6p5	717
8.37	base_nnu_meffsterile_plikHM_TT_lowl_lowE_lensing_BAO	718
8.38	base_nnu_meffsterile_plikHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18	719
8.39	base_nnu_meffsterile_plikHM_TT_lowl_lowE_lensing_BAO_post_Aver15	720
8.40	base_nnu_meffsterile_plikHM_TT_lowl_lowE_lensing_BAO_post_Cooke17_Aver15	721
8.41	base_nnu_meffsterile_plikHM_TT_lowl_lowE_lensing_BAO_post_zre6p5	722
8.42	base_nnu_meffsterile_plikHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5	723
8.43	base_nnu_meffsterile_plikHM_TT_lowl_lowE_lensing_BAO_post_Aver15_zre6p5	724



8.44	base_nnu_meffsterile_plikHM_TT_lowl_lowE_lensing_BAO_post_Cooke17_Aver15_zre6p5 . . . . .	725
8.45	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_lensing_BAO . . . . .	726
8.46	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18 . . . . .	727
8.47	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Aver15 . . . . .	728
8.48	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Cooke17_Aver15 . . . . .	729
8.49	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_zre6p5 . . . . .	730
8.50	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5 . . . . .	731
8.51	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Aver15_zre6p5 . . . . .	732
8.52	base_nnu_meffsterile_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Cooke17_Aver15_zre6p5 . . . . .	733
8.53	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO . . . . .	734
8.54	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18 . . . . .	735
8.55	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_Aver15 . . . . .	736
8.56	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_Cooke17_Aver15 . . . . .	737
8.57	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_zre6p5 . . . . .	738
8.58	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5 . . . . .	739
8.59	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_Aver15_zre6p5 . . . . .	740
8.60	base_nnu_meffsterile_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_Cooke17_Aver15_zre6p5 . . . . .	741
<b>9</b>	<b>nnu+mnu</b>	<b>742</b>
9.1	base_nnu_mnu_plikHM_TT_lowl_lowE . . . . .	742
9.2	base_nnu_mnu_plikHM_TT_lowl_lowE_post_lensing . . . . .	743
9.3	base_nnu_mnu_plikHM_TTTEEE_lowl_lowE . . . . .	744
9.4	base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_post_lensing . . . . .	745
9.5	base_nnu_mnu_CamSpecHM_TT_lowl_lowE . . . . .	746
9.6	base_nnu_mnu_CamSpecHM_TT_lowl_lowE_post_lensing . . . . .	747
9.7	base_nnu_mnu_CamSpecHM_TTTEEE_lowl_lowE . . . . .	748
9.8	base_nnu_mnu_CamSpecHM_TTTEEE_lowl_lowE_post_lensing . . . . .	749
9.9	base_nnu_mnu_plikHM_TT_lowl_lowE_BAO . . . . .	750
9.10	base_nnu_mnu_plikHM_TT_lowl_lowE_BAO_post_Pantheon18 . . . . .	751
9.11	base_nnu_mnu_plikHM_TT_lowl_lowE_BAO_post_Aver15 . . . . .	752
9.12	base_nnu_mnu_plikHM_TT_lowl_lowE_BAO_post_Cooke17_Aver15 . . . . .	753
9.13	base_nnu_mnu_plikHM_TT_lowl_lowE_BAO_post_Pantheon18_zre6p5 . . . . .	754
9.14	base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_BAO . . . . .	755
9.15	base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18 . . . . .	756
9.16	base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Aver15 . . . . .	757
9.17	base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Cooke17_Aver15 . . . . .	758
9.18	base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18_zre6p5 . . . . .	759
9.19	base_nnu_mnu_CamSpecHM_TT_lowl_lowE_BAO . . . . .	760
9.20	base_nnu_mnu_CamSpecHM_TT_lowl_lowE_BAO_post_Pantheon18 . . . . .	761
9.21	base_nnu_mnu_CamSpecHM_TT_lowl_lowE_BAO_post_Aver15 . . . . .	762
9.22	base_nnu_mnu_CamSpecHM_TT_lowl_lowE_BAO_post_Cooke17_Aver15 . . . . .	763
9.23	base_nnu_mnu_CamSpecHM_TT_lowl_lowE_BAO_post_Pantheon18_zre6p5 . . . . .	764
9.24	base_nnu_mnu_CamSpecHM_TTTEEE_lowl_lowE_BAO . . . . .	765
9.25	base_nnu_mnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18 . . . . .	766
9.26	base_nnu_mnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Aver15 . . . . .	767
9.27	base_nnu_mnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Cooke17_Aver15 . . . . .	768
9.28	base_nnu_mnu_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_Pantheon18_zre6p5 . . . . .	769
9.29	base_nnu_mnu_plikHM_TT_lowl_lowE_lensing_BAO . . . . .	770
9.30	base_nnu_mnu_plikHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18 . . . . .	771
9.31	base_nnu_mnu_plikHM_TT_lowl_lowE_lensing_BAO_post_Aver15 . . . . .	772
9.32	base_nnu_mnu_plikHM_TT_lowl_lowE_lensing_BAO_post_Cooke17_Aver15 . . . . .	773
9.33	base_nnu_mnu_plikHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5 . . . . .	774
9.34	base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO . . . . .	775
9.35	base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18 . . . . .	776
9.36	base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Aver15 . . . . .	777
9.37	base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Cooke17_Aver15 . . . . .	778
9.38	base_nnu_mnu_plikHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5 . . . . .	779
9.39	base_nnu_mnu_CamSpecHM_TT_lowl_lowE_lensing_BAO . . . . .	780
9.40	base_nnu_mnu_CamSpecHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18 . . . . .	781
9.41	base_nnu_mnu_CamSpecHM_TT_lowl_lowE_lensing_BAO_post_Aver15 . . . . .	782
9.42	base_nnu_mnu_CamSpecHM_TT_lowl_lowE_lensing_BAO_post_Cooke17_Aver15 . . . . .	783
9.43	base_nnu_mnu_CamSpecHM_TT_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5 . . . . .	784
9.44	base_nnu_mnu_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO . . . . .	785
9.45	base_nnu_mnu_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18 . . . . .	786
9.46	base_nnu_mnu_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_Aver15 . . . . .	787
9.47	base_nnu_mnu_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_Cooke17_Aver15 . . . . .	788
9.48	base_nnu_mnu_CamSpecHM_TTTEEE_lowl_lowE_lensing_BAO_post_Pantheon18_zre6p5 . . . . .	789
9.49	base_nnu_mnu_lensing_lenspriors_BAO_Cooke17_Aver15 . . . . .	790



9.50	base_nnu_mnu_lensing_lenspriors_BAO_Cooke17_Aver15_post_Pantheon18	791
9.51	base_nnu_mnu_lensing_lenspriors_BAO_Cooke17_Aver15_theta	792
9.52	base_nnu_mnu_lensing_lenspriors_BAO_Cooke17_Aver15_theta_post_Pantheon18	793
9.53	base_nnu_mnu_BAO_Cooke17_Aver15	794
9.54	base_nnu_mnu_BAO_Cooke17_Aver15_Pantheon18	794
9.55	base_nnu_mnu_BAO_Cooke17_Aver15_theta	795
9.56	base_nnu_mnu_BAO_Cooke17_Aver15_Pantheon18_theta	795
9.57	base_nnu_mnu_BAO_Cooke17Marc_Aver15	796
9.58	base_nnu_mnu_BAO_Cooke17Marc_Aver15_Pantheon18	796
9.59	base_nnu_mnu_BAO_Cooke17Marc_Aver15_theta	797
9.60	base_nnu_mnu_BAO_Cooke17Marc_Aver15_Pantheon18_theta	797
9.61	base_nnu_mnu_BAO_Cooke17Adel_Aver15	798
9.62	base_nnu_mnu_BAO_Cooke17Adel_Aver15_Pantheon18	798
9.63	base_nnu_mnu_BAO_Cooke17Adel_Aver15_theta	799
9.64	base_nnu_mnu_BAO_Cooke17Adel_Aver15_Pantheon18_theta	799
<b>10</b>	<b>nnu+nrn</b>	<b>800</b>
10.1	base_nnu_nrun_plikHM_TTTEEE_lowl_lowE	800
10.2	base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_BAO	801
10.3	base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_lensing	802
10.4	base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing	803
10.5	base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_zre6p5	804
10.6	base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5	805
10.7	base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_lensing_zre6p5	806
10.8	base_nnu_nrun_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5	807
<b>11</b>	<b>nnu+yhe</b>	<b>808</b>
11.1	base_nnu_yhe_plikHM_TT_lowl_lowE	808
11.2	base_nnu_yhe_plikHM_TT_lowl_lowE_post_BAO	809
11.3	base_nnu_yhe_plikHM_TT_lowl_lowE_post_lensing	810
11.4	base_nnu_yhe_plikHM_TT_lowl_lowE_post_BAO_lensing	811
11.5	base_nnu_yhe_plikHM_TT_lowl_lowE_post_zre6p5	812
11.6	base_nnu_yhe_plikHM_TT_lowl_lowE_post_BAO_zre6p5	813
11.7	base_nnu_yhe_plikHM_TT_lowl_lowE_post_lensing_zre6p5	814
11.8	base_nnu_yhe_plikHM_TT_lowl_lowE_post_BAO_lensing_zre6p5	815
11.9	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE	816
11.10	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO	817
11.11	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_lensing	818
11.12	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing	819
11.13	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_zre6p5	820
11.14	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5	821
11.15	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_lensing_zre6p5	822
11.16	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5	823
11.17	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE	824
11.18	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_post_BAO	825
11.19	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_post_lensing	826
11.20	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_post_BAO_lensing	827
11.21	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_post_zre6p5	828
11.22	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_post_BAO_zre6p5	829
11.23	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_post_lensing_zre6p5	830
11.24	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5	831
11.25	base_nnu_yhe_plikHM_TT_lowl_lowE_Aver15	832
11.26	base_nnu_yhe_plikHM_TT_lowl_lowE_Aver15_post_BAO	833
11.27	base_nnu_yhe_plikHM_TT_lowl_lowE_Aver15_post_lensing	834
11.28	base_nnu_yhe_plikHM_TT_lowl_lowE_Aver15_post_BAO_lensing	835
11.29	base_nnu_yhe_plikHM_TT_lowl_lowE_Aver15_post_zre6p5	836
11.30	base_nnu_yhe_plikHM_TT_lowl_lowE_Aver15_post_BAO_zre6p5	837
11.31	base_nnu_yhe_plikHM_TT_lowl_lowE_Aver15_post_lensing_zre6p5	838
11.32	base_nnu_yhe_plikHM_TT_lowl_lowE_Aver15_post_BAO_lensing_zre6p5	839
11.33	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_Aver15	840
11.34	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_Aver15_post_BAO	841
11.35	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_Aver15_post_lensing	842
11.36	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_Aver15_post_BAO_lensing	843
11.37	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_Aver15_post_zre6p5	844
11.38	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_Aver15_post_BAO_zre6p5	845
11.39	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_Aver15_post_lensing_zre6p5	846
11.40	base_nnu_yhe_plikHM_TTTEEE_lowl_lowE_Aver15_post_BAO_lensing_zre6p5	847
11.41	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_Aver15	848
11.42	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_Aver15_post_BAO	849



11.43	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_Aver15_post_lensing	850
11.44	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_Aver15_post_BAO_lensing	851
11.45	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_Aver15_post_zre6p5	852
11.46	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_Aver15_post_BAO_zre6p5	853
11.47	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_Aver15_post_lensing_zre6p5	854
11.48	base_nnu_yhe_CamSpecHM_TTTEEE_lowl_lowE_Aver15_post_BAO_lensing_zre6p5	855
<b>12</b>	<b>nrn</b>	<b>856</b>
12.1	base_nrn_plikHM_TT_lowl_lowE	856
12.2	base_nrn_plikHM_TT_lowl_lowE_post_BAO	857
12.3	base_nrn_plikHM_TT_lowl_lowE_post_lensing	858
12.4	base_nrn_plikHM_TT_lowl_lowE_post_BAO_lensing	859
12.5	base_nrn_plikHM_TT_lowl_lowE_post_Riess18	860
12.6	base_nrn_plikHM_TT_lowl_lowE_post_zre6p5	861
12.7	base_nrn_plikHM_TT_lowl_lowE_post_BAO_zre6p5	862
12.8	base_nrn_plikHM_TT_lowl_lowE_post_lensing_zre6p5	863
12.9	base_nrn_plikHM_TT_lowl_lowE_post_BAO_lensing_zre6p5	864
12.10	base_nrn_plikHM_TT_lowl_lowE_post_Riess18_zre6p5	865
12.11	base_nrn_plikHM_TTTEEE_lowl_lowE	866
12.12	base_nrn_plikHM_TTTEEE_lowl_lowE_post_BAO	867
12.13	base_nrn_plikHM_TTTEEE_lowl_lowE_post_lensing	868
12.14	base_nrn_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing	869
12.15	base_nrn_plikHM_TTTEEE_lowl_lowE_post_Riess18	870
12.16	base_nrn_plikHM_TTTEEE_lowl_lowE_post_zre6p5	871
12.17	base_nrn_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5	872
12.18	base_nrn_plikHM_TTTEEE_lowl_lowE_post_lensing_zre6p5	873
12.19	base_nrn_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5	874
12.20	base_nrn_plikHM_TTTEEE_lowl_lowE_post_Riess18_zre6p5	875
12.21	base_nrn_CamSpecHM_TT_lowl_lowE	876
12.22	base_nrn_CamSpecHM_TT_lowl_lowE_post_BAO	877
12.23	base_nrn_CamSpecHM_TT_lowl_lowE_post_lensing	878
12.24	base_nrn_CamSpecHM_TT_lowl_lowE_post_BAO_lensing	879
12.25	base_nrn_CamSpecHM_TT_lowl_lowE_post_zre6p5	880
12.26	base_nrn_CamSpecHM_TT_lowl_lowE_post_BAO_zre6p5	881
12.27	base_nrn_CamSpecHM_TT_lowl_lowE_post_lensing_zre6p5	882
12.28	base_nrn_CamSpecHM_TT_lowl_lowE_post_BAO_lensing_zre6p5	883
12.29	base_nrn_CamSpecHM_TTTEEE_lowl_lowE	884
12.30	base_nrn_CamSpecHM_TTTEEE_lowl_lowE_post_BAO	885
12.31	base_nrn_CamSpecHM_TTTEEE_lowl_lowE_post_lensing	886
12.32	base_nrn_CamSpecHM_TTTEEE_lowl_lowE_post_BAO_lensing	887
12.33	base_nrn_CamSpecHM_TTTEEE_lowl_lowE_post_Riess18	888
12.34	base_nrn_CamSpecHM_TTTEEE_lowl_lowE_post_zre6p5	889
12.35	base_nrn_CamSpecHM_TTTEEE_lowl_lowE_post_BAO_zre6p5	890
12.36	base_nrn_CamSpecHM_TTTEEE_lowl_lowE_post_lensing_zre6p5	891
12.37	base_nrn_CamSpecHM_TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5	892
12.38	base_nrn_CamSpecHM_TTTEEE_lowl_lowE_post_Riess18_zre6p5	893
12.39	base_nrn_plikHM_TE_lowE	894
12.40	base_nrn_plikHM_TE_lowE_post_BAO	895
12.41	base_nrn_plikHM_TE_lowE_post_zre6p5	896
12.42	base_nrn_plikHM_TE_lowE_post_BAO_zre6p5	897
12.43	base_nrn_plikHM_EE_lowE	898
12.44	base_nrn_plikHM_EE_lowE_post_BAO	899
12.45	base_nrn_plikHM_EE_lowE_post_zre6p5	900
12.46	base_nrn_plikHM_EE_lowE_post_BAO_zre6p5	901
12.47	base_nrn_CleanedCamSpecHM_TT_lowl_lowE	902
<b>13</b>	<b>nrn+nnu+w+mnu</b>	<b>903</b>
13.1	base_nrn_nnu_w_mnu_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_lensing	903
13.2	base_nrn_nnu_w_mnu_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_lensing_post_zre6p5	904
<b>14</b>	<b>nrn+nrnrun</b>	<b>905</b>
14.1	base_nrn_nrnrun_plikHM_TTTEEE_lowl_lowE	905
14.2	base_nrn_nrnrun_plikHM_TTTEEE_lowl_lowE_post_BAO	906
14.3	base_nrn_nrnrun_plikHM_TTTEEE_lowl_lowE_post_lensing	907
14.4	base_nrn_nrnrun_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing	908
14.5	base_nrn_nrnrun_plikHM_TTTEEE_lowl_lowE_post_zre6p5	909
14.6	base_nrn_nrnrun_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5	910
14.7	base_nrn_nrnrun_plikHM_TTTEEE_lowl_lowE_post_lensing_zre6p5	911
14.8	base_nrn_nrnrun_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5	912



<b>15</b>	<b>nrun+r</b>	<b>913</b>
15.1	base_nrun_r_plikHM_TT_lowl_lowE . . . . .	913
15.2	base_nrun_r_plikHM_TT_lowl_lowE_post_BAO . . . . .	914
15.3	base_nrun_r_plikHM_TT_lowl_lowE_post_Riess18 . . . . .	915
15.4	base_nrun_r_plikHM_TT_lowl_lowE_post_zre6p5 . . . . .	916
15.5	base_nrun_r_plikHM_TT_lowl_lowE_post_BAO_zre6p5 . . . . .	917
15.6	base_nrun_r_plikHM_TT_lowl_lowE_post_Riess18_zre6p5 . . . . .	918
15.7	base_nrun_r_plikHM_TTTEEE_lowl_lowE . . . . .	919
15.8	base_nrun_r_plikHM_TTTEEE_lowl_lowE_post_BAO . . . . .	920
15.9	base_nrun_r_plikHM_TTTEEE_lowl_lowE_post_Riess18 . . . . .	921
15.10	base_nrun_r_plikHM_TTTEEE_lowl_lowE_post_zre6p5 . . . . .	922
15.11	base_nrun_r_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5 . . . . .	923
15.12	base_nrun_r_plikHM_TTTEEE_lowl_lowE_post_Riess18_zre6p5 . . . . .	924
15.13	base_nrun_r_CamSpecHM_TT_lowl_lowE . . . . .	925
15.14	base_nrun_r_CamSpecHM_TT_lowl_lowE_post_BAO . . . . .	926
15.15	base_nrun_r_CamSpecHM_TT_lowl_lowE_post_zre6p5 . . . . .	927
15.16	base_nrun_r_CamSpecHM_TT_lowl_lowE_post_BAO_zre6p5 . . . . .	928
15.17	base_nrun_r_plikHM_TT_lowl_lowE_lensing . . . . .	929
15.18	base_nrun_r_plikHM_TT_lowl_lowE_lensing_post_BAO . . . . .	930
15.19	base_nrun_r_plikHM_TT_lowl_lowE_lensing_post_zre6p5 . . . . .	931
15.20	base_nrun_r_plikHM_TT_lowl_lowE_lensing_post_BAO_zre6p5 . . . . .	932
15.21	base_nrun_r_plikHM_TTTEEE_lowl_lowE_lensing . . . . .	933
15.22	base_nrun_r_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO . . . . .	934
15.23	base_nrun_r_plikHM_TTTEEE_lowl_lowE_lensing_post_zre6p5 . . . . .	935
15.24	base_nrun_r_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO_zre6p5 . . . . .	936
15.25	base_nrun_r_CamSpecHM_TTTEEE_lowl_lowE_lensing . . . . .	937
15.26	base_nrun_r_CamSpecHM_TTTEEE_lowl_lowE_lensing_post_BAO . . . . .	938
15.27	base_nrun_r_CamSpecHM_TTTEEE_lowl_lowE_lensing_post_zre6p5 . . . . .	939
15.28	base_nrun_r_CamSpecHM_TTTEEE_lowl_lowE_lensing_post_BAO_zre6p5 . . . . .	940
15.29	base_nrun_r_plikHM_TT_lowl_lowE_BK15 . . . . .	941
15.30	base_nrun_r_plikHM_TT_lowl_lowE_BK15_post_BAO . . . . .	942
15.31	base_nrun_r_plikHM_TT_lowl_lowE_BK15_post_lensing . . . . .	943
15.32	base_nrun_r_plikHM_TT_lowl_lowE_BK15_post_BAO_lensing . . . . .	944
15.33	base_nrun_r_plikHM_TT_lowl_lowE_BK15_post_zre6p5 . . . . .	945
15.34	base_nrun_r_plikHM_TT_lowl_lowE_BK15_post_BAO_zre6p5 . . . . .	946
15.35	base_nrun_r_plikHM_TT_lowl_lowE_BK15_post_lensing_zre6p5 . . . . .	947
15.36	base_nrun_r_plikHM_TT_lowl_lowE_BK15_post_BAO_lensing_zre6p5 . . . . .	948
15.37	base_nrun_r_plikHM_TTTEEE_lowl_lowE_BK15 . . . . .	949
15.38	base_nrun_r_plikHM_TTTEEE_lowl_lowE_BK15_post_BAO . . . . .	950
15.39	base_nrun_r_plikHM_TTTEEE_lowl_lowE_BK15_post_zre6p5 . . . . .	951
15.40	base_nrun_r_plikHM_TTTEEE_lowl_lowE_BK15_post_BAO_zre6p5 . . . . .	952
15.41	base_nrun_r_CamSpecHM_TT_lowl_lowE_BK15 . . . . .	953
15.42	base_nrun_r_CamSpecHM_TT_lowl_lowE_BK15_post_BAO . . . . .	954
15.43	base_nrun_r_CamSpecHM_TT_lowl_lowE_BK15_post_lensing . . . . .	955
15.44	base_nrun_r_CamSpecHM_TT_lowl_lowE_BK15_post_BAO_lensing . . . . .	956
15.45	base_nrun_r_CamSpecHM_TT_lowl_lowE_BK15_post_zre6p5 . . . . .	957
15.46	base_nrun_r_CamSpecHM_TT_lowl_lowE_BK15_post_BAO_zre6p5 . . . . .	958
15.47	base_nrun_r_CamSpecHM_TT_lowl_lowE_BK15_post_lensing_zre6p5 . . . . .	959
15.48	base_nrun_r_CamSpecHM_TT_lowl_lowE_BK15_post_BAO_lensing_zre6p5 . . . . .	960
15.49	base_nrun_r_CamSpecHM_TTTEEE_lowl_lowE_BK15 . . . . .	961
15.50	base_nrun_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_BAO . . . . .	962
15.51	base_nrun_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_lensing . . . . .	963
15.52	base_nrun_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_BAO_lensing . . . . .	964
15.53	base_nrun_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_zre6p5 . . . . .	965
15.54	base_nrun_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_BAO_zre6p5 . . . . .	966
15.55	base_nrun_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_lensing_zre6p5 . . . . .	967
15.56	base_nrun_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_BAO_lensing_zre6p5 . . . . .	968
15.57	base_nrun_r_plikHM_TTTEEE_lowl_lowE_BK15_lensing . . . . .	969
15.58	base_nrun_r_plikHM_TTTEEE_lowl_lowE_BK15_lensing_post_BAO . . . . .	970
15.59	base_nrun_r_plikHM_TTTEEE_lowl_lowE_BK15_lensing_post_zre6p5 . . . . .	971
15.60	base_nrun_r_plikHM_TTTEEE_lowl_lowE_BK15_lensing_post_BAO_zre6p5 . . . . .	972



<b>16</b>	<b>omegak</b>	<b>973</b>
16.1	base_omegak_plikHM.TT_lowl_lowE . . . . .	973
16.2	base_omegak_plikHM.TT_lowl_lowE_post_zre6p5 . . . . .	974
16.3	base_omegak_plikHM.TTTEEE_lowl_lowE . . . . .	975
16.4	base_omegak_plikHM.TTTEEE_lowl_lowE_post_zre6p5 . . . . .	976
16.5	base_omegak_CamSpecHM.TT_lowl_lowE . . . . .	977
16.6	base_omegak_CamSpecHM.TT_lowl_lowE_post_zre6p5 . . . . .	978
16.7	base_omegak_CamSpecHM.TTTEEE_lowl_lowE . . . . .	979
16.8	base_omegak_CamSpecHM.TTTEEE_lowl_lowE_post_zre6p5 . . . . .	980
16.9	base_omegak_plikHM.TT_lowl_lowE_BAO . . . . .	981
16.10	base_omegak_plikHM.TT_lowl_lowE_BAO_post_lensing . . . . .	982
16.11	base_omegak_plikHM.TT_lowl_lowE_BAO_post_lensing_Pantheon18 . . . . .	983
16.12	base_omegak_plikHM.TT_lowl_lowE_BAO_post_zre6p5 . . . . .	984
16.13	base_omegak_plikHM.TT_lowl_lowE_BAO_post_lensing_zre6p5 . . . . .	985
16.14	base_omegak_plikHM.TT_lowl_lowE_BAO_post_lensing_Pantheon18_zre6p5 . . . . .	986
16.15	base_omegak_plikHM.TTTEEE_lowl_lowE_BAO . . . . .	987
16.16	base_omegak_plikHM.TTTEEE_lowl_lowE_BAO_post_lensing . . . . .	988
16.17	base_omegak_plikHM.TTTEEE_lowl_lowE_BAO_post_lensing_Pantheon18 . . . . .	989
16.18	base_omegak_plikHM.TTTEEE_lowl_lowE_BAO_post_zre6p5 . . . . .	990
16.19	base_omegak_plikHM.TTTEEE_lowl_lowE_BAO_post_lensing_zre6p5 . . . . .	991
16.20	base_omegak_plikHM.TTTEEE_lowl_lowE_BAO_post_lensing_Pantheon18_zre6p5 . . . . .	992
16.21	base_omegak_CamSpecHM.TT_lowl_lowE_BAO . . . . .	993
16.22	base_omegak_CamSpecHM.TT_lowl_lowE_BAO_post_lensing . . . . .	994
16.23	base_omegak_CamSpecHM.TT_lowl_lowE_BAO_post_lensing_Pantheon18 . . . . .	995
16.24	base_omegak_CamSpecHM.TT_lowl_lowE_BAO_post_zre6p5 . . . . .	996
16.25	base_omegak_CamSpecHM.TT_lowl_lowE_BAO_post_lensing_zre6p5 . . . . .	997
16.26	base_omegak_CamSpecHM.TT_lowl_lowE_BAO_post_lensing_Pantheon18_zre6p5 . . . . .	998
16.27	base_omegak_CamSpecHM.TTTEEE_lowl_lowE_BAO . . . . .	999
16.28	base_omegak_CamSpecHM.TTTEEE_lowl_lowE_BAO_post_lensing . . . . .	1000
16.29	base_omegak_CamSpecHM.TTTEEE_lowl_lowE_BAO_post_lensing_Pantheon18 . . . . .	1001
16.30	base_omegak_CamSpecHM.TTTEEE_lowl_lowE_BAO_post_zre6p5 . . . . .	1002
16.31	base_omegak_CamSpecHM.TTTEEE_lowl_lowE_BAO_post_lensing_zre6p5 . . . . .	1003
16.32	base_omegak_CamSpecHM.TTTEEE_lowl_lowE_BAO_post_lensing_Pantheon18_zre6p5 . . . . .	1004
16.33	base_omegak_plikHM.TT_lowl_lowE_BAO_Riess18_JLA . . . . .	1005
16.34	base_omegak_plikHM.TT_lowl_lowE_BAO_Riess18_JLA_post_lensing . . . . .	1006
16.35	base_omegak_plikHM.TT_lowl_lowE_BAO_Riess18_JLA_post_zre6p5 . . . . .	1007
16.36	base_omegak_plikHM.TT_lowl_lowE_BAO_Riess18_JLA_post_lensing_zre6p5 . . . . .	1008
16.37	base_omegak_plikHM.TTTEEE_lowl_lowE_BAO_Riess18_JLA . . . . .	1009
16.38	base_omegak_plikHM.TTTEEE_lowl_lowE_BAO_Riess18_JLA_post_lensing . . . . .	1010
16.39	base_omegak_plikHM.TTTEEE_lowl_lowE_BAO_Riess18_JLA_post_zre6p5 . . . . .	1011
16.40	base_omegak_plikHM.TTTEEE_lowl_lowE_BAO_Riess18_JLA_post_lensing_zre6p5 . . . . .	1012
16.41	base_omegak_plikHM.TT_lowl_lowE_lensing . . . . .	1013
16.42	base_omegak_plikHM.TT_lowl_lowE_lensing_post_zre6p5 . . . . .	1014
16.43	base_omegak_plikHM.TTTEEE_lowl_lowE_lensing . . . . .	1015
16.44	base_omegak_plikHM.TTTEEE_lowl_lowE_lensing_post_zre6p5 . . . . .	1016
16.45	base_omegak_CamSpecHM.TT_lowl_lowE_lensing . . . . .	1017
16.46	base_omegak_CamSpecHM.TT_lowl_lowE_lensing_post_zre6p5 . . . . .	1018
16.47	base_omegak_CamSpecHM.TTTEEE_lowl_lowE_lensing . . . . .	1019
16.48	base_omegak_CamSpecHM.TTTEEE_lowl_lowE_lensing_post_zre6p5 . . . . .	1020
16.49	base_omegak_CleanedCamSpecHM.TT_lowl_lowE . . . . .	1021
<b>17</b>	<b>r</b>	<b>1022</b>
17.1	base_r_plikHM.TT_lowl_lowE . . . . .	1022
17.2	base_r_plikHM.TT_lowl_lowE_post_BAO . . . . .	1023
17.3	base_r_plikHM.TT_lowl_lowE_post_Riess18 . . . . .	1024
17.4	base_r_plikHM.TT_lowl_lowE_post_zre6p5 . . . . .	1025
17.5	base_r_plikHM.TT_lowl_lowE_post_BAO_zre6p5 . . . . .	1026
17.6	base_r_plikHM.TT_lowl_lowE_post_Riess18_zre6p5 . . . . .	1027
17.7	base_r_plikHM.TTTEEE_lowl_lowE . . . . .	1028
17.8	base_r_plikHM.TTTEEE_lowl_lowE_post_BAO . . . . .	1029
17.9	base_r_plikHM.TTTEEE_lowl_lowE_post_Riess18 . . . . .	1030
17.10	base_r_plikHM.TTTEEE_lowl_lowE_post_zre6p5 . . . . .	1031
17.11	base_r_plikHM.TTTEEE_lowl_lowE_post_BAO_zre6p5 . . . . .	1032
17.12	base_r_plikHM.TTTEEE_lowl_lowE_post_Riess18_zre6p5 . . . . .	1033
17.13	base_r_CamSpecHM.TT_lowl_lowE . . . . .	1034
17.14	base_r_CamSpecHM.TT_lowl_lowE_post_BAO . . . . .	1035
17.15	base_r_CamSpecHM.TT_lowl_lowE_post_zre6p5 . . . . .	1036
17.16	base_r_CamSpecHM.TT_lowl_lowE_post_BAO_zre6p5 . . . . .	1037



17.17	base_r_CamSpecHM_TTTEEE_lowl_lowE . . . . .	1038
17.18	base_r_CamSpecHM_TTTEEE_lowl_lowE_post_BAO . . . . .	1039
17.19	base_r_CamSpecHM_TTTEEE_lowl_lowE_post_zre6p5 . . . . .	1040
17.20	base_r_CamSpecHM_TTTEEE_lowl_lowE_post_BAO_zre6p5 . . . . .	1041
17.21	base_r_plikHM_TE_lowE . . . . .	1042
17.22	base_r_plikHM_TE_lowE_post_BAO . . . . .	1043
17.23	base_r_plikHM_TE_lowE_post_zre6p5 . . . . .	1044
17.24	base_r_plikHM_TE_lowE_post_BAO_zre6p5 . . . . .	1045
17.25	base_r_plikHM_EE_lowE . . . . .	1046
17.26	base_r_plikHM_EE_lowE_post_BAO . . . . .	1047
17.27	base_r_plikHM_EE_lowE_post_zre6p5 . . . . .	1048
17.28	base_r_plikHM_EE_lowE_post_BAO_zre6p5 . . . . .	1049
17.29	base_r_plikHM_TT_lowl_lowE_lensing . . . . .	1050
17.30	base_r_plikHM_TT_lowl_lowE_lensing_post_BAO . . . . .	1051
17.31	base_r_plikHM_TT_lowl_lowE_lensing_post_zre6p5 . . . . .	1052
17.32	base_r_plikHM_TT_lowl_lowE_lensing_post_BAO_zre6p5 . . . . .	1053
17.33	base_r_plikHM_TTTEEE_lowl_lowE_lensing . . . . .	1054
17.34	base_r_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO . . . . .	1055
17.35	base_r_plikHM_TTTEEE_lowl_lowE_lensing_post_zre6p5 . . . . .	1056
17.36	base_r_plikHM_TTTEEE_lowl_lowE_lensing_post_BAO_zre6p5 . . . . .	1057
17.37	base_r_CamSpecHM_TTTEEE_lowl_lowE_lensing . . . . .	1058
17.38	base_r_CamSpecHM_TTTEEE_lowl_lowE_lensing_post_BAO . . . . .	1059
17.39	base_r_CamSpecHM_TTTEEE_lowl_lowE_lensing_post_zre6p5 . . . . .	1060
17.40	base_r_CamSpecHM_TTTEEE_lowl_lowE_lensing_post_BAO_zre6p5 . . . . .	1061
17.41	base_r_CleanedCamSpecHM_TT_lowl_lowE . . . . .	1062
17.42	base_r_plikHM_TT_lowl_lowE_BK15 . . . . .	1063
17.43	base_r_plikHM_TT_lowl_lowE_BK15_post_BAO . . . . .	1064
17.44	base_r_plikHM_TT_lowl_lowE_BK15_post_lensing . . . . .	1065
17.45	base_r_plikHM_TT_lowl_lowE_BK15_post_BAO_lensing . . . . .	1066
17.46	base_r_plikHM_TT_lowl_lowE_BK15_post_zre6p5 . . . . .	1067
17.47	base_r_plikHM_TT_lowl_lowE_BK15_post_BAO_zre6p5 . . . . .	1068
17.48	base_r_plikHM_TT_lowl_lowE_BK15_post_lensing_zre6p5 . . . . .	1069
17.49	base_r_plikHM_TT_lowl_lowE_BK15_post_BAO_lensing_zre6p5 . . . . .	1070
17.50	base_r_plikHM_TTTEEE_lowl_lowE_BK15 . . . . .	1071
17.51	base_r_plikHM_TTTEEE_lowl_lowE_BK15_post_BAO . . . . .	1072
17.52	base_r_plikHM_TTTEEE_lowl_lowE_BK15_post_zre6p5 . . . . .	1073
17.53	base_r_plikHM_TTTEEE_lowl_lowE_BK15_post_BAO_zre6p5 . . . . .	1074
17.54	base_r_CamSpecHM_TT_lowl_lowE_BK15 . . . . .	1075
17.55	base_r_CamSpecHM_TT_lowl_lowE_BK15_post_BAO . . . . .	1076
17.56	base_r_CamSpecHM_TT_lowl_lowE_BK15_post_lensing . . . . .	1077
17.57	base_r_CamSpecHM_TT_lowl_lowE_BK15_post_BAO_lensing . . . . .	1078
17.58	base_r_CamSpecHM_TT_lowl_lowE_BK15_post_zre6p5 . . . . .	1079
17.59	base_r_CamSpecHM_TT_lowl_lowE_BK15_post_BAO_zre6p5 . . . . .	1080
17.60	base_r_CamSpecHM_TT_lowl_lowE_BK15_post_lensing_zre6p5 . . . . .	1081
17.61	base_r_CamSpecHM_TT_lowl_lowE_BK15_post_BAO_lensing_zre6p5 . . . . .	1082
17.62	base_r_CamSpecHM_TTTEEE_lowl_lowE_BK15 . . . . .	1083
17.63	base_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_BAO . . . . .	1084
17.64	base_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_lensing . . . . .	1085
17.65	base_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_BAO_lensing . . . . .	1086
17.66	base_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_zre6p5 . . . . .	1087
17.67	base_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_BAO_zre6p5 . . . . .	1088
17.68	base_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_lensing_zre6p5 . . . . .	1089
17.69	base_r_CamSpecHM_TTTEEE_lowl_lowE_BK15_post_BAO_lensing_zre6p5 . . . . .	1090
17.70	base_r_plikHM_TTTEEE_lowl_lowE_BK15_lensing . . . . .	1091
17.71	base_r_plikHM_TTTEEE_lowl_lowE_BK15_lensing_post_BAO . . . . .	1092
17.72	base_r_plikHM_TTTEEE_lowl_lowE_BK15_lensing_post_zre6p5 . . . . .	1093
17.73	base_r_plikHM_TTTEEE_lowl_lowE_BK15_lensing_post_BAO_zre6p5 . . . . .	1094
<b>18</b>	<b>w</b>	<b>1095</b>
18.1	base_w_plikHM_TT_lowl_lowE . . . . .	1095
18.2	base_w_plikHM_TT_lowl_lowE_post_lensing . . . . .	1096
18.3	base_w_plikHM_TT_lowl_lowE_post_Riess18 . . . . .	1097
18.4	base_w_plikHM_TT_lowl_lowE_post_zre6p5 . . . . .	1098
18.5	base_w_plikHM_TT_lowl_lowE_post_lensing_zre6p5 . . . . .	1099
18.6	base_w_plikHM_TT_lowl_lowE_post_Riess18_zre6p5 . . . . .	1100
18.7	base_w_plikHM_TTTEEE_lowl_lowE . . . . .	1101
18.8	base_w_plikHM_TTTEEE_lowl_lowE_post_lensing . . . . .	1102
18.9	base_w_plikHM_TTTEEE_lowl_lowE_post_Riess18 . . . . .	1103



18.10	base_w_plikHM_TTTEEE_lowl_lowE_post_zre6p5 . . . . .	1104
18.11	base_w_plikHM_TTTEEE_lowl_lowE_post_lensing_zre6p5 . . . . .	1105
18.12	base_w_plikHM_TTTEEE_lowl_lowE_post_Riess18_zre6p5 . . . . .	1106
18.13	base_w_CamSpecHM_TT_lowl_lowE . . . . .	1107
18.14	base_w_CamSpecHM_TT_lowl_lowE_post_lensing . . . . .	1108
18.15	base_w_CamSpecHM_TT_lowl_lowE_post_zre6p5 . . . . .	1109
18.16	base_w_CamSpecHM_TT_lowl_lowE_post_lensing_zre6p5 . . . . .	1110
18.17	base_w_CamSpecHM_TTTEEE_lowl_lowE . . . . .	1111
18.18	base_w_CamSpecHM_TTTEEE_lowl_lowE_post_lensing . . . . .	1112
18.19	base_w_CamSpecHM_TTTEEE_lowl_lowE_post_Riess18 . . . . .	1113
18.20	base_w_CamSpecHM_TTTEEE_lowl_lowE_post_zre6p5 . . . . .	1114
18.21	base_w_CamSpecHM_TTTEEE_lowl_lowE_post_lensing_zre6p5 . . . . .	1115
18.22	base_w_CamSpecHM_TTTEEE_lowl_lowE_post_Riess18_zre6p5 . . . . .	1116
18.23	base_w_plikHM_TT_lowl_lowE_BAO . . . . .	1117
18.24	base_w_plikHM_TT_lowl_lowE_BAO_post_lensing . . . . .	1118
18.25	base_w_plikHM_TT_lowl_lowE_BAO_post_zre6p5 . . . . .	1119
18.26	base_w_plikHM_TT_lowl_lowE_BAO_post_lensing_zre6p5 . . . . .	1120
18.27	base_w_plikHM_TTTEEE_lowl_lowE_BAO . . . . .	1121
18.28	base_w_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing . . . . .	1122
18.29	base_w_plikHM_TTTEEE_lowl_lowE_BAO_post_zre6p5 . . . . .	1123
18.30	base_w_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_zre6p5 . . . . .	1124
18.31	base_w_CamSpecHM_TTTEEE_lowl_lowE_BAO . . . . .	1125
18.32	base_w_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_lensing . . . . .	1126
18.33	base_w_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_zre6p5 . . . . .	1127
18.34	base_w_CamSpecHM_TTTEEE_lowl_lowE_BAO_post_lensing_zre6p5 . . . . .	1128
18.35	base_w_plikHM_TT_lowl_lowE_BAO_Riess18_JLA . . . . .	1129
18.36	base_w_plikHM_TT_lowl_lowE_BAO_Riess18_JLA_post_lensing . . . . .	1130
18.37	base_w_plikHM_TT_lowl_lowE_BAO_Riess18_JLA_post_zre6p5 . . . . .	1131
18.38	base_w_plikHM_TT_lowl_lowE_BAO_Riess18_JLA_post_lensing_zre6p5 . . . . .	1132
18.39	base_w_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_JLA . . . . .	1133
18.40	base_w_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_JLA_post_lensing . . . . .	1134
18.41	base_w_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_JLA_post_zre6p5 . . . . .	1135
18.42	base_w_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_JLA_post_lensing_zre6p5 . . . . .	1136
18.43	base_w_plikHM_TT_lowl_lowE_BAO_Pantheon18 . . . . .	1137
18.44	base_w_plikHM_TT_lowl_lowE_BAO_Pantheon18_post_lensing . . . . .	1138
18.45	base_w_plikHM_TT_lowl_lowE_BAO_Pantheon18_post_zre6p5 . . . . .	1139
18.46	base_w_plikHM_TT_lowl_lowE_BAO_Pantheon18_post_lensing_zre6p5 . . . . .	1140
18.47	base_w_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18 . . . . .	1141
18.48	base_w_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_lensing . . . . .	1142
18.49	base_w_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_zre6p5 . . . . .	1143
18.50	base_w_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_lensing_zre6p5 . . . . .	1144
18.51	base_w_CamSpecHM_TT_lowl_lowE_BAO_Pantheon18 . . . . .	1145
18.52	base_w_CamSpecHM_TT_lowl_lowE_BAO_Pantheon18_post_lensing . . . . .	1146
18.53	base_w_CamSpecHM_TT_lowl_lowE_BAO_Pantheon18_post_zre6p5 . . . . .	1147
18.54	base_w_CamSpecHM_TT_lowl_lowE_BAO_Pantheon18_post_lensing_zre6p5 . . . . .	1148
18.55	base_w_CamSpecHM_TTTEEE_lowl_lowE_BAO_Pantheon18 . . . . .	1149
18.56	base_w_CamSpecHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_lensing . . . . .	1150
18.57	base_w_CamSpecHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_zre6p5 . . . . .	1151
18.58	base_w_CamSpecHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_lensing_zre6p5 . . . . .	1152
18.59	base_w_plikHM_TT_lowl_lowE_BAO_Riess18_Pantheon18 . . . . .	1153
18.60	base_w_plikHM_TT_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing . . . . .	1154
18.61	base_w_plikHM_TT_lowl_lowE_BAO_Riess18_Pantheon18_post_zre6p5 . . . . .	1155
18.62	base_w_plikHM_TT_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing_zre6p5 . . . . .	1156
18.63	base_w_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18 . . . . .	1157
18.64	base_w_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing . . . . .	1158
18.65	base_w_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_post_zre6p5 . . . . .	1159
18.66	base_w_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing_zre6p5 . . . . .	1160
18.67	base_w_CamSpecHM_TT_lowl_lowE_BAO_Riess18_Pantheon18 . . . . .	1161
18.68	base_w_CamSpecHM_TT_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing . . . . .	1162
18.69	base_w_CamSpecHM_TT_lowl_lowE_BAO_Riess18_Pantheon18_post_zre6p5 . . . . .	1163
18.70	base_w_CamSpecHM_TT_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing_zre6p5 . . . . .	1164
18.71	base_w_CamSpecHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18 . . . . .	1165
18.72	base_w_CamSpecHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing . . . . .	1166
18.73	base_w_CamSpecHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_post_zre6p5 . . . . .	1167
18.74	base_w_CamSpecHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing_zre6p5 . . . . .	1168
18.75	base_w_CleanedCamSpecHM_TT_lowl_lowE . . . . .	1169



<b>19</b>	<b>w+wa</b>	<b>1170</b>
19.1	base_w_wa_plikHM_TT_lowl_lowE_BAO . . . . .	1170
19.2	base_w_wa_plikHM_TT_lowl_lowE_BAO_post_lensing . . . . .	1171
19.3	base_w_wa_plikHM_TT_lowl_lowE_BAO_post_zre6p5 . . . . .	1172
19.4	base_w_wa_plikHM_TT_lowl_lowE_BAO_post_lensing_zre6p5 . . . . .	1173
19.5	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO . . . . .	1174
19.6	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing . . . . .	1175
19.7	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_post_zre6p5 . . . . .	1176
19.8	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_post_lensing_zre6p5 . . . . .	1177
19.9	base_w_wa_plikHM_TT_lowl_lowE_BAO_Riess18_JLA . . . . .	1178
19.10	base_w_wa_plikHM_TT_lowl_lowE_BAO_Riess18_JLA_post_lensing . . . . .	1179
19.11	base_w_wa_plikHM_TT_lowl_lowE_BAO_Riess18_JLA_post_zre6p5 . . . . .	1180
19.12	base_w_wa_plikHM_TT_lowl_lowE_BAO_Riess18_JLA_post_lensing_zre6p5 . . . . .	1181
19.13	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_JLA . . . . .	1182
19.14	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_JLA_post_lensing . . . . .	1183
19.15	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_JLA_post_zre6p5 . . . . .	1184
19.16	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_JLA_post_lensing_zre6p5 . . . . .	1185
19.17	base_w_wa_plikHM_TT_lowl_lowE_BAO_Pantheon18 . . . . .	1186
19.18	base_w_wa_plikHM_TT_lowl_lowE_BAO_Pantheon18_post_lensing . . . . .	1187
19.19	base_w_wa_plikHM_TT_lowl_lowE_BAO_Pantheon18_post_zre6p5 . . . . .	1188
19.20	base_w_wa_plikHM_TT_lowl_lowE_BAO_Pantheon18_post_lensing_zre6p5 . . . . .	1189
19.21	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18 . . . . .	1190
19.22	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_lensing . . . . .	1191
19.23	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_zre6p5 . . . . .	1192
19.24	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_lensing_zre6p5 . . . . .	1193
19.25	base_w_wa_CamSpecHM_TT_lowl_lowE_BAO_Pantheon18 . . . . .	1194
19.26	base_w_wa_CamSpecHM_TT_lowl_lowE_BAO_Pantheon18_post_lensing . . . . .	1195
19.27	base_w_wa_CamSpecHM_TT_lowl_lowE_BAO_Pantheon18_post_zre6p5 . . . . .	1196
19.28	base_w_wa_CamSpecHM_TT_lowl_lowE_BAO_Pantheon18_post_lensing_zre6p5 . . . . .	1197
19.29	base_w_wa_CamSpecHM_TTTEEE_lowl_lowE_BAO_Pantheon18 . . . . .	1198
19.30	base_w_wa_CamSpecHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_lensing . . . . .	1199
19.31	base_w_wa_CamSpecHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_zre6p5 . . . . .	1200
19.32	base_w_wa_CamSpecHM_TTTEEE_lowl_lowE_BAO_Pantheon18_post_lensing_zre6p5 . . . . .	1201
19.33	base_w_wa_plikHM_TT_lowl_lowE_BAO_Riess18_Pantheon18 . . . . .	1202
19.34	base_w_wa_plikHM_TT_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing . . . . .	1203
19.35	base_w_wa_plikHM_TT_lowl_lowE_BAO_Riess18_Pantheon18_post_zre6p5 . . . . .	1204
19.36	base_w_wa_plikHM_TT_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing_zre6p5 . . . . .	1205
19.37	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18 . . . . .	1206
19.38	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing . . . . .	1207
19.39	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_post_zre6p5 . . . . .	1208
19.40	base_w_wa_plikHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing_zre6p5 . . . . .	1209
19.41	base_w_wa_CamSpecHM_TT_lowl_lowE_BAO_Riess18_Pantheon18 . . . . .	1210
19.42	base_w_wa_CamSpecHM_TT_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing . . . . .	1211
19.43	base_w_wa_CamSpecHM_TT_lowl_lowE_BAO_Riess18_Pantheon18_post_zre6p5 . . . . .	1212
19.44	base_w_wa_CamSpecHM_TT_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing_zre6p5 . . . . .	1213
19.45	base_w_wa_CamSpecHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18 . . . . .	1214
19.46	base_w_wa_CamSpecHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing . . . . .	1215
19.47	base_w_wa_CamSpecHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_post_zre6p5 . . . . .	1216
19.48	base_w_wa_CamSpecHM_TTTEEE_lowl_lowE_BAO_Riess18_Pantheon18_post_lensing_zre6p5 . . . . .	1217
<b>20</b>	<b>yhe</b>	<b>1218</b>
20.1	base_yhe_plikHM_TT_lowl_lowE . . . . .	1218
20.2	base_yhe_plikHM_TT_lowl_lowE_post_BAO . . . . .	1219
20.3	base_yhe_plikHM_TT_lowl_lowE_post_lensing . . . . .	1220
20.4	base_yhe_plikHM_TT_lowl_lowE_post_BAO_lensing . . . . .	1221
20.5	base_yhe_plikHM_TT_lowl_lowE_post_Riess18 . . . . .	1222
20.6	base_yhe_plikHM_TT_lowl_lowE_post_zre6p5 . . . . .	1223
20.7	base_yhe_plikHM_TT_lowl_lowE_post_BAO_zre6p5 . . . . .	1224
20.8	base_yhe_plikHM_TT_lowl_lowE_post_lensing_zre6p5 . . . . .	1225
20.9	base_yhe_plikHM_TT_lowl_lowE_post_BAO_lensing_zre6p5 . . . . .	1226
20.10	base_yhe_plikHM_TT_lowl_lowE_post_Riess18_zre6p5 . . . . .	1227
20.11	base_yhe_plikHM_TTTEEE_lowl_lowE . . . . .	1228
20.12	base_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO . . . . .	1229
20.13	base_yhe_plikHM_TTTEEE_lowl_lowE_post_lensing . . . . .	1230
20.14	base_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO_lensing . . . . .	1231
20.15	base_yhe_plikHM_TTTEEE_lowl_lowE_post_Riess18 . . . . .	1232
20.16	base_yhe_plikHM_TTTEEE_lowl_lowE_post_zre6p5 . . . . .	1233
20.17	base_yhe_plikHM_TTTEEE_lowl_lowE_post_BAO_zre6p5 . . . . .	1234



20.18	base_yhe.plikHM.TTTEEE_lowl_lowE_post_lensing_zre6p5	1235
20.19	base_yhe.plikHM.TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5	1236
20.20	base_yhe.plikHM.TTTEEE_lowl_lowE_post_Riess18_zre6p5	1237
20.21	base_yhe.CamSpecHM.TT_lowl_lowE	1238
20.22	base_yhe.CamSpecHM.TT_lowl_lowE_post_BAO	1239
20.23	base_yhe.CamSpecHM.TT_lowl_lowE_post_lensing	1240
20.24	base_yhe.CamSpecHM.TT_lowl_lowE_post_BAO_lensing	1241
20.25	base_yhe.CamSpecHM.TT_lowl_lowE_post_zre6p5	1242
20.26	base_yhe.CamSpecHM.TT_lowl_lowE_post_BAO_zre6p5	1243
20.27	base_yhe.CamSpecHM.TT_lowl_lowE_post_lensing_zre6p5	1244
20.28	base_yhe.CamSpecHM.TT_lowl_lowE_post_BAO_lensing_zre6p5	1245
20.29	base_yhe.CamSpecHM.TTTEEE_lowl_lowE	1246
20.30	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_post_BAO	1247
20.31	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_post_lensing	1248
20.32	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_post_BAO_lensing	1249
20.33	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_post_Riess18	1250
20.34	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_post_zre6p5	1251
20.35	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_post_BAO_zre6p5	1252
20.36	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_post_lensing_zre6p5	1253
20.37	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_post_BAO_lensing_zre6p5	1254
20.38	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_post_Riess18_zre6p5	1255
20.39	base_yhe.plikHM.TE_lowE	1256
20.40	base_yhe.plikHM.TE_lowE_post_BAO	1257
20.41	base_yhe.plikHM.TE_lowE_post_zre6p5	1258
20.42	base_yhe.plikHM.TE_lowE_post_BAO_zre6p5	1259
20.43	base_yhe.plikHM.EE_lowE	1260
20.44	base_yhe.plikHM.EE_lowE_post_BAO	1261
20.45	base_yhe.plikHM.EE_lowE_post_zre6p5	1262
20.46	base_yhe.plikHM.EE_lowE_post_BAO_zre6p5	1263
20.47	base_yhe.plikHM.TT_lowl_lowE_Aver15	1264
20.48	base_yhe.plikHM.TT_lowl_lowE_Aver15_post_BAO	1265
20.49	base_yhe.plikHM.TT_lowl_lowE_Aver15_post_lensing	1266
20.50	base_yhe.plikHM.TT_lowl_lowE_Aver15_post_BAO_lensing	1267
20.51	base_yhe.plikHM.TT_lowl_lowE_Aver15_post_zre6p5	1268
20.52	base_yhe.plikHM.TT_lowl_lowE_Aver15_post_BAO_zre6p5	1269
20.53	base_yhe.plikHM.TT_lowl_lowE_Aver15_post_lensing_zre6p5	1270
20.54	base_yhe.plikHM.TT_lowl_lowE_Aver15_post_BAO_lensing_zre6p5	1271
20.55	base_yhe.plikHM.TTTEEE_lowl_lowE_Aver15	1272
20.56	base_yhe.plikHM.TTTEEE_lowl_lowE_Aver15_post_BAO	1273
20.57	base_yhe.plikHM.TTTEEE_lowl_lowE_Aver15_post_lensing	1274
20.58	base_yhe.plikHM.TTTEEE_lowl_lowE_Aver15_post_BAO_lensing	1275
20.59	base_yhe.plikHM.TTTEEE_lowl_lowE_Aver15_post_zre6p5	1276
20.60	base_yhe.plikHM.TTTEEE_lowl_lowE_Aver15_post_BAO_zre6p5	1277
20.61	base_yhe.plikHM.TTTEEE_lowl_lowE_Aver15_post_lensing_zre6p5	1278
20.62	base_yhe.plikHM.TTTEEE_lowl_lowE_Aver15_post_BAO_lensing_zre6p5	1279
20.63	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_Aver15	1280
20.64	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_Aver15_post_BAO	1281
20.65	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_Aver15_post_lensing	1282
20.66	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_Aver15_post_BAO_lensing	1283
20.67	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_Aver15_post_zre6p5	1284
20.68	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_Aver15_post_BAO_zre6p5	1285
20.69	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_Aver15_post_lensing_zre6p5	1286
20.70	base_yhe.CamSpecHM.TTTEEE_lowl_lowE_Aver15_post_BAO_lensing_zre6p5	1287
20.71	base_yhe.CleanedCamSpecHM.TT_lowl_lowE	1288



## 2 Baseline model

### 2.1 base\_plikHM-TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02213	$0.02212^{+0.00059}_{-0.00055}$	$\sigma_8 \Omega_m^{0.25}$	0.6116	$0.611^{+0.030}_{-0.031}$	$H(0.15)$	72.23	$72.3^{+2.1}_{-2.0}$
$\Omega_c h^2$	0.1207	$0.1206^{+0.0054}_{-0.0054}$	$\sigma_8/h^{0.5}$	0.9938	$0.993^{+0.041}_{-0.042}$	$D_M(0.15)$	647.8	$648^{+21}_{-21}$
$100\theta_{MC}$	1.04075	$1.0408^{+0.0012}_{-0.0013}$	$r_{drag} h$	98.40	$98.5^{+4.3}_{-4.1}$	$H(0.38)$	82.50	$82.5^{+1.5}_{-1.4}$
$\tau$	0.0523	$0.052^{+0.022}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.454	$2.454^{+0.096}_{-0.098}$	$D_M(0.38)$	1542.6	$1542^{+42}_{-41}$
$\ln(10^{10} A_s)$	3.0413	$3.040^{+0.044}_{-0.044}$	$z_{re}$	7.54	$7.5^{+2.2}_{-2.3}$	$H(0.51)$	89.31	$89.3^{+1.2}_{-1.1}$
$n_s$	0.9635	$0.963^{+0.015}_{-0.014}$	$10^9 A_s$	2.093	$2.092^{+0.094}_{-0.091}$	$D_M(0.51)$	1996.8	$1997^{+48}_{-49}$
$y_{cal}$	1.0005	$1.0004^{+0.0065}_{-0.0064}$	$10^9 A_s e^{-2\tau}$	1.8853	$1.884^{+0.035}_{-0.036}$	$H(0.61)$	95.00	$95.01^{+0.98}_{-0.87}$
$A_{217}^{CIB}$	48.5	$48^{+20}_{-20}$	$D_{40}$	1231.7	$1234^{+39}_{-40}$	$D_M(0.61)$	2322	$2322^{+52}_{-52}$
$\xi^{tSZ \times CIB}$	0.32	—	$D_{220}$	5710	$5713^{+110}_{-110}$	$H(2.33)$	236.75	$236.7^{+3.3}_{-3.3}$
$A_{143}^{tSZ}$	7.0	—	$D_{810}$	2538.2	$2536^{+36}_{-35}$	$D_M(2.33)$	5777.8	$5778^{+41}_{-44}$
$A_{100}^{PS}$	255	$263^{+70}_{-70}$	$D_{1420}$	815.5	$814^{+13}_{-13}$	$f\sigma_8(0.15)$	0.4642	$0.464^{+0.031}_{-0.032}$
$A_{143}^{PS}$	49.8	$49^{+20}_{-20}$	$D_{2000}$	229.94	$229.5^{+4.8}_{-4.6}$	$\sigma_8(0.15)$	0.7500	$0.749^{+0.019}_{-0.020}$
$A_{143 \times 217}^{PS}$	47.3	$44^{+20}_{-20}$	$n_{s,0.002}$	0.9635	$0.963^{+0.015}_{-0.014}$	$f\sigma_8(0.38)$	0.4804	$0.480^{+0.024}_{-0.025}$
$A_{217}^{PS}$	119.9	$115^{+30}_{-30}$	$Y_P$	0.245295	$0.24529^{+0.00023}_{-0.00026}$	$\sigma_8(0.38)$	0.6638	$0.663^{+0.016}_{-0.016}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246621	$0.24661^{+0.00023}_{-0.00026}$	$f\sigma_8(0.51)$	0.4779	$0.477^{+0.021}_{-0.022}$
$A_{100}^{dustTT}$	8.86	$8.9^{+4.7}_{-4.7}$	$10^5 D/H$	2.632	$2.63^{+0.11}_{-0.11}$	$\sigma_8(0.51)$	0.6208	$0.620^{+0.014}_{-0.015}$
$A_{143}^{dustTT}$	10.80	$10.7^{+4.7}_{-4.7}$	Age/Gyr	13.830	$13.830^{+0.094}_{-0.097}$	$f\sigma_8(0.61)$	0.4722	$0.472^{+0.018}_{-0.019}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.3^{+8.6}_{-8.4}$	$z_*$	1090.29	$1090.3^{+1.0}_{-1.1}$	$\sigma_8(0.61)$	0.5904	$0.590^{+0.013}_{-0.014}$
$A_{217}^{dustTT}$	94.8	$93^{+20}_{-20}$	$r_*$	144.44	$144.5^{+1.3}_{-1.3}$	$f\sigma_8(2.33)$	0.2973	$0.2971^{+0.0069}_{-0.0066}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0015}$	$100\theta_*$	1.04096	$1.0410^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.3061	$0.3059^{+0.0074}_{-0.0069}$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.876	$13.88^{+0.12}_{-0.11}$	$f_{2000}^{143}$	30.5	$31^{+8}_{-8}$
$H_0$	66.86	$66.9^{+2.5}_{-2.4}$	$z_{drag}$	1059.44	$1059.4^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	33.3	$34^{+5}_{-5}$
$\Omega_\Lambda$	0.6791	$0.679^{+0.033}_{-0.035}$	$r_{drag}$	147.18	$147.2^{+1.3}_{-1.3}$	$f_{2000}^{217}$	107.8	$108.2^{+5.0}_{-5.0}$
$\Omega_m$	0.3209	$0.321^{+0.035}_{-0.033}$	$k_D$	0.14058	$0.1405^{+0.0014}_{-0.0014}$	$\chi_{simall}^2$	395.88	$397.0 (\nu: 1.5)$
$\Omega_m h^2$	0.1435	$0.1434^{+0.0052}_{-0.0052}$	$100\theta_D$	0.16105	$0.16107^{+0.00068}_{-0.00070}$	$\chi_{lowl}^2$	23.60	$23.9 (\nu: 0.8)$
$\Omega_m h^3$	0.09591	$0.0959^{+0.0012}_{-0.0011}$	$z_{eq}$	3413	$3411^{+120}_{-120}$	$\chi_{plik}^2$	758.7	$771.4 (\nu: 14.9)$
$\sigma_8$	0.8126	$0.812^{+0.022}_{-0.024}$	$k_{eq}$	0.010416	$0.01041^{+0.00038}_{-0.00038}$	$\chi_{prior}^2$	1.4	$7.3 (\nu: 6.8)$
$S_8$	0.840	$0.840^{+0.063}_{-0.063}$	$100\theta_{eq}$	0.8106	$0.811^{+0.024}_{-0.022}$	$\chi_{CMB}^2$	1178.2	$1192.3 (\nu: 15.1)$
$\sigma_8 \Omega_m^{0.5}$	0.4604	$0.460^{+0.035}_{-0.034}$	$100\theta_{s,eq}$	0.4482	$0.448^{+0.012}_{-0.011}$			

Best-fit  $\chi_{eff}^2 = 1179.58$ ;  $\bar{\chi}_{eff}^2 = 1199.58$ ;  $R - 1 = 0.00927$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.88 commander\_dx12\_v3.2\_29: 23.60 plik\_rd12\_HM\_v22\_TT: 758.75



## 2.2 base\_plikHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02223	$0.02222^{+0.00053}_{-0.00050}$	$\sigma_8/h^{0.5}$	0.9814	$0.982^{+0.030}_{-0.030}$	$H(0.38)$	82.97	$82.96^{+0.94}_{-0.88}$
$\Omega_c h^2$	0.11898	$0.1190^{+0.0031}_{-0.0031}$	$r_{\text{drag}} h$	99.76	$99.8^{+2.4}_{-2.4}$	$D_M(0.38)$	1529.5	$1530^{+24}_{-25}$
$100\theta_{\text{MC}}$	1.04102	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.425	$2.429^{+0.070}_{-0.072}$	$H(0.51)$	89.67	$89.66^{+0.78}_{-0.72}$
$\tau$	0.0532	$0.054^{+0.022}_{-0.020}$	$z_{\text{re}}$	7.59	$7.6^{+2.1}_{-2.2}$	$D_M(0.51)$	1981.5	$1982^{+28}_{-29}$
$\ln(10^{10} A_s)$	3.0390	$3.040^{+0.045}_{-0.045}$	$10^9 A_s$	2.089	$2.091^{+0.096}_{-0.092}$	$H(0.61)$	95.27	$95.26^{+0.67}_{-0.61}$
$n_s$	0.9673	$0.966^{+0.011}_{-0.011}$	$10^9 A_s e^{-2\tau}$	1.8777	$1.877^{+0.030}_{-0.031}$	$D_M(0.61)$	2305.9	$2306^{+30}_{-31}$
$y_{\text{cal}}$	1.0004	$1.0005^{+0.0067}_{-0.0065}$	$D_{40}$	1223.2	$1226^{+33}_{-34}$	$H(2.33)$	235.75	$235.7^{+2.0}_{-2.0}$
$A_{217}^{\text{CIB}}$	49.2	$48^{+20}_{-20}$	$D_{220}$	5717	$5721^{+99}_{-110}$	$D_M(2.33)$	5766.2	$5767^{+31}_{-33}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.26	—	$D_{810}$	2536.8	$2536^{+36}_{-37}$	$f\sigma_8(0.15)$	0.4542	$0.454^{+0.020}_{-0.020}$
$A_{143}^{\text{tSZ}}$	7.1	—	$D_{1420}$	816.3	$815^{+13}_{-13}$	$\sigma_8(0.15)$	0.7459	$0.746^{+0.018}_{-0.018}$
$A_{100}^{\text{PS}}$	255	$264^{+70}_{-80}$	$D_{2000}$	230.24	$229.9^{+4.5}_{-4.6}$	$f\sigma_8(0.38)$	0.4727	$0.473^{+0.017}_{-0.017}$
$A_{143}^{\text{PS}}$	48.1	$48^{+20}_{-20}$	$n_{s,0.002}$	0.9673	$0.966^{+0.011}_{-0.011}$	$\sigma_8(0.38)$	0.6613	$0.661^{+0.015}_{-0.015}$
$A_{143 \times 217}^{\text{PS}}$	44.9	$43^{+20}_{-20}$	$Y_{\text{P}}$	0.245336	$0.24533^{+0.00020}_{-0.00023}$	$f\sigma_8(0.51)$	0.4715	$0.472^{+0.015}_{-0.015}$
$A_{217}^{\text{PS}}$	118.4	$114^{+30}_{-30}$	$Y_{\text{P}}^{\text{BBN}}$	0.246663	$0.24666^{+0.00021}_{-0.00024}$	$\sigma_8(0.51)$	0.6190	$0.619^{+0.015}_{-0.014}$
$A^{\text{kSZ}}$	0.0	—	$10^5 \text{D}/\text{H}$	2.613	$2.615^{+0.096}_{-0.097}$	$f\sigma_8(0.61)$	0.4666	$0.467^{+0.014}_{-0.014}$
$A_{100}^{\text{dustTT}}$	8.85	$9.0^{+4.5}_{-4.6}$	Age/Gyr	13.805	$13.807^{+0.071}_{-0.074}$	$\sigma_8(0.61)$	0.5890	$0.589^{+0.013}_{-0.013}$
$A_{143}^{\text{dustTT}}$	10.85	$10.8^{+4.7}_{-4.6}$	$z_*$	1090.01	$1090.03^{+0.77}_{-0.77}$	$f\sigma_8(2.33)$	0.2970	$0.2971^{+0.0069}_{-0.0067}$
$A_{143 \times 217}^{\text{dustTT}}$	19.4	$18.3^{+8.6}_{-8.5}$	$r_*$	144.81	$144.82^{+0.83}_{-0.80}$	$\sigma_8(2.33)$	0.3063	$0.3063^{+0.0073}_{-0.0069}$
$A_{217}^{\text{dustTT}}$	94.4	$93^{+20}_{-20}$	$100\theta_*$	1.04121	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	30.3	$31^{+8}_{-7}$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.907	$13.909^{+0.083}_{-0.078}$	$f_{2000}^{143 \times 217}$	33.1	$33^{+6}_{-5}$
$c_{217}$	0.99826	$0.9983^{+0.0017}_{-0.0015}$	$z_{\text{drag}}$	1059.51	$1059.5^{+1.2}_{-1.1}$	$f_{2000}^{217}$	107.6	$107.9^{+5.1}_{-5.2}$
$H_0$	67.62	$67.6^{+1.5}_{-1.4}$	$r_{\text{drag}}$	147.52	$147.54^{+0.91}_{-0.86}$	$\chi_{\text{simall}}^2$	395.89	$397.1 (\nu: 1.9)$
$\Omega_\Lambda$	0.6898	$0.690^{+0.019}_{-0.019}$	$k_{\text{D}}$	0.14030	$0.1403^{+0.0011}_{-0.0012}$	$\chi_{\text{lowl}}^2$	22.83	$23.09 (\nu: 0.4)$
$\Omega_{\text{m}}$	0.3102	$0.310^{+0.019}_{-0.019}$	$100\theta_{\text{D}}$	0.16101	$0.16102^{+0.00068}_{-0.00067}$	$\chi_{\text{plik}}^2$	760.1	$772.2 (\nu: 15.1)$
$\Omega_{\text{m}} h^2$	0.14185	$0.1418^{+0.0031}_{-0.0031}$	$z_{\text{eq}}$	3374	$3374^{+74}_{-74}$	$\chi_{6\text{DF}}^2$	0.022	$0.059 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	0.09593	$0.0959^{+0.0011}_{-0.0011}$	$k_{\text{eq}}$	0.010299	$0.01030^{+0.00022}_{-0.00022}$	$\chi_{\text{MGS}}^2$	1.28	$1.35 (\nu: 0.1)$
$\sigma_8$	0.8071	$0.807^{+0.020}_{-0.020}$	$100\theta_{\text{eq}}$	0.8180	$0.818^{+0.014}_{-0.013}$	$\chi_{\text{DR12BAO}}^2$	4.18	$4.8 (\nu: 1.3)$
$S_8$	0.8207	$0.821^{+0.038}_{-0.038}$	$100\theta_{s,\text{eq}}$	0.4519	$0.4520^{+0.0071}_{-0.0069}$	$\chi_{\text{prior}}^2$	1.4	$7.4 (\nu: 6.9)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4495	$0.450^{+0.021}_{-0.021}$	$H(0.15)$	72.89	$72.9^{+1.3}_{-1.2}$	$\chi_{\text{BAO}}^2$	5.49	$6.2 (\nu: 0.9)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6023	$0.602^{+0.020}_{-0.020}$	$D_M(0.15)$	641.2	$641^{+12}_{-12}$	$\chi_{\text{CMB}}^2$	1178.8	$1192.4 (\nu: 15.4)$

Best-fit  $\chi_{\text{eff}}^2 = 1185.74$ ;  $\bar{\chi}_{\text{eff}}^2 = 1206.02$ ;  $R - 1 = 0.01940$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.18 CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 395.89 commander\_dx12\_v3.2.29: 22.83 plik\_rd12\_HM\_v22.TT: 760.10



### 2.3 base\_plikHM\_TT\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02238	$0.02237^{+0.00053}_{-0.00054}$	$\sigma_8 \Omega_m^{0.25}$	0.5933	$0.593^{+0.028}_{-0.030}$	$H(0.15)$	73.62	$73.6^{+1.8}_{-1.8}$
$\Omega_c h^2$	0.11720	$0.1171^{+0.0048}_{-0.0046}$	$\sigma_8/h^{0.5}$	0.9695	$0.969^{+0.038}_{-0.043}$	$D_M(0.15)$	634.0	$634^{+18}_{-17}$
$100\theta_{MC}$	1.04127	$1.0413^{+0.0011}_{-0.0012}$	$r_{drag}h$	101.22	$101.3^{+3.7}_{-3.8}$	$H(0.38)$	83.50	$83.5^{+1.3}_{-1.3}$
$\tau$	0.0554	$0.056^{+0.021}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.398	$2.400^{+0.091}_{-0.10}$	$D_M(0.38)$	1515.0	$1515^{+37}_{-35}$
$\ln(10^{10} A_s)$	3.0399	$3.041^{+0.046}_{-0.041}$	$z_{re}$	7.74	$7.8^{+2.0}_{-2.2}$	$H(0.51)$	90.09	$90.1^{+1.1}_{-1.1}$
$n_s$	0.9719	$0.971^{+0.012}_{-0.014}$	$10^9 A_s$	2.090	$2.093^{+0.098}_{-0.083}$	$D_M(0.51)$	1964.6	$1964^{+43}_{-41}$
$y_{cal}$	1.0007	$1.0006^{+0.0071}_{-0.0067}$	$10^9 A_s e^{-2\tau}$	1.8711	$1.870^{+0.033}_{-0.036}$	$H(0.61)$	95.61	$95.62^{+0.83}_{-0.86}$
$A_{217}^{CIB}$	48.4	$48^{+20}_{-20}$	$D_{40}$	1214.7	$1217^{+38}_{-40}$	$D_M(0.61)$	2287.7	$2287^{+46}_{-44}$
$\xi^{tSZ \times CIB}$	0.35	—	$D_{220}$	5729	$5732^{+110}_{-110}$	$H(2.33)$	234.75	$234.7^{+3.0}_{-2.6}$
$A_{143}^{tSZ}$	7.1	—	$D_{810}$	2537.4	$2535^{+37}_{-39}$	$D_M(2.33)$	5751.9	$5752^{+40}_{-37}$
$A_{100}^{PS}$	253	$262^{+70}_{-80}$	$D_{1420}$	818.1	$817^{+13}_{-13}$	$f\sigma_8(0.15)$	0.4442	$0.444^{+0.028}_{-0.029}$
$A_{143}^{PS}$	48.0	$47^{+20}_{-20}$	$D_{2000}$	231.01	$230.6^{+4.5}_{-4.5}$	$\sigma_8(0.15)$	0.7426	$0.742^{+0.020}_{-0.023}$
$A_{143 \times 217}^{PS}$	46.4	$43^{+30}_{-20}$	$n_{s,0.002}$	0.9719	$0.971^{+0.012}_{-0.014}$	$f\sigma_8(0.38)$	0.4652	$0.465^{+0.023}_{-0.025}$
$A_{217}^{PS}$	118.6	$114^{+30}_{-30}$	$Y_P$	0.245399	$0.24539^{+0.00021}_{-0.00024}$	$\sigma_8(0.38)$	0.6596	$0.659^{+0.016}_{-0.018}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246725	$0.24672^{+0.00021}_{-0.00024}$	$f\sigma_8(0.51)$	0.4652	$0.465^{+0.020}_{-0.022}$
$A_{100}^{dustTT}$	8.96	$9.1^{+4.5}_{-4.7}$	$10^5 D/H$	2.584	$2.59^{+0.10}_{-0.096}$	$\sigma_8(0.51)$	0.6178	$0.618^{+0.015}_{-0.016}$
$A_{143}^{dustTT}$	10.84	$10.7^{+5.2}_{-4.5}$	Age/Gyr	13.774	$13.774^{+0.088}_{-0.081}$	$f\sigma_8(0.61)$	0.4613	$0.461^{+0.018}_{-0.021}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.1^{+8.6}_{-7.8}$	$z_*$	1089.66	$1089.67^{+0.97}_{-0.89}$	$\sigma_8(0.61)$	0.5882	$0.588^{+0.014}_{-0.014}$
$A_{217}^{dustTT}$	94.7	$93^{+20}_{-20}$	$r_*$	145.15	$145.2^{+1.1}_{-1.1}$	$f\sigma_8(2.33)$	0.2971	$0.2971^{+0.0069}_{-0.0064}$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04146	$1.0415^{+0.0011}_{-0.0012}$	$\sigma_8(2.33)$	0.3069	$0.3069^{+0.0072}_{-0.0068}$
$c_{217}$	0.99826	$0.9983^{+0.0017}_{-0.0015}$	$D_M(z_*)/\text{Gpc}$	13.938	$13.94^{+0.10}_{-0.10}$	$f_{2000}^{143}$	29.5	$30^{+8}_{-8}$
$H_0$	68.47	$68.5^{+2.1}_{-2.1}$	$z_{drag}$	1059.74	$1059.7^{+1.2}_{-1.1}$	$f_{2000}^{143 \times 217}$	32.5	$33^{+5}_{-5}$
$\Omega_\Lambda$	0.7009	$0.701^{+0.026}_{-0.029}$	$r_{drag}$	147.83	$147.9^{+1.2}_{-1.2}$	$f_{2000}^{217}$	107.1	$107.4^{+5.1}_{-5.2}$
$\Omega_m$	0.2991	$0.299^{+0.029}_{-0.026}$	$k_D$	0.14010	$0.1401^{+0.0013}_{-0.0015}$	$\chi_{simall}^2$	396.1	$397.3 (\nu: 2.1)$
$\Omega_m h^2$	0.14022	$0.1401^{+0.0046}_{-0.0042}$	$100\theta_D$	0.16089	$0.16091^{+0.00066}_{-0.00066}$	$\chi_{lowl}^2$	22.09	$22.35 (\nu: 0.5)$
$\Omega_m h^3$	0.09602	$0.0960^{+0.0011}_{-0.0014}$	$z_{eq}$	3335	$3333^{+110}_{-100}$	$\chi_{plik}^2$	763.0	$775.9 (\nu: 23.6)$
$\sigma_8$	0.8023	$0.802^{+0.023}_{-0.027}$	$k_{eq}$	0.010180	$0.01017^{+0.00034}_{-0.00031}$	$\chi_{H073p45}^2$	9.0	$9.1 (\nu: 4.7)$
$S_8$	0.801	$0.800^{+0.056}_{-0.055}$	$100\theta_{eq}$	0.8257	$0.826^{+0.020}_{-0.021}$	$\chi_{prior}^2$	1.4	$7.4 (\nu: 7.1)$
$\sigma_8 \Omega_m^{0.5}$	0.4387	$0.438^{+0.030}_{-0.030}$	$100\theta_{s,eq}$	0.4559	$0.456^{+0.010}_{-0.011}$	$\chi_{CMB}^2$	1181.2	$1195.6 (\nu: 21.1)$

Best-fit  $\chi_{eff}^2 = 1191.57$ ;  $\bar{\chi}_{eff}^2 = 1212.08$ ;  $R - 1 = 0.09494$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.07 commander\_dx12\_v3.2\_29: 22.09 plik\_rd12\_HM\_v22\_TT: 763.02 Hubble - H073p45: 8.98



## 2.4 base\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02212^{+0.00058}_{-0.00055}$	$\sigma_8 \Omega_m^{0.25}$	$0.612^{+0.030}_{-0.030}$	$H(0.15)$	$72.3^{+2.1}_{-2.0}$
$\Omega_c h^2$	$0.1206^{+0.0054}_{-0.0054}$	$\sigma_8/h^{0.5}$	$0.994^{+0.040}_{-0.041}$	$D_M(0.15)$	$647^{+21}_{-20}$
$100\theta_{MC}$	$1.0408^{+0.0012}_{-0.0013}$	$r_{drag}h$	$98.5^{+4.3}_{-4.0}$	$H(0.38)$	$82.5^{+1.5}_{-1.4}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.457^{+0.095}_{-0.097}$	$D_M(0.38)$	$1542^{+41}_{-41}$
$\ln(10^{10} A_s)$	$3.044^{+0.041}_{-0.030}$	$z_{re}$	$< 9.46$	$H(0.51)$	$89.3^{+1.2}_{-1.1}$
$n_s$	$0.963^{+0.015}_{-0.014}$	$10^9 A_s$	$2.098^{+0.088}_{-0.063}$	$D_M(0.51)$	$1996^{+48}_{-48}$
$y_{cal}$	$1.0004^{+0.0065}_{-0.0064}$	$10^9 A_s e^{-2\tau}$	$1.884^{+0.035}_{-0.036}$	$H(0.61)$	$95.02^{+0.98}_{-0.87}$
$A_{217}^{CIB}$	$48^{+20}_{-20}$	$D_{40}$	$1234^{+40}_{-40}$	$D_M(0.61)$	$2321^{+51}_{-52}$
$\xi^{tSZ \times CIB}$	—	$D_{220}$	$5713^{+100}_{-110}$	$H(2.33)$	$236.7^{+3.3}_{-3.3}$
$A_{143}^{tSZ}$	—	$D_{810}$	$2536^{+36}_{-35}$	$D_M(2.33)$	$5777^{+42}_{-43}$
$A_{100}^{PS}$	$263^{+70}_{-70}$	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.15)$	$0.464^{+0.031}_{-0.032}$
$A_{143}^{PS}$	$49^{+20}_{-20}$	$D_{2000}$	$229.6^{+4.8}_{-4.6}$	$\sigma_8(0.15)$	$0.750^{+0.018}_{-0.018}$
$A_{143 \times 217}^{PS}$	$44^{+20}_{-20}$	$n_{s,0.002}$	$0.963^{+0.015}_{-0.014}$	$f\sigma_8(0.38)$	$0.480^{+0.024}_{-0.025}$
$A_{217}^{PS}$	$115^{+30}_{-30}$	$Y_P$	$0.24529^{+0.00023}_{-0.00026}$	$\sigma_8(0.38)$	$0.664^{+0.015}_{-0.013}$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.24661^{+0.00023}_{-0.00026}$	$f\sigma_8(0.51)$	$0.478^{+0.020}_{-0.022}$
$A_{100}^{dustTT}$	$8.9^{+4.7}_{-4.7}$	$10^5 D/H$	$2.63^{+0.11}_{-0.11}$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.011}$
$A_{143}^{dustTT}$	$10.7^{+4.6}_{-4.7}$	Age/Gyr	$13.829^{+0.094}_{-0.096}$	$f\sigma_8(0.61)$	$0.472^{+0.018}_{-0.019}$
$A_{143 \times 217}^{dustTT}$	$18.3^{+8.6}_{-8.5}$	$z_*$	$1090.3^{+1.0}_{-1.1}$	$\sigma_8(0.61)$	$0.591^{+0.013}_{-0.010}$
$A_{217}^{dustTT}$	$93^{+20}_{-20}$	$r_*$	$144.5^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	$0.2975^{+0.0065}_{-0.0047}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	$0.3064^{+0.0070}_{-0.0047}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	$13.88^{+0.12}_{-0.11}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$H_0$	$66.9^{+2.4}_{-2.3}$	$z_{drag}$	$1059.4^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	$34^{+5}_{-5}$
$\Omega_\Lambda$	$0.680^{+0.033}_{-0.035}$	$r_{drag}$	$147.2^{+1.3}_{-1.2}$	$f_{2000}^{217}$	$108.1^{+4.9}_{-5.0}$
$\Omega_m$	$0.320^{+0.035}_{-0.033}$	$k_D$	$0.1405^{+0.0014}_{-0.0014}$	$\chi_{simall}^2$	$396.9 (\nu: 1.5)$
$\Omega_m h^2$	$0.1433^{+0.0052}_{-0.0051}$	$100\theta_D$	$0.16107^{+0.00069}_{-0.00069}$	$\chi_{lowl}^2$	$23.9 (\nu: 0.8)$
$\Omega_m h^3$	$0.0959^{+0.0012}_{-0.0012}$	$z_{eq}$	$3410^{+120}_{-120}$	$\chi_{plik}^2$	$771.3 (\nu: 14.7)$
$\sigma_8$	$0.813^{+0.021}_{-0.022}$	$k_{eq}$	$0.01041^{+0.00038}_{-0.00037}$	$\chi_{prior}^2$	$7.3 (\nu: 6.7)$
$S_8$	$0.840^{+0.063}_{-0.062}$	$100\theta_{eq}$	$0.811^{+0.024}_{-0.022}$	$\chi_{CMB}^2$	$1192.0 (\nu: 14.8)$
$\sigma_8 \Omega_m^{0.5}$	$0.460^{+0.034}_{-0.034}$	$100\theta_{s,eq}$	$0.448^{+0.012}_{-0.011}$		

$$\bar{\chi}_{\text{eff}}^2 = 1199.32; R - 1 = 0.00921$$



## 2.5 base\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02222^{+0.00053}_{-0.00050}$	$\sigma_8/h^{0.5}$	$0.983^{+0.029}_{-0.028}$	$H(0.38)$	$82.97^{+0.93}_{-0.88}$
$\Omega_c h^2$	$0.1189^{+0.0031}_{-0.0031}$	$r_{\text{drag}} h$	$99.8^{+2.4}_{-2.4}$	$D_M(0.38)$	$1530^{+24}_{-25}$
$100\theta_{\text{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.069}_{-0.067}$	$H(0.51)$	$89.66^{+0.78}_{-0.72}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$z_{\text{re}}$	$< 9.58$	$D_M(0.51)$	$1982^{+28}_{-29}$
$\ln(10^{10} A_s)$	$3.043^{+0.043}_{-0.031}$	$10^9 A_s$	$2.097^{+0.092}_{-0.065}$	$H(0.61)$	$95.27^{+0.66}_{-0.62}$
$n_s$	$0.967^{+0.011}_{-0.011}$	$10^9 A_s e^{-2\tau}$	$1.877^{+0.030}_{-0.031}$	$D_M(0.61)$	$2306^{+30}_{-32}$
$y_{\text{cal}}$	$1.0005^{+0.0067}_{-0.0064}$	$D_{40}$	$1226^{+33}_{-34}$	$H(2.33)$	$235.7^{+2.0}_{-2.0}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5721^{+99}_{-110}$	$D_M(2.33)$	$5767^{+31}_{-32}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{810}$	$2536^{+36}_{-36}$	$f\sigma_8(0.15)$	$0.455^{+0.020}_{-0.020}$
$A_{143}^{\text{tSZ}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.747^{+0.018}_{-0.015}$
$A_{100}^{\text{PS}}$	$263^{+70}_{-80}$	$D_{2000}$	$230.0^{+4.5}_{-4.6}$	$f\sigma_8(0.38)$	$0.473^{+0.016}_{-0.016}$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20}$	$n_{s,0.002}$	$0.967^{+0.011}_{-0.011}$	$\sigma_8(0.38)$	$0.662^{+0.015}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}$	$0.24533^{+0.00020}_{-0.00024}$	$f\sigma_8(0.51)$	$0.472^{+0.015}_{-0.014}$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24666^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	$0.620^{+0.014}_{-0.011}$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.615^{+0.097}_{-0.096}$	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.013}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.5}_{-4.6}$	$\text{Age}/\text{Gyr}$	$13.806^{+0.072}_{-0.073}$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.010}$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.8}_{-4.6}$	$z_*$	$1090.02^{+0.77}_{-0.77}$	$f\sigma_8(2.33)$	$0.2974^{+0.0067}_{-0.0048}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.4}_{-8.4}$	$r_*$	$144.82^{+0.83}_{-0.80}$	$\sigma_8(2.33)$	$0.3067^{+0.0070}_{-0.0050}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	$13.909^{+0.084}_{-0.079}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$c_{217}$	$0.9983^{+0.0017}_{-0.0015}$	$z_{\text{drag}}$	$1059.5^{+1.1}_{-1.1}$	$f_{2000}^{217}$	$107.9^{+5.1}_{-5.2}$
$H_0$	$67.6^{+1.5}_{-1.4}$	$r_{\text{drag}}$	$147.54^{+0.91}_{-0.87}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 1.9)$
$\Omega_\Lambda$	$0.690^{+0.018}_{-0.019}$	$k_{\text{D}}$	$0.1403^{+0.0011}_{-0.0012}$	$\chi_{\text{lowl}}^2$	$23.11 (\nu: 0.4)$
$\Omega_{\text{m}}$	$0.310^{+0.019}_{-0.018}$	$100\theta_{\text{D}}$	$0.16101^{+0.00068}_{-0.00067}$	$\chi_{\text{plik}}^2$	$772.0 (\nu: 14.8)$
$\Omega_{\text{m}} h^2$	$0.1418^{+0.0031}_{-0.0031}$	$z_{\text{eq}}$	$3373^{+74}_{-73}$	$\chi_{6\text{DF}}^2$	$0.058 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.0959^{+0.0012}_{-0.0011}$	$k_{\text{eq}}$	$0.01030^{+0.00022}_{-0.00022}$	$\chi_{\text{MGS}}^2$	$1.36 (\nu: 0.1)$
$\sigma_8$	$0.808^{+0.020}_{-0.017}$	$100\theta_{\text{eq}}$	$0.818^{+0.014}_{-0.013}$	$\chi_{\text{DR12BAO}}^2$	$4.8 (\nu: 1.3)$
$S_8$	$0.822^{+0.038}_{-0.038}$	$100\theta_{\text{s,eq}}$	$0.4520^{+0.0071}_{-0.0069}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.9)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.450^{+0.021}_{-0.021}$	$H(0.15)$	$72.9^{+1.2}_{-1.2}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.9)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.603^{+0.020}_{-0.020}$	$D_M(0.15)$	$641^{+12}_{-12}$	$\chi_{\text{CMB}}^2$	$1192.2 (\nu: 15.0)$
$\bar{\chi}_{\text{eff}}^2 = 1205.76; R - 1 = 0.02069$					



## 2.6 base\_plikHM\_TT\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02237^{+0.00053}_{-0.00054}$	$\sigma_8 \Omega_m^{0.25}$	$0.594^{+0.027}_{-0.031}$	$H(0.15)$	$73.6^{+1.8}_{-1.8}$
$\Omega_c h^2$	$0.1171^{+0.0048}_{-0.0046}$	$\sigma_8/h^{0.5}$	$0.970^{+0.037}_{-0.044}$	$D_M(0.15)$	$634^{+18}_{-17}$
$100\theta_{MC}$	$1.0413^{+0.0011}_{-0.0012}$	$r_{drag}h$	$101.3^{+3.7}_{-3.7}$	$H(0.38)$	$83.5^{+1.3}_{-1.3}$
$\tau$	$0.057^{+0.020}_{-0.017}$	$\langle d^2 \rangle^{1/2}$	$2.403^{+0.089}_{-0.10}$	$D_M(0.38)$	$1515^{+36}_{-35}$
$\ln(10^{10} A_s)$	$3.043^{+0.044}_{-0.040}$	$z_{re}$	$< 9.61$	$H(0.51)$	$90.1^{+1.1}_{-1.0}$
$n_s$	$0.971^{+0.012}_{-0.013}$	$10^9 A_s$	$2.097^{+0.094}_{-0.082}$	$D_M(0.51)$	$1964^{+42}_{-41}$
$y_{cal}$	$1.0006^{+0.0068}_{-0.0067}$	$10^9 A_s e^{-2\tau}$	$1.870^{+0.033}_{-0.036}$	$H(0.61)$	$95.62^{+0.83}_{-0.85}$
$A_{217}^{CIB}$	$48^{+20}_{-20}$	$D_{40}$	$1217^{+38}_{-41}$	$D_M(0.61)$	$2287^{+45}_{-44}$
$\xi^{tSZ \times CIB}$	—	$D_{220}$	$5732^{+110}_{-110}$	$H(2.33)$	$234.7^{+2.9}_{-2.6}$
$A_{143}^{tSZ}$	—	$D_{810}$	$2535^{+37}_{-39}$	$D_M(2.33)$	$5752^{+39}_{-37}$
$A_{100}^{PS}$	$262^{+70}_{-80}$	$D_{1420}$	$817^{+13}_{-13}$	$f\sigma_8(0.15)$	$0.444^{+0.028}_{-0.029}$
$A_{143}^{PS}$	$47^{+20}_{-20}$	$D_{2000}$	$230.6^{+4.6}_{-4.5}$	$\sigma_8(0.15)$	$0.743^{+0.019}_{-0.024}$
$A_{143 \times 217}^{PS}$	$42^{+30}_{-20}$	$n_{s,0.002}$	$0.971^{+0.012}_{-0.013}$	$f\sigma_8(0.38)$	$0.465^{+0.022}_{-0.025}$
$A_{217}^{PS}$	$114^{+30}_{-30}$	$Y_P$	$0.24539^{+0.00021}_{-0.00024}$	$\sigma_8(0.38)$	$0.660^{+0.016}_{-0.019}$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.24672^{+0.00021}_{-0.00024}$	$f\sigma_8(0.51)$	$0.465^{+0.019}_{-0.023}$
$A_{100}^{dustTT}$	$9.1^{+4.6}_{-4.6}$	$10^5 D/H$	$2.59^{+0.10}_{-0.096}$	$\sigma_8(0.51)$	$0.618^{+0.015}_{-0.016}$
$A_{143}^{dustTT}$	$10.6^{+5.2}_{-4.4}$	Age/Gyr	$13.774^{+0.088}_{-0.081}$	$f\sigma_8(0.61)$	$0.462^{+0.017}_{-0.021}$
$A_{143 \times 217}^{dustTT}$	$18.1^{+8.6}_{-7.8}$	$z_*$	$1089.66^{+0.96}_{-0.88}$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.015}$
$A_{217}^{dustTT}$	$93^{+20}_{-20}$	$r_*$	$145.2^{+1.1}_{-1.1}$	$f\sigma_8(2.33)$	$0.2974^{+0.0066}_{-0.0067}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0415^{+0.0011}_{-0.0012}$	$\sigma_8(2.33)$	$0.3072^{+0.0069}_{-0.0059}$
$c_{217}$	$0.9983^{+0.0017}_{-0.0015}$	$D_M(z_*)/\text{Gpc}$	$13.94^{+0.10}_{-0.10}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$H_0$	$68.5^{+2.1}_{-2.1}$	$z_{drag}$	$1059.7^{+1.2}_{-1.1}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$\Omega_\Lambda$	$0.701^{+0.026}_{-0.029}$	$r_{drag}$	$147.9^{+1.2}_{-1.1}$	$f_{2000}^{217}$	$107.4^{+5.0}_{-5.1}$
$\Omega_m$	$0.299^{+0.029}_{-0.026}$	$k_D$	$0.1401^{+0.0013}_{-0.0015}$	$\chi_{simall}^2$	$397.3 (\nu: 2.2)$
$\Omega_m h^2$	$0.1401^{+0.0046}_{-0.0042}$	$100\theta_D$	$0.16090^{+0.00066}_{-0.00072}$	$\chi_{lowl}^2$	$22.37 (\nu: 0.5)$
$\Omega_m h^3$	$0.0960^{+0.0011}_{-0.0014}$	$z_{eq}$	$3334^{+110}_{-100}$	$\chi_{plik}^2$	$775.6 (\nu: 22.3)$
$\sigma_8$	$0.803^{+0.022}_{-0.028}$	$k_{eq}$	$0.01017^{+0.00033}_{-0.00031}$	$\chi_{H073p45}^2$	$9.1 (\nu: 4.5)$
$S_8$	$0.801^{+0.055}_{-0.056}$	$100\theta_{eq}$	$0.826^{+0.020}_{-0.021}$	$\chi_{prior}^2$	$7.4 (\nu: 7.0)$
$\sigma_8 \Omega_m^{0.5}$	$0.439^{+0.030}_{-0.030}$	$100\theta_{s,eq}$	$0.456^{+0.010}_{-0.011}$	$\chi_{CMB}^2$	$1195.3 (\nu: 20.0)$

$$\bar{\chi}_{eff}^2 = 1211.81; R - 1 = 0.08503$$



## 2.7 base\_plikHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.022377	$0.02236^{+0.00038}_{-0.00038}$ (+1.1 $\sigma$ )	$\Omega_{\text{m}}h^3$	0.09636	$0.09633^{+0.00075}_{-0.00072}$ (+1.0 $\sigma$ )	$100\theta_{\text{eq}}$	0.8128	$0.812^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )
$\Omega_{\text{c}}h^2$	0.12010	$0.1202^{+0.0036}_{-0.0035}$ (−0.2 $\sigma$ )	$\sigma_8$	0.8120	$0.812^{+0.020}_{-0.019}$ (+0.0 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4491	$0.4490^{+0.0077}_{-0.0075}$ (+0.1 $\sigma$ )
$100\theta_{\text{MC}}$	1.04092	$1.04090^{+0.00078}_{-0.00080}$ (+0.3 $\sigma$ )	$S_8$	0.8331	$0.834^{+0.042}_{-0.041}$ (−0.2 $\sigma$ )	$H(0.15)$	72.65	$72.6^{+1.3}_{-1.3}$ (+0.5 $\sigma$ )
$\tau$	0.0543	$0.054^{+0.023}_{-0.020}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4563	$0.457^{+0.023}_{-0.023}$ (−0.2 $\sigma$ )	$D_{\text{M}}(0.15)$	643.7	$644^{+14}_{-13}$ (−0.4 $\sigma$ )
$\ln(10^{10}A_{\text{s}})$	3.0447	$3.045^{+0.045}_{-0.041}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.6087	$0.609^{+0.021}_{-0.021}$ (−0.2 $\sigma$ )	$H(0.38)$	82.85	$82.82^{+0.98}_{-0.95}$ (+0.5 $\sigma$ )
$n_{\text{s}}$	0.9659	$0.965^{+0.011}_{-0.011}$ (+0.4 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9896	$0.990^{+0.030}_{-0.030}$ (−0.2 $\sigma$ )	$D_{\text{M}}(0.38)$	1534.0	$1535^{+27}_{-27}$ (−0.5 $\sigma$ )
$y_{\text{cal}}$	1.0006	$1.0005^{+0.0063}_{-0.0064}$ (+0.0 $\sigma$ )	$r_{\text{drag}}h$	99.00	$98.9^{+2.8}_{-2.7}$ (+0.3 $\sigma$ )	$H(0.51)$	89.61	$89.59^{+0.78}_{-0.76}$ (+0.6 $\sigma$ )
$A_{217}^{\text{CIB}}$	47.2	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.445	$2.448^{+0.072}_{-0.072}$ (−0.2 $\sigma$ )	$D_{\text{M}}(0.51)$	1986.5	$1988^{+31}_{-31}$ (−0.5 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.42	—	$z_{\text{re}}$	7.68	$7.7^{+2.2}_{-2.1}$ (+0.2 $\sigma$ )	$H(0.61)$	95.27	$95.25^{+0.63}_{-0.60}$ (+0.7 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.23	$5.5^{+4.3}_{-4.9}$ (+0.2 $\sigma$ )	$10^9 A_{\text{s}}$	2.100	$2.101^{+0.097}_{-0.085}$ (+0.3 $\sigma$ )	$D_{\text{M}}(0.61)$	2311.1	$2312^{+34}_{-34}$ (−0.5 $\sigma$ )
$A_{100}^{\text{PS}}$	251	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_{\text{s}}e^{-2\tau}$	1.8843	$1.884^{+0.031}_{-0.030}$ (−0.0 $\sigma$ )	$H(2.33)$	236.64	$236.7^{+2.1}_{-2.1}$ (−0.0 $\sigma$ )
$A_{143}^{\text{PS}}$	47.4	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{40}$	1229.3	$1232^{+34}_{-32}$ (−0.1 $\sigma$ )	$D_{\text{M}}(2.33)$	5763.6	$5765^{+28}_{-28}$ (−0.8 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	47.3	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{220}$	5730	$5731^{+98}_{-99}$ (+0.4 $\sigma$ )	$f\sigma_8(0.15)$	0.4605	$0.461^{+0.021}_{-0.021}$ (−0.2 $\sigma$ )
$A_{217}^{\text{PS}}$	119.8	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{810}$	2541.1	$2539^{+34}_{-35}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7499	$0.750^{+0.018}_{-0.016}$ (+0.1 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	818.3	$817^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.38)$	0.4779	$0.478^{+0.017}_{-0.017}$ (−0.2 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.86	$8.9^{+4.7}_{-4.6}$ (−0.0 $\sigma$ )	$D_{2000}$	231.26	$230.9^{+4.1}_{-4.0}$ (+0.7 $\sigma$ )	$\sigma_8(0.38)$	0.6642	$0.664^{+0.015}_{-0.014}$ (+0.2 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.10	$10.9^{+4.7}_{-4.5}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9659	$0.965^{+0.011}_{-0.011}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4760	$0.476^{+0.015}_{-0.015}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.6^{+8.5}_{-8.7}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.245398	$0.24539^{+0.00014}_{-0.00016}$ (+1.1 $\sigma$ )	$\sigma_8(0.51)$	0.6214	$0.621^{+0.014}_{-0.013}$ (+0.2 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.1	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.246725	$0.24672^{+0.00014}_{-0.00016}$ (+1.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4707	$0.471^{+0.014}_{-0.014}$ (−0.1 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.10}_{-0.095}$	$10^5 \text{D/H}$	2.584	$2.588^{+0.073}_{-0.068}$ (−1.1 $\sigma$ )	$\sigma_8(0.61)$	0.5912	$0.591^{+0.014}_{-0.012}$ (+0.2 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.077}_{-0.077}$	Age/Gyr	13.797	$13.800^{+0.062}_{-0.062}$ (−0.8 $\sigma$ )	$f\sigma_8(2.33)$	0.2979	$0.2978^{+0.0070}_{-0.0062}$ (+0.3 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.21}_{-0.22}$	$z_*$	1089.92	$1089.95^{+0.72}_{-0.69}$ (−0.9 $\sigma$ )	$\sigma_8(2.33)$	0.3069	$0.3068^{+0.0075}_{-0.0066}$ (+0.4 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.224	$0.23^{+0.13}_{-0.13}$	$r_*$	144.40	$144.39^{+0.77}_{-0.77}$ (−0.2 $\sigma$ )	$f_{2000}^{143}$	28.9	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.664	$0.67^{+0.21}_{-0.21}$	$100\theta_*$	1.04110	$1.04109^{+0.00076}_{-0.00079}$ (+0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.04	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.08	$2.09^{+0.69}_{-0.68}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.870	$13.869^{+0.072}_{-0.070}$ (−0.2 $\sigma$ )	$f_{2000}^{217}$	106.69	$107.0^{+4.6}_{-4.5}$ (−0.6 $\sigma$ )
$c_{100}$	0.99969	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1059.97	$1059.93^{+0.77}_{-0.79}$ (+1.2 $\sigma$ )	$\chi_{\text{simall}}^2$	396.05	$397.1 (\nu: 2.0)$ (+0.1 $\sigma$ )
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	147.06	$147.05^{+0.76}_{-0.74}$ (−0.3 $\sigma$ )	$\chi_{\text{lowl}}^2$	23.26	$23.55 (\nu: 0.5)$ (−0.3 $\sigma$ )
$H_0$	67.32	$67.3^{+1.6}_{-1.6}$ (+0.4 $\sigma$ )	$k_{\text{D}}$	0.14091	$0.14090^{+0.00080}_{-0.00079}$ (+0.7 $\sigma$ )	$\chi_{\text{plik}}^2$	2344.6	$2359.5 (\nu: 16.6)$ (+291.4 $\sigma$ )
$\Omega_{\Lambda}$	0.6842	$0.683^{+0.021}_{-0.023}$ (+0.3 $\sigma$ )	$100\theta_{\text{D}}$	0.160744	$0.16077^{+0.00046}_{-0.00044}$ (−1.2 $\sigma$ )	$\chi_{\text{prior}}^2$	1.8	$11.6 (\nu: 10.3)$ (+1.2 $\sigma$ )
$\Omega_{\text{m}}$	0.3158	$0.317^{+0.023}_{-0.021}$ (−0.3 $\sigma$ )	$z_{\text{eq}}$	3405	$3407^{+80}_{-78}$ (−0.1 $\sigma$ )	$\chi_{\text{CMB}}^2$	2764.0	$2780.2 (\nu: 16.6)$ (+289.2 $\sigma$ )
$\Omega_{\text{m}}h^2$	0.14313	$0.1432^{+0.0033}_{-0.0033}$ (−0.1 $\sigma$ )	$k_{\text{eq}}$	0.010392	$0.01040^{+0.00024}_{-0.00024}$ (−0.1 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 2765.77$ ;  $\Delta\chi_{\text{eff}}^2 = 1586.20$ ;  $\bar{\chi}_{\text{eff}}^2 = 2791.77$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1592.19$ ;  $R - 1 = 0.01231$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.05 ( $\Delta$  0.17) commander\_dx12\_v3.2.29: 23.26 ( $\Delta$  -0.34) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.65



## 2.8 base\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022432	$0.02242^{+0.00033}_{-0.00035}$ (+1.0 $\sigma$ )	$\sigma_8$	0.8098	$0.810^{+0.019}_{-0.018}$ (+0.3 $\sigma$ )	$H(0.15)$	72.97	$72.9^{+1.0}_{-0.97}$ (+0.1 $\sigma$ )
$\Omega_c h^2$	0.11926	$0.1193^{+0.0026}_{-0.0026}$ (+0.3 $\sigma$ )	$S_8$	0.8240	$0.825^{+0.032}_{-0.033}$ (+0.2 $\sigma$ )	$D_M(0.15)$	640.5	$640.8^{+9.8}_{-9.9}$ (-0.1 $\sigma$ )
$100\theta_{MC}$	1.04100	$1.04101^{+0.00074}_{-0.00079}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4513	$0.452^{+0.018}_{-0.018}$ (+0.2 $\sigma$ )	$H(0.38)$	83.07	$83.05^{+0.74}_{-0.71}$ (+0.3 $\sigma$ )
$\tau$	0.0553	$0.056^{+0.022}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6046	$0.605^{+0.019}_{-0.019}$ (+0.3 $\sigma$ )	$D_M(0.38)$	1527.8	$1528^{+20}_{-20}$ (-0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0452	$3.046^{+0.045}_{-0.041}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9843	$0.985^{+0.027}_{-0.027}$ (+0.2 $\sigma$ )	$H(0.51)$	89.78	$89.77^{+0.61}_{-0.57}$ (+0.4 $\sigma$ )
$n_s$	0.9680	$0.9670^{+0.0095}_{-0.010}$ (+0.1 $\sigma$ )	$r_{drag} h$	99.66	$99.6^{+2.1}_{-2.0}$ (-0.2 $\sigma$ )	$D_M(0.51)$	1979.2	$1980^{+23}_{-23}$ (-0.2 $\sigma$ )
$y_{cal}$	1.0007	$1.0006^{+0.0061}_{-0.0063}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.433	$2.436^{+0.064}_{-0.067}$ (+0.3 $\sigma$ )	$H(0.61)$	95.401	$95.39^{+0.50}_{-0.47}$ (+0.5 $\sigma$ )
$A_{217}^{CIB}$	46.7	$47^{+20}_{-20}$ (-0.2 $\sigma$ )	$z_{re}$	7.76	$7.8^{+2.1}_{-2.1}$ (+0.2 $\sigma$ )	$D_M(0.61)$	2303.2	$2304^{+25}_{-25}$ (-0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.54	—	$10^9 A_s$	2.101	$2.103^{+0.096}_{-0.084}$ (+0.3 $\sigma$ )	$H(2.33)$	236.14	$236.2^{+1.6}_{-1.5}$ (+0.6 $\sigma$ )
$A_{143}^{tSZ}$	7.12	$> 1.03$ (+0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8813	$1.880^{+0.028}_{-0.027}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5758.2	$5759^{+23}_{-23}$ (-0.7 $\sigma$ )
$A_{100}^{PS}$	249	$258^{+70}_{-70}$ (-0.2 $\sigma$ )	$D_{40}$	1225.2	$1227^{+29}_{-29}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4560	$0.456^{+0.017}_{-0.017}$ (+0.3 $\sigma$ )
$A_{143}^{PS}$	48.6	$45^{+20}_{-20}$ (-0.4 $\sigma$ )	$D_{220}$	5735	$5735^{+94}_{-94}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7484	$0.748^{+0.018}_{-0.016}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{PS}$	49.8	$42^{+20}_{-20}$ (-0.1 $\sigma$ )	$D_{810}$	2541.5	$2539^{+33}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4745	$0.475^{+0.015}_{-0.015}$ (+0.3 $\sigma$ )
$A_{217}^{PS}$	120.4	$115^{+20}_{-30}$ (+0.1 $\sigma$ )	$D_{1420}$	819.1	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(0.38)$	0.6635	$0.664^{+0.016}_{-0.014}$ (+0.3 $\sigma$ )
$A^{kSZ}$	0.0	—	$D_{2000}$	231.58	$231.1^{+4.1}_{-3.9}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4732	$0.473^{+0.014}_{-0.014}$ (+0.3 $\sigma$ )
$A_{100}^{dustTT}$	8.89	$8.9^{+5.0}_{-4.6}$ (-0.0 $\sigma$ )	$n_{s,0.002}$	0.9680	$0.9670^{+0.0095}_{-0.010}$ (+0.1 $\sigma$ )	$\sigma_8(0.51)$	0.6210	$0.621^{+0.015}_{-0.013}$ (+0.3 $\sigma$ )
$A_{143}^{dustTT}$	11.01	$10.9^{+4.7}_{-4.4}$ (+0.1 $\sigma$ )	$Y_P$	0.245420	$0.24541^{+0.00012}_{-0.00014}$ (+1.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4683	$0.468^{+0.013}_{-0.012}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.9	$18.6^{+8.8}_{-9.0}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246746	$0.24674^{+0.00012}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5909	$0.591^{+0.014}_{-0.012}$ (+0.3 $\sigma$ )
$A_{217}^{dustTT}$	95.2	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.574	$2.577^{+0.066}_{-0.060}$ (-1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.2980	$0.2979^{+0.0072}_{-0.0061}$ (+0.3 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.113^{+0.093}_{-0.091}$	Age/Gyr	13.786	$13.787^{+0.052}_{-0.050}$ (-0.7 $\sigma$ )	$\sigma_8(2.33)$	0.3072	$0.3072^{+0.0077}_{-0.0063}$ (+0.3 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.074}_{-0.080}$	$z_*$	1089.78	$1089.80^{+0.57}_{-0.54}$ (-0.8 $\sigma$ )	$f_{2000}^{143}$	28.5	$29^{+7}_{-7}$ (-0.6 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.481	$0.48^{+0.21}_{-0.21}$	$r_*$	144.58	$144.57^{+0.59}_{-0.61}$ (-0.8 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.78	$32^{+5}_{-5}$ (-0.7 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	1.04118	$1.04119^{+0.00072}_{-0.00079}$ (+0.0 $\sigma$ )	$f_{2000}^{217}$	106.39	$106.8^{+4.4}_{-4.4}$ (-0.6 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.666	$0.67^{+0.21}_{-0.20}$	$D_M(z_*)/\text{Gpc}$	13.886	$13.885^{+0.055}_{-0.059}$ (-0.8 $\sigma$ )	$\chi_{small}^2$	396.2	$397.3 (\nu: 2.4)$ (+0.1 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.09^{+0.68}_{-0.66}$	$z_{drag}$	1060.01	$1060.00^{+0.70}_{-0.75}$ (+1.1 $\sigma$ )	$\chi_{lowl}^2$	22.87	$23.13 (\nu: 0.3)$ (+0.0 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0017}$ (+0.1 $\sigma$ )	$r_{drag}$	147.22	$147.22^{+0.61}_{-0.63}$ (-0.9 $\sigma$ )	$\chi_{plik}^2$	2345.5	$2359.6 (\nu: 17.0)$ (+289.2 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (-0.1 $\sigma$ )	$k_D$	0.14078	$0.14077^{+0.00074}_{-0.00072}$ (+1.1 $\sigma$ )	$\chi_{6DF}^2$	0.029	$0.057 (\nu: 0.0)$ (-0.0 $\sigma$ )
$H_0$	67.69	$67.7^{+1.2}_{-1.1}$ (+0.1 $\sigma$ )	$100\theta_D$	0.160709	$0.16073^{+0.00045}_{-0.00042}$ (-1.1 $\sigma$ )	$\chi_{MGS}^2$	1.22	$1.25 (\nu: 0.1)$ (-0.2 $\sigma$ )
$\Omega_\Lambda$	0.6894	$0.689^{+0.016}_{-0.016}$ (-0.1 $\sigma$ )	$z_{eq}$	3386	$3387^{+59}_{-58}$ (+0.5 $\sigma$ )	$\chi_{DR12BAO}^2$	4.41	$4.9 (\nu: 1.0)$ (+0.1 $\sigma$ )
$\Omega_m$	0.3106	$0.311^{+0.016}_{-0.016}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010334	$0.01034^{+0.00018}_{-0.00018}$ (+0.5 $\sigma$ )	$\chi_{prior}^2$	1.7	$11.6 (\nu: 10.4)$ (+1.1 $\sigma$ )
$\Omega_m h^2$	0.14233	$0.1424^{+0.0025}_{-0.0024}$ (+0.5 $\sigma$ )	$100\theta_{eq}$	0.8165	$0.816^{+0.011}_{-0.011}$ (-0.3 $\sigma$ )	$\chi_{BAO}^2$	5.66	$6.2 (\nu: 0.7)$ (-0.0 $\sigma$ )
$\Omega_m h^3$	0.09635	$0.09634^{+0.00075}_{-0.00067}$ (+1.0 $\sigma$ )	$100\theta_{s,eq}$	0.4510	$0.4509^{+0.0057}_{-0.0056}$ (-0.4 $\sigma$ )	$\chi_{CMB}^2$	2764.6	$2780.1 (\nu: 16.4)$ (+286.5 $\sigma$ )

Best-fit  $\chi_{eff}^2 = 2771.92$ ;  $\Delta\chi_{eff}^2 = 1586.17$ ;  $\bar{\chi}_{eff}^2 = 2797.91$ ;  $\Delta\bar{\chi}_{eff}^2 = 1591.88$ ;  $R - 1 = 0.01929$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.03 ( $\Delta$  0.01) MGS: 1.22 ( $\Delta$  -0.06) DR12BAO: 4.41 ( $\Delta$  0.23) CMB - smalll\_100x143\_offlike5\_EE\_Aplanck\_B: 396.20 ( $\Delta$  0.31) commander\_dx12\_v3\_2\_29: 22.87 ( $\Delta$  0.04) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.51



## 2.9 base\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022507	$0.02249^{+0.00033}_{-0.00037}$ ( $+0.5\sigma$ )	$\Omega_m h^3$	0.09642	$0.09638^{+0.00072}_{-0.00070}$ ( $+0.8\sigma$ )	$100\theta_{\text{eq}}$	0.8195	$0.819^{+0.013}_{-0.014}$ ( $-0.8\sigma$ )
$\Omega_c h^2$	0.11853	$0.1186^{+0.0033}_{-0.0030}$ ( $+0.8\sigma$ )	$\sigma_8$	0.8085	$0.808^{+0.020}_{-0.022}$ ( $+0.7\sigma$ )	$100\theta_{\text{s,eq}}$	0.4525	$0.4524^{+0.0067}_{-0.0072}$ ( $-0.9\sigma$ )
$100\theta_{\text{MC}}$	1.04111	$1.04109^{+0.00087}_{-0.00082}$ ( $-0.4\sigma$ )	$S_8$	0.8165	$0.817^{+0.039}_{-0.034}$ ( $+0.8\sigma$ )	$H(0.15)$	73.28	$73.2^{+1.2}_{-1.2}$ ( $-0.6\sigma$ )
$\tau$	0.0570	$0.057^{+0.025}_{-0.020}$ ( $+0.1\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4472	$0.448^{+0.021}_{-0.018}$ ( $+0.8\sigma$ )	$D_{\text{M}}(0.15)$	637.5	$638^{+12}_{-11}$ ( $+0.6\sigma$ )
$\ln(10^{10} A_{\text{s}})$	3.0469	$3.047^{+0.049}_{-0.048}$ ( $+0.4\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6013	$0.602^{+0.021}_{-0.019}$ ( $+0.8\sigma$ )	$H(0.38)$	83.30	$83.26^{+0.85}_{-0.88}$ ( $-0.5\sigma$ )
$n_{\text{s}}$	0.9701	$0.969^{+0.012}_{-0.011}$ ( $-0.4\sigma$ )	$\sigma_8/h^{0.5}$	0.9801	$0.980^{+0.029}_{-0.028}$ ( $+0.7\sigma$ )	$D_{\text{M}}(0.38)$	1521.7	$1523^{+24}_{-23}$ ( $+0.6\sigma$ )
$y_{\text{cal}}$	1.0006	$1.0006^{+0.0062}_{-0.0072}$ ( $+0.0\sigma$ )	$r_{\text{drag}} h$	100.25	$100.2^{+2.4}_{-2.5}$ ( $-0.7\sigma$ )	$H(0.51)$	89.97	$89.94^{+0.64}_{-0.71}$ ( $-0.4\sigma$ )
$A_{217}^{\text{CIB}}$	45.8	$46^{+20}_{-20}$ ( $-0.2\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.423	$2.427^{+0.070}_{-0.071}$ ( $+0.7\sigma$ )	$D_{\text{M}}(0.51)$	1972.0	$1973^{+28}_{-27}$ ( $+0.5\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.68	—	$z_{\text{re}}$	7.90	$7.9^{+2.3}_{-2.1}$ ( $+0.1\sigma$ )	$H(0.61)$	95.55	$95.52^{+0.51}_{-0.57}$ ( $-0.3\sigma$ )
$A_{143}^{\text{tSZ}}$	7.08	$5.6^{+4.2}_{-5.0}$ ( $+0.2\sigma$ )	$10^9 A_{\text{s}}$	2.105	$2.11^{+0.10}_{-0.098}$ ( $+0.4\sigma$ )	$D_{\text{M}}(0.61)$	2295.5	$2297^{+30}_{-29}$ ( $+0.5\sigma$ )
$A_{100}^{\text{PS}}$	247	$257^{+70}_{-80}$ ( $-0.2\sigma$ )	$10^9 A_{\text{s}} e^{-2\tau}$	1.8782	$1.877^{+0.028}_{-0.031}$ ( $+0.6\sigma$ )	$H(2.33)$	235.75	$235.8^{+2.0}_{-1.8}$ ( $+0.9\sigma$ )
$A_{143}^{\text{PS}}$	49.4	$45^{+20}_{-20}$ ( $-0.3\sigma$ )	$D_{40}$	1221.2	$1224^{+32}_{-38}$ ( $+0.5\sigma$ )	$D_{\text{M}}(2.33)$	5751.8	$5753^{+26}_{-24}$ ( $+0.1\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	52.7	$42^{+20}_{-20}$ ( $-0.1\sigma$ )	$D_{220}$	5739	$5740^{+91}_{-95}$ ( $+0.2\sigma$ )	$f\sigma_8(0.15)$	0.4522	$0.453^{+0.020}_{-0.017}$ ( $+0.8\sigma$ )
$A_{217}^{\text{PS}}$	121.3	$115^{+20}_{-30}$ ( $+0.1\sigma$ )	$D_{810}$	2541.3	$2539^{+34}_{-40}$ ( $+0.3\sigma$ )	$\sigma_8(0.15)$	0.7476	$0.747^{+0.018}_{-0.020}$ ( $+0.6\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	819.9	$818^{+12}_{-13}$ ( $+0.3\sigma$ )	$f\sigma_8(0.38)$	0.4718	$0.472^{+0.017}_{-0.015}$ ( $+0.8\sigma$ )
$A_{100}^{\text{dustTT}}$	8.83	$8.8^{+4.6}_{-4.7}$ ( $-0.2\sigma$ )	$D_{2000}$	231.96	$231.4^{+3.9}_{-4.1}$ ( $+0.5\sigma$ )	$\sigma_8(0.38)$	0.6633	$0.663^{+0.016}_{-0.017}$ ( $+0.6\sigma$ )
$A_{143}^{\text{dustTT}}$	11.00	$10.9^{+4.9}_{-4.3}$ ( $+0.1\sigma$ )	$n_{\text{s},0.002}$	0.9701	$0.969^{+0.012}_{-0.011}$ ( $-0.4\sigma$ )	$f\sigma_8(0.51)$	0.4710	$0.471^{+0.015}_{-0.014}$ ( $+0.8\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.0	$18.5^{+8.8}_{-9.2}$ ( $+0.1\sigma$ )	$Y_{\text{P}}$	0.245447	$0.24544^{+0.00013}_{-0.00015}$ ( $+0.5\sigma$ )	$\sigma_8(0.51)$	0.6210	$0.621^{+0.015}_{-0.016}$ ( $+0.5\sigma$ )
$A_{217}^{\text{dustTT}}$	95.3	$94^{+20}_{-20}$ ( $+0.1\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.246774	$0.24676^{+0.00013}_{-0.00015}$ ( $+0.5\sigma$ )	$f\sigma_8(0.61)$	0.4665	$0.467^{+0.013}_{-0.013}$ ( $+0.8\sigma$ )
$A_{100}^{\text{dustTE}}$	0.113	$0.113^{+0.092}_{-0.096}$	$10^5 \text{D/H}$	2.561	$2.565^{+0.069}_{-0.060}$ ( $-0.5\sigma$ )	$\sigma_8(0.61)$	0.5911	$0.591^{+0.015}_{-0.015}$ ( $+0.5\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.134^{+0.073}_{-0.081}$	Age/Gyr	13.772	$13.775^{+0.058}_{-0.052}$ ( $+0.0\sigma$ )	$f\sigma_8(2.33)$	0.2982	$0.2981^{+0.0075}_{-0.0074}$ ( $+0.4\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.479	$0.48^{+0.22}_{-0.21}$	$z_*$	1089.62	$1089.66^{+0.65}_{-0.60}$ ( $-0.0\sigma$ )	$\sigma_8(2.33)$	0.3077	$0.3076^{+0.0078}_{-0.0076}$ ( $+0.2\sigma$ )
$A_{143}^{\text{dustTE}}$	0.224	$0.22^{+0.14}_{-0.15}$	$r_*$	144.71	$144.70^{+0.66}_{-0.74}$ ( $-1.1\sigma$ )	$f_{2000}^{143}$	27.9	$29^{+7}_{-8}$ ( $-0.5\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.663	$0.66^{+0.20}_{-0.20}$	$100\theta_*$	1.04129	$1.04127^{+0.00086}_{-0.00081}$ ( $-0.4\sigma$ )	$f_{2000}^{143 \times 217}$	31.41	$32^{+5}_{-5}$ ( $-0.6\sigma$ )
$A_{217}^{\text{dustTE}}$	2.08	$2.07^{+0.66}_{-0.65}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.897	$13.897^{+0.065}_{-0.070}$ ( $-1.0\sigma$ )	$f_{2000}^{217}$	105.97	$106.6^{+4.4}_{-4.7}$ ( $-0.5\sigma$ )
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0017}$ ( $+0.1\sigma$ )	$z_{\text{drag}}$	1060.16	$1060.10^{+0.67}_{-0.74}$ ( $+0.8\sigma$ )	$\chi_{\text{simall}}^2$	396.5	$397.6 (\nu: 3.2)$ ( $+0.2\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0015}_{-0.0016}$ ( $-0.2\sigma$ )	$r_{\text{drag}}$	147.33	$147.33^{+0.68}_{-0.74}$ ( $-1.1\sigma$ )	$\chi_{\text{lowl}}^2$	22.54	$22.86 (\nu: 0.4)$ ( $+0.5\sigma$ )
$H_0$	68.05	$68.0^{+1.4}_{-1.4}$ ( $-0.6\sigma$ )	$k_{\text{D}}$	0.14072	$0.14070^{+0.00081}_{-0.00069}$ ( $+1.2\sigma$ )	$\chi_{\text{plik}}^2$	2346.8	$2361.0 (\nu: 21.4)$ ( $+230.7\sigma$ )
$\Omega_{\Lambda}$	0.6940	$0.693^{+0.017}_{-0.020}$ ( $-0.7\sigma$ )	$100\theta_{\text{D}}$	0.160647	$0.16067^{+0.00044}_{-0.00038}$ ( $-0.9\sigma$ )	$\chi_{\text{H073p45}}^2$	10.6	$10.9 (\nu: 2.5)$ ( $+0.6\sigma$ )
$\Omega_{\text{m}}$	0.3060	$0.307^{+0.020}_{-0.017}$ ( $+0.7\sigma$ )	$z_{\text{eq}}$	3370	$3372^{+75}_{-69}$ ( $+0.9\sigma$ )	$\chi_{\text{prior}}^2$	1.6	$11.7 (\nu: 11.5)$ ( $+1.2\sigma$ )
$\Omega_{\text{m}} h^2$	0.14169	$0.1418^{+0.0031}_{-0.0029}$ ( $+0.9\sigma$ )	$k_{\text{eq}}$	0.010287	$0.01029^{+0.00023}_{-0.00021}$ ( $+0.9\sigma$ )	$\chi_{\text{CMB}}^2$	2765.8	$2781.5 (\nu: 20.4)$ ( $+244.0\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 2777.94$ ;  $\Delta\chi_{\text{eff}}^2 = 1586.36$ ;  $\bar{\chi}_{\text{eff}}^2 = 2804.16$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1592.08$ ;  $R - 1 = 0.03140$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.47 ( $\Delta$  0.40) commander\_dx12\_v3.2.29: 22.54 ( $\Delta$  0.46) plik\_rd12\_HM\_v22b\_TTTEEE: 2346.76 Hubble - H073p45: 10.59 ( $\Delta$  1.60)



## 2.10 base\_plikHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02236^{+0.00038}_{-0.00038} \quad (+1.1\sigma)$	$\Omega_{\text{m}}h^3$	$0.09633^{+0.00076}_{-0.00071} \quad (+1.0\sigma)$	$100\theta_{\text{eq}}$	$0.813^{+0.015}_{-0.015} \quad (+0.2\sigma)$
$\Omega_{\text{c}}h^2$	$0.1202^{+0.0036}_{-0.0035} \quad (-0.2\sigma)$	$\sigma_8$	$0.813^{+0.019}_{-0.017} \quad (-0.0\sigma)$	$100\theta_{\text{s,eq}}$	$0.4490^{+0.0077}_{-0.0075} \quad (+0.1\sigma)$
$100\theta_{\text{MC}}$	$1.04091^{+0.00078}_{-0.00080} \quad (+0.3\sigma)$	$S_8$	$0.834^{+0.042}_{-0.041} \quad (-0.2\sigma)$	$H(0.15)$	$72.6^{+1.3}_{-1.3} \quad (+0.4\sigma)$
$\tau$	$0.055^{+0.020}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.457^{+0.023}_{-0.023} \quad (-0.2\sigma)$	$D_{\text{M}}(0.15)$	$644^{+14}_{-13} \quad (-0.4\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.047^{+0.044}_{-0.029} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.609^{+0.021}_{-0.021} \quad (-0.2\sigma)$	$H(0.38)$	$82.83^{+0.98}_{-0.95} \quad (+0.5\sigma)$
$n_{\text{s}}$	$0.965^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.991^{+0.030}_{-0.029} \quad (-0.2\sigma)$	$D_{\text{M}}(0.38)$	$1535^{+27}_{-27} \quad (-0.4\sigma)$
$y_{\text{cal}}$	$1.0005^{+0.0063}_{-0.0064} \quad (+0.0\sigma)$	$r_{\text{drag}}h$	$99.0^{+2.8}_{-2.7} \quad (+0.3\sigma)$	$H(0.51)$	$89.60^{+0.77}_{-0.76} \quad (+0.6\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.450^{+0.071}_{-0.069} \quad (-0.2\sigma)$	$D_{\text{M}}(0.51)$	$1987^{+31}_{-31} \quad (-0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 9.66 \quad (+0.2\sigma)$	$H(0.61)$	$95.26^{+0.63}_{-0.60} \quad (+0.7\sigma)$
$A_{143}^{\text{tSZ}}$	$5.5^{+4.3}_{-4.8} \quad (+0.2\sigma)$	$10^9 A_{\text{s}}$	$2.105^{+0.094}_{-0.061} \quad (+0.2\sigma)$	$D_{\text{M}}(0.61)$	$2312^{+33}_{-34} \quad (-0.5\sigma)$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.884^{+0.030}_{-0.030} \quad (-0.0\sigma)$	$H(2.33)$	$236.7^{+2.1}_{-2.1} \quad (-0.0\sigma)$
$A_{143}^{\text{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{40}$	$1232^{+34}_{-32} \quad (-0.1\sigma)$	$D_{\text{M}}(2.33)$	$5764^{+28}_{-28} \quad (-0.8\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5731^{+98}_{-99} \quad (+0.4\sigma)$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021} \quad (-0.2\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{810}$	$2539^{+34}_{-35} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.750^{+0.017}_{-0.014} \quad (+0.0\sigma)$
$A^{\text{kSZ}}$	—	$D_{1420}$	$817^{+12}_{-12} \quad (+0.5\sigma)$	$f\sigma_8(0.38)$	$0.479^{+0.017}_{-0.017} \quad (-0.2\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$D_{2000}$	$230.9^{+4.1}_{-4.0} \quad (+0.7\sigma)$	$\sigma_8(0.38)$	$0.665^{+0.015}_{-0.011} \quad (+0.1\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.7}_{-4.5} \quad (+0.1\sigma)$	$n_{\text{s},0.002}$	$0.965^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.477^{+0.015}_{-0.015} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.5}_{-8.7} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.24539^{+0.00014}_{-0.00016} \quad (+1.0\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.014}_{-0.010} \quad (+0.2\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24672^{+0.00014}_{-0.00016} \quad (+1.0\sigma)$	$f\sigma_8(0.61)$	$0.471^{+0.014}_{-0.013} \quad (-0.1\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.096}$	$10^5 \text{D/H}$	$2.587^{+0.072}_{-0.068} \quad (-1.1\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.013}_{-0.0095} \quad (+0.2\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.077}_{-0.077}$	$\text{Age/Gyr}$	$13.799^{+0.062}_{-0.061} \quad (-0.8\sigma)$	$f\sigma_8(2.33)$	$0.2981^{+0.0068}_{-0.0046} \quad (+0.3\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$z_*$	$1089.94^{+0.71}_{-0.69} \quad (-0.8\sigma)$	$\sigma_8(2.33)$	$0.3071^{+0.0073}_{-0.0048} \quad (+0.3\sigma)$
$A_{143}^{\text{dustTE}}$	$0.23^{+0.13}_{-0.14}$	$r_*$	$144.40^{+0.76}_{-0.76} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.67^{+0.21}_{-0.21}$	$100\theta_*$	$1.04109^{+0.00076}_{-0.00078} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{217}^{\text{dustTE}}$	$2.09^{+0.70}_{-0.69}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.870^{+0.072}_{-0.070} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.9^{+4.6}_{-4.5} \quad (-0.6\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1059.93^{+0.77}_{-0.76} \quad (+1.1\sigma)$	$\chi_{\text{small}}^2$	$397.1 \quad (\nu: 2.1) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\text{drag}}$	$147.06^{+0.76}_{-0.75} \quad (-0.3\sigma)$	$\chi_{\text{lowl}}^2$	$23.56 \quad (\nu: 0.5) \quad (-0.3\sigma)$
$H_0$	$67.3^{+1.6}_{-1.5} \quad (+0.4\sigma)$	$k_{\text{D}}$	$0.14090^{+0.00080}_{-0.00079} \quad (+0.7\sigma)$	$\chi_{\text{plik}}^2$	$2359.3 \quad (\nu: 16.1) \quad (+292.4\sigma)$
$\Omega_{\Lambda}$	$0.684^{+0.021}_{-0.023} \quad (+0.3\sigma)$	$100\theta_{\text{D}}$	$0.16076^{+0.00046}_{-0.00044} \quad (-1.1\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\text{m}}$	$0.316^{+0.023}_{-0.021} \quad (-0.3\sigma)$	$z_{\text{eq}}$	$3406^{+79}_{-78} \quad (-0.1\sigma)$	$\chi_{\text{CMB}}^2$	$2779.9 \quad (\nu: 16.1) \quad (+292.3\sigma)$
$\Omega_{\text{m}}h^2$	$0.1432^{+0.0033}_{-0.0033} \quad (-0.1\sigma)$	$k_{\text{eq}}$	$0.01040^{+0.00024}_{-0.00024} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2791.53; \Delta\bar{\chi}_{\text{eff}}^2 = 1592.22; R - 1 = 0.01241$$



## 2.11 base\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02242^{+0.00033}_{-0.00035} \quad (+1.0\sigma)$	$\sigma_8$	$0.810^{+0.019}_{-0.016} \quad (+0.3\sigma)$	$H(0.15)$	$73.0^{+1.0}_{-0.97} \quad (+0.1\sigma)$
$\Omega_c h^2$	$0.1193^{+0.0026}_{-0.0026} \quad (+0.3\sigma)$	$S_8$	$0.825^{+0.032}_{-0.033} \quad (+0.2\sigma)$	$D_M(0.15)$	$640.7^{+9.8}_{-9.8} \quad (-0.1\sigma)$
$100\theta_{MC}$	$1.04101^{+0.00074}_{-0.00079} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.452^{+0.018}_{-0.018} \quad (+0.2\sigma)$	$H(0.38)$	$83.06^{+0.73}_{-0.71} \quad (+0.3\sigma)$
$\tau$	$0.057^{+0.020}_{-0.015} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.605^{+0.018}_{-0.018} \quad (+0.3\sigma)$	$D_M(0.38)$	$1528^{+19}_{-20} \quad (-0.1\sigma)$
$\ln(10^{10} A_s)$	$3.047^{+0.042}_{-0.032} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.027}_{-0.025} \quad (+0.2\sigma)$	$H(0.51)$	$89.78^{+0.60}_{-0.57} \quad (+0.4\sigma)$
$n_s$	$0.9670^{+0.0096}_{-0.010} \quad (+0.1\sigma)$	$r_{drag} h$	$99.6^{+2.1}_{-2.0} \quad (-0.2\sigma)$	$D_M(0.51)$	$1980^{+23}_{-23} \quad (-0.2\sigma)$
$y_{cal}$	$1.0006^{+0.0061}_{-0.0064} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.063}_{-0.058} \quad (+0.2\sigma)$	$H(0.61)$	$95.39^{+0.50}_{-0.47} \quad (+0.5\sigma)$
$A_{217}^{CIB}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$z_{re}$	$< 9.68 \quad (+0.1\sigma)$	$D_M(0.61)$	$2304^{+25}_{-25} \quad (-0.2\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s$	$2.106^{+0.089}_{-0.068} \quad (+0.3\sigma)$	$H(2.33)$	$236.2^{+1.6}_{-1.5} \quad (+0.6\sigma)$
$A_{143}^{tSZ}$	$> 1.07 \quad (+0.2\sigma)$	$10^9 A_s e^{-2\tau}$	$1.880^{+0.028}_{-0.027} \quad (+0.2\sigma)$	$D_M(2.33)$	$5759^{+22}_{-22} \quad (-0.6\sigma)$
$A_{100}^{PS}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1227^{+29}_{-29} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017} \quad (+0.2\sigma)$
$A_{143}^{PS}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5735^{+92}_{-94} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.017}_{-0.014} \quad (+0.3\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2539^{+33}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.015}_{-0.014} \quad (+0.3\sigma)$
$A_{217}^{PS}$	$115^{+20}_{-30} \quad (+0.1\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.015}_{-0.011} \quad (+0.3\sigma)$
$A^{kSZ}$	—	$D_{2000}$	$231.1^{+4.1}_{-3.9} \quad (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.013}_{-0.013} \quad (+0.3\sigma)$
$A_{100}^{dustTT}$	$8.9^{+5.0}_{-4.6} \quad (-0.0\sigma)$	$n_{s,0.002}$	$0.9670^{+0.0096}_{-0.010} \quad (+0.1\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.015}_{-0.010} \quad (+0.3\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.7}_{-4.4} \quad (+0.1\sigma)$	$Y_P$	$0.24541^{+0.00012}_{-0.00014} \quad (+1.0\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.012}_{-0.012} \quad (+0.3\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.6^{+8.8}_{-8.9} \quad (+0.1\sigma)$	$Y_P^{BBN}$	$0.24674^{+0.00012}_{-0.00014} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.014}_{-0.0094} \quad (+0.3\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$10^5 D/H$	$2.577^{+0.066}_{-0.060} \quad (-1.0\sigma)$	$f\sigma_8(2.33)$	$0.2982^{+0.0070}_{-0.0047} \quad (+0.3\sigma)$
$A_{100}^{dustTE}$	$0.114^{+0.094}_{-0.091}$	Age/Gyr	$13.787^{+0.051}_{-0.050} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.3074^{+0.0075}_{-0.0049} \quad (+0.3\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.074}_{-0.080}$	$z_*$	$1089.80^{+0.57}_{-0.56} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.21}_{-0.21}$	$r_*$	$144.57^{+0.58}_{-0.61} \quad (-0.8\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.04119^{+0.00072}_{-0.00077} \quad (+0.0\sigma)$	$f_{2000}^{217}$	$106.8^{+4.5}_{-4.4} \quad (-0.6\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.21}_{-0.20}$	$D_M(z_*)/\text{Gpc}$	$13.886^{+0.056}_{-0.059} \quad (-0.8\sigma)$	$\chi_{small}^2$	$397.3 \quad (\nu: 2.5) \quad (+0.1\sigma)$
$A_{217}^{dustTE}$	$2.09^{+0.67}_{-0.66}$	$z_{drag}$	$1060.00^{+0.73}_{-0.76} \quad (+1.1\sigma)$	$\chi_{lowl}^2$	$23.14 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0017} \quad (+0.1\sigma)$	$r_{drag}$	$147.22^{+0.61}_{-0.63} \quad (-0.9\sigma)$	$\chi_{plik}^2$	$2359.5 \quad (\nu: 16.4) \quad (+291.6\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.2\sigma)$	$k_D$	$0.14077^{+0.00074}_{-0.00070} \quad (+1.1\sigma)$	$\chi_{6DF}^2$	$0.056 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$H_0$	$67.7^{+1.2}_{-1.1} \quad (+0.1\sigma)$	$100\theta_D$	$0.16072^{+0.00044}_{-0.00041} \quad (-1.1\sigma)$	$\chi_{MGS}^2$	$1.26 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_\Lambda$	$0.689^{+0.015}_{-0.016} \quad (-0.1\sigma)$	$z_{eq}$	$3387^{+59}_{-58} \quad (+0.5\sigma)$	$\chi_{DR12BAO}^2$	$4.9 \quad (\nu: 1.0) \quad (+0.1\sigma)$
$\Omega_m$	$0.311^{+0.016}_{-0.015} \quad (+0.1\sigma)$	$k_{eq}$	$0.01034^{+0.00018}_{-0.00018} \quad (+0.5\sigma)$	$\chi_{prior}^2$	$11.6 \quad (\nu: 10.4) \quad (+1.1\sigma)$
$\Omega_m h^2$	$0.1424^{+0.0025}_{-0.0024} \quad (+0.5\sigma)$	$100\theta_{eq}$	$0.816^{+0.011}_{-0.011} \quad (-0.3\sigma)$	$\chi_{BAO}^2$	$6.2 \quad (\nu: 0.7) \quad (-0.0\sigma)$
$\Omega_m h^3$	$0.09634^{+0.00075}_{-0.00067} \quad (+1.0\sigma)$	$100\theta_{s,eq}$	$0.4509^{+0.0057}_{-0.0056} \quad (-0.4\sigma)$	$\chi_{CMB}^2$	$2779.9 \quad (\nu: 15.7) \quad (+290.3\sigma)$

$$\bar{\chi}_{eff}^2 = 2797.72; \Delta \bar{\chi}_{eff}^2 = 1591.96; R - 1 = 0.02064$$



## 2.12 base\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02249^{+0.00034}_{-0.00037} \quad (+0.5\sigma)$	$\Omega_{\text{m}}h^3$	$0.09638^{+0.00072}_{-0.00069} \quad (+0.8\sigma)$	$100\theta_{\text{eq}}$	$0.819^{+0.013}_{-0.014} \quad (-0.8\sigma)$
$\Omega_{\text{c}}h^2$	$0.1186^{+0.0033}_{-0.0030} \quad (+0.8\sigma)$	$\sigma_8$	$0.809^{+0.020}_{-0.016} \quad (+0.7\sigma)$	$100\theta_{\text{s,eq}}$	$0.4524^{+0.0067}_{-0.0072} \quad (-0.9\sigma)$
$100\theta_{\text{MC}}$	$1.04110^{+0.00086}_{-0.00081} \quad (-0.4\sigma)$	$S_8$	$0.818^{+0.039}_{-0.034} \quad (+0.8\sigma)$	$H(0.15)$	$73.2^{+1.2}_{-1.2} \quad (-0.6\sigma)$
$\tau$	$0.058^{+0.022}_{-0.016} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.448^{+0.021}_{-0.018} \quad (+0.8\sigma)$	$D_{\text{M}}(0.15)$	$638^{+12}_{-11} \quad (+0.6\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.048^{+0.047}_{-0.032} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.602^{+0.020}_{-0.019} \quad (+0.8\sigma)$	$H(0.38)$	$83.27^{+0.84}_{-0.87} \quad (-0.5\sigma)$
$n_{\text{s}}$	$0.969^{+0.012}_{-0.011} \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.981^{+0.029}_{-0.025} \quad (+0.7\sigma)$	$D_{\text{M}}(0.38)$	$1523^{+24}_{-23} \quad (+0.6\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0062}_{-0.0065} \quad (+0.0\sigma)$	$r_{\text{drag}}h$	$100.2^{+2.2}_{-2.5} \quad (-0.7\sigma)$	$H(0.51)$	$89.94^{+0.63}_{-0.71} \quad (-0.4\sigma)$
$A_{217}^{\text{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.428^{+0.069}_{-0.059} \quad (+0.7\sigma)$	$D_{\text{M}}(0.51)$	$1973^{+28}_{-26} \quad (+0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 9.95 \quad (+0.1\sigma)$	$H(0.61)$	$95.52^{+0.51}_{-0.57} \quad (-0.3\sigma)$
$A_{143}^{\text{tSZ}}$	$5.6^{+4.3}_{-5.0} \quad (+0.2\sigma)$	$10^9 A_{\text{s}}$	$2.108^{+0.095}_{-0.072} \quad (+0.3\sigma)$	$D_{\text{M}}(0.61)$	$2297^{+30}_{-28} \quad (+0.5\sigma)$
$A_{100}^{\text{PS}}$	$257^{+70}_{-80} \quad (-0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.877^{+0.028}_{-0.027} \quad (+0.6\sigma)$	$H(2.33)$	$235.8^{+2.0}_{-1.8} \quad (+0.9\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} \quad (-0.3\sigma)$	$D_{40}$	$1224^{+31}_{-31} \quad (+0.5\sigma)$	$D_{\text{M}}(2.33)$	$5753^{+26}_{-23} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5741^{+90}_{-96} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.453^{+0.020}_{-0.017} \quad (+0.8\sigma)$
$A_{217}^{\text{PS}}$	$115^{+20}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2539^{+34}_{-35} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.018}_{-0.014} \quad (+0.6\sigma)$
$A^{\text{kSZ}}$	—	$D_{1420}$	$818^{+12}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.016}_{-0.016} \quad (+0.8\sigma)$
$A_{100}^{\text{dustTT}}$	$8.8^{+4.7}_{-4.7} \quad (-0.2\sigma)$	$D_{2000}$	$231.4^{+3.8}_{-4.0} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.015}_{-0.012} \quad (+0.6\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.9}_{-4.3} \quad (+0.1\sigma)$	$n_{\text{s},0.002}$	$0.969^{+0.012}_{-0.011} \quad (-0.4\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.013} \quad (+0.8\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.5^{+8.8}_{-9.1} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.24544^{+0.00013}_{-0.00015} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.011} \quad (+0.5\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00013}_{-0.00015} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.013}_{-0.012} \quad (+0.8\sigma)$
$A_{100}^{\text{dustTE}}$	$0.113^{+0.091}_{-0.096}$	$10^5 \text{D/H}$	$2.565^{+0.069}_{-0.060} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.014}_{-0.0099} \quad (+0.5\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.073}_{-0.080}$	$\text{Age/Gyr}$	$13.774^{+0.057}_{-0.052} \quad (+0.0\sigma)$	$f\sigma_8(2.33)$	$0.2983^{+0.0069}_{-0.0053} \quad (+0.4\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$z_*$	$1089.65^{+0.66}_{-0.55} \quad (-0.0\sigma)$	$\sigma_8(2.33)$	$0.3078^{+0.0076}_{-0.0052} \quad (+0.2\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.15}$	$r_*$	$144.70^{+0.71}_{-0.74} \quad (-1.1\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-8} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.20}$	$100\theta_*$	$1.04127^{+0.00086}_{-0.00080} \quad (-0.4\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.5\sigma)$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.65}_{-0.65}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.897^{+0.065}_{-0.070} \quad (-1.0\sigma)$	$f_{2000}^{217}$	$106.5^{+4.4}_{-4.8} \quad (-0.4\sigma)$
$c_{100}$	$0.9997^{+0.0017}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1060.11^{+0.67}_{-0.75} \quad (+0.8\sigma)$	$\chi_{\text{small}}^2$	$397.6 \quad (\nu: 3.3) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016} \quad (-0.2\sigma)$	$r_{\text{drag}}$	$147.33^{+0.69}_{-0.74} \quad (-1.1\sigma)$	$\chi_{\text{lowl}}^2$	$22.87 \quad (\nu: 0.4) \quad (+0.5\sigma)$
$H_0$	$68.0^{+1.3}_{-1.4} \quad (-0.6\sigma)$	$k_{\text{D}}$	$0.14070^{+0.00080}_{-0.00069} \quad (+1.2\sigma)$	$\chi_{\text{plik}}^2$	$2360.9 \quad (\nu: 20.7) \quad (+237.3\sigma)$
$\Omega_{\Lambda}$	$0.693^{+0.017}_{-0.020} \quad (-0.7\sigma)$	$100\theta_{\text{D}}$	$0.16067^{+0.00044}_{-0.00038} \quad (-0.9\sigma)$	$\chi_{\text{H073p45}}^2$	$10.9 \quad (\nu: 2.5) \quad (+0.6\sigma)$
$\Omega_{\text{m}}$	$0.307^{+0.020}_{-0.017} \quad (+0.7\sigma)$	$z_{\text{eq}}$	$3372^{+74}_{-69} \quad (+0.9\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.4) \quad (+1.1\sigma)$
$\Omega_{\text{m}}h^2$	$0.1417^{+0.0031}_{-0.0029} \quad (+0.9\sigma)$	$k_{\text{eq}}$	$0.01029^{+0.00023}_{-0.00021} \quad (+0.9\sigma)$	$\chi_{\text{CMB}}^2$	$2781.4 \quad (\nu: 19.8) \quad (+250.6\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 2803.89; \Delta\bar{\chi}_{\text{eff}}^2 = 1592.08; R - 1 = 0.03660$$



### 2.13 base\_CamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02213	$0.02214^{+0.00057}_{-0.00057}$	$\sigma_8 \Omega_m^{0.5}$	0.4585	$0.458^{+0.035}_{-0.033}$	$100\theta_{s,eq}$	0.4486	$0.449^{+0.012}_{-0.012}$
$\Omega_c h^2$	0.1205	$0.1205^{+0.0055}_{-0.0053}$	$\sigma_8 \Omega_m^{0.25}$	0.6098	$0.610^{+0.031}_{-0.030}$	$H(0.15)$	72.32	$72.3^{+2.1}_{-2.0}$
$100\theta_{MC}$	1.04085	$1.0408^{+0.0013}_{-0.0012}$	$\sigma_8/h^{0.5}$	0.9911	$0.991^{+0.041}_{-0.041}$	$D_M(0.15)$	646.9	$647^{+21}_{-20}$
$\tau$	0.0519	$0.052^{+0.021}_{-0.022}$	$r_{drag} h$	98.58	$98.6^{+4.2}_{-4.1}$	$H(0.38)$	82.57	$82.6^{+1.5}_{-1.4}$
$\ln(10^{10} A_s)$	3.0384	$3.039^{+0.043}_{-0.046}$	$\langle d^2 \rangle^{1/2}$	2.447	$2.448^{+0.099}_{-0.096}$	$D_M(0.38)$	1540.8	$1541^{+41}_{-40}$
$n_s$	0.9639	$0.964^{+0.015}_{-0.015}$	$z_{re}$	7.50	$7.5^{+2.0}_{-2.4}$	$H(0.51)$	89.36	$89.4^{+1.2}_{-1.1}$
$y_{cal}$	1.0004	$1.0005^{+0.0067}_{-0.0068}$	$10^9 A_s$	2.087	$2.089^{+0.091}_{-0.095}$	$D_M(0.51)$	1994.7	$1994^{+48}_{-47}$
$A_{100}^{PS}$	239	$242^{+60}_{-60}$	$10^9 A_s e^{-2\tau}$	1.8813	$1.882^{+0.036}_{-0.036}$	$H(0.61)$	95.04	$95.05^{+0.95}_{-0.88}$
$A_{143}^{PS}$	41.3	$41^{+20}_{-20}$	$D_{40}$	1228.7	$1230^{+40}_{-39}$	$D_M(0.61)$	2320	$2320^{+52}_{-51}$
$A_{217}^{PS}$	100.6	$101^{+30}_{-40}$	$D_{220}$	5702	$5704^{+110}_{-110}$	$H(2.33)$	236.64	$236.6^{+3.4}_{-3.2}$
$A_{217}^{CIB}$	45.0	$41^{+20}_{-20}$	$D_{810}$	2534.0	$2534^{+36}_{-37}$	$D_M(2.33)$	5775.9	$5775^{+42}_{-43}$
$A_{143}^{tSZ}$	5.89	$< 8.65$	$D_{1420}$	814.3	$814^{+13}_{-14}$	$f\sigma_8(0.15)$	0.4624	$0.462^{+0.032}_{-0.031}$
$r_{143 \times 217}^{PS}$	0.582	$0.65^{+0.31}_{-0.33}$	$D_{2000}$	229.56	$229.6^{+4.6}_{-4.8}$	$\sigma_8(0.15)$	0.7486	$0.749^{+0.019}_{-0.020}$
$r_{143 \times 217}^{CIB}$	0.79	—	$n_{s,0.002}$	0.9639	$0.964^{+0.015}_{-0.015}$	$f\sigma_8(0.38)$	0.4789	$0.479^{+0.025}_{-0.025}$
$\xi^{tSZ \times CIB}$	0.12	—	$Y_P$	0.245298	$0.24529^{+0.00023}_{-0.00027}$	$\sigma_8(0.38)$	0.6627	$0.663^{+0.015}_{-0.017}$
$A^{kSZ}$	1.2	—	$Y_P^{BBN}$	0.246624	$0.24662^{+0.00023}_{-0.00027}$	$f\sigma_8(0.51)$	0.4766	$0.476^{+0.021}_{-0.021}$
$A_{100}^{dust}$	1.01	$1.01^{+0.50}_{-0.51}$	$10^5 D/H$	2.631	$2.63^{+0.11}_{-0.11}$	$\sigma_8(0.51)$	0.6199	$0.620^{+0.014}_{-0.015}$
$A_{143}^{dust}$	0.991	$0.98^{+0.45}_{-0.47}$	Age/Gyr	13.826	$13.825^{+0.094}_{-0.097}$	$f\sigma_8(0.61)$	0.4710	$0.471^{+0.018}_{-0.019}$
$A_{217}^{dust}$	0.966	$0.97^{+0.27}_{-0.27}$	$z_*$	1090.27	$1090.3^{+1.1}_{-1.0}$	$\sigma_8(0.61)$	0.5896	$0.590^{+0.013}_{-0.014}$
$A_{143 \times 217}^{dust}$	0.995	$1.03^{+0.42}_{-0.42}$	$r_*$	144.49	$144.5^{+1.2}_{-1.3}$	$f\sigma_8(2.33)$	0.2970	$0.2970^{+0.0065}_{-0.0070}$
$c_{100}$	0.99755	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_*$	1.04105	$1.0411^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.3058	$0.3058^{+0.0069}_{-0.0073}$
$c_{217}$	1.00139	$1.0012^{+0.0040}_{-0.0040}$	$D_M(z_*)/\text{Gpc}$	13.879	$13.88^{+0.11}_{-0.12}$	$f_{2000}^{143}$	31.1	$31^{+8}_{-8}$
$H_0$	66.96	$67.0^{+2.4}_{-2.4}$	$z_{drag}$	1059.44	$1059.4^{+1.2}_{-1.2}$	$f_{2000}^{217}$	107.6	$107.6^{+5.1}_{-5.3}$
$\Omega_\Lambda$	0.6805	$0.680^{+0.032}_{-0.036}$	$r_{drag}$	147.22	$147.2^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+6}_{-5}$
$\Omega_m$	0.3195	$0.320^{+0.036}_{-0.032}$	$k_D$	0.14054	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{simall}^2$	395.83	$396.9 (\nu: 1.3)$
$\Omega_m h^2$	0.1433	$0.1432^{+0.0053}_{-0.0050}$	$100\theta_D$	0.16106	$0.16106^{+0.00072}_{-0.00067}$	$\chi_{lowl}^2$	23.40	$23.5 (\nu: 0.8)$
$\Omega_m h^3$	0.09594	$0.0959^{+0.0012}_{-0.0012}$	$z_{eq}$	3408	$3408^{+130}_{-120}$	$\chi_{CamSpec}^2$	7050.3	$7063.4 (\nu: 14.8)$
$\sigma_8$	0.8110	$0.811^{+0.023}_{-0.024}$	$k_{eq}$	0.010403	$0.01040^{+0.00038}_{-0.00036}$	$\chi_{prior}^2$	2.2	$7.7 (\nu: 6.3)$
$S_8$	0.837	$0.837^{+0.064}_{-0.060}$	$100\theta_{eq}$	0.8115	$0.812^{+0.023}_{-0.023}$	$\chi_{CMB}^2$	7469.6	$7483.8 (\nu: 15.1)$

Best-fit  $\chi_{eff}^2 = 7471.74$ ;  $\bar{\chi}_{eff}^2 = 7491.54$ ;  $R - 1 = 0.00710$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.83 commander\_dx12\_v3.2\_29: 23.40 CamSpec like\_10.7HM: 7050.34



## 2.14 base\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02223^{+0.00050}_{-0.00050}$	$\sigma_8/h^{0.5}$	$0.981^{+0.030}_{-0.031}$	$D_M(0.38)$	$1529^{+24}_{-23}$
$\Omega_c h^2$	$0.1189^{+0.0032}_{-0.0030}$	$r_{\text{drag}} h$	$99.8^{+2.4}_{-2.4}$	$H(0.51)$	$89.69^{+0.78}_{-0.72}$
$100\theta_{\text{MC}}$	$1.0411^{+0.0012}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.071}_{-0.071}$	$D_M(0.51)$	$1981^{+28}_{-28}$
$\tau$	$0.054^{+0.021}_{-0.021}$	$z_{\text{re}}$	$7.6^{+2.0}_{-2.3}$	$H(0.61)$	$95.29^{+0.68}_{-0.61}$
$\ln(10^{10} A_s)$	$3.039^{+0.044}_{-0.047}$	$10^9 A_s$	$2.088^{+0.094}_{-0.097}$	$D_M(0.61)$	$2305^{+31}_{-30}$
$n_s$	$0.967^{+0.011}_{-0.011}$	$10^9 A_s e^{-2\tau}$	$1.875^{+0.031}_{-0.030}$	$H(2.33)$	$235.7^{+2.0}_{-2.0}$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0067}$	$D_{40}$	$1222^{+33}_{-32}$	$D_M(2.33)$	$5765^{+31}_{-33}$
$A_{100}^{\text{PS}}$	$241^{+60}_{-60}$	$D_{220}$	$5711^{+110}_{-110}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.020}$
$A_{143}^{\text{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2534^{+36}_{-36}$	$\sigma_8(0.15)$	$0.746^{+0.018}_{-0.019}$
$A_{217}^{\text{PS}}$	$101^{+30}_{-40}$	$D_{1420}$	$815^{+13}_{-14}$	$f\sigma_8(0.38)$	$0.472^{+0.017}_{-0.017}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.9^{+4.4}_{-4.7}$	$\sigma_8(0.38)$	$0.661^{+0.015}_{-0.017}$
$A_{143}^{\text{tSZ}}$	$< 8.77$	$n_{\text{s},0.002}$	$0.967^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.015}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.32}_{-0.34}$	$Y_{\text{P}}$	$0.24533^{+0.00019}_{-0.00023}$	$\sigma_8(0.51)$	$0.619^{+0.014}_{-0.016}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24666^{+0.00019}_{-0.00024}$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^5 \text{D}/\text{H}$	$2.613^{+0.096}_{-0.091}$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.015}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.803^{+0.071}_{-0.076}$	$f\sigma_8(2.33)$	$0.2970^{+0.0068}_{-0.0073}$
$A_{100}^{\text{dust}}$	$1.01^{+0.49}_{-0.51}$	$z_*$	$1090.01^{+0.75}_{-0.75}$	$\sigma_8(2.33)$	$0.3062^{+0.0072}_{-0.0076}$
$A_{143}^{\text{dust}}$	$0.97^{+0.44}_{-0.46}$	$r_*$	$144.82^{+0.83}_{-0.81}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.28}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.4^{+5.0}_{-5.1}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.42}$	$D_M(z_*)/\text{Gpc}$	$13.909^{+0.080}_{-0.080}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$z_{\text{drag}}$	$1059.5^{+1.1}_{-1.2}$	$\chi_{\text{simall}}^2$	$397.0 (\nu: 1.5)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$r_{\text{drag}}$	$147.54^{+0.91}_{-0.89}$	$\chi_{\text{lowl}}^2$	$22.81 (\nu: 0.4)$
$H_0$	$67.7^{+1.4}_{-1.4}$	$k_{\text{D}}$	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\text{CamSpec}}^2$	$7063.9 (\nu: 14.3)$
$\Omega_{\Lambda}$	$0.690^{+0.018}_{-0.019}$	$100\theta_{\text{D}}$	$0.16102^{+0.00069}_{-0.00064}$	$\chi_{6\text{DF}}^2$	$0.054 (\nu: 0.0)$
$\Omega_{\text{m}}$	$0.310^{+0.019}_{-0.018}$	$z_{\text{eq}}$	$3373^{+74}_{-73}$	$\chi_{\text{MGS}}^2$	$1.39 (\nu: 0.1)$
$\Omega_{\text{m}} h^2$	$0.1418^{+0.0031}_{-0.0030}$	$k_{\text{eq}}$	$0.01029^{+0.00022}_{-0.00022}$	$\chi_{\text{DR12BAO}}^2$	$4.7 (\nu: 1.2)$
$\Omega_{\text{m}} h^3$	$0.0959^{+0.0012}_{-0.0012}$	$100\theta_{\text{eq}}$	$0.818^{+0.013}_{-0.013}$	$\chi_{\text{prior}}^2$	$7.7 (\nu: 6.2)$
$\sigma_8$	$0.807^{+0.021}_{-0.021}$	$100\theta_{\text{s,eq}}$	$0.4521^{+0.0071}_{-0.0070}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.8)$
$S_8$	$0.820^{+0.039}_{-0.038}$	$H(0.15)$	$72.9^{+1.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	$7483.8 (\nu: 14.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.449^{+0.021}_{-0.021}$	$D_M(0.15)$	$641^{+12}_{-12}$		
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.602^{+0.021}_{-0.021}$	$H(0.38)$	$83.00^{+0.91}_{-0.88}$		

$$\bar{\chi}_{\text{eff}}^2 = 7497.55; R - 1 = 0.01113$$



## 2.15 base\_CamSpecHM\_TT\_lowl\_lowE\_post\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00058}_{-0.00056}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.592^{+0.027}_{-0.026}$	$D_{\mathrm{M}}(0.15)$	$634^{+18}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.1171^{+0.0048}_{-0.0053}$	$\sigma_8/h^{0.5}$	$0.968^{+0.039}_{-0.034}$	$H(0.38)$	$83.6^{+1.5}_{-1.3}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}}h$	$101.3^{+4.4}_{-3.7}$	$D_{\mathrm{M}}(0.38)$	$1514^{+36}_{-40}$
$\tau$	$0.056^{+0.021}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	$2.396^{+0.089}_{-0.10}$	$H(0.51)$	$90.1^{+1.2}_{-1.0}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.039^{+0.042}_{-0.045}$	$z_{\mathrm{re}}$	$7.8^{+1.9}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	$1963^{+42}_{-47}$
$n_{\mathrm{s}}$	$0.972^{+0.015}_{-0.014}$	$10^9 A_{\mathrm{s}}$	$2.089^{+0.090}_{-0.092}$	$H(0.61)$	$95.64^{+0.94}_{-0.84}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0069}_{-0.0070}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.868^{+0.033}_{-0.033}$	$D_{\mathrm{M}}(0.61)$	$2286^{+45}_{-51}$
$A_{100}^{\mathrm{PS}}$	$240^{+70}_{-70}$	$D_{40}$	$1214^{+39}_{-48}$	$H(2.33)$	$234.7^{+2.9}_{-3.1}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{220}$	$5724^{+150}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5750^{+39}_{-39}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{810}$	$2534^{+34}_{-38}$	$f\sigma_8(0.15)$	$0.443^{+0.028}_{-0.028}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-14}$	$\sigma_8(0.15)$	$0.742^{+0.019}_{-0.019}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.45$	$D_{2000}$	$230.6^{+4.5}_{-4.9}$	$f\sigma_8(0.38)$	$0.464^{+0.022}_{-0.022}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.972^{+0.015}_{-0.014}$	$\sigma_8(0.38)$	$0.659^{+0.016}_{-0.015}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24540^{+0.00023}_{-0.00025}$	$f\sigma_8(0.51)$	$0.465^{+0.020}_{-0.018}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00023}_{-0.00025}$	$\sigma_8(0.51)$	$0.617^{+0.015}_{-0.014}$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.58^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	$0.461^{+0.018}_{-0.016}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.48}_{-0.48}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.771^{+0.086}_{-0.087}$	$\sigma_8(0.61)$	$0.588^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.47}_{-0.41}$	$z_*$	$1089.65^{+0.95}_{-0.93}$	$f\sigma_8(2.33)$	$0.2969^{+0.0068}_{-0.0068}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.25}_{-0.26}$	$r_*$	$145.2^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	$0.3067^{+0.0070}_{-0.0073}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.40}_{-0.39}$	$100\theta_*$	$1.0415^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$c_{100}$	$0.9975^{+0.0024}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.10}_{-0.10}$	$f_{2000}^{217}$	$106.9^{+5.0}_{-5.0}$
$c_{217}$	$1.0012^{+0.0038}_{-0.0038}$	$z_{\mathrm{drag}}$	$1059.8^{+1.2}_{-1.2}$	$f_{2000}^{143\times 217}$	$32^{+6}_{-5}$
$H_0$	$68.5^{+2.4}_{-2.1}$	$r_{\mathrm{drag}}$	$147.8^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 1.9)$
$\Omega_{\Lambda}$	$0.701^{+0.030}_{-0.029}$	$k_{\mathrm{D}}$	$0.1401^{+0.0013}_{-0.0011}$	$\chi_{\mathrm{lowl}}^2$	$22.13 (\nu: 0.4)$
$\Omega_{\mathrm{m}}$	$0.299^{+0.029}_{-0.030}$	$100\theta_{\mathrm{D}}$	$0.16089^{+0.00070}_{-0.00070}$	$\chi_{\mathrm{CamSpec}}^2$	$7067.0 (\nu: 18.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1401^{+0.0045}_{-0.0050}$	$z_{\mathrm{eq}}$	$3334^{+110}_{-120}$	$\chi_{\mathrm{H073p45}}^2$	$9.0 (\nu: 4.4)$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0013}_{-0.0012}$	$k_{\mathrm{eq}}$	$0.01017^{+0.00033}_{-0.00036}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.9)$
$\sigma_8$	$0.802^{+0.022}_{-0.021}$	$100\theta_{\mathrm{eq}}$	$0.826^{+0.024}_{-0.020}$	$\chi_{\mathrm{CMB}}^2$	$7486.3 (\nu: 17.5)$
$S_8$	$0.800^{+0.055}_{-0.055}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.012}_{-0.011}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.438^{+0.030}_{-0.030}$	$H(0.15)$	$73.7^{+2.1}_{-1.8}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7502.88$ ;  $R - 1 = 0.07941$



## 2.16 base\_CamSpecHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02214^{+0.00057}_{-0.00057}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.459^{+0.035}_{-0.033}$	$100\theta_{\text{s,eq}}$	$0.449^{+0.012}_{-0.012}$
$\Omega_{\text{c}} h^2$	$0.1204^{+0.0055}_{-0.0053}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.610^{+0.031}_{-0.029}$	$H(0.15)$	$72.4^{+2.0}_{-2.0}$
$100\theta_{\text{MC}}$	$1.0409^{+0.0013}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.992^{+0.041}_{-0.040}$	$D_{\text{M}}(0.15)$	$646^{+21}_{-20}$
$\tau$	$0.054^{+0.018}_{-0.013}$	$r_{\text{drag}} h$	$98.7^{+4.2}_{-4.2}$	$H(0.38)$	$82.6^{+1.5}_{-1.4}$
$\ln(10^{10} A_{\text{s}})$	$3.042^{+0.041}_{-0.030}$	$\langle d^2 \rangle^{1/2}$	$2.450^{+0.098}_{-0.093}$	$D_{\text{M}}(0.38)$	$1540^{+42}_{-40}$
$n_{\text{s}}$	$0.964^{+0.015}_{-0.015}$	$z_{\text{re}}$	$< 9.38$	$H(0.51)$	$89.4^{+1.2}_{-1.1}$
$y_{\text{cal}}$	$1.0005^{+0.0066}_{-0.0068}$	$10^9 A_{\text{s}}$	$2.095^{+0.086}_{-0.062}$	$D_{\text{M}}(0.51)$	$1994^{+48}_{-47}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-60}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.881^{+0.036}_{-0.035}$	$H(0.61)$	$95.07^{+0.95}_{-0.87}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{40}$	$1229^{+40}_{-38}$	$D_{\text{M}}(0.61)$	$2319^{+52}_{-51}$
$A_{217}^{\text{PS}}$	$101^{+30}_{-40}$	$D_{220}$	$5704^{+110}_{-110}$	$H(2.33)$	$236.6^{+3.4}_{-3.1}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$D_{810}$	$2534^{+35}_{-36}$	$D_{\text{M}}(2.33)$	$5775^{+41}_{-43}$
$A_{143}^{\text{tSZ}}$	$< 8.65$	$D_{1420}$	$814^{+13}_{-14}$	$f\sigma_8(0.15)$	$0.463^{+0.032}_{-0.030}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.32}_{-0.33}$	$D_{2000}$	$229.6^{+4.6}_{-4.8}$	$\sigma_8(0.15)$	$0.750^{+0.018}_{-0.017}$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{\text{s},0.002}$	$0.964^{+0.015}_{-0.015}$	$f\sigma_8(0.38)$	$0.479^{+0.025}_{-0.024}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}$	$0.24530^{+0.00022}_{-0.00027}$	$\sigma_8(0.38)$	$0.664^{+0.014}_{-0.013}$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24662^{+0.00022}_{-0.00027}$	$f\sigma_8(0.51)$	$0.477^{+0.021}_{-0.021}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.51}$	$10^5 \text{D}/\text{H}$	$2.63^{+0.11}_{-0.10}$	$\sigma_8(0.51)$	$0.621^{+0.013}_{-0.011}$
$A_{143}^{\text{dust}}$	$0.98^{+0.45}_{-0.47}$	$\text{Age}/\text{Gyr}$	$13.824^{+0.093}_{-0.096}$	$f\sigma_8(0.61)$	$0.471^{+0.018}_{-0.018}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27}$	$z_*$	$1090.2^{+1.1}_{-1.0}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.010}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.42}$	$r_*$	$144.5^{+1.2}_{-1.3}$	$f\sigma_8(2.33)$	$0.2974^{+0.0062}_{-0.0048}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	$0.3063^{+0.0065}_{-0.0050}$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.88^{+0.11}_{-0.12}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$H_0$	$67.0^{+2.4}_{-2.4}$	$z_{\text{drag}}$	$1059.4^{+1.2}_{-1.2}$	$f_{2000}^{217}$	$107.5^{+5.1}_{-5.3}$
$\Omega_{\Lambda}$	$0.681^{+0.032}_{-0.036}$	$r_{\text{drag}}$	$147.2^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$\Omega_{\text{m}}$	$0.319^{+0.036}_{-0.032}$	$k_{\text{D}}$	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\text{simall}}^2$	$396.8 (\nu: 1.3)$
$\Omega_{\text{m}} h^2$	$0.1432^{+0.0053}_{-0.0050}$	$100\theta_{\text{D}}$	$0.16106^{+0.00071}_{-0.00067}$	$\chi_{\text{lowl}}^2$	$23.5 (\nu: 0.8)$
$\Omega_{\text{m}} h^3$	$0.0959^{+0.0012}_{-0.0012}$	$z_{\text{eq}}$	$3406^{+130}_{-120}$	$\chi_{\text{CamSpec}}^2$	$7063.2 (\nu: 14.7)$
$\sigma_8$	$0.812^{+0.022}_{-0.021}$	$k_{\text{eq}}$	$0.01040^{+0.00039}_{-0.00036}$	$\chi_{\text{prior}}^2$	$7.7 (\nu: 6.3)$
$S_8$	$0.837^{+0.064}_{-0.060}$	$100\theta_{\text{eq}}$	$0.812^{+0.023}_{-0.023}$	$\chi_{\text{CMB}}^2$	$7483.6 (\nu: 14.6)$

$$\bar{\chi}_{\text{eff}}^2 = 7491.26; R - 1 = 0.00680$$



## 2.17 base\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02223^{+0.00049}_{-0.00050}$	$\sigma_8/h^{0.5}$	$0.982^{+0.029}_{-0.027}$	$D_M(0.38)$	$1529^{+24}_{-24}$
$\Omega_c h^2$	$0.1189^{+0.0032}_{-0.0030}$	$r_{\text{drag}} h$	$99.8^{+2.4}_{-2.4}$	$H(0.51)$	$89.70^{+0.78}_{-0.71}$
$100\theta_{\text{MC}}$	$1.0411^{+0.0012}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.427^{+0.069}_{-0.064}$	$D_M(0.51)$	$1981^{+28}_{-28}$
$\tau$	$0.055^{+0.019}_{-0.014}$	$z_{\text{re}}$	$< 9.49$	$H(0.61)$	$95.30^{+0.68}_{-0.61}$
$\ln(10^{10} A_s)$	$3.041^{+0.042}_{-0.031}$	$10^9 A_s$	$2.093^{+0.089}_{-0.064}$	$D_M(0.61)$	$2305^{+30}_{-30}$
$n_s$	$0.968^{+0.011}_{-0.011}$	$10^9 A_s e^{-2\tau}$	$1.875^{+0.031}_{-0.030}$	$H(2.33)$	$235.7^{+2.0}_{-2.0}$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0066}$	$D_{40}$	$1222^{+33}_{-32}$	$D_M(2.33)$	$5765^{+31}_{-33}$
$A_{100}^{\text{PS}}$	$241^{+60}_{-60}$	$D_{220}$	$5711^{+110}_{-110}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.019}$
$A_{143}^{\text{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2534^{+36}_{-36}$	$\sigma_8(0.15)$	$0.747^{+0.017}_{-0.014}$
$A_{217}^{\text{PS}}$	$101^{+30}_{-40}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.473^{+0.017}_{-0.016}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$230.0^{+4.4}_{-4.5}$	$\sigma_8(0.38)$	$0.662^{+0.014}_{-0.011}$
$A_{143}^{\text{tSZ}}$	$< 8.77$	$n_{\text{s},0.002}$	$0.968^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	$0.472^{+0.015}_{-0.014}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.32}_{-0.34}$	$Y_{\text{P}}$	$0.24534^{+0.00019}_{-0.00024}$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.010}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24666^{+0.00019}_{-0.00024}$	$f\sigma_8(0.61)$	$0.467^{+0.013}_{-0.013}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^5 \text{D}/\text{H}$	$2.613^{+0.097}_{-0.090}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.0097}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.803^{+0.071}_{-0.076}$	$f\sigma_8(2.33)$	$0.2974^{+0.0065}_{-0.0048}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.51}$	$z_*$	$1090.00^{+0.75}_{-0.74}$	$\sigma_8(2.33)$	$0.3067^{+0.0070}_{-0.0050}$
$A_{143}^{\text{dust}}$	$0.97^{+0.45}_{-0.47}$	$r_*$	$144.83^{+0.83}_{-0.80}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.28}$	$100\theta_*$	$1.0413^{+0.0012}_{-0.0010}$	$f_{2000}^{217}$	$107.3^{+5.0}_{-5.1}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.42}$	$D_M(z_*)/\text{Gpc}$	$13.909^{+0.080}_{-0.080}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$z_{\text{drag}}$	$1059.5^{+1.1}_{-1.2}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.5)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0038}$	$r_{\text{drag}}$	$147.54^{+0.91}_{-0.89}$	$\chi_{\text{lowl}}^2$	$22.83 (\nu: 0.4)$
$H_0$	$67.7^{+1.4}_{-1.4}$	$k_{\text{D}}$	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\text{CamSpec}}^2$	$7063.8 (\nu: 14.1)$
$\Omega_{\Lambda}$	$0.690^{+0.018}_{-0.019}$	$100\theta_{\text{D}}$	$0.16101^{+0.00068}_{-0.00064}$	$\chi_{6\text{DF}}^2$	$0.054 (\nu: 0.0)$
$\Omega_{\text{m}}$	$0.310^{+0.019}_{-0.018}$	$z_{\text{eq}}$	$3372^{+73}_{-73}$	$\chi_{\text{MGS}}^2$	$1.40 (\nu: 0.1)$
$\Omega_{\text{m}} h^2$	$0.1418^{+0.0031}_{-0.0030}$	$k_{\text{eq}}$	$0.01029^{+0.00022}_{-0.00022}$	$\chi_{\text{DR12BAO}}^2$	$4.6 (\nu: 1.2)$
$\Omega_{\text{m}} h^3$	$0.0959^{+0.0012}_{-0.0012}$	$100\theta_{\text{eq}}$	$0.818^{+0.013}_{-0.013}$	$\chi_{\text{prior}}^2$	$7.7 (\nu: 6.2)$
$\sigma_8$	$0.808^{+0.020}_{-0.016}$	$100\theta_{\text{s,eq}}$	$0.4522^{+0.0071}_{-0.0069}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.8)$
$S_8$	$0.821^{+0.039}_{-0.037}$	$H(0.15)$	$72.9^{+1.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	$7483.5 (\nu: 14.1)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.449^{+0.021}_{-0.020}$	$D_M(0.15)$	$641^{+12}_{-12}$		
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.603^{+0.020}_{-0.019}$	$H(0.38)$	$83.00^{+0.91}_{-0.88}$		

$$\bar{\chi}_{\text{eff}}^2 = 7497.31; R - 1 = 0.01176$$



## 2.18 base\_CamSpecHM\_TT\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02240^{+0.00057}_{-0.00056}$	$\sigma_8 \Omega_m^{0.25}$	$0.593^{+0.027}_{-0.026}$	$D_M(0.15)$	$633^{+18}_{-20}$
$\Omega_c h^2$	$0.1171^{+0.0048}_{-0.0052}$	$\sigma_8/h^{0.5}$	$0.969^{+0.038}_{-0.035}$	$H(0.38)$	$83.6^{+1.5}_{-1.3}$
$100\theta_{MC}$	$1.0413^{+0.0013}_{-0.0012}$	$r_{drag}h$	$101.4^{+4.4}_{-3.7}$	$D_M(0.38)$	$1514^{+36}_{-39}$
$\tau$	$0.057^{+0.020}_{-0.016}$	$\langle d^2 \rangle^{1/2}$	$2.398^{+0.088}_{-0.10}$	$H(0.51)$	$90.1^{+1.2}_{-1.0}$
$\ln(10^{10} A_s)$	$3.041^{+0.041}_{-0.034}$	$z_{re}$	$< 9.57$	$D_M(0.51)$	$1963^{+42}_{-46}$
$n_s$	$0.972^{+0.015}_{-0.014}$	$10^9 A_s$	$2.093^{+0.086}_{-0.070}$	$H(0.61)$	$95.65^{+0.93}_{-0.84}$
$y_{cal}$	$1.0008^{+0.0062}_{-0.0076}$	$10^9 A_s e^{-2\tau}$	$1.868^{+0.034}_{-0.033}$	$D_M(0.61)$	$2286^{+45}_{-50}$
$A_{100}^{PS}$	$240^{+60}_{-70}$	$D_{40}$	$1214^{+39}_{-48}$	$H(2.33)$	$234.7^{+2.9}_{-3.1}$
$A_{143}^{PS}$	$39^{+20}_{-20}$	$D_{220}$	$5725^{+150}_{-110}$	$D_M(2.33)$	$5750^{+39}_{-38}$
$A_{217}^{PS}$	$101^{+30}_{-30}$	$D_{810}$	$2534^{+33}_{-37}$	$f\sigma_8(0.15)$	$0.444^{+0.028}_{-0.028}$
$A_{217}^{CIB}$	$40^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-13}$	$\sigma_8(0.15)$	$0.743^{+0.019}_{-0.017}$
$A_{143}^{tSZ}$	$< 8.45$	$D_{2000}$	$230.7^{+4.5}_{-4.6}$	$f\sigma_8(0.38)$	$0.465^{+0.022}_{-0.022}$
$r_{143 \times 217}^{PS}$	$0.66^{+0.32}_{-0.33}$	$n_{s,0.002}$	$0.972^{+0.015}_{-0.014}$	$\sigma_8(0.38)$	$0.660^{+0.016}_{-0.013}$
$r_{143 \times 217}^{CIB}$	—	$Y_P$	$0.24540^{+0.00023}_{-0.00025}$	$f\sigma_8(0.51)$	$0.465^{+0.020}_{-0.019}$
$\xi^{tSZ \times CIB}$	—	$Y_P^{BBN}$	$0.24673^{+0.00023}_{-0.00025}$	$\sigma_8(0.51)$	$0.618^{+0.014}_{-0.012}$
$A^{kSZ}$	—	$10^5 D/H$	$2.58^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	$0.461^{+0.018}_{-0.017}$
$A_{100}^{dust}$	$1.02^{+0.49}_{-0.48}$	Age/Gyr	$13.770^{+0.086}_{-0.086}$	$\sigma_8(0.61)$	$0.588^{+0.013}_{-0.011}$
$A_{143}^{dust}$	$0.97^{+0.50}_{-0.41}$	$z_*$	$1089.63^{+0.95}_{-0.92}$	$f\sigma_8(2.33)$	$0.2972^{+0.0066}_{-0.0049}$
$A_{217}^{dust}$	$0.97^{+0.25}_{-0.26}$	$r_*$	$145.2^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	$0.3070^{+0.0067}_{-0.0049}$
$A_{143 \times 217}^{dust}$	$1.03^{+0.41}_{-0.39}$	$100\theta_*$	$1.0415^{+0.0013}_{-0.0012}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$c_{100}$	$0.9975^{+0.0024}_{-0.0028}$	$D_M(z_*)/\text{Gpc}$	$13.94^{+0.10}_{-0.10}$	$f_{2000}^{217}$	$106.9^{+5.0}_{-5.0}$
$c_{217}$	$1.0012^{+0.0038}_{-0.0039}$	$z_{drag}$	$1059.8^{+1.1}_{-1.2}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-5}$
$H_0$	$68.6^{+2.4}_{-2.1}$	$r_{drag}$	$147.8^{+1.1}_{-1.1}$	$\chi_{simall}^2$	$397.2 (\nu: 1.9)$
$\Omega_\Lambda$	$0.702^{+0.030}_{-0.029}$	$k_D$	$0.1401^{+0.0013}_{-0.0011}$	$\chi_{lowl}^2$	$22.13 (\nu: 0.4)$
$\Omega_m$	$0.298^{+0.029}_{-0.030}$	$100\theta_D$	$0.16089^{+0.00070}_{-0.00069}$	$\chi_{CamSpec}^2$	$7066.9 (\nu: 17.7)$
$\Omega_m h^2$	$0.1401^{+0.0045}_{-0.0049}$	$z_{eq}$	$3333^{+110}_{-120}$	$\chi_{H073p45}^2$	$8.9 (\nu: 4.4)$
$\Omega_m h^3$	$0.0960^{+0.0013}_{-0.0012}$	$k_{eq}$	$0.01017^{+0.00033}_{-0.00036}$	$\chi_{prior}^2$	$7.5 (\nu: 5.8)$
$\sigma_8$	$0.802^{+0.022}_{-0.020}$	$100\theta_{eq}$	$0.826^{+0.024}_{-0.020}$	$\chi_{CMB}^2$	$7486.2 (\nu: 16.9)$
$S_8$	$0.800^{+0.055}_{-0.055}$	$100\theta_{s,eq}$	$0.456^{+0.012}_{-0.011}$		
$\sigma_8 \Omega_m^{0.5}$	$0.438^{+0.030}_{-0.030}$	$H(0.15)$	$73.7^{+2.1}_{-1.8}$		

$\bar{\chi}_{eff}^2 = 7502.64$ ;  $R - 1 = 0.09766$



## 2.19 base\_CamSpecHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022297	$0.02229^{+0.00040}_{-0.00040}$ (+0.7 $\sigma$ )	$S_8$	0.8261	$0.827^{+0.042}_{-0.042}$ (−0.4 $\sigma$ )	$100\theta_{s,eq}$	0.4505	$0.4503^{+0.0080}_{-0.0076}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.11956	$0.1196^{+0.0035}_{-0.0036}$ (−0.4 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4525	$0.453^{+0.023}_{-0.023}$ (−0.4 $\sigma$ )	$H(0.15)$	72.73	$72.7^{+1.4}_{-1.4}$ (+0.5 $\sigma$ )
$100\theta_{MC}$	1.04087	$1.04088^{+0.00081}_{-0.00080}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6047	$0.605^{+0.021}_{-0.022}$ (−0.4 $\sigma$ )	$D_M(0.15)$	642.8	$643^{+14}_{-13}$ (−0.5 $\sigma$ )
$\tau$	0.0531	$0.053^{+0.021}_{-0.022}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9843	$0.985^{+0.030}_{-0.031}$ (−0.4 $\sigma$ )	$H(0.38)$	82.87	$82.9^{+1.0}_{-0.99}$ (+0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0390	$3.039^{+0.044}_{-0.044}$ (−0.0 $\sigma$ )	$r_{drag} h$	99.32	$99.3^{+2.8}_{-2.7}$ (+0.4 $\sigma$ )	$D_M(0.38)$	1532.6	$1533^{+28}_{-27}$ (−0.5 $\sigma$ )
$n_s$	0.9662	$0.966^{+0.011}_{-0.012}$ (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.433	$2.434^{+0.071}_{-0.072}$ (−0.4 $\sigma$ )	$H(0.51)$	89.61	$89.60^{+0.79}_{-0.78}$ (+0.5 $\sigma$ )
$y_{cal}$	1.0003	$1.0005^{+0.0064}_{-0.0063}$ (−0.0 $\sigma$ )	$z_{re}$	7.56	$7.5^{+2.1}_{-2.4}$ (+0.0 $\sigma$ )	$D_M(0.51)$	1985.0	$1985^{+33}_{-31}$ (−0.5 $\sigma$ )
$A_{100}^{PS}$	235	$240^{+70}_{-60}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.088	$2.088^{+0.094}_{-0.089}$ (−0.0 $\sigma$ )	$H(0.61)$	95.24	$95.24^{+0.64}_{-0.62}$ (+0.5 $\sigma$ )
$A_{143}^{PS}$	41.1	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8780	$1.879^{+0.030}_{-0.029}$ (−0.2 $\sigma$ )	$D_M(0.61)$	2309.6	$2310^{+35}_{-34}$ (−0.5 $\sigma$ )
$A_{217}^{PS}$	101.9	$102^{+30}_{-40}$ (+0.1 $\sigma$ )	$D_{40}$	1225.0	$1226^{+32}_{-32}$ (−0.2 $\sigma$ )	$H(2.33)$	236.19	$236.2^{+2.1}_{-2.2}$ (−0.3 $\sigma$ )
$A_{217}^{CIB}$	44.3	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5716	$5718^{+100}_{-100}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5766.4	$5767^{+29}_{-29}$ (−0.5 $\sigma$ )
$A_{143}^{tSZ}$	6.43	< 8.84 (+0.1 $\sigma$ )	$D_{810}$	2534.7	$2535^{+35}_{-34}$ (+0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4569	$0.457^{+0.021}_{-0.022}$ (−0.4 $\sigma$ )
$r_{143 \times 217}^{PS}$	0.629	$0.66^{+0.31}_{-0.34}$ (+0.0 $\sigma$ )	$D_{1420}$	815.8	$816^{+13}_{-12}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7467	$0.747^{+0.018}_{-0.017}$ (−0.3 $\sigma$ )
$r_{143 \times 217}^{CIB}$	0.76	—	$D_{2000}$	230.27	$230.2^{+4.2}_{-4.2}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4748	$0.475^{+0.017}_{-0.018}$ (−0.4 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.20	—	$n_{s,0.002}$	0.9662	$0.966^{+0.011}_{-0.012}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6616	$0.662^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )
$A^{kSZ}$	0.3	—	$Y_P$	0.245366	$0.24536^{+0.00015}_{-0.00018}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4731	$0.473^{+0.015}_{-0.016}$ (−0.4 $\sigma$ )
$A_{100}^{dust}$	1.00	$1.01^{+0.51}_{-0.50}$ (−0.0 $\sigma$ )	$Y_P^{BBN}$	0.246692	$0.24669^{+0.00015}_{-0.00018}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6191	$0.619^{+0.014}_{-0.014}$ (−0.1 $\sigma$ )
$A_{143}^{dust}$	0.980	$0.96^{+0.46}_{-0.45}$ (−0.1 $\sigma$ )	$10^5 D/H$	2.599	$2.601^{+0.076}_{-0.072}$ (−0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4680	$0.468^{+0.014}_{-0.014}$ (−0.4 $\sigma$ )
$A_{217}^{dust}$	0.966	$0.97^{+0.26}_{-0.27}$ (+0.1 $\sigma$ )	Age/Gyr	13.805	$13.805^{+0.064}_{-0.063}$ (−0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5890	$0.589^{+0.013}_{-0.013}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{dust}$	1.012	$1.03^{+0.42}_{-0.42}$ (+0.0 $\sigma$ )	$z_*$	1089.98	$1089.99^{+0.75}_{-0.72}$ (−0.7 $\sigma$ )	$f\sigma_8(2.33)$	0.2969	$0.2969^{+0.0068}_{-0.0066}$ (−0.0 $\sigma$ )
$c_{100}$	0.99760	$0.9975^{+0.0026}_{-0.0027}$ (+0.1 $\sigma$ )	$r_*$	144.60	$144.58^{+0.81}_{-0.78}$ (+0.2 $\sigma$ )	$\sigma_8(2.33)$	0.3060	$0.3060^{+0.0071}_{-0.0070}$ (+0.0 $\sigma$ )
$c_{217}$	1.00127	$1.0011^{+0.0040}_{-0.0041}$ (−0.0 $\sigma$ )	$100\theta_*$	1.04106	$1.04107^{+0.00080}_{-0.00079}$ (+0.1 $\sigma$ )	$f_{2000}^{143}$	30.0	$30^{+7}_{-7}$ (−0.3 $\sigma$ )
$c_{TE}$	0.9965	$0.997^{+0.013}_{-0.012}$	$D_M(z_*)/\text{Gpc}$	13.890	$13.888^{+0.076}_{-0.072}$ (+0.2 $\sigma$ )	$f_{2000}^{217}$	106.72	$106.9^{+4.9}_{-5.0}$ (−0.3 $\sigma$ )
$c_{EE}$	0.9920	$0.992^{+0.012}_{-0.012}$	$z_{drag}$	1059.74	$1059.73^{+0.81}_{-0.83}$ (+0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.2	$32^{+5}_{-5}$ (−0.4 $\sigma$ )
$H_0$	67.43	$67.4^{+1.6}_{-1.6}$ (+0.5 $\sigma$ )	$r_{drag}$	147.29	$147.27^{+0.82}_{-0.77}$ (+0.1 $\sigma$ )	$\chi_{small}^2$	395.90	$396.9 (\nu: 1.4)$ (+0.0 $\sigma$ )
$\Omega_\Lambda$	0.6866	$0.686^{+0.021}_{-0.023}$ (+0.4 $\sigma$ )	$k_D$	0.14060	$0.14061^{+0.00086}_{-0.00091}$ (+0.2 $\sigma$ )	$\chi_{lowl}^2$	23.00	$23.16 (\nu: 0.4)$ (−0.3 $\sigma$ )
$\Omega_m$	0.3134	$0.314^{+0.023}_{-0.021}$ (−0.4 $\sigma$ )	$100\theta_D$	0.160865	$0.16087^{+0.00049}_{-0.00049}$ (−0.7 $\sigma$ )	$\chi_{CamSpec}^2$	11499.6	$11514.5 (\nu: 15.8)$ (+817.8 $\sigma$ )
$\Omega_m h^2$	0.14250	$0.1426^{+0.0033}_{-0.0034}$ (−0.3 $\sigma$ )	$z_{eq}$	3390	$3392^{+80}_{-82}$ (−0.3 $\sigma$ )	$\chi_{prior}^2$	2.2	$7.8 (\nu: 6.0)$ (+0.0 $\sigma$ )
$\Omega_m h^3$	0.09609	$0.09610^{+0.00079}_{-0.00082}$ (+0.4 $\sigma$ )	$k_{eq}$	0.010347	$0.01035^{+0.00024}_{-0.00025}$ (−0.3 $\sigma$ )	$\chi_{CMB}^2$	11918.5	$11934.6 (\nu: 16.4)$ (+808.6 $\sigma$ )
$\sigma_8$	0.8082	$0.808^{+0.020}_{-0.020}$ (−0.3 $\sigma$ )	$100\theta_{eq}$	0.8152	$0.815^{+0.016}_{-0.015}$ (+0.4 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 11920.76$ ;  $\Delta\chi_{eff}^2 = 4449.03$ ;  $\bar{\chi}_{eff}^2 = 11942.46$ ;  $\Delta\bar{\chi}_{eff}^2 = 4450.92$ ;  $R - 1 = 0.01233$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.90 ( $\Delta$  0.07) commander\_dx12\_v3.2.29: 23.00 ( $\Delta$  -0.39) CamSpec like\_10.7HM\_1400\_unified: 11499.65



## 2.20 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02234^{+0.00036}_{-0.00037} \quad (+0.6\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.449^{+0.018}_{-0.018} \quad (-0.0\sigma)$	$D_M(0.15)$	$640^{+10}_{-9.8} \quad (-0.1\sigma)$
$\Omega_c h^2$	$0.1190^{+0.0026}_{-0.0026} \quad (+0.0\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.602^{+0.018}_{-0.018} \quad (-0.0\sigma)$	$H(0.38)$	$83.05^{+0.74}_{-0.74} \quad (+0.2\sigma)$
$100\theta_{MC}$	$1.04097^{+0.00075}_{-0.00076} \quad (-0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.980^{+0.027}_{-0.027} \quad (-0.0\sigma)$	$D_M(0.38)$	$1528^{+20}_{-20} \quad (-0.1\sigma)$
$\tau$	$0.054^{+0.020}_{-0.021} \quad (+0.0\sigma)$	$r_{drag} h$	$99.8^{+2.0}_{-2.0} \quad (-0.0\sigma)$	$H(0.51)$	$89.75^{+0.61}_{-0.59} \quad (+0.2\sigma)$
$\ln(10^{10} A_s)$	$3.039^{+0.042}_{-0.044} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.065}_{-0.066} \quad (+0.0\sigma)$	$D_M(0.51)$	$1979^{+24}_{-23} \quad (-0.1\sigma)$
$n_s$	$0.967^{+0.010}_{-0.010} \quad (-0.0\sigma)$	$z_{re}$	$7.6^{+2.0}_{-2.3} \quad (-0.0\sigma)$	$H(0.61)$	$95.35^{+0.51}_{-0.49} \quad (+0.2\sigma)$
$y_{cal}$	$1.0005^{+0.0065}_{-0.0061} \quad (-0.0\sigma)$	$10^9 A_s$	$2.089^{+0.090}_{-0.089} \quad (+0.0\sigma)$	$D_M(0.61)$	$2304^{+26}_{-25} \quad (-0.1\sigma)$
$A_{100}^{PS}$	$240^{+70}_{-70} \quad (-0.0\sigma)$	$10^9 A_s e^{-2\tau}$	$1.876^{+0.028}_{-0.028} \quad (+0.1\sigma)$	$H(2.33)$	$235.8^{+1.6}_{-1.6} \quad (+0.2\sigma)$
$A_{143}^{PS}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{40}$	$1223^{+30}_{-30} \quad (+0.1\sigma)$	$D_M(2.33)$	$5762^{+24}_{-24} \quad (-0.3\sigma)$
$A_{217}^{PS}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5722^{+98}_{-99} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.454^{+0.017}_{-0.017} \quad (-0.0\sigma)$
$A_{217}^{CIB}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2535^{+34}_{-32} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.746^{+0.017}_{-0.016} \quad (-0.0\sigma)$
$A_{143}^{tSZ}$	$< 8.90 \quad (+0.0\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.015} \quad (-0.0\sigma)$
$r_{143 \times 217}^{PS}$	$0.66^{+0.31}_{-0.34} \quad (+0.0\sigma)$	$D_{2000}$	$230.4^{+4.1}_{-3.9} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.661^{+0.014}_{-0.014} \quad (-0.0\sigma)$
$r_{143 \times 217}^{CIB}$	—	$n_{s,0.002}$	$0.967^{+0.010}_{-0.010} \quad (-0.0\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.014}_{-0.014} \quad (-0.0\sigma)$
$\xi^{tSZ \times CIB}$	—	$Y_P$	$0.24538^{+0.00013}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.014}_{-0.014} \quad (-0.0\sigma)$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.24671^{+0.00013}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.013}_{-0.013} \quad (-0.0\sigma)$
$A_{100}^{dust}$	$1.01^{+0.52}_{-0.50} \quad (+0.0\sigma)$	$10^5 D/H$	$2.592^{+0.070}_{-0.064} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.013} \quad (-0.0\sigma)$
$A_{143}^{dust}$	$0.96^{+0.45}_{-0.45} \quad (-0.1\sigma)$	Age/Gyr	$13.795^{+0.054}_{-0.053} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	$0.2969^{+0.0065}_{-0.0066} \quad (-0.0\sigma)$
$A_{217}^{dust}$	$0.98^{+0.27}_{-0.26} \quad (+0.1\sigma)$	$z_*$	$1089.87^{+0.60}_{-0.59} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.3062^{+0.0068}_{-0.0067} \quad (-0.0\sigma)$
$A_{143 \times 217}^{dust}$	$1.03^{+0.42}_{-0.41} \quad (+0.0\sigma)$	$r_*$	$144.73^{+0.63}_{-0.63} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-7} \quad (-0.3\sigma)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.04116^{+0.00074}_{-0.00076} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.8^{+5.0}_{-4.9} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040} \quad (-0.0\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.901^{+0.062}_{-0.060} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$z_{drag}$	$1059.79^{+0.79}_{-0.81} \quad (+0.6\sigma)$	$\chi_{small}^2$	$397.0 \quad (\nu: 1.5) \quad (-0.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$r_{drag}$	$147.40^{+0.67}_{-0.65} \quad (-0.4\sigma)$	$\chi_{lowl}^2$	$22.87 \quad (\nu: 0.3) \quad (+0.1\sigma)$
$H_0$	$67.7^{+1.2}_{-1.2} \quad (+0.1\sigma)$	$k_D$	$0.14051^{+0.00080}_{-0.00085} \quad (+0.5\sigma)$	$\chi_{CamSpec}^2$	$11514.6 \quad (\nu: 16.1) \quad (+833.3\sigma)$
$\Omega_\Lambda$	$0.690^{+0.015}_{-0.016} \quad (+0.0\sigma)$	$100\theta_D$	$0.16084^{+0.00047}_{-0.00047} \quad (-0.7\sigma)$	$\chi_{6DF}^2$	$0.045 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_m$	$0.310^{+0.016}_{-0.015} \quad (-0.0\sigma)$	$z_{eq}$	$3377^{+60}_{-60} \quad (+0.1\sigma)$	$\chi_{MGS}^2$	$1.36 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\Omega_m h^2$	$0.1419^{+0.0025}_{-0.0025} \quad (+0.1\sigma)$	$k_{eq}$	$0.01031^{+0.00018}_{-0.00018} \quad (+0.1\sigma)$	$\chi_{DR12BAO}^2$	$4.6 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$\Omega_m h^3$	$0.09611^{+0.00079}_{-0.00084} \quad (+0.4\sigma)$	$100\theta_{eq}$	$0.818^{+0.011}_{-0.011} \quad (-0.1\sigma)$	$\chi_{prior}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.0\sigma)$
$\sigma_8$	$0.807^{+0.019}_{-0.018} \quad (-0.0\sigma)$	$100\theta_{s,eq}$	$0.4518^{+0.0059}_{-0.0058} \quad (-0.1\sigma)$	$\chi_{BAO}^2$	$6.0 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$S_8$	$0.819^{+0.034}_{-0.033} \quad (-0.0\sigma)$	$H(0.15)$	$73.0^{+1.0}_{-1.0} \quad (+0.1\sigma)$	$\chi_{CMB}^2$	$11934.5 \quad (\nu: 16.4) \quad (+827.1\sigma)$

$$\bar{\chi}_{eff}^2 = 11948.28; \Delta\bar{\chi}_{eff}^2 = 4450.73; R - 1 = 0.01864$$



## 2.21 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02242^{+0.00036}_{-0.00040} \quad (+0.1\sigma)$	$S_8$	$0.810^{+0.040}_{-0.035} \quad (+0.5\sigma)$	$100\theta_{s,eq}$	$0.4538^{+0.0068}_{-0.0074} \quad (-0.6\sigma)$
$\Omega_c h^2$	$0.1181^{+0.0034}_{-0.0031} \quad (+0.5\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.444^{+0.022}_{-0.019} \quad (+0.5\sigma)$	$H(0.15)$	$73.3^{+1.2}_{-1.3} \quad (-0.5\sigma)$
$100\theta_{MC}$	$1.04108^{+0.00076}_{-0.00078} \quad (-0.5\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.597^{+0.021}_{-0.019} \quad (+0.5\sigma)$	$D_M(0.15)$	$637^{+13}_{-12} \quad (+0.5\sigma)$
$\tau$	$0.055^{+0.020}_{-0.021} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.974^{+0.030}_{-0.028} \quad (+0.4\sigma)$	$H(0.38)$	$83.32^{+0.90}_{-0.93} \quad (-0.4\sigma)$
$\ln(10^{10} A_s)$	$3.041^{+0.041}_{-0.045} \quad (+0.1\sigma)$	$r_{drag} h$	$100.5^{+2.5}_{-2.6} \quad (-0.5\sigma)$	$D_M(0.38)$	$1520^{+26}_{-24} \quad (+0.5\sigma)$
$n_s$	$0.970^{+0.013}_{-0.011} \quad (-0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.412^{+0.071}_{-0.067} \quad (+0.5\sigma)$	$H(0.51)$	$89.96^{+0.71}_{-0.74} \quad (-0.4\sigma)$
$y_{cal}$	$1.0006^{+0.0065}_{-0.0063} \quad (-0.0\sigma)$	$z_{re}$	$7.7^{+1.9}_{-2.2} \quad (-0.0\sigma)$	$D_M(0.51)$	$1971^{+30}_{-28} \quad (+0.5\sigma)$
$A_{100}^{PS}$	$240^{+70}_{-70} \quad (-0.0\sigma)$	$10^9 A_s$	$2.092^{+0.087}_{-0.092} \quad (+0.1\sigma)$	$H(0.61)$	$95.52^{+0.57}_{-0.60} \quad (-0.4\sigma)$
$A_{143}^{PS}$	$38^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.873^{+0.029}_{-0.032} \quad (+0.4\sigma)$	$D_M(0.61)$	$2294^{+32}_{-30} \quad (+0.4\sigma)$
$A_{217}^{PS}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{40}$	$1219^{+31}_{-29} \quad (+0.4\sigma)$	$H(2.33)$	$235.3^{+2.0}_{-1.9} \quad (+0.6\sigma)$
$A_{217}^{CIB}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5729^{+94}_{-99} \quad (+0.1\sigma)$	$D_M(2.33)$	$5755^{+28}_{-25} \quad (+0.3\sigma)$
$A_{143}^{tSZ}$	—	$D_{810}$	$2535^{+34}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.449^{+0.021}_{-0.018} \quad (+0.5\sigma)$
$r_{143 \times 217}^{PS}$	$0.66^{+0.31}_{-0.34} \quad (+0.0\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.744^{+0.017}_{-0.016} \quad (+0.3\sigma)$
$r_{143 \times 217}^{CIB}$	—	$D_{2000}$	$230.8^{+3.8}_{-4.1} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.469^{+0.017}_{-0.015} \quad (+0.5\sigma)$
$\xi^{tSZ \times CIB}$	—	$n_{s,0.002}$	$0.970^{+0.013}_{-0.011} \quad (-0.4\sigma)$	$\sigma_8(0.38)$	$0.660^{+0.015}_{-0.015} \quad (+0.2\sigma)$
$A^{kSZ}$	—	$Y_P$	$0.24541^{+0.00014}_{-0.00016} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.468^{+0.015}_{-0.014} \quad (+0.4\sigma)$
$A_{100}^{dust}$	$1.02^{+0.53}_{-0.52} \quad (-0.0\sigma)$	$Y_P^{BBN}$	$0.24674^{+0.00014}_{-0.00016} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.618^{+0.014}_{-0.013} \quad (+0.2\sigma)$
$A_{143}^{dust}$	$0.96^{+0.43}_{-0.44} \quad (-0.1\sigma)$	$10^5 D/H$	$2.577^{+0.075}_{-0.065} \quad (-0.2\sigma)$	$f\sigma_8(0.61)$	$0.464^{+0.014}_{-0.014} \quad (+0.4\sigma)$
$A_{217}^{dust}$	$0.98^{+0.27}_{-0.26} \quad (+0.1\sigma)$	$Age/Gyr$	$13.779^{+0.062}_{-0.054} \quad (+0.2\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.013} \quad (+0.1\sigma)$
$A_{143 \times 217}^{dust}$	$1.03^{+0.41}_{-0.43} \quad (+0.0\sigma)$	$z_*$	$1089.69^{+0.70}_{-0.58} \quad (+0.1\sigma)$	$f\sigma_8(2.33)$	$0.2971^{+0.0064}_{-0.0066} \quad (+0.1\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$r_*$	$144.90^{+0.73}_{-0.77} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.3066^{+0.0066}_{-0.0070} \quad (-0.0\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0039} \quad (-0.0\sigma)$	$100\theta_*$	$1.04126^{+0.00075}_{-0.00077} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-7} \quad (-0.2\sigma)$
$c_{TE}$	$0.997^{+0.014}_{-0.013}$	$D_M(z_*)/Gpc$	$13.916^{+0.069}_{-0.072} \quad (-0.6\sigma)$	$f_{2000}^{217}$	$106.5^{+5.1}_{-5.2} \quad (-0.2\sigma)$
$c_{EE}$	$0.993^{+0.013}_{-0.012}$	$z_{drag}$	$1059.91^{+0.75}_{-0.82} \quad (+0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.2\sigma)$
$H_0$	$68.1^{+1.4}_{-1.5} \quad (-0.5\sigma)$	$r_{drag}$	$147.55^{+0.73}_{-0.77} \quad (-0.7\sigma)$	$\chi_{small}^2$	$397.1 \quad (\nu: 1.6) \quad (-0.0\sigma)$
$\Omega_\Lambda$	$0.696^{+0.018}_{-0.021} \quad (-0.5\sigma)$	$k_D$	$0.14042^{+0.00086}_{-0.00083} \quad (+0.7\sigma)$	$\chi_{lowl}^2$	$22.52 \quad (\nu: 0.3) \quad (+0.4\sigma)$
$\Omega_m$	$0.304^{+0.021}_{-0.018} \quad (+0.5\sigma)$	$100\theta_D$	$0.16078^{+0.00049}_{-0.00043} \quad (-0.4\sigma)$	$\chi_{CamSpec}^2$	$11516.4 \quad (\nu: 20.7) \quad (+737.7\sigma)$
$\Omega_m h^2$	$0.1411^{+0.0032}_{-0.0029} \quad (+0.6\sigma)$	$z_{eq}$	$3357^{+76}_{-70} \quad (+0.6\sigma)$	$\chi_{H073p45}^2$	$10.3 \quad (\nu: 2.5) \quad (+0.4\sigma)$
$\Omega_m h^3$	$0.09615^{+0.00079}_{-0.00087} \quad (+0.3\sigma)$	$k_{eq}$	$0.01025^{+0.00023}_{-0.00021} \quad (+0.6\sigma)$	$\chi_{prior}^2$	$7.8 \quad (\nu: 6.0) \quad (+0.1\sigma)$
$\sigma_8$	$0.804^{+0.019}_{-0.019} \quad (+0.3\sigma)$	$100\theta_{eq}$	$0.822^{+0.013}_{-0.014} \quad (-0.5\sigma)$	$\chi_{CMB}^2$	$11936.1 \quad (\nu: 20.0) \quad (+752.9\sigma)$

$$\bar{\chi}_{eff}^2 = 11954.26; \Delta\bar{\chi}_{eff}^2 = 4451.38; R - 1 = 0.03390$$



## 2.22 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02230^{+0.00040}_{-0.00040} \quad (+0.7\sigma)$	$S_8$	$0.828^{+0.042}_{-0.041} \quad (-0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4504^{+0.0080}_{-0.0076} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1196^{+0.0036}_{-0.0036} \quad (-0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.023}_{-0.022} \quad (-0.4\sigma)$	$H(0.15)$	$72.7^{+1.4}_{-1.4} \quad (+0.5\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04089^{+0.00080}_{-0.00079} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.021}_{-0.021} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+14}_{-13} \quad (-0.5\sigma)$
$\tau$	$0.054^{+0.019}_{-0.013} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.986^{+0.029}_{-0.029} \quad (-0.4\sigma)$	$H(0.38)$	$82.88^{+0.99}_{-1.0} \quad (+0.5\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.041}_{-0.029} \quad (-0.0\sigma)$	$r_{\mathrm{drag}} h$	$99.3^{+2.8}_{-2.7} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1533^{+28}_{-27} \quad (-0.5\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.012} \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.069}_{-0.068} \quad (-0.3\sigma)$	$H(0.51)$	$89.62^{+0.79}_{-0.79} \quad (+0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0064} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.42 \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1985^{+33}_{-31} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-60} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.095^{+0.088}_{-0.060} \quad (-0.0\sigma)$	$H(0.61)$	$95.25^{+0.64}_{-0.63} \quad (+0.5\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.029}_{-0.029} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2310^{+35}_{-34} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$D_{40}$	$1226^{+32}_{-32} \quad (-0.2\sigma)$	$H(2.33)$	$236.2^{+2.1}_{-2.2} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5718^{+100}_{-100} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5766^{+29}_{-29} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.84 \quad (+0.1\sigma)$	$D_{810}$	$2535^{+35}_{-34} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.021}_{-0.021} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.0\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.017}_{-0.014} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$230.3^{+4.1}_{-4.2} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.017}_{-0.017} \quad (-0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.012} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.014}_{-0.011} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24536^{+0.00015}_{-0.00018} \quad (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.015}_{-0.015} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00015}_{-0.00018} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.010} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.45} \quad (-0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.600^{+0.077}_{-0.072} \quad (-0.7\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.013}_{-0.013} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.804^{+0.065}_{-0.063} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.0094} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42} \quad (+0.0\sigma)$	$z_*$	$1089.98^{+0.76}_{-0.72} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.2973^{+0.0064}_{-0.0046} \quad (-0.0\sigma)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0027} \quad (+0.1\sigma)$	$r_*$	$144.59^{+0.81}_{-0.77} \quad (+0.2\sigma)$	$\sigma_8(2.33)$	$0.3065^{+0.0067}_{-0.0047} \quad (+0.1\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041} \quad (-0.0\sigma)$	$100\theta_*$	$1.04108^{+0.00079}_{-0.00077} \quad (+0.0\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.889^{+0.076}_{-0.071} \quad (+0.2\sigma)$	$f_{2000}^{217}$	$106.9^{+4.9}_{-5.0} \quad (-0.3\sigma)$
$c_{EE}$	$0.992^{+0.012}_{-0.012}$	$z_{\mathrm{drag}}$	$1059.74^{+0.84}_{-0.84} \quad (+0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$H_0$	$67.4^{+1.6}_{-1.6} \quad (+0.4\sigma)$	$r_{\mathrm{drag}}$	$147.28^{+0.81}_{-0.77} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$396.8 \quad (\nu: 1.4) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.686^{+0.021}_{-0.022} \quad (+0.4\sigma)$	$k_{\mathrm{D}}$	$0.14061^{+0.00087}_{-0.00092} \quad (+0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.17 \quad (\nu: 0.4) \quad (-0.3\sigma)$
$\Omega_{\mathrm{m}}$	$0.314^{+0.022}_{-0.021} \quad (-0.4\sigma)$	$100\theta_{\mathrm{D}}$	$0.16087^{+0.00049}_{-0.00049} \quad (-0.7\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.3 \quad (\nu: 15.7) \quad (+822.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1425^{+0.0033}_{-0.0034} \quad (-0.3\sigma)$	$z_{\mathrm{eq}}$	$3391^{+79}_{-82} \quad (-0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 6.0) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09610^{+0.00079}_{-0.00083} \quad (+0.4\sigma)$	$k_{\mathrm{eq}}$	$0.01035^{+0.00024}_{-0.00025} \quad (-0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11934.4 \quad (\nu: 16.0) \quad (+823.9\sigma)$
$\sigma_8$	$0.809^{+0.019}_{-0.017} \quad (-0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.016}_{-0.015} \quad (+0.4\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 11942.19$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.93$ ;  $R - 1 = 0.01099$



## 2.23 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02234^{+0.00036}_{-0.00037} \quad (+0.6\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.449^{+0.018}_{-0.017} \quad (-0.0\sigma)$	$D_{\text{M}}(0.15)$	$640^{+10}_{-9.7} \quad (-0.1\sigma)$
$\Omega_{\text{c}} h^2$	$0.1189^{+0.0027}_{-0.0026} \quad (+0.0\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.602^{+0.018}_{-0.017} \quad (-0.0\sigma)$	$H(0.38)$	$83.06^{+0.74}_{-0.74} \quad (+0.2\sigma)$
$100\theta_{\text{MC}}$	$1.04097^{+0.00074}_{-0.00076} \quad (-0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.981^{+0.026}_{-0.024} \quad (-0.0\sigma)$	$D_{\text{M}}(0.38)$	$1528^{+20}_{-20} \quad (-0.1\sigma)$
$\tau$	$0.055^{+0.018}_{-0.014} \quad (+0.0\sigma)$	$r_{\text{drag}} h$	$99.8^{+2.0}_{-2.0} \quad (-0.0\sigma)$	$H(0.51)$	$89.75^{+0.60}_{-0.59} \quad (+0.2\sigma)$
$\ln(10^{10} A_{\text{s}})$	$3.042^{+0.040}_{-0.030} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.427^{+0.064}_{-0.058} \quad (+0.0\sigma)$	$D_{\text{M}}(0.51)$	$1979^{+24}_{-23} \quad (-0.1\sigma)$
$n_{\text{s}}$	$0.9675^{+0.0099}_{-0.010} \quad (-0.0\sigma)$	$z_{\text{re}}$	$< 9.44 \quad (-0.0\sigma)$	$H(0.61)$	$95.36^{+0.50}_{-0.49} \quad (+0.2\sigma)$
$y_{\text{cal}}$	$1.0005^{+0.0065}_{-0.0062} \quad (-0.0\sigma)$	$10^9 A_{\text{s}}$	$2.095^{+0.086}_{-0.063} \quad (+0.1\sigma)$	$D_{\text{M}}(0.61)$	$2303^{+25}_{-25} \quad (-0.1\sigma)$
$A_{100}^{\text{PS}}$	$240^{+70}_{-70} \quad (-0.0\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.876^{+0.028}_{-0.028} \quad (+0.1\sigma)$	$H(2.33)$	$235.8^{+1.6}_{-1.6} \quad (+0.2\sigma)$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{40}$	$1223^{+30}_{-30} \quad (+0.1\sigma)$	$D_{\text{M}}(2.33)$	$5762^{+24}_{-24} \quad (-0.3\sigma)$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5722^{+100}_{-98} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.454^{+0.017}_{-0.016} \quad (-0.0\sigma)$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2535^{+35}_{-32} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.016}_{-0.014} \quad (-0.0\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.90 \quad (+0.0\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.473^{+0.014}_{-0.014} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.0\sigma)$	$D_{2000}$	$230.4^{+4.1}_{-4.0} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.014}_{-0.011} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{\text{s},0.002}$	$0.9675^{+0.0099}_{-0.010} \quad (-0.0\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.013}_{-0.012} \quad (-0.0\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}$	$0.24538^{+0.00013}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.010} \quad (-0.0\sigma)$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24671^{+0.00013}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.012}_{-0.011} \quad (-0.0\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.52}_{-0.50} \quad (-0.0\sigma)$	$10^5 \text{D}/\text{H}$	$2.591^{+0.070}_{-0.064} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.0098} \quad (-0.0\sigma)$
$A_{143}^{\text{dust}}$	$0.96^{+0.45}_{-0.45} \quad (-0.1\sigma)$	$\text{Age}/\text{Gyr}$	$13.794^{+0.054}_{-0.053} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	$0.2974^{+0.0062}_{-0.0048} \quad (-0.0\sigma)$
$A_{217}^{\text{dust}}$	$0.98^{+0.26}_{-0.26} \quad (+0.1\sigma)$	$z_*$	$1089.86^{+0.60}_{-0.58} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.3067^{+0.0065}_{-0.0049} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.41} \quad (+0.0\sigma)$	$r_*$	$144.73^{+0.64}_{-0.63} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-7} \quad (-0.3\sigma)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.04116^{+0.00074}_{-0.00074} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.7^{+5.1}_{-5.1} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040} \quad (-0.0\sigma)$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.901^{+0.061}_{-0.060} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$z_{\text{drag}}$	$1059.79^{+0.79}_{-0.85} \quad (+0.6\sigma)$	$\chi_{\text{small}}^2$	$396.9 \quad (\nu: 1.5) \quad (-0.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$147.41^{+0.68}_{-0.66} \quad (-0.4\sigma)$	$\chi_{\text{lowl}}^2$	$22.88 \quad (\nu: 0.3) \quad (+0.1\sigma)$
$H_0$	$67.7^{+1.2}_{-1.2} \quad (+0.1\sigma)$	$k_{\text{D}}$	$0.14051^{+0.00080}_{-0.00085} \quad (+0.5\sigma)$	$\chi_{\text{CamSpec}}^2$	$11514.4 \quad (\nu: 15.8) \quad (+837.7\sigma)$
$\Omega_{\Lambda}$	$0.691^{+0.015}_{-0.016} \quad (+0.0\sigma)$	$100\theta_{\text{D}}$	$0.16084^{+0.00048}_{-0.00047} \quad (-0.7\sigma)$	$\chi_{6\text{DF}}^2$	$0.044 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_{\text{m}}$	$0.309^{+0.016}_{-0.015} \quad (-0.0\sigma)$	$z_{\text{eq}}$	$3376^{+61}_{-60} \quad (+0.1\sigma)$	$\chi_{\text{MGS}}^2$	$1.37 \quad (\nu: 0.1) \quad (-0.0\sigma)$
$\Omega_{\text{m}} h^2$	$0.1419^{+0.0025}_{-0.0025} \quad (+0.1\sigma)$	$k_{\text{eq}}$	$0.01030^{+0.00019}_{-0.00018} \quad (+0.1\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.5 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$\Omega_{\text{m}} h^3$	$0.09611^{+0.00079}_{-0.00085} \quad (+0.4\sigma)$	$100\theta_{\text{eq}}$	$0.818^{+0.012}_{-0.011} \quad (-0.1\sigma)$	$\chi_{\text{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.0\sigma)$
$\sigma_8$	$0.808^{+0.018}_{-0.016} \quad (-0.0\sigma)$	$100\theta_{\text{s,eq}}$	$0.4519^{+0.0059}_{-0.0058} \quad (-0.1\sigma)$	$\chi_{\text{BAO}}^2$	$5.96 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$S_8$	$0.820^{+0.033}_{-0.032} \quad (-0.0\sigma)$	$H(0.15)$	$73.0^{+1.0}_{-1.0} \quad (+0.1\sigma)$	$\chi_{\text{CMB}}^2$	$11934.2 \quad (\nu: 16.1) \quad (+838.0\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 11947.99; \Delta\bar{\chi}_{\text{eff}}^2 = 4450.67; R - 1 = 0.01741$$



## 2.24 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02242^{+0.00036}_{-0.00040} \quad (+0.1\sigma)$	$S_8$	$0.810^{+0.040}_{-0.035} \quad (+0.5\sigma)$	$100\theta_{s,eq}$	$0.4539^{+0.0070}_{-0.0074} \quad (-0.6\sigma)$
$\Omega_c h^2$	$0.1180^{+0.0034}_{-0.0031} \quad (+0.5\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.444^{+0.022}_{-0.019} \quad (+0.5\sigma)$	$H(0.15)$	$73.4^{+1.2}_{-1.3} \quad (-0.5\sigma)$
$100\theta_{MC}$	$1.04108^{+0.00074}_{-0.00078} \quad (-0.5\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.598^{+0.020}_{-0.018} \quad (+0.5\sigma)$	$D_M(0.15)$	$637^{+13}_{-12} \quad (+0.5\sigma)$
$\tau$	$0.056^{+0.018}_{-0.015} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.975^{+0.029}_{-0.026} \quad (+0.4\sigma)$	$H(0.38)$	$83.33^{+0.89}_{-0.92} \quad (-0.4\sigma)$
$\ln(10^{10} A_s)$	$3.043^{+0.039}_{-0.031} \quad (+0.1\sigma)$	$r_{drag} h$	$100.6^{+2.5}_{-2.6} \quad (-0.5\sigma)$	$D_M(0.38)$	$1520^{+25}_{-24} \quad (+0.5\sigma)$
$n_s$	$0.970^{+0.013}_{-0.011} \quad (-0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.414^{+0.069}_{-0.059} \quad (+0.5\sigma)$	$H(0.51)$	$89.97^{+0.70}_{-0.74} \quad (-0.4\sigma)$
$y_{cal}$	$1.0006^{+0.0065}_{-0.0064} \quad (-0.0\sigma)$	$z_{re}$	$< 9.47 \quad (-0.0\sigma)$	$D_M(0.51)$	$1971^{+30}_{-28} \quad (+0.5\sigma)$
$A_{100}^{PS}$	$239^{+60}_{-70} \quad (-0.0\sigma)$	$10^9 A_s$	$2.096^{+0.083}_{-0.065} \quad (+0.1\sigma)$	$H(0.61)$	$95.53^{+0.56}_{-0.60} \quad (-0.4\sigma)$
$A_{143}^{PS}$	$38^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.873^{+0.029}_{-0.031} \quad (+0.4\sigma)$	$D_M(0.61)$	$2294^{+32}_{-30} \quad (+0.5\sigma)$
$A_{217}^{PS}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{40}$	$1219^{+31}_{-29} \quad (+0.4\sigma)$	$H(2.33)$	$235.3^{+2.0}_{-1.9} \quad (+0.6\sigma)$
$A_{217}^{CIB}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5729^{+95}_{-99} \quad (+0.1\sigma)$	$D_M(2.33)$	$5754^{+28}_{-25} \quad (+0.3\sigma)$
$A_{143}^{tSZ}$	—	$D_{810}$	$2535^{+34}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.449^{+0.020}_{-0.018} \quad (+0.5\sigma)$
$r_{143 \times 217}^{PS}$	$0.66^{+0.30}_{-0.35} \quad (+0.0\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.745^{+0.016}_{-0.015} \quad (+0.3\sigma)$
$r_{143 \times 217}^{CIB}$	—	$D_{2000}$	$230.8^{+3.8}_{-4.1} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.469^{+0.017}_{-0.015} \quad (+0.5\sigma)$
$\xi^{tSZ \times CIB}$	—	$n_{s,0.002}$	$0.970^{+0.013}_{-0.011} \quad (-0.4\sigma)$	$\sigma_8(0.38)$	$0.661^{+0.014}_{-0.012} \quad (+0.2\sigma)$
$A^{kSZ}$	—	$Y_P$	$0.24541^{+0.00013}_{-0.00016} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.468^{+0.015}_{-0.013} \quad (+0.5\sigma)$
$A_{100}^{dust}$	$1.02^{+0.53}_{-0.52} \quad (-0.0\sigma)$	$Y_P^{BBN}$	$0.24674^{+0.00014}_{-0.00016} \quad (+0.1\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.013}_{-0.011} \quad (+0.2\sigma)$
$A_{143}^{dust}$	$0.96^{+0.43}_{-0.44} \quad (-0.1\sigma)$	$10^5 D/H$	$2.576^{+0.076}_{-0.064} \quad (-0.1\sigma)$	$f\sigma_8(0.61)$	$0.464^{+0.014}_{-0.012} \quad (+0.4\sigma)$
$A_{217}^{dust}$	$0.98^{+0.27}_{-0.26} \quad (+0.1\sigma)$	$Age/Gyr$	$13.778^{+0.061}_{-0.054} \quad (+0.3\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.010} \quad (+0.2\sigma)$
$A_{143 \times 217}^{dust}$	$1.03^{+0.41}_{-0.44} \quad (+0.0\sigma)$	$z_*$	$1089.68^{+0.69}_{-0.57} \quad (+0.1\sigma)$	$f\sigma_8(2.33)$	$0.2974^{+0.0062}_{-0.0050} \quad (+0.1\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$r_*$	$144.91^{+0.72}_{-0.77} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.3069^{+0.0063}_{-0.0050} \quad (-0.0\sigma)$
$c_{217}$	$1.0011^{+0.0039}_{-0.0040} \quad (-0.1\sigma)$	$100\theta_*$	$1.04126^{+0.00073}_{-0.00077} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.2\sigma)$
$c_{TE}$	$0.997^{+0.014}_{-0.013}$	$D_M(z_*)/Gpc$	$13.916^{+0.068}_{-0.072} \quad (-0.6\sigma)$	$f_{2000}^{217}$	$106.5^{+5.0}_{-5.1} \quad (-0.2\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$z_{drag}$	$1059.92^{+0.74}_{-0.82} \quad (+0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.2\sigma)$
$H_0$	$68.2^{+1.4}_{-1.5} \quad (-0.5\sigma)$	$r_{drag}$	$147.56^{+0.73}_{-0.78} \quad (-0.7\sigma)$	$\chi_{small}^2$	$397.1 \quad (\nu: 1.6) \quad (-0.0\sigma)$
$\Omega_\Lambda$	$0.696^{+0.018}_{-0.021} \quad (-0.5\sigma)$	$k_D$	$0.14041^{+0.00087}_{-0.00085} \quad (+0.7\sigma)$	$\chi_{lowl}^2$	$22.52 \quad (\nu: 0.3) \quad (+0.4\sigma)$
$\Omega_m$	$0.304^{+0.021}_{-0.018} \quad (+0.5\sigma)$	$100\theta_D$	$0.16077^{+0.00050}_{-0.00043} \quad (-0.4\sigma)$	$\chi_{CamSpec}^2$	$11516.3 \quad (\nu: 20.8) \quad (+748.0\sigma)$
$\Omega_m h^2$	$0.1411^{+0.0032}_{-0.0030} \quad (+0.6\sigma)$	$z_{eq}$	$3356^{+76}_{-71} \quad (+0.6\sigma)$	$\chi_{H073p45}^2$	$10.3 \quad (\nu: 2.5) \quad (+0.5\sigma)$
$\Omega_m h^3$	$0.09615^{+0.00079}_{-0.00088} \quad (+0.2\sigma)$	$k_{eq}$	$0.01024^{+0.00023}_{-0.00022} \quad (+0.6\sigma)$	$\chi_{prior}^2$	$7.8 \quad (\nu: 6.0) \quad (+0.1\sigma)$
$\sigma_8$	$0.805^{+0.018}_{-0.017} \quad (+0.4\sigma)$	$100\theta_{eq}$	$0.822^{+0.014}_{-0.014} \quad (-0.5\sigma)$	$\chi_{CMB}^2$	$11935.9 \quad (\nu: 20.0) \quad (+765.8\sigma)$

$\bar{\chi}_{eff}^2 = 11954.01; \Delta\bar{\chi}_{eff}^2 = 4451.37; R - 1 = 0.03572$



## 2.25 base\_plikHM\_TE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02246	$0.02249^{+0.00068}_{-0.00064}$	$\langle d^2 \rangle^{1/2}$	2.388	$2.38^{+0.11}_{-0.12}$	$H(0.15)$	73.51	$73.6^{+2.0}_{-1.9}$
$\Omega_c h^2$	0.1179	$0.1177^{+0.0052}_{-0.0051}$	$z_{\text{re}}$	7.09	$7.1^{+2.1}_{-2.8}$	$D_{\text{M}}(0.15)$	635.2	$634^{+19}_{-19}$
$100\theta_{\text{MC}}$	1.04137	$1.0414^{+0.0012}_{-0.0013}$	$10^9 A_{\text{s}}$	2.044	$2.04^{+0.10}_{-0.11}$	$H(0.38)$	83.46	$83.5^{+1.5}_{-1.4}$
$\tau$	0.0491	$0.050^{+0.021}_{-0.025}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8528	$1.851^{+0.049}_{-0.047}$	$D_{\text{M}}(0.38)$	1517.1	$1515^{+38}_{-39}$
$\ln(10^{10} A_{\text{s}})$	3.017	$3.018^{+0.050}_{-0.057}$	$D_{40}$	1215	$1212^{+67}_{-66}$	$H(0.51)$	90.08	$90.1^{+1.2}_{-1.1}$
$n_{\text{s}}$	0.9660	$0.967^{+0.030}_{-0.029}$	$D_{220}$	5695	$5693^{+150}_{-140}$	$D_{\text{M}}(0.51)$	1966.8	$1965^{+44}_{-46}$
$A_{100}^{\text{dustTE}}$	0.113	$0.114^{+0.10}_{-0.095}$	$D_{810}$	2507	$2507^{+67}_{-64}$	$H(0.61)$	95.63	$95.7^{+1.0}_{-0.90}$
$A_{100 \times 143}^{\text{dustTE}}$	0.136	$0.136^{+0.078}_{-0.077}$	$D_{1420}$	806.8	$807^{+31}_{-30}$	$D_{\text{M}}(0.61)$	2289.8	$2287^{+48}_{-50}$
$A_{100 \times 217}^{\text{dustTE}}$	0.477	$0.48^{+0.22}_{-0.22}$	$D_{2000}$	227.5	$228^{+11}_{-11}$	$H(2.33)$	235.29	$235.2^{+3.2}_{-3.1}$
$A_{143}^{\text{dustTE}}$	0.222	$0.22^{+0.14}_{-0.14}$	$n_{\text{s},0.002}$	0.9660	$0.967^{+0.030}_{-0.029}$	$D_{\text{M}}(2.33)$	5749.0	$5747^{+42}_{-46}$
$A_{143 \times 217}^{\text{dustTE}}$	0.657	$0.66^{+0.20}_{-0.21}$	$Y_{\text{P}}$	0.245430	$0.24544^{+0.00029}_{-0.00028}$	$f\sigma_8(0.15)$	0.4413	$0.440^{+0.031}_{-0.031}$
$A_{217}^{\text{dustTE}}$	2.04	$2.04^{+0.68}_{-0.69}$	$Y_{\text{P}}^{\text{BBN}}$	0.246756	$0.24676^{+0.00030}_{-0.00028}$	$\sigma_8(0.15)$	0.7343	$0.734^{+0.024}_{-0.026}$
$c_{100}$	1.00017	$1.0002^{+0.0018}_{-0.0018}$	$10^5 \text{D/H}$	2.569	$2.57^{+0.12}_{-0.12}$	$f\sigma_8(0.38)$	0.4614	$0.460^{+0.026}_{-0.026}$
$c_{217}$	0.99799	$0.9980^{+0.0017}_{-0.0016}$	Age/Gyr	13.766	$13.761^{+0.095}_{-0.10}$	$\sigma_8(0.38)$	0.6519	$0.652^{+0.020}_{-0.021}$
$y_{\text{cal}}$	1.0000	$0.99999^{+0.0064}_{-0.0064}$	$z_*$	1089.62	$1089.6^{+1.1}_{-1.1}$	$f\sigma_8(0.51)$	0.4611	$0.460^{+0.023}_{-0.023}$
$H_0$	68.33	$68.4^{+2.4}_{-2.2}$	$r_*$	144.91	$145.0^{+1.2}_{-1.2}$	$\sigma_8(0.51)$	0.6105	$0.610^{+0.019}_{-0.020}$
$\Omega_{\Lambda}$	0.6980	$0.699^{+0.029}_{-0.031}$	$100\theta_*$	1.04154	$1.0416^{+0.0012}_{-0.0013}$	$f\sigma_8(0.61)$	0.4570	$0.456^{+0.021}_{-0.021}$
$\Omega_{\text{m}}$	0.3020	$0.301^{+0.031}_{-0.029}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.913	$13.92^{+0.12}_{-0.11}$	$\sigma_8(0.61)$	0.5812	$0.581^{+0.018}_{-0.018}$
$\Omega_{\text{m}} h^2$	0.14098	$0.1408^{+0.0050}_{-0.0048}$	$z_{\text{drag}}$	1060.01	$1060.0^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	0.2934	$0.2934^{+0.0088}_{-0.0091}$
$\Omega_{\text{m}} h^3$	0.09633	$0.0963^{+0.0013}_{-0.0013}$	$r_{\text{drag}}$	147.55	$147.6^{+1.3}_{-1.2}$	$\sigma_8(2.33)$	0.3029	$0.3030^{+0.0089}_{-0.0095}$
$\sigma_8$	0.7936	$0.793^{+0.028}_{-0.029}$	$k_{\text{D}}$	0.14044	$0.1404^{+0.0015}_{-0.0015}$	$\chi_{\text{simall}}^2$	395.69	$396.8 (\nu: 1.2)$
$S_8$	0.796	$0.794^{+0.060}_{-0.060}$	$100\theta_{\text{D}}$	0.16077	$0.16075^{+0.00084}_{-0.00080}$	$\chi_{\text{plikTE}}^2$	852.9	$859.8 (\nu: 6.7)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4361	$0.435^{+0.033}_{-0.033}$	$z_{\text{eq}}$	3354	$3349^{+120}_{-110}$	$\chi_{\text{prior}}^2$	0.4	$7.4 (\nu: 6.8)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5883	$0.587^{+0.032}_{-0.031}$	$k_{\text{eq}}$	0.010235	$0.01022^{+0.00036}_{-0.00035}$	$\chi_{\text{CMB}}^2$	1248.5	$1256.6 (\nu: 7.8)$
$\sigma_8/h^{0.5}$	0.9601	$0.959^{+0.045}_{-0.045}$	$100\theta_{\text{eq}}$	0.8227	$0.824^{+0.023}_{-0.022}$			
$r_{\text{drag}} h$	100.82	$101.0^{+4.1}_{-4.0}$	$100\theta_{\text{s,eq}}$	0.4542	$0.455^{+0.012}_{-0.011}$			

Best-fit  $\chi_{\text{eff}}^2 = 1248.98$ ;  $\bar{\chi}_{\text{eff}}^2 = 1264.01$ ;  $R - 1 = 0.00711$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.69 plik\_rd12\_HM\_v22\_TE: 852.85



## 2.26 base\_plikHM\_TE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02250^{+0.00068}_{-0.00065}$	$\langle d^2 \rangle^{1/2}$	$2.39^{+0.11}_{-0.10}$	$H(0.15)$	$73.6^{+2.0}_{-1.9}$
$\Omega_{\text{c}} h^2$	$0.1176^{+0.0052}_{-0.0050}$	$z_{\text{re}}$	$< 9.06$	$D_{\text{M}}(0.15)$	$634^{+19}_{-19}$
$100\theta_{\text{MC}}$	$1.0414^{+0.0012}_{-0.0013}$	$10^9 A_{\text{s}}$	$2.058^{+0.094}_{-0.071}$	$H(0.38)$	$83.6^{+1.5}_{-1.4}$
$\tau$	$0.053^{+0.017}_{-0.011}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.852^{+0.048}_{-0.048}$	$D_{\text{M}}(0.38)$	$1515^{+38}_{-39}$
$\ln(10^{10} A_{\text{s}})$	$3.024^{+0.045}_{-0.035}$	$D_{40}$	$1212^{+66}_{-65}$	$H(0.51)$	$90.2^{+1.2}_{-1.1}$
$n_{\text{s}}$	$0.968^{+0.029}_{-0.029}$	$D_{220}$	$5693^{+150}_{-140}$	$D_{\text{M}}(0.51)$	$1964^{+45}_{-46}$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.096}$	$D_{810}$	$2508^{+67}_{-63}$	$H(0.61)$	$95.7^{+1.0}_{-0.90}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.136^{+0.078}_{-0.077}$	$D_{1420}$	$808^{+31}_{-30}$	$D_{\text{M}}(0.61)$	$2287^{+48}_{-50}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$D_{2000}$	$228^{+11}_{-11}$	$H(2.33)$	$235.1^{+3.3}_{-3.1}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$n_{\text{s},0.002}$	$0.968^{+0.029}_{-0.029}$	$D_{\text{M}}(2.33)$	$5746^{+42}_{-46}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$Y_{\text{P}}$	$0.24544^{+0.00030}_{-0.00028}$	$f\sigma_8(0.15)$	$0.441^{+0.031}_{-0.030}$
$A_{217}^{\text{dustTE}}$	$2.03^{+0.68}_{-0.69}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00030}_{-0.00028}$	$\sigma_8(0.15)$	$0.736^{+0.022}_{-0.021}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0018}$	$10^5 \text{D}/\text{H}$	$2.56^{+0.12}_{-0.12}$	$f\sigma_8(0.38)$	$0.462^{+0.025}_{-0.025}$
$c_{217}$	$0.9980^{+0.0016}_{-0.0016}$	$\text{Age}/\text{Gyr}$	$13.760^{+0.094}_{-0.10}$	$\sigma_8(0.38)$	$0.654^{+0.019}_{-0.016}$
$y_{\text{cal}}$	$1.0000^{+0.0064}_{-0.0064}$	$z_*$	$1089.6^{+1.1}_{-1.1}$	$f\sigma_8(0.51)$	$0.462^{+0.022}_{-0.022}$
$H_0$	$68.5^{+2.3}_{-2.2}$	$r_*$	$145.0^{+1.2}_{-1.3}$	$\sigma_8(0.51)$	$0.612^{+0.017}_{-0.015}$
$\Omega_{\Lambda}$	$0.700^{+0.029}_{-0.031}$	$100\theta_*$	$1.0416^{+0.0012}_{-0.0013}$	$f\sigma_8(0.61)$	$0.458^{+0.020}_{-0.020}$
$\Omega_{\text{m}}$	$0.300^{+0.031}_{-0.029}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.92^{+0.12}_{-0.12}$	$\sigma_8(0.61)$	$0.583^{+0.016}_{-0.014}$
$\Omega_{\text{m}} h^2$	$0.1407^{+0.0051}_{-0.0047}$	$z_{\text{drag}}$	$1060.1^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	$0.2945^{+0.0081}_{-0.0066}$
$\Omega_{\text{m}} h^3$	$0.0964^{+0.0013}_{-0.0014}$	$r_{\text{drag}}$	$147.6^{+1.3}_{-1.3}$	$\sigma_8(2.33)$	$0.3041^{+0.0083}_{-0.0067}$
$\sigma_8$	$0.796^{+0.026}_{-0.025}$	$k_{\text{D}}$	$0.1404^{+0.0015}_{-0.0015}$	$\chi_{\text{simall}}^2$	$396.4 (\nu: 0.7)$
$S_8$	$0.796^{+0.060}_{-0.058}$	$100\theta_{\text{D}}$	$0.16074^{+0.00085}_{-0.00079}$	$\chi_{\text{plikTE}}^2$	$859.8 (\nu: 6.7)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.436^{+0.033}_{-0.032}$	$z_{\text{eq}}$	$3347^{+120}_{-110}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.8)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.589^{+0.031}_{-0.030}$	$k_{\text{eq}}$	$0.01022^{+0.00037}_{-0.00035}$	$\chi_{\text{CMB}}^2$	$1256.2 (\nu: 7.4)$
$\sigma_8/h^{0.5}$	$0.962^{+0.043}_{-0.042}$	$100\theta_{\text{eq}}$	$0.824^{+0.023}_{-0.022}$		
$r_{\text{drag}} h$	$101.1^{+4.1}_{-4.0}$	$100\theta_{\text{s,eq}}$	$0.455^{+0.012}_{-0.012}$		

$\bar{\chi}_{\text{eff}}^2 = 1263.64$ ;  $R - 1 = 0.00713$



## 2.27 base\_plikHM\_EE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02372	$0.0240^{+0.0032}_{-0.0029}$	$D_{220}$	5924	$5959^{+490}_{-480}$	$H(0.38)$	84.36	$84.7^{+5.4}_{-4.5}$
$\Omega_c h^2$	0.1164	$0.116^{+0.012}_{-0.011}$	$D_{810}$	2585	$2590^{+97}_{-100}$	$D_M(0.38)$	1497	$1489^{+120}_{-120}$
$100\theta_{MC}$	1.04002	$1.0400^{+0.0022}_{-0.0023}$	$D_{1420}$	841.3	$844^{+47}_{-49}$	$H(0.51)$	90.91	$91.3^{+4.7}_{-3.8}$
$\tau$	0.0526	$0.053^{+0.023}_{-0.027}$	$D_{2000}$	240.2	$241^{+18}_{-19}$	$D_M(0.51)$	1942	$1933^{+140}_{-140}$
$\ln(10^{10} A_s)$	3.050	$3.052^{+0.057}_{-0.059}$	$n_{s,0.002}$	0.9781	$0.980^{+0.040}_{-0.035}$	$H(0.61)$	96.40	$96.7^{+4.1}_{-3.2}$
$n_s$	0.9781	$0.980^{+0.040}_{-0.035}$	$Y_P$	0.24595	$0.2460^{+0.0012}_{-0.0012}$	$D_M(0.61)$	2262	$2252^{+150}_{-160}$
$y_{cal}$	1.0001	$0.9999^{+0.0066}_{-0.0062}$	$Y_P^{BBN}$	0.24728	$0.2474^{+0.0012}_{-0.0012}$	$H(2.33)$	235.5	$235.3^{+5.9}_{-4.8}$
$H_0$	69.5	$69.9^{+7.3}_{-6.7}$	$10^5 D/H$	2.352	$2.32^{+0.53}_{-0.44}$	$D_M(2.33)$	5709	$5695^{+160}_{-180}$
$\Omega_\Lambda$	0.708	$0.711^{+0.067}_{-0.085}$	Age/Gyr	13.672	$13.64^{+0.36}_{-0.40}$	$f\sigma_8(0.15)$	0.437	$0.433^{+0.076}_{-0.069}$
$\Omega_m$	0.292	$0.289^{+0.085}_{-0.067}$	$z_*$	1088.01	$1087.8^{+4.5}_{-4.0}$	$\sigma_8(0.15)$	0.7399	$0.737^{+0.035}_{-0.038}$
$\Omega_m h^2$	0.1408	$0.140^{+0.010}_{-0.0088}$	$r_*$	144.33	$144.3^{+1.7}_{-1.7}$	$f\sigma_8(0.38)$	0.460	$0.456^{+0.058}_{-0.058}$
$\Omega_m h^3$	0.09778	$0.0981^{+0.0048}_{-0.0042}$	$100\theta_*$	1.04007	$1.0400^{+0.0022}_{-0.0022}$	$\sigma_8(0.38)$	0.6581	$0.656^{+0.025}_{-0.027}$
$\sigma_8$	0.7986	$0.796^{+0.045}_{-0.047}$	$D_M(z_*)/\text{Gpc}$	13.877	$13.87^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	0.4608	$0.457^{+0.049}_{-0.050}$
$S_8$	0.788	$0.78^{+0.15}_{-0.13}$	$z_{drag}$	1062.8	$1063.2^{+6.1}_{-6.0}$	$\sigma_8(0.51)$	0.6168	$0.615^{+0.022}_{-0.023}$
$\sigma_8 \Omega_m^{0.5}$	0.431	$0.427^{+0.084}_{-0.072}$	$r_{drag}$	146.55	$146.5^{+1.8}_{-1.8}$	$f\sigma_8(0.61)$	0.4575	$0.454^{+0.042}_{-0.044}$
$\sigma_8 \Omega_m^{0.25}$	0.587	$0.583^{+0.071}_{-0.066}$	$k_D$	0.14239	$0.1426^{+0.0031}_{-0.0033}$	$\sigma_8(0.61)$	0.5874	$0.586^{+0.020}_{-0.020}$
$\sigma_8/h^{0.5}$	0.958	$0.952^{+0.099}_{-0.096}$	$100\theta_D$	0.15899	$0.1588^{+0.0035}_{-0.0028}$	$f\sigma_8(2.33)$	0.2970	$0.2965^{+0.0088}_{-0.0092}$
$r_{drag} h$	101.8	$102^{+10}_{-10}$	$z_{eq}$	3349	$3340^{+240}_{-210}$	$\sigma_8(2.33)$	0.3071	$0.3069^{+0.0096}_{-0.0095}$
$\langle d^2 \rangle^{1/2}$	2.384	$2.37^{+0.19}_{-0.19}$	$k_{eq}$	0.01022	$0.01019^{+0.00073}_{-0.00064}$	$\chi_{simall}^2$	395.59	$396.7 (\nu: 1.2)$
$z_{re}$	7.17	$7.1^{+2.1}_{-2.8}$	$100\theta_{eq}$	0.8261	$0.829^{+0.050}_{-0.049}$	$\chi_{plikEE}^2$	739.0	$743.9 (\nu: 4.9)$
$10^9 A_s$	2.112	$2.12^{+0.12}_{-0.12}$	$100\theta_{s,eq}$	0.4550	$0.456^{+0.023}_{-0.024}$	$\chi_{prior}^2$	0.00	$0.98 (\nu: 1.0)$
$10^9 A_s e^{-2\tau}$	1.901	$1.904^{+0.061}_{-0.062}$	$H(0.15)$	74.6	$75.0^{+6.6}_{-5.9}$	$\chi_{CMB}^2$	1134.6	$1140.6 (\nu: 5.9)$
$D_{40}$	1229	$1230^{+79}_{-77}$	$D_M(0.15)$	626	$622^{+59}_{-55}$			

Best-fit  $\chi_{\text{eff}}^2 = 1134.55$ ;  $\bar{\chi}_{\text{eff}}^2 = 1141.61$ ;  $R - 1 = 0.00482$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.59 plik\_rd12\_HM\_v22\_EE: 738.96



## 2.28 base\_plikHM\_EE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.0240^{+0.0033}_{-0.0029}$	$D_{220}$	$5954^{+500}_{-490}$	$H(0.38)$	$84.7^{+5.4}_{-4.6}$
$\Omega_{\text{c}}h^2$	$0.116^{+0.013}_{-0.011}$	$D_{810}$	$2589^{+99}_{-100}$	$D_{\text{M}}(0.38)$	$1489^{+120}_{-120}$
$100\theta_{\text{MC}}$	$1.0400^{+0.0022}_{-0.0023}$	$D_{1420}$	$844^{+48}_{-49}$	$H(0.51)$	$91.3^{+4.7}_{-3.8}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$D_{2000}$	$241^{+18}_{-19}$	$D_{\text{M}}(0.51)$	$1933^{+140}_{-140}$
$\ln(10^{10}A_{\text{s}})$	$3.058^{+0.052}_{-0.047}$	$n_{\text{s},0.002}$	$0.981^{+0.040}_{-0.035}$	$H(0.61)$	$96.7^{+4.2}_{-3.3}$
$n_{\text{s}}$	$0.981^{+0.040}_{-0.035}$	$Y_{\text{P}}$	$0.2460^{+0.0012}_{-0.0012}$	$D_{\text{M}}(0.61)$	$2252^{+160}_{-160}$
$y_{\text{cal}}$	$0.99996^{+0.0066}_{-0.0064}$	$Y_{\text{P}}^{\text{BBN}}$	$0.2474^{+0.0012}_{-0.0012}$	$H(2.33)$	$235.3^{+6.0}_{-4.8}$
$H_0$	$69.9^{+7.4}_{-6.8}$	$10^5 D/\text{H}$	$2.33^{+0.53}_{-0.46}$	$D_{\text{M}}(2.33)$	$5696^{+160}_{-190}$
$\Omega_{\Lambda}$	$0.711^{+0.068}_{-0.087}$	$\text{Age}/\text{Gyr}$	$13.65^{+0.37}_{-0.41}$	$f\sigma_8(0.15)$	$0.435^{+0.077}_{-0.070}$
$\Omega_{\text{m}}$	$0.289^{+0.087}_{-0.068}$	$z_*$	$1087.8^{+4.5}_{-4.1}$	$\sigma_8(0.15)$	$0.740^{+0.034}_{-0.037}$
$\Omega_{\text{m}}h^2$	$0.140^{+0.010}_{-0.0089}$	$r_*$	$144.3^{+1.7}_{-1.7}$	$f\sigma_8(0.38)$	$0.458^{+0.059}_{-0.058}$
$\Omega_{\text{m}}h^3$	$0.0981^{+0.0049}_{-0.0042}$	$100\theta_*$	$1.0400^{+0.0022}_{-0.0022}$	$\sigma_8(0.38)$	$0.658^{+0.024}_{-0.026}$
$\sigma_8$	$0.798^{+0.044}_{-0.047}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.88^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	$0.459^{+0.049}_{-0.050}$
$S_8$	$0.78^{+0.15}_{-0.13}$	$z_{\text{drag}}$	$1063.2^{+6.3}_{-6.0}$	$\sigma_8(0.51)$	$0.617^{+0.020}_{-0.021}$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.429^{+0.085}_{-0.073}$	$r_{\text{drag}}$	$146.5^{+1.9}_{-1.8}$	$f\sigma_8(0.61)$	$0.456^{+0.042}_{-0.045}$
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.585^{+0.071}_{-0.067}$	$k_{\text{D}}$	$0.1426^{+0.0032}_{-0.0034}$	$\sigma_8(0.61)$	$0.588^{+0.018}_{-0.019}$
$\sigma_8/h^{0.5}$	$0.955^{+0.099}_{-0.096}$	$100\theta_{\text{D}}$	$0.1588^{+0.0035}_{-0.0029}$	$f\sigma_8(2.33)$	$0.2974^{+0.0082}_{-0.0075}$
$r_{\text{drag}}h$	$102^{+11}_{-10}$	$z_{\text{eq}}$	$3339^{+240}_{-210}$	$\sigma_8(2.33)$	$0.3079^{+0.0088}_{-0.0077}$
$\langle d^2 \rangle^{1/2}$	$2.38^{+0.20}_{-0.19}$	$k_{\text{eq}}$	$0.01019^{+0.00075}_{-0.00065}$	$\chi_{\text{simall}}^2$	$396.4 (\nu: 0.9)$
$z_{\text{re}}$	$< 9.06$	$100\theta_{\text{eq}}$	$0.829^{+0.050}_{-0.050}$	$\chi_{\text{plikEE}}^2$	$743.9 (\nu: 5.0)$
$10^9 A_{\text{s}}$	$2.13^{+0.11}_{-0.098}$	$100\theta_{\text{s,eq}}$	$0.456^{+0.024}_{-0.024}$	$\chi_{\text{prior}}^2$	$1.0 (\nu: 1.0)$
$10^9 A_{\text{s}}e^{-2\tau}$	$1.903^{+0.062}_{-0.062}$	$H(0.15)$	$75.0^{+6.6}_{-6.0}$	$\chi_{\text{CMB}}^2$	$1140.3 (\nu: 5.8)$
$D_{40}$	$1229^{+78}_{-76}$	$D_{\text{M}}(0.15)$	$622^{+59}_{-56}$		

$$\bar{\chi}_{\text{eff}}^2 = 1141.31; R - 1 = 0.00558$$



## 2.29 base\_CamSpecHM\_TE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02247	$0.02248^{+0.00065}_{-0.00066}$	$D_{220}$	5719	$5716^{+160}_{-160}$	$H(0.38)$	83.66	$83.7^{+1.6}_{-1.5}$
$\Omega_c h^2$	0.1170	$0.1169^{+0.0054}_{-0.0052}$	$D_{810}$	2548	$2546^{+67}_{-66}$	$D_M(0.38)$	1511.4	$1511^{+41}_{-40}$
$100\theta_{MC}$	1.04140	$1.0414^{+0.0013}_{-0.0013}$	$D_{1420}$	824.6	$824^{+31}_{-31}$	$H(0.51)$	90.23	$90.3^{+1.3}_{-1.2}$
$\tau$	0.0518	$0.050^{+0.023}_{-0.027}$	$D_{2000}$	233.4	$233^{+11}_{-11}$	$D_M(0.51)$	1960.2	$1959^{+48}_{-47}$
$\ln(10^{10} A_s)$	3.034	$3.031^{+0.052}_{-0.062}$	$n_{s,0.002}$	0.9781	$0.978^{+0.030}_{-0.028}$	$H(0.61)$	95.73	$95.8^{+1.0}_{-0.97}$
$n_s$	0.9781	$0.978^{+0.030}_{-0.028}$	$Y_P$	0.245433	$0.24544^{+0.00028}_{-0.00029}$	$D_M(0.61)$	2283	$2282^{+51}_{-51}$
$y_{cal}$	1.0001	$0.99999^{+0.0065}_{-0.0065}$	$Y_P^{BBN}$	0.246760	$0.24676^{+0.00028}_{-0.00029}$	$H(2.33)$	234.70	$234.7^{+3.3}_{-3.2}$
$H_0$	68.68	$68.7^{+2.4}_{-2.4}$	$10^5 D/H$	2.567	$2.57^{+0.12}_{-0.12}$	$D_M(2.33)$	5745.7	$5745^{+45}_{-44}$
$\Omega_\Lambda$	0.7030	$0.703^{+0.029}_{-0.033}$	Age/Gyr	13.760	$13.76^{+0.10}_{-0.097}$	$f\sigma_8(0.15)$	0.4421	$0.441^{+0.033}_{-0.032}$
$\Omega_m$	0.2970	$0.297^{+0.033}_{-0.029}$	$z_*$	1089.53	$1089.5^{+1.1}_{-1.1}$	$\sigma_8(0.15)$	0.7415	$0.740^{+0.025}_{-0.027}$
$\Omega_m h^2$	0.1401	$0.1400^{+0.0052}_{-0.0050}$	$r_*$	145.15	$145.2^{+1.3}_{-1.3}$	$f\sigma_8(0.38)$	0.4634	$0.462^{+0.027}_{-0.028}$
$\Omega_m h^3$	0.09620	$0.0962^{+0.0014}_{-0.0014}$	$100\theta_*$	1.04158	$1.0416^{+0.0013}_{-0.0013}$	$\sigma_8(0.38)$	0.6589	$0.658^{+0.021}_{-0.023}$
$\sigma_8$	0.8009	$0.799^{+0.029}_{-0.031}$	$D_M(z_*)/\text{Gpc}$	13.935	$13.94^{+0.12}_{-0.12}$	$f\sigma_8(0.51)$	0.4638	$0.463^{+0.024}_{-0.025}$
$S_8$	0.797	$0.795^{+0.064}_{-0.062}$	$z_{drag}$	1059.93	$1060.0^{+1.4}_{-1.4}$	$\sigma_8(0.51)$	0.6173	$0.616^{+0.020}_{-0.021}$
$\sigma_8 \Omega_m^{0.5}$	0.4364	$0.435^{+0.035}_{-0.034}$	$r_{drag}$	147.79	$147.8^{+1.3}_{-1.3}$	$f\sigma_8(0.61)$	0.4600	$0.459^{+0.022}_{-0.023}$
$\sigma_8 \Omega_m^{0.25}$	0.5912	$0.590^{+0.033}_{-0.033}$	$k_D$	0.14021	$0.1402^{+0.0016}_{-0.0015}$	$\sigma_8(0.61)$	0.5878	$0.587^{+0.018}_{-0.020}$
$\sigma_8/h^{0.5}$	0.9664	$0.964^{+0.047}_{-0.047}$	$100\theta_D$	0.16079	$0.16078^{+0.00086}_{-0.00079}$	$f\sigma_8(2.33)$	0.2970	$0.2964^{+0.0092}_{-0.0098}$
$r_{drag} h$	101.50	$101.6^{+4.2}_{-4.2}$	$z_{eq}$	3332	$3331^{+120}_{-120}$	$\sigma_8(2.33)$	0.3068	$0.3063^{+0.0097}_{-0.010}$
$\langle d^2 \rangle^{1/2}$	2.376	$2.37^{+0.11}_{-0.11}$	$k_{eq}$	0.010169	$0.01017^{+0.00038}_{-0.00037}$	$\chi_{small}^2$	395.67	$396.9 (\nu: 1.3)$
$z_{re}$	7.36	$7.2^{+2.2}_{-3.1}$	$100\theta_{eq}$	0.8267	$0.827^{+0.024}_{-0.023}$	$\chi_{CamSpec}^2$	2575.9	$2581.0 (\nu: 5.1)$
$10^9 A_s$	2.079	$2.07^{+0.11}_{-0.12}$	$100\theta_{s,eq}$	0.4563	$0.457^{+0.012}_{-0.012}$	$\chi_{prior}^2$	10.03	$11.0 (\nu: 1.0)$
$10^9 A_s e^{-2\tau}$	1.874	$1.873^{+0.050}_{-0.050}$	$H(0.15)$	73.80	$73.8^{+2.1}_{-2.0}$	$\chi_{CMB}^2$	2971.6	$2977.9 (\nu: 6.5)$
$D_{40}$	1201	$1200^{+67}_{-68}$	$D_M(0.15)$	632.3	$632^{+20}_{-20}$			

Best-fit  $\chi_{\text{eff}}^2 = 2981.64$ ;  $\bar{\chi}_{\text{eff}}^2 = 2988.91$ ;  $R - 1 = 0.00640$

$\chi_{\text{eff}}^2$ : CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.67 CamSpec like\_10.7HM\_1400\_unified: 2575.95



### 2.30 base\_CamSpecHM\_TE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02249^{+0.00066}_{-0.00064}$	$D_{220}$	$5716^{+150}_{-160}$	$H(0.38)$	$83.7^{+1.6}_{-1.5}$
$\Omega_{\mathrm{c}}h^2$	$0.1168^{+0.0053}_{-0.0052}$	$D_{810}$	$2547^{+66}_{-65}$	$D_{\mathrm{M}}(0.38)$	$1510^{+41}_{-40}$
$100\theta_{\mathrm{MC}}$	$1.0414^{+0.0013}_{-0.0013}$	$D_{1420}$	$825^{+31}_{-31}$	$H(0.51)$	$90.3^{+1.3}_{-1.2}$
$\tau$	$0.054^{+0.018}_{-0.011}$	$D_{2000}$	$234^{+11}_{-11}$	$D_{\mathrm{M}}(0.51)$	$1959^{+48}_{-47}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.037^{+0.048}_{-0.037}$	$n_{\mathrm{s},0.002}$	$0.979^{+0.029}_{-0.028}$	$H(0.61)$	$95.8^{+1.0}_{-0.98}$
$n_{\mathrm{s}}$	$0.979^{+0.029}_{-0.028}$	$Y_{\mathrm{P}}$	$0.24544^{+0.00028}_{-0.00028}$	$D_{\mathrm{M}}(0.61)$	$2281^{+51}_{-51}$
$y_{\mathrm{cal}}$	$0.99997^{+0.0065}_{-0.0064}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24677^{+0.00028}_{-0.00028}$	$H(2.33)$	$234.6^{+3.3}_{-3.2}$
$H_0$	$68.8^{+2.4}_{-2.4}$	$10^5\mathrm{D}/\mathrm{H}$	$2.56^{+0.12}_{-0.12}$	$D_{\mathrm{M}}(2.33)$	$5744^{+45}_{-45}$
$\Omega_{\Lambda}$	$0.704^{+0.029}_{-0.033}$	Age/Gyr	$13.76^{+0.10}_{-0.097}$	$f\sigma_8(0.15)$	$0.442^{+0.033}_{-0.032}$
$\Omega_{\mathrm{m}}$	$0.296^{+0.033}_{-0.029}$	$z_*$	$1089.5^{+1.1}_{-1.1}$	$\sigma_8(0.15)$	$0.742^{+0.024}_{-0.023}$
$\Omega_{\mathrm{m}}h^2$	$0.1400^{+0.0052}_{-0.0050}$	$r_*$	$145.2^{+1.3}_{-1.3}$	$f\sigma_8(0.38)$	$0.464^{+0.027}_{-0.027}$
$\Omega_{\mathrm{m}}h^3$	$0.0962^{+0.0014}_{-0.0014}$	$100\theta_*$	$1.0416^{+0.0013}_{-0.0013}$	$\sigma_8(0.38)$	$0.660^{+0.020}_{-0.018}$
$\sigma_8$	$0.802^{+0.027}_{-0.027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.12}_{-0.12}$	$f\sigma_8(0.51)$	$0.464^{+0.023}_{-0.024}$
$S_8$	$0.797^{+0.064}_{-0.061}$	$z_{\mathrm{drag}}$	$1060.0^{+1.4}_{-1.4}$	$\sigma_8(0.51)$	$0.618^{+0.018}_{-0.016}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.436^{+0.035}_{-0.033}$	$r_{\mathrm{drag}}$	$147.8^{+1.3}_{-1.3}$	$f\sigma_8(0.61)$	$0.460^{+0.021}_{-0.021}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.591^{+0.033}_{-0.032}$	$k_{\mathrm{D}}$	$0.1402^{+0.0015}_{-0.0015}$	$\sigma_8(0.61)$	$0.589^{+0.017}_{-0.015}$
$\sigma_8/h^{0.5}$	$0.967^{+0.045}_{-0.044}$	$100\theta_{\mathrm{D}}$	$0.16077^{+0.00086}_{-0.00079}$	$f\sigma_8(2.33)$	$0.2974^{+0.0085}_{-0.0073}$
$r_{\mathrm{drag}}h$	$101.6^{+4.2}_{-4.2}$	$z_{\mathrm{eq}}$	$3329^{+120}_{-120}$	$\sigma_8(2.33)$	$0.3073^{+0.0088}_{-0.0073}$
$\langle d^2 \rangle^{1/2}$	$2.38^{+0.10}_{-0.11}$	$k_{\mathrm{eq}}$	$0.01016^{+0.00038}_{-0.00037}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.7)$
$z_{\mathrm{re}}$	$< 9.22$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.024}_{-0.023}$	$\chi_{\mathrm{CamSpec}}^2$	$2581.0 (\nu: 5.1)$
$10^9A_{\mathrm{s}}$	$2.09^{+0.10}_{-0.077}$	$100\theta_{\mathrm{s,eq}}$	$0.457^{+0.012}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	$11.0 (\nu: 1.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.873^{+0.050}_{-0.049}$	$H(0.15)$	$73.9^{+2.1}_{-2.1}$	$\chi_{\mathrm{CMB}}^2$	$2977.5 (\nu: 5.8)$
$D_{40}$	$1199^{+66}_{-68}$	$D_{\mathrm{M}}(0.15)$	$632^{+20}_{-19}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 2988.52$ ;  $R - 1 = 0.00517$



### 2.31 base\_CamSpecHM\_EE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02320	$0.0233^{+0.0033}_{-0.0028}$	$D_{220}$	5947	$5950^{+520}_{-490}$	$H(0.38)$	83.13	$83.3^{+5.2}_{-4.3}$
$\Omega_c h^2$	0.1197	$0.119^{+0.012}_{-0.012}$	$D_{810}$	2598	$2597^{+100}_{-100}$	$D_M(0.38)$	1528	$1525^{+120}_{-120}$
$100\theta_{MC}$	1.03933	$1.0393^{+0.0023}_{-0.0022}$	$D_{1420}$	839.2	$840^{+48}_{-48}$	$H(0.51)$	89.90	$90.1^{+4.5}_{-3.5}$
$\tau$	0.0500	$0.050^{+0.023}_{-0.025}$	$D_{2000}$	238.6	$239^{+18}_{-18}$	$D_M(0.51)$	1979	$1975^{+140}_{-150}$
$\ln(10^{10} A_s)$	3.058	$3.058^{+0.057}_{-0.059}$	$n_{s,0.002}$	0.9650	$0.967^{+0.036}_{-0.033}$	$H(0.61)$	95.55	$95.7^{+3.9}_{-3.0}$
$n_s$	0.9650	$0.967^{+0.036}_{-0.033}$	$Y_P$	0.24574	$0.2458^{+0.0012}_{-0.0012}$	$D_M(0.61)$	2302	$2298^{+150}_{-160}$
$y_{cal}$	0.99999	$1.0000^{+0.0064}_{-0.0064}$	$Y_P^{BBN}$	0.24707	$0.2471^{+0.0012}_{-0.0012}$	$H(2.33)$	237.0	$236.8^{+5.9}_{-5.3}$
$H_0$	67.6	$67.9^{+7.3}_{-6.4}$	$10^5 D/H$	2.44	$2.44^{+0.55}_{-0.48}$	$D_M(2.33)$	5748	$5743^{+150}_{-180}$
$\Omega_\Lambda$	0.686	$0.687^{+0.076}_{-0.092}$	Age/Gyr	13.760	$13.75^{+0.35}_{-0.41}$	$f\sigma_8(0.15)$	0.459	$0.456^{+0.077}_{-0.076}$
$\Omega_m$	0.314	$0.313^{+0.092}_{-0.076}$	$z_*$	1088.88	$1088.8^{+4.7}_{-4.3}$	$\sigma_8(0.15)$	0.7490	$0.747^{+0.035}_{-0.040}$
$\Omega_m h^2$	0.1435	$0.143^{+0.010}_{-0.0095}$	$r_*$	143.89	$143.9^{+1.7}_{-1.7}$	$f\sigma_8(0.38)$	0.476	$0.474^{+0.057}_{-0.061}$
$\Omega_m h^3$	0.09705	$0.0971^{+0.0047}_{-0.0040}$	$100\theta_*$	1.03943	$1.0394^{+0.0022}_{-0.0021}$	$\sigma_8(0.38)$	0.6637	$0.662^{+0.025}_{-0.029}$
$\sigma_8$	0.8108	$0.809^{+0.044}_{-0.050}$	$D_M(z_*)/\text{Gpc}$	13.843	$13.85^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	0.475	$0.473^{+0.047}_{-0.053}$
$S_8$	0.829	$0.83^{+0.16}_{-0.15}$	$z_{drag}$	1061.8	$1061.9^{+6.3}_{-5.9}$	$\sigma_8(0.51)$	0.6210	$0.620^{+0.021}_{-0.024}$
$\sigma_8 \Omega_m^{0.5}$	0.454	$0.452^{+0.086}_{-0.080}$	$r_{drag}$	146.27	$146.3^{+1.8}_{-1.7}$	$f\sigma_8(0.61)$	0.4696	$0.468^{+0.040}_{-0.046}$
$\sigma_8 \Omega_m^{0.25}$	0.607	$0.604^{+0.072}_{-0.072}$	$k_D$	0.14235	$0.1423^{+0.0032}_{-0.0032}$	$\sigma_8(0.61)$	0.5908	$0.590^{+0.020}_{-0.022}$
$\sigma_8/h^{0.5}$	0.986	$0.982^{+0.098}_{-0.10}$	$100\theta_D$	0.15943	$0.1594^{+0.0037}_{-0.0031}$	$f\sigma_8(2.33)$	0.2978	$0.2974^{+0.0094}_{-0.0095}$
$r_{drag} h$	98.9	$99.3^{+11}_{-9.6}$	$z_{eq}$	3414	$3405^{+240}_{-230}$	$\sigma_8(2.33)$	0.3069	$0.3067^{+0.0098}_{-0.0097}$
$\langle d^2 \rangle^{1/2}$	2.457	$2.45^{+0.19}_{-0.20}$	$k_{eq}$	0.01042	$0.01039^{+0.00073}_{-0.00070}$	$\chi_{simall}^2$	395.62	$396.8 (\nu: 1.2)$
$z_{re}$	7.06	$7.1^{+2.1}_{-2.7}$	$100\theta_{eq}$	0.8123	$0.814^{+0.052}_{-0.047}$	$\chi_{CamSpec}^2$	1886.5	$1891.5 (\nu: 4.9)$
$10^9 A_s$	2.129	$2.13^{+0.12}_{-0.12}$	$100\theta_{s,eq}$	0.4482	$0.449^{+0.025}_{-0.023}$	$\chi_{prior}^2$	10.03	$11.0 (\nu: 1.0)$
$10^9 A_s e^{-2\tau}$	1.926	$1.925^{+0.062}_{-0.061}$	$H(0.15)$	73.0	$73.2^{+6.5}_{-5.6}$	$\chi_{CMB}^2$	2282.1	$2288.3 (\nu: 6.1)$
$D_{40}$	1265	$1260^{+80}_{-77}$	$D_M(0.15)$	641	$639^{+59}_{-58}$			

Best-fit  $\chi_{\text{eff}}^2 = 2292.16$ ;  $\bar{\chi}_{\text{eff}}^2 = 2299.35$ ;  $R - 1 = 0.00959$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.62 CamSpec like\_10.7HM\_1400\_unified: 1886.52



## 2.32 base\_CamSpecHM\_EE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.0233^{+0.0033}_{-0.0028}$	$D_{220}$	$5943^{+510}_{-490}$	$H(0.38)$	$83.3^{+5.3}_{-4.2}$
$\Omega_{\text{c}}h^2$	$0.119^{+0.012}_{-0.012}$	$D_{810}$	$2596^{+100}_{-100}$	$D_{\text{M}}(0.38)$	$1525^{+120}_{-120}$
$100\theta_{\text{MC}}$	$1.0393^{+0.0023}_{-0.0022}$	$D_{1420}$	$839^{+47}_{-47}$	$H(0.51)$	$90.0^{+4.6}_{-3.5}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$D_{2000}$	$239^{+18}_{-18}$	$D_{\text{M}}(0.51)$	$1976^{+140}_{-150}$
$\ln(10^{10}A_{\text{s}})$	$3.065^{+0.052}_{-0.046}$	$n_{\text{s},0.002}$	$0.968^{+0.037}_{-0.033}$	$H(0.61)$	$95.7^{+4.0}_{-2.9}$
$n_{\text{s}}$	$0.968^{+0.037}_{-0.033}$	$Y_{\text{P}}$	$0.2457^{+0.0013}_{-0.0012}$	$D_{\text{M}}(0.61)$	$2299^{+150}_{-160}$
$y_{\text{cal}}$	$1.0000^{+0.0064}_{-0.0063}$	$Y_{\text{P}}^{\text{BBN}}$	$0.2471^{+0.0013}_{-0.0012}$	$H(2.33)$	$236.8^{+5.9}_{-5.4}$
$H_0$	$67.9^{+7.4}_{-6.4}$	$10^5 D/\text{H}$	$2.44^{+0.55}_{-0.49}$	$D_{\text{M}}(2.33)$	$5744^{+150}_{-180}$
$\Omega_{\Lambda}$	$0.687^{+0.076}_{-0.091}$	Age/Gyr	$13.75^{+0.35}_{-0.41}$	$f\sigma_8(0.15)$	$0.458^{+0.077}_{-0.076}$
$\Omega_{\text{m}}$	$0.313^{+0.091}_{-0.076}$	$z_*$	$1088.9^{+4.7}_{-4.3}$	$\sigma_8(0.15)$	$0.750^{+0.033}_{-0.037}$
$\Omega_{\text{m}}h^2$	$0.143^{+0.010}_{-0.0096}$	$r_*$	$144.0^{+1.7}_{-1.7}$	$f\sigma_8(0.38)$	$0.476^{+0.057}_{-0.061}$
$\Omega_{\text{m}}h^3$	$0.0970^{+0.0047}_{-0.0040}$	$100\theta_*$	$1.0394^{+0.0022}_{-0.0021}$	$\sigma_8(0.38)$	$0.665^{+0.023}_{-0.025}$
$\sigma_8$	$0.812^{+0.043}_{-0.047}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.85^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	$0.474^{+0.047}_{-0.053}$
$S_8$	$0.83^{+0.16}_{-0.15}$	$z_{\text{drag}}$	$1061.8^{+6.4}_{-5.8}$	$\sigma_8(0.51)$	$0.622^{+0.020}_{-0.020}$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.454^{+0.086}_{-0.081}$	$r_{\text{drag}}$	$146.3^{+1.8}_{-1.7}$	$f\sigma_8(0.61)$	$0.469^{+0.040}_{-0.047}$
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.607^{+0.072}_{-0.072}$	$k_{\text{D}}$	$0.1423^{+0.0032}_{-0.0032}$	$\sigma_8(0.61)$	$0.592^{+0.018}_{-0.018}$
$\sigma_8/h^{0.5}$	$0.986^{+0.099}_{-0.10}$	$100\theta_{\text{D}}$	$0.1595^{+0.0037}_{-0.0031}$	$f\sigma_8(2.33)$	$0.2984^{+0.0086}_{-0.0074}$
$r_{\text{drag}}h$	$99.3^{+11}_{-9.6}$	$z_{\text{eq}}$	$3405^{+240}_{-230}$	$\sigma_8(2.33)$	$0.3078^{+0.0092}_{-0.0080}$
$\langle d^2 \rangle^{1/2}$	$2.46^{+0.19}_{-0.20}$	$k_{\text{eq}}$	$0.01039^{+0.00073}_{-0.00070}$	$\chi_{\text{simall}}^2$	$396.5 (\nu: 1.0)$
$z_{\text{re}}$	$< 9.07$	$100\theta_{\text{eq}}$	$0.814^{+0.052}_{-0.047}$	$\chi_{\text{CamSpec}}^2$	$1891.4 (\nu: 4.8)$
$10^9 A_{\text{s}}$	$2.14^{+0.11}_{-0.096}$	$100\theta_{\text{s,eq}}$	$0.449^{+0.025}_{-0.023}$	$\chi_{\text{prior}}^2$	$11.0 (\nu: 1.0)$
$10^9 A_{\text{s}}e^{-2\tau}$	$1.924^{+0.062}_{-0.061}$	$H(0.15)$	$73.2^{+6.6}_{-5.6}$	$\chi_{\text{CMB}}^2$	$2287.9 (\nu: 5.7)$
$D_{40}$	$1260^{+79}_{-77}$	$D_{\text{M}}(0.15)$	$640^{+59}_{-59}$		

$$\bar{\chi}_{\text{eff}}^2 = 2298.97; R - 1 = 0.00869$$



### 2.33 base\_plikHM\_TE\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02242	$0.02245^{+0.00059}_{-0.00060}$	$z_{\text{re}}$	7.08	$7.0^{+2.1}_{-3.3}$	$H(0.38)$	83.35	$83.40^{+0.92}_{-0.91}$
$\Omega_c h^2$	0.11820	$0.1181^{+0.0031}_{-0.0031}$	$10^9 A_s$	2.042	$2.04^{+0.11}_{-0.12}$	$D_M(0.38)$	1519.9	$1519^{+24}_{-23}$
$100\theta_{\text{MC}}$	1.04130	$1.0413^{+0.0012}_{-0.0012}$	$10^9 A_s e^{-2\tau}$	1.8520	$1.854^{+0.044}_{-0.043}$	$H(0.51)$	89.99	$90.04^{+0.78}_{-0.77}$
$\tau$	0.0488	$0.049^{+0.022}_{-0.028}$	$D_{40}$	1218	$1217^{+62}_{-59}$	$D_M(0.51)$	1970.1	$1969^{+28}_{-28}$
$\ln(10^{10} A_s)$	3.017	$3.017^{+0.050}_{-0.061}$	$D_{220}$	5692	$5695^{+150}_{-140}$	$H(0.61)$	95.56	$95.60^{+0.68}_{-0.68}$
$n_s$	0.9641	$0.965^{+0.026}_{-0.026}$	$D_{810}$	2504	$2507^{+62}_{-63}$	$D_M(0.61)$	2293.5	$2292^{+31}_{-30}$
$y_{\text{cal}}$	0.9998	$1.0000^{+0.0065}_{-0.0064}$	$D_{1420}$	804.8	$806^{+29}_{-30}$	$H(2.33)$	235.46	$235.5^{+2.1}_{-2.0}$
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.10}_{-0.095}$	$D_{2000}$	226.8	$227^{+11}_{-11}$	$D_M(2.33)$	5752.2	$5750^{+35}_{-33}$
$A_{100 \times 143}^{\text{dustTE}}$	0.136	$0.136^{+0.077}_{-0.076}$	$n_{s,0.002}$	0.9641	$0.965^{+0.026}_{-0.026}$	$f\sigma_8(0.15)$	0.4428	$0.443^{+0.022}_{-0.021}$
$A_{100 \times 217}^{\text{dustTE}}$	0.481	$0.48^{+0.22}_{-0.22}$	$Y_P$	0.245416	$0.24542^{+0.00024}_{-0.00026}$	$\sigma_8(0.15)$	0.7343	$0.735^{+0.024}_{-0.024}$
$A_{143}^{\text{dustTE}}$	0.222	$0.22^{+0.14}_{-0.14}$	$Y_P^{\text{BBN}}$	0.246742	$0.24675^{+0.00025}_{-0.00026}$	$f\sigma_8(0.38)$	0.4624	$0.462^{+0.020}_{-0.019}$
$A_{143 \times 217}^{\text{dustTE}}$	0.658	$0.66^{+0.21}_{-0.21}$	$10^5 D/H$	2.576	$2.57^{+0.11}_{-0.11}$	$\sigma_8(0.38)$	0.6517	$0.652^{+0.021}_{-0.021}$
$A_{217}^{\text{dustTE}}$	2.04	$2.04^{+0.70}_{-0.68}$	Age/Gyr	13.773	$13.769^{+0.082}_{-0.077}$	$f\sigma_8(0.51)$	0.4619	$0.462^{+0.018}_{-0.018}$
$c_{100}$	1.00016	$1.0002^{+0.0019}_{-0.0018}$	$z_*$	1089.70	$1089.66^{+0.84}_{-0.81}$	$\sigma_8(0.51)$	0.6102	$0.611^{+0.019}_{-0.020}$
$c_{217}$	0.99800	$0.9980^{+0.0017}_{-0.0016}$	$r_*$	144.86	$144.85^{+0.85}_{-0.87}$	$f\sigma_8(0.61)$	0.4576	$0.458^{+0.017}_{-0.017}$
$H_0$	68.16	$68.2^{+1.4}_{-1.4}$	$100\theta_*$	1.04148	$1.0415^{+0.0012}_{-0.0012}$	$\sigma_8(0.61)$	0.5809	$0.581^{+0.018}_{-0.019}$
$\Omega_\Lambda$	0.6959	$0.696^{+0.018}_{-0.019}$	$D_M(z_*)/\text{Gpc}$	13.909	$13.908^{+0.083}_{-0.085}$	$f\sigma_8(2.33)$	0.2932	$0.2934^{+0.0090}_{-0.0098}$
$\Omega_m$	0.3041	$0.304^{+0.019}_{-0.018}$	$z_{\text{drag}}$	1059.93	$1060.0^{+1.3}_{-1.4}$	$\sigma_8(2.33)$	0.3026	$0.3028^{+0.0092}_{-0.010}$
$\Omega_m h^2$	0.14126	$0.1412^{+0.0031}_{-0.0030}$	$r_{\text{drag}}$	147.51	$147.50^{+0.96}_{-0.97}$	$\chi_{\text{small}}^2$	395.66	$396.9 (\nu: 1.4)$
$\Omega_m h^3$	0.09629	$0.0963^{+0.0014}_{-0.0014}$	$k_D$	0.14046	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\text{plikTE}}^2$	852.9	$859.3 (\nu: 6.1)$
$\sigma_8$	0.7939	$0.794^{+0.026}_{-0.027}$	$100\theta_D$	0.16080	$0.16077^{+0.00081}_{-0.00077}$	$\chi_{6\text{DF}}^2$	0.000	$0.037 (\nu: 0.0)$
$S_8$	0.7992	$0.799^{+0.043}_{-0.039}$	$z_{\text{eq}}$	3360	$3360^{+75}_{-73}$	$\chi_{\text{MGS}}^2$	1.75	$1.85 (\nu: 0.2)$
$\sigma_8 \Omega_m^{0.5}$	0.4377	$0.438^{+0.023}_{-0.022}$	$k_{\text{eq}}$	0.010256	$0.01025^{+0.00023}_{-0.00022}$	$\chi_{\text{DR12BAO}}^2$	3.44	$3.98 (\nu: 0.4)$
$\sigma_8 \Omega_m^{0.25}$	0.5895	$0.590^{+0.025}_{-0.023}$	$100\theta_{\text{eq}}$	0.8213	$0.822^{+0.014}_{-0.013}$	$\chi_{\text{prior}}^2$	0.4	$7.4 (\nu: 6.9)$
$\sigma_8/h^{0.5}$	0.9616	$0.962^{+0.036}_{-0.035}$	$100\theta_{s,\text{eq}}$	0.4535	$0.4537^{+0.0072}_{-0.0070}$	$\chi_{\text{BAO}}^2$	5.19	$5.87 (\nu: 0.4)$
$r_{\text{drag}} h$	100.55	$100.6^{+2.4}_{-2.4}$	$H(0.15)$	73.37	$73.4^{+1.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	1248.6	$1256.1 (\nu: 7.4)$
$\langle d^2 \rangle^{1/2}$	2.395	$2.393^{+0.084}_{-0.085}$	$D_M(0.15)$	636.6	$636^{+12}_{-12}$			

Best-fit  $\chi_{\text{eff}}^2 = 1254.23$ ;  $\bar{\chi}_{\text{eff}}^2 = 1269.42$ ;  $R - 1 = 0.00891$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.44 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.66 plik\_rd12\_HM\_v22\_TE: 852.93



### 2.34 base\_plikHM\_TE\_lowE\_BAO\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02251^{+0.00061}_{-0.00061}$	$z_{\text{re}}$	$7.7^{+2.0}_{-2.0}$	$H(0.38)$	$83.28^{+0.94}_{-0.91}$
$\Omega_{\text{c}}h^2$	$0.1189^{+0.0028}_{-0.0029}$	$10^9 A_{\text{s}}$	$2.087^{+0.087}_{-0.078}$	$D_{\text{M}}(0.38)$	$1523^{+24}_{-24}$
$100\theta_{\text{MC}}$	$1.0413^{+0.0012}_{-0.0013}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.871^{+0.035}_{-0.035}$	$H(0.51)$	$89.97^{+0.79}_{-0.77}$
$\tau$	$0.055^{+0.020}_{-0.019}$	$D_{40}$	$1222^{+59}_{-61}$	$D_{\text{M}}(0.51)$	$1973^{+28}_{-28}$
$\ln(10^{10}A_{\text{s}})$	$3.038^{+0.041}_{-0.038}$	$D_{220}$	$5721^{+140}_{-130}$	$H(0.61)$	$95.56^{+0.71}_{-0.66}$
$n_{\text{s}}$	$0.968^{+0.025}_{-0.024}$	$D_{810}$	$2529^{+55}_{-53}$	$D_{\text{M}}(0.61)$	$2297^{+31}_{-31}$
$y_{\text{cal}}$	$1.0005^{+0.0062}_{-0.0069}$	$D_{1420}$	$815^{+24}_{-26}$	$H(2.33)$	$236.0^{+1.8}_{-1.8}$
$A_{100}^{\text{dustTE}}$	$0.113^{+0.096}_{-0.094}$	$D_{2000}$	$230.4^{+9.2}_{-9.3}$	$D_{\text{M}}(2.33)$	$5750^{+34}_{-35}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.136^{+0.071}_{-0.072}$	$n_{\text{s},0.002}$	$0.968^{+0.025}_{-0.024}$	$f\sigma_8(0.15)$	$0.452^{+0.017}_{-0.016}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.20}$	$Y_{\text{P}}$	$0.24545^{+0.00026}_{-0.00026}$	$\sigma_8(0.15)$	$0.745^{+0.018}_{-0.016}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.15}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00026}_{-0.00026}$	$f\sigma_8(0.38)$	$0.471^{+0.014}_{-0.014}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.22}_{-0.21}$	$10^5 \text{D/H}$	$2.56^{+0.12}_{-0.11}$	$\sigma_8(0.38)$	$0.661^{+0.014}_{-0.014}$
$A_{217}^{\text{dustTE}}$	$2.06^{+0.72}_{-0.69}$	Age/Gyr	$13.768^{+0.078}_{-0.080}$	$f\sigma_8(0.51)$	$0.470^{+0.013}_{-0.012}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0020}$	$z_*$	$1089.65^{+0.92}_{-0.85}$	$\sigma_8(0.51)$	$0.619^{+0.013}_{-0.013}$
$c_{217}$	$0.9980^{+0.0016}_{-0.0017}$	$r_*$	$144.61^{+0.75}_{-0.75}$	$f\sigma_8(0.61)$	$0.465^{+0.013}_{-0.011}$
$H_0$	$68.0^{+1.4}_{-1.3}$	$100\theta_*$	$1.0415^{+0.0012}_{-0.0012}$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.012}$
$\Omega_{\Lambda}$	$0.693^{+0.018}_{-0.017}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.885^{+0.073}_{-0.075}$	$f\sigma_8(2.33)$	$0.2970^{+0.0071}_{-0.0065}$
$\Omega_{\text{m}}$	$0.307^{+0.017}_{-0.018}$	$z_{\text{drag}}$	$1060.2^{+1.3}_{-1.3}$	$\sigma_8(2.33)$	$0.3063^{+0.0071}_{-0.0070}$
$\Omega_{\text{m}}h^2$	$0.1421^{+0.0027}_{-0.0028}$	$r_{\text{drag}}$	$147.23^{+0.85}_{-0.91}$	$\chi_{\text{lensing}}^2$	$10.5 (\nu: 1.7)$
$\Omega_{\text{m}}h^3$	$0.0966^{+0.0012}_{-0.0013}$	$k_{\text{D}}$	$0.1408^{+0.0012}_{-0.0012}$	$\chi_{\text{simall}}^2$	$397.0 (\nu: 1.4)$
$\sigma_8$	$0.806^{+0.020}_{-0.017}$	$100\theta_{\text{D}}$	$0.16066^{+0.00077}_{-0.00077}$	$\chi_{\text{plikTE}}^2$	$860.0 (\nu: 6.3)$
$S_8$	$0.816^{+0.033}_{-0.032}$	$z_{\text{eq}}$	$3379^{+66}_{-67}$	$\chi_{6\text{DF}}^2$	$0.038 (\nu: 0.0)$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.447^{+0.018}_{-0.018}$	$k_{\text{eq}}$	$0.01031^{+0.00020}_{-0.00020}$	$\chi_{\text{MGS}}^2$	$1.52 (\nu: 0.1)$
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.600^{+0.018}_{-0.017}$	$100\theta_{\text{eq}}$	$0.818^{+0.013}_{-0.012}$	$\chi_{\text{DR12BAO}}^2$	$4.3 (\nu: 0.7)$
$\sigma_8/h^{0.5}$	$0.977^{+0.026}_{-0.024}$	$100\theta_{\text{s,eq}}$	$0.4518^{+0.0064}_{-0.0060}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.5)$
$r_{\text{drag}}h$	$100.1^{+2.3}_{-2.1}$	$H(0.15)$	$73.2^{+1.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	$1267.4 (\nu: 7.2)$
$\langle d^2 \rangle^{1/2}$	$2.421^{+0.068}_{-0.074}$	$D_{\text{M}}(0.15)$	$638^{+12}_{-12}$	$\chi_{\text{BAO}}^2$	$5.87 (\nu: 0.4)$

$$\bar{\chi}_{\text{eff}}^2 = 1280.69; R - 1 = 0.02724$$



## 2.35 base\_plikHM\_TE\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02246^{+0.00059}_{-0.00061}$	$z_{\text{re}}$	$< 9.07$	$H(0.38)$	$83.41^{+0.92}_{-0.93}$
$\Omega_c h^2$	$0.1181^{+0.0032}_{-0.0031}$	$10^9 A_s$	$2.059^{+0.094}_{-0.069}$	$D_M(0.38)$	$1519^{+24}_{-24}$
$100\theta_{\text{MC}}$	$1.0413^{+0.0012}_{-0.0012}$	$10^9 A_s e^{-2\tau}$	$1.854^{+0.044}_{-0.044}$	$H(0.51)$	$90.05^{+0.78}_{-0.78}$
$\tau$	$0.052^{+0.017}_{-0.010}$	$D_{40}$	$1216^{+61}_{-59}$	$D_M(0.51)$	$1968^{+28}_{-28}$
$\ln(10^{10} A_s)$	$3.025^{+0.045}_{-0.034}$	$D_{220}$	$5694^{+150}_{-140}$	$H(0.61)$	$95.61^{+0.67}_{-0.68}$
$n_s$	$0.966^{+0.025}_{-0.025}$	$D_{810}$	$2508^{+61}_{-64}$	$D_M(0.61)$	$2292^{+31}_{-30}$
$y_{\text{cal}}$	$1.0000^{+0.0065}_{-0.0065}$	$D_{1420}$	$807^{+29}_{-30}$	$H(2.33)$	$235.4^{+2.1}_{-2.1}$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.094}$	$D_{2000}$	$228^{+11}_{-11}$	$D_M(2.33)$	$5750^{+35}_{-33}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.136^{+0.077}_{-0.075}$	$n_{\text{s},0.002}$	$0.966^{+0.025}_{-0.025}$	$f\sigma_8(0.15)$	$0.444^{+0.022}_{-0.020}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$Y_{\text{P}}$	$0.24543^{+0.00025}_{-0.00026}$	$\sigma_8(0.15)$	$0.738^{+0.022}_{-0.018}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24675^{+0.00025}_{-0.00026}$	$f\sigma_8(0.38)$	$0.464^{+0.019}_{-0.017}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$10^5 \text{D/H}$	$2.57^{+0.12}_{-0.11}$	$\sigma_8(0.38)$	$0.655^{+0.019}_{-0.015}$
$A_{217}^{\text{dustTE}}$	$2.04^{+0.70}_{-0.68}$	Age/Gyr	$13.768^{+0.081}_{-0.078}$	$f\sigma_8(0.51)$	$0.464^{+0.017}_{-0.015}$
$c_{100}$	$1.0002^{+0.0019}_{-0.0018}$	$z_*$	$1089.64^{+0.85}_{-0.81}$	$\sigma_8(0.51)$	$0.613^{+0.017}_{-0.014}$
$c_{217}$	$0.9980^{+0.0017}_{-0.0016}$	$r_*$	$144.85^{+0.88}_{-0.86}$	$f\sigma_8(0.61)$	$0.459^{+0.016}_{-0.014}$
$H_0$	$68.2^{+1.4}_{-1.4}$	$100\theta_*$	$1.0415^{+0.0012}_{-0.0012}$	$\sigma_8(0.61)$	$0.584^{+0.016}_{-0.013}$
$\Omega_\Lambda$	$0.697^{+0.018}_{-0.019}$	$D_M(z_*)/\text{Gpc}$	$13.908^{+0.085}_{-0.085}$	$f\sigma_8(2.33)$	$0.2945^{+0.0082}_{-0.0067}$
$\Omega_{\text{m}}$	$0.303^{+0.019}_{-0.018}$	$z_{\text{drag}}$	$1060.0^{+1.3}_{-1.4}$	$\sigma_8(2.33)$	$0.3040^{+0.0084}_{-0.0068}$
$\Omega_{\text{m}} h^2$	$0.1412^{+0.0031}_{-0.0031}$	$r_{\text{drag}}$	$147.49^{+0.98}_{-0.97}$	$\chi_{\text{simall}}^2$	$396.4 (\nu: 0.7)$
$\Omega_{\text{m}} h^3$	$0.0964^{+0.0014}_{-0.0013}$	$k_{\text{D}}$	$0.1405^{+0.0013}_{-0.0014}$	$\chi_{\text{plikTE}}^2$	$859.3 (\nu: 6.0)$
$\sigma_8$	$0.797^{+0.024}_{-0.020}$	$100\theta_{\text{D}}$	$0.16076^{+0.00082}_{-0.00076}$	$\chi_{6\text{DF}}^2$	$0.038 (\nu: 0.0)$
$S_8$	$0.802^{+0.042}_{-0.038}$	$z_{\text{eq}}$	$3359^{+75}_{-73}$	$\chi_{\text{MGS}}^2$	$1.87 (\nu: 0.2)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.439^{+0.023}_{-0.021}$	$k_{\text{eq}}$	$0.01025^{+0.00023}_{-0.00022}$	$\chi_{\text{DR12BAO}}^2$	$3.98 (\nu: 0.4)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.592^{+0.024}_{-0.021}$	$100\theta_{\text{eq}}$	$0.822^{+0.014}_{-0.014}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.8)$
$\sigma_8/h^{0.5}$	$0.965^{+0.035}_{-0.030}$	$100\theta_{\text{s,eq}}$	$0.4537^{+0.0072}_{-0.0071}$	$\chi_{\text{BAO}}^2$	$5.89 (\nu: 0.5)$
$r_{\text{drag}} h$	$100.7^{+2.5}_{-2.4}$	$H(0.15)$	$73.4^{+1.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	$1255.7 (\nu: 6.7)$
$\langle d^2 \rangle^{1/2}$	$2.399^{+0.080}_{-0.073}$	$D_M(0.15)$	$636^{+12}_{-12}$		

$$\bar{\chi}_{\text{eff}}^2 = 1269.00; R - 1 = 0.00969$$



## 2.36 base\_plikHM\_TE\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02251^{+0.00061}_{-0.00061}$	$z_{\text{re}}$	$< 9.47$	$H(0.38)$	$83.29^{+0.93}_{-0.92}$
$\Omega_c h^2$	$0.1189^{+0.0028}_{-0.0029}$	$10^9 A_s$	$2.091^{+0.084}_{-0.062}$	$D_M(0.38)$	$1522^{+24}_{-24}$
$100\theta_{\text{MC}}$	$1.0413^{+0.0012}_{-0.0013}$	$10^9 A_s e^{-2\tau}$	$1.871^{+0.036}_{-0.035}$	$H(0.51)$	$89.97^{+0.79}_{-0.77}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$D_{40}$	$1222^{+59}_{-61}$	$D_M(0.51)$	$1973^{+28}_{-28}$
$\ln(10^{10} A_s)$	$3.040^{+0.039}_{-0.030}$	$D_{220}$	$5720^{+140}_{-130}$	$H(0.61)$	$95.56^{+0.71}_{-0.66}$
$n_s$	$0.968^{+0.025}_{-0.024}$	$D_{810}$	$2528^{+52}_{-53}$	$D_M(0.61)$	$2296^{+31}_{-31}$
$y_{\text{cal}}$	$1.0005^{+0.0062}_{-0.0071}$	$D_{1420}$	$815^{+24}_{-26}$	$H(2.33)$	$236.0^{+1.8}_{-1.8}$
$A_{100}^{\text{dustTE}}$	$0.113^{+0.099}_{-0.094}$	$D_{2000}$	$230.4^{+9.1}_{-9.2}$	$D_M(2.33)$	$5750^{+34}_{-35}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.071}_{-0.072}$	$n_{\text{s},0.002}$	$0.968^{+0.025}_{-0.024}$	$f\sigma_8(0.15)$	$0.452^{+0.017}_{-0.016}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.18}$	$Y_{\text{P}}$	$0.24545^{+0.00026}_{-0.00026}$	$\sigma_8(0.15)$	$0.745^{+0.018}_{-0.014}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.13}_{-0.15}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00026}_{-0.00026}$	$f\sigma_8(0.38)$	$0.471^{+0.014}_{-0.013}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.22}_{-0.21}$	$10^5 \text{D/H}$	$2.56^{+0.12}_{-0.11}$	$\sigma_8(0.38)$	$0.661^{+0.016}_{-0.013}$
$A_{217}^{\text{dustTE}}$	$2.05^{+0.72}_{-0.69}$	Age/Gyr	$13.768^{+0.079}_{-0.080}$	$f\sigma_8(0.51)$	$0.470^{+0.013}_{-0.012}$
$c_{100}$	$1.0002^{+0.0019}_{-0.0020}$	$z_*$	$1089.65^{+0.92}_{-0.85}$	$\sigma_8(0.51)$	$0.619^{+0.014}_{-0.012}$
$c_{217}$	$0.9980^{+0.0016}_{-0.0017}$	$r_*$	$144.62^{+0.75}_{-0.76}$	$f\sigma_8(0.61)$	$0.466^{+0.012}_{-0.011}$
$H_0$	$68.0^{+1.4}_{-1.3}$	$100\theta_*$	$1.0415^{+0.0012}_{-0.0013}$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.012}$
$\Omega_\Lambda$	$0.693^{+0.017}_{-0.017}$	$D_M(z_*)/\text{Gpc}$	$13.886^{+0.073}_{-0.076}$	$f\sigma_8(2.33)$	$0.2972^{+0.0068}_{-0.0059}$
$\Omega_{\text{m}}$	$0.307^{+0.017}_{-0.017}$	$z_{\text{drag}}$	$1060.2^{+1.3}_{-1.3}$	$\sigma_8(2.33)$	$0.3066^{+0.0069}_{-0.0063}$
$\Omega_{\text{m}} h^2$	$0.1420^{+0.0028}_{-0.0028}$	$r_{\text{drag}}$	$147.23^{+0.84}_{-0.91}$	$\chi_{\text{lensing}}^2$	$10.4 (\nu: 1.5)$
$\Omega_{\text{m}} h^3$	$0.0966^{+0.0012}_{-0.0013}$	$k_{\text{D}}$	$0.1408^{+0.0012}_{-0.0012}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.5)$
$\sigma_8$	$0.806^{+0.019}_{-0.016}$	$100\theta_{\text{D}}$	$0.16066^{+0.00077}_{-0.00077}$	$\chi_{\text{plikTE}}^2$	$859.9 (\nu: 6.2)$
$S_8$	$0.816^{+0.033}_{-0.032}$	$z_{\text{eq}}$	$3379^{+66}_{-67}$	$\chi_{6\text{DF}}^2$	$0.037 (\nu: 0.0)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.447^{+0.018}_{-0.017}$	$k_{\text{eq}}$	$0.01031^{+0.00020}_{-0.00020}$	$\chi_{\text{MGS}}^2$	$1.54 (\nu: 0.1)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.600^{+0.017}_{-0.016}$	$100\theta_{\text{eq}}$	$0.818^{+0.012}_{-0.012}$	$\chi_{\text{DR12BAO}}^2$	$4.3 (\nu: 0.7)$
$\sigma_8/h^{0.5}$	$0.978^{+0.025}_{-0.023}$	$100\theta_{\text{s,eq}}$	$0.4519^{+0.0065}_{-0.0060}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.5)$
$r_{\text{drag}} h$	$100.1^{+2.3}_{-2.1}$	$H(0.15)$	$73.2^{+1.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	$1267.2 (\nu: 7.0)$
$\langle d^2 \rangle^{1/2}$	$2.422^{+0.069}_{-0.073}$	$D_M(0.15)$	$638^{+12}_{-12}$	$\chi_{\text{BAO}}^2$	$5.86 (\nu: 0.4)$

$$\bar{\chi}_{\text{eff}}^2 = 1280.53; R - 1 = 0.02893$$



## 2.37 base\_plikHM\_EE\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02355	$0.0235^{+0.0017}_{-0.0017}$	$D_{810}$	2581	$2580^{+87}_{-86}$	$H(0.51)$	90.59	$90.5^{+1.5}_{-1.5}$
$\Omega_c h^2$	0.11753	$0.1176^{+0.0037}_{-0.0036}$	$D_{1420}$	838.8	$838^{+37}_{-38}$	$D_M(0.51)$	1953.7	$1956^{+46}_{-47}$
$100\theta_{MC}$	1.03988	$1.0399^{+0.0022}_{-0.0020}$	$D_{2000}$	239.2	$239^{+14}_{-14}$	$H(0.61)$	96.13	$96.1^{+1.4}_{-1.4}$
$\tau$	0.0521	$0.052^{+0.022}_{-0.025}$	$n_{s,0.002}$	0.9755	$0.975^{+0.025}_{-0.025}$	$D_M(0.61)$	2275	$2278^{+51}_{-52}$
$\ln(10^{10} A_s)$	3.050	$3.049^{+0.056}_{-0.056}$	$Y_P$	0.24589	$0.24584^{+0.00067}_{-0.00070}$	$H(2.33)$	236.02	$236.0^{+2.5}_{-2.5}$
$n_s$	0.9755	$0.975^{+0.025}_{-0.025}$	$Y_P^{BBN}$	0.24721	$0.24716^{+0.00067}_{-0.00070}$	$D_M(2.33)$	5721	$5724^{+75}_{-78}$
$y_{cal}$	0.9997	$1.0000^{+0.0067}_{-0.0065}$	$10^5 D/H$	2.380	$2.40^{+0.30}_{-0.26}$	$f\sigma_8(0.15)$	0.4441	$0.445^{+0.025}_{-0.025}$
$H_0$	68.86	$68.8^{+2.2}_{-2.1}$	Age/Gyr	13.699	$13.71^{+0.17}_{-0.18}$	$\sigma_8(0.15)$	0.7426	$0.743^{+0.024}_{-0.024}$
$\Omega_\Lambda$	0.7011	$0.700^{+0.022}_{-0.023}$	$z_*$	1088.30	$1088.4^{+2.1}_{-1.9}$	$f\sigma_8(0.38)$	0.4651	$0.466^{+0.022}_{-0.022}$
$\Omega_m$	0.2989	$0.300^{+0.023}_{-0.022}$	$r_*$	144.17	$144.2^{+1.3}_{-1.4}$	$\sigma_8(0.38)$	0.6597	$0.660^{+0.021}_{-0.021}$
$\Omega_m h^2$	0.14173	$0.1417^{+0.0035}_{-0.0035}$	$100\theta_*$	1.03995	$1.0399^{+0.0022}_{-0.0021}$	$f\sigma_8(0.51)$	0.4652	$0.466^{+0.020}_{-0.020}$
$\Omega_m h^3$	0.09759	$0.0975^{+0.0033}_{-0.0030}$	$D_M(z_*)/\text{Gpc}$	13.863	$13.87^{+0.13}_{-0.14}$	$\sigma_8(0.51)$	0.6179	$0.618^{+0.019}_{-0.019}$
$\sigma_8$	0.8023	$0.802^{+0.027}_{-0.027}$	$z_{drag}$	1062.45	$1062.2^{+3.6}_{-3.7}$	$f\sigma_8(0.61)$	0.4613	$0.462^{+0.018}_{-0.018}$
$S_8$	0.8008	$0.802^{+0.049}_{-0.048}$	$r_{drag}$	146.44	$146.5^{+1.8}_{-1.8}$	$\sigma_8(0.61)$	0.5883	$0.588^{+0.018}_{-0.018}$
$\sigma_8 \Omega_m^{0.5}$	0.4386	$0.439^{+0.027}_{-0.026}$	$k_D$	0.14240	$0.1423^{+0.0029}_{-0.0031}$	$f\sigma_8(2.33)$	0.2971	$0.2970^{+0.0091}_{-0.0089}$
$\sigma_8 \Omega_m^{0.25}$	0.5932	$0.594^{+0.027}_{-0.027}$	$100\theta_D$	0.15914	$0.1593^{+0.0023}_{-0.0020}$	$\sigma_8(2.33)$	0.3069	$0.3068^{+0.0096}_{-0.0091}$
$\sigma_8/h^{0.5}$	0.9668	$0.968^{+0.039}_{-0.040}$	$z_{eq}$	3371	$3372^{+84}_{-83}$	$\chi^2_{small}$	395.61	$396.8 (\nu: 1.2)$
$r_{drag} h$	100.84	$100.7^{+2.9}_{-2.9}$	$k_{eq}$	0.010290	$0.01029^{+0.00026}_{-0.00025}$	$\chi^2_{plikEE}$	739.0	$743.2 (\nu: 4.2)$
$\langle d^2 \rangle^{1/2}$	2.401	$2.403^{+0.093}_{-0.087}$	$100\theta_{eq}$	0.8213	$0.821^{+0.015}_{-0.015}$	$\chi^2_{6DF}$	0.004	$0.056 (\nu: 0.0)$
$z_{re}$	7.17	$7.1^{+2.1}_{-2.7}$	$100\theta_{s,eq}$	0.4527	$0.4526^{+0.0077}_{-0.0077}$	$\chi^2_{MGS}$	1.89	$1.91 (\nu: 0.2)$
$10^9 A_s$	2.111	$2.11^{+0.12}_{-0.11}$	$H(0.15)$	74.03	$73.9^{+2.0}_{-1.9}$	$\chi^2_{DR12BAO}$	3.60	$4.4 (\nu: 0.7)$
$10^9 A_s e^{-2\tau}$	1.902	$1.902^{+0.064}_{-0.063}$	$D_M(0.15)$	630.5	$631^{+18}_{-18}$	$\chi^2_{prior}$	0.01	$1.0 (\nu: 1.1)$
$D_{40}$	1232	$1232^{+80}_{-75}$	$H(0.38)$	83.97	$83.9^{+1.7}_{-1.6}$	$\chi^2_{BAO}$	5.49	$6.4 (\nu: 0.9)$
$D_{220}$	5898	$5891^{+350}_{-340}$	$D_M(0.38)$	1506.6	$1509^{+38}_{-39}$	$\chi^2_{CMB}$	1134.7	$1139.9 (\nu: 5.4)$

Best-fit  $\chi^2_{eff} = 1140.16$ ;  $\bar{\chi}^2_{eff} = 1147.36$ ;  $R - 1 = 0.00786$

$\chi^2_{eff}$ : BAO - 6DF: 0.00 MGS: 1.89 DR12BAO: 3.60 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.61 plik\_rd12\_HM\_v22\_EE: 739.04



## 2.38 base\_plikHM\_EE\_lowE\_BAO\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0234^{+0.0014}_{-0.0014}$	$D_{1420}$	$835^{+31}_{-30}$	$H(0.61)$	$96.0^{+1.3}_{-1.2}$
$\Omega_{\mathrm{c}}h^2$	$0.1174^{+0.0034}_{-0.0034}$	$D_{2000}$	$238^{+12}_{-11}$	$D_{\mathrm{M}}(0.61)$	$2277^{+48}_{-50}$
$100\theta_{\mathrm{MC}}$	$1.0399^{+0.0022}_{-0.0020}$	$n_{\mathrm{s},0.002}$	$0.974^{+0.025}_{-0.024}$	$H(2.33)$	$235.8^{+2.0}_{-1.9}$
$\tau$	$0.051^{+0.021}_{-0.024}$	$Y_{\mathrm{P}}$	$0.24582^{+0.00055}_{-0.00057}$	$D_{\mathrm{M}}(2.33)$	$5726^{+65}_{-69}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.039}_{-0.044}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24715^{+0.00055}_{-0.00057}$	$f\sigma_{\mathrm{s}}(0.15)$	$0.443^{+0.022}_{-0.022}$
$n_{\mathrm{s}}$	$0.974^{+0.025}_{-0.024}$	$10^5\mathrm{D}/\mathrm{H}$	$2.40^{+0.25}_{-0.22}$	$\sigma_{\mathrm{s}}(0.15)$	$0.741^{+0.018}_{-0.018}$
$y_{\mathrm{cal}}$	$0.99996^{+0.0063}_{-0.0064}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.71^{+0.15}_{-0.16}$	$f\sigma_{\mathrm{s}}(0.38)$	$0.464^{+0.018}_{-0.019}$
$H_0$	$68.8^{+2.2}_{-2.0}$	$z_{*}$	$1088.4^{+1.8}_{-1.7}$	$\sigma_{\mathrm{s}}(0.38)$	$0.658^{+0.015}_{-0.016}$
$\Omega_{\Lambda}$	$0.701^{+0.022}_{-0.022}$	$r_{*}$	$144.30^{+0.94}_{-1.0}$	$f\sigma_{\mathrm{s}}(0.51)$	$0.464^{+0.016}_{-0.017}$
$\Omega_{\mathrm{m}}$	$0.299^{+0.022}_{-0.022}$	$100\theta_{*}$	$1.0399^{+0.0022}_{-0.0020}$	$\sigma_{\mathrm{s}}(0.51)$	$0.616^{+0.014}_{-0.015}$
$\Omega_{\mathrm{m}}h^2$	$0.1415^{+0.0029}_{-0.0029}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.876^{+0.099}_{-0.10}$	$f\sigma_{\mathrm{s}}(0.61)$	$0.460^{+0.015}_{-0.015}$
$\Omega_{\mathrm{m}}h^3$	$0.0973^{+0.0027}_{-0.0024}$	$z_{\mathrm{drag}}$	$1062.1^{+3.0}_{-3.1}$	$\sigma_{\mathrm{s}}(0.61)$	$0.587^{+0.013}_{-0.014}$
$\sigma_{\mathrm{s}}$	$0.800^{+0.020}_{-0.022}$	$r_{\mathrm{drag}}$	$146.6^{+1.3}_{-1.3}$	$f\sigma_{\mathrm{s}}(2.33)$	$0.2963^{+0.0066}_{-0.0070}$
$S_{\mathrm{s}}$	$0.799^{+0.042}_{-0.043}$	$k_{\mathrm{D}}$	$0.1421^{+0.0023}_{-0.0023}$	$\sigma_{\mathrm{s}}(2.33)$	$0.3060^{+0.0070}_{-0.0075}$
$\sigma_{\mathrm{s}}\Omega_{\mathrm{m}}^{0.5}$	$0.437^{+0.023}_{-0.024}$	$100\theta_{\mathrm{D}}$	$0.1593^{+0.0019}_{-0.0017}$	$\chi_{\mathrm{lensing}}^2$	$9.1 (\nu: 0.6)$
$\sigma_{\mathrm{s}}\Omega_{\mathrm{m}}^{0.25}$	$0.592^{+0.022}_{-0.023}$	$z_{\mathrm{eq}}$	$3365^{+70}_{-68}$	$\chi_{\mathrm{simall}}^2$	$396.6 (\nu: 0.9)$
$\sigma_{\mathrm{s}}/h^{0.5}$	$0.965^{+0.032}_{-0.034}$	$k_{\mathrm{eq}}$	$0.01027^{+0.00021}_{-0.00021}$	$\chi_{\mathrm{plikEE}}^2$	$742.6 (\nu: 3.4)$
$r_{\mathrm{drag}}h$	$100.9^{+2.9}_{-2.6}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.013}_{-0.013}$	$\chi_{6\mathrm{DF}}^2$	$0.056 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.398^{+0.078}_{-0.076}$	$100\theta_{\mathrm{s,eq}}$	$0.4532^{+0.0066}_{-0.0065}$	$\chi_{\mathrm{MGS}}^2$	$1.99 (\nu: 0.2)$
$z_{\mathrm{re}}$	$7.1^{+2.0}_{-2.6}$	$H(0.15)$	$74.0^{+2.0}_{-1.8}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.3 (\nu: 0.6)$
$10^9A_{\mathrm{s}}$	$2.101^{+0.083}_{-0.091}$	$D_{\mathrm{M}}(0.15)$	$631^{+17}_{-18}$	$\chi_{\mathrm{prior}}^2$	$0.9 (\nu: 1.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.898^{+0.043}_{-0.044}$	$H(0.38)$	$83.9^{+1.6}_{-1.5}$	$\chi_{\mathrm{CMB}}^2$	$1148.4 (\nu: 5.5)$
$D_{40}$	$1231^{+69}_{-69}$	$D_{\mathrm{M}}(0.38)$	$1508^{+36}_{-38}$	$\chi_{\mathrm{BAO}}^2$	$6.4 (\nu: 0.8)$
$D_{220}$	$5883^{+280}_{-280}$	$H(0.51)$	$90.5^{+1.4}_{-1.4}$		
$D_{810}$	$2574^{+67}_{-65}$	$D_{\mathrm{M}}(0.51)$	$1956^{+43}_{-45}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1155.69$ ;  $R - 1 = 0.01010$



## 2.39 base\_plikHM\_EE\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0234^{+0.0017}_{-0.0017}$	$D_{810}$	$2579^{+86}_{-85}$	$H(0.51)$	$90.5^{+1.6}_{-1.5}$
$\Omega_{\mathrm{c}}h^2$	$0.1176^{+0.0037}_{-0.0036}$	$D_{1420}$	$838^{+37}_{-38}$	$D_{\mathrm{M}}(0.51)$	$1957^{+46}_{-48}$
$100\theta_{\mathrm{MC}}$	$1.0399^{+0.0022}_{-0.0020}$	$D_{2000}$	$239^{+14}_{-14}$	$H(0.61)$	$96.0^{+1.5}_{-1.4}$
$\tau$	$0.055^{+0.018}_{-0.012}$	$n_{\mathrm{s},0.002}$	$0.975^{+0.025}_{-0.025}$	$D_{\mathrm{M}}(0.61)$	$2278^{+51}_{-53}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.055^{+0.052}_{-0.047}$	$Y_{\mathrm{P}}$	$0.24583^{+0.00068}_{-0.00072}$	$H(2.33)$	$236.0^{+2.5}_{-2.5}$
$n_{\mathrm{s}}$	$0.975^{+0.025}_{-0.025}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24715^{+0.00068}_{-0.00072}$	$D_{\mathrm{M}}(2.33)$	$5726^{+75}_{-79}$
$y_{\mathrm{cal}}$	$1.0000^{+0.0068}_{-0.0066}$	$10^5\mathrm{D}/\mathrm{H}$	$2.40^{+0.30}_{-0.27}$	$f\sigma_8(0.15)$	$0.446^{+0.025}_{-0.023}$
$H_0$	$68.7^{+2.2}_{-2.1}$	Age/Gyr	$13.71^{+0.18}_{-0.18}$	$\sigma_8(0.15)$	$0.745^{+0.023}_{-0.020}$
$\Omega_{\Lambda}$	$0.700^{+0.022}_{-0.023}$	$z_{*}$	$1088.5^{+2.2}_{-2.0}$	$f\sigma_8(0.38)$	$0.467^{+0.020}_{-0.019}$
$\Omega_{\mathrm{m}}$	$0.300^{+0.023}_{-0.022}$	$r_{*}$	$144.2^{+1.4}_{-1.4}$	$\sigma_8(0.38)$	$0.662^{+0.020}_{-0.017}$
$\Omega_{\mathrm{m}}h^2$	$0.1417^{+0.0035}_{-0.0035}$	$100\theta_{*}$	$1.0399^{+0.0023}_{-0.0021}$	$f\sigma_8(0.51)$	$0.467^{+0.019}_{-0.017}$
$\Omega_{\mathrm{m}}h^3$	$0.0974^{+0.0033}_{-0.0030}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.87^{+0.13}_{-0.14}$	$\sigma_8(0.51)$	$0.620^{+0.018}_{-0.016}$
$\sigma_8$	$0.805^{+0.025}_{-0.022}$	$z_{\mathrm{drag}}$	$1062.2^{+3.7}_{-3.8}$	$f\sigma_8(0.61)$	$0.463^{+0.017}_{-0.016}$
$S_8$	$0.805^{+0.047}_{-0.045}$	$r_{\mathrm{drag}}$	$146.5^{+1.9}_{-1.8}$	$\sigma_8(0.61)$	$0.590^{+0.017}_{-0.015}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.441^{+0.026}_{-0.025}$	$k_{\mathrm{D}}$	$0.1422^{+0.0030}_{-0.0031}$	$f\sigma_8(2.33)$	$0.2979^{+0.0086}_{-0.0074}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.596^{+0.025}_{-0.024}$	$100\theta_{\mathrm{D}}$	$0.1593^{+0.0023}_{-0.0020}$	$\sigma_8(2.33)$	$0.3077^{+0.0090}_{-0.0077}$
$\sigma_8/h^{0.5}$	$0.971^{+0.037}_{-0.034}$	$z_{\mathrm{eq}}$	$3371^{+84}_{-83}$	$\chi_{\mathrm{small}}^2$	$396.5 (\nu: 1.0)$
$r_{\mathrm{drag}}h$	$100.7^{+3.0}_{-2.9}$	$k_{\mathrm{eq}}$	$0.01029^{+0.00026}_{-0.00025}$	$\chi_{\mathrm{plikEE}}^2$	$743.2 (\nu: 4.3)$
$\langle d^2 \rangle^{1/2}$	$2.409^{+0.089}_{-0.083}$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.015}_{-0.015}$	$\chi_{6\mathrm{DF}}^2$	$0.056 (\nu: 0.0)$
$z_{\mathrm{re}}$	$< 9.10$	$100\theta_{\mathrm{s,eq}}$	$0.4526^{+0.0078}_{-0.0076}$	$\chi_{\mathrm{MGS}}^2$	$1.90 (\nu: 0.2)$
$10^9A_{\mathrm{s}}$	$2.12^{+0.11}_{-0.098}$	$H(0.15)$	$73.9^{+2.0}_{-1.9}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 0.8)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.901^{+0.063}_{-0.063}$	$D_{\mathrm{M}}(0.15)$	$632^{+18}_{-18}$	$\chi_{\mathrm{prior}}^2$	$1.0 (\nu: 1.1)$
$D_{40}$	$1231^{+82}_{-75}$	$H(0.38)$	$83.9^{+1.7}_{-1.6}$	$\chi_{\mathrm{BAO}}^2$	$6.4 (\nu: 0.9)$
$D_{220}$	$5885^{+340}_{-340}$	$D_{\mathrm{M}}(0.38)$	$1509^{+38}_{-39}$	$\chi_{\mathrm{CMB}}^2$	$1139.7 (\nu: 5.2)$

$\bar{\chi}_{\mathrm{eff}}^2 = 1147.07$ ;  $R - 1 = 0.01186$



## 2.40 base\_plikHM\_EE\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.0234^{+0.0014}_{-0.0014}$	$D_{1420}$	$834^{+29}_{-31}$	$H(0.61)$	$96.0^{+1.3}_{-1.2}$
$\Omega_{\text{c}}h^2$	$0.1173^{+0.0035}_{-0.0033}$	$D_{2000}$	$238^{+11}_{-11}$	$D_{\text{M}}(0.61)$	$2278^{+48}_{-49}$
$100\theta_{\text{MC}}$	$1.0399^{+0.0022}_{-0.0020}$	$n_{\text{s},0.002}$	$0.975^{+0.025}_{-0.025}$	$H(2.33)$	$235.7^{+2.0}_{-1.9}$
$\tau$	$0.054^{+0.017}_{-0.010}$	$Y_{\text{P}}$	$0.24580^{+0.00053}_{-0.00056}$	$D_{\text{M}}(2.33)$	$5728^{+65}_{-68}$
$\ln(10^{10}A_{\text{s}})$	$3.050^{+0.036}_{-0.032}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24713^{+0.00053}_{-0.00056}$	$f\sigma_8(0.15)$	$0.444^{+0.021}_{-0.020}$
$n_{\text{s}}$	$0.975^{+0.025}_{-0.025}$	$10^5\text{D}/\text{H}$	$2.41^{+0.24}_{-0.22}$	$\sigma_8(0.15)$	$0.742^{+0.016}_{-0.015}$
$y_{\text{cal}}$	$0.9999^{+0.0066}_{-0.0066}$	Age/Gyr	$13.72^{+0.15}_{-0.16}$	$f\sigma_8(0.38)$	$0.465^{+0.017}_{-0.016}$
$H_0$	$68.8^{+2.1}_{-2.0}$	$z_*$	$1088.5^{+1.8}_{-1.7}$	$\sigma_8(0.38)$	$0.660^{+0.014}_{-0.012}$
$\Omega_{\Lambda}$	$0.701^{+0.021}_{-0.022}$	$r_*$	$144.36^{+0.90}_{-0.97}$	$f\sigma_8(0.51)$	$0.465^{+0.015}_{-0.014}$
$\Omega_{\text{m}}$	$0.299^{+0.022}_{-0.021}$	$100\theta_*$	$1.0400^{+0.0024}_{-0.0020}$	$\sigma_8(0.51)$	$0.618^{+0.013}_{-0.011}$
$\Omega_{\text{m}}h^2$	$0.1414^{+0.0029}_{-0.0029}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.881^{+0.096}_{-0.10}$	$f\sigma_8(0.61)$	$0.461^{+0.014}_{-0.013}$
$\Omega_{\text{m}}h^3$	$0.0972^{+0.0028}_{-0.0025}$	$z_{\text{drag}}$	$1062.0^{+3.0}_{-3.0}$	$\sigma_8(0.61)$	$0.588^{+0.012}_{-0.011}$
$\sigma_8$	$0.802^{+0.018}_{-0.017}$	$r_{\text{drag}}$	$146.7^{+1.3}_{-1.3}$	$f\sigma_8(2.33)$	$0.2971^{+0.0062}_{-0.0055}$
$S_8$	$0.801^{+0.042}_{-0.039}$	$k_{\text{D}}$	$0.1420^{+0.0022}_{-0.0023}$	$\sigma_8(2.33)$	$0.3069^{+0.0064}_{-0.0060}$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.439^{+0.023}_{-0.021}$	$100\theta_{\text{D}}$	$0.1594^{+0.0018}_{-0.0016}$	$\chi^2_{\text{lensing}}$	$9.1 (\nu: 0.6)$
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.593^{+0.021}_{-0.020}$	$z_{\text{eq}}$	$3362^{+69}_{-68}$	$\chi^2_{\text{simall}}$	$396.3 (\nu: 0.6)$
$\sigma_8/h^{0.5}$	$0.967^{+0.031}_{-0.028}$	$k_{\text{eq}}$	$0.01026^{+0.00021}_{-0.00021}$	$\chi^2_{\text{plikEE}}$	$742.6 (\nu: 3.6)$
$r_{\text{drag}}h$	$100.9^{+2.8}_{-2.7}$	$100\theta_{\text{eq}}$	$0.822^{+0.013}_{-0.014}$	$\chi^2_{6\text{DF}}$	$0.056 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.403^{+0.075}_{-0.073}$	$100\theta_{\text{s,eq}}$	$0.4534^{+0.0064}_{-0.0065}$	$\chi^2_{\text{MGS}}$	$2.01 (\nu: 0.2)$
$z_{\text{re}}$	$< 9.00$	$H(0.15)$	$73.9^{+1.9}_{-1.8}$	$\chi^2_{\text{DR12BAO}}$	$4.3 (\nu: 0.5)$
$10^9A_{\text{s}}$	$2.112^{+0.077}_{-0.066}$	$D_{\text{M}}(0.15)$	$631^{+17}_{-17}$	$\chi^2_{\text{prior}}$	$0.9 (\nu: 1.0)$
$10^9A_{\text{s}}e^{-2\tau}$	$1.895^{+0.043}_{-0.043}$	$H(0.38)$	$83.9^{+1.6}_{-1.5}$	$\chi^2_{\text{CMB}}$	$1148.1 (\nu: 5.3)$
$D_{40}$	$1229^{+72}_{-68}$	$D_{\text{M}}(0.38)$	$1509^{+36}_{-37}$	$\chi^2_{\text{BAO}}$	$6.4 (\nu: 0.8)$
$D_{220}$	$5870^{+290}_{-280}$	$H(0.51)$	$90.5^{+1.4}_{-1.4}$		
$D_{810}$	$2571^{+64}_{-64}$	$D_{\text{M}}(0.51)$	$1956^{+44}_{-44}$		

$\bar{\chi}^2_{\text{eff}} = 1155.39; R - 1 = 0.01205$



## 2.41 base\_CamSpecHM\_TE\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02242	$0.02242^{+0.00059}_{-0.00058}$	$D_{810}$	2547	$2547^{+66}_{-64}$	$H(0.51)$	90.03	$90.04^{+0.77}_{-0.76}$
$\Omega_c h^2$	0.11784	$0.1179^{+0.0032}_{-0.0031}$	$D_{1420}$	824.1	$824^{+30}_{-30}$	$D_M(0.51)$	1968.0	$1968^{+28}_{-27}$
$100\theta_{MC}$	1.04128	$1.0413^{+0.0012}_{-0.0012}$	$D_{2000}$	233.2	$233^{+11}_{-11}$	$H(0.61)$	95.58	$95.59^{+0.67}_{-0.67}$
$\tau$	0.0511	$0.050^{+0.020}_{-0.027}$	$n_{s,0.002}$	0.9766	$0.976^{+0.026}_{-0.026}$	$D_M(0.61)$	2291.2	$2291^{+31}_{-29}$
$\ln(10^{10} A_s)$	3.035	$3.032^{+0.048}_{-0.061}$	$Y_P$	0.245416	$0.24541^{+0.00024}_{-0.00025}$	$H(2.33)$	235.22	$235.2^{+2.1}_{-2.0}$
$n_s$	0.9766	$0.976^{+0.026}_{-0.026}$	$Y_P^{BBN}$	0.246743	$0.24674^{+0.00024}_{-0.00025}$	$D_M(2.33)$	5751.7	$5751^{+34}_{-34}$
$y_{cal}$	0.9998	$0.99996^{+0.0064}_{-0.0064}$	$10^5 D/H$	2.576	$2.58^{+0.11}_{-0.11}$	$f\sigma_8(0.15)$	0.4471	$0.446^{+0.021}_{-0.021}$
$H_0$	68.28	$68.3^{+1.3}_{-1.4}$	Age/Gyr	13.772	$13.771^{+0.079}_{-0.076}$	$\sigma_8(0.15)$	0.7435	$0.742^{+0.023}_{-0.025}$
$\Omega_\Lambda$	0.6977	$0.698^{+0.016}_{-0.018}$	$z_*$	1089.66	$1089.67^{+0.82}_{-0.82}$	$f\sigma_8(0.38)$	0.4673	$0.467^{+0.019}_{-0.019}$
$\Omega_m$	0.3023	$0.302^{+0.018}_{-0.016}$	$r_*$	144.95	$144.95^{+0.89}_{-0.88}$	$\sigma_8(0.38)$	0.6601	$0.659^{+0.020}_{-0.022}$
$\Omega_m h^2$	0.14091	$0.1409^{+0.0031}_{-0.0030}$	$100\theta_*$	1.04145	$1.0415^{+0.0012}_{-0.0012}$	$f\sigma_8(0.51)$	0.4670	$0.466^{+0.017}_{-0.018}$
$\Omega_m h^3$	0.09621	$0.0962^{+0.0013}_{-0.0014}$	$D_M(z_*)/\text{Gpc}$	13.918	$13.918^{+0.088}_{-0.087}$	$\sigma_8(0.51)$	0.6181	$0.617^{+0.018}_{-0.021}$
$\sigma_8$	0.8036	$0.802^{+0.025}_{-0.028}$	$z_{drag}$	1059.89	$1059.9^{+1.3}_{-1.4}$	$f\sigma_8(0.61)$	0.4628	$0.462^{+0.016}_{-0.017}$
$S_8$	0.8066	$0.805^{+0.041}_{-0.039}$	$r_{drag}$	147.61	$147.6^{+1.0}_{-0.99}$	$\sigma_8(0.61)$	0.5884	$0.587^{+0.017}_{-0.020}$
$\sigma_8 \Omega_m^{0.5}$	0.4418	$0.441^{+0.022}_{-0.022}$	$k_D$	0.14036	$0.1404^{+0.0013}_{-0.0014}$	$f\sigma_8(2.33)$	0.2971	$0.2966^{+0.0085}_{-0.010}$
$\sigma_8 \Omega_m^{0.25}$	0.5958	$0.595^{+0.023}_{-0.024}$	$100\theta_D$	0.16081	$0.16082^{+0.00079}_{-0.00078}$	$\sigma_8(2.33)$	0.3067	$0.3062^{+0.0090}_{-0.010}$
$\sigma_8/h^{0.5}$	0.9725	$0.971^{+0.034}_{-0.036}$	$z_{eq}$	3352	$3352^{+75}_{-73}$	$\chi^2_{small}$	395.71	396.8 ( $\nu$ : 1.2)
$r_{drag} h$	100.78	$100.8^{+2.3}_{-2.4}$	$k_{eq}$	0.010230	$0.01023^{+0.00023}_{-0.00022}$	$\chi^2_{CamSpec}$	2576.1	2580.4 ( $\nu$ : 4.2)
$\langle d^2 \rangle^{1/2}$	2.388	$2.387^{+0.084}_{-0.087}$	$100\theta_{eq}$	0.8228	$0.823^{+0.013}_{-0.014}$	$\chi^2_{6DF}$	0.004	0.040 ( $\nu$ : 0.0)
$z_{re}$	7.31	$7.1^{+2.0}_{-3.0}$	$100\theta_{s,eq}$	0.4543	$0.4543^{+0.0070}_{-0.0070}$	$\chi^2_{MGS}$	1.89	1.96 ( $\nu$ : 0.2)
$10^9 A_s$	2.079	$2.07^{+0.10}_{-0.12}$	$H(0.15)$	73.46	$73.5^{+1.2}_{-1.2}$	$\chi^2_{DR12BAO}$	3.37	3.93 ( $\nu$ : 0.3)
$10^9 A_s e^{-2\tau}$	1.8770	$1.877^{+0.046}_{-0.043}$	$D_M(0.15)$	635.6	$636^{+12}_{-11}$	$\chi^2_{prior}$	10.03	11.0 ( $\nu$ : 1.0)
$D_{40}$	1203	$1206^{+65}_{-62}$	$H(0.38)$	83.41	$83.42^{+0.90}_{-0.91}$	$\chi^2_{BAO}$	5.27	5.93 ( $\nu$ : 0.5)
$D_{220}$	5710	$5715^{+160}_{-160}$	$D_M(0.38)$	1518.1	$1518^{+24}_{-23}$	$\chi^2_{CMB}$	2971.9	2977.2 ( $\nu$ : 5.3)

Best-fit  $\chi^2_{eff} = 2987.15$ ;  $\bar{\chi}^2_{eff} = 2994.10$ ;  $R - 1 = 0.00951$

$\chi^2_{eff}$ : BAO - 6DF: 0.00 MGS: 1.89 DR12BAO: 3.37 CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 395.71 CamSpec like\_10.7HM\_1400\_unified: 2576.15



## 2.42 base\_CamSpecHM\_TE\_lowE\_BAO\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02245^{+0.00056}_{-0.00056}$	$D_{1420}$	$827^{+27}_{-26}$	$H(0.61)$	$95.58^{+0.62}_{-0.66}$
$\Omega_c h^2$	$0.1181^{+0.0029}_{-0.0028}$	$D_{2000}$	$234.1^{+9.8}_{-9.4}$	$D_M(0.61)$	$2292^{+31}_{-29}$
$100\theta_{MC}$	$1.0413^{+0.0011}_{-0.0012}$	$n_{s,0.002}$	$0.976^{+0.025}_{-0.025}$	$H(2.33)$	$235.4^{+1.9}_{-1.8}$
$\tau$	$0.052^{+0.019}_{-0.021}$	$Y_P$	$0.24542^{+0.00023}_{-0.00024}$	$D_M(2.33)$	$5751^{+32}_{-31}$
$\ln(10^{10} A_s)$	$3.041^{+0.037}_{-0.040}$	$Y_P^{BBN}$	$0.24675^{+0.00023}_{-0.00024}$	$f\sigma_8(0.15)$	$0.450^{+0.016}_{-0.016}$
$n_s$	$0.976^{+0.025}_{-0.025}$	$10^5 D/H$	$2.57^{+0.11}_{-0.10}$	$\sigma_8(0.15)$	$0.746^{+0.016}_{-0.016}$
$y_{cal}$	$1.0002^{+0.0064}_{-0.0065}$	Age/Gyr	$13.771^{+0.076}_{-0.073}$	$f\sigma_8(0.38)$	$0.470^{+0.013}_{-0.014}$
$H_0$	$68.2^{+1.3}_{-1.3}$	$z_*$	$1089.66^{+0.84}_{-0.81}$	$\sigma_8(0.38)$	$0.662^{+0.014}_{-0.014}$
$\Omega_\Lambda$	$0.696^{+0.016}_{-0.018}$	$r_*$	$144.87^{+0.74}_{-0.77}$	$f\sigma_8(0.51)$	$0.469^{+0.012}_{-0.013}$
$\Omega_m$	$0.304^{+0.018}_{-0.016}$	$100\theta_*$	$1.0415^{+0.0011}_{-0.0012}$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.013}$
$\Omega_m h^2$	$0.1412^{+0.0029}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	$13.910^{+0.075}_{-0.079}$	$f\sigma_8(0.61)$	$0.465^{+0.011}_{-0.012}$
$\Omega_m h^3$	$0.0963^{+0.0012}_{-0.0013}$	$z_{drag}$	$1060.0^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.013}$
$\sigma_8$	$0.807^{+0.018}_{-0.018}$	$r_{drag}$	$147.51^{+0.85}_{-0.89}$	$f\sigma_8(2.33)$	$0.2980^{+0.0068}_{-0.0067}$
$S_8$	$0.811^{+0.031}_{-0.030}$	$k_D$	$0.1405^{+0.0012}_{-0.0011}$	$\sigma_8(2.33)$	$0.3076^{+0.0071}_{-0.0073}$
$\sigma_8 \Omega_m^{0.5}$	$0.444^{+0.017}_{-0.016}$	$100\theta_D$	$0.16077^{+0.00077}_{-0.00074}$	$\chi^2_{lensing}$	$9.6 (\nu: 0.6)$
$\sigma_8 \Omega_m^{0.25}$	$0.599^{+0.016}_{-0.017}$	$z_{eq}$	$3359^{+70}_{-64}$	$\chi^2_{simall}$	$396.6 (\nu: 0.7)$
$\sigma_8/h^{0.5}$	$0.977^{+0.024}_{-0.025}$	$k_{eq}$	$0.01025^{+0.00021}_{-0.00020}$	$\chi^2_{CamSpec}$	$2580.2 (\nu: 3.8)$
$r_{drag} h$	$100.6^{+2.1}_{-2.3}$	$100\theta_{eq}$	$0.822^{+0.012}_{-0.013}$	$\chi^2_{6DF}$	$0.032 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.399^{+0.076}_{-0.075}$	$100\theta_{s,eq}$	$0.4537^{+0.0060}_{-0.0066}$	$\chi^2_{MGS}$	$1.85 (\nu: 0.1)$
$z_{re}$	$7.4^{+1.8}_{-2.3}$	$H(0.15)$	$73.4^{+1.1}_{-1.2}$	$\chi^2_{DR12BAO}$	$3.91 (\nu: 0.3)$
$10^9 A_s$	$2.092^{+0.079}_{-0.082}$	$D_M(0.15)$	$636^{+12}_{-11}$	$\chi^2_{prior}$	$11.0 (\nu: 1.0)$
$10^9 A_s e^{-2\tau}$	$1.884^{+0.035}_{-0.035}$	$H(0.38)$	$83.39^{+0.88}_{-0.92}$	$\chi^2_{CMB}$	$2986.4 (\nu: 5.3)$
$D_{40}$	$1210^{+62}_{-62}$	$D_M(0.38)$	$1519^{+24}_{-22}$	$\chi^2_{BAO}$	$5.79 (\nu: 0.3)$
$D_{220}$	$5731^{+150}_{-150}$	$H(0.51)$	$90.02^{+0.74}_{-0.76}$		
$D_{810}$	$2556^{+56}_{-52}$	$D_M(0.51)$	$1969^{+28}_{-26}$		

$\bar{\chi}^2_{eff} = 3003.21$ ;  $R - 1 = 0.01219$



### 2.43 base\_CamSpecHM\_TE\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02243^{+0.00058}_{-0.00059}$	$D_{810}$	$2549^{+65}_{-63}$	$H(0.51)$	$90.06^{+0.77}_{-0.74}$
$\Omega_{\mathrm{c}}h^2$	$0.1178^{+0.0032}_{-0.0031}$	$D_{1420}$	$824^{+30}_{-30}$	$D_{\mathrm{M}}(0.51)$	$1967^{+27}_{-27}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0012}_{-0.0012}$	$D_{2000}$	$233^{+11}_{-11}$	$H(0.61)$	$95.60^{+0.67}_{-0.65}$
$\tau$	$0.053^{+0.016}_{-0.011}$	$n_{\mathrm{s},0.002}$	$0.976^{+0.026}_{-0.026}$	$D_{\mathrm{M}}(0.61)$	$2291^{+30}_{-29}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.038^{+0.043}_{-0.035}$	$Y_{\mathrm{P}}$	$0.24542^{+0.00024}_{-0.00026}$	$H(2.33)$	$235.2^{+2.1}_{-2.0}$
$n_{\mathrm{s}}$	$0.976^{+0.026}_{-0.026}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00024}_{-0.00026}$	$D_{\mathrm{M}}(2.33)$	$5751^{+33}_{-34}$
$y_{\mathrm{cal}}$	$0.99998^{+0.0063}_{-0.0064}$	$10^5\mathrm{D}/\mathrm{H}$	$2.58^{+0.11}_{-0.10}$	$f\sigma_8(0.15)$	$0.448^{+0.020}_{-0.019}$
$H_0$	$68.3^{+1.3}_{-1.4}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.770^{+0.078}_{-0.077}$	$\sigma_8(0.15)$	$0.745^{+0.020}_{-0.018}$
$\Omega_{\Lambda}$	$0.698^{+0.016}_{-0.018}$	$z_*$	$1089.66^{+0.83}_{-0.81}$	$f\sigma_8(0.38)$	$0.468^{+0.018}_{-0.017}$
$\Omega_{\mathrm{m}}$	$0.302^{+0.018}_{-0.016}$	$r_*$	$144.95^{+0.91}_{-0.86}$	$\sigma_8(0.38)$	$0.661^{+0.018}_{-0.015}$
$\Omega_{\mathrm{m}}h^2$	$0.1409^{+0.0031}_{-0.0031}$	$100\theta_*$	$1.0415^{+0.0012}_{-0.0012}$	$f\sigma_8(0.51)$	$0.468^{+0.016}_{-0.015}$
$\Omega_{\mathrm{m}}h^3$	$0.0962^{+0.0013}_{-0.0014}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.918^{+0.091}_{-0.086}$	$\sigma_8(0.51)$	$0.619^{+0.017}_{-0.014}$
$\sigma_8$	$0.805^{+0.023}_{-0.020}$	$z_{\mathrm{drag}}$	$1059.9^{+1.3}_{-1.4}$	$f\sigma_8(0.61)$	$0.464^{+0.015}_{-0.014}$
$S_8$	$0.808^{+0.039}_{-0.037}$	$r_{\mathrm{drag}}$	$147.6^{+1.0}_{-0.98}$	$\sigma_8(0.61)$	$0.590^{+0.016}_{-0.013}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.442^{+0.021}_{-0.020}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0014}$	$f\sigma_8(2.33)$	$0.2976^{+0.0078}_{-0.0067}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.597^{+0.022}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16081^{+0.00081}_{-0.00078}$	$\sigma_8(2.33)$	$0.3073^{+0.0080}_{-0.0068}$
$\sigma_8/h^{0.5}$	$0.974^{+0.032}_{-0.029}$	$z_{\mathrm{eq}}$	$3352^{+75}_{-73}$	$\chi_{\mathrm{simall}}^2$	$396.4\ (\nu: 0.5)$
$r_{\mathrm{drag}}h$	$100.8^{+2.3}_{-2.3}$	$k_{\mathrm{eq}}$	$0.01023^{+0.00023}_{-0.00022}$	$\chi_{\mathrm{CamSpec}}^2$	$2580.4\ (\nu: 4.2)$
$\langle d^2 \rangle^{1/2}$	$2.393^{+0.082}_{-0.076}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.013}_{-0.014}$	$\chi_{6\mathrm{DF}}^2$	$0.040\ (\nu: 0.0)$
$z_{\mathrm{re}}$	$< 9.01$	$100\theta_{\mathrm{s,eq}}$	$0.4544^{+0.0070}_{-0.0071}$	$\chi_{\mathrm{MGS}}^2$	$1.98\ (\nu: 0.2)$
$10^9A_{\mathrm{s}}$	$2.087^{+0.091}_{-0.072}$	$H(0.15)$	$73.5^{+1.2}_{-1.2}$	$\chi_{\mathrm{DR12BAO}}^2$	$3.92\ (\nu: 0.3)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.046}_{-0.044}$	$D_{\mathrm{M}}(0.15)$	$635^{+12}_{-11}$	$\chi_{\mathrm{prior}}^2$	$11.0\ (\nu: 1.0)$
$D_{40}$	$1206^{+66}_{-63}$	$H(0.38)$	$83.43^{+0.89}_{-0.88}$	$\chi_{\mathrm{BAO}}^2$	$5.94\ (\nu: 0.5)$
$D_{220}$	$5716^{+160}_{-160}$	$D_{\mathrm{M}}(0.38)$	$1518^{+23}_{-23}$	$\chi_{\mathrm{CMB}}^2$	$2976.8\ (\nu: 4.8)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2993.70; R - 1 = 0.01568$$



## 2.44 base\_CamSpecHM\_TE\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02245^{+0.00056}_{-0.00056}$	$D_{1420}$	$827^{+26}_{-26}$	$H(0.61)$	$95.59^{+0.63}_{-0.65}$
$\Omega_{\mathrm{c}}h^2$	$0.1180^{+0.0030}_{-0.0028}$	$D_{2000}$	$234.1^{+9.6}_{-9.4}$	$D_{\mathrm{M}}(0.61)$	$2292^{+30}_{-29}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0012}_{-0.0012}$	$n_{\mathrm{s},0.002}$	$0.976^{+0.025}_{-0.025}$	$H(2.33)$	$235.4^{+1.9}_{-1.8}$
$\tau$	$0.054^{+0.016}_{-0.012}$	$Y_{\mathrm{P}}$	$0.24542^{+0.00023}_{-0.00024}$	$D_{\mathrm{M}}(2.33)$	$5751^{+32}_{-31}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.035}_{-0.028}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24675^{+0.00023}_{-0.00024}$	$f\sigma_8(0.15)$	$0.450^{+0.015}_{-0.016}$
$n_{\mathrm{s}}$	$0.976^{+0.025}_{-0.025}$	$10^5\mathrm{D}/\mathrm{H}$	$2.57^{+0.11}_{-0.10}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.014}$
$y_{\mathrm{cal}}$	$1.0002^{+0.0063}_{-0.0065}$	Age/Gyr	$13.770^{+0.075}_{-0.073}$	$f\sigma_8(0.38)$	$0.470^{+0.013}_{-0.013}$
$H_0$	$68.2^{+1.3}_{-1.3}$	$z_*$	$1089.65^{+0.83}_{-0.81}$	$\sigma_8(0.38)$	$0.663^{+0.014}_{-0.012}$
$\Omega_{\Lambda}$	$0.697^{+0.016}_{-0.017}$	$r_*$	$144.88^{+0.73}_{-0.75}$	$f\sigma_8(0.51)$	$0.470^{+0.012}_{-0.012}$
$\Omega_{\mathrm{m}}$	$0.303^{+0.017}_{-0.016}$	$100\theta_*$	$1.0415^{+0.0011}_{-0.0012}$	$\sigma_8(0.51)$	$0.621^{+0.013}_{-0.012}$
$\Omega_{\mathrm{m}}h^2$	$0.1411^{+0.0029}_{-0.0026}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.911^{+0.074}_{-0.076}$	$f\sigma_8(0.61)$	$0.465^{+0.011}_{-0.011}$
$\Omega_{\mathrm{m}}h^3$	$0.0963^{+0.0012}_{-0.0013}$	$z_{\mathrm{drag}}$	$1060.0^{+1.2}_{-1.3}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.011}$
$\sigma_8$	$0.808^{+0.017}_{-0.016}$	$r_{\mathrm{drag}}$	$147.53^{+0.84}_{-0.85}$	$f\sigma_8(2.33)$	$0.2984^{+0.0064}_{-0.0056}$
$S_8$	$0.812^{+0.031}_{-0.030}$	$k_{\mathrm{D}}$	$0.1405^{+0.0011}_{-0.0011}$	$\sigma_8(2.33)$	$0.3080^{+0.0067}_{-0.0061}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.445^{+0.017}_{-0.016}$	$100\theta_{\mathrm{D}}$	$0.16077^{+0.00077}_{-0.00075}$	$\chi^2_{\mathrm{lensing}}$	$9.5 (\nu: 0.5)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.599^{+0.016}_{-0.016}$	$z_{\mathrm{eq}}$	$3357^{+69}_{-63}$	$\chi^2_{\mathrm{simall}}$	$396.5 (\nu: 0.6)$
$\sigma_8/h^{0.5}$	$0.978^{+0.023}_{-0.023}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00021}_{-0.00019}$	$\chi^2_{\mathrm{CamSpec}}$	$2580.1 (\nu: 3.6)$
$r_{\mathrm{drag}}h$	$100.7^{+2.1}_{-2.2}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.012}_{-0.013}$	$\chi^2_{6\mathrm{DF}}$	$0.032 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.401^{+0.074}_{-0.071}$	$100\theta_{\mathrm{s,eq}}$	$0.4539^{+0.0059}_{-0.0066}$	$\chi^2_{\mathrm{MGS}}$	$1.88 (\nu: 0.1)$
$z_{\mathrm{re}}$	$< 9.07$	$H(0.15)$	$73.4^{+1.1}_{-1.1}$	$\chi^2_{\mathrm{DR12BAO}}$	$3.88 (\nu: 0.3)$
$10^9A_{\mathrm{s}}$	$2.098^{+0.074}_{-0.059}$	$D_{\mathrm{M}}(0.15)$	$636^{+11}_{-11}$	$\chi^2_{\mathrm{prior}}$	$11.0 (\nu: 1.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.884^{+0.035}_{-0.035}$	$H(0.38)$	$83.40^{+0.87}_{-0.88}$	$\chi^2_{\mathrm{CMB}}$	$2986.1 (\nu: 4.7)$
$D_{40}$	$1209^{+63}_{-63}$	$D_{\mathrm{M}}(0.38)$	$1519^{+22}_{-22}$	$\chi^2_{\mathrm{BAO}}$	$5.79 (\nu: 0.3)$
$D_{220}$	$5730^{+150}_{-150}$	$H(0.51)$	$90.03^{+0.73}_{-0.74}$		
$D_{810}$	$2555^{+54}_{-52}$	$D_{\mathrm{M}}(0.51)$	$1969^{+27}_{-26}$		

$\bar{\chi}^2_{\mathrm{eff}} = 3002.87$ ;  $R - 1 = 0.01685$



## 2.45 base\_CamSpecHM\_EE\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02359	$0.0235^{+0.0017}_{-0.0016}$	$D_{810}$	2607	$2605^{+83}_{-85}$	$H(0.51)$	90.47	$90.5^{+1.5}_{-1.4}$
$\Omega_c h^2$	0.11770	$0.1178^{+0.0038}_{-0.0036}$	$D_{1420}$	845.0	$844^{+37}_{-36}$	$D_M(0.51)$	1957.7	$1958^{+45}_{-45}$
$100\theta_{MC}$	1.03937	$1.0395^{+0.0021}_{-0.0020}$	$D_{2000}$	240.8	$240^{+14}_{-13}$	$H(0.61)$	96.03	$96.0^{+1.5}_{-1.3}$
$\tau$	0.0511	$0.051^{+0.021}_{-0.024}$	$n_{s,0.002}$	0.9701	$0.970^{+0.024}_{-0.024}$	$D_M(0.61)$	2279	$2280^{+49}_{-51}$
$\ln(10^{10} A_s)$	3.060	$3.059^{+0.053}_{-0.058}$	$Y_P$	0.24590	$0.24587^{+0.00067}_{-0.00065}$	$H(2.33)$	236.12	$236.1^{+2.5}_{-2.6}$
$n_s$	0.9701	$0.970^{+0.024}_{-0.024}$	$Y_P^{BBN}$	0.24723	$0.24720^{+0.00067}_{-0.00065}$	$D_M(2.33)$	5726	$5727^{+74}_{-78}$
$y_{cal}$	1.0001	$1.0001^{+0.0062}_{-0.0062}$	$10^5 D/H$	2.373	$2.38^{+0.28}_{-0.26}$	$f\sigma_8(0.15)$	0.4469	$0.447^{+0.025}_{-0.024}$
$H_0$	68.66	$68.6^{+2.1}_{-2.1}$	Age/Gyr	13.710	$13.71^{+0.17}_{-0.18}$	$\sigma_8(0.15)$	0.7447	$0.745^{+0.022}_{-0.023}$
$\Omega_\Lambda$	0.6989	$0.699^{+0.022}_{-0.024}$	$z_*$	1088.26	$1088.3^{+2.0}_{-1.9}$	$f\sigma_8(0.38)$	0.4675	$0.468^{+0.021}_{-0.021}$
$\Omega_m$	0.3011	$0.301^{+0.024}_{-0.022}$	$r_*$	144.09	$144.1^{+1.4}_{-1.3}$	$\sigma_8(0.38)$	0.6613	$0.661^{+0.019}_{-0.020}$
$\Omega_m h^2$	0.14194	$0.1419^{+0.0035}_{-0.0036}$	$100\theta_*$	1.03943	$1.0395^{+0.0021}_{-0.0020}$	$f\sigma_8(0.51)$	0.4673	$0.467^{+0.019}_{-0.020}$
$\Omega_m h^3$	0.09746	$0.0974^{+0.0031}_{-0.0031}$	$D_M(z_*)/\text{Gpc}$	13.862	$13.86^{+0.14}_{-0.13}$	$\sigma_8(0.51)$	0.6193	$0.619^{+0.018}_{-0.019}$
$\sigma_8$	0.8048	$0.805^{+0.025}_{-0.026}$	$z_{drag}$	1062.57	$1062.4^{+3.6}_{-3.6}$	$f\sigma_8(0.61)$	0.4632	$0.463^{+0.017}_{-0.018}$
$S_8$	0.8062	$0.807^{+0.049}_{-0.047}$	$r_{drag}$	146.35	$146.4^{+1.9}_{-1.8}$	$\sigma_8(0.61)$	0.5896	$0.590^{+0.017}_{-0.018}$
$\sigma_8 \Omega_m^{0.5}$	0.4416	$0.442^{+0.027}_{-0.026}$	$k_D$	0.14253	$0.1424^{+0.0029}_{-0.0030}$	$f\sigma_8(2.33)$	0.2977	$0.2977^{+0.0086}_{-0.0089}$
$\sigma_8 \Omega_m^{0.25}$	0.5961	$0.596^{+0.026}_{-0.026}$	$100\theta_D$	0.15901	$0.1591^{+0.0021}_{-0.0020}$	$\sigma_8(2.33)$	0.3074	$0.3073^{+0.0089}_{-0.0093}$
$\sigma_8/h^{0.5}$	0.9712	$0.972^{+0.038}_{-0.039}$	$z_{eq}$	3377	$3377^{+85}_{-85}$	$\chi^2_{small}$	395.59	$396.7 (\nu: 1.0)$
$r_{drag} h$	100.49	$100.5^{+2.9}_{-2.9}$	$k_{eq}$	0.010306	$0.01031^{+0.00026}_{-0.00026}$	$\chi^2_{CamSpec}$	1886.7	$1890.8 (\nu: 4.1)$
$\langle d^2 \rangle^{1/2}$	2.427	$2.427^{+0.088}_{-0.090}$	$100\theta_{eq}$	0.8201	$0.820^{+0.015}_{-0.015}$	$\chi^2_{6DF}$	0.000	$0.053 (\nu: 0.0)$
$z_{re}$	7.07	$7.1^{+2.0}_{-2.6}$	$100\theta_{s,eq}$	0.4520	$0.4520^{+0.0079}_{-0.0077}$	$\chi^2_{MGS}$	1.68	$1.75 (\nu: 0.2)$
$10^9 A_s$	2.133	$2.13^{+0.12}_{-0.12}$	$H(0.15)$	73.86	$73.8^{+1.9}_{-1.8}$	$\chi^2_{DR12BAO}$	3.85	$4.6 (\nu: 1.0)$
$10^9 A_s e^{-2\tau}$	1.926	$1.924^{+0.063}_{-0.063}$	$D_M(0.15)$	632.1	$632^{+18}_{-17}$	$\chi^2_{prior}$	10.03	$11.0 (\nu: 0.9)$
$D_{40}$	1260	$1259^{+76}_{-77}$	$H(0.38)$	83.83	$83.8^{+1.7}_{-1.6}$	$\chi^2_{BAO}$	5.52	$6.4 (\nu: 0.8)$
$D_{220}$	6001	$5991^{+330}_{-340}$	$D_M(0.38)$	1510.0	$1511^{+37}_{-37}$	$\chi^2_{CMB}$	2282.3	$2287.4 (\nu: 5.1)$

Best-fit  $\chi^2_{eff} = 2297.82$ ;  $\bar{\chi}^2_{eff} = 2304.89$ ;  $R - 1 = 0.00669$

$\chi^2_{eff}$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.85 CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.59 CamSpec like\_10.7HM\_1400\_unified: 1886.67



## 2.46 base\_CamSpecHM\_EE\_lowE\_BAO\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.0233^{+0.0014}_{-0.0014}$	$D_{1420}$	$835^{+30}_{-29}$	$H(0.61)$	$95.9^{+1.4}_{-1.3}$
$\Omega_c h^2$	$0.1172^{+0.0034}_{-0.0034}$	$D_{2000}$	$237^{+11}_{-11}$	$D_M(0.61)$	$2282^{+51}_{-49}$
$100\theta_{MC}$	$1.0395^{+0.0020}_{-0.0020}$	$n_{s,0.002}$	$0.969^{+0.024}_{-0.025}$	$H(2.33)$	$235.5^{+2.0}_{-2.0}$
$\tau$	$0.049^{+0.018}_{-0.021}$	$Y_P$	$0.24576^{+0.00054}_{-0.00058}$	$D_M(2.33)$	$5737^{+69}_{-69}$
$\ln(10^{10} A_s)$	$3.045^{+0.039}_{-0.042}$	$Y_P^{BBN}$	$0.24708^{+0.00054}_{-0.00058}$	$f\sigma_8(0.15)$	$0.442^{+0.022}_{-0.021}$
$n_s$	$0.969^{+0.024}_{-0.025}$	$10^5 D/H$	$2.43^{+0.25}_{-0.23}$	$\sigma_8(0.15)$	$0.739^{+0.017}_{-0.017}$
$y_{cal}$	$0.9998^{+0.0064}_{-0.0062}$	Age/Gyr	$13.74^{+0.16}_{-0.16}$	$f\sigma_8(0.38)$	$0.463^{+0.018}_{-0.018}$
$H_0$	$68.6^{+2.0}_{-2.1}$	$z_*$	$1088.6^{+2.0}_{-1.7}$	$\sigma_8(0.38)$	$0.656^{+0.015}_{-0.014}$
$\Omega_\Lambda$	$0.700^{+0.021}_{-0.024}$	$r_*$	$144.5^{+1.1}_{-0.98}$	$f\sigma_8(0.51)$	$0.463^{+0.016}_{-0.016}$
$\Omega_m$	$0.300^{+0.024}_{-0.021}$	$100\theta_*$	$1.0396^{+0.0021}_{-0.0020}$	$\sigma_8(0.51)$	$0.614^{+0.014}_{-0.013}$
$\Omega_m h^2$	$0.1411^{+0.0030}_{-0.0029}$	$D_M(z_*)/\text{Gpc}$	$13.90^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	$0.459^{+0.014}_{-0.014}$
$\Omega_m h^3$	$0.0968^{+0.0026}_{-0.0027}$	$z_{drag}$	$1061.7^{+3.1}_{-3.2}$	$\sigma_8(0.61)$	$0.585^{+0.013}_{-0.013}$
$\sigma_8$	$0.798^{+0.019}_{-0.019}$	$r_{drag}$	$146.9^{+1.4}_{-1.3}$	$f\sigma_8(2.33)$	$0.2954^{+0.0067}_{-0.0068}$
$S_8$	$0.798^{+0.042}_{-0.041}$	$k_D$	$0.1417^{+0.0023}_{-0.0025}$	$\sigma_8(2.33)$	$0.3051^{+0.0070}_{-0.0075}$
$\sigma_8 \Omega_m^{0.5}$	$0.437^{+0.023}_{-0.022}$	$100\theta_D$	$0.1595^{+0.0018}_{-0.0017}$	$\chi^2_{lensing}$	$9.3 (\nu: 1.0)$
$\sigma_8 \Omega_m^{0.25}$	$0.590^{+0.022}_{-0.022}$	$z_{eq}$	$3356^{+71}_{-70}$	$\chi^2_{simall}$	$396.7 (\nu: 0.9)$
$\sigma_8/h^{0.5}$	$0.963^{+0.032}_{-0.033}$	$k_{eq}$	$0.01024^{+0.00022}_{-0.00021}$	$\chi^2_{CamSpec}$	$1890.9 (\nu: 3.7)$
$r_{drag} h$	$100.8^{+2.8}_{-2.8}$	$100\theta_{eq}$	$0.823^{+0.014}_{-0.013}$	$\chi^2_{6DF}$	$0.052 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.408^{+0.075}_{-0.080}$	$100\theta_{s,eq}$	$0.4538^{+0.0066}_{-0.0066}$	$\chi^2_{MGS}$	$1.93 (\nu: 0.2)$
$z_{re}$	$6.8^{+1.8}_{-2.5}$	$H(0.15)$	$73.8^{+1.9}_{-1.9}$	$\chi^2_{DR12BAO}$	$4.3 (\nu: 0.6)$
$10^9 A_s$	$2.101^{+0.083}_{-0.086}$	$D_M(0.15)$	$633^{+18}_{-17}$	$\chi^2_{prior}$	$11.0 (\nu: 1.0)$
$10^9 A_s e^{-2\tau}$	$1.906^{+0.045}_{-0.043}$	$H(0.38)$	$83.7^{+1.6}_{-1.5}$	$\chi^2_{CMB}$	$2296.9 (\nu: 5.2)$
$D_{40}$	$1249^{+70}_{-68}$	$D_M(0.38)$	$1512^{+38}_{-36}$	$\chi^2_{BAO}$	$6.3 (\nu: 0.7)$
$D_{220}$	$5930^{+290}_{-280}$	$H(0.51)$	$90.3^{+1.4}_{-1.4}$		
$D_{810}$	$2582^{+65}_{-63}$	$D_M(0.51)$	$1960^{+47}_{-44}$		

$\bar{\chi}^2_{eff} = 2314.19$ ;  $R - 1 = 0.00959$



## 2.47 base\_CamSpecHM\_EE\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0235^{+0.0017}_{-0.0016}$	$D_{810}$	$2603^{+84}_{-85}$	$H(0.51)$	$90.4^{+1.5}_{-1.4}$
$\Omega_{\mathrm{c}}h^2$	$0.1177^{+0.0037}_{-0.0035}$	$D_{1420}$	$843^{+37}_{-36}$	$D_{\mathrm{M}}(0.51)$	$1959^{+44}_{-45}$
$100\theta_{\mathrm{MC}}$	$1.0395^{+0.0021}_{-0.0020}$	$D_{2000}$	$240^{+14}_{-13}$	$H(0.61)$	$96.0^{+1.5}_{-1.3}$
$\tau$	$0.054^{+0.017}_{-0.011}$	$n_{\mathrm{s},0.002}$	$0.970^{+0.024}_{-0.023}$	$D_{\mathrm{M}}(0.61)$	$2281^{+49}_{-50}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.065^{+0.051}_{-0.043}$	$Y_{\mathrm{P}}$	$0.24586^{+0.00068}_{-0.00065}$	$H(2.33)$	$236.1^{+2.4}_{-2.6}$
$n_{\mathrm{s}}$	$0.970^{+0.024}_{-0.023}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24719^{+0.00068}_{-0.00066}$	$D_{\mathrm{M}}(2.33)$	$5727^{+74}_{-78}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0062}_{-0.0062}$	$10^5\mathrm{D}/\mathrm{H}$	$2.39^{+0.28}_{-0.26}$	$f\sigma_8(0.15)$	$0.449^{+0.025}_{-0.024}$
$H_0$	$68.6^{+2.1}_{-2.0}$	Age/Gyr	$13.71^{+0.17}_{-0.18}$	$\sigma_8(0.15)$	$0.747^{+0.021}_{-0.020}$
$\Omega_{\Lambda}$	$0.699^{+0.021}_{-0.024}$	$z_*$	$1088.4^{+2.0}_{-2.0}$	$f\sigma_8(0.38)$	$0.469^{+0.020}_{-0.020}$
$\Omega_{\mathrm{m}}$	$0.301^{+0.024}_{-0.021}$	$r_*$	$144.1^{+1.4}_{-1.3}$	$\sigma_8(0.38)$	$0.663^{+0.018}_{-0.016}$
$\Omega_{\mathrm{m}}h^2$	$0.1419^{+0.0035}_{-0.0035}$	$100\theta_*$	$1.0395^{+0.0021}_{-0.0020}$	$f\sigma_8(0.51)$	$0.469^{+0.018}_{-0.018}$
$\Omega_{\mathrm{m}}h^3$	$0.0974^{+0.0032}_{-0.0031}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.87^{+0.14}_{-0.13}$	$\sigma_8(0.51)$	$0.621^{+0.017}_{-0.015}$
$\sigma_8$	$0.807^{+0.023}_{-0.022}$	$z_{\mathrm{drag}}$	$1062.4^{+3.6}_{-3.6}$	$f\sigma_8(0.61)$	$0.465^{+0.017}_{-0.016}$
$S_8$	$0.809^{+0.048}_{-0.046}$	$r_{\mathrm{drag}}$	$146.4^{+1.9}_{-1.8}$	$\sigma_8(0.61)$	$0.591^{+0.016}_{-0.014}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.443^{+0.026}_{-0.025}$	$k_{\mathrm{D}}$	$0.1424^{+0.0030}_{-0.0030}$	$f\sigma_8(2.33)$	$0.2986^{+0.0080}_{-0.0070}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.598^{+0.025}_{-0.024}$	$100\theta_{\mathrm{D}}$	$0.1591^{+0.0022}_{-0.0020}$	$\sigma_8(2.33)$	$0.3083^{+0.0083}_{-0.0071}$
$\sigma_8/h^{0.5}$	$0.975^{+0.036}_{-0.035}$	$z_{\mathrm{eq}}$	$3376^{+83}_{-84}$	$\chi_{\mathrm{small}}^2$	$396.4 (\nu: 0.8)$
$r_{\mathrm{drag}}h$	$100.5^{+2.8}_{-2.8}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00025}_{-0.00026}$	$\chi_{\mathrm{CamSpec}}^2$	$1890.7 (\nu: 4.0)$
$\langle d^2 \rangle^{1/2}$	$2.434^{+0.083}_{-0.083}$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.015}_{-0.015}$	$\chi_{6\mathrm{DF}}^2$	$0.052 (\nu: 0.0)$
$z_{\mathrm{re}}$	$< 8.92$	$100\theta_{\mathrm{s,eq}}$	$0.4521^{+0.0078}_{-0.0076}$	$\chi_{\mathrm{MGS}}^2$	$1.75 (\nu: 0.2)$
$10^9A_{\mathrm{s}}$	$2.14^{+0.11}_{-0.090}$	$H(0.15)$	$73.8^{+1.9}_{-1.8}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 (\nu: 1.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.923^{+0.063}_{-0.063}$	$D_{\mathrm{M}}(0.15)$	$632^{+18}_{-17}$	$\chi_{\mathrm{prior}}^2$	$11.0 (\nu: 0.9)$
$D_{40}$	$1259^{+76}_{-76}$	$H(0.38)$	$83.8^{+1.7}_{-1.6}$	$\chi_{\mathrm{BAO}}^2$	$6.4 (\nu: 0.8)$
$D_{220}$	$5986^{+340}_{-340}$	$D_{\mathrm{M}}(0.38)$	$1511^{+37}_{-37}$	$\chi_{\mathrm{CMB}}^2$	$2287.1 (\nu: 4.7)$
$\bar{\chi}_{\mathrm{eff}}^2 = 2304.51; R - 1 = 0.01190$					



## 2.48 base\_CamSpecHM\_EE\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.0232^{+0.0015}_{-0.0014}$	$D_{1420}$	$833^{+28}_{-29}$	$H(0.61)$	$95.8^{+1.3}_{-1.3}$
$\Omega_c h^2$	$0.1171^{+0.0037}_{-0.0033}$	$D_{2000}$	$237^{+10}_{-10}$	$D_M(0.61)$	$2283^{+50}_{-47}$
$100\theta_{MC}$	$1.0395^{+0.0022}_{-0.0019}$	$n_{s,0.002}$	$0.969^{+0.024}_{-0.025}$	$H(2.33)$	$235.3^{+2.1}_{-2.1}$
$\tau$	$0.0526^{+0.014}_{-0.0091}$	$Y_P$	$0.24573^{+0.00055}_{-0.00060}$	$D_M(2.33)$	$5739^{+68}_{-67}$
$\ln(10^{10} A_s)$	$3.051^{+0.035}_{-0.029}$	$Y_P^{BBN}$	$0.24706^{+0.00055}_{-0.00061}$	$f\sigma_8(0.15)$	$0.444^{+0.022}_{-0.020}$
$n_s$	$0.969^{+0.024}_{-0.025}$	$10^5 D/H$	$2.44^{+0.26}_{-0.23}$	$\sigma_8(0.15)$	$0.741^{+0.016}_{-0.015}$
$y_{cal}$	$0.9997^{+0.0062}_{-0.0057}$	Age/Gyr	$13.74^{+0.16}_{-0.15}$	$f\sigma_8(0.38)$	$0.464^{+0.018}_{-0.017}$
$H_0$	$68.6^{+2.0}_{-2.1}$	$z_*$	$1088.7^{+2.0}_{-1.8}$	$\sigma_8(0.38)$	$0.658^{+0.014}_{-0.012}$
$\Omega_\Lambda$	$0.700^{+0.021}_{-0.024}$	$r_*$	$144.6^{+1.0}_{-0.93}$	$f\sigma_8(0.51)$	$0.464^{+0.015}_{-0.015}$
$\Omega_m$	$0.300^{+0.024}_{-0.021}$	$100\theta_*$	$1.0396^{+0.0022}_{-0.0019}$	$\sigma_8(0.51)$	$0.616^{+0.012}_{-0.011}$
$\Omega_m h^2$	$0.1409^{+0.0031}_{-0.0028}$	$D_M(z_*)/\text{Gpc}$	$13.90^{+0.11}_{-0.097}$	$f\sigma_8(0.61)$	$0.460^{+0.013}_{-0.013}$
$\Omega_m h^3$	$0.0967^{+0.0025}_{-0.0027}$	$z_{drag}$	$1061.6^{+3.1}_{-3.0}$	$\sigma_8(0.61)$	$0.587^{+0.012}_{-0.011}$
$\sigma_8$	$0.800^{+0.018}_{-0.018}$	$r_{drag}$	$147.0^{+1.4}_{-1.2}$	$f\sigma_8(2.33)$	$0.2964^{+0.0061}_{-0.0050}$
$S_8$	$0.800^{+0.043}_{-0.039}$	$k_D$	$0.1416^{+0.0021}_{-0.0024}$	$\sigma_8(2.33)$	$0.3061^{+0.0064}_{-0.0056}$
$\sigma_8 \Omega_m^{0.5}$	$0.438^{+0.024}_{-0.022}$	$100\theta_D$	$0.1596^{+0.0019}_{-0.0017}$	$\chi^2_{lensing}$	$9.4 (\nu: 1.1)$
$\sigma_8 \Omega_m^{0.25}$	$0.592^{+0.021}_{-0.020}$	$z_{eq}$	$3352^{+75}_{-67}$	$\chi^2_{simall}$	$396.15 (\nu: 0.3)$
$\sigma_8/h^{0.5}$	$0.966^{+0.030}_{-0.031}$	$k_{eq}$	$0.01023^{+0.00023}_{-0.00021}$	$\chi^2_{CamSpec}$	$1890.9 (\nu: 3.8)$
$r_{drag} h$	$100.8^{+2.6}_{-2.8}$	$100\theta_{eq}$	$0.824^{+0.013}_{-0.014}$	$\chi^2_{6DF}$	$0.052 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.414^{+0.073}_{-0.065}$	$100\theta_{s,eq}$	$0.4541^{+0.0063}_{-0.0068}$	$\chi^2_{MGS}$	$1.96 (\nu: 0.2)$
$z_{re}$	$< 8.65$	$H(0.15)$	$73.8^{+1.8}_{-1.9}$	$\chi^2_{DR12BAO}$	$4.3 (\nu: 0.5)$
$10^9 A_s$	$2.114^{+0.074}_{-0.060}$	$D_M(0.15)$	$633^{+18}_{-17}$	$\chi^2_{prior}$	$11.0 (\nu: 0.8)$
$10^9 A_s e^{-2\tau}$	$1.903^{+0.042}_{-0.042}$	$H(0.38)$	$83.7^{+1.5}_{-1.5}$	$\chi^2_{CMB}$	$2296.5 (\nu: 5.0)$
$D_{40}$	$1246^{+69}_{-70}$	$D_M(0.38)$	$1512^{+38}_{-36}$	$\chi^2_{BAO}$	$6.3 (\nu: 0.7)$
$D_{220}$	$5914^{+280}_{-280}$	$H(0.51)$	$90.3^{+1.4}_{-1.4}$		
$D_{810}$	$2577^{+60}_{-60}$	$D_M(0.51)$	$1961^{+46}_{-43}$		

$\bar{\chi}^2_{eff} = 2313.75$ ;  $R - 1 = 0.00861$



## 2.49 base\_plikHM\_TE\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02245	$0.02246^{+0.00065}_{-0.00065}$	$\langle d^2 \rangle^{1/2}$	2.430	$2.427^{+0.084}_{-0.090}$	$H(0.15)$	72.97	$73.0^{+1.9}_{-1.7}$
$\Omega_c h^2$	0.11952	$0.1195^{+0.0043}_{-0.0045}$	$z_{\text{re}}$	7.53	$7.5^{+2.0}_{-2.2}$	$D_M(0.15)$	640.6	$640^{+17}_{-18}$
$100\theta_{\text{MC}}$	1.04120	$1.0412^{+0.0013}_{-0.0013}$	$10^9 A_s$	2.082	$2.083^{+0.088}_{-0.080}$	$H(0.38)$	83.09	$83.1^{+1.4}_{-1.2}$
$\tau$	0.0531	$0.053^{+0.021}_{-0.020}$	$10^9 A_s e^{-2\tau}$	1.8725	$1.872^{+0.035}_{-0.035}$	$D_M(0.38)$	1527.7	$1527^{+34}_{-36}$
$\ln(10^{10} A_s)$	3.0360	$3.036^{+0.041}_{-0.039}$	$D_{40}$	1227	$1224^{+68}_{-67}$	$H(0.51)$	89.81	$89.8^{+1.1}_{-1.0}$
$n_s$	0.9645	$0.966^{+0.030}_{-0.030}$	$D_{220}$	5722	$5716^{+140}_{-150}$	$D_M(0.51)$	1979.1	$1978^{+40}_{-42}$
$y_{\text{cal}}$	1.0005	$1.0004^{+0.0064}_{-0.0064}$	$D_{810}$	2527	$2527^{+57}_{-57}$	$H(0.61)$	95.44	$95.46^{+0.93}_{-0.83}$
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.097}_{-0.098}$	$D_{1420}$	813.1	$814^{+29}_{-29}$	$D_M(0.61)$	2302.9	$2302^{+43}_{-46}$
$A_{100 \times 143}^{\text{dustTE}}$	0.136	$0.136^{+0.075}_{-0.075}$	$D_{2000}$	229.6	$230^{+11}_{-10}$	$H(2.33)$	236.35	$236.3^{+2.5}_{-2.7}$
$A_{100 \times 217}^{\text{dustTE}}$	0.479	$0.48^{+0.22}_{-0.22}$	$n_{s,0.002}$	0.9645	$0.966^{+0.030}_{-0.030}$	$D_M(2.33)$	5755.5	$5755^{+40}_{-42}$
$A_{143}^{\text{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$Y_P$	0.245426	$0.24543^{+0.00028}_{-0.00029}$	$f\sigma_8(0.15)$	0.4543	$0.454^{+0.021}_{-0.023}$
$A_{143 \times 217}^{\text{dustTE}}$	0.664	$0.66^{+0.21}_{-0.21}$	$Y_P^{\text{BBN}}$	0.246753	$0.24675^{+0.00028}_{-0.00029}$	$\sigma_8(0.15)$	0.7448	$0.745^{+0.017}_{-0.016}$
$A_{217}^{\text{dustTE}}$	2.06	$2.06^{+0.70}_{-0.69}$	$10^5 \text{D/H}$	2.571	$2.57^{+0.12}_{-0.12}$	$f\sigma_8(0.38)$	0.4726	$0.473^{+0.017}_{-0.018}$
$c_{100}$	1.00017	$1.0002^{+0.0018}_{-0.0018}$	Age/Gyr	13.779	$13.777^{+0.091}_{-0.095}$	$\sigma_8(0.38)$	0.6603	$0.660^{+0.015}_{-0.014}$
$c_{217}$	0.99800	$0.9980^{+0.0017}_{-0.0016}$	$z_*$	1089.78	$1089.8^{+1.1}_{-1.1}$	$f\sigma_8(0.51)$	0.4712	$0.471^{+0.014}_{-0.015}$
$H_0$	67.68	$67.7^{+2.2}_{-1.9}$	$r_*$	144.49	$144.5^{+1.0}_{-0.94}$	$\sigma_8(0.51)$	0.6179	$0.618^{+0.015}_{-0.014}$
$\Omega_\Lambda$	0.6886	$0.689^{+0.027}_{-0.027}$	$100\theta_*$	1.04137	$1.0414^{+0.0013}_{-0.0013}$	$f\sigma_8(0.61)$	0.4663	$0.466^{+0.013}_{-0.014}$
$\Omega_m$	0.3114	$0.311^{+0.027}_{-0.027}$	$D_M(z_*)/\text{Gpc}$	13.875	$13.876^{+0.098}_{-0.090}$	$\sigma_8(0.61)$	0.5879	$0.588^{+0.014}_{-0.013}$
$\Omega_m h^2$	0.14262	$0.1426^{+0.0040}_{-0.0042}$	$z_{\text{drag}}$	1060.09	$1060.1^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	0.2964	$0.2966^{+0.0077}_{-0.0072}$
$\Omega_m h^3$	0.09653	$0.0965^{+0.0013}_{-0.0013}$	$r_{\text{drag}}$	147.13	$147.1^{+1.1}_{-0.96}$	$\sigma_8(2.33)$	0.3056	$0.3058^{+0.0086}_{-0.0079}$
$\sigma_8$	0.8060	$0.806^{+0.018}_{-0.018}$	$k_D$	0.14089	$0.1409^{+0.0012}_{-0.0013}$	$\chi^2_{\text{lensing}}$	9.54	$10.4 (\nu: 1.6)$
$S_8$	0.8212	$0.821^{+0.043}_{-0.045}$	$100\theta_D$	0.16071	$0.16070^{+0.00083}_{-0.00076}$	$\chi^2_{\text{small}}$	395.85	$396.8 (\nu: 1.2)$
$\sigma_8 \Omega_m^{0.5}$	0.4498	$0.450^{+0.023}_{-0.025}$	$z_{\text{eq}}$	3393	$3392^{+95}_{-100}$	$\chi^2_{\text{plikTE}}$	854.4	$860.7 (\nu: 7.0)$
$\sigma_8 \Omega_m^{0.25}$	0.6021	$0.602^{+0.020}_{-0.022}$	$k_{\text{eq}}$	0.010355	$0.01035^{+0.00029}_{-0.00031}$	$\chi^2_{\text{prior}}$	0.5	$7.4 (\nu: 6.8)$
$\sigma_8/h^{0.5}$	0.9798	$0.980^{+0.028}_{-0.030}$	$100\theta_{\text{eq}}$	0.8154	$0.816^{+0.020}_{-0.018}$	$\chi^2_{\text{CMB}}$	1259.8	$1268.0 (\nu: 8.3)$
$r_{\text{drag}} h$	99.58	$99.6^{+3.7}_{-3.3}$	$100\theta_{s,\text{eq}}$	0.4504	$0.451^{+0.010}_{-0.0091}$			

Best-fit  $\chi^2_{\text{eff}} = 1260.24$ ;  $\bar{\chi}^2_{\text{eff}} = 1275.40$ ;  $R - 1 = 0.00470$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consect8: 9.54 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 plik\_rd12\_HM\_v22\_TE: 854.38



## 2.50 base\_plikHM\_TE\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02247^{+0.00065}_{-0.00065}$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.083}_{-0.090}$	$H(0.15)$	$73.0^{+1.8}_{-1.6}$
$\Omega_{\mathrm{c}}h^2$	$0.1194^{+0.0041}_{-0.0045}$	$z_{\mathrm{re}}$	$< 9.33$	$D_{\mathrm{M}}(0.15)$	$640^{+17}_{-18}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0013}_{-0.0013}$	$10^9 A_{\mathrm{s}}$	$2.088^{+0.084}_{-0.062}$	$H(0.38)$	$83.1^{+1.4}_{-1.2}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.871^{+0.035}_{-0.036}$	$D_{\mathrm{M}}(0.38)$	$1527^{+33}_{-36}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.039^{+0.040}_{-0.030}$	$D_{40}$	$1223^{+66}_{-67}$	$H(0.51)$	$89.9^{+1.1}_{-0.99}$
$n_{\mathrm{s}}$	$0.966^{+0.030}_{-0.029}$	$D_{220}$	$5715^{+140}_{-150}$	$D_{\mathrm{M}}(0.51)$	$1978^{+39}_{-42}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0064}_{-0.0065}$	$D_{810}$	$2526^{+57}_{-57}$	$H(0.61)$	$95.47^{+0.93}_{-0.82}$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.097}_{-0.098}$	$D_{1420}$	$814^{+29}_{-28}$	$D_{\mathrm{M}}(0.61)$	$2301^{+42}_{-46}$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.136^{+0.075}_{-0.075}$	$D_{2000}$	$230^{+11}_{-10}$	$H(2.33)$	$236.3^{+2.5}_{-2.7}$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.030}_{-0.029}$	$D_{\mathrm{M}}(2.33)$	$5754^{+40}_{-43}$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$Y_{\mathrm{P}}$	$0.24543^{+0.00028}_{-0.00029}$	$f\sigma_8(0.15)$	$0.454^{+0.021}_{-0.023}$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24676^{+0.00028}_{-0.00029}$	$\sigma_8(0.15)$	$0.746^{+0.016}_{-0.015}$
$A_{217}^{\mathrm{dustTE}}$	$2.06^{+0.70}_{-0.69}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.57^{+0.12}_{-0.12}$	$f\sigma_8(0.38)$	$0.473^{+0.017}_{-0.018}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0018}$	Age/Gyr	$13.776^{+0.091}_{-0.095}$	$\sigma_8(0.38)$	$0.661^{+0.015}_{-0.013}$
$c_{217}$	$0.9980^{+0.0017}_{-0.0016}$	$z_*$	$1089.7^{+1.0}_{-1.0}$	$f\sigma_8(0.51)$	$0.471^{+0.014}_{-0.016}$
$H_0$	$67.8^{+2.1}_{-1.9}$	$r_*$	$144.5^{+1.0}_{-0.93}$	$\sigma_8(0.51)$	$0.619^{+0.014}_{-0.012}$
$\Omega_{\Lambda}$	$0.689^{+0.027}_{-0.026}$	$100\theta_*$	$1.0414^{+0.0013}_{-0.0013}$	$f\sigma_8(0.61)$	$0.467^{+0.013}_{-0.014}$
$\Omega_{\mathrm{m}}$	$0.311^{+0.026}_{-0.027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.878^{+0.097}_{-0.089}$	$\sigma_8(0.61)$	$0.589^{+0.014}_{-0.011}$
$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0039}_{-0.0042}$	$z_{\mathrm{drag}}$	$1060.1^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	$0.2969^{+0.0074}_{-0.0059}$
$\Omega_{\mathrm{m}}h^3$	$0.0965^{+0.0013}_{-0.0013}$	$r_{\mathrm{drag}}$	$147.2^{+1.1}_{-0.96}$	$\sigma_8(2.33)$	$0.3062^{+0.0083}_{-0.0065}$
$\sigma_8$	$0.807^{+0.018}_{-0.017}$	$k_{\mathrm{D}}$	$0.1409^{+0.0012}_{-0.0013}$	$\chi_{\mathrm{lensing}}^2$	$10.3 (\nu: 1.6)$
$S_8$	$0.821^{+0.043}_{-0.045}$	$100\theta_{\mathrm{D}}$	$0.16070^{+0.00083}_{-0.00077}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.2)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.023}_{-0.025}$	$z_{\mathrm{eq}}$	$3389^{+93}_{-100}$	$\chi_{\mathrm{plikTE}}^2$	$860.6 (\nu: 6.8)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.020}_{-0.022}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00029}_{-0.00030}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 6.8)$
$\sigma_8/h^{0.5}$	$0.980^{+0.028}_{-0.030}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.020}_{-0.017}$	$\chi_{\mathrm{CMB}}^2$	$1267.7 (\nu: 8.0)$
$r_{\mathrm{drag}}h$	$99.7^{+3.6}_{-3.2}$	$100\theta_{\mathrm{s,eq}}$	$0.451^{+0.010}_{-0.0089}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1275.15$ ;  $R - 1 = 0.00477$



## 2.51 base\_plikHM\_EE\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02393	$0.0240^{+0.0027}_{-0.0024}$	$D_{220}$	5958	$5969^{+430}_{-390}$	$H(0.38)$	84.66	$84.8^{+3.9}_{-3.3}$
$\Omega_c h^2$	0.1157	$0.1155^{+0.0077}_{-0.0077}$	$D_{810}$	2588	$2590^{+86}_{-92}$	$D_M(0.38)$	1489	$1487^{+83}_{-86}$
$100\theta_{MC}$	1.03995	$1.0400^{+0.0021}_{-0.0022}$	$D_{1420}$	843.0	$844^{+42}_{-45}$	$H(0.51)$	91.16	$91.3^{+3.5}_{-2.9}$
$\tau$	0.0529	$0.053^{+0.021}_{-0.023}$	$D_{2000}$	240.9	$241^{+16}_{-17}$	$D_M(0.51)$	1933	$1930^{+100}_{-100}$
$\ln(10^{10} A_s)$	3.0513	$3.052^{+0.047}_{-0.048}$	$n_{s,0.002}$	0.9790	$0.980^{+0.033}_{-0.032}$	$H(0.61)$	96.62	$96.7^{+3.1}_{-2.5}$
$n_s$	0.9790	$0.980^{+0.033}_{-0.032}$	$Y_P$	0.24602	$0.2460^{+0.0010}_{-0.00099}$	$D_M(0.61)$	2253	$2250^{+110}_{-110}$
$y_{cal}$	0.99998	$0.99996^{+0.0066}_{-0.0066}$	$Y_P^{BBN}$	0.24735	$0.2474^{+0.0010}_{-0.00099}$	$H(2.33)$	235.17	$235.2^{+3.2}_{-3.1}$
$H_0$	69.9	$70.0^{+5.2}_{-4.7}$	$10^5 D/H$	2.319	$2.31^{+0.41}_{-0.38}$	$D_M(2.33)$	5699	$5693^{+130}_{-140}$
$\Omega_\Lambda$	0.713	$0.713^{+0.048}_{-0.055}$	Age/Gyr	13.650	$13.64^{+0.29}_{-0.32}$	$f\sigma_8(0.15)$	0.4327	$0.432^{+0.045}_{-0.047}$
$\Omega_m$	0.287	$0.287^{+0.055}_{-0.048}$	$z_*$	1087.72	$1087.7^{+3.4}_{-3.2}$	$\sigma_8(0.15)$	0.7376	$0.737^{+0.020}_{-0.022}$
$\Omega_m h^2$	0.1402	$0.1402^{+0.0058}_{-0.0056}$	$r_*$	144.36	$144.3^{+1.0}_{-1.0}$	$f\sigma_8(0.38)$	0.4560	$0.455^{+0.034}_{-0.039}$
$\Omega_m h^3$	0.09799	$0.0982^{+0.0042}_{-0.0037}$	$100\theta_*$	1.03998	$1.0400^{+0.0020}_{-0.0022}$	$\sigma_8(0.38)$	0.6565	$0.656^{+0.016}_{-0.016}$
$\sigma_8$	0.7956	$0.795^{+0.024}_{-0.029}$	$D_M(z_*)/\text{Gpc}$	13.881	$13.88^{+0.11}_{-0.11}$	$f\sigma_8(0.51)$	0.4575	$0.456^{+0.029}_{-0.033}$
$S_8$	0.778	$0.777^{+0.090}_{-0.091}$	$z_{drag}$	1063.1	$1063.3^{+5.2}_{-4.9}$	$\sigma_8(0.51)$	0.6155	$0.615^{+0.014}_{-0.014}$
$\sigma_8 \Omega_m^{0.5}$	0.4263	$0.425^{+0.049}_{-0.050}$	$r_{drag}$	146.53	$146.5^{+1.4}_{-1.4}$	$f\sigma_8(0.61)$	0.4545	$0.454^{+0.024}_{-0.029}$
$\sigma_8 \Omega_m^{0.25}$	0.5824	$0.581^{+0.041}_{-0.044}$	$k_D$	0.14255	$0.1426^{+0.0028}_{-0.0028}$	$\sigma_8(0.61)$	0.5864	$0.586^{+0.014}_{-0.013}$
$\sigma_8/h^{0.5}$	0.952	$0.950^{+0.058}_{-0.065}$	$100\theta_D$	0.15876	$0.1587^{+0.0028}_{-0.0025}$	$f\sigma_8(2.33)$	0.2967	$0.2965^{+0.0070}_{-0.0069}$
$r_{drag} h$	102.4	$102.6^{+7.2}_{-6.7}$	$z_{eq}$	3336	$3335^{+140}_{-130}$	$\sigma_8(2.33)$	0.3070	$0.3069^{+0.0079}_{-0.0085}$
$\langle d^2 \rangle^{1/2}$	2.375	$2.37^{+0.12}_{-0.12}$	$k_{eq}$	0.010181	$0.01018^{+0.00042}_{-0.00041}$	$\chi^2_{lensing}$	8.16	$9.2 (\nu: 0.6)$
$z_{re}$	7.15	$7.1^{+2.0}_{-2.4}$	$100\theta_{eq}$	0.8290	$0.830^{+0.032}_{-0.030}$	$\chi^2_{simall}$	395.58	$396.6 (\nu: 0.9)$
$10^9 A_s$	2.114	$2.12^{+0.10}_{-0.10}$	$100\theta_{s,eq}$	0.4564	$0.457^{+0.015}_{-0.014}$	$\chi^2_{plikEE}$	738.9	$742.9 (\nu: 3.5)$
$10^9 A_s e^{-2\tau}$	1.9019	$1.903^{+0.049}_{-0.048}$	$H(0.15)$	74.93	$75.1^{+4.7}_{-4.2}$	$\chi^2_{prior}$	0.00	$1.0 (\nu: 1.1)$
$D_{40}$	1231	$1231^{+70}_{-71}$	$D_M(0.15)$	622.1	$621^{+40}_{-41}$	$\chi^2_{CMB}$	1142.7	$1148.7 (\nu: 5.6)$

Best-fit  $\chi^2_{eff} = 1142.70$ ;  $\bar{\chi}^2_{eff} = 1149.74$ ;  $R - 1 = 0.00580$

$\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.16 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.58 plik\_rd12\_HM\_v22\_EE: 738.95



## 2.52 base\_plikHM\_EE\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0240^{+0.0027}_{-0.0024}$	$D_{220}$	$5967^{+430}_{-400}$	$H(0.38)$	$84.9^{+3.9}_{-3.4}$
$\Omega_{\mathrm{c}}h^2$	$0.1152^{+0.0078}_{-0.0075}$	$D_{810}$	$2589^{+85}_{-92}$	$D_{\mathrm{M}}(0.38)$	$1485^{+86}_{-84}$
$100\theta_{\mathrm{MC}}$	$1.0400^{+0.0021}_{-0.0021}$	$D_{1420}$	$844^{+42}_{-46}$	$H(0.51)$	$91.4^{+3.4}_{-2.9}$
$\tau$	$0.056^{+0.018}_{-0.013}$	$D_{2000}$	$241^{+16}_{-17}$	$D_{\mathrm{M}}(0.51)$	$1928^{+100}_{-100}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.057^{+0.044}_{-0.039}$	$n_{\mathrm{s},0.002}$	$0.981^{+0.032}_{-0.033}$	$H(0.61)$	$96.8^{+3.1}_{-2.6}$
$n_{\mathrm{s}}$	$0.981^{+0.032}_{-0.033}$	$Y_{\mathrm{P}}$	$0.2461^{+0.0010}_{-0.0010}$	$D_{\mathrm{M}}(0.61)$	$2247^{+110}_{-110}$
$y_{\mathrm{cal}}$	$0.9999^{+0.0067}_{-0.0065}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2474^{+0.0010}_{-0.0010}$	$H(2.33)$	$235.0^{+3.2}_{-3.0}$
$H_0$	$70.2^{+5.1}_{-4.9}$	$10^5D/H$	$2.31^{+0.43}_{-0.38}$	$D_{\mathrm{M}}(2.33)$	$5692^{+130}_{-140}$
$\Omega_{\Lambda}$	$0.715^{+0.047}_{-0.056}$	Age/Gyr	$13.64^{+0.29}_{-0.32}$	$f\sigma_8(0.15)$	$0.431^{+0.046}_{-0.047}$
$\Omega_{\mathrm{m}}$	$0.285^{+0.056}_{-0.047}$	$z_*$	$1087.6^{+3.5}_{-3.2}$	$\sigma_8(0.15)$	$0.738^{+0.019}_{-0.022}$
$\Omega_{\mathrm{m}}h^2$	$0.1399^{+0.0057}_{-0.0054}$	$r_*$	$144.4^{+1.0}_{-0.96}$	$f\sigma_8(0.38)$	$0.455^{+0.035}_{-0.039}$
$\Omega_{\mathrm{m}}h^3$	$0.0981^{+0.0042}_{-0.0037}$	$100\theta_*$	$1.0400^{+0.0020}_{-0.0021}$	$\sigma_8(0.38)$	$0.657^{+0.015}_{-0.015}$
$\sigma_8$	$0.796^{+0.024}_{-0.028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.88^{+0.10}_{-0.098}$	$f\sigma_8(0.51)$	$0.457^{+0.029}_{-0.033}$
$S_8$	$0.776^{+0.092}_{-0.090}$	$z_{\mathrm{drag}}$	$1063.3^{+5.3}_{-5.1}$	$\sigma_8(0.51)$	$0.616^{+0.014}_{-0.013}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.425^{+0.050}_{-0.049}$	$r_{\mathrm{drag}}$	$146.5^{+1.3}_{-1.4}$	$f\sigma_8(0.61)$	$0.454^{+0.025}_{-0.029}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.581^{+0.042}_{-0.044}$	$k_{\mathrm{D}}$	$0.1426^{+0.0028}_{-0.0028}$	$\sigma_8(0.61)$	$0.587^{+0.013}_{-0.012}$
$\sigma_8/h^{0.5}$	$0.951^{+0.059}_{-0.065}$	$100\theta_{\mathrm{D}}$	$0.1587^{+0.0029}_{-0.0025}$	$f\sigma_8(2.33)$	$0.2972^{+0.0064}_{-0.0057}$
$r_{\mathrm{drag}}h$	$102.8^{+7.1}_{-6.8}$	$z_{\mathrm{eq}}$	$3328^{+140}_{-130}$	$\sigma_8(2.33)$	$0.3078^{+0.0073}_{-0.0074}$
$\langle d^2 \rangle^{1/2}$	$2.37^{+0.12}_{-0.12}$	$k_{\mathrm{eq}}$	$0.01016^{+0.00042}_{-0.00040}$	$\chi_{\mathrm{lensing}}^2$	$9.2 (\nu: 0.6)$
$z_{\mathrm{re}}$	$< 8.92$	$100\theta_{\mathrm{eq}}$	$0.831^{+0.031}_{-0.031}$	$\chi_{\mathrm{simall}}^2$	$396.3 (\nu: 0.6)$
$10^9A_{\mathrm{s}}$	$2.126^{+0.095}_{-0.082}$	$100\theta_{\mathrm{s,eq}}$	$0.457^{+0.014}_{-0.014}$	$\chi_{\mathrm{plikEE}}^2$	$742.9 (\nu: 3.5)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.901^{+0.047}_{-0.047}$	$H(0.15)$	$75.2^{+4.7}_{-4.3}$	$\chi_{\mathrm{prior}}^2$	$1.0 (\nu: 1.1)$
$D_{40}$	$1229^{+69}_{-71}$	$D_{\mathrm{M}}(0.15)$	$620^{+42}_{-40}$	$\chi_{\mathrm{CMB}}^2$	$1148.3 (\nu: 5.3)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1149.40; R - 1 = 0.00683$$



## 2.53 base\_CamSpecHM\_TE\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02247	$0.02248^{+0.00065}_{-0.00065}$	$D_{220}$	5733	$5734^{+150}_{-150}$	$H(0.38)$	83.45	$83.5^{+1.4}_{-1.3}$
$\Omega_c h^2$	0.11787	$0.1179^{+0.0042}_{-0.0042}$	$D_{810}$	2557	$2557^{+54}_{-57}$	$D_M(0.38)$	1517.4	$1517^{+34}_{-35}$
$100\theta_{MC}$	1.04129	$1.0413^{+0.0012}_{-0.0013}$	$D_{1420}$	827.6	$827^{+28}_{-29}$	$H(0.51)$	90.07	$90.1^{+1.1}_{-1.0}$
$\tau$	0.0528	$0.053^{+0.020}_{-0.021}$	$D_{2000}$	234.4	$234^{+10}_{-10}$	$D_M(0.51)$	1967.1	$1967^{+40}_{-41}$
$\ln(10^{10} A_s)$	3.0418	$3.041^{+0.039}_{-0.041}$	$n_{s,0.002}$	0.9770	$0.977^{+0.029}_{-0.029}$	$H(0.61)$	95.62	$95.63^{+0.93}_{-0.85}$
$n_s$	0.9770	$0.977^{+0.029}_{-0.029}$	$Y_P$	0.245433	$0.24543^{+0.00028}_{-0.00028}$	$D_M(0.61)$	2290.2	$2290^{+43}_{-44}$
$y_{cal}$	1.0002	$1.0001^{+0.0068}_{-0.0065}$	$Y_P^{BBN}$	0.246759	$0.24676^{+0.00028}_{-0.00028}$	$H(2.33)$	235.28	$235.3^{+2.6}_{-2.5}$
$H_0$	68.31	$68.3^{+2.1}_{-2.0}$	$10^5 D/H$	2.568	$2.57^{+0.12}_{-0.12}$	$D_M(2.33)$	5749.6	$5749^{+41}_{-43}$
$\Omega_\Lambda$	0.6979	$0.698^{+0.025}_{-0.026}$	Age/Gyr	13.767	$13.766^{+0.094}_{-0.096}$	$f\sigma_8(0.15)$	0.4486	$0.448^{+0.022}_{-0.022}$
$\Omega_m$	0.3021	$0.302^{+0.026}_{-0.025}$	$z_*$	1089.61	$1089.6^{+1.0}_{-1.0}$	$\sigma_8(0.15)$	0.7463	$0.746^{+0.016}_{-0.017}$
$\Omega_m h^2$	0.14098	$0.1410^{+0.0039}_{-0.0039}$	$r_*$	144.91	$144.91^{+0.97}_{-0.98}$	$f\sigma_8(0.38)$	0.4690	$0.469^{+0.017}_{-0.017}$
$\Omega_m h^3$	0.09631	$0.0963^{+0.0013}_{-0.0013}$	$100\theta_*$	1.04147	$1.0415^{+0.0012}_{-0.0013}$	$\sigma_8(0.38)$	0.6625	$0.662^{+0.014}_{-0.015}$
$\sigma_8$	0.8066	$0.806^{+0.018}_{-0.018}$	$D_M(z_*)/\text{Gpc}$	13.914	$13.914^{+0.092}_{-0.095}$	$f\sigma_8(0.51)$	0.4687	$0.468^{+0.015}_{-0.015}$
$S_8$	0.8094	$0.809^{+0.043}_{-0.043}$	$z_{drag}$	1060.01	$1060.0^{+1.4}_{-1.4}$	$\sigma_8(0.51)$	0.6205	$0.620^{+0.013}_{-0.014}$
$\sigma_8 \Omega_m^{0.5}$	0.4433	$0.443^{+0.024}_{-0.023}$	$r_{drag}$	147.55	$147.5^{+1.0}_{-1.0}$	$f\sigma_8(0.61)$	0.4645	$0.464^{+0.013}_{-0.013}$
$\sigma_8 \Omega_m^{0.25}$	0.5980	$0.598^{+0.021}_{-0.021}$	$k_D$	0.14046	$0.1405^{+0.0013}_{-0.0013}$	$\sigma_8(0.61)$	0.5906	$0.590^{+0.013}_{-0.014}$
$\sigma_8/h^{0.5}$	0.9759	$0.975^{+0.029}_{-0.029}$	$100\theta_D$	0.16075	$0.16075^{+0.00084}_{-0.00080}$	$f\sigma_8(2.33)$	0.2982	$0.2981^{+0.0069}_{-0.0073}$
$r_{drag} h$	100.80	$100.8^{+3.5}_{-3.3}$	$z_{eq}$	3354	$3354^{+94}_{-93}$	$\sigma_8(2.33)$	0.3078	$0.3077^{+0.0078}_{-0.0080}$
$\langle d^2 \rangle^{1/2}$	2.396	$2.396^{+0.086}_{-0.085}$	$k_{eq}$	0.010235	$0.01024^{+0.00029}_{-0.00028}$	$\chi^2_{lensing}$	8.95	9.7 ( $\nu: 0.8$ )
$z_{re}$	7.48	$7.4^{+1.9}_{-2.2}$	$100\theta_{eq}$	0.8227	$0.823^{+0.019}_{-0.018}$	$\chi^2_{small}$	395.77	396.7 ( $\nu: 0.9$ )
$10^9 A_s$	2.094	$2.093^{+0.084}_{-0.085}$	$100\theta_{s,eq}$	0.4542	$0.4542^{+0.0095}_{-0.0090}$	$\chi^2_{CamSpec}$	2576.3	2580.7 ( $\nu: 4.3$ )
$10^9 A_s e^{-2\tau}$	1.8842	$1.884^{+0.036}_{-0.035}$	$H(0.15)$	73.50	$73.5^{+1.8}_{-1.7}$	$\chi^2_{prior}$	10.04	11.0 ( $\nu: 1.1$ )
$D_{40}$	1208	$1208^{+67}_{-65}$	$D_M(0.15)$	635.3	$635^{+17}_{-17}$	$\chi^2_{CMB}$	2981.0	2987.1 ( $\nu: 5.9$ )

Best-fit  $\chi^2_{eff} = 2991.07$ ;  $\bar{\chi}^2_{eff} = 2998.15$ ;  $R - 1 = 0.00781$

$\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.95 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.77 CamSpec like\_10.7HM\_1400\_unified: 2576.31



## 2.54 base\_CamSpecHM\_TE\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02248^{+0.00065}_{-0.00065}$	$D_{220}$	$5732^{+150}_{-150}$	$H(0.38)$	$83.5^{+1.4}_{-1.3}$
$\Omega_{\mathrm{c}}h^2$	$0.1177^{+0.0042}_{-0.0041}$	$D_{810}$	$2556^{+53}_{-57}$	$D_{\mathrm{M}}(0.38)$	$1516^{+34}_{-34}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0013}_{-0.0013}$	$D_{1420}$	$827^{+27}_{-28}$	$H(0.51)$	$90.1^{+1.1}_{-1.0}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$D_{2000}$	$234^{+10}_{-10}$	$D_{\mathrm{M}}(0.51)$	$1966^{+40}_{-41}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.037}_{-0.029}$	$n_{\mathrm{s},0.002}$	$0.977^{+0.028}_{-0.029}$	$H(0.61)$	$95.65^{+0.93}_{-0.85}$
$n_{\mathrm{s}}$	$0.977^{+0.028}_{-0.029}$	$Y_{\mathrm{P}}$	$0.24544^{+0.00028}_{-0.00028}$	$D_{\mathrm{M}}(0.61)$	$2289^{+43}_{-44}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0068}_{-0.0065}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24676^{+0.00028}_{-0.00028}$	$H(2.33)$	$235.2^{+2.5}_{-2.4}$
$H_0$	$68.4^{+2.0}_{-1.9}$	$10^5D/\mathrm{H}$	$2.57^{+0.12}_{-0.12}$	$D_{\mathrm{M}}(2.33)$	$5748^{+41}_{-43}$
$\Omega_{\Lambda}$	$0.699^{+0.025}_{-0.026}$	Age/Gyr	$13.765^{+0.093}_{-0.096}$	$f\sigma_8(0.15)$	$0.448^{+0.022}_{-0.022}$
$\Omega_{\mathrm{m}}$	$0.301^{+0.026}_{-0.025}$	$z_*$	$1089.6^{+1.0}_{-1.0}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.015}$
$\Omega_{\mathrm{m}}h^2$	$0.1409^{+0.0039}_{-0.0038}$	$r_*$	$144.93^{+0.96}_{-0.97}$	$f\sigma_8(0.38)$	$0.469^{+0.017}_{-0.017}$
$\Omega_{\mathrm{m}}h^3$	$0.0963^{+0.0013}_{-0.0013}$	$100\theta_*$	$1.0415^{+0.0012}_{-0.0013}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.012}$
$\sigma_8$	$0.807^{+0.017}_{-0.017}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.916^{+0.091}_{-0.092}$	$f\sigma_8(0.51)$	$0.469^{+0.015}_{-0.015}$
$S_8$	$0.809^{+0.043}_{-0.043}$	$z_{\mathrm{drag}}$	$1060.0^{+1.4}_{-1.4}$	$\sigma_8(0.51)$	$0.621^{+0.013}_{-0.011}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.443^{+0.024}_{-0.023}$	$r_{\mathrm{drag}}$	$147.6^{+1.0}_{-1.0}$	$f\sigma_8(0.61)$	$0.465^{+0.013}_{-0.014}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.598^{+0.021}_{-0.021}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0013}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.011}$
$\sigma_8/h^{0.5}$	$0.976^{+0.029}_{-0.029}$	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00084}_{-0.00080}$	$f\sigma_8(2.33)$	$0.2985^{+0.0065}_{-0.0055}$
$r_{\mathrm{drag}}h$	$100.9^{+3.5}_{-3.3}$	$z_{\mathrm{eq}}$	$3351^{+94}_{-91}$	$\sigma_8(2.33)$	$0.3082^{+0.0075}_{-0.0061}$
$\langle d^2 \rangle^{1/2}$	$2.397^{+0.087}_{-0.085}$	$k_{\mathrm{eq}}$	$0.01023^{+0.00029}_{-0.00028}$	$\chi_{\mathrm{lensing}}^2$	$9.7 (\nu: 0.8)$
$z_{\mathrm{re}}$	$< 9.22$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.018}_{-0.018}$	$\chi_{\mathrm{simall}}^2$	$396.6 (\nu: 0.8)$
$10^9A_{\mathrm{s}}$	$2.100^{+0.080}_{-0.060}$	$100\theta_{\mathrm{s,eq}}$	$0.4545^{+0.0093}_{-0.0091}$	$\chi_{\mathrm{CamSpec}}^2$	$2580.6 (\nu: 4.2)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.883^{+0.035}_{-0.034}$	$H(0.15)$	$73.6^{+1.8}_{-1.7}$	$\chi_{\mathrm{prior}}^2$	$11.0 (\nu: 1.1)$
$D_{40}$	$1207^{+67}_{-65}$	$D_{\mathrm{M}}(0.15)$	$635^{+17}_{-17}$	$\chi_{\mathrm{CMB}}^2$	$2986.8 (\nu: 5.5)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2997.86; R - 1 = 0.00847$$



## 2.55 base\_CamSpecHM\_EE\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02359	$0.0236^{+0.0025}_{-0.0023}$	$D_{220}$	5980	$5980^{+420}_{-400}$	$H(0.38)$	84.21	$84.2^{+3.6}_{-3.3}$
$\Omega_c h^2$	0.1160	$0.1162^{+0.0085}_{-0.0075}$	$D_{810}$	2590	$2591^{+87}_{-87}$	$D_M(0.38)$	1499	$1501^{+86}_{-81}$
$100\theta_{MC}$	1.03953	$1.0395^{+0.0022}_{-0.0021}$	$D_{1420}$	839.4	$839^{+43}_{-44}$	$H(0.51)$	90.74	$90.7^{+3.2}_{-2.8}$
$\tau$	0.0500	$0.049^{+0.022}_{-0.030}$	$D_{2000}$	238.9	$239^{+16}_{-17}$	$D_M(0.51)$	1945	$1947^{+100}_{-98}$
$\ln(10^{10} A_s)$	3.049	$3.047^{+0.048}_{-0.055}$	$n_{s,0.002}$	0.9718	$0.972^{+0.032}_{-0.033}$	$H(0.61)$	96.22	$96.2^{+2.9}_{-2.5}$
$n_s$	0.9718	$0.972^{+0.032}_{-0.033}$	$Y_P$	0.24590	$0.24588^{+0.00097}_{-0.00097}$	$D_M(0.61)$	2266	$2268^{+110}_{-110}$
$y_{cal}$	0.9998	$0.9999^{+0.0063}_{-0.0062}$	$Y_P^{BBN}$	0.24723	$0.24721^{+0.00097}_{-0.00097}$	$H(2.33)$	235.02	$235.1^{+3.6}_{-3.0}$
$H_0$	69.33	$69.3^{+4.8}_{-4.9}$	$10^5 D/H$	2.373	$2.38^{+0.42}_{-0.37}$	$D_M(2.33)$	5719	$5719^{+120}_{-140}$
$\Omega_\Lambda$	0.708	$0.707^{+0.047}_{-0.060}$	Age/Gyr	13.698	$13.70^{+0.28}_{-0.31}$	$f\sigma_8(0.15)$	0.4353	$0.436^{+0.048}_{-0.045}$
$\Omega_m$	0.292	$0.293^{+0.060}_{-0.047}$	$z_*$	1088.12	$1088.2^{+3.5}_{-3.1}$	$\sigma_8(0.15)$	0.7364	$0.736^{+0.020}_{-0.023}$
$\Omega_m h^2$	0.1402	$0.1404^{+0.0065}_{-0.0055}$	$r_*$	144.53	$144.5^{+1.0}_{-1.1}$	$f\sigma_8(0.38)$	0.4576	$0.458^{+0.036}_{-0.036}$
$\Omega_m h^3$	0.09723	$0.0973^{+0.0040}_{-0.0035}$	$100\theta_*$	1.03959	$1.0396^{+0.0021}_{-0.0021}$	$\sigma_8(0.38)$	0.6549	$0.654^{+0.015}_{-0.018}$
$\sigma_8$	0.7948	$0.794^{+0.025}_{-0.028}$	$D_M(z_*)/\text{Gpc}$	13.903	$13.90^{+0.11}_{-0.11}$	$f\sigma_8(0.51)$	0.4585	$0.458^{+0.029}_{-0.030}$
$S_8$	0.784	$0.785^{+0.097}_{-0.086}$	$z_{drag}$	1062.45	$1062.4^{+5.1}_{-4.8}$	$\sigma_8(0.51)$	0.6138	$0.613^{+0.014}_{-0.016}$
$\sigma_8 \Omega_m^{0.5}$	0.429	$0.430^{+0.053}_{-0.047}$	$r_{drag}$	146.80	$146.8^{+1.3}_{-1.4}$	$f\sigma_8(0.61)$	0.4552	$0.455^{+0.024}_{-0.027}$
$\sigma_8 \Omega_m^{0.25}$	0.5841	$0.584^{+0.043}_{-0.042}$	$k_D$	0.14204	$0.1420^{+0.0028}_{-0.0027}$	$\sigma_8(0.61)$	0.5846	$0.584^{+0.013}_{-0.015}$
$\sigma_8/h^{0.5}$	0.955	$0.954^{+0.060}_{-0.061}$	$100\theta_D$	0.15909	$0.1591^{+0.0028}_{-0.0025}$	$f\sigma_8(2.33)$	0.2956	$0.2952^{+0.0072}_{-0.0080}$
$r_{drag} h$	101.8	$101.7^{+6.8}_{-7.0}$	$z_{eq}$	3336	$3340^{+150}_{-130}$	$\sigma_8(2.33)$	0.3056	$0.3052^{+0.0085}_{-0.0092}$
$\langle d^2 \rangle^{1/2}$	2.393	$2.39^{+0.12}_{-0.12}$	$k_{eq}$	0.010182	$0.01019^{+0.00047}_{-0.00040}$	$\chi^2_{lensing}$	8.34	$9.4 (\nu: 1.0)$
$z_{re}$	6.93	$6.8^{+2.0}_{-3.3}$	$100\theta_{eq}$	0.8277	$0.827^{+0.031}_{-0.033}$	$\chi^2_{small}$	395.6	$396.8 (\nu: 1.4)$
$10^9 A_s$	2.109	$2.11^{+0.10}_{-0.11}$	$100\theta_{s,eq}$	0.4559	$0.456^{+0.014}_{-0.016}$	$\chi^2_{CamSpec}$	1887.5	$1891.5 (\nu: 4.2)$
$10^9 A_s e^{-2\tau}$	1.9083	$1.910^{+0.049}_{-0.045}$	$H(0.15)$	74.41	$74.4^{+4.4}_{-4.3}$	$\chi^2_{prior}$	10.04	$11.0 (\nu: 0.9)$
$D_{40}$	1249	$1249^{+74}_{-69}$	$D_M(0.15)$	626.7	$627^{+42}_{-38}$	$\chi^2_{CMB}$	2291.5	$2297.7 (\nu: 6.4)$

Best-fit  $\chi^2_{eff} = 2301.54$ ;  $\bar{\chi}^2_{eff} = 2308.71$ ;  $R - 1 = 0.00642$

$\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.34 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.63 CamSpec like\_10.7HM\_1400\_unified: 1887.54



## 2.56 base\_CamSpecHM\_EE\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.0236^{+0.0025}_{-0.0022}$	$D_{220}$	$5975^{+420}_{-390}$	$H(0.38)$	$84.3^{+3.7}_{-3.3}$
$\Omega_{\text{c}}h^2$	$0.1158^{+0.0079}_{-0.0075}$	$D_{810}$	$2589^{+87}_{-87}$	$D_{\text{M}}(0.38)$	$1498^{+84}_{-83}$
$100\theta_{\text{MC}}$	$1.0396^{+0.0022}_{-0.0021}$	$D_{1420}$	$839^{+43}_{-42}$	$H(0.51)$	$90.8^{+3.2}_{-2.8}$
$\tau$	$0.053^{+0.017}_{-0.011}$	$D_{2000}$	$239^{+16}_{-16}$	$D_{\text{M}}(0.51)$	$1944^{+100}_{-100}$
$\ln(10^{10}A_{\text{s}})$	$3.055^{+0.042}_{-0.036}$	$n_{\text{s},0.002}$	$0.973^{+0.032}_{-0.031}$	$H(0.61)$	$96.3^{+2.9}_{-2.4}$
$n_{\text{s}}$	$0.973^{+0.032}_{-0.031}$	$Y_{\text{P}}$	$0.24588^{+0.00097}_{-0.00094}$	$D_{\text{M}}(0.61)$	$2265^{+110}_{-110}$
$y_{\text{cal}}$	$0.9998^{+0.0063}_{-0.0063}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24721^{+0.00097}_{-0.00095}$	$H(2.33)$	$234.9^{+3.3}_{-2.9}$
$H_0$	$69.4^{+5.0}_{-4.7}$	$10^5 D/H$	$2.38^{+0.41}_{-0.38}$	$D_{\text{M}}(2.33)$	$5718^{+120}_{-140}$
$\Omega_{\Lambda}$	$0.709^{+0.048}_{-0.057}$	Age/Gyr	$13.70^{+0.27}_{-0.31}$	$f\sigma_8(0.15)$	$0.436^{+0.047}_{-0.045}$
$\Omega_{\text{m}}$	$0.291^{+0.057}_{-0.048}$	$z_*$	$1088.1^{+3.4}_{-3.1}$	$\sigma_8(0.15)$	$0.738^{+0.019}_{-0.021}$
$\Omega_{\text{m}}h^2$	$0.1400^{+0.0059}_{-0.0054}$	$r_*$	$144.58^{+0.99}_{-0.98}$	$f\sigma_8(0.38)$	$0.458^{+0.035}_{-0.037}$
$\Omega_{\text{m}}h^3$	$0.0972^{+0.0041}_{-0.0034}$	$100\theta_*$	$1.0396^{+0.0021}_{-0.0021}$	$\sigma_8(0.38)$	$0.656^{+0.014}_{-0.015}$
$\sigma_8$	$0.796^{+0.024}_{-0.027}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.91^{+0.10}_{-0.10}$	$f\sigma_8(0.51)$	$0.459^{+0.028}_{-0.031}$
$S_8$	$0.785^{+0.093}_{-0.087}$	$z_{\text{drag}}$	$1062.4^{+5.1}_{-4.7}$	$\sigma_8(0.51)$	$0.615^{+0.012}_{-0.012}$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.430^{+0.051}_{-0.048}$	$r_{\text{drag}}$	$146.9^{+1.3}_{-1.4}$	$f\sigma_8(0.61)$	$0.456^{+0.024}_{-0.027}$
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.585^{+0.042}_{-0.042}$	$k_{\text{D}}$	$0.1419^{+0.0028}_{-0.0027}$	$\sigma_8(0.61)$	$0.586^{+0.012}_{-0.011}$
$\sigma_8/h^{0.5}$	$0.956^{+0.059}_{-0.061}$	$100\theta_{\text{D}}$	$0.1592^{+0.0028}_{-0.0026}$	$f\sigma_8(2.33)$	$0.2964^{+0.0062}_{-0.0056}$
$r_{\text{drag}}h$	$102.0^{+6.8}_{-6.8}$	$z_{\text{eq}}$	$3331^{+140}_{-130}$	$\sigma_8(2.33)$	$0.3065^{+0.0075}_{-0.0068}$
$\langle d^2 \rangle^{1/2}$	$2.40^{+0.11}_{-0.12}$	$k_{\text{eq}}$	$0.01017^{+0.00043}_{-0.00039}$	$\chi^2_{\text{lensing}}$	$9.4 (\nu: 1.1)$
$z_{\text{re}}$	$< 8.76$	$100\theta_{\text{eq}}$	$0.829^{+0.031}_{-0.031}$	$\chi^2_{\text{simall}}$	$396.18 (\nu: 0.4)$
$10^9 A_{\text{s}}$	$2.122^{+0.092}_{-0.075}$	$100\theta_{\text{s,eq}}$	$0.456^{+0.014}_{-0.015}$	$\chi^2_{\text{CamSpec}}$	$1891.6 (\nu: 4.2)$
$10^9 A_{\text{s}}e^{-2\tau}$	$1.907^{+0.046}_{-0.044}$	$H(0.15)$	$74.5^{+4.5}_{-4.2}$	$\chi^2_{\text{prior}}$	$11.0 (\nu: 0.9)$
$D_{40}$	$1247^{+70}_{-68}$	$D_{\text{M}}(0.15)$	$626^{+41}_{-39}$	$\chi^2_{\text{CMB}}$	$2297.2 (\nu: 5.5)$

$$\bar{\chi}^2_{\text{eff}} = 2308.23; R - 1 = 0.00344$$



## 2.57 base\_plikHM\_TE\_lowE\_lensing\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02245	$0.02245^{+0.00053}_{-0.00053}$	$z_{\text{re}}$	7.56	$7.7^{+2.0}_{-2.0}$	$H(0.38)$	83.21	$83.22^{+0.87}_{-0.86}$
$\Omega_c h^2$	0.11900	$0.1190^{+0.0029}_{-0.0029}$	$10^9 A_s$	2.082	$2.086^{+0.087}_{-0.076}$	$D_M(0.38)$	1524.3	$1524^{+22}_{-22}$
$100\theta_{\text{MC}}$	1.04127	$1.0413^{+0.0013}_{-0.0012}$	$10^9 A_s e^{-2\tau}$	1.8709	$1.870^{+0.034}_{-0.034}$	$H(0.51)$	89.90	$89.91^{+0.73}_{-0.72}$
$\tau$	0.0535	$0.055^{+0.020}_{-0.019}$	$D_{40}$	1223	$1224^{+61}_{-59}$	$D_M(0.51)$	1975.1	$1975^{+26}_{-26}$
$\ln(10^{10} A_s)$	3.0359	$3.038^{+0.041}_{-0.037}$	$D_{220}$	5720	$5720^{+140}_{-140}$	$H(0.61)$	95.50	$95.51^{+0.63}_{-0.64}$
$n_s$	0.9664	$0.966^{+0.024}_{-0.025}$	$D_{810}$	2528	$2527^{+53}_{-53}$	$D_M(0.61)$	2298.7	$2298^{+29}_{-29}$
$y_{\text{cal}}$	1.0007	$1.0005^{+0.0063}_{-0.0064}$	$D_{1420}$	814.0	$814^{+26}_{-25}$	$H(2.33)$	236.01	$236.0^{+1.9}_{-1.8}$
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.099}_{-0.096}$	$D_{2000}$	229.9	$229.8^{+9.3}_{-9.1}$	$D_M(2.33)$	5753.4	$5753^{+32}_{-31}$
$A_{100 \times 143}^{\text{dustTE}}$	0.137	$0.136^{+0.077}_{-0.076}$	$n_{s,0.002}$	0.9664	$0.966^{+0.024}_{-0.025}$	$f\sigma_8(0.15)$	0.4517	$0.452^{+0.016}_{-0.016}$
$A_{100 \times 217}^{\text{dustTE}}$	0.477	$0.48^{+0.22}_{-0.22}$	$Y_P$	0.245426	$0.24543^{+0.00022}_{-0.00022}$	$\sigma_8(0.15)$	0.7440	$0.745^{+0.017}_{-0.016}$
$A_{143}^{\text{dustTE}}$	0.226	$0.22^{+0.14}_{-0.14}$	$Y_P^{\text{BBN}}$	0.246753	$0.24675^{+0.00022}_{-0.00022}$	$f\sigma_8(0.38)$	0.4706	$0.471^{+0.014}_{-0.013}$
$A_{143 \times 217}^{\text{dustTE}}$	0.661	$0.66^{+0.21}_{-0.20}$	$10^5 D/H$	2.571	$2.57^{+0.10}_{-0.096}$	$\sigma_8(0.38)$	0.6599	$0.660^{+0.015}_{-0.014}$
$A_{217}^{\text{dustTE}}$	2.06	$2.06^{+0.68}_{-0.70}$	Age/Gyr	13.775	$13.774^{+0.074}_{-0.072}$	$f\sigma_8(0.51)$	0.4696	$0.470^{+0.012}_{-0.012}$
$c_{100}$	1.00018	$1.0002^{+0.0018}_{-0.0018}$	$z_*$	1089.73	$1089.73^{+0.79}_{-0.76}$	$\sigma_8(0.51)$	0.6177	$0.618^{+0.014}_{-0.013}$
$c_{217}$	0.99800	$0.9980^{+0.0017}_{-0.0017}$	$r_*$	144.63	$144.63^{+0.75}_{-0.76}$	$f\sigma_8(0.61)$	0.4649	$0.465^{+0.012}_{-0.011}$
$H_0$	67.89	$67.9^{+1.3}_{-1.3}$	$100\theta_*$	1.04144	$1.0415^{+0.0013}_{-0.0012}$	$\sigma_8(0.61)$	0.5878	$0.588^{+0.013}_{-0.012}$
$\Omega_\Lambda$	0.6917	$0.692^{+0.017}_{-0.017}$	$D_M(z_*)/\text{Gpc}$	13.887	$13.888^{+0.074}_{-0.075}$	$f\sigma_8(2.33)$	0.2965	$0.2968^{+0.0069}_{-0.0064}$
$\Omega_m$	0.3083	$0.308^{+0.017}_{-0.017}$	$z_{\text{drag}}$	1060.05	$1060.1^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	0.3058	$0.3061^{+0.0074}_{-0.0069}$
$\Omega_m h^2$	0.14209	$0.1421^{+0.0028}_{-0.0028}$	$r_{\text{drag}}$	147.27	$147.27^{+0.83}_{-0.85}$	$\chi^2_{\text{lensing}}$	9.99	$10.5 (\nu: 1.7)$
$\Omega_m h^3$	0.09646	$0.0965^{+0.0012}_{-0.0012}$	$k_D$	0.14074	$0.1407^{+0.0011}_{-0.0011}$	$\chi^2_{\text{small}}$	395.87	$396.9 (\nu: 1.4)$
$\sigma_8$	0.8049	$0.806^{+0.018}_{-0.017}$	$100\theta_D$	0.16073	$0.16073^{+0.00072}_{-0.00071}$	$\chi^2_{\text{plikTE}}$	854.0	$860.0 (\nu: 6.2)$
$S_8$	0.8159	$0.816^{+0.031}_{-0.031}$	$z_{\text{eq}}$	3380	$3380^{+67}_{-66}$	$\chi^2_{6\text{DF}}$	0.011	$0.041 (\nu: 0.0)$
$\sigma_8 \Omega_m^{0.5}$	0.4469	$0.447^{+0.017}_{-0.017}$	$k_{\text{eq}}$	0.010316	$0.01032^{+0.00020}_{-0.00020}$	$\chi^2_{\text{MGS}}$	1.41	$1.48 (\nu: 0.1)$
$\sigma_8 \Omega_m^{0.25}$	0.5997	$0.600^{+0.017}_{-0.017}$	$100\theta_{\text{eq}}$	0.8178	$0.818^{+0.013}_{-0.012}$	$\chi^2_{\text{DR12BAO}}$	3.93	$4.4 (\nu: 0.7)$
$\sigma_8/h^{0.5}$	0.9768	$0.978^{+0.025}_{-0.024}$	$100\theta_{s,\text{eq}}$	0.4517	$0.4517^{+0.0065}_{-0.0062}$	$\chi^2_{\text{prior}}$	0.8	$7.8 (\nu: 6.8)$
$r_{\text{drag}} h$	99.98	$100.0^{+2.2}_{-2.1}$	$H(0.15)$	73.14	$73.2^{+1.1}_{-1.1}$	$\chi^2_{\text{CMB}}$	1259.9	$1267.4 (\nu: 7.2)$
$\langle d^2 \rangle^{1/2}$	2.421	$2.423^{+0.074}_{-0.071}$	$D_M(0.15)$	638.8	$639^{+11}_{-11}$	$\chi^2_{\text{BAO}}$	5.34	$5.90 (\nu: 0.5)$

Best-fit  $\chi^2_{\text{eff}} = 1265.98$ ;  $\bar{\chi}^2_{\text{eff}} = 1281.13$ ;  $R - 1 = 0.00651$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.92 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8: 9.99 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 plik\_rd12\_HM\_v22\_TE: 854.02



## 2.58 base\_plikHM\_EE\_lowE\_lensing\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02276	$0.02275^{+0.00093}_{-0.00095}$	$D_{1420}$	826.3	$826^{+26}_{-25}$	$H(0.61)$	95.49	$95.48^{+0.92}_{-0.92}$
$\Omega_{\text{c}}h^2$	0.11823	$0.1183^{+0.0033}_{-0.0033}$	$D_{2000}$	234.3	$234.2^{+9.3}_{-9.1}$	$D_{\text{M}}(0.61)$	2297.3	$2298^{+38}_{-37}$
$100\theta_{\text{MC}}$	1.03995	$1.0400^{+0.0020}_{-0.0021}$	$n_{\text{s},0.002}$	0.9735	$0.973^{+0.025}_{-0.024}$	$H(2.33)$	235.69	$235.7^{+2.1}_{-2.1}$
$\tau$	0.0522	$0.052^{+0.020}_{-0.021}$	$Y_{\text{P}}$	0.245541	$0.24555^{+0.00039}_{-0.00041}$	$D_{\text{M}}(2.33)$	5755.0	$5755^{+49}_{-48}$
$\ln(10^{10}A_{\text{s}})$	3.0407	$3.040^{+0.038}_{-0.041}$	$Y_{\text{P}}^{\text{BBN}}$	0.246868	$0.24687^{+0.00039}_{-0.00041}$	$f\sigma_8(0.15)$	0.4500	$0.450^{+0.019}_{-0.019}$
$n_{\text{s}}$	0.9735	$0.973^{+0.025}_{-0.024}$	$10^5D/H$	2.516	$2.52^{+0.18}_{-0.16}$	$\sigma_8(0.15)$	0.7433	$0.743^{+0.017}_{-0.018}$
$y_{\text{cal}}$	1.0000	$1.0000^{+0.0065}_{-0.0064}$	Age/Gyr	13.779	$13.78^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	0.4693	$0.469^{+0.016}_{-0.016}$
$H_0$	67.98	$68.0^{+1.6}_{-1.6}$	$z_*$	1089.28	$1089.3^{+1.3}_{-1.2}$	$\sigma_8(0.38)$	0.6594	$0.659^{+0.015}_{-0.016}$
$\Omega_{\Lambda}$	0.6935	$0.693^{+0.019}_{-0.020}$	$r_*$	144.59	$144.59^{+0.89}_{-0.88}$	$f\sigma_8(0.51)$	0.4685	$0.468^{+0.014}_{-0.015}$
$\Omega_{\text{m}}$	0.3065	$0.307^{+0.020}_{-0.019}$	$100\theta_*$	1.04010	$1.0401^{+0.0020}_{-0.0021}$	$\sigma_8(0.51)$	0.6173	$0.617^{+0.014}_{-0.014}$
$\Omega_{\text{m}}h^2$	0.14163	$0.1417^{+0.0030}_{-0.0031}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.902	$13.902^{+0.094}_{-0.094}$	$f\sigma_8(0.61)$	0.4639	$0.464^{+0.013}_{-0.013}$
$\Omega_{\text{m}}h^3$	0.09628	$0.0963^{+0.0019}_{-0.0019}$	$z_{\text{drag}}$	1060.70	$1060.7^{+2.1}_{-2.1}$	$\sigma_8(0.61)$	0.5875	$0.587^{+0.013}_{-0.014}$
$\sigma_8$	0.8038	$0.804^{+0.019}_{-0.020}$	$r_{\text{drag}}$	147.13	$147.1^{+1.1}_{-1.1}$	$f\sigma_8(2.33)$	0.2964	$0.2963^{+0.0069}_{-0.0068}$
$S_8$	0.8125	$0.813^{+0.038}_{-0.037}$	$k_{\text{D}}$	0.14112	$0.1411^{+0.0017}_{-0.0017}$	$\sigma_8(2.33)$	0.3058	$0.3057^{+0.0073}_{-0.0071}$
$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4450	$0.445^{+0.021}_{-0.020}$	$100\theta_{\text{D}}$	0.16013	$0.1602^{+0.0013}_{-0.0012}$	$\chi^2_{\text{lensing}}$	8.54	9.3 ( $\nu$ : 0.5)
$\sigma_8\Omega_{\text{m}}^{0.25}$	0.5981	$0.598^{+0.020}_{-0.020}$	$z_{\text{eq}}$	3369	$3370^{+72}_{-74}$	$\chi^2_{\text{small}}$	395.71	396.7 ( $\nu$ : 0.9)
$\sigma_8/h^{0.5}$	0.9749	$0.975^{+0.029}_{-0.029}$	$k_{\text{eq}}$	0.010283	$0.01029^{+0.00022}_{-0.00022}$	$\chi^2_{\text{plikEE}}$	740.1	743.4 ( $\nu$ : 3.4)
$r_{\text{drag}}h$	100.02	$99.99^{+2.5}_{-2.4}$	$100\theta_{\text{eq}}$	0.8196	$0.819^{+0.014}_{-0.013}$	$\chi^2_{6\text{DF}}$	0.0099	0.048 ( $\nu$ : 0.0)
$\langle d^2 \rangle^{1/2}$	2.407	$2.407^{+0.078}_{-0.077}$	$100\theta_{\text{s,eq}}$	0.4523	$0.4523^{+0.0069}_{-0.0066}$	$\chi^2_{\text{MGS}}$	1.41	1.46 ( $\nu$ : 0.1)
$z_{\text{re}}$	7.35	$7.3^{+2.0}_{-2.4}$	$H(0.15)$	73.21	$73.2^{+1.4}_{-1.4}$	$\chi^2_{\text{DR12BAO}}$	4.10	4.7 ( $\nu$ : 1.1)
$10^9A_{\text{s}}$	2.092	$2.091^{+0.081}_{-0.084}$	$D_{\text{M}}(0.15)$	638.1	$638^{+14}_{-13}$	$\chi^2_{\text{prior}}$	1.3	2.7 ( $\nu$ : 2.6)
$10^9A_{\text{s}}e^{-2\tau}$	1.8847	$1.884^{+0.038}_{-0.038}$	$H(0.38)$	83.24	$83.2^{+1.2}_{-1.2}$	$\chi^2_{\text{CMB}}$	1144.4	1149.3 ( $\nu$ : 5.6)
$D_{40}$	1217	$1218^{+69}_{-66}$	$D_{\text{M}}(0.38)$	1523.0	$1523^{+29}_{-28}$	$\chi^2_{\text{BAO}}$	5.52	6.2 ( $\nu$ : 0.7)
$D_{220}$	5770	$5769^{+220}_{-220}$	$H(0.51)$	89.91	$89.9^{+1.0}_{-1.0}$			
$D_{810}$	2553	$2552^{+54}_{-55}$	$D_{\text{M}}(0.51)$	1973.7	$1974^{+35}_{-34}$			

Best-fit  $\chi^2_{\text{eff}} = 1151.17$ ;  $\bar{\chi}^2_{\text{eff}} = 1158.27$ ;  $R - 1 = 0.00909$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 4.10 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.54 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.71 plik\_rd12\_HM\_v22\_EE: 740.14



## 2.59 base\_CamSpecHM\_TE\_lowE\_lensing\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02242	$0.02240^{+0.00055}_{-0.00054}$	$D_{1420}$	825.5	$825^{+26}_{-26}$	$H(0.61)$	95.55	$95.54^{+0.62}_{-0.63}$
$\Omega_c h^2$	0.11819	$0.1182^{+0.0029}_{-0.0027}$	$D_{2000}$	233.6	$233.5^{+9.5}_{-9.2}$	$D_M(0.61)$	2293.6	$2294^{+29}_{-28}$
$100\theta_{MC}$	1.04130	$1.0413^{+0.0012}_{-0.0012}$	$n_{s,0.002}$	0.9746	$0.975^{+0.025}_{-0.025}$	$H(2.33)$	235.45	$235.4^{+1.8}_{-1.8}$
$\tau$	0.0520	$0.052^{+0.019}_{-0.020}$	$Y_P$	0.245414	$0.24541^{+0.00022}_{-0.00023}$	$D_M(2.33)$	5752.6	$5753^{+32}_{-31}$
$\ln(10^{10} A_s)$	3.0401	$3.041^{+0.038}_{-0.039}$	$Y_P^{BBN}$	0.246740	$0.24673^{+0.00022}_{-0.00024}$	$f\sigma_8(0.15)$	0.4499	$0.450^{+0.016}_{-0.016}$
$n_s$	0.9746	$0.975^{+0.025}_{-0.025}$	$10^5 D/H$	2.577	$2.58^{+0.10}_{-0.098}$	$\sigma_8(0.15)$	0.7460	$0.746^{+0.016}_{-0.016}$
$y_{cal}$	1.0002	$1.0001^{+0.0060}_{-0.0066}$	Age/Gyr	13.774	$13.776^{+0.074}_{-0.073}$	$f\sigma_8(0.38)$	0.4698	$0.470^{+0.013}_{-0.013}$
$H_0$	68.16	$68.1^{+1.3}_{-1.3}$	$z_*$	1089.70	$1089.72^{+0.79}_{-0.76}$	$\sigma_8(0.38)$	0.6621	$0.662^{+0.014}_{-0.014}$
$\Omega_\Lambda$	0.6959	$0.696^{+0.016}_{-0.017}$	$r_*$	144.86	$144.88^{+0.75}_{-0.74}$	$f\sigma_8(0.51)$	0.4693	$0.469^{+0.012}_{-0.012}$
$\Omega_m$	0.3041	$0.304^{+0.017}_{-0.016}$	$100\theta_*$	1.04148	$1.0415^{+0.0012}_{-0.0012}$	$\sigma_8(0.51)$	0.6199	$0.620^{+0.013}_{-0.013}$
$\Omega_m h^2$	0.14125	$0.1412^{+0.0028}_{-0.0026}$	$D_M(z_*)/\text{Gpc}$	13.910	$13.911^{+0.073}_{-0.075}$	$f\sigma_8(0.61)$	0.4649	$0.465^{+0.012}_{-0.011}$
$\Omega_m h^3$	0.09627	$0.0962^{+0.0013}_{-0.0012}$	$z_{drag}$	1059.89	$1059.9^{+1.2}_{-1.2}$	$\sigma_8(0.61)$	0.5901	$0.590^{+0.013}_{-0.013}$
$\sigma_8$	0.8065	$0.807^{+0.018}_{-0.017}$	$r_{drag}$	147.52	$147.54^{+0.84}_{-0.83}$	$f\sigma_8(2.33)$	0.2978	$0.2979^{+0.0065}_{-0.0066}$
$S_8$	0.8119	$0.812^{+0.031}_{-0.030}$	$k_D$	0.14045	$0.1404^{+0.0011}_{-0.0011}$	$\sigma_8(2.33)$	0.3074	$0.3075^{+0.0070}_{-0.0071}$
$\sigma_8 \Omega_m^{0.5}$	0.4447	$0.445^{+0.017}_{-0.017}$	$100\theta_D$	0.16081	$0.16083^{+0.00074}_{-0.00072}$	$\chi^2_{lensing}$	8.95	9.6 ( $\nu$ : 0.6)
$\sigma_8 \Omega_m^{0.25}$	0.5989	$0.599^{+0.017}_{-0.016}$	$z_{eq}$	3360	$3359^{+66}_{-63}$	$\chi^2_{small}$	395.71	396.7 ( $\nu$ : 0.8)
$\sigma_8/h^{0.5}$	0.9769	$0.977^{+0.025}_{-0.024}$	$k_{eq}$	0.010255	$0.01025^{+0.00020}_{-0.00019}$	$\chi^2_{CamSpec}$	2576.4	2580.2 ( $\nu$ : 3.6)
$r_{drag} h$	100.55	$100.5^{+2.2}_{-2.2}$	$100\theta_{eq}$	0.8213	$0.821^{+0.012}_{-0.012}$	$\chi^2_{6DF}$	0.000	0.030 ( $\nu$ : 0.0)
$\langle d^2 \rangle^{1/2}$	2.402	$2.403^{+0.074}_{-0.071}$	$100\theta_{s,eq}$	0.4535	$0.4536^{+0.0062}_{-0.0062}$	$\chi^2_{MGS}$	1.75	1.80 ( $\nu$ : 0.1)
$z_{re}$	7.41	$7.4^{+1.8}_{-2.2}$	$H(0.15)$	73.36	$73.3^{+1.1}_{-1.1}$	$\chi^2_{DR12BAO}$	3.44	3.91 ( $\nu$ : 0.3)
$10^9 A_s$	2.091	$2.092^{+0.081}_{-0.080}$	$D_M(0.15)$	636.6	$637^{+11}_{-11}$	$\chi^2_{prior}$	10.22	11.3 ( $\nu$ : 1.0)
$10^9 A_s e^{-2\tau}$	1.8842	$1.884^{+0.034}_{-0.034}$	$H(0.38)$	83.34	$83.33^{+0.85}_{-0.88}$	$\chi^2_{CMB}$	2981.1	2986.5 ( $\nu$ : 5.2)
$D_{40}$	1212	$1212^{+61}_{-60}$	$D_M(0.38)$	1520.0	$1520^{+23}_{-22}$	$\chi^2_{BAO}$	5.19	5.74 ( $\nu$ : 0.3)
$D_{220}$	5733	$5729^{+150}_{-150}$	$H(0.51)$	89.99	$89.98^{+0.71}_{-0.74}$			
$D_{810}$	2554	$2553^{+52}_{-53}$	$D_M(0.51)$	1970.3	$1971^{+27}_{-26}$			

Best-fit  $\chi^2_{eff} = 2996.49$ ;  $\bar{\chi}^2_{eff} = 3003.53$ ;  $R - 1 = 0.00799$

$\chi^2_{eff}$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.44 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.95 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.71 CamSpec like\_10.7HM\_1400\_unified: 2576.42



## 2.60 base\_CamSpecHM\_EE\_lowE\_lensing\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02269	$0.02268^{+0.00097}_{-0.00093}$	$D_{1420}$	825.9	$827^{+26}_{-25}$	$H(0.61)$	95.37	$95.36^{+0.95}_{-0.86}$
$\Omega_c h^2$	0.11790	$0.1179^{+0.0034}_{-0.0033}$	$D_{2000}$	233.6	$233.8^{+9.5}_{-9.2}$	$D_M(0.61)$	2300.1	$2301^{+36}_{-38}$
$100\theta_{MC}$	1.03957	$1.0395^{+0.0020}_{-0.0020}$	$n_{s,0.002}$	0.9678	$0.968^{+0.025}_{-0.025}$	$H(2.33)$	235.36	$235.4^{+2.1}_{-2.0}$
$\tau$	0.0499	$0.049^{+0.020}_{-0.024}$	$Y_P$	0.245511	$0.24552^{+0.00041}_{-0.00040}$	$D_M(2.33)$	5762.5	$5763^{+46}_{-50}$
$\ln(10^{10} A_s)$	3.0408	$3.040^{+0.039}_{-0.045}$	$Y_P^{BBN}$	0.246838	$0.24684^{+0.00041}_{-0.00041}$	$f\sigma_8(0.15)$	0.4482	$0.448^{+0.020}_{-0.019}$
$n_s$	0.9678	$0.968^{+0.025}_{-0.025}$	$10^5 D/H$	2.529	$2.53^{+0.17}_{-0.17}$	$\sigma_8(0.15)$	0.7407	$0.740^{+0.017}_{-0.019}$
$y_{cal}$	0.9997	$0.9999^{+0.0067}_{-0.0064}$	Age/Gyr	13.797	$13.80^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	0.4675	$0.468^{+0.016}_{-0.016}$
$H_0$	67.90	$67.9^{+1.6}_{-1.6}$	$z_*$	1089.35	$1089.4^{+1.3}_{-1.3}$	$\sigma_8(0.38)$	0.6571	$0.657^{+0.015}_{-0.016}$
$\Omega_\Lambda$	0.6937	$0.693^{+0.019}_{-0.020}$	$r_*$	144.73	$144.73^{+0.90}_{-0.92}$	$f\sigma_8(0.51)$	0.4668	$0.467^{+0.014}_{-0.015}$
$\Omega_m$	0.3063	$0.307^{+0.020}_{-0.019}$	$100\theta_*$	1.03972	$1.0397^{+0.0020}_{-0.0020}$	$\sigma_8(0.51)$	0.6152	$0.615^{+0.014}_{-0.015}$
$\Omega_m h^2$	0.14123	$0.1413^{+0.0032}_{-0.0030}$	$D_M(z_*)/\text{Gpc}$	13.920	$13.921^{+0.093}_{-0.096}$	$f\sigma_8(0.61)$	0.4622	$0.462^{+0.013}_{-0.014}$
$\Omega_m h^3$	0.09590	$0.0959^{+0.0020}_{-0.0018}$	$z_{drag}$	1060.51	$1060.5^{+2.1}_{-2.1}$	$\sigma_8(0.61)$	0.5855	$0.585^{+0.013}_{-0.014}$
$\sigma_8$	0.8010	$0.801^{+0.019}_{-0.021}$	$r_{drag}$	147.30	$147.3^{+1.1}_{-1.1}$	$f\sigma_8(2.33)$	0.2954	$0.2953^{+0.0067}_{-0.0073}$
$S_8$	0.8093	$0.810^{+0.038}_{-0.036}$	$k_D$	0.14089	$0.1409^{+0.0017}_{-0.0017}$	$\sigma_8(2.33)$	0.3048	$0.3047^{+0.0071}_{-0.0077}$
$\sigma_8 \Omega_m^{0.5}$	0.4433	$0.443^{+0.021}_{-0.020}$	$100\theta_D$	0.16019	$0.1602^{+0.0013}_{-0.0013}$	$\chi^2_{lensing}$	8.37	9.1 ( $\nu$ : 0.6)
$\sigma_8 \Omega_m^{0.25}$	0.5959	$0.596^{+0.020}_{-0.020}$	$z_{eq}$	3360	$3360^{+76}_{-72}$	$\chi^2_{small}$	395.66	396.7 ( $\nu$ : 1.0)
$\sigma_8/h^{0.5}$	0.9720	$0.972^{+0.029}_{-0.030}$	$k_{eq}$	0.010254	$0.01026^{+0.00023}_{-0.00022}$	$\chi^2_{CamSpec}$	1888.5	1891.7 ( $\nu$ : 4.0)
$r_{drag} h$	100.02	$99.98^{+2.5}_{-2.4}$	$100\theta_{eq}$	0.8208	$0.821^{+0.014}_{-0.014}$	$\chi^2_{6DF}$	0.0098	0.049 ( $\nu$ : 0.0)
$\langle d^2 \rangle^{1/2}$	2.416	$2.415^{+0.079}_{-0.077}$	$100\theta_{s,eq}$	0.4530	$0.4530^{+0.0069}_{-0.0070}$	$\chi^2_{MGS}$	1.41	1.46 ( $\nu$ : 0.1)
$z_{re}$	7.12	$7.0^{+2.0}_{-2.8}$	$H(0.15)$	73.12	$73.1^{+1.5}_{-1.4}$	$\chi^2_{DR12BAO}$	4.12	4.8 ( $\nu$ : 1.1)
$10^9 A_s$	2.092	$2.090^{+0.083}_{-0.091}$	$D_M(0.15)$	638.8	$639^{+14}_{-14}$	$\chi^2_{prior}$	11.0	12.5 ( $\nu$ : 2.4)
$10^9 A_s e^{-2\tau}$	1.8935	$1.895^{+0.040}_{-0.038}$	$H(0.38)$	83.14	$83.1^{+1.2}_{-1.1}$	$\chi^2_{CMB}$	2292.6	2297.5 ( $\nu$ : 5.7)
$D_{40}$	1237	$1237^{+69}_{-67}$	$D_M(0.38)$	1524.8	$1525^{+28}_{-29}$	$\chi^2_{BAO}$	5.53	6.3 ( $\nu$ : 0.7)
$D_{220}$	5829	$5829^{+220}_{-220}$	$H(0.51)$	89.79	$89.8^{+1.0}_{-0.94}$			
$D_{810}$	2561	$2563^{+58}_{-56}$	$D_M(0.51)$	1976.0	$1977^{+33}_{-34}$			

Best-fit  $\chi^2_{eff} = 2309.08$ ;  $\bar{\chi}^2_{eff} = 2316.30$ ;  $R - 1 = 0.00893$

$\chi^2_{eff}$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 4.12 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.37 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.66 CamSpec like\_10.7HM\_1400\_unified: 1888.53



## 2.61 base\_plikHM\_TE\_lowE\_lensing\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02241	$0.02242^{+0.00060}_{-0.00056}$	$\langle d^2 \rangle^{1/2}$	2.431	$2.432^{+0.082}_{-0.083}$	$H(0.15)$	72.91	$72.9^{+1.7}_{-1.5}$
$\Omega_c h^2$	0.11958	$0.1196^{+0.0040}_{-0.0041}$	$z_{\text{re}}$	7.53	$7.5^{+1.9}_{-2.3}$	$D_M(0.15)$	641.1	$641^{+16}_{-16}$
$100\theta_{\text{MC}}$	1.04117	$1.0412^{+0.0012}_{-0.0013}$	$10^9 A_s$	2.081	$2.082^{+0.082}_{-0.084}$	$H(0.38)$	83.04	$83.0^{+1.2}_{-1.1}$
$\tau$	0.0530	$0.053^{+0.021}_{-0.021}$	$10^9 A_s e^{-2\tau}$	1.8717	$1.871^{+0.034}_{-0.034}$	$D_M(0.38)$	1528.8	$1529^{+31}_{-32}$
$\ln(10^{10} A_s)$	3.0355	$3.036^{+0.039}_{-0.041}$	$D_{40}$	1227	$1227^{+66}_{-65}$	$H(0.51)$	89.77	$89.8^{+1.0}_{-0.91}$
$n_s$	0.9645	$0.964^{+0.028}_{-0.027}$	$D_{220}$	5716	$5715^{+150}_{-140}$	$D_M(0.51)$	1980.4	$1981^{+37}_{-38}$
$y_{\text{cal}}$	1.0005	$1.0004^{+0.0065}_{-0.0063}$	$D_{810}$	2525	$2524^{+54}_{-53}$	$H(0.61)$	95.40	$95.41^{+0.84}_{-0.76}$
$A_{100}^{\text{dustTE}}$	0.113	$0.114^{+0.099}_{-0.098}$	$D_{1420}$	812.5	$812^{+27}_{-27}$	$D_M(0.61)$	2304.4	$2305^{+39}_{-41}$
$A_{100 \times 143}^{\text{dustTE}}$	0.137	$0.137^{+0.077}_{-0.077}$	$D_{2000}$	229.4	$229^{+10}_{-9.6}$	$H(2.33)$	236.35	$236.4^{+2.4}_{-2.5}$
$A_{100 \times 217}^{\text{dustTE}}$	0.477	$0.48^{+0.22}_{-0.22}$	$n_{s,0.002}$	0.9645	$0.964^{+0.028}_{-0.027}$	$D_M(2.33)$	5757.6	$5757^{+37}_{-39}$
$A_{143}^{\text{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$Y_P$	0.245413	$0.24541^{+0.00025}_{-0.00024}$	$f\sigma_8(0.15)$	0.4547	$0.455^{+0.020}_{-0.021}$
$A_{143 \times 217}^{\text{dustTE}}$	0.662	$0.66^{+0.21}_{-0.21}$	$Y_P^{\text{BBN}}$	0.246740	$0.24674^{+0.00025}_{-0.00025}$	$\sigma_8(0.15)$	0.7448	$0.745^{+0.016}_{-0.016}$
$A_{217}^{\text{dustTE}}$	2.07	$2.06^{+0.68}_{-0.70}$	$10^5 \text{D/H}$	2.577	$2.58^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	0.4729	$0.473^{+0.016}_{-0.017}$
$c_{100}$	1.00023	$1.0002^{+0.0019}_{-0.0018}$	Age/Gyr	13.784	$13.783^{+0.084}_{-0.088}$	$\sigma_8(0.38)$	0.6602	$0.660^{+0.014}_{-0.014}$
$c_{217}$	0.99800	$0.9980^{+0.0017}_{-0.0017}$	$z_*$	1089.83	$1089.83^{+0.93}_{-0.95}$	$f\sigma_8(0.51)$	0.4714	$0.472^{+0.014}_{-0.014}$
$H_0$	67.62	$67.6^{+1.9}_{-1.8}$	$r_*$	144.51	$144.49^{+0.96}_{-0.93}$	$\sigma_8(0.51)$	0.6178	$0.618^{+0.014}_{-0.014}$
$\Omega_\Lambda$	0.6881	$0.688^{+0.025}_{-0.025}$	$100\theta_*$	1.04135	$1.0414^{+0.0012}_{-0.0012}$	$f\sigma_8(0.61)$	0.4665	$0.467^{+0.012}_{-0.013}$
$\Omega_m$	0.3119	$0.312^{+0.025}_{-0.025}$	$D_M(z_*)/\text{Gpc}$	13.877	$13.875^{+0.092}_{-0.089}$	$\sigma_8(0.61)$	0.5878	$0.588^{+0.013}_{-0.013}$
$\Omega_m h^2$	0.14264	$0.1427^{+0.0038}_{-0.0039}$	$z_{\text{drag}}$	1060.01	$1060.0^{+1.3}_{-1.2}$	$f\sigma_8(2.33)$	0.2964	$0.2964^{+0.0070}_{-0.0069}$
$\Omega_m h^3$	0.09645	$0.0965^{+0.0013}_{-0.0012}$	$r_{\text{drag}}$	147.15	$147.1^{+1.0}_{-0.97}$	$\sigma_8(2.33)$	0.3055	$0.3056^{+0.0076}_{-0.0076}$
$\sigma_8$	0.8061	$0.806^{+0.017}_{-0.018}$	$k_D$	0.14084	$0.1408^{+0.0012}_{-0.0012}$	$\chi^2_{\text{lensing}}$	9.61	$10.3 (\nu: 1.4)$
$S_8$	0.8220	$0.823^{+0.040}_{-0.041}$	$100\theta_D$	0.16075	$0.16075^{+0.00072}_{-0.00072}$	$\chi^2_{\text{small}}$	395.85	$396.9 (\nu: 1.2)$
$\sigma_8 \Omega_m^{0.5}$	0.4502	$0.451^{+0.022}_{-0.023}$	$z_{\text{eq}}$	3393	$3394^{+91}_{-93}$	$\chi^2_{\text{plikTE}}$	854.3	$860.6 (\nu: 6.7)$
$\sigma_8 \Omega_m^{0.25}$	0.6024	$0.603^{+0.019}_{-0.020}$	$k_{\text{eq}}$	0.010356	$0.01036^{+0.00028}_{-0.00028}$	$\chi^2_{\text{prior}}$	0.7	$7.9 (\nu: 6.9)$
$\sigma_8/h^{0.5}$	0.9803	$0.981^{+0.027}_{-0.028}$	$100\theta_{\text{eq}}$	0.8152	$0.815^{+0.018}_{-0.017}$	$\chi^2_{\text{CMB}}$	1259.8	$1267.7 (\nu: 7.6)$
$r_{\text{drag}} h$	99.51	$99.5^{+3.3}_{-3.1}$	$100\theta_{s,\text{eq}}$	0.4504	$0.4503^{+0.0092}_{-0.0086}$			

Best-fit  $\chi^2_{\text{eff}} = 1260.45$ ;  $\bar{\chi}^2_{\text{eff}} = 1275.56$ ;  $R - 1 = 0.00845$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consect8: 9.61 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 plik\_rd12\_HM\_v22\_TE: 854.31



## 2.62 base\_plikHM\_EE\_lowE\_lensing\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02256	$0.0226^{+0.0011}_{-0.0012}$	$D_{220}$	5747	$5745^{+240}_{-230}$	$H(0.38)$	82.80	$82.8^{+1.8}_{-1.7}$
$\Omega_c h^2$	0.1195	$0.1196^{+0.0055}_{-0.0051}$	$D_{810}$	2546	$2546^{+60}_{-59}$	$D_M(0.38)$	1534.6	$1536^{+48}_{-46}$
$100\theta_{MC}$	1.03980	$1.0397^{+0.0021}_{-0.0021}$	$D_{1420}$	821.9	$822^{+30}_{-28}$	$H(0.51)$	89.55	$89.5^{+1.5}_{-1.5}$
$\tau$	0.0504	$0.050^{+0.021}_{-0.024}$	$D_{2000}$	232.6	$233^{+11}_{-11}$	$D_M(0.51)$	1987	$1989^{+57}_{-55}$
$\ln(10^{10} A_s)$	3.0373	$3.036^{+0.041}_{-0.045}$	$n_{s,0.002}$	0.9689	$0.969^{+0.029}_{-0.028}$	$H(0.61)$	95.20	$95.2^{+1.3}_{-1.2}$
$n_s$	0.9689	$0.969^{+0.029}_{-0.028}$	$Y_P$	0.245467	$0.24547^{+0.00047}_{-0.00051}$	$D_M(0.61)$	2312	$2313^{+61}_{-59}$
$y_{cal}$	0.9999	$0.9999^{+0.0064}_{-0.0064}$	$Y_P^{BBN}$	0.246794	$0.24679^{+0.00047}_{-0.00051}$	$H(2.33)$	236.32	$236.4^{+3.0}_{-2.8}$
$H_0$	67.31	$67.3^{+2.7}_{-2.7}$	$10^5 D/H$	2.551	$2.55^{+0.22}_{-0.19}$	$D_M(2.33)$	5769	$5770^{+64}_{-64}$
$\Omega_\Lambda$	0.6851	$0.684^{+0.032}_{-0.037}$	Age/Gyr	13.809	$13.81^{+0.15}_{-0.15}$	$f\sigma_8(0.15)$	0.4566	$0.457^{+0.030}_{-0.028}$
$\Omega_m$	0.3149	$0.316^{+0.037}_{-0.032}$	$z_*$	1089.63	$1089.7^{+1.8}_{-1.6}$	$\sigma_8(0.15)$	0.7445	$0.744^{+0.016}_{-0.017}$
$\Omega_m h^2$	0.14271	$0.1428^{+0.0047}_{-0.0045}$	$r_*$	144.41	$144.4^{+1.0}_{-1.0}$	$f\sigma_8(0.38)$	0.4741	$0.474^{+0.022}_{-0.022}$
$\Omega_m h^3$	0.09606	$0.0960^{+0.0020}_{-0.0020}$	$100\theta_*$	1.03996	$1.0399^{+0.0020}_{-0.0021}$	$\sigma_8(0.38)$	0.6596	$0.659^{+0.014}_{-0.015}$
$\sigma_8$	0.8060	$0.806^{+0.019}_{-0.020}$	$D_M(z_*)/\text{Gpc}$	13.886	$13.89^{+0.10}_{-0.10}$	$f\sigma_8(0.51)$	0.4723	$0.472^{+0.018}_{-0.018}$
$S_8$	0.826	$0.827^{+0.061}_{-0.054}$	$z_{drag}$	1060.35	$1060.3^{+2.3}_{-2.5}$	$\sigma_8(0.51)$	0.6171	$0.617^{+0.013}_{-0.015}$
$\sigma_8 \Omega_m^{0.5}$	0.4524	$0.453^{+0.033}_{-0.030}$	$r_{drag}$	147.01	$147.0^{+1.1}_{-1.1}$	$f\sigma_8(0.61)$	0.4671	$0.467^{+0.016}_{-0.016}$
$\sigma_8 \Omega_m^{0.25}$	0.6038	$0.604^{+0.027}_{-0.026}$	$k_D$	0.14110	$0.1411^{+0.0016}_{-0.0017}$	$\sigma_8(0.61)$	0.5871	$0.587^{+0.013}_{-0.014}$
$\sigma_8/h^{0.5}$	0.9824	$0.982^{+0.038}_{-0.037}$	$100\theta_D$	0.16033	$0.1604^{+0.0016}_{-0.0014}$	$f\sigma_8(2.33)$	0.2959	$0.2956^{+0.0067}_{-0.0074}$
$r_{drag} h$	98.96	$98.9^{+4.1}_{-4.2}$	$z_{eq}$	3395	$3397^{+110}_{-110}$	$\sigma_8(2.33)$	0.3049	$0.3046^{+0.0075}_{-0.0082}$
$\langle d^2 \rangle^{1/2}$	2.426	$2.425^{+0.097}_{-0.093}$	$k_{eq}$	0.010361	$0.01037^{+0.00034}_{-0.00033}$	$\chi^2_{lensing}$	8.67	$9.6 (\nu: 0.8)$
$z_{re}$	7.23	$7.1^{+2.0}_{-2.7}$	$100\theta_{eq}$	0.8143	$0.814^{+0.021}_{-0.022}$	$\chi^2_{small}$	395.68	$396.7 (\nu: 1.0)$
$10^9 A_s$	2.085	$2.082^{+0.086}_{-0.093}$	$100\theta_{s,eq}$	0.4497	$0.450^{+0.011}_{-0.011}$	$\chi^2_{plikEE}$	740.3	$743.7 (\nu: 3.9)$
$10^9 A_s e^{-2\tau}$	1.8851	$1.885^{+0.039}_{-0.038}$	$H(0.15)$	72.63	$72.6^{+2.3}_{-2.3}$	$\chi^2_{prior}$	0.53	$2.3 (\nu: 2.4)$
$D_{40}$	1223	$1223^{+71}_{-70}$	$D_M(0.15)$	643.8	$644^{+24}_{-22}$	$\chi^2_{CMB}$	1144.6	$1150.0 (\nu: 6.4)$

Best-fit  $\chi^2_{eff} = 1145.17$ ;  $\bar{\chi}^2_{eff} = 1152.26$ ;  $R - 1 = 0.00449$

$\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.67 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.68 plik\_rd12\_HM\_v22\_EE: 740.29



## 2.63 base\_CamSpecHM\_TE\_lowE\_lensing\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02241	$0.02242^{+0.00056}_{-0.00059}$	$D_{220}$	5730	$5729^{+160}_{-170}$	$H(0.38)$	83.35	$83.4^{+1.2}_{-1.2}$
$\Omega_c h^2$	0.11806	$0.1180^{+0.0041}_{-0.0040}$	$D_{810}$	2554	$2554^{+54}_{-56}$	$D_M(0.38)$	1519.6	$1519^{+32}_{-31}$
$100\theta_{MC}$	1.04126	$1.0413^{+0.0012}_{-0.0013}$	$D_{1420}$	825.6	$826^{+26}_{-28}$	$H(0.51)$	89.99	$90.03^{+0.98}_{-0.95}$
$\tau$	0.0521	$0.053^{+0.023}_{-0.021}$	$D_{2000}$	233.6	$233.7^{+9.5}_{-10}$	$D_M(0.51)$	1969.8	$1969^{+38}_{-37}$
$\ln(10^{10} A_s)$	3.0398	$3.041^{+0.044}_{-0.042}$	$n_{s,0.002}$	0.9752	$0.976^{+0.028}_{-0.029}$	$H(0.61)$	95.55	$95.58^{+0.81}_{-0.79}$
$n_s$	0.9752	$0.976^{+0.028}_{-0.029}$	$Y_P$	0.245410	$0.24541^{+0.00023}_{-0.00026}$	$D_M(0.61)$	2293.2	$2292^{+40}_{-40}$
$y_{cal}$	1.0002	$1.0002^{+0.0063}_{-0.0064}$	$Y_P^{BBN}$	0.246736	$0.24674^{+0.00023}_{-0.00026}$	$H(2.33)$	235.35	$235.3^{+2.5}_{-2.5}$
$H_0$	68.19	$68.2^{+1.9}_{-1.9}$	$10^5 D/H$	2.579	$2.58^{+0.11}_{-0.10}$	$D_M(2.33)$	5753.0	$5752^{+38}_{-37}$
$\Omega_\Lambda$	0.6965	$0.697^{+0.024}_{-0.025}$	Age/Gyr	13.775	$13.773^{+0.085}_{-0.083}$	$f\sigma_8(0.15)$	0.4493	$0.449^{+0.021}_{-0.020}$
$\Omega_m$	0.3035	$0.303^{+0.025}_{-0.024}$	$z_*$	1089.70	$1089.68^{+0.96}_{-0.88}$	$\sigma_8(0.15)$	0.7457	$0.746^{+0.017}_{-0.017}$
$\Omega_m h^2$	0.14111	$0.1410^{+0.0039}_{-0.0038}$	$r_*$	144.91	$144.93^{+0.98}_{-0.96}$	$f\sigma_8(0.38)$	0.4693	$0.469^{+0.016}_{-0.016}$
$\Omega_m h^3$	0.09622	$0.0962^{+0.0012}_{-0.0012}$	$100\theta_*$	1.04144	$1.0415^{+0.0012}_{-0.0013}$	$\sigma_8(0.38)$	0.6619	$0.662^{+0.015}_{-0.015}$
$\sigma_8$	0.8061	$0.806^{+0.018}_{-0.018}$	$D_M(z_*)/\text{Gpc}$	13.914	$13.916^{+0.092}_{-0.093}$	$f\sigma_8(0.51)$	0.4689	$0.469^{+0.014}_{-0.014}$
$S_8$	0.8108	$0.810^{+0.042}_{-0.040}$	$z_{drag}$	1059.89	$1059.9^{+1.2}_{-1.3}$	$\sigma_8(0.51)$	0.6198	$0.620^{+0.015}_{-0.014}$
$\sigma_8 \Omega_m^{0.5}$	0.4441	$0.444^{+0.023}_{-0.022}$	$r_{drag}$	147.57	$147.6^{+1.0}_{-1.0}$	$f\sigma_8(0.61)$	0.4646	$0.464^{+0.013}_{-0.013}$
$\sigma_8 \Omega_m^{0.25}$	0.5983	$0.598^{+0.020}_{-0.020}$	$k_D$	0.14039	$0.1404^{+0.0012}_{-0.0012}$	$\sigma_8(0.61)$	0.5899	$0.590^{+0.014}_{-0.014}$
$\sigma_8/h^{0.5}$	0.9762	$0.976^{+0.027}_{-0.027}$	$100\theta_D$	0.16082	$0.16082^{+0.00078}_{-0.00071}$	$f\sigma_8(2.33)$	0.2978	$0.2979^{+0.0075}_{-0.0072}$
$r_{drag} h$	100.62	$100.7^{+3.2}_{-3.2}$	$z_{eq}$	3357	$3354^{+93}_{-92}$	$\sigma_8(2.33)$	0.3074	$0.3076^{+0.0082}_{-0.0078}$
$\langle d^2 \rangle^{1/2}$	2.400	$2.399^{+0.086}_{-0.080}$	$k_{eq}$	0.010245	$0.01024^{+0.00028}_{-0.00028}$	$\chi^2_{lensing}$	9.01	9.7 ( $\nu: 0.8$ )
$z_{re}$	7.41	$7.5^{+2.2}_{-2.3}$	$100\theta_{eq}$	0.8219	$0.822^{+0.018}_{-0.017}$	$\chi^2_{small}$	395.72	396.8 ( $\nu: 1.1$ )
$10^9 A_s$	2.090	$2.092^{+0.094}_{-0.087}$	$100\theta_{s,eq}$	0.4539	$0.4541^{+0.0092}_{-0.0090}$	$\chi^2_{CamSpec}$	2576.4	2580.6 ( $\nu: 4.3$ )
$10^9 A_s e^{-2\tau}$	1.8833	$1.883^{+0.035}_{-0.035}$	$H(0.15)$	73.38	$73.4^{+1.6}_{-1.6}$	$\chi^2_{prior}$	10.20	11.4 ( $\nu: 1.1$ )
$D_{40}$	1211	$1210^{+70}_{-68}$	$D_M(0.15)$	636.4	$636^{+16}_{-15}$	$\chi^2_{CMB}$	2981.1	2987.1 ( $\nu: 6.3$ )

Best-fit  $\chi^2_{eff} = 2991.29$ ;  $\bar{\chi}^2_{eff} = 2998.52$ ;  $R - 1 = 0.00490$

$\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.01 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.72 CamSpec like\_10.7HM\_1400\_unified: 2576.36



## 2.64 base\_CamSpecHM\_EE\_lowE\_lensing\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02249	$0.0225^{+0.0011}_{-0.0011}$	$D_{220}$	5810	$5809^{+250}_{-230}$	$H(0.38)$	82.69	$82.7^{+1.8}_{-1.7}$
$\Omega_c h^2$	0.1191	$0.1191^{+0.0052}_{-0.0052}$	$D_{810}$	2557	$2558^{+58}_{-60}$	$D_M(0.38)$	1536.6	$1536^{+47}_{-46}$
$100\theta_{MC}$	1.03932	$1.0394^{+0.0021}_{-0.0019}$	$D_{1420}$	822.4	$823^{+28}_{-28}$	$H(0.51)$	89.43	$89.5^{+1.5}_{-1.4}$
$\tau$	0.0479	$0.047^{+0.021}_{-0.024}$	$D_{2000}$	232.2	$233^{+10}_{-10}$	$D_M(0.51)$	1990	$1989^{+56}_{-55}$
$\ln(10^{10} A_s)$	3.0378	$3.036^{+0.041}_{-0.043}$	$n_{s,0.002}$	0.9637	$0.965^{+0.029}_{-0.027}$	$H(0.61)$	95.06	$95.1^{+1.3}_{-1.2}$
$n_s$	0.9637	$0.965^{+0.029}_{-0.027}$	$Y_P$	0.245443	$0.24545^{+0.00047}_{-0.00048}$	$D_M(0.61)$	2315	$2314^{+60}_{-60}$
$y_{cal}$	0.9998	$0.9998^{+0.0066}_{-0.0064}$	$Y_P^{BBN}$	0.246769	$0.24677^{+0.00047}_{-0.00049}$	$H(2.33)$	235.96	$236.0^{+2.9}_{-2.9}$
$H_0$	67.23	$67.3^{+2.7}_{-2.6}$	$10^5 D/H$	2.563	$2.56^{+0.21}_{-0.19}$	$D_M(2.33)$	5777	$5776^{+62}_{-63}$
$\Omega_\Lambda$	0.6852	$0.685^{+0.032}_{-0.035}$	Age/Gyr	13.829	$13.83^{+0.14}_{-0.14}$	$f\sigma_8(0.15)$	0.4550	$0.454^{+0.029}_{-0.028}$
$\Omega_m$	0.3148	$0.315^{+0.035}_{-0.032}$	$z_*$	1089.69	$1089.7^{+1.8}_{-1.7}$	$\sigma_8(0.15)$	0.7420	$0.741^{+0.018}_{-0.017}$
$\Omega_m h^2$	0.14227	$0.1422^{+0.0046}_{-0.0046}$	$r_*$	144.56	$144.6^{+1.1}_{-1.0}$	$f\sigma_8(0.38)$	0.4724	$0.472^{+0.022}_{-0.022}$
$\Omega_m h^3$	0.09565	$0.0957^{+0.0020}_{-0.0019}$	$100\theta_*$	1.03950	$1.0395^{+0.0021}_{-0.0019}$	$\sigma_8(0.38)$	0.6573	$0.657^{+0.015}_{-0.014}$
$\sigma_8$	0.8033	$0.802^{+0.021}_{-0.019}$	$D_M(z_*)/\text{Gpc}$	13.907	$13.91^{+0.11}_{-0.10}$	$f\sigma_8(0.51)$	0.4706	$0.470^{+0.019}_{-0.019}$
$S_8$	0.823	$0.822^{+0.058}_{-0.056}$	$z_{drag}$	1060.16	$1060.2^{+2.3}_{-2.3}$	$\sigma_8(0.51)$	0.6150	$0.614^{+0.014}_{-0.014}$
$\sigma_8 \Omega_m^{0.5}$	0.4507	$0.450^{+0.032}_{-0.031}$	$r_{drag}$	147.18	$147.2^{+1.2}_{-1.1}$	$f\sigma_8(0.61)$	0.4655	$0.465^{+0.016}_{-0.016}$
$\sigma_8 \Omega_m^{0.25}$	0.6017	$0.601^{+0.027}_{-0.027}$	$k_D$	0.14086	$0.1409^{+0.0017}_{-0.0017}$	$\sigma_8(0.61)$	0.5851	$0.585^{+0.014}_{-0.013}$
$\sigma_8/h^{0.5}$	0.9797	$0.979^{+0.038}_{-0.037}$	$100\theta_D$	0.16037	$0.1604^{+0.0015}_{-0.0013}$	$f\sigma_8(2.33)$	0.2949	$0.2947^{+0.0072}_{-0.0071}$
$r_{drag} h$	98.95	$99.0^{+4.2}_{-4.0}$	$z_{eq}$	3384	$3384^{+110}_{-110}$	$\sigma_8(2.33)$	0.3039	$0.3037^{+0.0080}_{-0.0080}$
$\langle d^2 \rangle^{1/2}$	2.435	$2.430^{+0.091}_{-0.096}$	$k_{eq}$	0.010329	$0.01033^{+0.00034}_{-0.00034}$	$\chi^2_{lensing}$	8.77	$9.6 (\nu: 1.2)$
$z_{re}$	6.98	$6.8^{+2.0}_{-2.8}$	$100\theta_{eq}$	0.8156	$0.816^{+0.022}_{-0.021}$	$\chi^2_{small}$	395.72	$396.8 (\nu: 1.2)$
$10^9 A_s$	2.086	$2.082^{+0.087}_{-0.088}$	$100\theta_{s,eq}$	0.4505	$0.451^{+0.011}_{-0.010}$	$\chi^2_{CamSpec}$	1888.2	$1891.6 (\nu: 3.8)$
$10^9 A_s e^{-2\tau}$	1.8953	$1.896^{+0.039}_{-0.038}$	$H(0.15)$	72.54	$72.6^{+2.3}_{-2.3}$	$\chi^2_{prior}$	10.38	$12.2 (\nu: 2.1)$
$D_{40}$	1243	$1241^{+70}_{-69}$	$D_M(0.15)$	644.6	$644^{+23}_{-23}$	$\chi^2_{CMB}$	2292.7	$2298.0 (\nu: 5.4)$

Best-fit  $\chi^2_{eff} = 2303.11$ ;  $\bar{\chi}^2_{eff} = 2310.16$ ;  $R - 1 = 0.00957$

$\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.77 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.72 CamSpec like\_10.7HM\_1400\_unified: 1888.23



## 2.65 base\_plikHM\_TT\_lowl

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02250	$0.02238^{+0.00070}_{-0.00068}$	$\sigma_8 \Omega_m^{0.25}$	0.6370	$0.630^{+0.040}_{-0.043}$	$H(0.15)$	73.68	$73.3^{+2.6}_{-2.5}$
$\Omega_c h^2$	0.1173	$0.1181^{+0.0064}_{-0.0061}$	$\sigma_8/h^{0.5}$	1.041	$1.028^{+0.064}_{-0.069}$	$D_M(0.15)$	633.5	$637^{+25}_{-24}$
$100\theta_{MC}$	1.04124	$1.0411^{+0.0013}_{-0.0013}$	$r_{drag} h$	101.2	$100.6^{+5.1}_{-5.0}$	$H(0.38)$	83.57	$83.3^{+1.9}_{-1.8}$
$\tau$	0.126	$0.108^{+0.080}_{-0.085}$	$\langle d^2 \rangle^{1/2}$	2.564	$2.54^{+0.15}_{-0.17}$	$D_M(0.38)$	1514	$1521^{+50}_{-49}$
$\ln(10^{10} A_s)$	3.180	$3.15^{+0.15}_{-0.16}$	$z_{re}$	13.8	$12.3^{+5.7}_{-8.1}$	$H(0.51)$	90.16	$90.0^{+1.5}_{-1.4}$
$n_s$	0.9756	$0.971^{+0.020}_{-0.019}$	$10^9 A_s$	2.405	$2.33^{+0.37}_{-0.35}$	$D_M(0.51)$	1963	$1971^{+59}_{-58}$
$y_{cal}$	1.0001	$1.0003^{+0.0064}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	1.8693	$1.872^{+0.039}_{-0.038}$	$H(0.61)$	95.68	$95.5^{+1.3}_{-1.1}$
$A_{217}^{CIB}$	42.8	$46^{+20}_{-20}$	$D_{40}$	1238.9	$1240^{+42}_{-41}$	$D_M(0.61)$	2286	$2295^{+63}_{-63}$
$\xi^{tSZ \times CIB}$	0.99	—	$D_{220}$	5715	$5718^{+110}_{-110}$	$H(2.33)$	234.92	$235.3^{+3.8}_{-3.6}$
$A_{143}^{tSZ}$	6.86	$5.5^{+4.2}_{-4.9}$	$D_{810}$	2531.7	$2531^{+37}_{-36}$	$D_M(2.33)$	5748	$5755^{+52}_{-55}$
$A_{100}^{PS}$	240	$254^{+70}_{-70}$	$D_{1420}$	817.1	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	0.4770	$0.473^{+0.034}_{-0.036}$
$A_{143}^{PS}$	50.5	$44^{+20}_{-20}$	$D_{2000}$	232.6	$231.4^{+5.4}_{-5.4}$	$\sigma_8(0.15)$	0.797	$0.785^{+0.054}_{-0.057}$
$A_{143 \times 217}^{PS}$	58.0	$42^{+20}_{-20}$	$n_{s,0.002}$	0.9756	$0.971^{+0.020}_{-0.019}$	$f\sigma_8(0.38)$	0.4994	$0.494^{+0.032}_{-0.034}$
$A_{217}^{PS}$	123.8	$115^{+30}_{-30}$	$Y_P$	0.245443	$0.24540^{+0.00030}_{-0.00031}$	$\sigma_8(0.38)$	0.708	$0.697^{+0.050}_{-0.052}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246770	$0.24672^{+0.00030}_{-0.00031}$	$f\sigma_8(0.51)$	0.4995	$0.494^{+0.031}_{-0.034}$
$A_{100}^{dustTT}$	8.74	$8.8^{+4.7}_{-4.7}$	$10^5 D/H$	2.563	$2.58^{+0.13}_{-0.13}$	$\sigma_8(0.51)$	0.6634	$0.652^{+0.048}_{-0.049}$
$A_{143}^{dustTT}$	10.66	$10.5^{+4.6}_{-4.7}$	Age/Gyr	13.764	$13.78^{+0.12}_{-0.12}$	$f\sigma_8(0.61)$	0.4953	$0.489^{+0.031}_{-0.033}$
$A_{143 \times 217}^{dustTT}$	19.9	$18.1^{+8.4}_{-8.6}$	$z_*$	1089.53	$1089.7^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	0.6316	$0.621^{+0.046}_{-0.048}$
$A_{217}^{dustTT}$	96.2	$94^{+20}_{-20}$	$r_*$	145.04	$144.9^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	0.3190	$0.313^{+0.024}_{-0.025}$
$c_{100}$	0.99968	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04141	$1.0413^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	0.3295	$0.323^{+0.026}_{-0.026}$
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.927	$13.92^{+0.13}_{-0.13}$	$f_{2000}^{143}$	26.1	$28^{+9}_{-9}$
$H_0$	68.53	$68.1^{+3.0}_{-2.9}$	$z_{drag}$	1060.05	$1059.8^{+1.4}_{-1.3}$	$f_{2000}^{143 \times 217}$	30.1	$31^{+6}_{-6}$
$\Omega_\Lambda$	0.7010	$0.696^{+0.036}_{-0.041}$	$r_{drag}$	147.67	$147.6^{+1.3}_{-1.4}$	$f_{2000}^{217}$	104.7	$106.1^{+5.8}_{-5.7}$
$\Omega_m$	0.2990	$0.304^{+0.041}_{-0.036}$	$k_D$	0.14035	$0.1403^{+0.0014}_{-0.0014}$	$\chi_{lowl}^2$	24.89	25.0 ( $\nu$ : 1.5)
$\Omega_m h^2$	0.1404	$0.1411^{+0.0060}_{-0.0058}$	$100\theta_D$	0.16072	$0.16084^{+0.00077}_{-0.00074}$	$\chi_{plik}^2$	753.5	768.0 ( $\nu$ : 16.1)
$\Omega_m h^3$	0.09623	$0.0961^{+0.0012}_{-0.0012}$	$z_{eq}$	3340	$3356^{+140}_{-140}$	$\chi_{prior}^2$	1.1	7.2 ( $\nu$ : 6.5)
$\sigma_8$	0.861	$0.849^{+0.057}_{-0.060}$	$k_{eq}$	0.010195	$0.01024^{+0.00044}_{-0.00042}$	$\chi_{CMB}^2$	778.4	793.0 ( $\nu$ : 15.1)
$S_8$	0.860	$0.854^{+0.065}_{-0.067}$	$100\theta_{eq}$	0.8251	$0.822^{+0.028}_{-0.027}$			
$\sigma_8 \Omega_m^{0.5}$	0.4710	$0.468^{+0.036}_{-0.037}$	$100\theta_{s,eq}$	0.4555	$0.454^{+0.014}_{-0.014}$			

Best-fit  $\chi_{\text{eff}}^2 = 779.48$ ;  $\bar{\chi}_{\text{eff}}^2 = 800.20$ ;  $R - 1 = 0.00744$

$\chi_{\text{eff}}^2$ : CMB - commander\_dx12\_v3\_2\_29: 24.89 plik\_rd12\_HM\_v22\_TT: 753.54



## 2.66 base\_plikHM\_TTTEE\_lowl

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022555	$0.02251^{+0.00041}_{-0.00042}$ ( $+0.5\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09646	$0.09641^{+0.00073}_{-0.00078}$ ( $+0.6\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8205	$0.820^{+0.017}_{-0.017}$ ( $-0.2\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11829	$0.1185^{+0.0040}_{-0.0039}$ ( $+0.2\sigma$ )	$\sigma_8$	0.8551	$0.848^{+0.047}_{-0.049}$ ( $-0.0\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4530	$0.4526^{+0.0086}_{-0.0087}$ ( $-0.2\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04110	$1.04108^{+0.00083}_{-0.00085}$ ( $-0.1\sigma$ )	$S_8$	0.8614	$0.857^{+0.048}_{-0.050}$ ( $+0.1\sigma$ )	$H(0.15)$	73.38	$73.3^{+1.5}_{-1.6}$ ( $-0.0\sigma$ )
$\tau$	0.114	$0.106^{+0.063}_{-0.067}$ ( $-0.1\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4718	$0.469^{+0.026}_{-0.027}$ ( $+0.1\sigma$ )	$D_{\mathrm{M}}(0.15)$	636.4	$637^{+16}_{-15}$ ( $+0.0\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.160	$3.14^{+0.12}_{-0.13}$ ( $-0.0\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6352	$0.631^{+0.033}_{-0.035}$ ( $+0.1\sigma$ )	$H(0.38)$	83.38	$83.3^{+1.1}_{-1.1}$ ( $-0.0\sigma$ )
$n_{\mathrm{s}}$	0.9730	$0.971^{+0.014}_{-0.013}$ ( $-0.1\sigma$ )	$\sigma_8/h^{0.5}$	1.036	$1.028^{+0.053}_{-0.056}$ ( $+0.0\sigma$ )	$D_{\mathrm{M}}(0.38)$	1519.6	$1522^{+31}_{-30}$ ( $+0.0\sigma$ )
$y_{\mathrm{cal}}$	1.0002	$1.0003^{+0.0063}_{-0.0063}$ ( $-0.0\sigma$ )	$r_{\mathrm{drag}}h$	100.44	$100.3^{+3.1}_{-3.1}$ ( $-0.1\sigma$ )	$H(0.51)$	90.03	$89.97^{+0.91}_{-0.88}$ ( $+0.0\sigma$ )
$A_{217}^{\mathrm{CIB}}$	42.5	$45^{+20}_{-20}$ ( $-0.1\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.554	$2.54^{+0.12}_{-0.13}$ ( $+0.0\sigma$ )	$D_{\mathrm{M}}(0.51)$	1969.6	$1972^{+36}_{-35}$ ( $+0.0\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	1.00	—	$z_{\mathrm{re}}$	12.9	$12.2^{+4.6}_{-6.2}$ ( $-0.0\sigma$ )	$H(0.61)$	95.60	$95.55^{+0.73}_{-0.69}$ ( $+0.1\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	6.85	$> 1.25$ ( $+0.1\sigma$ )	$10^9 A_{\mathrm{s}}$	2.356	$2.32^{+0.29}_{-0.28}$ ( $-0.1\sigma$ )	$D_{\mathrm{M}}(0.61)$	2292.8	$2295^{+39}_{-38}$ ( $+0.0\sigma$ )
$A_{100}^{\mathrm{PS}}$	239	$251^{+70}_{-70}$ ( $-0.1\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8754	$1.875^{+0.031}_{-0.030}$ ( $+0.2\sigma$ )	$H(2.33)$	235.64	$235.7^{+2.4}_{-2.3}$ ( $+0.3\sigma$ )
$A_{143}^{\mathrm{PS}}$	49.7	$43^{+20}_{-20}$ ( $-0.2\sigma$ )	$D_{40}$	1239.7	$1241^{+36}_{-35}$ ( $+0.1\sigma$ )	$D_{\mathrm{M}}(2.33)$	5749.3	$5752^{+31}_{-32}$ ( $-0.2\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	57.7	$42^{+20}_{-20}$ ( $-0.0\sigma$ )	$D_{220}$	5728	$5731^{+100}_{-99}$ ( $+0.3\sigma$ )	$f\sigma_8(0.15)$	0.4773	$0.474^{+0.026}_{-0.027}$ ( $+0.1\sigma$ )
$A_{217}^{\mathrm{PS}}$	124.3	$116^{+20}_{-30}$ ( $+0.1\sigma$ )	$D_{810}$	2535.6	$2534^{+34}_{-34}$ ( $+0.2\sigma$ )	$\sigma_8(0.15)$	0.7909	$0.785^{+0.045}_{-0.047}$ ( $-0.0\sigma$ )
$A^{\mathrm{kSZ}}$	0.00	$< 8.89$ ( $-0.1\sigma$ )	$D_{1420}$	818.3	$817^{+12}_{-12}$ ( $+0.3\sigma$ )	$f\sigma_8(0.38)$	0.4983	$0.495^{+0.026}_{-0.027}$ ( $+0.1\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.68	$8.8^{+4.8}_{-4.7}$ ( $-0.0\sigma$ )	$D_{2000}$	232.84	$232.0^{+4.1}_{-4.3}$ ( $+0.3\sigma$ )	$\sigma_8(0.38)$	0.7019	$0.696^{+0.041}_{-0.042}$ ( $-0.0\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	10.72	$10.6^{+4.6}_{-4.5}$ ( $+0.0\sigma$ )	$n_{\mathrm{s},0.002}$	0.9730	$0.971^{+0.014}_{-0.013}$ ( $-0.1\sigma$ )	$f\sigma_8(0.51)$	0.4977	$0.494^{+0.026}_{-0.027}$ ( $+0.0\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.8	$18.2^{+8.6}_{-8.4}$ ( $+0.0\sigma$ )	$Y_{\mathrm{P}}$	0.245464	$0.24545^{+0.00016}_{-0.00017}$ ( $+0.5\sigma$ )	$\sigma_8(0.51)$	0.6572	$0.652^{+0.039}_{-0.040}$ ( $-0.0\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.5	$94^{+20}_{-20}$ ( $+0.0\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246791	$0.24678^{+0.00017}_{-0.00017}$ ( $+0.5\sigma$ )	$f\sigma_8(0.61)$	0.4930	$0.489^{+0.026}_{-0.027}$ ( $+0.0\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.113	$0.113^{+0.098}_{-0.095}$	$10^5 \mathrm{D}/\mathrm{H}$	2.552	$2.560^{+0.078}_{-0.074}$ ( $-0.5\sigma$ )	$\sigma_8(0.61)$	0.6255	$0.620^{+0.037}_{-0.038}$ ( $-0.0\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.134	$0.134^{+0.076}_{-0.074}$	Age/Gyr	13.766	$13.772^{+0.070}_{-0.070}$ ( $-0.2\sigma$ )	$f\sigma_8(2.33)$	0.3157	$0.313^{+0.019}_{-0.020}$ ( $-0.0\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.477	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.54	$1089.61^{+0.80}_{-0.77}$ ( $-0.2\sigma$ )	$\sigma_8(2.33)$	0.3258	$0.323^{+0.021}_{-0.021}$ ( $-0.0\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.221	$0.22^{+0.14}_{-0.14}$	$r_*$	144.73	$144.71^{+0.84}_{-0.86}$ ( $-0.4\sigma$ )	$f_{2000}^{143}$	25.7	$27^{+8}_{-7}$ ( $-0.3\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.662	$0.66^{+0.21}_{-0.21}$	$100\theta_*$	1.04127	$1.04125^{+0.00082}_{-0.00083}$ ( $-0.1\sigma$ )	$f_{2000}^{143 \times 217}$	29.8	$30^{+5}_{-5}$ ( $-0.3\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.06	$2.07^{+0.71}_{-0.70}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.900	$13.897^{+0.078}_{-0.078}$ ( $-0.4\sigma$ )	$f_{2000}^{217}$	104.53	$105.4^{+5.0}_{-4.9}$ ( $-0.3\sigma$ )
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0016}$ ( $+0.1\sigma$ )	$z_{\mathrm{drag}}$	1060.24	$1060.16^{+0.80}_{-0.84}$ ( $+0.6\sigma$ )	$\chi_{\mathrm{lowl}}^2$	24.77	$25.0$ ( $\nu: 1.0$ ) ( $-0.0\sigma$ )
$c_{217}$	0.99812	$0.9981^{+0.0016}_{-0.0016}$ ( $-0.1\sigma$ )	$r_{\mathrm{drag}}$	147.34	$147.33^{+0.82}_{-0.83}$ ( $-0.5\sigma$ )	$\chi_{\mathrm{plik}}^2$	2337.6	$2354.2$ ( $\nu: 17.3$ ) ( $+279.7\sigma$ )
$H_0$	68.17	$68.1^{+1.8}_{-1.8}$ ( $-0.1\sigma$ )	$k_{\mathrm{D}}$	0.14075	$0.14073^{+0.00084}_{-0.00086}$ ( $+0.7\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.3	$11.3$ ( $\nu: 10.0$ ) ( $+1.2\sigma$ )
$\Omega_{\Lambda}$	0.6955	$0.694^{+0.023}_{-0.025}$ ( $-0.1\sigma$ )	$100\theta_{\mathrm{D}}$	0.160589	$0.16064^{+0.00046}_{-0.00045}$ ( $-0.7\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2362.3	$2379.2$ ( $\nu: 16.7$ ) ( $+288.7\sigma$ )
$\Omega_{\mathrm{m}}$	0.3045	$0.306^{+0.025}_{-0.023}$ ( $+0.1\sigma$ )	$z_{\mathrm{eq}}$	3366	$3370^{+90}_{-86}$ ( $+0.2\sigma$ )			
$\Omega_{\mathrm{m}}h^2$	0.14149	$0.1417^{+0.0038}_{-0.0036}$ ( $+0.2\sigma$ )	$k_{\mathrm{eq}}$	0.010273	$0.01029^{+0.00028}_{-0.00026}$ ( $+0.2\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2363.64$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1584.16$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2390.54$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1590.34$ ;  $R - 1 = 0.00817$   
 $\chi_{\mathrm{eff}}^2$ : CMB - commander\_dx12.v3.2.29: 24.77 ( $\Delta$  -0.12) plik\_rd12\_HM.v22b.TTTEE: 2337.58



## 2.67 base\_CamSpecHM\_TT\_lowl

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02253	$0.02242^{+0.00073}_{-0.00069}$	$\sigma_8 \Omega_m^{0.5}$	0.4693	$0.468^{+0.037}_{-0.036}$	$100\theta_{s,eq}$	0.4563	$0.455^{+0.015}_{-0.014}$
$\Omega_c h^2$	0.1169	$0.1177^{+0.0068}_{-0.0065}$	$\sigma_8 \Omega_m^{0.25}$	0.6359	$0.631^{+0.040}_{-0.042}$	$H(0.15)$	73.84	$73.5^{+2.7}_{-2.6}$
$100\theta_{MC}$	1.04132	$1.0412^{+0.0014}_{-0.0014}$	$\sigma_8/h^{0.5}$	1.039	$1.030^{+0.065}_{-0.068}$	$D_M(0.15)$	631.9	$635^{+26}_{-26}$
$\tau$	0.128	$0.113^{+0.081}_{-0.088}$	$r_{drag} h$	101.5	$100.9^{+5.5}_{-5.2}$	$H(0.38)$	83.69	$83.4^{+2.1}_{-1.9}$
$\ln(10^{10} A_s)$	3.183	$3.15^{+0.15}_{-0.17}$	$\langle d^2 \rangle^{1/2}$	2.560	$2.54^{+0.15}_{-0.16}$	$D_M(0.38)$	1511	$1518^{+52}_{-52}$
$n_s$	0.9775	$0.973^{+0.021}_{-0.020}$	$z_{re}$	14.0	$12.7^{+5.6}_{-8.3}$	$H(0.51)$	90.26	$90.1^{+1.7}_{-1.5}$
$y_{cal}$	1.0002	$1.0003^{+0.0063}_{-0.0064}$	$10^9 A_s$	2.411	$2.35^{+0.37}_{-0.37}$	$D_M(0.51)$	1959	$1967^{+61}_{-62}$
$A_{100}^{PS}$	219	$233^{+70}_{-60}$	$10^9 A_s e^{-2\tau}$	1.8656	$1.868^{+0.040}_{-0.040}$	$H(0.61)$	95.76	$95.6^{+1.4}_{-1.2}$
$A_{143}^{PS}$	45.0	$36^{+20}_{-20}$	$D_{40}$	1234.6	$1237^{+42}_{-41}$	$D_M(0.61)$	2282	$2291^{+65}_{-67}$
$A_{217}^{PS}$	109.7	$104^{+30}_{-40}$	$D_{220}$	5706	$5708^{+100}_{-110}$	$H(2.33)$	234.71	$235.1^{+4.0}_{-3.8}$
$A_{217}^{CIB}$	37.6	$38^{+20}_{-20}$	$D_{810}$	2529.3	$2528^{+36}_{-35}$	$D_M(2.33)$	5744	$5752^{+54}_{-58}$
$A_{143}^{tSZ}$	6.20	$< 8.89$	$D_{1420}$	817.0	$815^{+13}_{-14}$	$f\sigma_8(0.15)$	0.4754	$0.473^{+0.035}_{-0.035}$
$r_{143 \times 217}^{PS}$	0.807	$> 0.359$	$D_{2000}$	232.7	$231.6^{+5.7}_{-5.8}$	$\sigma_8(0.15)$	0.798	$0.788^{+0.054}_{-0.058}$
$r_{143 \times 217}^{CIB}$	0.70	—	$n_{s,0.002}$	0.9775	$0.973^{+0.021}_{-0.020}$	$f\sigma_8(0.38)$	0.4984	$0.495^{+0.032}_{-0.033}$
$\xi^{tSZ \times CIB}$	0.96	—	$Y_P$	0.245453	$0.24541^{+0.00031}_{-0.00031}$	$\sigma_8(0.38)$	0.709	$0.700^{+0.050}_{-0.054}$
$A^{kSZ}$	0.1	—	$Y_P^{BBN}$	0.246780	$0.24674^{+0.00031}_{-0.00031}$	$f\sigma_8(0.51)$	0.4988	$0.495^{+0.032}_{-0.033}$
$A_{100}^{dust}$	1.01	$1.01^{+0.50}_{-0.51}$	$10^5 D/H$	2.557	$2.58^{+0.13}_{-0.13}$	$\sigma_8(0.51)$	0.6642	$0.655^{+0.048}_{-0.051}$
$A_{143}^{dust}$	0.962	$0.96^{+0.46}_{-0.46}$	Age/Gyr	13.756	$13.77^{+0.12}_{-0.13}$	$f\sigma_8(0.61)$	0.4948	$0.490^{+0.031}_{-0.033}$
$A_{217}^{dust}$	0.978	$0.98^{+0.27}_{-0.27}$	$z_*$	1089.46	$1089.7^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	0.6324	$0.624^{+0.046}_{-0.049}$
$A_{143 \times 217}^{dust}$	1.030	$1.02^{+0.42}_{-0.42}$	$r_*$	145.12	$145.0^{+1.4}_{-1.5}$	$f\sigma_8(2.33)$	0.3195	$0.315^{+0.024}_{-0.026}$
$c_{100}$	0.99783	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_*$	1.04150	$1.0414^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	0.3302	$0.325^{+0.027}_{-0.028}$
$c_{217}$	1.00070	$1.0009^{+0.0040}_{-0.0040}$	$D_M(z_*)/\text{Gpc}$	13.934	$13.92^{+0.13}_{-0.13}$	$f_{2000}^{143}$	25.9	$27^{+10}_{-9}$
$H_0$	68.72	$68.3^{+3.2}_{-3.0}$	$z_{drag}$	1060.09	$1059.9^{+1.4}_{-1.3}$	$f_{2000}^{217}$	103.9	$105.3^{+6.2}_{-6.1}$
$\Omega_\Lambda$	0.7034	$0.698^{+0.038}_{-0.043}$	$r_{drag}$	147.74	$147.6^{+1.4}_{-1.4}$	$f_{2000}^{143 \times 217}$	29.3	$30^{+7}_{-7}$
$\Omega_m$	0.2966	$0.302^{+0.043}_{-0.038}$	$k_D$	0.14030	$0.1403^{+0.0014}_{-0.0013}$	$\chi_{lowl}^2$	24.50	$24.8 (\nu: 1.4)$
$\Omega_m h^2$	0.1401	$0.1408^{+0.0063}_{-0.0061}$	$100\theta_D$	0.16071	$0.16081^{+0.00076}_{-0.00075}$	$\chi_{CamSpec}^2$	7046.4	$7060.1 (\nu: 15.0)$
$\Omega_m h^3$	0.09626	$0.0962^{+0.0013}_{-0.0012}$	$z_{eq}$	3332	$3349^{+150}_{-150}$	$\chi_{prior}^2$	1.4	$7.4 (\nu: 5.6)$
$\sigma_8$	0.862	$0.851^{+0.056}_{-0.061}$	$k_{eq}$	0.010170	$0.01022^{+0.00046}_{-0.00045}$	$\chi_{CMB}^2$	7070.9	$7084.8 (\nu: 14.5)$
$S_8$	0.857	$0.854^{+0.067}_{-0.066}$	$100\theta_{eq}$	0.8268	$0.824^{+0.030}_{-0.028}$			

Best-fit  $\chi_{eff}^2 = 7072.29$ ;  $\bar{\chi}_{eff}^2 = 7092.24$ ;  $R - 1 = 0.00797$

$\chi_{eff}^2$ : CMB - commander\_dx12\_v3\_2\_29: 24.50 CamSpec like\_10.7HM: 7046.38



## 2.68 base\_CamSpecHM\_TTTEEE\_lowl

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022467	$0.02243^{+0.00048}_{-0.00046}$ (+0.0 $\sigma$ )	$S_8$	0.850	$0.846^{+0.053}_{-0.053}$ (−0.3 $\sigma$ )	$100\theta_{s,eq}$	0.4533	$0.4530^{+0.0090}_{-0.0089}$ (−0.3 $\sigma$ )
$\Omega_c h^2$	0.11820	$0.1184^{+0.0042}_{-0.0040}$ (+0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4655	$0.463^{+0.029}_{-0.029}$ (−0.3 $\sigma$ )	$H(0.15)$	73.32	$73.2^{+1.6}_{-1.6}$ (−0.3 $\sigma$ )
$100\theta_{MC}$	1.04104	$1.04102^{+0.00085}_{-0.00085}$ (−0.4 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6265	$0.623^{+0.037}_{-0.039}$ (−0.5 $\sigma$ )	$D_M(0.15)$	637.0	$638^{+16}_{-15}$ (+0.2 $\sigma$ )
$\tau$	0.101	$0.094^{+0.074}_{-0.073}$ (−0.6 $\sigma$ )	$\sigma_8/h^{0.5}$	1.022	$1.015^{+0.062}_{-0.063}$ (−0.6 $\sigma$ )	$H(0.38)$	83.31	$83.2^{+1.2}_{-1.2}$ (−0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.132	$3.12^{+0.14}_{-0.14}$ (−0.6 $\sigma$ )	$r_{drag} h$	100.44	$100.3^{+3.2}_{-3.3}$ (−0.3 $\sigma$ )	$D_M(0.38)$	1520.8	$1523^{+32}_{-32}$ (+0.2 $\sigma$ )
$n_s$	0.9723	$0.971^{+0.014}_{-0.014}$ (−0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.521	$2.51^{+0.14}_{-0.15}$ (−0.5 $\sigma$ )	$H(0.51)$	89.96	$89.91^{+0.96}_{-0.93}$ (−0.2 $\sigma$ )
$y_{cal}$	1.0002	$1.0002^{+0.0067}_{-0.0062}$ (−0.0 $\sigma$ )	$z_{re}$	11.9	$11.2^{+5.6}_{-7.4}$ (−0.6 $\sigma$ )	$D_M(0.51)$	1971.2	$1973^{+38}_{-37}$ (+0.2 $\sigma$ )
$A_{100}^{PS}$	222	$234^{+70}_{-60}$ (+0.0 $\sigma$ )	$10^9 A_s$	2.293	$2.26^{+0.34}_{-0.30}$ (−0.6 $\sigma$ )	$H(0.61)$	95.53	$95.48^{+0.78}_{-0.75}$ (−0.2 $\sigma$ )
$A_{143}^{PS}$	48.3	$37^{+20}_{-20}$ (+0.1 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8726	$1.872^{+0.032}_{-0.030}$ (+0.2 $\sigma$ )	$D_M(0.61)$	2294.6	$2297^{+41}_{-40}$ (+0.2 $\sigma$ )
$A_{217}^{PS}$	108.5	$104^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{40}$	1231.7	$1233^{+37}_{-33}$ (−0.3 $\sigma$ )	$H(2.33)$	235.48	$235.6^{+2.4}_{-2.3}$ (+0.3 $\sigma$ )
$A_{217}^{CIB}$	38.8	$38^{+20}_{-20}$ (−0.0 $\sigma$ )	$D_{220}$	5716	$5716^{+98}_{-99}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5753.6	$5756^{+34}_{-35}$ (+0.2 $\sigma$ )
$A_{143}^{tSZ}$	6.38	< 8.87 (−0.0 $\sigma$ )	$D_{810}$	2532.6	$2531^{+37}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4708	$0.468^{+0.029}_{-0.029}$ (−0.4 $\sigma$ )
$r_{143 \times 217}^{PS}$	0.768	> 0.364 (+0.0 $\sigma$ )	$D_{1420}$	816.9	$816^{+12}_{-12}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.780	$0.774^{+0.052}_{-0.051}$ (−0.6 $\sigma$ )
$r_{143 \times 217}^{CIB}$	0.84	—	$D_{2000}$	231.94	$231.3^{+4.6}_{-4.4}$ (−0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4915	$0.489^{+0.029}_{-0.030}$ (−0.5 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.96	—	$n_{s,0.002}$	0.9723	$0.971^{+0.014}_{-0.014}$ (−0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6922	$0.687^{+0.048}_{-0.047}$ (−0.6 $\sigma$ )
$A^{kSZ}$	0.0	—	$Y_P$	0.245433	$0.24542^{+0.00019}_{-0.00019}$ (+0.0 $\sigma$ )	$f\sigma_8(0.51)$	0.4909	$0.488^{+0.030}_{-0.030}$ (−0.5 $\sigma$ )
$A_{100}^{dust}$	1.00	$1.00^{+0.51}_{-0.49}$ (−0.0 $\sigma$ )	$Y_P^{BBN}$	0.246759	$0.24674^{+0.00019}_{-0.00019}$ (+0.0 $\sigma$ )	$\sigma_8(0.51)$	0.6481	$0.643^{+0.045}_{-0.044}$ (−0.6 $\sigma$ )
$A_{143}^{dust}$	0.960	$0.95^{+0.45}_{-0.46}$ (−0.1 $\sigma$ )	$10^5 D/H$	2.568	$2.575^{+0.087}_{-0.087}$ (−0.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4863	$0.483^{+0.030}_{-0.030}$ (−0.6 $\sigma$ )
$A_{217}^{dust}$	0.993	$0.98^{+0.27}_{-0.27}$ (−0.0 $\sigma$ )	Age/Gyr	13.776	$13.781^{+0.075}_{-0.076}$ (+0.2 $\sigma$ )	$\sigma_8(0.61)$	0.6169	$0.612^{+0.043}_{-0.042}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{dust}$	1.008	$1.01^{+0.41}_{-0.41}$ (−0.0 $\sigma$ )	$z_*$	1089.64	$1089.70^{+0.88}_{-0.85}$ (+0.1 $\sigma$ )	$f\sigma_8(2.33)$	0.3114	$0.309^{+0.023}_{-0.022}$ (−0.6 $\sigma$ )
$c_{100}$	0.99782	$0.9975^{+0.0028}_{-0.0026}$ (+0.0 $\sigma$ )	$r_*$	144.82	$144.81^{+0.88}_{-0.85}$ (−0.3 $\sigma$ )	$\sigma_8(2.33)$	0.3213	$0.319^{+0.024}_{-0.023}$ (−0.6 $\sigma$ )
$c_{217}$	1.00104	$1.0009^{+0.0041}_{-0.0040}$ (−0.0 $\sigma$ )	$100\theta_*$	1.04122	$1.04120^{+0.00083}_{-0.00083}$ (−0.4 $\sigma$ )	$f_{2000}^{143}$	27.4	$28^{+8}_{-8}$ (+0.1 $\sigma$ )
$c_{TE}$	0.9932	$0.994^{+0.014}_{-0.014}$	$D_M(z_*)/\text{Gpc}$	13.909	$13.908^{+0.081}_{-0.080}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	104.8	$105.5^{+5.4}_{-5.5}$ (+0.1 $\sigma$ )
$c_{EE}$	0.9906	$0.991^{+0.013}_{-0.013}$	$z_{drag}$	1060.05	$1059.96^{+0.97}_{-0.90}$ (+0.1 $\sigma$ )	$f_{2000}^{143 \times 217}$	30.1	$31^{+6}_{-6}$ (+0.1 $\sigma$ )
$H_0$	68.11	$68.0^{+1.9}_{-1.9}$ (−0.3 $\sigma$ )	$r_{drag}$	147.46	$147.46^{+0.85}_{-0.83}$ (−0.4 $\sigma$ )	$\chi_{lowl}^2$	23.92	24.1 ( $\nu$ : 0.9) (−0.4 $\sigma$ )
$\Omega_\Lambda$	0.6954	$0.694^{+0.024}_{-0.026}$ (−0.2 $\sigma$ )	$k_D$	0.14055	$0.14053^{+0.00089}_{-0.00090}$ (+0.4 $\sigma$ )	$\chi_{CamSpec}^2$	11496.2	11512.2 ( $\nu$ : 16.0) (+812.8 $\sigma$ )
$\Omega_m$	0.3046	$0.306^{+0.026}_{-0.024}$ (+0.2 $\sigma$ )	$100\theta_D$	0.16070	$0.16075^{+0.00054}_{-0.00055}$ (−0.2 $\sigma$ )	$\chi_{prior}^2$	1.9	7.8 ( $\nu$ : 5.7) (+0.1 $\sigma$ )
$\Omega_m h^2$	0.14131	$0.1415^{+0.0038}_{-0.0037}$ (+0.3 $\sigma$ )	$z_{eq}$	3361	$3365^{+92}_{-89}$ (+0.3 $\sigma$ )	$\chi_{CMB}^2$	11520.1	11536.3 ( $\nu$ : 15.7) (+827.7 $\sigma$ )
$\Omega_m h^3$	0.09625	$0.09620^{+0.00084}_{-0.00082}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010259	$0.01027^{+0.00028}_{-0.00027}$ (+0.3 $\sigma$ )			
$\sigma_8$	0.843	$0.837^{+0.055}_{-0.055}$ (−0.6 $\sigma$ )	$100\theta_{eq}$	0.8210	$0.820^{+0.018}_{-0.018}$ (−0.3 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 11522.05$ ;  $\Delta\chi_{eff}^2 = 4449.76$ ;  $\bar{\chi}_{eff}^2 = 11544.10$ ;  $\Delta\bar{\chi}_{eff}^2 = 4451.86$ ;  $R - 1 = 0.00836$

$\chi_{eff}^2$ : CMB - commander\_dx12\_v3\_2\_29: 23.92 ( $\Delta$  -0.58) CamSpec like\_10.7HM\_1400\_unified: 11496.23



## 2.69 base\_plikHM\_TT\_lowl\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02240	$0.02232^{+0.00073}_{-0.00067}$	$\sigma_8 \Omega_m^{0.25}$	0.6118	$0.611^{+0.020}_{-0.021}$	$H(0.15)$	73.60	$73.4^{+2.7}_{-2.5}$
$\Omega_c h^2$	0.1172	$0.1178^{+0.0065}_{-0.0065}$	$\sigma_8/h^{0.5}$	0.9997	$0.998^{+0.031}_{-0.033}$	$D_M(0.15)$	634.2	$637^{+25}_{-25}$
$100\theta_{MC}$	1.04117	$1.0411^{+0.0014}_{-0.0013}$	$r_{drag}h$	101.2	$100.7^{+5.4}_{-5.1}$	$H(0.38)$	83.49	$83.3^{+2.0}_{-1.8}$
$\tau$	0.086	$0.080^{+0.063}_{-0.061}$	$\langle d^2 \rangle^{1/2}$	2.469	$2.468^{+0.075}_{-0.078}$	$D_M(0.38)$	1515	$1521^{+51}_{-52}$
$\ln(10^{10} A_s)$	3.100	$3.09^{+0.11}_{-0.11}$	$z_{re}$	10.6	$9.98^{+4.9}_{-6.4}$	$H(0.51)$	90.08	$89.9^{+1.6}_{-1.4}$
$n_s$	0.9733	$0.970^{+0.020}_{-0.019}$	$10^9 A_s$	2.220	$2.20^{+0.26}_{-0.23}$	$D_M(0.51)$	1965	$1971^{+59}_{-61}$
$y_{cal}$	1.0001	$1.0002^{+0.0064}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	1.8685	$1.870^{+0.040}_{-0.039}$	$H(0.61)$	95.60	$95.5^{+1.3}_{-1.1}$
$A_{217}^{CIB}$	45.6	$47^{+20}_{-20}$	$D_{40}$	1221.5	$1227^{+35}_{-33}$	$D_M(0.61)$	2288	$2295^{+64}_{-66}$
$\xi^{tSZ \times CIB}$	0.73	—	$D_{220}$	5716	$5718^{+110}_{-110}$	$H(2.33)$	234.79	$235.1^{+3.8}_{-3.8}$
$A_{143}^{tSZ}$	6.9	—	$D_{810}$	2532.4	$2531^{+36}_{-38}$	$D_M(2.33)$	5752	$5758^{+51}_{-58}$
$A_{100}^{PS}$	246	$260^{+70}_{-70}$	$D_{1420}$	816.7	$815^{+13}_{-14}$	$f\sigma_8(0.15)$	0.4582	$0.459^{+0.022}_{-0.022}$
$A_{143}^{PS}$	51.3	$47^{+20}_{-20}$	$D_{2000}$	231.3	$230.5^{+5.1}_{-5.2}$	$\sigma_8(0.15)$	0.7656	$0.762^{+0.033}_{-0.032}$
$A_{143 \times 217}^{PS}$	54.7	$42^{+20}_{-20}$	$n_{s,0.002}$	0.9733	$0.970^{+0.020}_{-0.019}$	$f\sigma_8(0.38)$	0.4797	$0.479^{+0.016}_{-0.017}$
$A_{217}^{PS}$	122.1	$115^{+30}_{-30}$	$Y_P$	0.245408	$0.24537^{+0.00030}_{-0.00031}$	$\sigma_8(0.38)$	0.6800	$0.677^{+0.032}_{-0.031}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246735	$0.24670^{+0.00030}_{-0.00031}$	$f\sigma_8(0.51)$	0.4798	$0.479^{+0.015}_{-0.016}$
$A_{100}^{dustTT}$	8.87	$9.0^{+4.7}_{-4.7}$	$10^5 D/H$	2.579	$2.60^{+0.13}_{-0.13}$	$\sigma_8(0.51)$	0.6369	$0.634^{+0.032}_{-0.031}$
$A_{143}^{dustTT}$	10.79	$10.7^{+4.7}_{-4.6}$	Age/Gyr	13.774	$13.79^{+0.11}_{-0.13}$	$f\sigma_8(0.61)$	0.4757	$0.475^{+0.015}_{-0.016}$
$A_{143 \times 217}^{dustTT}$	19.8	$18.3^{+8.5}_{-8.5}$	$z_*$	1089.63	$1089.8^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	0.6064	$0.603^{+0.031}_{-0.030}$
$A_{217}^{dustTT}$	95.4	$94^{+20}_{-20}$	$r_*$	145.13	$145.0^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	0.3063	$0.304^{+0.017}_{-0.016}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04136	$1.0413^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	0.3163	$0.314^{+0.019}_{-0.018}$
$c_{217}$	0.99822	$0.9982^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.936	$13.93^{+0.13}_{-0.13}$	$f_{2000}^{143}$	28.3	$30^{+8}_{-8}$
$H_0$	68.45	$68.2^{+3.1}_{-2.9}$	$z_{drag}$	1059.82	$1059.7^{+1.4}_{-1.3}$	$f_{2000}^{143 \times 217}$	31.7	$32^{+6}_{-6}$
$\Omega_\Lambda$	0.7006	$0.697^{+0.038}_{-0.041}$	$r_{drag}$	147.79	$147.7^{+1.4}_{-1.3}$	$f_{2000}^{217}$	106.1	$107.1^{+5.4}_{-5.5}$
$\Omega_m$	0.2994	$0.303^{+0.041}_{-0.038}$	$k_D$	0.14015	$0.1402^{+0.0013}_{-0.0014}$	$\chi^2_{lensing}$	9.11	9.8 ( $\nu: 1.3$ )
$\Omega_m h^2$	0.1403	$0.1408^{+0.0061}_{-0.0061}$	$100\theta_D$	0.16084	$0.16093^{+0.00075}_{-0.00073}$	$\chi^2_{lowl}$	22.92	23.5 ( $\nu: 0.5$ )
$\Omega_m h^3$	0.09602	$0.0959^{+0.0012}_{-0.0012}$	$z_{eq}$	3337	$3349^{+150}_{-140}$	$\chi^2_{plik}$	757.8	770.5 ( $\nu: 15.4$ )
$\sigma_8$	0.8271	$0.824^{+0.033}_{-0.032}$	$k_{eq}$	0.010184	$0.01022^{+0.00044}_{-0.00044}$	$\chi^2_{prior}$	1.2	7.4 ( $\nu: 6.9$ )
$S_8$	0.8262	$0.828^{+0.045}_{-0.044}$	$100\theta_{eq}$	0.8255	$0.823^{+0.029}_{-0.028}$	$\chi^2_{CMB}$	789.8	803.7 ( $\nu: 15.1$ )
$\sigma_8 \Omega_m^{0.5}$	0.4526	$0.454^{+0.024}_{-0.024}$	$100\theta_{s,eq}$	0.4557	$0.455^{+0.015}_{-0.014}$			

Best-fit  $\chi^2_{eff} = 791.01$ ;  $\bar{\chi}^2_{eff} = 811.06$ ;  $R - 1 = 0.00623$

$\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 9.11 commander\_dx12\_v3\_2\_29: 22.92 plik\_rd12\_HM\_v22\_TT: 757.77



## 2.70 base\_plikHM\_TT\_lowl\_lensing\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02234	$0.02230^{+0.00053}_{-0.00052}$	$\sigma_8/h^{0.5}$	0.9986	$0.998^{+0.031}_{-0.033}$	$H(0.38)$	83.27	$83.2^{+1.0}_{-0.99}$
$\Omega_c h^2$	0.11798	$0.1180^{+0.0033}_{-0.0033}$	$r_{\text{drag}} h$	100.56	$100.5^{+2.7}_{-2.6}$	$D_M(0.38)$	1521.3	$1522^{+26}_{-26}$
$100\theta_{\text{MC}}$	1.04110	$1.0411^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.468	$2.468^{+0.073}_{-0.078}$	$H(0.51)$	89.91	$89.87^{+0.85}_{-0.81}$
$\tau$	0.0794	$0.078^{+0.042}_{-0.042}$	$z_{\text{re}}$	10.05	$9.9^{+3.4}_{-4.2}$	$D_M(0.51)$	1971.9	$1973^{+31}_{-31}$
$\ln(10^{10} A_s)$	3.088	$3.085^{+0.077}_{-0.078}$	$10^9 A_s$	2.193	$2.19^{+0.17}_{-0.16}$	$H(0.61)$	95.46	$95.43^{+0.73}_{-0.70}$
$n_s$	0.9705	$0.969^{+0.012}_{-0.012}$	$10^9 A_s e^{-2\tau}$	1.8710	$1.872^{+0.030}_{-0.031}$	$D_M(0.61)$	2295.6	$2297^{+34}_{-34}$
$y_{\text{cal}}$	0.9999	$1.0002^{+0.0064}_{-0.0066}$	$D_{40}$	1224.4	$1227^{+31}_{-31}$	$H(2.33)$	235.21	$235.2^{+2.0}_{-2.1}$
$A_{217}^{\text{CIB}}$	47.7	$47^{+20}_{-20}$	$D_{220}$	5714	$5718^{+110}_{-110}$	$D_M(2.33)$	5757.9	$5760^{+35}_{-35}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.39	—	$D_{810}$	2531.6	$2531^{+35}_{-38}$	$f\sigma_8(0.15)$	0.4596	$0.459^{+0.017}_{-0.017}$
$A_{143}^{\text{tSZ}}$	7.1	—	$D_{1420}$	815.5	$815^{+13}_{-13}$	$\sigma_8(0.15)$	0.7623	$0.761^{+0.027}_{-0.027}$
$A_{100}^{\text{PS}}$	251	$260^{+70}_{-70}$	$D_{2000}$	230.70	$230.4^{+4.5}_{-4.7}$	$f\sigma_8(0.38)$	0.4800	$0.480^{+0.015}_{-0.016}$
$A_{143}^{\text{PS}}$	48.0	$47^{+20}_{-20}$	$n_{\text{s},0.002}$	0.9705	$0.969^{+0.012}_{-0.012}$	$\sigma_8(0.38)$	0.6766	$0.676^{+0.025}_{-0.025}$
$A_{143 \times 217}^{\text{PS}}$	47.2	$43^{+20}_{-20}$	$Y_{\text{P}}$	0.245382	$0.24536^{+0.00020}_{-0.00024}$	$f\sigma_8(0.51)$	0.4795	$0.479^{+0.015}_{-0.016}$
$A_{217}^{\text{PS}}$	119.1	$115^{+30}_{-30}$	$Y_{\text{P}}^{\text{BBN}}$	0.246709	$0.24669^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	0.6335	$0.633^{+0.024}_{-0.024}$
$A^{\text{kSZ}}$	0.0	—	$10^5 \text{D}/\text{H}$	2.592	$2.60^{+0.10}_{-0.095}$	$f\sigma_8(0.61)$	0.4750	$0.475^{+0.015}_{-0.016}$
$A_{100}^{\text{dustTT}}$	8.87	$8.9^{+4.7}_{-4.7}$	Age/Gyr	13.787	$13.791^{+0.079}_{-0.080}$	$\sigma_8(0.61)$	0.6030	$0.602^{+0.023}_{-0.023}$
$A_{143}^{\text{dustTT}}$	10.80	$10.7^{+4.8}_{-4.5}$	$z_*$	1089.79	$1089.84^{+0.83}_{-0.81}$	$f\sigma_8(2.33)$	0.3044	$0.304^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\text{dustTT}}$	19.4	$18.2^{+8.4}_{-8.3}$	$r_*$	144.98	$144.99^{+0.85}_{-0.79}$	$\sigma_8(2.33)$	0.3141	$0.314^{+0.013}_{-0.013}$
$A_{217}^{\text{dustTT}}$	94.7	$93^{+20}_{-20}$	$100\theta_*$	1.04129	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	29.2	$30^{+8}_{-7}$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.923	$13.924^{+0.082}_{-0.077}$	$f_{2000}^{143 \times 217}$	32.3	$33^{+5}_{-5}$
$c_{217}$	0.99823	$0.9982^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.70	$1059.6^{+1.1}_{-1.2}$	$f_{2000}^{217}$	106.7	$107.2^{+5.0}_{-5.0}$
$H_0$	68.10	$68.0^{+1.6}_{-1.5}$	$r_{\text{drag}}$	147.67	$147.69^{+0.91}_{-0.84}$	$\chi_{\text{lensing}}^2$	9.05	$9.8 (\nu: 1.2)$
$\Omega_\Lambda$	0.6961	$0.695^{+0.019}_{-0.020}$	$k_{\text{D}}$	0.14024	$0.1402^{+0.0011}_{-0.0011}$	$\chi_{\text{lowl}}^2$	23.17	$23.42 (\nu: 0.4)$
$\Omega_{\text{m}}$	0.3039	$0.305^{+0.020}_{-0.019}$	$100\theta_{\text{D}}$	0.16089	$0.16094^{+0.00070}_{-0.00063}$	$\chi_{\text{plik}}^2$	757.5	$769.8 (\nu: 14.2)$
$\Omega_{\text{m}} h^2$	0.14096	$0.1410^{+0.0032}_{-0.0032}$	$z_{\text{eq}}$	3353	$3354^{+76}_{-76}$	$\chi_{6\text{DF}}^2$	0.000	$0.043 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	0.09600	$0.0959^{+0.0012}_{-0.0012}$	$k_{\text{eq}}$	0.010234	$0.01024^{+0.00023}_{-0.00023}$	$\chi_{\text{MGS}}^2$	1.75	$1.78 (\nu: 0.2)$
$\sigma_8$	0.8241	$0.823^{+0.028}_{-0.029}$	$100\theta_{\text{eq}}$	0.8222	$0.822^{+0.015}_{-0.014}$	$\chi_{\text{DR12BAO}}^2$	3.43	$4.1 (\nu: 0.6)$
$S_8$	0.8295	$0.829^{+0.031}_{-0.032}$	$100\theta_{\text{s,eq}}$	0.4541	$0.4540^{+0.0075}_{-0.0073}$	$\chi_{\text{prior}}^2$	1.4	$7.4 (\nu: 6.7)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4543	$0.454^{+0.017}_{-0.018}$	$H(0.15)$	73.30	$73.2^{+1.4}_{-1.3}$	$\chi_{\text{CMB}}^2$	789.7	$803.0 (\nu: 13.8)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6119	$0.611^{+0.019}_{-0.021}$	$D_M(0.15)$	637.1	$638^{+13}_{-13}$	$\chi_{\text{BAO}}^2$	5.18	$6.0 (\nu: 0.6)$

Best-fit  $\chi_{\text{eff}}^2 = 796.25$ ;  $\bar{\chi}_{\text{eff}}^2 = 816.31$ ;  $R - 1 = 0.00781$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.43 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.05 commander\_dx12\_v3.2\_29: 23.17 plik\_rd12\_HM\_v22\_TT: 757.49



## 2.71 base\_plikHM\_TT\_lowl\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02235^{+0.00071}_{-0.00062}$	$\sigma_8 \Omega_m^{0.25}$	$0.612^{+0.020}_{-0.021}$	$H(0.15)$	$73.5^{+2.6}_{-2.1}$
$\Omega_c h^2$	$0.1175^{+0.0056}_{-0.0062}$	$\sigma_8/h^{0.5}$	$0.999^{+0.031}_{-0.031}$	$D_M(0.15)$	$636^{+21}_{-24}$
$100\theta_{MC}$	$1.0411^{+0.0013}_{-0.0012}$	$r_{\text{drag}} h$	$100.9^{+5.2}_{-4.3}$	$H(0.38)$	$83.4^{+2.0}_{-1.5}$
$\tau$	$0.084^{+0.057}_{-0.044}$	$\langle d^2 \rangle^{1/2}$	$2.471^{+0.073}_{-0.075}$	$D_M(0.38)$	$1518^{+43}_{-50}$
$\ln(10^{10} A_s)$	$3.09^{+0.10}_{-0.081}$	$z_{\text{re}}$	$< 14.5$	$H(0.51)$	$90.0^{+1.6}_{-1.2}$
$n_s$	$0.971^{+0.019}_{-0.016}$	$10^9 A_s$	$2.21^{+0.23}_{-0.18}$	$D_M(0.51)$	$1968^{+50}_{-59}$
$y_{\text{cal}}$	$1.0002^{+0.0064}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	$1.869^{+0.036}_{-0.038}$	$H(0.61)$	$95.5^{+1.3}_{-0.98}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$D_{40}$	$1226^{+33}_{-32}$	$D_M(0.61)$	$2292^{+54}_{-63}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{220}$	$5718^{+110}_{-110}$	$H(2.33)$	$234.9^{+3.3}_{-3.7}$
$A_{143}^{\text{tSZ}}$	—	$D_{810}$	$2530^{+36}_{-38}$	$D_M(2.33)$	$5755^{+46}_{-57}$
$A_{100}^{\text{PS}}$	$259^{+70}_{-70}$	$D_{1420}$	$815^{+13}_{-14}$	$f\sigma_8(0.15)$	$0.459^{+0.021}_{-0.022}$
$A_{143}^{\text{PS}}$	$46^{+20}_{-20}$	$D_{2000}$	$230.6^{+5.0}_{-5.0}$	$\sigma_8(0.15)$	$0.764^{+0.032}_{-0.024}$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20}$	$n_{s,0.002}$	$0.971^{+0.019}_{-0.016}$	$f\sigma_8(0.38)$	$0.479^{+0.016}_{-0.017}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$Y_P$	$0.24538^{+0.00030}_{-0.00028}$	$\sigma_8(0.38)$	$0.678^{+0.030}_{-0.024}$
$A^{\text{kSZ}}$	—	$Y_P^{\text{BBN}}$	$0.24671^{+0.00030}_{-0.00028}$	$f\sigma_8(0.51)$	$0.479^{+0.015}_{-0.015}$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.7}_{-4.7}$	$10^5 \text{D/H}$	$2.59^{+0.12}_{-0.13}$	$\sigma_8(0.51)$	$0.635^{+0.029}_{-0.024}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.8}_{-4.6}$	$\text{Age/Gyr}$	$13.78^{+0.10}_{-0.12}$	$f\sigma_8(0.61)$	$0.475^{+0.015}_{-0.015}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.4}_{-8.5}$	$z_*$	$1089.7^{+1.1}_{-1.3}$	$\sigma_8(0.61)$	$0.605^{+0.028}_{-0.023}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$r_*$	$145.1^{+1.4}_{-1.2}$	$f\sigma_8(2.33)$	$0.305^{+0.016}_{-0.012}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0413^{+0.0013}_{-0.0012}$	$\sigma_8(2.33)$	$0.315^{+0.018}_{-0.014}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	$13.93^{+0.13}_{-0.11}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$H_0$	$68.3^{+3.0}_{-2.5}$	$z_{\text{drag}}$	$1059.7^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$\Omega_\Lambda$	$0.698^{+0.036}_{-0.035}$	$r_{\text{drag}}$	$147.8^{+1.3}_{-1.2}$	$f_{2000}^{217}$	$106.9^{+5.2}_{-5.4}$
$\Omega_m$	$0.302^{+0.035}_{-0.036}$	$k_D$	$0.1401^{+0.0013}_{-0.0013}$	$\chi_{\text{lensing}}^2$	$9.8 (\nu: 1.3)$
$\Omega_m h^2$	$0.1405^{+0.0052}_{-0.0059}$	$100\theta_D$	$0.16091^{+0.00073}_{-0.00072}$	$\chi_{\text{lowl}}^2$	$23.40 (\nu: 0.5)$
$\Omega_m h^3$	$0.0959^{+0.0012}_{-0.0012}$	$z_{\text{eq}}$	$3342^{+130}_{-140}$	$\chi_{\text{plik}}^2$	$770.3 (\nu: 15.3)$
$\sigma_8$	$0.825^{+0.032}_{-0.026}$	$k_{\text{eq}}$	$0.01020^{+0.00038}_{-0.00043}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.9)$
$S_8$	$0.827^{+0.044}_{-0.043}$	$100\theta_{\text{eq}}$	$0.824^{+0.028}_{-0.024}$	$\chi_{\text{CMB}}^2$	$803.5 (\nu: 14.7)$
$\sigma_8 \Omega_m^{0.5}$	$0.453^{+0.024}_{-0.024}$	$100\theta_{s,\text{eq}}$	$0.455^{+0.014}_{-0.012}$		

$\bar{\chi}_{\text{eff}}^2 = 810.86; R - 1 = 0.00629$



## 2.72 base\_plikHM\_TT\_lowl\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02230^{+0.00052}_{-0.00052}$	$\sigma_8/h^{0.5}$	$0.998^{+0.031}_{-0.030}$	$H(0.38)$	$83.2^{+1.0}_{-0.96}$
$\Omega_c h^2$	$0.1180^{+0.0032}_{-0.0033}$	$r_{\text{drag}} h$	$100.5^{+2.6}_{-2.5}$	$D_M(0.38)$	$1522^{+25}_{-26}$
$100\theta_{\text{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.469^{+0.072}_{-0.073}$	$H(0.51)$	$89.88^{+0.85}_{-0.79}$
$\tau$	$0.079^{+0.041}_{-0.034}$	$z_{\text{re}}$	$9.9^{+3.4}_{-3.3}$	$D_M(0.51)$	$1973^{+30}_{-31}$
$\ln(10^{10} A_s)$	$3.087^{+0.076}_{-0.064}$	$10^9 A_s$	$2.19^{+0.17}_{-0.14}$	$H(0.61)$	$95.44^{+0.73}_{-0.68}$
$n_s$	$0.970^{+0.012}_{-0.012}$	$10^9 A_s e^{-2\tau}$	$1.871^{+0.030}_{-0.031}$	$D_M(0.61)$	$2297^{+33}_{-34}$
$y_{\text{cal}}$	$1.0002^{+0.0065}_{-0.0066}$	$D_{40}$	$1227^{+31}_{-31}$	$H(2.33)$	$235.2^{+2.0}_{-2.1}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$D_{220}$	$5718^{+110}_{-110}$	$D_M(2.33)$	$5760^{+34}_{-35}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{810}$	$2531^{+35}_{-37}$	$f\sigma_8(0.15)$	$0.460^{+0.016}_{-0.017}$
$A_{143}^{\text{tSZ}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.762^{+0.026}_{-0.023}$
$A_{100}^{\text{PS}}$	$260^{+70}_{-70}$	$D_{2000}$	$230.4^{+4.5}_{-4.6}$	$f\sigma_8(0.38)$	$0.480^{+0.015}_{-0.015}$
$A_{143}^{\text{PS}}$	$47^{+20}_{-20}$	$n_{s,0.002}$	$0.970^{+0.012}_{-0.012}$	$\sigma_8(0.38)$	$0.676^{+0.025}_{-0.021}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}$	$0.24537^{+0.00020}_{-0.00024}$	$f\sigma_8(0.51)$	$0.479^{+0.015}_{-0.015}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24669^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	$0.633^{+0.024}_{-0.020}$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.60^{+0.10}_{-0.095}$	$f\sigma_8(0.61)$	$0.475^{+0.015}_{-0.014}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.7}$	$\text{Age}/\text{Gyr}$	$13.791^{+0.077}_{-0.079}$	$\sigma_8(0.61)$	$0.602^{+0.023}_{-0.019}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.8}_{-4.5}$	$z_*$	$1089.83^{+0.80}_{-0.81}$	$f\sigma_8(2.33)$	$0.304^{+0.012}_{-0.010}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.2^{+8.4}_{-8.3}$	$r_*$	$145.00^{+0.84}_{-0.77}$	$\sigma_8(2.33)$	$0.314^{+0.013}_{-0.011}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	$13.925^{+0.082}_{-0.076}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.6^{+1.1}_{-1.2}$	$f_{2000}^{217}$	$107.2^{+4.9}_{-5.0}$
$H_0$	$68.1^{+1.6}_{-1.5}$	$r_{\text{drag}}$	$147.69^{+0.91}_{-0.83}$	$\chi_{\text{lensing}}^2$	$9.8 (\nu: 1.2)$
$\Omega_\Lambda$	$0.696^{+0.019}_{-0.019}$	$k_{\text{D}}$	$0.1402^{+0.0011}_{-0.0011}$	$\chi_{\text{lowl}}^2$	$23.43 (\nu: 0.4)$
$\Omega_{\text{m}}$	$0.304^{+0.019}_{-0.019}$	$100\theta_{\text{D}}$	$0.16094^{+0.00069}_{-0.00063}$	$\chi_{\text{plik}}^2$	$769.7 (\nu: 14.0)$
$\Omega_{\text{m}} h^2$	$0.1410^{+0.0030}_{-0.0031}$	$z_{\text{eq}}$	$3353^{+73}_{-75}$	$\chi_{6\text{DF}}^2$	$0.041 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.0959^{+0.0012}_{-0.0012}$	$k_{\text{eq}}$	$0.01023^{+0.00022}_{-0.00023}$	$\chi_{\text{MGS}}^2$	$1.79 (\nu: 0.2)$
$\sigma_8$	$0.823^{+0.028}_{-0.025}$	$100\theta_{\text{eq}}$	$0.822^{+0.015}_{-0.014}$	$\chi_{\text{DR12BAO}}^2$	$4.1 (\nu: 0.5)$
$S_8$	$0.829^{+0.031}_{-0.032}$	$100\theta_{\text{s,eq}}$	$0.4541^{+0.0075}_{-0.0070}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.7)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.454^{+0.017}_{-0.017}$	$H(0.15)$	$73.3^{+1.3}_{-1.3}$	$\chi_{\text{CMB}}^2$	$802.9 (\nu: 13.6)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.612^{+0.019}_{-0.019}$	$D_M(0.15)$	$638^{+13}_{-13}$	$\chi_{\text{BAO}}^2$	$5.9 (\nu: 0.5)$

$$\bar{\chi}_{\text{eff}}^2 = 816.23; R - 1 = 0.00814$$



### 2.73 base\_plikHM\_TTTEEE\_lowl\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.022525	$0.02249^{+0.00042}_{-0.00044}$ $(+0.6\sigma)$	$\Omega_{\text{m}}h^3$	0.09639	$0.09635^{+0.00074}_{-0.00075}$ $(+0.9\sigma)$	$100\theta_{\text{eq}}$	0.8208	$0.820^{+0.017}_{-0.017}$ $(-0.3\sigma)$
$\Omega_{\text{c}}h^2$	0.11824	$0.1184^{+0.0040}_{-0.0040}$ $(+0.2\sigma)$	$\sigma_8$	0.8270	$0.825^{+0.028}_{-0.028}$ $(+0.1\sigma)$	$100\theta_{\text{s,eq}}$	0.4532	$0.4528^{+0.0089}_{-0.0087}$ $(-0.3\sigma)$
$100\theta_{\text{MC}}$	1.04111	$1.04108^{+0.00084}_{-0.00082}$ $(-0.1\sigma)$	$S_8$	0.8330	$0.833^{+0.034}_{-0.032}$ $(+0.3\sigma)$	$H(0.15)$	73.37	$73.3^{+1.6}_{-1.5}$ $(-0.1\sigma)$
$\tau$	0.0816	$0.079^{+0.044}_{-0.046}$ $(-0.1\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4562	$0.456^{+0.018}_{-0.017}$ $(+0.3\sigma)$	$D_{\text{M}}(0.15)$	636.5	$637^{+16}_{-15}$ $(+0.1\sigma)$
$\ln(10^{10}A_{\text{s}})$	3.094	$3.089^{+0.080}_{-0.084}$ $(-0.0\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.6143	$0.613^{+0.019}_{-0.019}$ $(+0.3\sigma)$	$H(0.38)$	83.37	$83.3^{+1.2}_{-1.1}$ $(-0.0\sigma)$
$n_{\text{s}}$	0.9716	$0.970^{+0.013}_{-0.013}$ $(-0.1\sigma)$	$\sigma_8/h^{0.5}$	1.0017	$0.9999^{+0.032}_{-0.031}$ $(+0.2\sigma)$	$D_{\text{M}}(0.38)$	1519.8	$1522^{+31}_{-31}$ $(+0.1\sigma)$
$y_{\text{cal}}$	1.0000	$1.0002^{+0.0064}_{-0.0064}$ $(-0.0\sigma)$	$r_{\text{drag}}h$	100.46	$100.3^{+3.2}_{-3.1}$ $(-0.2\sigma)$	$H(0.51)$	90.02	$89.96^{+0.95}_{-0.89}$ $(+0.0\sigma)$
$A_{217}^{\text{CIB}}$	44.3	$46^{+20}_{-20}$ $(-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	2.474	$2.474^{+0.075}_{-0.074}$ $(+0.2\sigma)$	$D_{\text{M}}(0.51)$	1969.9	$1972^{+36}_{-36}$ $(+0.0\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.85	—	$z_{\text{re}}$	10.19	$9.9^{+3.6}_{-4.5}$ $(-0.0\sigma)$	$H(0.61)$	95.58	$95.54^{+0.77}_{-0.71}$ $(+0.1\sigma)$
$A_{143}^{\text{tSZ}}$	7.04	$> 1.08$ $(+0.2\sigma)$	$10^9 A_{\text{s}}$	2.206	$2.20^{+0.18}_{-0.18}$ $(-0.0\sigma)$	$D_{\text{M}}(0.61)$	2293.1	$2295^{+39}_{-39}$ $(+0.0\sigma)$
$A_{100}^{\text{PS}}$	244	$255^{+70}_{-70}$ $(-0.2\sigma)$	$10^9 A_{\text{s}}e^{-2\tau}$	1.8739	$1.874^{+0.034}_{-0.031}$ $(+0.2\sigma)$	$H(2.33)$	235.57	$235.7^{+2.4}_{-2.3}$ $(+0.4\sigma)$
$A_{143}^{\text{PS}}$	50.9	$44^{+20}_{-20}$ $(-0.3\sigma)$	$D_{40}$	1225.0	$1229^{+31}_{-29}$ $(+0.2\sigma)$	$D_{\text{M}}(2.33)$	5750.5	$5753^{+32}_{-33}$ $(-0.2\sigma)$
$A_{143 \times 217}^{\text{PS}}$	56.3	$42^{+20}_{-20}$ $(-0.1\sigma)$	$D_{220}$	5727	$5731^{+100}_{-99}$ $(+0.3\sigma)$	$f\sigma_8(0.15)$	0.4615	$0.461^{+0.017}_{-0.016}$ $(+0.3\sigma)$
$A_{217}^{\text{PS}}$	122.8	$115^{+30}_{-30}$ $(+0.0\sigma)$	$D_{810}$	2535.5	$2534^{+36}_{-35}$ $(+0.2\sigma)$	$\sigma_8(0.15)$	0.7649	$0.763^{+0.026}_{-0.027}$ $(+0.1\sigma)$
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	818.2	$817^{+12}_{-12}$ $(+0.4\sigma)$	$f\sigma_8(0.38)$	0.4819	$0.481^{+0.015}_{-0.015}$ $(+0.3\sigma)$
$A_{100}^{\text{dustTT}}$	8.79	$8.9^{+4.5}_{-4.7}$ $(-0.0\sigma)$	$D_{2000}$	231.99	$231.4^{+4.0}_{-4.0}$ $(+0.5\sigma)$	$\sigma_8(0.38)$	0.6788	$0.677^{+0.025}_{-0.025}$ $(+0.0\sigma)$
$A_{143}^{\text{dustTT}}$	11.02	$10.9^{+4.5}_{-4.6}$ $(+0.1\sigma)$	$n_{\text{s},0.002}$	0.9716	$0.970^{+0.013}_{-0.013}$ $(-0.1\sigma)$	$f\sigma_8(0.51)$	0.4813	$0.480^{+0.015}_{-0.015}$ $(+0.3\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	20.3	$18.6^{+8.5}_{-8.3}$ $(+0.1\sigma)$	$Y_{\text{P}}$	0.245453	$0.24544^{+0.00017}_{-0.00017}$ $(+0.6\sigma)$	$\sigma_8(0.51)$	0.6356	$0.634^{+0.024}_{-0.024}$ $(+0.0\sigma)$
$A_{217}^{\text{dustTT}}$	95.8	$94^{+20}_{-20}$ $(+0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	0.246780	$0.24677^{+0.00017}_{-0.00018}$ $(+0.6\sigma)$	$f\sigma_8(0.61)$	0.4768	$0.476^{+0.015}_{-0.015}$ $(+0.2\sigma)$
$A_{100}^{\text{dustTE}}$	0.113	$0.114^{+0.097}_{-0.095}$	$10^5 \text{D/H}$	2.558	$2.564^{+0.081}_{-0.076}$ $(-0.6\sigma)$	$\sigma_8(0.61)$	0.6050	$0.603^{+0.023}_{-0.024}$ $(+0.0\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.134^{+0.074}_{-0.075}$	Age/Gyr	13.769	$13.774^{+0.071}_{-0.072}$ $(-0.3\sigma)$	$f\sigma_8(2.33)$	0.3053	$0.304^{+0.012}_{-0.012}$ $(-0.0\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.57	$1089.63^{+0.83}_{-0.79}$ $(-0.3\sigma)$	$\sigma_8(2.33)$	0.3151	$0.314^{+0.014}_{-0.014}$ $(-0.0\sigma)$
$A_{143}^{\text{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$r_*$	144.77	$144.74^{+0.86}_{-0.87}$ $(-0.5\sigma)$	$f_{2000}^{143}$	27.3	$28^{+7}_{-7}$ $(-0.4\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	0.665	$0.66^{+0.21}_{-0.21}$	$100\theta_*$	1.04127	$1.04125^{+0.00082}_{-0.00081}$ $(-0.1\sigma)$	$f_{2000}^{143 \times 217}$	30.9	$31^{+5}_{-5}$ $(-0.5\sigma)$
$A_{217}^{\text{dustTE}}$	2.07	$2.07^{+0.68}_{-0.70}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.903	$13.901^{+0.078}_{-0.081}$ $(-0.5\sigma)$	$f_{2000}^{217}$	105.43	$106.2^{+4.9}_{-4.8}$ $(-0.4\sigma)$
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$ $(+0.1\sigma)$	$z_{\text{drag}}$	1060.16	$1060.11^{+0.82}_{-0.82}$ $(+0.9\sigma)$	$\chi_{\text{lensing}}^2$	9.66	$10.1 (\nu: 1.8)$ $(+0.2\sigma)$
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0016}$ $(-0.1\sigma)$	$r_{\text{drag}}$	147.39	$147.37^{+0.82}_{-0.82}$ $(-0.7\sigma)$	$\chi_{\text{lowl}}^2$	23.14	$23.54 (\nu: 0.4)$ $(+0.1\sigma)$
$H_0$	68.16	$68.1^{+1.9}_{-1.8}$ $(-0.1\sigma)$	$k_{\text{D}}$	0.14067	$0.14066^{+0.00084}_{-0.00082}$ $(+1.0\sigma)$	$\chi_{\text{plik}}^2$	2342.0	$2357.3 (\nu: 18.1)$ $(+286.1\sigma)$
$\Omega_{\Lambda}$	0.6956	$0.694^{+0.024}_{-0.025}$ $(-0.1\sigma)$	$100\theta_{\text{D}}$	0.160631	$0.16067^{+0.00048}_{-0.00046}$ $(-0.9\sigma)$	$\chi_{\text{prior}}^2$	1.5	$11.5 (\nu: 10.3)$ $(+1.1\sigma)$
$\Omega_{\text{m}}$	0.3044	$0.306^{+0.025}_{-0.024}$ $(+0.1\sigma)$	$z_{\text{eq}}$	3364	$3368^{+90}_{-87}$ $(+0.3\sigma)$	$\chi_{\text{CMB}}^2$	2374.8	$2391.0 (\nu: 17.1)$ $(+289.2\sigma)$
$\Omega_{\text{m}}h^2$	0.14141	$0.1416^{+0.0038}_{-0.0037}$ $(+0.3\sigma)$	$k_{\text{eq}}$	0.010267	$0.01028^{+0.00027}_{-0.00027}$ $(+0.3\sigma)$			

Best-fit  $\chi_{\text{eff}}^2 = 2376.35$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.34$ ;  $\bar{\chi}_{\text{eff}}^2 = 2402.48$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.43$ ;  $R - 1 = 0.01194$

$\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 9.66 ( $\Delta$  0.55) commander\_dx12\_v3.2\_29: 23.14 ( $\Delta$  0.23) plik\_rd12\_HM\_v22b.TTTEEE: 2342.04



## 2.74 base\_plikHM\_TTTEEE\_lowl\_lensing\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022524	$0.02250^{+0.00037}_{-0.00036}$ (+1.0 $\sigma$ )	$\sigma_8$	0.8263	$0.825^{+0.026}_{-0.028}$ (+0.2 $\sigma$ )	$H(0.15)$	73.37	$73.3^{+1.1}_{-1.1}$ (+0.2 $\sigma$ )
$\Omega_c h^2$	0.11825	$0.1183^{+0.0028}_{-0.0027}$ (+0.2 $\sigma$ )	$S_8$	0.8324	$0.832^{+0.030}_{-0.029}$ (+0.2 $\sigma$ )	$D_M(0.15)$	636.6	$637^{+11}_{-10}$ (−0.1 $\sigma$ )
$100\theta_{MC}$	1.04110	$1.04109^{+0.00077}_{-0.00078}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4559	$0.456^{+0.017}_{-0.016}$ (+0.2 $\sigma$ )	$H(0.38)$	83.36	$83.33^{+0.80}_{-0.81}$ (+0.3 $\sigma$ )
$\tau$	0.0808	$0.080^{+0.039}_{-0.041}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6138	$0.613^{+0.019}_{-0.020}$ (+0.2 $\sigma$ )	$D_M(0.38)$	1519.9	$1521^{+22}_{-21}$ (−0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.092	$3.090^{+0.070}_{-0.076}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	1.0009	$0.9998^{+0.031}_{-0.032}$ (+0.2 $\sigma$ )	$H(0.51)$	90.01	$89.98^{+0.64}_{-0.64}$ (+0.4 $\sigma$ )
$n_s$	0.9715	$0.970^{+0.010}_{-0.011}$ (+0.1 $\sigma$ )	$r_{drag} h$	100.45	$100.4^{+2.2}_{-2.2}$ (−0.1 $\sigma$ )	$D_M(0.51)$	1970.0	$1971^{+25}_{-25}$ (−0.2 $\sigma$ )
$y_{cal}$	1.0000	$1.0002^{+0.0064}_{-0.0065}$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.472	$2.474^{+0.074}_{-0.075}$ (+0.2 $\sigma$ )	$H(0.61)$	95.58	$95.56^{+0.54}_{-0.53}$ (+0.5 $\sigma$ )
$A_{217}^{CIB}$	44.7	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$z_{re}$	10.12	$9.98^{+3.2}_{-4.0}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2293.3	$2294^{+28}_{-27}$ (−0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.79	—	$10^9 A_s$	2.202	$2.20^{+0.16}_{-0.16}$ (+0.1 $\sigma$ )	$H(2.33)$	235.58	$235.6^{+1.7}_{-1.6}$ (+0.5 $\sigma$ )
$A_{143}^{tSZ}$	7.06	> 1.04 (+0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8738	$1.874^{+0.031}_{-0.028}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5750.7	$5752^{+25}_{-24}$ (−0.6 $\sigma$ )
$A_{100}^{PS}$	245	$254^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{40}$	1224.8	$1229^{+30}_{-28}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4612	$0.461^{+0.016}_{-0.016}$ (+0.2 $\sigma$ )
$A_{143}^{PS}$	49.9	$44^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{220}$	5727	$5731^{+100}_{-96}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7643	$0.763^{+0.025}_{-0.026}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	54.8	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2535.4	$2534^{+37}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4815	$0.481^{+0.015}_{-0.016}$ (+0.2 $\sigma$ )
$A_{217}^{PS}$	122.3	$115^{+20}_{-30}$ (+0.0 $\sigma$ )	$D_{1420}$	818.1	$817^{+12}_{-12}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6783	$0.677^{+0.023}_{-0.024}$ (+0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$D_{2000}$	231.95	$231.4^{+3.7}_{-3.9}$ (+0.6 $\sigma$ )	$f\sigma_8(0.51)$	0.4809	$0.480^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )
$A_{100}^{dustTT}$	8.85	$8.9^{+4.6}_{-4.6}$ (−0.0 $\sigma$ )	$n_{s,0.002}$	0.9715	$0.970^{+0.010}_{-0.011}$ (+0.1 $\sigma$ )	$\sigma_8(0.51)$	0.6351	$0.634^{+0.022}_{-0.023}$ (+0.2 $\sigma$ )
$A_{143}^{dustTT}$	11.07	$10.9^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$Y_P$	0.245453	$0.24544^{+0.00014}_{-0.00014}$ (+0.9 $\sigma$ )	$f\sigma_8(0.61)$	0.4764	$0.476^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.2	$18.6^{+8.3}_{-8.2}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246780	$0.24677^{+0.00014}_{-0.00014}$ (+0.9 $\sigma$ )	$\sigma_8(0.61)$	0.6045	$0.604^{+0.021}_{-0.022}$ (+0.2 $\sigma$ )
$A_{217}^{dustTT}$	95.6	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$10^5 D/H$	2.558	$2.562^{+0.066}_{-0.066}$ (−1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3051	$0.305^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.098}_{-0.094}$	Age/Gyr	13.769	$13.772^{+0.056}_{-0.054}$ (−0.6 $\sigma$ )	$\sigma_8(2.33)$	0.3149	$0.314^{+0.012}_{-0.012}$ (+0.1 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.134^{+0.071}_{-0.077}$	$z_*$	1089.58	$1089.61^{+0.61}_{-0.60}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	27.3	$28^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.22}_{-0.21}$	$r_*$	144.77	$144.77^{+0.62}_{-0.63}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	30.96	$31^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{143}^{dustTE}$	0.224	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04127	$1.04126^{+0.00075}_{-0.00076}$ (−0.0 $\sigma$ )	$f_{2000}^{217}$	105.48	$106.2^{+4.8}_{-4.8}$ (−0.5 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.663	$0.66^{+0.21}_{-0.21}$	$D_M(z_*)/\text{Gpc}$	13.903	$13.903^{+0.060}_{-0.060}$ (−0.7 $\sigma$ )	$\chi^2_{lensing}$	9.5	10.1 ( $\nu$ : 1.7) (+0.2 $\sigma$ )
$A_{217}^{dustTE}$	2.06	$2.06^{+0.69}_{-0.72}$	$z_{drag}$	1060.16	$1060.11^{+0.77}_{-0.75}$ (+1.1 $\sigma$ )	$\chi^2_{lowl}$	23.12	23.49 ( $\nu$ : 0.4) (+0.1 $\sigma$ )
$c_{100}$	0.99971	$0.9996^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{drag}$	147.38	$147.39^{+0.63}_{-0.65}$ (−0.9 $\sigma$ )	$\chi^2_{plik}$	2342.2	2356.8 ( $\nu$ : 17.7) (+298.0 $\sigma$ )
$c_{217}$	0.99815	$0.9982^{+0.0015}_{-0.0016}$ (−0.1 $\sigma$ )	$k_D$	0.14067	$0.14065^{+0.00075}_{-0.00072}$ (+1.1 $\sigma$ )	$\chi^2_{6DF}$	0.000	0.030 ( $\nu$ : 0.0) (−0.2 $\sigma$ )
$H_0$	68.16	$68.1^{+1.3}_{-1.3}$ (+0.1 $\sigma$ )	$100\theta_D$	0.160632	$0.16066^{+0.00042}_{-0.00044}$ (−1.1 $\sigma$ )	$\chi^2_{MGS}$	1.68	1.70 ( $\nu$ : 0.1) (−0.1 $\sigma$ )
$\Omega_\Lambda$	0.6956	$0.695^{+0.016}_{-0.017}$ (−0.1 $\sigma$ )	$z_{eq}$	3364	$3365^{+63}_{-61}$ (+0.4 $\sigma$ )	$\chi^2_{DR12BAO}$	3.52	4.03 ( $\nu$ : 0.4) (−0.1 $\sigma$ )
$\Omega_m$	0.3044	$0.305^{+0.017}_{-0.016}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010268	$0.01027^{+0.00019}_{-0.00019}$ (+0.4 $\sigma$ )	$\chi^2_{prior}$	1.5	11.5 ( $\nu$ : 10.2) (+1.1 $\sigma$ )
$\Omega_m h^2$	0.14142	$0.1415^{+0.0026}_{-0.0025}$ (+0.4 $\sigma$ )	$100\theta_{eq}$	0.8207	$0.820^{+0.012}_{-0.012}$ (−0.3 $\sigma$ )	$\chi^2_{CMB}$	2374.8	2390.4 ( $\nu$ : 16.5) (+301.7 $\sigma$ )
$\Omega_m h^3$	0.09639	$0.09635^{+0.00073}_{-0.00075}$ (+0.9 $\sigma$ )	$100\theta_{s,eq}$	0.4531	$0.4530^{+0.0061}_{-0.0061}$ (−0.3 $\sigma$ )	$\chi^2_{BAO}$	5.20	5.77 ( $\nu$ : 0.3) (−0.2 $\sigma$ )

Best-fit  $\chi^2_{eff} = 2381.55$ ;  $\Delta\chi^2_{eff} = 1585.31$ ;  $\bar{\chi}^2_{eff} = 2407.65$ ;  $\Delta\bar{\chi}^2_{eff} = 1591.33$ ;  $R - 1 = 0.01895$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.00 ( $\Delta$  0.00) MGS: 1.68 ( $\Delta$  -0.07) DR12BAO: 3.52 ( $\Delta$  0.09) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p-teb\_consext8: 9.54 ( $\Delta$  0.49) comman-  
der\_dx12.v3.2.29: 23.12 ( $\Delta$  -0.05) plik\_rd12\_HM.v22b.TTTEEE: 2342.15



## 2.75 base\_plikHM\_TTTEEE\_lowl\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02250^{+0.00042}_{-0.00040} \quad (+0.6\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09635^{+0.00074}_{-0.00074} \quad (+0.9\sigma)$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.017}_{-0.016} \quad (-0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1184^{+0.0037}_{-0.0039} \quad (+0.4\sigma)$	$\sigma_8$	$0.826^{+0.027}_{-0.024} \quad (+0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4529^{+0.0088}_{-0.0082} \quad (-0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04108^{+0.00083}_{-0.00082} \quad (-0.1\sigma)$	$S_8$	$0.833^{+0.034}_{-0.031} \quad (+0.3\sigma)$	$H(0.15)$	$73.3^{+1.6}_{-1.5} \quad (-0.2\sigma)$
$\tau$	$0.080^{+0.042}_{-0.038} \quad (-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.018}_{-0.017} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-15} \quad (+0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.090^{+0.078}_{-0.066} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.614^{+0.019}_{-0.018} \quad (+0.3\sigma)$	$H(0.38)$	$83.3^{+1.2}_{-1.1} \quad (-0.1\sigma)$
$n_{\mathrm{s}}$	$0.970^{+0.013}_{-0.012} \quad (-0.2\sigma)$	$\sigma_8/h^{0.5}$	$1.000^{+0.031}_{-0.029} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1521^{+29}_{-31} \quad (+0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0001^{+0.0065}_{-0.0064} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}h$	$100.4^{+3.2}_{-2.9} \quad (-0.3\sigma)$	$H(0.51)$	$89.98^{+0.93}_{-0.84} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.475^{+0.074}_{-0.069} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1971^{+34}_{-36} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_{\mathrm{re}}$	$< 13.2 \quad (-0.2\sigma)$	$H(0.61)$	$95.55^{+0.76}_{-0.68} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.08 \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.20^{+0.17}_{-0.15} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2295^{+37}_{-39} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$255^{+70}_{-70} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.874^{+0.032}_{-0.031} \quad (+0.3\sigma)$	$H(2.33)$	$235.6^{+2.2}_{-2.3} \quad (+0.5\sigma)$
$A_{143}^{\mathrm{PS}}$	$44^{+20}_{-20} \quad (-0.3\sigma)$	$D_{40}$	$1229^{+31}_{-29} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5752^{+30}_{-32} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5731^{+100}_{-99} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.461^{+0.017}_{-0.016} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{810}$	$2534^{+36}_{-35} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.763^{+0.026}_{-0.023} \quad (-0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{1420}$	$817^{+12}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.481^{+0.015}_{-0.015} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.5}_{-4.7} \quad (-0.0\sigma)$	$D_{2000}$	$231.4^{+4.0}_{-4.1} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.677^{+0.024}_{-0.021} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.5}_{-4.6} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.970^{+0.013}_{-0.012} \quad (-0.2\sigma)$	$f\sigma_8(0.51)$	$0.481^{+0.015}_{-0.014} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.5}_{-8.3} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24544^{+0.00017}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.634^{+0.024}_{-0.020} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24677^{+0.00017}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.476^{+0.015}_{-0.014} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.113^{+0.097}_{-0.095}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.563^{+0.075}_{-0.075} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.604^{+0.023}_{-0.019} \quad (-0.1\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.134^{+0.074}_{-0.076}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.773^{+0.068}_{-0.071} \quad (-0.2\sigma)$	$f\sigma_8(2.33)$	$0.305^{+0.012}_{-0.010} \quad (-0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.62^{+0.77}_{-0.78} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.314^{+0.013}_{-0.011} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$r_*$	$144.76^{+0.85}_{-0.81} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$28^{+7}_{-7} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.21}$	$100\theta_*$	$1.04125^{+0.00081}_{-0.00081} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.07^{+0.69}_{-0.70}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.902^{+0.077}_{-0.076} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$106.2^{+4.9}_{-4.8} \quad (-0.4\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1060.11^{+0.81}_{-0.79} \quad (+0.8\sigma)$	$\chi_{\mathrm{lensing}}^2$	$10.1 \quad (\nu: 1.8) \quad (+0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}$	$147.38^{+0.82}_{-0.79} \quad (-0.8\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.54 \quad (\nu: 0.4) \quad (+0.1\sigma)$
$H_0$	$68.1^{+1.8}_{-1.7} \quad (-0.2\sigma)$	$k_{\mathrm{D}}$	$0.14066^{+0.00082}_{-0.00081} \quad (+1.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2357.2 \quad (\nu: 17.9) \quad (+286.4\sigma)$
$\Omega_{\Lambda}$	$0.695^{+0.023}_{-0.023} \quad (-0.3\sigma)$	$100\theta_{\mathrm{D}}$	$0.16066^{+0.00045}_{-0.00045} \quad (-0.9\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.2) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.305^{+0.023}_{-0.023} \quad (+0.3\sigma)$	$z_{\mathrm{eq}}$	$3366^{+84}_{-87} \quad (+0.5\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2390.8 \quad (\nu: 16.8) \quad (+292.4\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1415^{+0.0035}_{-0.0036} \quad (+0.5\sigma)$	$k_{\mathrm{eq}}$	$0.01027^{+0.00026}_{-0.00027} \quad (+0.5\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 2402.35$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.49$ ;  $R - 1 = 0.01200$



## 2.76 base\_plikHM\_TTTEEE\_lowl\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02250^{+0.00037}_{-0.00035} \quad (+1.0\sigma)$	$\sigma_8$	$0.825^{+0.026}_{-0.025} \quad (+0.2\sigma)$	$H(0.15)$	$73.3^{+1.1}_{-1.1} \quad (+0.1\sigma)$
$\Omega_c h^2$	$0.1183^{+0.0027}_{-0.0027} \quad (+0.2\sigma)$	$S_8$	$0.832^{+0.030}_{-0.028} \quad (+0.2\sigma)$	$D_M(0.15)$	$637^{+11}_{-10} \quad (-0.1\sigma)$
$100\theta_{MC}$	$1.04109^{+0.00076}_{-0.00078} \quad (+0.0\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.456^{+0.016}_{-0.016} \quad (+0.2\sigma)$	$H(0.38)$	$83.33^{+0.80}_{-0.79} \quad (+0.3\sigma)$
$\tau$	$0.080^{+0.038}_{-0.034} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.613^{+0.019}_{-0.018} \quad (+0.2\sigma)$	$D_M(0.38)$	$1521^{+21}_{-21} \quad (-0.2\sigma)$
$\ln(10^{10} A_s)$	$3.090^{+0.070}_{-0.065} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$1.000^{+0.031}_{-0.030} \quad (+0.2\sigma)$	$H(0.51)$	$89.99^{+0.64}_{-0.64} \quad (+0.4\sigma)$
$n_s$	$0.970^{+0.010}_{-0.011} \quad (+0.1\sigma)$	$r_{\text{drag}} h$	$100.4^{+2.2}_{-2.1} \quad (-0.1\sigma)$	$D_M(0.51)$	$1971^{+25}_{-25} \quad (-0.2\sigma)$
$y_{\text{cal}}$	$1.0001^{+0.0064}_{-0.0065} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.474^{+0.073}_{-0.071} \quad (+0.2\sigma)$	$H(0.61)$	$95.56^{+0.53}_{-0.52} \quad (+0.5\sigma)$
$A_{217}^{\text{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\text{re}}$	$10.0^{+3.1}_{-3.2} \quad (+0.1\sigma)$	$D_M(0.61)$	$2294^{+27}_{-27} \quad (-0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_s$	$2.20^{+0.16}_{-0.14} \quad (+0.1\sigma)$	$H(2.33)$	$235.6^{+1.6}_{-1.6} \quad (+0.5\sigma)$
$A_{143}^{\text{tSZ}}$	$> 1.05 \quad (+0.2\sigma)$	$10^9 A_s e^{-2\tau}$	$1.874^{+0.030}_{-0.028} \quad (+0.2\sigma)$	$D_M(2.33)$	$5752^{+25}_{-24} \quad (-0.6\sigma)$
$A_{100}^{\text{PS}}$	$254^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1229^{+30}_{-28} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.461^{+0.016}_{-0.015} \quad (+0.2\sigma)$
$A_{143}^{\text{PS}}$	$44^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5731^{+100}_{-96} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.763^{+0.024}_{-0.023} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2534^{+37}_{-34} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.481^{+0.015}_{-0.014} \quad (+0.2\sigma)$
$A_{217}^{\text{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.677^{+0.023}_{-0.021} \quad (+0.2\sigma)$
$A^{\text{kSZ}}$	$< 9.16 \quad (-0.2\sigma)$	$D_{2000}$	$231.4^{+3.7}_{-3.9} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.481^{+0.015}_{-0.014} \quad (+0.2\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.6}_{-4.6} \quad (-0.0\sigma)$	$n_{s,0.002}$	$0.970^{+0.010}_{-0.011} \quad (+0.1\sigma)$	$\sigma_8(0.51)$	$0.634^{+0.022}_{-0.020} \quad (+0.2\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_P$	$0.24544^{+0.00014}_{-0.00014} \quad (+0.9\sigma)$	$f\sigma_8(0.61)$	$0.476^{+0.015}_{-0.014} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.3}_{-8.2} \quad (+0.1\sigma)$	$Y_P^{\text{BBN}}$	$0.24677^{+0.00014}_{-0.00014} \quad (+0.9\sigma)$	$\sigma_8(0.61)$	$0.604^{+0.021}_{-0.019} \quad (+0.1\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$10^5 D/H$	$2.562^{+0.066}_{-0.066} \quad (-1.0\sigma)$	$f\sigma_8(2.33)$	$0.305^{+0.011}_{-0.0099} \quad (+0.1\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.098}_{-0.094}$	Age/Gyr	$13.772^{+0.056}_{-0.054} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.314^{+0.012}_{-0.011} \quad (+0.1\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.071}_{-0.077}$	$z_*$	$1089.61^{+0.60}_{-0.60} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$28^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$r_*$	$144.77^{+0.62}_{-0.63} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.6\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.04127^{+0.00075}_{-0.00076} \quad (-0.0\sigma)$	$f_{2000}^{217}$	$106.2^{+4.8}_{-4.8} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$D_M(z_*)/\text{Gpc}$	$13.903^{+0.059}_{-0.060} \quad (-0.7\sigma)$	$\chi_{\text{lensing}}^2$	$10.1 \quad (\nu: 1.8) \quad (+0.2\sigma)$
$A_{217}^{\text{dustTE}}$	$2.06^{+0.69}_{-0.72}$	$z_{\text{drag}}$	$1060.12^{+0.77}_{-0.75} \quad (+1.1\sigma)$	$\chi_{\text{lowl}}^2$	$23.49 \quad (\nu: 0.4) \quad (+0.1\sigma)$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$r_{\text{drag}}$	$147.39^{+0.63}_{-0.65} \quad (-0.9\sigma)$	$\chi_{\text{plik}}^2$	$2356.8 \quad (\nu: 17.6) \quad (+299.4\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0017} \quad (-0.1\sigma)$	$k_D$	$0.14064^{+0.00075}_{-0.00072} \quad (+1.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.030 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$H_0$	$68.1^{+1.3}_{-1.2} \quad (+0.1\sigma)$	$100\theta_D$	$0.16066^{+0.00042}_{-0.00044} \quad (-1.1\sigma)$	$\chi_{\text{MGS}}^2$	$1.71 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\Omega_\Lambda$	$0.695^{+0.016}_{-0.017} \quad (-0.1\sigma)$	$z_{\text{eq}}$	$3365^{+61}_{-61} \quad (+0.4\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.02 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$\Omega_m$	$0.305^{+0.017}_{-0.016} \quad (+0.1\sigma)$	$k_{\text{eq}}$	$0.01027^{+0.00019}_{-0.00019} \quad (+0.4\sigma)$	$\chi_{\text{prior}}^2$	$11.5 \quad (\nu: 10.1) \quad (+1.1\sigma)$
$\Omega_m h^2$	$0.1415^{+0.0026}_{-0.0025} \quad (+0.4\sigma)$	$100\theta_{\text{eq}}$	$0.821^{+0.012}_{-0.012} \quad (-0.3\sigma)$	$\chi_{\text{CMB}}^2$	$2390.4 \quad (\nu: 16.4) \quad (+303.8\sigma)$
$\Omega_m h^3$	$0.09635^{+0.00073}_{-0.00075} \quad (+0.9\sigma)$	$100\theta_{s,\text{eq}}$	$0.4531^{+0.0060}_{-0.0060} \quad (-0.3\sigma)$	$\chi_{\text{BAO}}^2$	$5.76 \quad (\nu: 0.3) \quad (-0.2\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 2407.58; \Delta \bar{\chi}_{\text{eff}}^2 = 1591.35; R - 1 = 0.01869$$



## 2.77 base\_plikHM\_TT\_lowl\_reion

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02214	$0.02212^{+0.00056}_{-0.00054}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6115	$0.612^{+0.030}_{-0.030}$	$H(0.15)$	72.26	$72.3^{+2.0}_{-1.9}$
$\Omega_{\mathrm{c}} h^2$	0.1207	$0.1206^{+0.0053}_{-0.0052}$	$\sigma_8/h^{0.5}$	0.9937	$0.995^{+0.041}_{-0.041}$	$D_{\mathrm{M}}(0.15)$	647.5	$647^{+20}_{-20}$
$100\theta_{\mathrm{MC}}$	1.04077	$1.0408^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	98.44	$98.5^{+4.1}_{-3.9}$	$H(0.38)$	82.53	$82.5^{+1.5}_{-1.4}$
$\tau$	0.0526	$0.055^{+0.022}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	2.453	$2.459^{+0.099}_{-0.098}$	$D_{\mathrm{M}}(0.38)$	1542.0	$1542^{+39}_{-40}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0417	$3.046^{+0.046}_{-0.034}$	$z_{\mathrm{re}}$	7.57	$< 9.87$	$H(0.51)$	89.33	$89.3^{+1.2}_{-1.1}$
$n_{\mathrm{s}}$	0.9636	$0.963^{+0.015}_{-0.014}$	$10^9 A_{\mathrm{s}}$	2.094	$2.103^{+0.098}_{-0.072}$	$D_{\mathrm{M}}(0.51)$	1996.1	$1996^{+46}_{-47}$
$y_{\mathrm{cal}}$	1.0004	$1.0003^{+0.0064}_{-0.0065}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8850	$1.884^{+0.035}_{-0.035}$	$H(0.61)$	95.02	$95.02^{+0.93}_{-0.85}$
$A_{217}^{\mathrm{CIB}}$	48.3	$48^{+20}_{-20}$	$D_{40}$	1231.5	$1234^{+40}_{-41}$	$D_{\mathrm{M}}(0.61)$	2322	$2321^{+49}_{-51}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.37	—	$D_{220}$	5711	$5712^{+110}_{-100}$	$H(2.33)$	236.75	$236.7^{+3.2}_{-3.2}$
$A_{143}^{\mathrm{tSZ}}$	7.0	—	$D_{810}$	2538.0	$2536^{+35}_{-36}$	$D_{\mathrm{M}}(2.33)$	5776.8	$5777^{+40}_{-42}$
$A_{100}^{\mathrm{PS}}$	253	$263^{+70}_{-70}$	$D_{1420}$	815.5	$814^{+13}_{-13}$	$f\sigma_8(0.15)$	0.4640	$0.464^{+0.031}_{-0.031}$
$A_{143}^{\mathrm{PS}}$	50.3	$49^{+20}_{-20}$	$D_{2000}$	229.99	$229.6^{+4.5}_{-4.6}$	$\sigma_8(0.15)$	0.7501	$0.751^{+0.021}_{-0.018}$
$A_{143 \times 217}^{\mathrm{PS}}$	48.4	$44^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	0.9636	$0.963^{+0.015}_{-0.014}$	$f\sigma_8(0.38)$	0.4803	$0.481^{+0.024}_{-0.024}$
$A_{217}^{\mathrm{PS}}$	120.1	$115^{+30}_{-30}$	$Y_{\mathrm{P}}$	0.245302	$0.24529^{+0.00022}_{-0.00026}$	$\sigma_8(0.38)$	0.6639	$0.665^{+0.017}_{-0.014}$
$A^{\mathrm{kSZ}}$	0.0	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246628	$0.24662^{+0.00022}_{-0.00026}$	$f\sigma_8(0.51)$	0.4779	$0.478^{+0.021}_{-0.021}$
$A_{100}^{\mathrm{dustTT}}$	8.89	$8.9^{+4.7}_{-4.7}$	$10^5 \mathrm{D}/\mathrm{H}$	2.629	$2.63^{+0.11}_{-0.10}$	$\sigma_8(0.51)$	0.6209	$0.622^{+0.016}_{-0.012}$
$A_{143}^{\mathrm{dustTT}}$	10.84	$10.7^{+4.6}_{-4.6}$	Age/Gyr	13.828	$13.828^{+0.091}_{-0.093}$	$f\sigma_8(0.61)$	0.4721	$0.473^{+0.018}_{-0.019}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.5	$18.3^{+8.2}_{-8.5}$	$z_*$	1090.27	$1090.3^{+1.0}_{-1.0}$	$\sigma_8(0.61)$	0.5905	$0.591^{+0.015}_{-0.011}$
$A_{217}^{\mathrm{dustTT}}$	94.9	$93^{+20}_{-20}$	$r_*$	144.44	$144.5^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	0.2974	$0.2979^{+0.0076}_{-0.0051}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0015}$	$100\theta_*$	1.04097	$1.0410^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.3062	$0.3067^{+0.0079}_{-0.0051}$
$c_{217}$	0.99824	$0.9983^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.875	$13.88^{+0.11}_{-0.11}$	$f_{2000}^{143}$	30.4	$31^{+8}_{-7}$
$H_0$	66.89	$66.9^{+2.4}_{-2.2}$	$z_{\mathrm{drag}}$	1059.44	$1059.4^{+1.1}_{-1.2}$	$f_{2000}^{143 \times 217}$	33.3	$34^{+5}_{-5}$
$\Omega_{\Lambda}$	0.6794	$0.680^{+0.032}_{-0.034}$	$r_{\mathrm{drag}}$	147.17	$147.2^{+1.2}_{-1.2}$	$f_{2000}^{217}$	107.68	$108.1^{+4.8}_{-5.0}$
$\Omega_{\mathrm{m}}$	0.3206	$0.320^{+0.034}_{-0.032}$	$k_{\mathrm{D}}$	0.14061	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{lowl}}^2$	23.60	$23.9 (\nu: 0.9)$
$\Omega_{\mathrm{m}} h^2$	0.1434	$0.1433^{+0.0051}_{-0.0050}$	$100\theta_{\mathrm{D}}$	0.16103	$0.16107^{+0.00067}_{-0.00065}$	$\chi_{\mathrm{plik}}^2$	758.7	$771.1 (\nu: 14.8)$
$\Omega_{\mathrm{m}} h^3$	0.09594	$0.0959^{+0.0012}_{-0.0012}$	$z_{\mathrm{eq}}$	3412	$3410^{+120}_{-120}$	$\chi_{\mathrm{prior}}^2$	1.7	$8.5 (\nu: 8.1)$
$\sigma_8$	0.8127	$0.814^{+0.024}_{-0.022}$	$k_{\mathrm{eq}}$	0.010415	$0.01041^{+0.00037}_{-0.00036}$	$\chi_{\mathrm{CMB}}^2$	782.3	$795.0 (\nu: 14.4)$
$S_8$	0.840	$0.841^{+0.062}_{-0.060}$	$100\theta_{\mathrm{eq}}$	0.8107	$0.811^{+0.023}_{-0.022}$			
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4602	$0.461^{+0.034}_{-0.033}$	$100\theta_{\mathrm{s,eq}}$	0.4482	$0.448^{+0.012}_{-0.011}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 784.00$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 803.49$ ;  $R - 1 = 0.00586$

$\chi_{\mathrm{eff}}^2$ : CMB - commander\_dx12\_v3\_2\_29: 23.60 plik\_rd12\_HM\_v22\_TT: 758.75



## 2.78 base\_plikHM\_TT\_lowl\_reion\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022226	$0.02222^{+0.00049}_{-0.00050}$	$\sigma_8/h^{0.5}$	0.9823	$0.984^{+0.032}_{-0.028}$	$H(0.38)$	82.96	$82.97^{+0.92}_{-0.89}$
$\Omega_c h^2$	0.11895	$0.1190^{+0.0032}_{-0.0032}$	$r_{\text{drag}} h$	99.76	$99.8^{+2.5}_{-2.4}$	$D_M(0.38)$	1529.6	$1529^{+24}_{-24}$
$100\theta_{\text{MC}}$	1.04096	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.427	$2.434^{+0.078}_{-0.072}$	$H(0.51)$	89.66	$89.67^{+0.76}_{-0.73}$
$\tau$	0.0542	$0.056^{+0.024}_{-0.015}$	$z_{\text{re}}$	7.69	$< 10.1$	$D_M(0.51)$	1981.7	$1981^{+28}_{-29}$
$\ln(10^{10} A_s)$	3.0410	$3.045^{+0.049}_{-0.037}$	$10^9 A_s$	2.093	$2.10^{+0.10}_{-0.077}$	$H(0.61)$	95.26	$95.27^{+0.63}_{-0.62}$
$n_s$	0.9674	$0.967^{+0.011}_{-0.011}$	$10^9 A_s e^{-2\tau}$	1.8776	$1.877^{+0.031}_{-0.030}$	$D_M(0.61)$	2306.1	$2306^{+31}_{-31}$
$y_{\text{cal}}$	1.0004	$1.0004^{+0.0065}_{-0.0065}$	$D_{40}$	1223.2	$1226^{+34}_{-34}$	$H(2.33)$	235.73	$235.7^{+2.0}_{-2.0}$
$A_{217}^{\text{CIB}}$	48.7	$48^{+20}_{-20}$	$D_{220}$	5717	$5719^{+110}_{-100}$	$D_M(2.33)$	5766.8	$5766^{+31}_{-31}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.35	—	$D_{810}$	2536.8	$2535^{+37}_{-35}$	$f\sigma_8(0.15)$	0.4545	$0.455^{+0.020}_{-0.019}$
$A_{143}^{\text{tSZ}}$	7.08	$5.1^{+4.5}_{-4.6}$	$D_{1420}$	816.3	$815^{+13}_{-13}$	$\sigma_8(0.15)$	0.7465	$0.748^{+0.020}_{-0.015}$
$A_{100}^{\text{PS}}$	253	$263^{+70}_{-70}$	$D_{2000}$	230.27	$229.9^{+4.4}_{-4.3}$	$f\sigma_8(0.38)$	0.4731	$0.474^{+0.017}_{-0.016}$
$A_{143}^{\text{PS}}$	49.2	$48^{+20}_{-20}$	$n_{s,0.002}$	0.9674	$0.967^{+0.011}_{-0.011}$	$\sigma_8(0.38)$	0.6619	$0.663^{+0.017}_{-0.013}$
$A_{143 \times 217}^{\text{PS}}$	47.4	$43^{+20}_{-20}$	$Y_{\text{P}}$	0.245337	$0.24533^{+0.00019}_{-0.00024}$	$f\sigma_8(0.51)$	0.4719	$0.473^{+0.016}_{-0.014}$
$A_{217}^{\text{PS}}$	119.1	$115^{+30}_{-30}$	$Y_{\text{P}}^{\text{BBN}}$	0.246663	$0.24666^{+0.00019}_{-0.00024}$	$\sigma_8(0.51)$	0.6195	$0.621^{+0.016}_{-0.011}$
$A^{\text{kSZ}}$	0.0	—	$10^5 D/H$	2.613	$2.614^{+0.096}_{-0.089}$	$f\sigma_8(0.61)$	0.4670	$0.468^{+0.015}_{-0.013}$
$A_{100}^{\text{dustTT}}$	8.92	$8.9^{+4.6}_{-4.5}$	Age/Gyr	13.806	$13.805^{+0.072}_{-0.071}$	$\sigma_8(0.61)$	0.5895	$0.591^{+0.016}_{-0.011}$
$A_{143}^{\text{dustTT}}$	10.78	$10.8^{+4.5}_{-4.7}$	$z_*$	1090.01	$1090.02^{+0.75}_{-0.73}$	$f\sigma_8(2.33)$	0.2973	$0.2978^{+0.0075}_{-0.0057}$
$A_{143 \times 217}^{\text{dustTT}}$	19.4	$18.3^{+8.2}_{-8.6}$	$r_*$	144.81	$144.82^{+0.79}_{-0.81}$	$\sigma_8(2.33)$	0.3065	$0.3071^{+0.0079}_{-0.0059}$
$A_{217}^{\text{dustTT}}$	94.5	$93^{+20}_{-20}$	$100\theta_*$	1.04117	$1.0412^{+0.0010}_{-0.0011}$	$f_{2000}^{143}$	30.1	$31^{+7}_{-8}$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0015}$	$D_M(z_*)/\text{Gpc}$	13.909	$13.908^{+0.080}_{-0.079}$	$f_{2000}^{143 \times 217}$	33.1	$33^{+5}_{-5}$
$c_{217}$	0.99823	$0.9983^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.51	$1059.5^{+1.1}_{-1.1}$	$f_{2000}^{217}$	107.48	$107.9^{+4.9}_{-5.0}$
$H_0$	67.62	$67.6^{+1.4}_{-1.4}$	$r_{\text{drag}}$	147.53	$147.54^{+0.87}_{-0.89}$	$\chi_{\text{lowl}}^2$	22.83	$23.15 (\nu: 0.4)$
$\Omega_\Lambda$	0.6898	$0.690^{+0.019}_{-0.019}$	$k_{\text{D}}$	0.14029	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\text{plik}}^2$	760.0	$771.7 (\nu: 15.0)$
$\Omega_{\text{m}}$	0.3102	$0.310^{+0.019}_{-0.019}$	$100\theta_{\text{D}}$	0.16100	$0.16102^{+0.00063}_{-0.00062}$	$\chi_{6\text{DF}}^2$	0.022	$0.058 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.14182	$0.1418^{+0.0031}_{-0.0031}$	$z_{\text{eq}}$	3374	$3374^{+74}_{-75}$	$\chi_{\text{MGS}}^2$	1.28	$1.36 (\nu: 0.1)$
$\Omega_{\text{m}} h^3$	0.09590	$0.0959^{+0.0012}_{-0.0011}$	$k_{\text{eq}}$	0.010297	$0.01030^{+0.00022}_{-0.00023}$	$\chi_{\text{DR12BAO}}^2$	4.19	$4.8 (\nu: 1.3)$
$\sigma_8$	0.8078	$0.809^{+0.023}_{-0.018}$	$100\theta_{\text{eq}}$	0.8181	$0.818^{+0.014}_{-0.013}$	$\chi_{\text{prior}}^2$	1.8	$8.7 (\nu: 8.3)$
$S_8$	0.8213	$0.823^{+0.039}_{-0.037}$	$100\theta_{s,\text{eq}}$	0.4520	$0.4520^{+0.0073}_{-0.0069}$	$\chi_{\text{BAO}}^2$	5.50	$6.2 (\nu: 0.9)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4499	$0.451^{+0.021}_{-0.020}$	$H(0.15)$	72.88	$72.9^{+1.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	782.9	$794.9 (\nu: 14.0)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6028	$0.604^{+0.022}_{-0.020}$	$D_M(0.15)$	641.2	$641^{+12}_{-12}$			

Best-fit  $\chi_{\text{eff}}^2 = 790.20$ ;  $\bar{\chi}_{\text{eff}}^2 = 809.76$ ;  $R - 1 = 0.01181$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.19 CMB - commander\_dx12\_v3.2.29: 22.83 plik\_rd12\_HM\_v22\_TT: 760.03



## 2.79 base\_plikHM\_TTTEEE\_lowl\_reion

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.022381	$0.02237^{+0.00038}_{-0.00038}$ (+1.1 $\sigma$ )	$\Omega_{\text{m}}h^3$	0.09636	$0.09634^{+0.00073}_{-0.00074}$ (+0.9 $\sigma$ )	$100\theta_{\text{eq}}$	0.8126	$0.813^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )
$\Omega_{\text{c}}h^2$	0.12016	$0.1201^{+0.0036}_{-0.0034}$ (−0.2 $\sigma$ )	$\sigma_8$	0.8138	$0.814^{+0.022}_{-0.019}$ (+0.0 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4490	$0.4492^{+0.0075}_{-0.0076}$ (+0.2 $\sigma$ )
$100\theta_{\text{MC}}$	1.04089	$1.04092^{+0.00079}_{-0.00085}$ (+0.3 $\sigma$ )	$S_8$	0.8355	$0.835^{+0.044}_{-0.040}$ (−0.2 $\sigma$ )	$H(0.15)$	72.63	$72.7^{+1.3}_{-1.3}$ (+0.5 $\sigma$ )
$\tau$	0.0561	$0.057^{+0.023}_{-0.016}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4576	$0.457^{+0.024}_{-0.022}$ (−0.2 $\sigma$ )	$D_{\text{M}}(0.15)$	643.9	$644^{+14}_{-13}$ (−0.5 $\sigma$ )
$\ln(10^{10}A_{\text{s}})$	3.0488	$3.050^{+0.051}_{-0.034}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.6102	$0.610^{+0.023}_{-0.021}$ (−0.2 $\sigma$ )	$H(0.38)$	82.83	$82.85^{+0.98}_{-0.96}$ (+0.5 $\sigma$ )
$n_{\text{s}}$	0.9661	$0.965^{+0.011}_{-0.011}$ (+0.4 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9920	$0.992^{+0.033}_{-0.030}$ (−0.2 $\sigma$ )	$D_{\text{M}}(0.38)$	1534.4	$1534^{+27}_{-26}$ (−0.5 $\sigma$ )
$y_{\text{cal}}$	1.0007	$1.0006^{+0.0062}_{-0.0065}$ (+0.1 $\sigma$ )	$r_{\text{drag}}h$	98.95	$99.0^{+2.7}_{-2.7}$ (+0.3 $\sigma$ )	$H(0.51)$	89.60	$89.61^{+0.79}_{-0.75}$ (+0.6 $\sigma$ )
$A_{217}^{\text{CIB}}$	46.2	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.450	$2.454^{+0.079}_{-0.073}$ (−0.1 $\sigma$ )	$D_{\text{M}}(0.51)$	1987.0	$1987^{+32}_{-31}$ (−0.5 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.61	—	$z_{\text{re}}$	7.86	< 10.1 (+0.2 $\sigma$ )	$H(0.61)$	95.26	$95.27^{+0.64}_{-0.60}$ (+0.7 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.10	$5.5^{+4.2}_{-4.9}$ (+0.2 $\sigma$ )	$10^9 A_{\text{s}}$	2.109	$2.11^{+0.10}_{-0.077}$ (+0.3 $\sigma$ )	$D_{\text{M}}(0.61)$	2311.5	$2311^{+34}_{-33}$ (−0.5 $\sigma$ )
$A_{100}^{\text{PS}}$	248	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_{\text{s}}e^{-2\tau}$	1.8852	$1.884^{+0.030}_{-0.031}$ (+0.0 $\sigma$ )	$H(2.33)$	236.68	$236.6^{+2.1}_{-2.0}$ (−0.1 $\sigma$ )
$A_{143}^{\text{PS}}$	49.9	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{40}$	1229.9	$1233^{+33}_{-33}$ (−0.1 $\sigma$ )	$D_{\text{M}}(2.33)$	5763.9	$5764^{+28}_{-29}$ (−0.8 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	52.0	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{220}$	5731	$5733^{+100}_{-100}$ (+0.5 $\sigma$ )	$f\sigma_8(0.15)$	0.4618	$0.462^{+0.023}_{-0.021}$ (−0.2 $\sigma$ )
$A_{217}^{\text{PS}}$	121.5	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{810}$	2542.1	$2539^{+34}_{-36}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7515	$0.752^{+0.020}_{-0.016}$ (+0.1 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	818.7	$817^{+12}_{-12}$ (+0.6 $\sigma$ )	$f\sigma_8(0.38)$	0.4792	$0.479^{+0.019}_{-0.017}$ (−0.2 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.81	$8.9^{+4.8}_{-4.6}$ (−0.0 $\sigma$ )	$D_{2000}$	231.45	$231.0^{+4.1}_{-4.1}$ (+0.8 $\sigma$ )	$\sigma_8(0.38)$	0.6657	$0.666^{+0.017}_{-0.013}$ (+0.2 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.05	$10.9^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9661	$0.965^{+0.011}_{-0.011}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4772	$0.477^{+0.017}_{-0.015}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.1	$18.6^{+8.3}_{-8.8}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.245400	$0.24539^{+0.00014}_{-0.00016}$ (+1.1 $\sigma$ )	$\sigma_8(0.51)$	0.6228	$0.623^{+0.016}_{-0.012}$ (+0.2 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.4	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.246726	$0.24672^{+0.00014}_{-0.00016}$ (+1.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4719	$0.472^{+0.015}_{-0.014}$ (−0.1 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.113	$0.114^{+0.099}_{-0.095}$	$10^5 \text{D/H}$	2.583	$2.586^{+0.072}_{-0.068}$ (−1.1 $\sigma$ )	$\sigma_8(0.61)$	0.5924	$0.593^{+0.015}_{-0.011}$ (+0.2 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.078}_{-0.076}$	Age/Gyr	13.798	$13.798^{+0.063}_{-0.064}$ (−0.8 $\sigma$ )	$f\sigma_8(2.33)$	0.2985	$0.2986^{+0.0077}_{-0.0053}$ (+0.3 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.480	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.92	$1089.93^{+0.70}_{-0.69}$ (−0.9 $\sigma$ )	$\sigma_8(2.33)$	0.3076	$0.3077^{+0.0081}_{-0.0055}$ (+0.4 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$r_*$	144.38	$144.41^{+0.75}_{-0.77}$ (−0.1 $\sigma$ )	$f_{2000}^{143}$	28.6	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.667	$0.67^{+0.20}_{-0.21}$	$100\theta_*$	1.04108	$1.04110^{+0.00078}_{-0.00084}$ (+0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.93	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.09	$2.09^{+0.68}_{-0.68}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.868	$13.871^{+0.069}_{-0.071}$ (−0.2 $\sigma$ )	$f_{2000}^{217}$	106.50	$107.0^{+4.5}_{-4.5}$ (−0.6 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1059.97	$1059.94^{+0.76}_{-0.77}$ (+1.2 $\sigma$ )	$\chi_{\text{lowl}}^2$	23.30	$23.63 (\nu: 0.5)$ (−0.2 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	147.04	$147.07^{+0.74}_{-0.76}$ (−0.3 $\sigma$ )	$\chi_{\text{plik}}^2$	2344.4	$2359.0 (\nu: 16.4)$ (+291.5 $\sigma$ )
$H_0$	67.30	$67.3^{+1.5}_{-1.6}$ (+0.4 $\sigma$ )	$k_{\text{D}}$	0.14093	$0.14089^{+0.00082}_{-0.00080}$ (+0.7 $\sigma$ )	$\chi_{\text{prior}}^2$	2.4	$13.2 (\nu: 12.2)$ (+1.2 $\sigma$ )
$\Omega_{\Lambda}$	0.6838	$0.684^{+0.021}_{-0.023}$ (+0.4 $\sigma$ )	$100\theta_{\text{D}}$	0.160734	$0.16076^{+0.00045}_{-0.00044}$ (−1.2 $\sigma$ )	$\chi_{\text{CMB}}^2$	2367.7	$2382.7 (\nu: 16.2)$ (+296.0 $\sigma$ )
$\Omega_{\text{m}}$	0.3162	$0.316^{+0.023}_{-0.021}$ (−0.4 $\sigma$ )	$z_{\text{eq}}$	3406	$3404^{+80}_{-76}$ (−0.1 $\sigma$ )			
$\Omega_{\text{m}}h^2$	0.14319	$0.1431^{+0.0033}_{-0.0032}$ (−0.1 $\sigma$ )	$k_{\text{eq}}$	0.010397	$0.01039^{+0.00024}_{-0.00023}$ (−0.1 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 2370.13$ ;  $\Delta\chi_{\text{eff}}^2 = 1586.13$ ;  $\bar{\chi}_{\text{eff}}^2 = 2395.81$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1592.32$ ;  $R - 1 = 0.00802$   
 $\chi_{\text{eff}}^2$ : CMB - commander\_dx12.v3.2.29: 23.30 ( $\Delta$  -0.29) plik\_rd12\_HM.v22b.TTTEEE: 2344.42



## 2.80 base\_plikHM\_TTTEEE\_lowl\_reion\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022447	$0.02243^{+0.00034}_{-0.00034}$ (+1.1 $\sigma$ )	$\sigma_8$	0.8123	$0.812^{+0.022}_{-0.017}$ (+0.3 $\sigma$ )	$H(0.15)$	72.98	$73.0^{+1.0}_{-0.99}$ (+0.2 $\sigma$ )
$\Omega_c h^2$	0.11928	$0.1193^{+0.0026}_{-0.0025}$ (+0.2 $\sigma$ )	$S_8$	0.8265	$0.826^{+0.035}_{-0.032}$ (+0.2 $\sigma$ )	$D_M(0.15)$	640.4	$640.5^{+9.9}_{-9.7}$ (−0.1 $\sigma$ )
$100\theta_{MC}$	1.04102	$1.04102^{+0.00075}_{-0.00082}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4527	$0.453^{+0.019}_{-0.018}$ (+0.2 $\sigma$ )	$H(0.38)$	83.08	$83.07^{+0.75}_{-0.72}$ (+0.3 $\sigma$ )
$\tau$	0.0584	$0.058^{+0.024}_{-0.017}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6064	$0.606^{+0.019}_{-0.018}$ (+0.3 $\sigma$ )	$D_M(0.38)$	1527.5	$1528^{+20}_{-20}$ (−0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0512	$3.051^{+0.053}_{-0.037}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9872	$0.987^{+0.029}_{-0.026}$ (+0.2 $\sigma$ )	$H(0.51)$	89.80	$89.79^{+0.61}_{-0.58}$ (+0.4 $\sigma$ )
$n_s$	0.9681	$0.9669^{+0.0094}_{-0.0099}$ (+0.1 $\sigma$ )	$r_{drag} h$	99.66	$99.7^{+2.0}_{-2.0}$ (−0.1 $\sigma$ )	$D_M(0.51)$	1978.9	$1979^{+23}_{-23}$ (−0.2 $\sigma$ )
$y_{cal}$	1.0005	$1.0007^{+0.0062}_{-0.0065}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.440	$2.442^{+0.071}_{-0.063}$ (+0.3 $\sigma$ )	$H(0.61)$	95.415	$95.40^{+0.51}_{-0.47}$ (+0.5 $\sigma$ )
$A_{217}^{CIB}$	46.1	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$z_{re}$	8.07	< 10.2 (+0.2 $\sigma$ )	$D_M(0.61)$	2302.9	$2303^{+25}_{-25}$ (−0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.62	—	$10^9 A_s$	2.114	$2.11^{+0.11}_{-0.077}$ (+0.3 $\sigma$ )	$H(2.33)$	236.17	$236.1^{+1.6}_{-1.5}$ (+0.5 $\sigma$ )
$A_{143}^{tSZ}$	7.11	$5.5^{+4.4}_{-4.6}$ (+0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8808	$1.880^{+0.028}_{-0.029}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5757.4	$5758^{+23}_{-24}$ (−0.7 $\sigma$ )
$A_{100}^{PS}$	248	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{40}$	1225.8	$1229^{+30}_{-30}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4574	$0.457^{+0.018}_{-0.017}$ (+0.2 $\sigma$ )
$A_{143}^{PS}$	49.5	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{220}$	5734	$5737^{+99}_{-98}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.7507	$0.750^{+0.020}_{-0.015}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{PS}$	52.0	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2540.6	$2539^{+34}_{-36}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4760	$0.476^{+0.016}_{-0.014}$ (+0.3 $\sigma$ )
$A_{217}^{PS}$	121.3	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{1420}$	818.9	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(0.38)$	0.6655	$0.665^{+0.018}_{-0.013}$ (+0.3 $\sigma$ )
$A^{kSZ}$	0.0	—	$D_{2000}$	231.61	$231.2^{+4.0}_{-3.9}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4747	$0.474^{+0.015}_{-0.013}$ (+0.3 $\sigma$ )
$A_{100}^{dustTT}$	8.82	$8.9^{+4.6}_{-4.7}$ (+0.0 $\sigma$ )	$n_{s,0.002}$	0.9681	$0.9669^{+0.0094}_{-0.0099}$ (+0.1 $\sigma$ )	$\sigma_8(0.51)$	0.6229	$0.622^{+0.017}_{-0.012}$ (+0.3 $\sigma$ )
$A_{143}^{dustTT}$	11.02	$10.9^{+4.7}_{-4.4}$ (+0.1 $\sigma$ )	$Y_P$	0.245425	$0.24542^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4698	$0.469^{+0.014}_{-0.012}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.0	$18.6^{+7.8}_{-8.8}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246752	$0.24674^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5927	$0.592^{+0.016}_{-0.011}$ (+0.3 $\sigma$ )
$A_{217}^{dustTT}$	95.3	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$10^5 D/H$	2.571	$2.576^{+0.064}_{-0.061}$ (−1.1 $\sigma$ )	$f\sigma_8(2.33)$	0.2989	$0.2987^{+0.0081}_{-0.0057}$ (+0.3 $\sigma$ )
$A_{100}^{dustTE}$	0.113	$0.114^{+0.099}_{-0.098}$	Age/Gyr	13.784	$13.786^{+0.052}_{-0.053}$ (−0.7 $\sigma$ )	$\sigma_8(2.33)$	0.3082	$0.3080^{+0.0085}_{-0.0058}$ (+0.3 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.134^{+0.079}_{-0.079}$	$z_*$	1089.76	$1089.79^{+0.57}_{-0.55}$ (−0.8 $\sigma$ )	$f_{2000}^{143}$	28.3	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.479	$0.48^{+0.23}_{-0.22}$	$r_*$	144.56	$144.58^{+0.58}_{-0.59}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.72	$32^{+5}_{-4}$ (−0.7 $\sigma$ )
$A_{143}^{dustTE}$	0.226	$0.22^{+0.14}_{-0.15}$	$100\theta_*$	1.04120	$1.04120^{+0.00074}_{-0.00079}$ (−0.0 $\sigma$ )	$f_{2000}^{217}$	106.27	$106.8^{+4.5}_{-4.5}$ (−0.5 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.666	$0.66^{+0.21}_{-0.20}$	$D_M(z_*)/\text{Gpc}$	13.884	$13.886^{+0.055}_{-0.057}$ (−0.7 $\sigma$ )	$\chi_{lowl}^2$	22.97	$23.23$ ( $\nu$ : 0.4) (+0.1 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.07^{+0.67}_{-0.65}$	$z_{drag}$	1060.05	$1060.01^{+0.72}_{-0.73}$ (+1.1 $\sigma$ )	$\chi_{plik}^2$	2344.8	$2359.2$ ( $\nu$ : 16.2) (+290.2 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{drag}$	147.20	$147.22^{+0.61}_{-0.61}$ (−0.9 $\sigma$ )	$\chi_{6DF}^2$	0.029	$0.054$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0017}$ (−0.1 $\sigma$ )	$k_D$	0.14081	$0.14077^{+0.00075}_{-0.00074}$ (+1.1 $\sigma$ )	$\chi_{MGS}^2$	1.22	$1.28$ ( $\nu$ : 0.1) (−0.2 $\sigma$ )
$H_0$	67.70	$67.7^{+1.2}_{-1.2}$ (+0.1 $\sigma$ )	$100\theta_D$	0.160692	$0.16072^{+0.00043}_{-0.00042}$ (−1.2 $\sigma$ )	$\chi_{DR12BAO}^2$	4.42	$4.8$ ( $\nu$ : 1.0) (+0.0 $\sigma$ )
$\Omega_\Lambda$	0.6894	$0.689^{+0.015}_{-0.016}$ (−0.1 $\sigma$ )	$z_{eq}$	3387	$3386^{+58}_{-57}$ (+0.4 $\sigma$ )	$\chi_{prior}^2$	2.8	$13.5$ ( $\nu$ : 12.8) (+1.2 $\sigma$ )
$\Omega_m$	0.3106	$0.311^{+0.016}_{-0.015}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010337	$0.01033^{+0.00018}_{-0.00017}$ (+0.4 $\sigma$ )	$\chi_{BAO}^2$	5.66	$6.1$ ( $\nu$ : 0.6) (−0.0 $\sigma$ )
$\Omega_m h^2$	0.14237	$0.1423^{+0.0024}_{-0.0024}$ (+0.4 $\sigma$ )	$100\theta_{eq}$	0.8163	$0.816^{+0.011}_{-0.011}$ (−0.3 $\sigma$ )	$\chi_{CMB}^2$	2367.8	$2382.4$ ( $\nu$ : 15.4) (+299.9 $\sigma$ )
$\Omega_m h^3$	0.09639	$0.09635^{+0.00073}_{-0.00072}$ (+1.0 $\sigma$ )	$100\theta_{s,eq}$	0.4509	$0.4510^{+0.0055}_{-0.0056}$ (−0.4 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 2376.23$ ;  $\Delta\chi_{eff}^2 = 1586.03$ ;  $\bar{\chi}_{eff}^2 = 2402.05$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.29$ ;  $R - 1 = 0.01766$

$\chi_{eff}^2$ : BAO - 6DF: 0.03 ( $\Delta$  0.01) MGS: 1.22 ( $\Delta$  -0.06) DR12BAO: 4.42 ( $\Delta$  0.22) CMB - commander\_dx12\_v3.2.29: 22.97 ( $\Delta$  0.14) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.84



## 2.81 base\_plikHM\_TT\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02217	$0.02214^{+0.00053}_{-0.00051}$	$\sigma_8 \Omega_m^{0.25}$	0.6085	$0.609^{+0.019}_{-0.020}$	$H(0.15)$	72.46	$72.4^{+1.6}_{-1.5}$
$\Omega_c h^2$	0.12010	$0.1202^{+0.0040}_{-0.0040}$	$\sigma_8/h^{0.5}$	0.9896	$0.990^{+0.027}_{-0.027}$	$D_M(0.15)$	645.5	$646^{+16}_{-16}$
$100\theta_{MC}$	1.04083	$1.0408^{+0.0012}_{-0.0011}$	$r_{drag}h$	98.86	$98.8^{+3.2}_{-3.1}$	$H(0.38)$	82.67	$82.6^{+1.2}_{-1.1}$
$\tau$	0.0527	$0.052^{+0.021}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.443	$2.447^{+0.062}_{-0.065}$	$D_M(0.38)$	1538.0	$1539^{+31}_{-32}$
$\ln(10^{10} A_s)$	3.0404	$3.040^{+0.040}_{-0.040}$	$z_{re}$	7.55	$7.5^{+2.0}_{-2.3}$	$H(0.51)$	89.44	$89.40^{+0.96}_{-0.90}$
$n_s$	0.9653	$0.963^{+0.013}_{-0.012}$	$10^9 A_s$	2.091	$2.091^{+0.086}_{-0.081}$	$D_M(0.51)$	1991.4	$1993^{+37}_{-38}$
$y_{cal}$	1.0003	$1.0005^{+0.0063}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	1.8823	$1.882^{+0.028}_{-0.028}$	$H(0.61)$	95.10	$95.06^{+0.79}_{-0.74}$
$A_{217}^{CIB}$	47.9	$48^{+20}_{-20}$	$D_{40}$	1227.4	$1232^{+32}_{-31}$	$D_M(0.61)$	2316.6	$2318^{+40}_{-41}$
$\xi^{tSZ \times CIB}$	0.44	—	$D_{220}$	5710	$5716^{+100}_{-100}$	$H(2.33)$	236.43	$236.4^{+2.4}_{-2.4}$
$A_{143}^{tSZ}$	6.9	—	$D_{810}$	2537.7	$2536^{+33}_{-34}$	$D_M(2.33)$	5773.5	$5775^{+36}_{-37}$
$A_{100}^{PS}$	254	$264^{+70}_{-70}$	$D_{1420}$	816.0	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	0.4608	$0.461^{+0.021}_{-0.021}$
$A_{143}^{PS}$	51.1	$49^{+20}_{-20}$	$D_{2000}$	230.18	$229.6^{+4.7}_{-4.7}$	$\sigma_8(0.15)$	0.7486	$0.748^{+0.015}_{-0.014}$
$A_{143 \times 217}^{PS}$	49.9	$43^{+20}_{-20}$	$n_{s,0.002}$	0.9653	$0.963^{+0.013}_{-0.012}$	$f\sigma_8(0.38)$	0.4778	$0.478^{+0.016}_{-0.016}$
$A_{217}^{PS}$	120.7	$115^{+30}_{-30}$	$Y_P$	0.245315	$0.24530^{+0.00021}_{-0.00024}$	$\sigma_8(0.38)$	0.6630	$0.663^{+0.013}_{-0.013}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246641	$0.24662^{+0.00021}_{-0.00025}$	$f\sigma_8(0.51)$	0.4757	$0.476^{+0.013}_{-0.014}$
$A_{100}^{dustTT}$	8.86	$8.9^{+4.7}_{-4.6}$	$10^5 D/H$	2.623	$2.630^{+0.099}_{-0.098}$	$\sigma_8(0.51)$	0.6202	$0.620^{+0.012}_{-0.012}$
$A_{143}^{dustTT}$	10.80	$10.7^{+4.6}_{-4.7}$	Age/Gyr	13.821	$13.825^{+0.081}_{-0.083}$	$f\sigma_8(0.61)$	0.4703	$0.470^{+0.012}_{-0.012}$
$A_{143 \times 217}^{dustTT}$	19.5	$18.3^{+8.6}_{-8.6}$	$z_*$	1090.18	$1090.23^{+0.89}_{-0.88}$	$\sigma_8(0.61)$	0.5900	$0.590^{+0.012}_{-0.011}$
$A_{217}^{dustTT}$	94.8	$93^{+20}_{-20}$	$r_*$	144.55	$144.56^{+0.95}_{-0.94}$	$f\sigma_8(2.33)$	0.2972	$0.2970^{+0.0063}_{-0.0061}$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04103	$1.0410^{+0.0012}_{-0.0011}$	$\sigma_8(2.33)$	0.3062	$0.3059^{+0.0069}_{-0.0068}$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.886	$13.886^{+0.089}_{-0.087}$	$f_{2000}^{143}$	30.2	$31^{+8}_{-8}$
$H_0$	67.12	$67.1^{+1.9}_{-1.8}$	$z_{drag}$	1059.47	$1059.4^{+1.2}_{-1.1}$	$f_{2000}^{143 \times 217}$	33.1	$34^{+5}_{-5}$
$\Omega_\Lambda$	0.6828	$0.682^{+0.025}_{-0.026}$	$r_{drag}$	147.28	$147.30^{+0.98}_{-0.97}$	$f_{2000}^{217}$	107.51	$108.2^{+4.8}_{-5.0}$
$\Omega_m$	0.3172	$0.318^{+0.026}_{-0.025}$	$k_D$	0.14051	$0.1405^{+0.0012}_{-0.0012}$	$\chi_{lensing}^2$	8.90	$9.45 (\nu: 0.4)$
$\Omega_m h^2$	0.14292	$0.1430^{+0.0038}_{-0.0038}$	$100\theta_D$	0.16101	$0.16106^{+0.00065}_{-0.00066}$	$\chi_{small}^2$	395.86	$396.9 (\nu: 1.3)$
$\Omega_m h^3$	0.09594	$0.0959^{+0.0012}_{-0.0011}$	$z_{eq}$	3400	$3401^{+90}_{-91}$	$\chi_{lowl}^2$	23.23	$23.7 (\nu: 0.5)$
$\sigma_8$	0.8108	$0.810^{+0.016}_{-0.016}$	$k_{eq}$	0.010377	$0.01038^{+0.00028}_{-0.00028}$	$\chi_{plik}^2$	759.3	$771.1 (\nu: 13.6)$
$S_8$	0.8337	$0.834^{+0.041}_{-0.041}$	$100\theta_{eq}$	0.8131	$0.813^{+0.018}_{-0.017}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.7)$
$\sigma_8 \Omega_m^{0.5}$	0.4566	$0.457^{+0.023}_{-0.023}$	$100\theta_{s,eq}$	0.4494	$0.4493^{+0.0090}_{-0.0087}$	$\chi_{CMB}^2$	1187.3	$1201.1 (\nu: 14.9)$

Best-fit  $\chi_{eff}^2 = 1188.57$ ;  $\bar{\chi}_{eff}^2 = 1208.41$ ;  $R - 1 = 0.00560$

$\chi_{eff}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.90 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3.2\_29: 23.23 plik\_rd12\_HM.v22.TT: 759.32



## 2.82 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022224	$0.02221^{+0.00049}_{-0.00047}$	$r_{\text{drag}} h$	99.65	$99.6^{+2.3}_{-2.1}$	$H(0.51)$	89.63	$89.63^{+0.72}_{-0.68}$
$\Omega_c h^2$	0.11909	$0.1191^{+0.0028}_{-0.0029}$	$\langle d^2 \rangle^{1/2}$	2.431	$2.436^{+0.055}_{-0.056}$	$D_M(0.51)$	1982.8	$1983^{+26}_{-27}$
$100\theta_{\text{MC}}$	1.04093	$1.0410^{+0.0011}_{-0.0011}$	$z_{\text{re}}$	7.71	$7.8^{+1.8}_{-2.0}$	$H(0.61)$	95.24	$95.24^{+0.64}_{-0.59}$
$\tau$	0.0544	$0.055^{+0.019}_{-0.019}$	$10^9 A_s$	2.095	$2.099^{+0.084}_{-0.075}$	$D_M(0.61)$	2307.4	$2308^{+28}_{-29}$
$\ln(10^{10} A_s)$	3.0421	$3.044^{+0.039}_{-0.036}$	$10^9 A_s e^{-2\tau}$	1.8788	$1.879^{+0.027}_{-0.026}$	$H(2.33)$	235.81	$235.8^{+1.8}_{-1.8}$
$n_s$	0.9669	$0.966^{+0.011}_{-0.010}$	$D_{40}$	1225.0	$1228^{+32}_{-29}$	$D_M(2.33)$	5767.6	$5768^{+30}_{-30}$
$y_{\text{cal}}$	1.0005	$1.0007^{+0.0067}_{-0.0063}$	$D_{220}$	5720	$5724^{+99}_{-96}$	$f\sigma_8(0.15)$	0.4555	$0.456^{+0.015}_{-0.016}$
$A_{217}^{\text{CIB}}$	48.5	$48^{+20}_{-20}$	$D_{810}$	2537.5	$2537^{+35}_{-34}$	$\sigma_8(0.15)$	0.7471	$0.748^{+0.015}_{-0.015}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.33	—	$D_{1420}$	816.4	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4739	$0.474^{+0.013}_{-0.013}$
$A_{143}^{\text{tSZ}}$	7.0	—	$D_{2000}$	230.29	$230.0^{+4.6}_{-4.5}$	$\sigma_8(0.38)$	0.6623	$0.663^{+0.013}_{-0.013}$
$A_{100}^{\text{PS}}$	253	$263^{+70}_{-70}$	$n_{\text{s},0.002}$	0.9669	$0.966^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	0.4726	$0.473^{+0.012}_{-0.012}$
$A_{143}^{\text{PS}}$	49.0	$49^{+20}_{-20}$	$Y_{\text{P}}$	0.245336	$0.24533^{+0.00019}_{-0.00022}$	$\sigma_8(0.51)$	0.6198	$0.620^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	46.8	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246662	$0.24665^{+0.00019}_{-0.00022}$	$f\sigma_8(0.61)$	0.4676	$0.468^{+0.011}_{-0.011}$
$A_{217}^{\text{PS}}$	119.3	$115^{+30}_{-30}$	$10^5 D/H$	2.613	$2.617^{+0.091}_{-0.090}$	$\sigma_8(0.61)$	0.5898	$0.590^{+0.012}_{-0.011}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.808	$13.809^{+0.069}_{-0.067}$	$f\sigma_8(2.33)$	0.2974	$0.2976^{+0.0060}_{-0.0056}$
$A_{100}^{\text{dustTT}}$	8.84	$8.9^{+4.7}_{-4.7}$	$z_*$	1090.03	$1090.05^{+0.71}_{-0.71}$	$\sigma_8(2.33)$	0.3066	$0.3068^{+0.0063}_{-0.0061}$
$A_{143}^{\text{dustTT}}$	10.77	$10.7^{+4.5}_{-4.6}$	$r_*$	144.78	$144.78^{+0.75}_{-0.73}$	$f_{2000}^{143}$	30.1	$31^{+8}_{-7}$
$A_{143 \times 217}^{\text{dustTT}}$	19.4	$18.3^{+8.9}_{-8.6}$	$100\theta_*$	1.04113	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	94.5	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.906	$13.906^{+0.072}_{-0.071}$	$f_{2000}^{217}$	107.49	$107.9^{+4.7}_{-5.0}$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.51	$1059.5^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	8.87	$9.26 (\nu: 0.2)$
$c_{217}$	0.99822	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.50	$147.50^{+0.82}_{-0.79}$	$\chi_{\text{small}}^2$	396.09	$397.1 (\nu: 1.7)$
$H_0$	67.56	$67.5^{+1.3}_{-1.2}$	$k_{\text{D}}$	0.14033	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{\text{lowl}}^2$	22.96	$23.24 (\nu: 0.4)$
$\Omega_\Lambda$	0.6890	$0.689^{+0.017}_{-0.017}$	$100\theta_{\text{D}}$	0.16099	$0.16102^{+0.00065}_{-0.00068}$	$\chi_{\text{plik}}^2$	759.8	$771.6 (\nu: 13.7)$
$\Omega_{\text{m}}$	0.3110	$0.311^{+0.017}_{-0.017}$	$z_{\text{eq}}$	3377	$3378^{+64}_{-66}$	$\chi_{6\text{DF}}^2$	0.029	$0.060 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.14196	$0.1420^{+0.0027}_{-0.0028}$	$k_{\text{eq}}$	0.010307	$0.01031^{+0.00020}_{-0.00020}$	$\chi_{\text{MGS}}^2$	1.22	$1.27 (\nu: 0.1)$
$\Omega_{\text{m}} h^3$	0.09590	$0.0959^{+0.0012}_{-0.0011}$	$100\theta_{\text{eq}}$	0.8174	$0.817^{+0.012}_{-0.012}$	$\chi_{\text{DR12BAO}}^2$	4.37	$4.9 (\nu: 1.2)$
$\sigma_8$	0.8085	$0.809^{+0.016}_{-0.016}$	$100\theta_{\text{s,eq}}$	0.4517	$0.4516^{+0.0063}_{-0.0060}$	$\chi_{\text{prior}}^2$	1.3	$7.3 (\nu: 6.6)$
$S_8$	0.8232	$0.824^{+0.030}_{-0.030}$	$H(0.15)$	72.83	$72.8^{+1.2}_{-1.1}$	$\chi_{\text{CMB}}^2$	1187.7	$1201.2 (\nu: 14.7)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4509	$0.451^{+0.017}_{-0.017}$	$D_M(0.15)$	641.7	$642^{+11}_{-11}$	$\chi_{\text{BAO}}^2$	5.62	$6.2 (\nu: 0.8)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6038	$0.604^{+0.016}_{-0.016}$	$H(0.38)$	82.93	$82.92^{+0.89}_{-0.81}$			
$\sigma_8/h^{0.5}$	0.9836	$0.985^{+0.023}_{-0.024}$	$D_M(0.38)$	1530.6	$1531^{+22}_{-23}$			

Best-fit  $\chi_{\text{eff}}^2 = 1194.68$ ;  $\bar{\chi}_{\text{eff}}^2 = 1214.73$ ;  $R - 1 = 0.01723$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.37 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.88 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.09 commander\_dx12.v3.2.29: 22.96 plik\_rd12\_HM.v22\_TT: 759.80



### 2.83 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022349	$0.02232^{+0.00049}_{-0.00050}$	$\sigma_8/h^{0.5}$	0.9794	$0.980^{+0.026}_{-0.023}$	$H(0.38)$	83.24	$83.2^{+1.1}_{-1.1}$
$\Omega_c h^2$	0.11826	$0.1181^{+0.0037}_{-0.0035}$	$r_{\text{drag}} h$	100.39	$100.5^{+2.9}_{-2.9}$	$D_M(0.38)$	1522.4	$1522^{+29}_{-28}$
$100\theta_{\text{MC}}$	1.04115	$1.0412^{+0.0010}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.422	$2.425^{+0.061}_{-0.060}$	$H(0.51)$	89.89	$89.89^{+0.86}_{-0.87}$
$\tau$	0.0572	$0.058^{+0.019}_{-0.021}$	$z_{\text{re}}$	7.95	$8.0^{+1.8}_{-2.1}$	$D_M(0.51)$	1973.2	$1973^{+34}_{-33}$
$\ln(10^{10} A_s)$	3.0466	$3.048^{+0.039}_{-0.039}$	$10^9 A_s$	2.104	$2.109^{+0.084}_{-0.082}$	$H(0.61)$	95.46	$95.45^{+0.69}_{-0.72}$
$n_s$	0.9692	$0.969^{+0.014}_{-0.012}$	$10^9 A_s e^{-2\tau}$	1.8770	$1.876^{+0.029}_{-0.025}$	$D_M(0.61)$	2296.9	$2297^{+37}_{-36}$
$y_{\text{cal}}$	1.0007	$1.0010^{+0.0064}_{-0.0062}$	$D_{40}$	1222.6	$1225^{+34}_{-33}$	$H(2.33)$	235.41	$235.3^{+2.3}_{-2.1}$
$A_{217}^{\text{CIB}}$	47.7	$47^{+20}_{-20}$	$D_{220}$	5733	$5735^{+93}_{-96}$	$D_M(2.33)$	5757.4	$5758^{+35}_{-31}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.47	—	$D_{810}$	2539.5	$2538^{+36}_{-34}$	$f\sigma_8(0.15)$	0.4514	$0.451^{+0.019}_{-0.017}$
$A_{143}^{\text{tSZ}}$	6.9	—	$D_{1420}$	818.0	$817^{+12}_{-13}$	$\sigma_8(0.15)$	0.7471	$0.747^{+0.015}_{-0.014}$
$A_{100}^{\text{PS}}$	252	$262^{+70}_{-70}$	$D_{2000}$	231.02	$230.7^{+4.7}_{-4.5}$	$f\sigma_8(0.38)$	0.4711	$0.471^{+0.015}_{-0.014}$
$A_{143}^{\text{PS}}$	49.9	$48^{+20}_{-20}$	$n_{s,0.002}$	0.9692	$0.969^{+0.014}_{-0.012}$	$\sigma_8(0.38)$	0.6629	$0.663^{+0.012}_{-0.013}$
$A_{143 \times 217}^{\text{PS}}$	49.6	$43^{+20}_{-20}$	$Y_{\text{P}}$	0.245387	$0.24537^{+0.00019}_{-0.00022}$	$f\sigma_8(0.51)$	0.4704	$0.470^{+0.014}_{-0.013}$
$A_{217}^{\text{PS}}$	120.0	$115^{+30}_{-30}$	$Y_{\text{P}}^{\text{BBN}}$	0.246714	$0.24670^{+0.00019}_{-0.00022}$	$\sigma_8(0.51)$	0.6207	$0.621^{+0.011}_{-0.012}$
$A^{\text{kSZ}}$	0.0	—	$10^5 D/H$	2.589	$2.596^{+0.095}_{-0.088}$	$f\sigma_8(0.61)$	0.4660	$0.466^{+0.012}_{-0.011}$
$A_{100}^{\text{dustTT}}$	8.88	$9.0^{+4.4}_{-4.5}$	Age/Gyr	13.785	$13.788^{+0.079}_{-0.067}$	$\sigma_8(0.61)$	0.5908	$0.591^{+0.011}_{-0.011}$
$A_{143}^{\text{dustTT}}$	10.90	$10.7^{+4.5}_{-4.6}$	$z_*$	1089.80	$1089.83^{+0.83}_{-0.73}$	$f\sigma_8(2.33)$	0.2981	$0.2983^{+0.0057}_{-0.0059}$
$A_{143 \times 217}^{\text{dustTT}}$	19.5	$18.3^{+8.8}_{-8.5}$	$r_*$	144.90	$144.96^{+0.84}_{-0.91}$	$\sigma_8(2.33)$	0.3076	$0.3078^{+0.0063}_{-0.0065}$
$A_{217}^{\text{dustTT}}$	94.9	$94^{+20}_{-20}$	$100\theta_*$	1.04134	$1.0413^{+0.0010}_{-0.0011}$	$f_{2000}^{143}$	29.4	$30^{+7}_{-8}$
$c_{100}$	0.99969	$0.9997^{+0.0017}_{-0.0017}$	$D_M(z_*)/\text{Gpc}$	13.915	$13.920^{+0.080}_{-0.085}$	$f_{2000}^{143 \times 217}$	32.55	$33^{+5}_{-5}$
$c_{217}$	0.99826	$0.9982^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.78	$1059.7^{+1.1}_{-1.1}$	$f_{2000}^{217}$	107.04	$107.5^{+4.8}_{-4.9}$
$H_0$	68.03	$68.0^{+1.7}_{-1.7}$	$r_{\text{drag}}$	147.57	$147.65^{+0.92}_{-0.94}$	$\chi_{\text{lensing}}^2$	8.98	$9.5 (\nu: 0.6)$
$\Omega_\Lambda$	0.6948	$0.695^{+0.021}_{-0.023}$	$k_{\text{D}}$	0.14034	$0.1402^{+0.0012}_{-0.0012}$	$\chi_{\text{small}}^2$	396.6	$397.8 (\nu: 2.7)$
$\Omega_{\text{m}}$	0.3052	$0.305^{+0.023}_{-0.021}$	$100\theta_{\text{D}}$	0.16088	$0.16093^{+0.00063}_{-0.00064}$	$\chi_{\text{lowl}}^2$	22.68	$22.87 (\nu: 0.4)$
$\Omega_{\text{m}} h^2$	0.14126	$0.1411^{+0.0036}_{-0.0032}$	$z_{\text{eq}}$	3360	$3357^{+85}_{-77}$	$\chi_{\text{plik}}^2$	760.9	$772.9 (\nu: 15.1)$
$\Omega_{\text{m}} h^3$	0.09609	$0.0960^{+0.0011}_{-0.0011}$	$k_{\text{eq}}$	0.010256	$0.01024^{+0.00026}_{-0.00023}$	$\chi_{\text{H073p45}}^2$	10.7	$10.8 (\nu: 3.5)$
$\sigma_8$	0.8078	$0.808^{+0.017}_{-0.015}$	$100\theta_{\text{eq}}$	0.8210	$0.822^{+0.016}_{-0.016}$	$\chi_{\text{prior}}^2$	1.3	$7.3 (\nu: 6.4)$
$S_8$	0.8149	$0.815^{+0.038}_{-0.033}$	$100\theta_{s,\text{eq}}$	0.4534	$0.4538^{+0.0079}_{-0.0082}$	$\chi_{\text{CMB}}^2$	1189.1	$1203.1 (\nu: 17.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4463	$0.446^{+0.021}_{-0.018}$	$H(0.15)$	73.24	$73.3^{+1.5}_{-1.4}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6005	$0.600^{+0.019}_{-0.017}$	$D_M(0.15)$	637.7	$638^{+14}_{-14}$			

Best-fit  $\chi_{\text{eff}}^2 = 1201.06$ ;  $\bar{\chi}_{\text{eff}}^2 = 1221.17$ ;  $R - 1 = 0.06771$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consect8: 8.98 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.58 commander\_dx12\_v3.2.29: 22.68 plik\_rd12\_HM\_v22\_TT: 760.89 Hubble - H073p45: 10.67



## 2.84 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022352	$0.02231^{+0.00049}_{-0.00046}$	$r_{\text{drag}} h$	100.44	$100.4^{+2.2}_{-2.1}$	$H(0.51)$	89.90	$89.87^{+0.66}_{-0.66}$
$\Omega_c h^2$	0.11819	$0.1182^{+0.0027}_{-0.0027}$	$\langle d^2 \rangle^{1/2}$	2.420	$2.425^{+0.056}_{-0.055}$	$D_M(0.51)$	1972.7	$1973^{+25}_{-25}$
$100\theta_{\text{MC}}$	1.04113	$1.0411^{+0.0011}_{-0.0010}$	$z_{\text{re}}$	7.91	$8.0^{+1.8}_{-2.0}$	$H(0.61)$	95.47	$95.44^{+0.58}_{-0.58}$
$\tau$	0.0569	$0.058^{+0.020}_{-0.019}$	$10^9 A_s$	2.103	$2.108^{+0.082}_{-0.080}$	$D_M(0.61)$	2296.4	$2297^{+27}_{-27}$
$\ln(10^{10} A_s)$	3.0460	$3.048^{+0.038}_{-0.039}$	$10^9 A_s e^{-2\tau}$	1.8769	$1.876^{+0.028}_{-0.025}$	$H(2.33)$	235.37	$235.3^{+1.8}_{-1.7}$
$n_s$	0.9698	$0.968^{+0.011}_{-0.010}$	$D_{40}$	1221.0	$1225^{+32}_{-32}$	$D_M(2.33)$	5757.3	$5759^{+29}_{-29}$
$y_{\text{cal}}$	1.0008	$1.0010^{+0.0065}_{-0.0062}$	$D_{220}$	5732	$5735^{+100}_{-95}$	$f\sigma_8(0.15)$	0.4509	$0.451^{+0.015}_{-0.014}$
$A_{217}^{\text{CIB}}$	46.5	$48^{+20}_{-20}$	$D_{810}$	2540.2	$2538^{+36}_{-33}$	$\sigma_8(0.15)$	0.7468	$0.747^{+0.015}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.61	—	$D_{1420}$	818.5	$817^{+14}_{-12}$	$f\sigma_8(0.38)$	0.4707	$0.471^{+0.013}_{-0.012}$
$A_{143}^{\text{tSZ}}$	6.9	—	$D_{2000}$	231.19	$230.6^{+4.7}_{-4.4}$	$\sigma_8(0.38)$	0.6627	$0.663^{+0.013}_{-0.013}$
$A_{100}^{\text{PS}}$	250	$261^{+70}_{-70}$	$n_{\text{s},0.002}$	0.9698	$0.968^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	0.4701	$0.470^{+0.012}_{-0.011}$
$A_{143}^{\text{PS}}$	51.7	$48^{+20}_{-20}$	$Y_{\text{P}}$	0.245388	$0.24537^{+0.00019}_{-0.00021}$	$\sigma_8(0.51)$	0.6205	$0.621^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	52.9	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246715	$0.24670^{+0.00019}_{-0.00021}$	$f\sigma_8(0.61)$	0.4657	$0.466^{+0.011}_{-0.010}$
$A_{217}^{\text{PS}}$	121.7	$115^{+30}_{-30}$	$10^5 D/H$	2.589	$2.597^{+0.089}_{-0.089}$	$\sigma_8(0.61)$	0.5906	$0.591^{+0.011}_{-0.011}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.785	$13.789^{+0.067}_{-0.064}$	$f\sigma_8(2.33)$	0.2981	$0.2982^{+0.0058}_{-0.0058}$
$A_{100}^{\text{dustTT}}$	8.87	$8.9^{+4.5}_{-4.5}$	$z_*$	1089.79	$1089.84^{+0.70}_{-0.66}$	$\sigma_8(2.33)$	0.3076	$0.3078^{+0.0064}_{-0.0061}$
$A_{143}^{\text{dustTT}}$	10.81	$10.7^{+4.5}_{-4.6}$	$r_*$	144.92	$144.95^{+0.75}_{-0.74}$	$f_{2000}^{143}$	29.3	$30^{+7}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	19.9	$18.3^{+8.9}_{-9.0}$	$100\theta_*$	1.04133	$1.0413^{+0.0011}_{-0.0010}$	$f_{2000}^{143 \times 217}$	32.5	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	95.6	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.916	$13.919^{+0.071}_{-0.074}$	$f_{2000}^{217}$	106.92	$107.6^{+4.9}_{-4.9}$
$c_{100}$	0.99969	$0.9997^{+0.0017}_{-0.0017}$	$z_{\text{drag}}$	1059.78	$1059.7^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	9.06	$9.43 (\nu: 0.5)$
$c_{217}$	0.99824	$0.9982^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	147.59	$147.64^{+0.81}_{-0.84}$	$\chi_{\text{small}}^2$	396.5	$397.7 (\nu: 2.4)$
$H_0$	68.05	$68.0^{+1.3}_{-1.2}$	$k_{\text{D}}$	0.14033	$0.1402^{+0.0011}_{-0.0011}$	$\chi_{\text{lowl}}^2$	22.53	$22.87 (\nu: 0.3)$
$\Omega_\Lambda$	0.6952	$0.695^{+0.016}_{-0.016}$	$100\theta_{\text{D}}$	0.16087	$0.16093^{+0.00063}_{-0.00065}$	$\chi_{\text{plik}}^2$	761.2	$772.6 (\nu: 14.2)$
$\Omega_{\text{m}}$	0.3048	$0.305^{+0.016}_{-0.016}$	$z_{\text{eq}}$	3358	$3357^{+64}_{-67}$	$\chi_{\text{H073p45}}^2$	10.57	$10.8 (\nu: 1.8)$
$\Omega_{\text{m}} h^2$	0.14118	$0.1411^{+0.0027}_{-0.0028}$	$k_{\text{eq}}$	0.010250	$0.01025^{+0.00020}_{-0.00020}$	$\chi_{6\text{DF}}^2$	0.000	$0.029 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	0.09608	$0.0960^{+0.0011}_{-0.0011}$	$100\theta_{\text{eq}}$	0.8213	$0.821^{+0.013}_{-0.012}$	$\chi_{\text{MGS}}^2$	1.68	$1.73 (\nu: 0.1)$
$\sigma_8$	0.8075	$0.808^{+0.017}_{-0.016}$	$100\theta_{\text{s,eq}}$	0.4536	$0.4537^{+0.0067}_{-0.0061}$	$\chi_{\text{DR12BAO}}^2$	3.50	$3.96 (\nu: 0.3)$
$S_8$	0.8140	$0.815^{+0.030}_{-0.027}$	$H(0.15)$	73.26	$73.2^{+1.1}_{-1.1}$	$\chi_{\text{prior}}^2$	1.3	$7.4 (\nu: 6.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4458	$0.446^{+0.016}_{-0.015}$	$D_M(0.15)$	637.5	$638^{+10}_{-11}$	$\chi_{\text{CMB}}^2$	1189.2	$1202.6 (\nu: 15.5)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6000	$0.601^{+0.016}_{-0.015}$	$H(0.38)$	83.25	$83.23^{+0.83}_{-0.80}$	$\chi_{\text{BAO}}^2$	5.17	$5.71 (\nu: 0.3)$
$\sigma_8/h^{0.5}$	0.9788	$0.980^{+0.023}_{-0.021}$	$D_M(0.38)$	1522.0	$1523^{+21}_{-21}$			

Best-fit  $\chi_{\text{eff}}^2 = 1206.21$ ;  $\bar{\chi}_{\text{eff}}^2 = 1226.45$ ;  $R - 1 = 0.05385$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.50 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.06 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.46 commander\_dx12\_v3\_2\_29: 22.54 plik\_rd12\_HM\_v22\_TT: 761.15 Hubble - H073p45: 10.57



## 2.85 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02219	$0.02217^{+0.00052}_{-0.00050}$	$\sigma_8/h^{0.5}$	0.9871	$0.987^{+0.025}_{-0.026}$	$H(0.38)$	82.76	$82.8^{+1.1}_{-1.0}$
$\Omega_c h^2$	0.11977	$0.1197^{+0.0036}_{-0.0037}$	$r_{\text{drag}} h$	99.13	$99.2^{+3.0}_{-2.8}$	$D_M(0.38)$	1535.4	$1536^{+29}_{-29}$
$100\theta_{\text{MC}}$	1.04089	$1.0409^{+0.0012}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.439	$2.442^{+0.061}_{-0.061}$	$H(0.51)$	89.51	$89.50^{+0.90}_{-0.83}$
$\tau$	0.0527	$0.054^{+0.021}_{-0.020}$	$z_{\text{re}}$	7.55	$7.6^{+2.0}_{-2.2}$	$D_M(0.51)$	1988.4	$1989^{+34}_{-35}$
$\ln(10^{10} A_s)$	3.0404	$3.042^{+0.040}_{-0.038}$	$10^9 A_s$	2.091	$2.094^{+0.085}_{-0.079}$	$H(0.61)$	95.15	$95.14^{+0.75}_{-0.68}$
$n_s$	0.9654	$0.965^{+0.012}_{-0.012}$	$10^9 A_s e^{-2\tau}$	1.8820	$1.881^{+0.028}_{-0.027}$	$D_M(0.61)$	2313.3	$2314^{+36}_{-37}$
$y_{\text{cal}}$	1.0006	$1.0006^{+0.0065}_{-0.0063}$	$D_{40}$	1228.3	$1230^{+31}_{-31}$	$H(2.33)$	236.23	$236.2^{+2.3}_{-2.3}$
$A_{217}^{\text{CIB}}$	49.8	$48^{+20}_{-20}$	$D_{220}$	5719	$5720^{+99}_{-100}$	$D_M(2.33)$	5771.1	$5772^{+33}_{-36}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.14	—	$D_{810}$	2538.4	$2537^{+35}_{-34}$	$f\sigma_8(0.15)$	0.4588	$0.459^{+0.019}_{-0.019}$
$A_{143}^{\text{tSZ}}$	7.1	—	$D_{1420}$	816.2	$815^{+13}_{-13}$	$\sigma_8(0.15)$	0.7478	$0.748^{+0.015}_{-0.014}$
$A_{100}^{\text{PS}}$	256	$263^{+70}_{-70}$	$D_{2000}$	230.19	$229.8^{+4.6}_{-4.6}$	$f\sigma_8(0.38)$	0.4763	$0.476^{+0.015}_{-0.015}$
$A_{143}^{\text{PS}}$	46.5	$49^{+20}_{-20}$	$n_{s,0.002}$	0.9654	$0.965^{+0.012}_{-0.012}$	$\sigma_8(0.38)$	0.6625	$0.663^{+0.013}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	42.0	$43^{+20}_{-20}$	$Y_{\text{P}}$	0.245322	$0.24531^{+0.00020}_{-0.00024}$	$f\sigma_8(0.51)$	0.4745	$0.475^{+0.013}_{-0.013}$
$A_{217}^{\text{PS}}$	117.3	$115^{+30}_{-30}$	$Y_{\text{P}}^{\text{BBN}}$	0.246648	$0.24664^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	0.6198	$0.620^{+0.012}_{-0.012}$
$A^{\text{kSZ}}$	0.0	—	$10^5 \text{D}/\text{H}$	2.620	$2.624^{+0.097}_{-0.095}$	$f\sigma_8(0.61)$	0.4692	$0.469^{+0.012}_{-0.012}$
$A_{100}^{\text{dustTT}}$	8.87	$8.9^{+4.7}_{-4.6}$	Age/Gyr	13.815	$13.818^{+0.076}_{-0.079}$	$\sigma_8(0.61)$	0.5897	$0.590^{+0.012}_{-0.011}$
$A_{143}^{\text{dustTT}}$	10.79	$10.7^{+4.5}_{-4.6}$	$z_*$	1090.13	$1090.15^{+0.84}_{-0.81}$	$f\sigma_8(2.33)$	0.2972	$0.2973^{+0.0062}_{-0.0060}$
$A_{143 \times 217}^{\text{dustTT}}$	19.0	$18.3^{+8.9}_{-8.6}$	$r_*$	144.63	$144.65^{+0.90}_{-0.87}$	$\sigma_8(2.33)$	0.3062	$0.3063^{+0.0068}_{-0.0066}$
$A_{217}^{\text{dustTT}}$	94.0	$93^{+20}_{-20}$	$100\theta_*$	1.04110	$1.0411^{+0.0012}_{-0.0011}$	$f_{2000}^{143}$	30.4	$31^{+8}_{-8}$
$c_{100}$	0.99962	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.892	$13.895^{+0.085}_{-0.083}$	$f_{2000}^{143 \times 217}$	33.2	$33^{+5}_{-5}$
$c_{217}$	0.99824	$0.9983^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.51	$1059.5^{+1.1}_{-1.1}$	$f_{2000}^{217}$	107.72	$108.0^{+4.7}_{-5.0}$
$H_0$	67.28	$67.3^{+1.7}_{-1.6}$	$r_{\text{drag}}$	147.35	$147.39^{+0.94}_{-0.91}$	$\chi_{\text{lensing}}^2$	8.84	$9.35 (\nu: 0.3)$
$\Omega_\Lambda$	0.6849	$0.685^{+0.023}_{-0.023}$	$k_{\text{D}}$	0.14045	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{\text{simall}}^2$	395.87	$397.0 (\nu: 1.5)$
$\Omega_{\text{m}}$	0.3151	$0.315^{+0.023}_{-0.023}$	$100\theta_{\text{D}}$	0.16101	$0.16104^{+0.00065}_{-0.00066}$	$\chi_{\text{lowl}}^2$	23.23	$23.48 (\nu: 0.5)$
$\Omega_{\text{m}} h^2$	0.14261	$0.1425^{+0.0035}_{-0.0035}$	$z_{\text{eq}}$	3392	$3391^{+84}_{-84}$	$\chi_{\text{plik}}^2$	759.1	$771.3 (\nu: 13.7)$
$\Omega_{\text{m}} h^3$	0.09594	$0.0959^{+0.0012}_{-0.0011}$	$k_{\text{eq}}$	0.010354	$0.01035^{+0.00026}_{-0.00026}$	$\chi_{\text{JLA}}^2$	1035.26	$1035.42 (\nu: 0.2)$
$\sigma_8$	0.8097	$0.810^{+0.016}_{-0.016}$	$100\theta_{\text{eq}}$	0.8145	$0.815^{+0.016}_{-0.015}$	$\chi_{\text{prior}}^2$	1.6	$7.3 (\nu: 6.7)$
$S_8$	0.8298	$0.830^{+0.038}_{-0.038}$	$100\theta_{s,\text{eq}}$	0.4502	$0.4503^{+0.0084}_{-0.0079}$	$\chi_{\text{CMB}}^2$	1187.1	$1201.1 (\nu: 14.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4545	$0.455^{+0.021}_{-0.021}$	$H(0.15)$	72.59	$72.6^{+1.5}_{-1.4}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6066	$0.607^{+0.018}_{-0.019}$	$D_M(0.15)$	644.1	$644^{+14}_{-15}$			

Best-fit  $\chi_{\text{eff}}^2 = 2223.87$ ;  $\bar{\chi}_{\text{eff}}^2 = 2243.81$ ;  $R - 1 = 0.01128$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consect8: 8.84 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2.29: 23.23 plik\_rd12\_HM.v22.TT: 759.12 SN - JLA Pantheon18: 1035.26



## 2.86 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_JLA\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022347	$0.02232^{+0.00049}_{-0.00046}$	$r_{\text{drag}} h$	100.44	$100.5^{+2.2}_{-2.0}$	$H(0.51)$	89.89	$89.89^{+0.70}_{-0.66}$
$\Omega_c h^2$	0.11818	$0.1181^{+0.0027}_{-0.0026}$	$\langle d^2 \rangle^{1/2}$	2.423	$2.425^{+0.054}_{-0.055}$	$D_M(0.51)$	1972.9	$1973^{+24}_{-25}$
$100\theta_{\text{MC}}$	1.04112	$1.0412^{+0.0011}_{-0.0010}$	$z_{\text{re}}$	8.05	$8.0^{+1.8}_{-1.9}$	$H(0.61)$	95.46	$95.45^{+0.59}_{-0.57}$
$\tau$	0.0582	$0.058^{+0.020}_{-0.019}$	$10^9 A_s$	2.108	$2.108^{+0.085}_{-0.081}$	$D_M(0.61)$	2296.6	$2297^{+26}_{-27}$
$\ln(10^{10} A_s)$	3.0485	$3.048^{+0.039}_{-0.039}$	$10^9 A_s e^{-2\tau}$	1.8765	$1.876^{+0.028}_{-0.025}$	$H(2.33)$	235.35	$235.3^{+1.8}_{-1.8}$
$n_s$	0.9697	$0.969^{+0.011}_{-0.010}$	$D_{40}$	1221.3	$1224^{+31}_{-33}$	$D_M(2.33)$	5757.7	$5758^{+29}_{-29}$
$y_{\text{cal}}$	1.0007	$1.0010^{+0.0064}_{-0.0062}$	$D_{220}$	5731	$5735^{+99}_{-95}$	$f\sigma_8(0.15)$	0.4515	$0.451^{+0.015}_{-0.014}$
$A_{217}^{\text{CIB}}$	47.0	$48^{+20}_{-20}$	$D_{810}$	2539.5	$2538^{+36}_{-33}$	$\sigma_8(0.15)$	0.7477	$0.747^{+0.015}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.53	—	$D_{1420}$	818.2	$817^{+14}_{-12}$	$f\sigma_8(0.38)$	0.4713	$0.471^{+0.013}_{-0.012}$
$A_{143}^{\text{tSZ}}$	7.0	—	$D_{2000}$	231.11	$230.6^{+4.7}_{-4.4}$	$\sigma_8(0.38)$	0.6635	$0.663^{+0.013}_{-0.013}$
$A_{100}^{\text{PS}}$	251	$261^{+70}_{-70}$	$n_{\text{s},0.002}$	0.9697	$0.969^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	0.4707	$0.470^{+0.012}_{-0.011}$
$A_{143}^{\text{PS}}$	50.3	$48^{+20}_{-20}$	$Y_{\text{P}}$	0.245386	$0.24537^{+0.00019}_{-0.00021}$	$\sigma_8(0.51)$	0.6213	$0.621^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	50.9	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246713	$0.24670^{+0.00019}_{-0.00021}$	$f\sigma_8(0.61)$	0.4662	$0.466^{+0.011}_{-0.010}$
$A_{217}^{\text{PS}}$	121.0	$115^{+30}_{-30}$	$10^5 D/H$	2.590	$2.596^{+0.088}_{-0.088}$	$\sigma_8(0.61)$	0.5913	$0.591^{+0.011}_{-0.011}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.786	$13.788^{+0.067}_{-0.063}$	$f\sigma_8(2.33)$	0.2984	$0.2983^{+0.0058}_{-0.0058}$
$A_{100}^{\text{dustTT}}$	8.81	$8.9^{+4.5}_{-4.5}$	$z_*$	1089.79	$1089.83^{+0.69}_{-0.65}$	$\sigma_8(2.33)$	0.3080	$0.3078^{+0.0063}_{-0.0061}$
$A_{143}^{\text{dustTT}}$	10.74	$10.7^{+4.5}_{-4.6}$	$r_*$	144.92	$144.96^{+0.74}_{-0.73}$	$f_{2000}^{143}$	29.2	$30^{+7}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	19.6	$18.3^{+8.9}_{-9.0}$	$100\theta_*$	1.04131	$1.0413^{+0.0011}_{-0.0010}$	$f_{2000}^{143 \times 217}$	32.4	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	95.1	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.917	$13.921^{+0.071}_{-0.073}$	$f_{2000}^{217}$	106.89	$107.5^{+4.9}_{-4.9}$
$c_{100}$	0.99968	$0.9997^{+0.0017}_{-0.0017}$	$z_{\text{drag}}$	1059.74	$1059.7^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	8.94	$9.44 (\nu: 0.5)$
$c_{217}$	0.99823	$0.9982^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	147.60	$147.65^{+0.81}_{-0.84}$	$\chi_{\text{small}}^2$	396.8	$397.7 (\nu: 2.5)$
$H_0$	68.05	$68.1^{+1.2}_{-1.2}$	$k_{\text{D}}$	0.14031	$0.1402^{+0.0012}_{-0.0011}$	$\chi_{\text{lowl}}^2$	22.59	$22.85 (\nu: 0.3)$
$\Omega_\Lambda$	0.6951	$0.695^{+0.016}_{-0.016}$	$100\theta_{\text{D}}$	0.16088	$0.16093^{+0.00063}_{-0.00065}$	$\chi_{\text{plik}}^2$	760.8	$772.7 (\nu: 14.2)$
$\Omega_{\text{m}}$	0.3049	$0.305^{+0.016}_{-0.016}$	$z_{\text{eq}}$	3358	$3356^{+64}_{-66}$	$\chi_{\text{H073p45}}^2$	10.60	$10.7 (\nu: 1.7)$
$\Omega_{\text{m}} h^2$	0.14117	$0.1411^{+0.0027}_{-0.0028}$	$k_{\text{eq}}$	0.010249	$0.01024^{+0.00019}_{-0.00020}$	$\chi_{\text{JLA}}^2$	706.592	$706.62 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	0.09606	$0.0960^{+0.0011}_{-0.0011}$	$100\theta_{\text{eq}}$	0.8214	$0.822^{+0.012}_{-0.012}$	$\chi_{\text{6DF}}^2$	0.000	$0.028 (\nu: 0.0)$
$\sigma_8$	0.8085	$0.808^{+0.017}_{-0.016}$	$100\theta_{\text{s,eq}}$	0.4536	$0.4538^{+0.0065}_{-0.0060}$	$\chi_{\text{MGS}}^2$	1.68	$1.76 (\nu: 0.1)$
$S_8$	0.8150	$0.814^{+0.029}_{-0.027}$	$H(0.15)$	73.25	$73.3^{+1.1}_{-1.0}$	$\chi_{\text{DR12BAO}}^2$	3.50	$3.92 (\nu: 0.3)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4464	$0.446^{+0.016}_{-0.015}$	$D_M(0.15)$	637.6	$638^{+10}_{-10}$	$\chi_{\text{prior}}^2$	1.3	$7.4 (\nu: 6.5)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6008	$0.600^{+0.016}_{-0.014}$	$H(0.38)$	83.25	$83.24^{+0.82}_{-0.78}$	$\chi_{\text{CMB}}^2$	1189.2	$1202.7 (\nu: 15.5)$
$\sigma_8/h^{0.5}$	0.9801	$0.979^{+0.023}_{-0.021}$	$D_M(0.38)$	1522.2	$1522^{+21}_{-21}$	$\chi_{\text{BAO}}^2$	5.17	$5.70 (\nu: 0.3)$

Best-fit  $\chi_{\text{eff}}^2 = 1912.81$ ;  $\bar{\chi}_{\text{eff}}^2 = 1933.05$ ;  $R - 1 = 0.05858$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.50 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.94 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.83 commander\_dx12.v3.2.29: 22.59 plik\_rd12\_HM.v22\_TT: 760.83 Hubble - H073p45: 10.60 SN - JLA December\_2013: 706.59



## 2.87 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022241	$0.02222^{+0.00048}_{-0.00047}$	$r_{\text{drag}} h$	99.87	$99.8^{+2.2}_{-2.0}$	$H(0.51)$	89.70	$89.66^{+0.70}_{-0.66}$
$\Omega_c h^2$	0.11884	$0.1190^{+0.0027}_{-0.0027}$	$\langle d^2 \rangle^{1/2}$	2.430	$2.434^{+0.055}_{-0.055}$	$D_M(0.51)$	1980.2	$1982^{+25}_{-26}$
$100\theta_{\text{MC}}$	1.04103	$1.0410^{+0.0011}_{-0.0011}$	$z_{\text{re}}$	7.86	$7.8^{+1.8}_{-2.0}$	$H(0.61)$	95.30	$95.26^{+0.62}_{-0.58}$
$\tau$	0.0560	$0.056^{+0.019}_{-0.019}$	$10^9 A_s$	2.101	$2.100^{+0.083}_{-0.075}$	$D_M(0.61)$	2304.5	$2306^{+27}_{-28}$
$\ln(10^{10} A_s)$	3.0450	$3.044^{+0.039}_{-0.036}$	$10^9 A_s e^{-2\tau}$	1.8783	$1.879^{+0.027}_{-0.026}$	$H(2.33)$	235.68	$235.7^{+1.7}_{-1.8}$
$n_s$	0.9679	$0.966^{+0.010}_{-0.010}$	$D_{40}$	1223.6	$1227^{+32}_{-29}$	$D_M(2.33)$	5765.0	$5767^{+29}_{-30}$
$y_{\text{cal}}$	1.0007	$1.0008^{+0.0067}_{-0.0063}$	$D_{220}$	5721	$5725^{+100}_{-95}$	$f\sigma_8(0.15)$	0.4548	$0.455^{+0.015}_{-0.015}$
$A_{217}^{\text{CIB}}$	48.6	$48^{+20}_{-20}$	$D_{810}$	2538.4	$2537^{+35}_{-33}$	$\sigma_8(0.15)$	0.7479	$0.748^{+0.015}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.30	—	$D_{1420}$	817.0	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4736	$0.474^{+0.013}_{-0.013}$
$A_{143}^{\text{tSZ}}$	7.1	—	$D_{2000}$	230.54	$230.1^{+4.6}_{-4.5}$	$\sigma_8(0.38)$	0.6632	$0.663^{+0.013}_{-0.013}$
$A_{100}^{\text{PS}}$	253	$263^{+70}_{-70}$	$n_{\text{s},0.002}$	0.9679	$0.966^{+0.010}_{-0.010}$	$f\sigma_8(0.51)$	0.4724	$0.473^{+0.011}_{-0.012}$
$A_{143}^{\text{PS}}$	48.1	$49^{+20}_{-20}$	$Y_{\text{P}}$	0.245343	$0.24533^{+0.00019}_{-0.00022}$	$\sigma_8(0.51)$	0.6207	$0.620^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	45.8	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246669	$0.24666^{+0.00019}_{-0.00022}$	$f\sigma_8(0.61)$	0.4676	$0.468^{+0.011}_{-0.011}$
$A_{217}^{\text{PS}}$	119.0	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.610	$2.615^{+0.090}_{-0.088}$	$\sigma_8(0.61)$	0.5907	$0.590^{+0.012}_{-0.011}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.802	$13.806^{+0.068}_{-0.068}$	$f\sigma_8(2.33)$	0.2979	$0.2977^{+0.0060}_{-0.0056}$
$A_{100}^{\text{dustTT}}$	8.88	$8.9^{+4.7}_{-4.7}$	$z_*$	1089.98	$1090.02^{+0.69}_{-0.70}$	$\sigma_8(2.33)$	0.3072	$0.3069^{+0.0063}_{-0.0059}$
$A_{143}^{\text{dustTT}}$	10.81	$10.7^{+4.5}_{-4.6}$	$r_*$	144.83	$144.81^{+0.73}_{-0.70}$	$f_{2000}^{143}$	30.0	$31^{+8}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	19.4	$18.3^{+8.9}_{-8.6}$	$100\theta_*$	1.04123	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	32.9	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	94.7	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.909	$13.908^{+0.072}_{-0.070}$	$f_{2000}^{217}$	107.50	$107.9^{+4.7}_{-5.0}$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.55	$1059.5^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	8.88	$9.27 (\nu: 0.3)$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.54	$147.53^{+0.80}_{-0.79}$	$\chi_{\text{small}}^2$	396.37	$397.2 (\nu: 1.8)$
$H_0$	67.69	$67.6^{+1.3}_{-1.2}$	$k_{\text{D}}$	0.14029	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{\text{lowl}}^2$	22.81	$23.17 (\nu: 0.4)$
$\Omega_{\Lambda}$	0.6907	$0.690^{+0.016}_{-0.016}$	$100\theta_{\text{D}}$	0.16099	$0.16102^{+0.00064}_{-0.00068}$	$\chi_{\text{plik}}^2$	759.8	$771.7 (\nu: 13.7)$
$\Omega_{\text{m}}$	0.3093	$0.310^{+0.016}_{-0.016}$	$z_{\text{eq}}$	3372	$3374^{+62}_{-63}$	$\chi_{\text{JLA}}^2$	1034.95	$1035.08 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.14173	$0.1418^{+0.0026}_{-0.0026}$	$k_{\text{eq}}$	0.010290	$0.01030^{+0.00019}_{-0.00019}$	$\chi_{6\text{DF}}^2$	0.016	$0.049 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	0.09594	$0.0959^{+0.0012}_{-0.0011}$	$100\theta_{\text{eq}}$	0.8185	$0.818^{+0.012}_{-0.011}$	$\chi_{\text{MGS}}^2$	1.34	$1.33 (\nu: 0.1)$
$\sigma_8$	0.8091	$0.809^{+0.016}_{-0.016}$	$100\theta_{\text{s,eq}}$	0.4522	$0.4520^{+0.0061}_{-0.0059}$	$\chi_{\text{DR12BAO}}^2$	4.03	$4.6 (\nu: 0.9)$
$S_8$	0.8216	$0.823^{+0.029}_{-0.029}$	$H(0.15)$	72.94	$72.9^{+1.1}_{-1.0}$	$\chi_{\text{prior}}^2$	1.5	$7.3 (\nu: 6.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4500	$0.451^{+0.016}_{-0.016}$	$D_M(0.15)$	640.6	$641^{+10}_{-11}$	$\chi_{\text{CMB}}^2$	1187.9	$1201.4 (\nu: 14.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6034	$0.604^{+0.016}_{-0.016}$	$H(0.38)$	83.01	$82.96^{+0.84}_{-0.79}$	$\chi_{\text{BAO}}^2$	5.39	$6.0 (\nu: 0.6)$
$\sigma_8/h^{0.5}$	0.9835	$0.984^{+0.023}_{-0.023}$	$D_M(0.38)$	1528.3	$1530^{+21}_{-22}$			

Best-fit  $\chi_{\text{eff}}^2 = 2229.71$ ;  $\bar{\chi}_{\text{eff}}^2 = 2249.77$ ;  $R - 1 = 0.01879$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.34 DR12BAO: 4.03 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.88 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.37 commander\_dx12.v3.2.29: 22.81 plik\_rd12\_HM.v22\_TT: 759.79 SN - JLA Pantheon18: 1034.95



## 2.88 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022359	$0.02232^{+0.00049}_{-0.00046}$	$r_{\text{drag}} h$	100.56	$100.5^{+2.2}_{-2.0}$	$H(0.51)$	89.93	$89.89^{+0.65}_{-0.65}$
$\Omega_c h^2$	0.11802	$0.1181^{+0.0027}_{-0.0026}$	$\langle d^2 \rangle^{1/2}$	2.422	$2.424^{+0.054}_{-0.054}$	$D_M(0.51)$	1971.5	$1973^{+24}_{-24}$
$100\theta_{\text{MC}}$	1.04113	$1.0412^{+0.0011}_{-0.0010}$	$z_{\text{re}}$	8.07	$8.0^{+1.8}_{-1.9}$	$H(0.61)$	95.48	$95.45^{+0.57}_{-0.57}$
$\tau$	0.0585	$0.058^{+0.020}_{-0.019}$	$10^9 A_s$	2.109	$2.108^{+0.085}_{-0.081}$	$D_M(0.61)$	2295.1	$2297^{+26}_{-26}$
$\ln(10^{10} A_s)$	3.0489	$3.048^{+0.039}_{-0.039}$	$10^9 A_s e^{-2\tau}$	1.8763	$1.876^{+0.028}_{-0.025}$	$H(2.33)$	235.26	$235.3^{+1.8}_{-1.7}$
$n_s$	0.9697	$0.969^{+0.011}_{-0.010}$	$D_{40}$	1222.0	$1224^{+32}_{-33}$	$D_M(2.33)$	5756.6	$5758^{+29}_{-29}$
$y_{\text{cal}}$	1.0009	$1.0010^{+0.0064}_{-0.0062}$	$D_{220}$	5735	$5735^{+100}_{-95}$	$f\sigma_8(0.15)$	0.4507	$0.451^{+0.015}_{-0.014}$
$A_{217}^{\text{CIB}}$	48.1	$48^{+20}_{-20}$	$D_{810}$	2539.7	$2538^{+36}_{-33}$	$\sigma_8(0.15)$	0.7474	$0.747^{+0.015}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.38	—	$D_{1420}$	818.2	$817^{+14}_{-12}$	$f\sigma_8(0.38)$	0.4706	$0.471^{+0.013}_{-0.012}$
$A_{143}^{\text{tSZ}}$	7.0	—	$D_{2000}$	231.09	$230.6^{+4.7}_{-4.4}$	$\sigma_8(0.38)$	0.6634	$0.663^{+0.013}_{-0.013}$
$A_{100}^{\text{PS}}$	253	$261^{+70}_{-70}$	$n_{\text{s},0.002}$	0.9697	$0.969^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	0.4701	$0.470^{+0.011}_{-0.011}$
$A_{143}^{\text{PS}}$	48.6	$48^{+20}_{-20}$	$Y_{\text{P}}$	0.245391	$0.24537^{+0.00019}_{-0.00021}$	$\sigma_8(0.51)$	0.6211	$0.621^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	47.3	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246718	$0.24670^{+0.00019}_{-0.00021}$	$f\sigma_8(0.61)$	0.4658	$0.466^{+0.011}_{-0.010}$
$A_{217}^{\text{PS}}$	119.4	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.588	$2.596^{+0.088}_{-0.088}$	$\sigma_8(0.61)$	0.5912	$0.591^{+0.011}_{-0.011}$
$A^{\text{kSZ}}$	0.0	—	$\text{Age}/\text{Gyr}$	13.784	$13.788^{+0.066}_{-0.063}$	$f\sigma_8(2.33)$	0.2984	$0.2983^{+0.0058}_{-0.0058}$
$A_{100}^{\text{dustTT}}$	8.87	$8.9^{+4.5}_{-4.5}$	$z_*$	1089.76	$1089.82^{+0.68}_{-0.65}$	$\sigma_8(2.33)$	0.3080	$0.3078^{+0.0063}_{-0.0061}$
$A_{143}^{\text{dustTT}}$	10.83	$10.7^{+4.5}_{-4.6}$	$r_*$	144.95	$144.96^{+0.73}_{-0.73}$	$f_{2000}^{143}$	29.5	$30^{+7}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	19.4	$18.3^{+8.9}_{-9.1}$	$100\theta_*$	1.04132	$1.0413^{+0.0011}_{-0.0010}$	$f_{2000}^{143 \times 217}$	32.5	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	94.6	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.920	$13.921^{+0.071}_{-0.073}$	$f_{2000}^{217}$	107.11	$107.5^{+4.9}_{-4.9}$
$c_{100}$	0.99967	$0.9997^{+0.0017}_{-0.0017}$	$z_{\text{drag}}$	1059.78	$1059.7^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	9.00	$9.44 (\nu: 0.5)$
$c_{217}$	0.99823	$0.9982^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	147.63	$147.65^{+0.80}_{-0.83}$	$\chi_{\text{small}}^2$	396.9	$397.7 (\nu: 2.5)$
$H_0$	68.12	$68.1^{+1.2}_{-1.2}$	$k_{\text{D}}$	0.14029	$0.1402^{+0.0012}_{-0.0011}$	$\chi_{\text{lowl}}^2$	22.60	$22.85 (\nu: 0.3)$
$\Omega_{\Lambda}$	0.6961	$0.695^{+0.016}_{-0.016}$	$100\theta_{\text{D}}$	0.16087	$0.16093^{+0.00063}_{-0.00064}$	$\chi_{\text{plik}}^2$	760.8	$772.7 (\nu: 14.1)$
$\Omega_{\text{m}}$	0.3039	$0.305^{+0.016}_{-0.016}$	$z_{\text{eq}}$	3355	$3356^{+63}_{-65}$	$\chi_{\text{H073p45}}^2$	10.33	$10.6 (\nu: 1.7)$
$\Omega_{\text{m}} h^2$	0.14102	$0.1411^{+0.0026}_{-0.0027}$	$k_{\text{eq}}$	0.010239	$0.01024^{+0.00019}_{-0.00020}$	$\chi_{\text{JLA}}^2$	1034.786	$1034.88 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	0.09606	$0.0960^{+0.0011}_{-0.0011}$	$100\theta_{\text{eq}}$	0.8220	$0.822^{+0.012}_{-0.011}$	$\chi_{6\text{DF}}^2$	0.000	$0.027 (\nu: 0.0)$
$\sigma_8$	0.8080	$0.808^{+0.017}_{-0.016}$	$100\theta_{\text{s,eq}}$	0.4540	$0.4538^{+0.0065}_{-0.0059}$	$\chi_{\text{MGS}}^2$	1.75	$1.76 (\nu: 0.1)$
$S_8$	0.8133	$0.814^{+0.029}_{-0.027}$	$H(0.15)$	73.31	$73.3^{+1.1}_{-1.0}$	$\chi_{\text{DR12BAO}}^2$	3.44	$3.89 (\nu: 0.3)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4455	$0.446^{+0.016}_{-0.015}$	$D_M(0.15)$	637.0	$638^{+10}_{-10}$	$\chi_{\text{prior}}^2$	1.4	$7.4 (\nu: 6.5)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6000	$0.600^{+0.016}_{-0.014}$	$H(0.38)$	83.29	$83.25^{+0.81}_{-0.77}$	$\chi_{\text{CMB}}^2$	1189.3	$1202.7 (\nu: 15.4)$
$\sigma_8/h^{0.5}$	0.9790	$0.979^{+0.023}_{-0.021}$	$D_M(0.38)$	1521.0	$1522^{+20}_{-21}$	$\chi_{\text{BAO}}^2$	5.18	$5.68 (\nu: 0.2)$

Best-fit  $\chi_{\text{eff}}^2 = 2241.01$ ;  $\bar{\chi}_{\text{eff}}^2 = 2261.26$ ;  $R - 1 = 0.05989$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.44 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 9.00 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.89 commander\_dx12.v3.2.29: 22.60 plik\_rd12\_HM.v22\_TT: 760.84 Hubble - H073p45: 10.33 SN - JLA Pantheon18: 1034.79



## 2.89 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02215^{+0.00053}_{-0.00051}$	$\sigma_8 \Omega_m^{0.25}$	$0.609^{+0.019}_{-0.020}$	$H(0.15)$	$72.5^{+1.6}_{-1.4}$
$\Omega_c h^2$	$0.1201^{+0.0038}_{-0.0039}$	$\sigma_8/h^{0.5}$	$0.990^{+0.026}_{-0.027}$	$D_M(0.15)$	$646^{+15}_{-16}$
$100\theta_{MC}$	$1.0408^{+0.0012}_{-0.0012}$	$r_{drag}h$	$98.9^{+3.1}_{-2.9}$	$H(0.38)$	$82.7^{+1.2}_{-1.1}$
$\tau$	$0.054^{+0.018}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.449^{+0.062}_{-0.063}$	$D_M(0.38)$	$1538^{+30}_{-32}$
$\ln(10^{10} A_s)$	$3.043^{+0.038}_{-0.028}$	$z_{re}$	$< 9.39$	$H(0.51)$	$89.43^{+0.95}_{-0.85}$
$n_s$	$0.964^{+0.012}_{-0.012}$	$10^9 A_s$	$2.096^{+0.082}_{-0.057}$	$D_M(0.51)$	$1992^{+35}_{-37}$
$y_{cal}$	$1.0005^{+0.0063}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	$1.882^{+0.028}_{-0.027}$	$H(0.61)$	$95.08^{+0.79}_{-0.71}$
$A_{217}^{CIB}$	$48^{+20}_{-20}$	$D_{40}$	$1232^{+32}_{-32}$	$D_M(0.61)$	$2317^{+38}_{-40}$
$\xi^{tSZ \times CIB}$	—	$D_{220}$	$5716^{+100}_{-100}$	$H(2.33)$	$236.4^{+2.3}_{-2.4}$
$A_{143}^{tSZ}$	—	$D_{810}$	$2536^{+33}_{-33}$	$D_M(2.33)$	$5775^{+35}_{-37}$
$A_{100}^{PS}$	$264^{+70}_{-70}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	$0.461^{+0.020}_{-0.021}$
$A_{143}^{PS}$	$49^{+20}_{-20}$	$D_{2000}$	$229.6^{+4.6}_{-4.7}$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.013}$
$A_{143 \times 217}^{PS}$	$43^{+20}_{-20}$	$n_{s,0.002}$	$0.964^{+0.012}_{-0.012}$	$f\sigma_8(0.38)$	$0.478^{+0.015}_{-0.016}$
$A_{217}^{PS}$	$115^{+30}_{-30}$	$Y_P$	$0.24530^{+0.00021}_{-0.00024}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.010}$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.24663^{+0.00021}_{-0.00024}$	$f\sigma_8(0.51)$	$0.476^{+0.013}_{-0.014}$
$A_{100}^{dustTT}$	$8.9^{+4.7}_{-4.6}$	$10^5 D/H$	$2.628^{+0.099}_{-0.097}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0095}$
$A_{143}^{dustTT}$	$10.7^{+4.6}_{-4.7}$	Age/Gyr	$13.823^{+0.079}_{-0.082}$	$f\sigma_8(0.61)$	$0.471^{+0.012}_{-0.012}$
$A_{143 \times 217}^{dustTT}$	$18.2^{+8.6}_{-8.6}$	$z_*$	$1090.21^{+0.86}_{-0.87}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0090}$
$A_{217}^{dustTT}$	$93^{+20}_{-20}$	$r_*$	$144.59^{+0.93}_{-0.92}$	$f\sigma_8(2.33)$	$0.2974^{+0.0060}_{-0.0045}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0011}$	$\sigma_8(2.33)$	$0.3064^{+0.0065}_{-0.0048}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	$13.889^{+0.088}_{-0.086}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$H_0$	$67.1^{+1.8}_{-1.7}$	$z_{drag}$	$1059.4^{+1.2}_{-1.1}$	$f_{2000}^{143 \times 217}$	$34^{+5}_{-5}$
$\Omega_\Lambda$	$0.683^{+0.024}_{-0.024}$	$r_{drag}$	$147.32^{+0.96}_{-0.96}$	$f_{2000}^{217}$	$108.1^{+4.8}_{-4.9}$
$\Omega_m$	$0.317^{+0.024}_{-0.024}$	$k_D$	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{lensing}^2$	$9.42 (\nu: 0.4)$
$\Omega_m h^2$	$0.1429^{+0.0037}_{-0.0037}$	$100\theta_D$	$0.16106^{+0.00064}_{-0.00067}$	$\chi_{simall}^2$	$396.8 (\nu: 1.3)$
$\Omega_m h^3$	$0.0959^{+0.0012}_{-0.0011}$	$z_{eq}$	$3398^{+87}_{-89}$	$\chi_{lowl}^2$	$23.7 (\nu: 0.5)$
$\sigma_8$	$0.811^{+0.016}_{-0.015}$	$k_{eq}$	$0.01037^{+0.00027}_{-0.00027}$	$\chi_{plik}^2$	$771.0 (\nu: 13.7)$
$S_8$	$0.834^{+0.041}_{-0.042}$	$100\theta_{eq}$	$0.813^{+0.017}_{-0.016}$	$\chi_{prior}^2$	$7.3 (\nu: 6.6)$
$\sigma_8 \Omega_m^{0.5}$	$0.457^{+0.022}_{-0.023}$	$100\theta_{s,eq}$	$0.4496^{+0.0088}_{-0.0082}$	$\chi_{CMB}^2$	$1200.9 (\nu: 14.7)$

$$\bar{\chi}_{eff}^2 = 1208.16; R - 1 = 0.00659$$



## 2.90 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02221^{+0.00049}_{-0.00047}$	$r_{\text{drag}} h$	$99.7^{+2.2}_{-2.1}$	$H(0.51)$	$89.63^{+0.72}_{-0.67}$
$\Omega_c h^2$	$0.1191^{+0.0027}_{-0.0028}$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.054}_{-0.053}$	$D_{\text{M}}(0.51)$	$1983^{+25}_{-27}$
$100\theta_{\text{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$z_{\text{re}}$	$< 9.49$	$H(0.61)$	$95.24^{+0.63}_{-0.59}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$10^9 A_{\text{s}}$	$2.101^{+0.081}_{-0.063}$	$D_{\text{M}}(0.61)$	$2307^{+27}_{-29}$
$\ln(10^{10} A_{\text{s}})$	$3.045^{+0.038}_{-0.030}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.879^{+0.027}_{-0.026}$	$H(2.33)$	$235.8^{+1.8}_{-1.8}$
$n_{\text{s}}$	$0.966^{+0.011}_{-0.010}$	$D_{40}$	$1228^{+32}_{-29}$	$D_{\text{M}}(2.33)$	$5768^{+30}_{-30}$
$y_{\text{cal}}$	$1.0007^{+0.0066}_{-0.0062}$	$D_{220}$	$5724^{+100}_{-96}$	$f\sigma_8(0.15)$	$0.456^{+0.015}_{-0.016}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+35}_{-34}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.013}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.475^{+0.013}_{-0.013}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$230.0^{+4.6}_{-4.5}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.011}$
$A_{100}^{\text{PS}}$	$263^{+70}_{-70}$	$n_{\text{s},0.002}$	$0.966^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.012}$
$A_{143}^{\text{PS}}$	$49^{+20}_{-20}$	$Y_{\text{P}}$	$0.24533^{+0.00019}_{-0.00022}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.010}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24665^{+0.00019}_{-0.00022}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D/H}$	$2.616^{+0.091}_{-0.090}$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0095}$
$A^{\text{kSZ}}$	—	$\text{Age/Gyr}$	$13.808^{+0.069}_{-0.069}$	$f\sigma_8(2.33)$	$0.2978^{+0.0058}_{-0.0047}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.7}$	$z_*$	$1090.05^{+0.70}_{-0.71}$	$\sigma_8(2.33)$	$0.3070^{+0.0062}_{-0.0050}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.5}_{-4.6}$	$r_*$	$144.79^{+0.75}_{-0.72}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.9}_{-8.6}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.906^{+0.074}_{-0.071}$	$f_{2000}^{217}$	$107.9^{+4.7}_{-5.0}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	$9.22 (\nu: 0.2)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	$147.51^{+0.82}_{-0.79}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 1.7)$
$H_0$	$67.6^{+1.3}_{-1.2}$	$k_{\text{D}}$	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{\text{lowl}}^2$	$23.24 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.689^{+0.017}_{-0.017}$	$100\theta_{\text{D}}$	$0.16102^{+0.00064}_{-0.00068}$	$\chi_{\text{plik}}^2$	$771.5 (\nu: 13.6)$
$\Omega_{\text{m}}$	$0.311^{+0.017}_{-0.017}$	$z_{\text{eq}}$	$3377^{+63}_{-66}$	$\chi_{6\text{DF}}^2$	$0.057 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	$0.1420^{+0.0026}_{-0.0027}$	$k_{\text{eq}}$	$0.01031^{+0.00019}_{-0.00020}$	$\chi_{\text{MGS}}^2$	$1.28 (\nu: 0.1)$
$\Omega_{\text{m}} h^3$	$0.0959^{+0.0011}_{-0.0011}$	$100\theta_{\text{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{\text{DR12BAO}}^2$	$4.8 (\nu: 1.1)$
$\sigma_8$	$0.810^{+0.016}_{-0.015}$	$100\theta_{\text{s,eq}}$	$0.4517^{+0.0063}_{-0.0059}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.6)$
$S_8$	$0.824^{+0.030}_{-0.030}$	$H(0.15)$	$72.8^{+1.2}_{-1.1}$	$\chi_{\text{CMB}}^2$	$1201.1 (\nu: 14.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.452^{+0.017}_{-0.017}$	$D_{\text{M}}(0.15)$	$642^{+11}_{-11}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.605^{+0.016}_{-0.016}$	$H(0.38)$	$82.93^{+0.88}_{-0.80}$		
$\sigma_8/h^{0.5}$	$0.985^{+0.023}_{-0.023}$	$D_{\text{M}}(0.38)$	$1531^{+21}_{-23}$		

$$\bar{\chi}_{\text{eff}}^2 = 1214.57; R - 1 = 0.01797$$



## 2.91 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02232^{+0.00049}_{-0.00049}$	$\sigma_8/h^{0.5}$	$0.980^{+0.026}_{-0.024}$	$H(0.38)$	$83.3^{+1.1}_{-1.1}$
$\Omega_c h^2$	$0.1181^{+0.0037}_{-0.0035}$	$r_{\text{drag}} h$	$100.5^{+2.9}_{-2.9}$	$D_M(0.38)$	$1522^{+28}_{-28}$
$100\theta_{\text{MC}}$	$1.0412^{+0.0010}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.061}_{-0.060}$	$H(0.51)$	$89.90^{+0.85}_{-0.86}$
$\tau$	$0.059^{+0.019}_{-0.015}$	$z_{\text{re}}$	$< 9.73$	$D_M(0.51)$	$1973^{+33}_{-33}$
$\ln(10^{10} A_s)$	$3.049^{+0.038}_{-0.033}$	$10^9 A_s$	$2.110^{+0.082}_{-0.070}$	$H(0.61)$	$95.46^{+0.69}_{-0.71}$
$n_s$	$0.969^{+0.014}_{-0.012}$	$10^9 A_s e^{-2\tau}$	$1.876^{+0.029}_{-0.024}$	$D_M(0.61)$	$2296^{+36}_{-36}$
$y_{\text{cal}}$	$1.0010^{+0.0064}_{-0.0062}$	$D_{40}$	$1224^{+34}_{-33}$	$H(2.33)$	$235.3^{+2.3}_{-2.1}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$D_{220}$	$5735^{+96}_{-96}$	$D_M(2.33)$	$5758^{+34}_{-30}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{810}$	$2538^{+36}_{-33}$	$f\sigma_8(0.15)$	$0.451^{+0.019}_{-0.017}$
$A_{143}^{\text{tSZ}}$	—	$D_{1420}$	$817^{+12}_{-13}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.013}$
$A_{100}^{\text{PS}}$	$262^{+70}_{-70}$	$D_{2000}$	$230.7^{+4.7}_{-4.5}$	$f\sigma_8(0.38)$	$0.471^{+0.015}_{-0.014}$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20}$	$n_{s,0.002}$	$0.969^{+0.014}_{-0.012}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.011}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}$	$0.24537^{+0.00019}_{-0.00022}$	$f\sigma_8(0.51)$	$0.470^{+0.013}_{-0.013}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24670^{+0.00019}_{-0.00022}$	$\sigma_8(0.51)$	$0.621^{+0.011}_{-0.011}$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.596^{+0.094}_{-0.088}$	$f\sigma_8(0.61)$	$0.466^{+0.012}_{-0.012}$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.4}_{-4.5}$	Age/Gyr	$13.787^{+0.076}_{-0.072}$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.010}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.5}_{-4.6}$	$z_*$	$1089.82^{+0.83}_{-0.73}$	$f\sigma_8(2.33)$	$0.2984^{+0.0056}_{-0.0052}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.8}_{-8.5}$	$r_*$	$144.96^{+0.83}_{-0.90}$	$\sigma_8(2.33)$	$0.3080^{+0.0062}_{-0.0056}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$100\theta_*$	$1.04135^{+0.00098}_{-0.0011}$	$f_{2000}^{143}$	$30^{+7}_{-8}$
$c_{100}$	$0.9997^{+0.0017}_{-0.0017}$	$D_M(z_*)/\text{Gpc}$	$13.921^{+0.079}_{-0.084}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.7^{+1.1}_{-1.1}$	$f_{2000}^{217}$	$107.5^{+4.8}_{-4.9}$
$H_0$	$68.1^{+1.7}_{-1.7}$	$r_{\text{drag}}$	$147.65^{+0.92}_{-0.94}$	$\chi_{\text{lensing}}^2$	$9.5 (\nu: 0.5)$
$\Omega_\Lambda$	$0.695^{+0.021}_{-0.023}$	$k_{\text{D}}$	$0.1402^{+0.0012}_{-0.0012}$	$\chi_{\text{simall}}^2$	$397.8 (\nu: 2.8)$
$\Omega_{\text{m}}$	$0.305^{+0.023}_{-0.021}$	$100\theta_{\text{D}}$	$0.16093^{+0.00063}_{-0.00064}$	$\chi_{\text{lowl}}^2$	$22.86 (\nu: 0.4)$
$\Omega_{\text{m}} h^2$	$0.1411^{+0.0035}_{-0.0032}$	$z_{\text{eq}}$	$3356^{+84}_{-76}$	$\chi_{\text{plik}}^2$	$772.9 (\nu: 15.2)$
$\Omega_{\text{m}} h^3$	$0.0960^{+0.0011}_{-0.0011}$	$k_{\text{eq}}$	$0.01024^{+0.00026}_{-0.00023}$	$\chi_{\text{H073p45}}^2$	$10.7 (\nu: 3.4)$
$\sigma_8$	$0.808^{+0.017}_{-0.015}$	$100\theta_{\text{eq}}$	$0.822^{+0.015}_{-0.016}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.4)$
$S_8$	$0.814^{+0.038}_{-0.033}$	$100\theta_{\text{s,eq}}$	$0.4539^{+0.0078}_{-0.0081}$	$\chi_{\text{CMB}}^2$	$1203.0 (\nu: 17.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.446^{+0.021}_{-0.018}$	$H(0.15)$	$73.3^{+1.4}_{-1.4}$		
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.600^{+0.019}_{-0.017}$	$D_M(0.15)$	$637^{+14}_{-14}$		

$$\bar{\chi}_{\text{eff}}^2 = 1221.07; R - 1 = 0.06981$$



## 2.92 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02231^{+0.00049}_{-0.00046}$	$r_{\text{drag}} h$	$100.4^{+2.2}_{-2.1}$	$H(0.51)$	$89.88^{+0.66}_{-0.66}$
$\Omega_c h^2$	$0.1182^{+0.0027}_{-0.0027}$	$\langle d^2 \rangle^{1/2}$	$2.426^{+0.055}_{-0.056}$	$D_{\text{M}}(0.51)$	$1973^{+25}_{-25}$
$100\theta_{\text{MC}}$	$1.0411^{+0.0011}_{-0.0010}$	$z_{\text{re}}$	$< 9.73$	$H(0.61)$	$95.44^{+0.59}_{-0.58}$
$\tau$	$0.058^{+0.018}_{-0.016}$	$10^9 A_{\text{s}}$	$2.109^{+0.084}_{-0.070}$	$D_{\text{M}}(0.61)$	$2297^{+27}_{-27}$
$\ln(10^{10} A_{\text{s}})$	$3.049^{+0.039}_{-0.034}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.876^{+0.028}_{-0.025}$	$H(2.33)$	$235.3^{+1.8}_{-1.7}$
$n_{\text{s}}$	$0.968^{+0.011}_{-0.010}$	$D_{40}$	$1225^{+32}_{-33}$	$D_{\text{M}}(2.33)$	$5759^{+29}_{-29}$
$y_{\text{cal}}$	$1.0010^{+0.0065}_{-0.0062}$	$D_{220}$	$5734^{+100}_{-95}$	$f\sigma_8(0.15)$	$0.451^{+0.015}_{-0.014}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2538^{+37}_{-33}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$817^{+13}_{-12}$	$f\sigma_8(0.38)$	$0.471^{+0.013}_{-0.012}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$230.6^{+4.7}_{-4.4}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.012}$
$A_{100}^{\text{PS}}$	$261^{+70}_{-70}$	$n_{\text{s},0.002}$	$0.968^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	$0.471^{+0.012}_{-0.011}$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20}$	$Y_{\text{P}}$	$0.24537^{+0.00019}_{-0.00021}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.011}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24670^{+0.00019}_{-0.00021}$	$f\sigma_8(0.61)$	$0.466^{+0.011}_{-0.010}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D/H}$	$2.597^{+0.089}_{-0.089}$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.010}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.789^{+0.067}_{-0.064}$	$f\sigma_8(2.33)$	$0.2983^{+0.0057}_{-0.0051}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.5}_{-4.5}$	$z_*$	$1089.83^{+0.69}_{-0.66}$	$\sigma_8(2.33)$	$0.3079^{+0.0063}_{-0.0054}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.5}_{-4.6}$	$r_*$	$144.95^{+0.74}_{-0.74}$	$f_{2000}^{143}$	$30^{+7}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+9.0}_{-9.0}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0010}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.920^{+0.072}_{-0.073}$	$f_{2000}^{217}$	$107.5^{+4.9}_{-4.9}$
$c_{100}$	$0.9997^{+0.0017}_{-0.0017}$	$z_{\text{drag}}$	$1059.7^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	$9.39 (\nu: 0.4)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	$147.64^{+0.81}_{-0.84}$	$\chi_{\text{simall}}^2$	$397.7 (\nu: 2.5)$
$H_0$	$68.0^{+1.3}_{-1.2}$	$k_{\text{D}}$	$0.1402^{+0.0011}_{-0.0011}$	$\chi_{\text{lowl}}^2$	$22.87 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.695^{+0.016}_{-0.016}$	$100\theta_{\text{D}}$	$0.16093^{+0.00063}_{-0.00065}$	$\chi_{\text{plik}}^2$	$772.6 (\nu: 14.1)$
$\Omega_{\text{m}}$	$0.305^{+0.016}_{-0.016}$	$z_{\text{eq}}$	$3357^{+64}_{-67}$	$\chi_{\text{H073p45}}^2$	$10.7 (\nu: 1.8)$
$\Omega_{\text{m}} h^2$	$0.1411^{+0.0027}_{-0.0028}$	$k_{\text{eq}}$	$0.01025^{+0.00019}_{-0.00020}$	$\chi_{6\text{DF}}^2$	$0.029 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.0960^{+0.0011}_{-0.0011}$	$100\theta_{\text{eq}}$	$0.822^{+0.012}_{-0.012}$	$\chi_{\text{MGS}}^2$	$1.74 (\nu: 0.1)$
$\sigma_8$	$0.808^{+0.017}_{-0.015}$	$100\theta_{\text{s,eq}}$	$0.4537^{+0.0066}_{-0.0061}$	$\chi_{\text{DR12BAO}}^2$	$3.94 (\nu: 0.3)$
$S_8$	$0.815^{+0.030}_{-0.027}$	$H(0.15)$	$73.2^{+1.1}_{-1.0}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.446^{+0.016}_{-0.015}$	$D_{\text{M}}(0.15)$	$638^{+10}_{-11}$	$\chi_{\text{CMB}}^2$	$1202.5 (\nu: 15.3)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.601^{+0.016}_{-0.015}$	$H(0.38)$	$83.23^{+0.82}_{-0.79}$	$\chi_{\text{BAO}}^2$	$5.71 (\nu: 0.3)$
$\sigma_8/h^{0.5}$	$0.980^{+0.023}_{-0.021}$	$D_{\text{M}}(0.38)$	$1523^{+21}_{-21}$		

$$\bar{\chi}_{\text{eff}}^2 = 1226.35; R - 1 = 0.05547$$



## 2.93 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02218^{+0.00051}_{-0.00049}$	$\sigma_8/h^{0.5}$	$0.988^{+0.025}_{-0.026}$	$H(0.38)$	$82.8^{+1.1}_{-1.0}$
$\Omega_c h^2$	$0.1196^{+0.0035}_{-0.0037}$	$r_{\text{drag}} h$	$99.2^{+3.0}_{-2.7}$	$D_M(0.38)$	$1535^{+28}_{-29}$
$100\theta_{\text{MC}}$	$1.0409^{+0.0012}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.443^{+0.061}_{-0.059}$	$H(0.51)$	$89.52^{+0.89}_{-0.81}$
$\tau$	$0.055^{+0.018}_{-0.013}$	$z_{\text{re}}$	$< 9.46$	$D_M(0.51)$	$1988^{+33}_{-34}$
$\ln(10^{10} A_s)$	$3.044^{+0.038}_{-0.029}$	$10^9 A_s$	$2.099^{+0.082}_{-0.060}$	$H(0.61)$	$95.15^{+0.74}_{-0.67}$
$n_s$	$0.965^{+0.012}_{-0.011}$	$10^9 A_s e^{-2\tau}$	$1.881^{+0.027}_{-0.027}$	$D_M(0.61)$	$2313^{+35}_{-37}$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0063}$	$D_{40}$	$1230^{+31}_{-31}$	$H(2.33)$	$236.1^{+2.2}_{-2.3}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5720^{+100}_{-100}$	$D_M(2.33)$	$5771^{+33}_{-35}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{810}$	$2536^{+35}_{-34}$	$f\sigma_8(0.15)$	$0.459^{+0.019}_{-0.019}$
$A_{143}^{\text{tSZ}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.013}$
$A_{100}^{\text{PS}}$	$263^{+70}_{-70}$	$D_{2000}$	$229.8^{+4.6}_{-4.5}$	$f\sigma_8(0.38)$	$0.476^{+0.015}_{-0.015}$
$A_{143}^{\text{PS}}$	$49^{+20}_{-20}$	$n_{s,0.002}$	$0.965^{+0.012}_{-0.011}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.011}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}$	$0.24531^{+0.00020}_{-0.00024}$	$f\sigma_8(0.51)$	$0.475^{+0.013}_{-0.013}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24664^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0098}$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.623^{+0.096}_{-0.094}$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.012}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.8}_{-4.7}$	$\text{Age}/\text{Gyr}$	$13.817^{+0.076}_{-0.078}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0092}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.5}_{-4.6}$	$z_*$	$1090.14^{+0.80}_{-0.80}$	$f\sigma_8(2.33)$	$0.2976^{+0.0059}_{-0.0046}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.9}_{-8.6}$	$r_*$	$144.67^{+0.89}_{-0.86}$	$\sigma_8(2.33)$	$0.3066^{+0.0065}_{-0.0050}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0011}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0017}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	$13.896^{+0.084}_{-0.082}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.5^{+1.2}_{-1.1}$	$f_{2000}^{217}$	$108.0^{+4.7}_{-5.0}$
$H_0$	$67.3^{+1.7}_{-1.6}$	$r_{\text{drag}}$	$147.40^{+0.93}_{-0.90}$	$\chi_{\text{lensing}}^2$	$9.32 (\nu: 0.3)$
$\Omega_\Lambda$	$0.685^{+0.023}_{-0.022}$	$k_{\text{D}}$	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.5)$
$\Omega_{\text{m}}$	$0.315^{+0.022}_{-0.023}$	$100\theta_{\text{D}}$	$0.16104^{+0.00065}_{-0.00068}$	$\chi_{\text{lowl}}^2$	$23.47 (\nu: 0.5)$
$\Omega_{\text{m}} h^2$	$0.1425^{+0.0034}_{-0.0036}$	$z_{\text{eq}}$	$3389^{+82}_{-85}$	$\chi_{\text{plik}}^2$	$771.2 (\nu: 13.7)$
$\Omega_{\text{m}} h^3$	$0.0959^{+0.0012}_{-0.0011}$	$k_{\text{eq}}$	$0.01034^{+0.00025}_{-0.00026}$	$\chi_{\text{JLA}}^2$	$1035.38 (\nu: 0.2)$
$\sigma_8$	$0.810^{+0.016}_{-0.014}$	$100\theta_{\text{eq}}$	$0.815^{+0.016}_{-0.015}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.7)$
$S_8$	$0.830^{+0.038}_{-0.039}$	$100\theta_{\text{s,eq}}$	$0.4505^{+0.0083}_{-0.0077}$	$\chi_{\text{CMB}}^2$	$1200.9 (\nu: 14.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.455^{+0.021}_{-0.021}$	$H(0.15)$	$72.6^{+1.5}_{-1.4}$		
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.607^{+0.018}_{-0.018}$	$D_M(0.15)$	$644^{+14}_{-14}$		

$$\bar{\chi}_{\text{eff}}^2 = 2243.62; R - 1 = 0.01253$$



2.94 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_JLA\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02232^{+0.00049}_{-0.00046}$	$r_{\text{drag}} h$	$100.5^{+2.2}_{-2.0}$	$H(0.51)$	$89.89^{+0.69}_{-0.65}$
$\Omega_c h^2$	$0.1181^{+0.0027}_{-0.0027}$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.054}_{-0.055}$	$D_M(0.51)$	$1973^{+24}_{-24}$
$100\theta_{\text{MC}}$	$1.0412^{+0.0011}_{-0.0010}$	$z_{\text{re}}$	$< 9.73$	$H(0.61)$	$95.45^{+0.58}_{-0.57}$
$\tau$	$0.059^{+0.018}_{-0.016}$	$10^9 A_s$	$2.110^{+0.083}_{-0.070}$	$D_M(0.61)$	$2296^{+26}_{-26}$
$\ln(10^{10} A_s)$	$3.049^{+0.039}_{-0.034}$	$10^9 A_s e^{-2\tau}$	$1.876^{+0.028}_{-0.025}$	$H(2.33)$	$235.3^{+1.8}_{-1.8}$
$n_s$	$0.969^{+0.011}_{-0.010}$	$D_{40}$	$1224^{+32}_{-33}$	$D_M(2.33)$	$5758^{+29}_{-29}$
$y_{\text{cal}}$	$1.0010^{+0.0065}_{-0.0062}$	$D_{220}$	$5735^{+100}_{-95}$	$f\sigma_8(0.15)$	$0.451^{+0.015}_{-0.014}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2538^{+36}_{-33}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$817^{+13}_{-12}$	$f\sigma_8(0.38)$	$0.471^{+0.013}_{-0.012}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$230.6^{+4.7}_{-4.4}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.012}$
$A_{100}^{\text{PS}}$	$261^{+70}_{-70}$	$n_{\text{s},0.002}$	$0.969^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	$0.470^{+0.012}_{-0.010}$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20}$	$Y_{\text{P}}$	$0.24537^{+0.00019}_{-0.00021}$	$\sigma_8(0.51)$	$0.621^{+0.011}_{-0.011}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24670^{+0.00019}_{-0.00021}$	$f\sigma_8(0.61)$	$0.466^{+0.011}_{-0.010}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D/H}$	$2.596^{+0.088}_{-0.088}$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.010}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.788^{+0.067}_{-0.063}$	$f\sigma_8(2.33)$	$0.2984^{+0.0057}_{-0.0051}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.5}_{-4.5}$	$z_*$	$1089.82^{+0.69}_{-0.65}$	$\sigma_8(2.33)$	$0.3079^{+0.0062}_{-0.0055}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.5}_{-4.6}$	$r_*$	$144.96^{+0.73}_{-0.73}$	$f_{2000}^{143}$	$30^{+7}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+9.0}_{-9.1}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0010}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.921^{+0.071}_{-0.073}$	$f_{2000}^{217}$	$107.5^{+4.9}_{-4.9}$
$c_{100}$	$0.9997^{+0.0017}_{-0.0017}$	$z_{\text{drag}}$	$1059.7^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	$9.41 (\nu: 0.4)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	$147.65^{+0.80}_{-0.84}$	$\chi_{\text{simall}}^2$	$397.7 (\nu: 2.5)$
$H_0$	$68.1^{+1.2}_{-1.2}$	$k_{\text{D}}$	$0.1402^{+0.0012}_{-0.0011}$	$\chi_{\text{lowl}}^2$	$22.85 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.695^{+0.016}_{-0.016}$	$100\theta_{\text{D}}$	$0.16093^{+0.00063}_{-0.00064}$	$\chi_{\text{plik}}^2$	$772.6 (\nu: 14.1)$
$\Omega_{\text{m}}$	$0.305^{+0.016}_{-0.016}$	$z_{\text{eq}}$	$3356^{+64}_{-66}$	$\chi_{\text{H073p45}}^2$	$10.6 (\nu: 1.7)$
$\Omega_{\text{m}} h^2$	$0.1411^{+0.0027}_{-0.0027}$	$k_{\text{eq}}$	$0.01024^{+0.00019}_{-0.00020}$	$\chi_{\text{JLA}}^2$	$706.62 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.0960^{+0.0011}_{-0.0011}$	$100\theta_{\text{eq}}$	$0.822^{+0.012}_{-0.012}$	$\chi_{6\text{DF}}^2$	$0.028 (\nu: 0.0)$
$\sigma_8$	$0.808^{+0.017}_{-0.015}$	$100\theta_{\text{s,eq}}$	$0.4538^{+0.0065}_{-0.0060}$	$\chi_{\text{MGS}}^2$	$1.77 (\nu: 0.1)$
$S_8$	$0.814^{+0.030}_{-0.027}$	$H(0.15)$	$73.3^{+1.1}_{-1.0}$	$\chi_{\text{DR12BAO}}^2$	$3.91 (\nu: 0.3)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.446^{+0.016}_{-0.015}$	$D_M(0.15)$	$638^{+10}_{-10}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.5)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.600^{+0.016}_{-0.014}$	$H(0.38)$	$83.25^{+0.82}_{-0.78}$	$\chi_{\text{CMB}}^2$	$1202.6 (\nu: 15.3)$
$\sigma_8/h^{0.5}$	$0.980^{+0.023}_{-0.021}$	$D_M(0.38)$	$1522^{+21}_{-21}$	$\chi_{\text{BAO}}^2$	$5.70 (\nu: 0.3)$

$$\bar{\chi}_{\text{eff}}^2 = 1932.95; R - 1 = 0.06025$$



2.95 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02222^{+0.00048}_{-0.00046}$	$r_{\text{drag}} h$	$99.8^{+2.2}_{-2.0}$	$H(0.51)$	$89.67^{+0.70}_{-0.66}$
$\Omega_c h^2$	$0.1190^{+0.0026}_{-0.0027}$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.054}_{-0.054}$	$D_M(0.51)$	$1982^{+24}_{-26}$
$100\theta_{\text{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$z_{\text{re}}$	$< 9.50$	$H(0.61)$	$95.27^{+0.62}_{-0.57}$
$\tau$	$0.056^{+0.018}_{-0.015}$	$10^9 A_s$	$2.102^{+0.080}_{-0.064}$	$D_M(0.61)$	$2306^{+26}_{-28}$
$\ln(10^{10} A_s)$	$3.046^{+0.037}_{-0.031}$	$10^9 A_s e^{-2\tau}$	$1.878^{+0.027}_{-0.026}$	$H(2.33)$	$235.7^{+1.7}_{-1.8}$
$n_s$	$0.966^{+0.011}_{-0.010}$	$D_{40}$	$1227^{+32}_{-29}$	$D_M(2.33)$	$5767^{+29}_{-30}$
$y_{\text{cal}}$	$1.0008^{+0.0066}_{-0.0063}$	$D_{220}$	$5725^{+100}_{-95}$	$f\sigma_8(0.15)$	$0.455^{+0.015}_{-0.015}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+35}_{-33}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.013}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$230.1^{+4.6}_{-4.5}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.011}$
$A_{100}^{\text{PS}}$	$263^{+70}_{-70}$	$n_{\text{s},0.002}$	$0.966^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.011}$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20}$	$Y_{\text{P}}$	$0.24533^{+0.00019}_{-0.00022}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.010}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24666^{+0.00019}_{-0.00022}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D/H}$	$2.614^{+0.089}_{-0.088}$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0095}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.806^{+0.067}_{-0.068}$	$f\sigma_8(2.33)$	$0.2979^{+0.0058}_{-0.0047}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.7}$	$z_*$	$1090.02^{+0.69}_{-0.69}$	$\sigma_8(2.33)$	$0.3071^{+0.0061}_{-0.0050}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.5}_{-4.7}$	$r_*$	$144.82^{+0.73}_{-0.70}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.9}_{-8.6}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.909^{+0.073}_{-0.069}$	$f_{2000}^{217}$	$107.9^{+4.8}_{-4.9}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	$9.23 (\nu: 0.2)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	$147.54^{+0.80}_{-0.79}$	$\chi_{\text{simall}}^2$	$397.2 (\nu: 1.8)$
$H_0$	$67.6^{+1.3}_{-1.2}$	$k_{\text{D}}$	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{\text{lowl}}^2$	$23.18 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.690^{+0.016}_{-0.016}$	$100\theta_{\text{D}}$	$0.16101^{+0.00065}_{-0.00068}$	$\chi_{\text{plik}}^2$	$771.6 (\nu: 13.6)$
$\Omega_{\text{m}}$	$0.310^{+0.016}_{-0.016}$	$z_{\text{eq}}$	$3374^{+62}_{-62}$	$\chi_{\text{JLA}}^2$	$1035.07 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	$0.1418^{+0.0026}_{-0.0026}$	$k_{\text{eq}}$	$0.01030^{+0.00019}_{-0.00019}$	$\chi_{6\text{DF}}^2$	$0.048 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.0959^{+0.0011}_{-0.0011}$	$100\theta_{\text{eq}}$	$0.818^{+0.012}_{-0.011}$	$\chi_{\text{MGS}}^2$	$1.34 (\nu: 0.1)$
$\sigma_8$	$0.809^{+0.016}_{-0.015}$	$100\theta_{\text{s,eq}}$	$0.4520^{+0.0061}_{-0.0058}$	$\chi_{\text{DR12BAO}}^2$	$4.6 (\nu: 0.9)$
$S_8$	$0.823^{+0.029}_{-0.029}$	$H(0.15)$	$72.9^{+1.1}_{-1.0}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.451^{+0.016}_{-0.016}$	$D_M(0.15)$	$641^{+10}_{-11}$	$\chi_{\text{CMB}}^2$	$1201.2 (\nu: 14.5)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.604^{+0.016}_{-0.015}$	$H(0.38)$	$82.97^{+0.84}_{-0.78}$	$\chi_{\text{BAO}}^2$	$6.0 (\nu: 0.5)$
$\sigma_8/h^{0.5}$	$0.984^{+0.022}_{-0.023}$	$D_M(0.38)$	$1530^{+21}_{-22}$		

$\bar{\chi}_{\text{eff}}^2 = 2249.62; R - 1 = 0.01932$



2.96 base\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02232^{+0.00049}_{-0.00046}$	$r_{\text{drag}} h$	$100.5^{+2.2}_{-2.0}$	$H(0.51)$	$89.89^{+0.64}_{-0.65}$
$\Omega_c h^2$	$0.1181^{+0.0026}_{-0.0026}$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.054}_{-0.055}$	$D_M(0.51)$	$1973^{+24}_{-24}$
$100\theta_{\text{MC}}$	$1.0412^{+0.0011}_{-0.0010}$	$z_{\text{re}}$	$< 9.73$	$H(0.61)$	$95.45^{+0.58}_{-0.57}$
$\tau$	$0.059^{+0.018}_{-0.016}$	$10^9 A_s$	$2.110^{+0.083}_{-0.070}$	$D_M(0.61)$	$2296^{+26}_{-26}$
$\ln(10^{10} A_s)$	$3.049^{+0.039}_{-0.034}$	$10^9 A_s e^{-2\tau}$	$1.876^{+0.029}_{-0.025}$	$H(2.33)$	$235.3^{+1.8}_{-1.7}$
$n_s$	$0.969^{+0.011}_{-0.010}$	$D_{40}$	$1224^{+32}_{-33}$	$D_M(2.33)$	$5758^{+29}_{-29}$
$y_{\text{cal}}$	$1.0010^{+0.0064}_{-0.0062}$	$D_{220}$	$5735^{+100}_{-95}$	$f\sigma_8(0.15)$	$0.451^{+0.015}_{-0.014}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2538^{+36}_{-33}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$817^{+13}_{-12}$	$f\sigma_8(0.38)$	$0.471^{+0.013}_{-0.012}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$230.6^{+4.7}_{-4.4}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.012}$
$A_{100}^{\text{PS}}$	$261^{+70}_{-70}$	$n_{\text{s},0.002}$	$0.969^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	$0.470^{+0.011}_{-0.010}$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20}$	$Y_{\text{P}}$	$0.24537^{+0.00019}_{-0.00021}$	$\sigma_8(0.51)$	$0.621^{+0.011}_{-0.011}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24670^{+0.00019}_{-0.00021}$	$f\sigma_8(0.61)$	$0.466^{+0.011}_{-0.010}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D/H}$	$2.596^{+0.089}_{-0.088}$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.010}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.788^{+0.066}_{-0.063}$	$f\sigma_8(2.33)$	$0.2984^{+0.0056}_{-0.0051}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.5}_{-4.5}$	$z_*$	$1089.82^{+0.68}_{-0.65}$	$\sigma_8(2.33)$	$0.3079^{+0.0062}_{-0.0055}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.5}_{-4.6}$	$r_*$	$144.97^{+0.73}_{-0.73}$	$f_{2000}^{143}$	$30^{+7}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+9.0}_{-9.1}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0010}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.921^{+0.070}_{-0.073}$	$f_{2000}^{217}$	$107.5^{+4.9}_{-4.9}$
$c_{100}$	$0.9997^{+0.0017}_{-0.0017}$	$z_{\text{drag}}$	$1059.7^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	$9.41 (\nu: 0.4)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	$147.66^{+0.79}_{-0.84}$	$\chi_{\text{simall}}^2$	$397.7 (\nu: 2.5)$
$H_0$	$68.1^{+1.2}_{-1.2}$	$k_{\text{D}}$	$0.1402^{+0.0012}_{-0.0011}$	$\chi_{\text{lowl}}^2$	$22.85 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.695^{+0.016}_{-0.016}$	$100\theta_{\text{D}}$	$0.16093^{+0.00063}_{-0.00064}$	$\chi_{\text{plik}}^2$	$772.6 (\nu: 14.0)$
$\Omega_{\text{m}}$	$0.305^{+0.016}_{-0.016}$	$z_{\text{eq}}$	$3355^{+63}_{-65}$	$\chi_{\text{H073p45}}^2$	$10.6 (\nu: 1.7)$
$\Omega_{\text{m}} h^2$	$0.1411^{+0.0026}_{-0.0027}$	$k_{\text{eq}}$	$0.01024^{+0.00019}_{-0.00020}$	$\chi_{\text{JLA}}^2$	$1034.87 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.0960^{+0.0011}_{-0.0011}$	$100\theta_{\text{eq}}$	$0.822^{+0.012}_{-0.011}$	$\chi_{\text{6DF}}^2$	$0.027 (\nu: 0.0)$
$\sigma_8$	$0.808^{+0.017}_{-0.015}$	$100\theta_{\text{s,eq}}$	$0.4539^{+0.0065}_{-0.0058}$	$\chi_{\text{MGS}}^2$	$1.77 (\nu: 0.1)$
$S_8$	$0.814^{+0.029}_{-0.027}$	$H(0.15)$	$73.3^{+1.1}_{-1.0}$	$\chi_{\text{DR12BAO}}^2$	$3.88 (\nu: 0.3)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.446^{+0.016}_{-0.015}$	$D_M(0.15)$	$637^{+10}_{-10}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.5)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.600^{+0.015}_{-0.014}$	$H(0.38)$	$83.25^{+0.80}_{-0.77}$	$\chi_{\text{CMB}}^2$	$1202.6 (\nu: 15.2)$
$\sigma_8/h^{0.5}$	$0.980^{+0.023}_{-0.021}$	$D_M(0.38)$	$1522^{+20}_{-21}$	$\chi_{\text{BAO}}^2$	$5.68 (\nu: 0.2)$

$$\bar{\chi}_{\text{eff}}^2 = 2261.17; R - 1 = 0.06158$$



## 2.97 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022383	$0.02237^{+0.00038}_{-0.00037}$ $(+1.2\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.09636	$0.09633^{+0.00073}_{-0.00083}$ $(+1.0\sigma)$	$100\theta_{\mathrm{eq}}$	0.8128	$0.813^{+0.013}_{-0.013}$ $(+0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.12011	$0.1200^{+0.0031}_{-0.0031}$ $(-0.1\sigma)$	$\sigma_8$	0.8120	$0.811^{+0.016}_{-0.015}$ $(+0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4491	$0.4494^{+0.0067}_{-0.0066}$ $(+0.0\sigma)$
$100\theta_{\mathrm{MC}}$	1.04091	$1.04092^{+0.00079}_{-0.00084}$ $(+0.2\sigma)$	$S_8$	0.8331	$0.832^{+0.033}_{-0.033}$ $(-0.2\sigma)$	$H(0.15)$	72.65	$72.7^{+1.2}_{-1.2}$ $(+0.5\sigma)$
$\tau$	0.0543	$0.054^{+0.019}_{-0.019}$ $(+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4563	$0.455^{+0.018}_{-0.018}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	643.7	$643^{+12}_{-12}$ $(-0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0448	$3.044^{+0.037}_{-0.036}$ $(+0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6087	$0.608^{+0.016}_{-0.017}$ $(-0.1\sigma)$	$H(0.38)$	82.85	$82.87^{+0.89}_{-0.85}$ $(+0.6\sigma)$
$n_{\mathrm{s}}$	0.9660	$0.965^{+0.011}_{-0.011}$ $(+0.3\sigma)$	$\sigma_8/h^{0.5}$	0.9897	$0.988^{+0.023}_{-0.024}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	1534.0	$1533^{+24}_{-24}$ $(-0.5\sigma)$
$y_{\mathrm{cal}}$	1.0004	$1.0006^{+0.0063}_{-0.0063}$ $(+0.1\sigma)$	$r_{\mathrm{drag}}h$	99.00	$99.1^{+2.4}_{-2.4}$ $(+0.2\sigma)$	$H(0.51)$	89.61	$89.63^{+0.72}_{-0.68}$ $(+0.6\sigma)$
$A_{217}^{\mathrm{CIB}}$	46.1	$47^{+20}_{-20}$ $(-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	2.445	$2.446^{+0.056}_{-0.058}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	1986.5	$1986^{+28}_{-28}$ $(-0.5\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.66	—	$z_{\mathrm{re}}$	7.68	$7.7^{+1.8}_{-2.1}$ $(+0.2\sigma)$	$H(0.61)$	95.27	$95.28^{+0.59}_{-0.55}$ $(+0.7\sigma)$
$A_{143}^{\mathrm{tSZ}}$	7.08	$5.4^{+4.3}_{-4.9}$ $(+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	2.101	$2.100^{+0.079}_{-0.075}$ $(+0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	2311.0	$2310^{+30}_{-30}$ $(-0.5\sigma)$
$A_{100}^{\mathrm{PS}}$	248	$260^{+70}_{-70}$ $(-0.2\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8843	$1.883^{+0.027}_{-0.027}$ $(+0.1\sigma)$	$H(2.33)$	236.64	$236.6^{+1.8}_{-1.8}$ $(+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	50.7	$46^{+20}_{-20}$ $(-0.4\sigma)$	$D_{40}$	1229.0	$1232^{+29}_{-31}$ $(-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	5763.6	$5763^{+26}_{-27}$ $(-0.8\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	53.3	$42^{+20}_{-20}$ $(-0.1\sigma)$	$D_{220}$	5730	$5736^{+100}_{-99}$ $(+0.5\sigma)$	$f\sigma_8(0.15)$	0.4606	$0.460^{+0.017}_{-0.017}$ $(-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	121.9	$115^{+30}_{-30}$ $(-0.0\sigma)$	$D_{810}$	2541.3	$2539^{+33}_{-33}$ $(+0.3\sigma)$	$\sigma_8(0.15)$	0.7499	$0.749^{+0.014}_{-0.014}$ $(+0.2\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$D_{1420}$	818.4	$817^{+12}_{-12}$ $(+0.5\sigma)$	$f\sigma_8(0.38)$	0.4780	$0.477^{+0.013}_{-0.014}$ $(-0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	8.80	$8.9^{+4.7}_{-4.7}$ $(-0.0\sigma)$	$D_{2000}$	231.33	$230.9^{+3.9}_{-4.0}$ $(+0.7\sigma)$	$\sigma_8(0.38)$	0.6643	$0.664^{+0.013}_{-0.012}$ $(+0.2\sigma)$
$A_{143}^{\mathrm{dustTT}}$	11.01	$10.9^{+4.5}_{-4.4}$ $(+0.1\sigma)$	$n_{\mathrm{s},0.002}$	0.9660	$0.965^{+0.011}_{-0.011}$ $(+0.3\sigma)$	$f\sigma_8(0.51)$	0.4761	$0.475^{+0.012}_{-0.012}$ $(-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.2	$18.6^{+8.3}_{-8.3}$ $(+0.1\sigma)$	$Y_{\mathrm{P}}$	0.245401	$0.24539^{+0.00014}_{-0.00015}$ $(+1.1\sigma)$	$\sigma_8(0.51)$	0.6214	$0.621^{+0.012}_{-0.011}$ $(+0.3\sigma)$
$A_{217}^{\mathrm{dustTT}}$	95.5	$94^{+20}_{-20}$ $(+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246727	$0.24672^{+0.00014}_{-0.00015}$ $(+1.1\sigma)$	$f\sigma_8(0.61)$	0.4707	$0.470^{+0.011}_{-0.011}$ $(-0.0\sigma)$
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.114^{+0.099}_{-0.093}$	$10^5 \mathrm{D}/\mathrm{H}$	2.583	$2.585^{+0.070}_{-0.069}$ $(-1.1\sigma)$	$\sigma_8(0.61)$	0.5912	$0.591^{+0.011}_{-0.011}$ $(+0.3\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.075}_{-0.076}$	Age/Gyr	13.797	$13.797^{+0.058}_{-0.060}$ $(-0.9\sigma)$	$f\sigma_8(2.33)$	0.2979	$0.2977^{+0.0058}_{-0.0055}$ $(+0.3\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.479	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.91	$1089.92^{+0.64}_{-0.67}$ $(-0.9\sigma)$	$\sigma_8(2.33)$	0.3070	$0.3068^{+0.0063}_{-0.0060}$ $(+0.3\sigma)$
$A_{143}^{\mathrm{dustTE}}$	0.225	$0.23^{+0.14}_{-0.14}$	$r_*$	144.39	$144.43^{+0.67}_{-0.69}$ $(-0.4\sigma)$	$f_{2000}^{143}$	28.6	$30^{+7}_{-7}$ $(-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.665	$0.67^{+0.21}_{-0.21}$	$100\theta_*$	1.04109	$1.04110^{+0.00078}_{-0.00083}$ $(+0.2\sigma)$	$f_{2000}^{143 \times 217}$	31.97	$32^{+5}_{-5}$ $(-0.7\sigma)$
$A_{217}^{\mathrm{dustTE}}$	2.08	$2.09^{+0.72}_{-0.69}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.870	$13.873^{+0.064}_{-0.063}$ $(-0.4\sigma)$	$f_{2000}^{217}$	106.46	$107.1^{+4.5}_{-4.7}$ $(-0.6\sigma)$
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ $(+0.1\sigma)$	$z_{\mathrm{drag}}$	1059.97	$1059.94^{+0.79}_{-0.77}$ $(+1.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	8.87	$9.23 (\nu: 0.2)$ $(-0.3\sigma)$
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$ $(-0.1\sigma)$	$r_{\mathrm{drag}}$	147.05	$147.09^{+0.68}_{-0.68}$ $(-0.6\sigma)$	$\chi_{\mathrm{small}}^2$	396.05	$397.0 (\nu: 1.4)$ $(+0.1\sigma)$
$H_0$	67.32	$67.4^{+1.4}_{-1.4}$ $(+0.4\sigma)$	$k_{\mathrm{D}}$	0.14092	$0.14087^{+0.00076}_{-0.00079}$ $(+0.9\sigma)$	$\chi_{\mathrm{lowl}}^2$	23.25	$23.53 (\nu: 0.4)$ $(-0.1\sigma)$
$\Omega_{\Lambda}$	0.6842	$0.685^{+0.018}_{-0.019}$ $(+0.3\sigma)$	$100\theta_{\mathrm{D}}$	0.160734	$0.16076^{+0.00044}_{-0.00045}$ $(-1.2\sigma)$	$\chi_{\mathrm{plik}}^2$	2344.9	$2359.4 (\nu: 16.3)$ $(+304.4\sigma)$
$\Omega_{\mathrm{m}}$	0.3158	$0.315^{+0.019}_{-0.018}$ $(-0.3\sigma)$	$z_{\mathrm{eq}}$	3405	$3402^{+69}_{-68}$ $(+0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	1.5	$11.5 (\nu: 9.9)$ $(+1.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	0.14314	$0.1430^{+0.0029}_{-0.0028}$ $(+0.0\sigma)$	$k_{\mathrm{eq}}$	0.010393	$0.01038^{+0.00021}_{-0.00021}$ $(+0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	2773.1	$2789.2 (\nu: 16.9)$ $(+290.6\sigma)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 2774.63$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1586.07$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2800.69$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.28$ ;  $R - 1 = 0.01032$

$\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.87 ( $\Delta$  -0.03) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.05 ( $\Delta$  0.19) commander\_dx12.v3.2.29: 23.25 ( $\Delta$  0.02) plik\_rd12\_HM.v22b\_TTTEEE: 2344.93



## 2.98 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022447	$0.02242^{+0.00034}_{-0.00035}$ (+1.1 $\sigma$ )	$S_8$	0.8253	$0.825^{+0.027}_{-0.027}$ (+0.1 $\sigma$ )	$H(0.38)$	83.08	$83.05^{+0.71}_{-0.68}$ (+0.4 $\sigma$ )
$\Omega_c h^2$	0.11928	$0.1193^{+0.0024}_{-0.0023}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4520	$0.452^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1527.5	$1528^{+19}_{-19}$ (−0.3 $\sigma$ )
$100\theta_{MC}$	1.04101	$1.04101^{+0.00076}_{-0.00080}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6055	$0.605^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )	$H(0.51)$	89.80	$89.77^{+0.57}_{-0.56}$ (+0.6 $\sigma$ )
$\tau$	0.0568	$0.056^{+0.019}_{-0.018}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9857	$0.985^{+0.022}_{-0.022}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1978.9	$1980^{+22}_{-22}$ (−0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0480	$3.047^{+0.037}_{-0.034}$ (+0.2 $\sigma$ )	$r_{drag} h$	99.66	$99.6^{+1.8}_{-1.8}$ (−0.0 $\sigma$ )	$H(0.61)$	95.414	$95.39^{+0.47}_{-0.47}$ (+0.7 $\sigma$ )
$n_s$	0.9682	$0.9665^{+0.0098}_{-0.0098}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.436	$2.438^{+0.054}_{-0.053}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2302.9	$2304^{+24}_{-24}$ (−0.4 $\sigma$ )
$y_{cal}$	1.0005	$1.0008^{+0.0062}_{-0.0061}$ (+0.0 $\sigma$ )	$z_{re}$	7.90	$7.8^{+1.8}_{-1.9}$ (+0.1 $\sigma$ )	$H(2.33)$	236.17	$236.2^{+1.4}_{-1.4}$ (+0.5 $\sigma$ )
$A_{217}^{CIB}$	45.6	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.107	$2.105^{+0.078}_{-0.071}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5757.5	$5759^{+22}_{-22}$ (−0.8 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.71	—	$10^9 A_s e^{-2\tau}$	1.8811	$1.881^{+0.027}_{-0.026}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4567	$0.456^{+0.014}_{-0.014}$ (+0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.06	$> 0.816$ (+0.2 $\sigma$ )	$D_{40}$	1225.0	$1229^{+29}_{-31}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7495	$0.749^{+0.015}_{-0.014}$ (+0.2 $\sigma$ )
$A_{100}^{PS}$	247	$259^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{220}$	5734	$5741^{+100}_{-98}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4752	$0.475^{+0.012}_{-0.012}$ (+0.1 $\sigma$ )
$A_{143}^{PS}$	50.6	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2541.2	$2540^{+33}_{-33}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6645	$0.664^{+0.013}_{-0.012}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	54.1	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	819.2	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4739	$0.474^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )
$A_{217}^{PS}$	122.3	$115^{+20}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.67	$231.1^{+3.8}_{-3.9}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6219	$0.621^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9682	$0.9665^{+0.0098}_{-0.0098}$ (+0.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4690	$0.469^{+0.010}_{-0.010}$ (+0.1 $\sigma$ )
$A_{100}^{dustTT}$	8.78	$8.9^{+4.4}_{-4.7}$ (−0.0 $\sigma$ )	$Y_P$	0.245425	$0.24541^{+0.00013}_{-0.00014}$ (+1.1 $\sigma$ )	$\sigma_8(0.61)$	0.5918	$0.591^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )
$A_{143}^{dustTT}$	10.97	$10.9^{+4.5}_{-4.3}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246752	$0.24674^{+0.00013}_{-0.00014}$ (+1.1 $\sigma$ )	$f\sigma_8(2.33)$	0.2984	$0.2980^{+0.0058}_{-0.0054}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.0	$18.5^{+8.4}_{-8.6}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.571	$2.576^{+0.065}_{-0.061}$ (−1.1 $\sigma$ )	$\sigma_8(2.33)$	0.3077	$0.3073^{+0.0060}_{-0.0058}$ (+0.2 $\sigma$ )
$A_{217}^{dustTT}$	95.3	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.784	$13.787^{+0.053}_{-0.050}$ (−0.8 $\sigma$ )	$f_{2000}^{143}$	28.2	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.10}_{-0.092}$	$z_*$	1089.76	$1089.80^{+0.55}_{-0.56}$ (−0.9 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.63	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.073}_{-0.076}$	$r_*$	144.56	$144.57^{+0.56}_{-0.55}$ (−0.7 $\sigma$ )	$f_{2000}^{217}$	106.20	$106.9^{+4.3}_{-4.9}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.483	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04119	$1.04119^{+0.00074}_{-0.00079}$ (+0.0 $\sigma$ )	$\chi_{lensing}^2$	8.73	$9.10$ ( $\nu$ : 0.2) (−0.2 $\sigma$ )
$A_{143}^{dustTE}$	0.224	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.884	$13.885^{+0.054}_{-0.053}$ (−0.7 $\sigma$ )	$\chi_{small}^2$	396.52	$397.2$ ( $\nu$ : 1.7) (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.664	$0.67^{+0.20}_{-0.21}$	$z_{drag}$	1060.05	$1060.01^{+0.73}_{-0.80}$ (+1.2 $\sigma$ )	$\chi_{lowl}^2$	22.90	$23.25$ ( $\nu$ : 0.3) (+0.0 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.71}$	$r_{drag}$	147.20	$147.21^{+0.58}_{-0.58}$ (−0.9 $\sigma$ )	$\chi_{plik}^2$	2345.3	$2359.6$ ( $\nu$ : 16.9) (+303.6 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14081	$0.14078^{+0.00069}_{-0.00077}$ (+1.1 $\sigma$ )	$\chi_{6DF}^2$	0.029	$0.053$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0017}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160690	$0.16072^{+0.00045}_{-0.00043}$ (−1.2 $\sigma$ )	$\chi_{MGS}^2$	1.22	$1.24$ ( $\nu$ : 0.1) (−0.0 $\sigma$ )
$H_0$	67.70	$67.7^{+1.1}_{-1.1}$ (+0.2 $\sigma$ )	$z_{eq}$	3387	$3387^{+53}_{-52}$ (+0.4 $\sigma$ )	$\chi_{DR12BAO}^2$	4.42	$4.8$ ( $\nu$ : 0.9) (−0.0 $\sigma$ )
$\Omega_\Lambda$	0.6894	$0.689^{+0.014}_{-0.015}$ (+0.0 $\sigma$ )	$k_{eq}$	0.010337	$0.01034^{+0.00016}_{-0.00016}$ (+0.4 $\sigma$ )	$\chi_{prior}^2$	1.6	$11.5$ ( $\nu$ : 10.1) (+1.2 $\sigma$ )
$\Omega_m$	0.3106	$0.311^{+0.015}_{-0.014}$ (−0.0 $\sigma$ )	$100\theta_{eq}$	0.8163	$0.816^{+0.010}_{-0.0099}$ (−0.2 $\sigma$ )	$\chi_{CMB}^2$	2773.5	$2789.2$ ( $\nu$ : 17.2) (+292.9 $\sigma$ )
$\Omega_m h^2$	0.14237	$0.1424^{+0.0022}_{-0.0022}$ (+0.4 $\sigma$ )	$100\theta_{s,eq}$	0.4509	$0.4509^{+0.0051}_{-0.0051}$ (−0.3 $\sigma$ )	$\chi_{BAO}^2$	5.67	$6.1$ ( $\nu$ : 0.5) (−0.1 $\sigma$ )
$\Omega_m h^3$	0.09639	$0.09635^{+0.00074}_{-0.00084}$ (+1.0 $\sigma$ )	$H(0.15)$	72.98	$72.94^{+0.94}_{-0.92}$ (+0.3 $\sigma$ )			
$\sigma_8$	0.8110	$0.810^{+0.016}_{-0.015}$ (+0.2 $\sigma$ )	$D_M(0.15)$	640.4	$640.8^{+9.2}_{-9.3}$ (−0.3 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 2780.70$ ;  $\Delta\chi_{eff}^2 = 1586.01$ ;  $\bar{\chi}_{eff}^2 = 2806.84$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.11$ ;  $R - 1 = 0.01508$

$\chi_{eff}^2$ : BAO - 6DF: 0.03 ( $\Delta$  0.00) MGS: 1.22 ( $\Delta$  0.00) DR12BAO: 4.42 ( $\Delta$  0.05) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.73 ( $\Delta$  -0.14) small\_100x143\_offlike5\_EE\_Aplanck: 396.52 ( $\Delta$  0.43) commander\_dx12\_v3\_2.29: 22.90 ( $\Delta$  -0.06) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.32



## 2.99 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022506	$0.02248^{+0.00038}_{-0.00037}$ $(+0.8\sigma)$	$\sigma_8$	0.8103	$0.809^{+0.016}_{-0.015}$ $(+0.2\sigma)$	$H(0.15)$	73.24	$73.2^{+1.2}_{-1.1}$ $(-0.1\sigma)$
$\Omega_c h^2$	0.11866	$0.1188^{+0.0029}_{-0.0026}$ $(+0.4\sigma)$	$S_8$	0.8193	$0.820^{+0.032}_{-0.028}$ $(+0.3\sigma)$	$D_M(0.15)$	637.9	$639^{+11}_{-12}$ $(+0.2\sigma)$
$100\theta_{MC}$	1.04111	$1.04109^{+0.00083}_{-0.00083}$ $(-0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4487	$0.449^{+0.017}_{-0.015}$ $(+0.3\sigma)$	$H(0.38)$	83.27	$83.22^{+0.92}_{-0.82}$ $(-0.0\sigma)$
$\tau$	0.0587	$0.058^{+0.018}_{-0.018}$ $(-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6030	$0.603^{+0.016}_{-0.014}$ $(+0.3\sigma)$	$D_M(0.38)$	1522.4	$1524^{+22}_{-23}$ $(+0.1\sigma)$
$\ln(10^{10} A_s)$	3.0509	$3.049^{+0.035}_{-0.036}$ $(+0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9826	$0.982^{+0.023}_{-0.021}$ $(+0.3\sigma)$	$H(0.51)$	89.95	$89.91^{+0.76}_{-0.66}$ $(+0.1\sigma)$
$n_s$	0.9695	$0.968^{+0.011}_{-0.011}$ $(-0.1\sigma)$	$r_{drag} h$	100.16	$100.0^{+2.2}_{-2.2}$ $(-0.4\sigma)$	$D_M(0.51)$	1972.9	$1974^{+26}_{-28}$ $(+0.1\sigma)$
$y_{cal}$	1.0007	$1.0008^{+0.0061}_{-0.0062}$ $(-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	2.430	$2.432^{+0.056}_{-0.054}$ $(+0.3\sigma)$	$H(0.61)$	95.53	$95.50^{+0.65}_{-0.55}$ $(+0.2\sigma)$
$A_{217}^{CIB}$	45.8	$47^{+20}_{-20}$ $(-0.1\sigma)$	$z_{re}$	8.07	$7.9^{+1.7}_{-1.9}$ $(-0.1\sigma)$	$D_M(0.61)$	2296.4	$2298^{+28}_{-30}$ $(+0.1\sigma)$
$\xi^{tSZ \times CIB}$	0.61	—	$10^9 A_s$	2.113	$2.109^{+0.074}_{-0.075}$ $(+0.0\sigma)$	$H(2.33)$	235.83	$235.9^{+1.7}_{-1.6}$ $(+0.7\sigma)$
$A_{143}^{tSZ}$	7.08	$> 0.817$ $(+0.1\sigma)$	$10^9 A_s e^{-2\tau}$	1.8793	$1.879^{+0.027}_{-0.029}$ $(+0.3\sigma)$	$D_M(2.33)$	5752.2	$5754^{+26}_{-30}$ $(-0.3\sigma)$
$A_{100}^{PS}$	248	$258^{+70}_{-70}$ $(-0.1\sigma)$	$D_{40}$	1223.8	$1227^{+29}_{-31}$ $(+0.2\sigma)$	$f\sigma_8(0.15)$	0.4537	$0.454^{+0.016}_{-0.014}$ $(+0.3\sigma)$
$A_{143}^{PS}$	48.8	$45^{+20}_{-20}$ $(-0.3\sigma)$	$D_{220}$	5743	$5746^{+96}_{-98}$ $(+0.3\sigma)$	$\sigma_8(0.15)$	0.7493	$0.748^{+0.015}_{-0.014}$ $(+0.2\sigma)$
$A_{143 \times 217}^{PS}$	51.2	$42^{+20}_{-20}$ $(-0.1\sigma)$	$D_{810}$	2541.8	$2540^{+32}_{-33}$ $(+0.1\sigma)$	$f\sigma_8(0.38)$	0.4731	$0.473^{+0.013}_{-0.012}$ $(+0.3\sigma)$
$A_{217}^{PS}$	121.4	$115^{+30}_{-30}$ $(+0.0\sigma)$	$D_{1420}$	819.8	$819^{+12}_{-12}$ $(+0.3\sigma)$	$\sigma_8(0.38)$	0.6647	$0.664^{+0.013}_{-0.012}$ $(+0.1\sigma)$
$A^{kSZ}$	0.0	—	$D_{2000}$	231.94	$231.4^{+4.0}_{-4.0}$ $(+0.5\sigma)$	$f\sigma_8(0.51)$	0.4723	$0.472^{+0.012}_{-0.011}$ $(+0.3\sigma)$
$A_{100}^{dustTT}$	8.85	$8.8^{+4.5}_{-5.1}$ $(-0.1\sigma)$	$n_{s,0.002}$	0.9695	$0.968^{+0.011}_{-0.011}$ $(-0.1\sigma)$	$\sigma_8(0.51)$	0.6223	$0.621^{+0.012}_{-0.011}$ $(+0.1\sigma)$
$A_{143}^{dustTT}$	10.96	$10.9^{+4.5}_{-4.2}$ $(+0.1\sigma)$	$Y_P$	0.245447	$0.24544^{+0.00014}_{-0.00015}$ $(+0.8\sigma)$	$f\sigma_8(0.61)$	0.4677	$0.467^{+0.011}_{-0.010}$ $(+0.3\sigma)$
$A_{143 \times 217}^{dustTT}$	19.9	$18.5^{+8.4}_{-8.5}$ $(+0.0\sigma)$	$Y_P^{BBN}$	0.246774	$0.24676^{+0.00015}_{-0.00015}$ $(+0.8\sigma)$	$\sigma_8(0.61)$	0.5922	$0.591^{+0.011}_{-0.011}$ $(+0.1\sigma)$
$A_{217}^{dustTT}$	95.4	$93^{+20}_{-20}$ $(-0.0\sigma)$	$10^5 D/H$	2.561	$2.565^{+0.070}_{-0.067}$ $(-0.8\sigma)$	$f\sigma_8(2.33)$	0.2988	$0.2983^{+0.0056}_{-0.0055}$ $(+0.0\sigma)$
$A_{100}^{dustTE}$	0.113	$0.113^{+0.10}_{-0.091}$	Age/Gyr	13.772	$13.776^{+0.059}_{-0.067}$ $(-0.4\sigma)$	$\sigma_8(2.33)$	0.3083	$0.3077^{+0.0059}_{-0.0059}$ $(-0.0\sigma)$
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.075}_{-0.076}$	$z_*$	1089.63	$1089.68^{+0.62}_{-0.63}$ $(-0.5\sigma)$	$f_{2000}^{143}$	28.1	$29^{+7}_{-8}$ $(-0.5\sigma)$
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.21}$	$r_*$	144.67	$144.66^{+0.62}_{-0.64}$ $(-0.8\sigma)$	$f_{2000}^{143 \times 217}$	31.45	$32^{+5}_{-5}$ $(-0.5\sigma)$
$A_{143}^{dustTE}$	0.224	$0.23^{+0.14}_{-0.15}$	$100\theta_*$	1.04128	$1.04127^{+0.00081}_{-0.00081}$ $(-0.2\sigma)$	$f_{2000}^{217}$	106.15	$106.7^{+4.5}_{-4.9}$ $(-0.4\sigma)$
$A_{143 \times 217}^{dustTE}$	0.662	$0.67^{+0.20}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	13.894	$13.892^{+0.057}_{-0.060}$ $(-0.8\sigma)$	$\chi^2_{lensing}$	8.71	$9.17(\nu: 0.3)$ $(-0.3\sigma)$
$A_{217}^{dustTE}$	2.07	$2.07^{+0.70}_{-0.71}$	$z_{drag}$	1060.16	$1060.11^{+0.78}_{-0.79}$ $(+1.0\sigma)$	$\chi^2_{small}$	396.93	$397.5(\nu: 2.2)$ $(-0.1\sigma)$
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0015}$ $(+0.0\sigma)$	$r_{drag}$	147.29	$147.28^{+0.63}_{-0.65}$ $(-1.0\sigma)$	$\chi^2_{lowl}$	22.73	$23.05(\nu: 0.4)$ $(+0.2\sigma)$
$c_{217}$	0.99817	$0.9982^{+0.0018}_{-0.0017}$ $(-0.1\sigma)$	$k_D$	0.14075	$0.14075^{+0.00072}_{-0.00074}$ $(+1.1\sigma)$	$\chi^2_{plik}$	2346.0	$2360.5(\nu: 18.4)$ $(+288.5\sigma)$
$H_0$	68.00	$67.9^{+1.4}_{-1.3}$ $(-0.2\sigma)$	$100\theta_D$	0.160643	$0.16067^{+0.00046}_{-0.00046}$ $(-1.0\sigma)$	$\chi^2_{H073p45}$	10.8	$11.2(\nu: 2.1)$ $(+0.2\sigma)$
$\Omega_\Lambda$	0.6933	$0.692^{+0.017}_{-0.018}$ $(-0.3\sigma)$	$z_{eq}$	3373	$3376^{+64}_{-58}$ $(+0.6\sigma)$	$\chi^2_{prior}$	1.6	$11.6(\nu: 10.3)$ $(+1.2\sigma)$
$\Omega_m$	0.3067	$0.308^{+0.018}_{-0.017}$ $(+0.3\sigma)$	$k_{eq}$	0.010296	$0.01030^{+0.00020}_{-0.00018}$ $(+0.6\sigma)$	$\chi^2_{CMB}$	2774.3	$2790.2(\nu: 18.8)$ $(+268.2\sigma)$
$\Omega_m h^2$	0.14181	$0.1419^{+0.0027}_{-0.0024}$ $(+0.6\sigma)$	$100\theta_{eq}$	0.8190	$0.818^{+0.012}_{-0.012}$ $(-0.5\sigma)$			
$\Omega_m h^3$	0.09643	$0.09641^{+0.00075}_{-0.00079}$ $(+0.9\sigma)$	$100\theta_{s,eq}$	0.4523	$0.4520^{+0.0058}_{-0.0062}$ $(-0.5\sigma)$			

Best-fit  $\chi^2_{eff} = 2786.73$ ;  $\Delta\chi^2_{eff} = 1585.67$ ;  $\bar{\chi}^2_{eff} = 2812.97$ ;  $\Delta\bar{\chi}^2_{eff} = 1591.80$ ;  $R - 1 = 0.03088$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.71 ( $\Delta$  -0.27) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.93 ( $\Delta$  0.36) commander\_dx12.v3.2.29: 22.73 ( $\Delta$  0.05) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.95 Hubble - H073p45: 10.77 ( $\Delta$  0.10)



## 2.100 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022515	$0.02249^{+0.00035}_{-0.00036}$ (+1.0 $\sigma$ )	$S_8$	0.8172	$0.818^{+0.027}_{-0.025}$ (+0.3 $\sigma$ )	$H(0.38)$	83.29	$83.27^{+0.76}_{-0.67}$ (+0.1 $\sigma$ )
$\Omega_c h^2$	0.11857	$0.1186^{+0.0023}_{-0.0024}$ (+0.4 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4476	$0.448^{+0.015}_{-0.014}$ (+0.3 $\sigma$ )	$D_M(0.38)$	1521.9	$1522^{+18}_{-20}$ (−0.0 $\sigma$ )
$100\theta_{MC}$	1.04109	$1.04112^{+0.00076}_{-0.00077}$ (−0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6017	$0.602^{+0.015}_{-0.014}$ (+0.3 $\sigma$ )	$H(0.51)$	89.96	$89.95^{+0.62}_{-0.55}$ (+0.3 $\sigma$ )
$\tau$	0.0573	$0.058^{+0.018}_{-0.017}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9807	$0.981^{+0.022}_{-0.020}$ (+0.2 $\sigma$ )	$D_M(0.51)$	1972.3	$1973^{+21}_{-24}$ (−0.1 $\sigma$ )
$\ln(10^{10} A_s)$	3.0482	$3.049^{+0.035}_{-0.036}$ (+0.1 $\sigma$ )	$r_{drag} h$	100.22	$100.2^{+2.0}_{-1.8}$ (−0.3 $\sigma$ )	$H(0.61)$	95.54	$95.53^{+0.54}_{-0.47}$ (+0.4 $\sigma$ )
$n_s$	0.9697	$0.9682^{+0.0095}_{-0.0098}$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.425	$2.430^{+0.053}_{-0.051}$ (+0.2 $\sigma$ )	$D_M(0.61)$	2295.7	$2296^{+23}_{-26}$ (−0.1 $\sigma$ )
$y_{cal}$	1.0008	$1.0008^{+0.0060}_{-0.0062}$ (−0.1 $\sigma$ )	$z_{re}$	7.93	$8.0^{+1.7}_{-1.8}$ (−0.1 $\sigma$ )	$H(2.33)$	235.78	$235.8^{+1.4}_{-1.4}$ (+0.7 $\sigma$ )
$A_{217}^{CIB}$	45.7	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.108	$2.110^{+0.075}_{-0.074}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5751.9	$5753^{+23}_{-27}$ (−0.6 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.68	—	$10^9 A_s e^{-2\tau}$	1.8794	$1.879^{+0.027}_{-0.028}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4526	$0.453^{+0.014}_{-0.013}$ (+0.3 $\sigma$ )
$A_{143}^{tSZ}$	7.1	—	$D_{40}$	1223.2	$1226^{+30}_{-30}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7480	$0.748^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	246	$258^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{220}$	5745	$5747^{+96}_{-96}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4721	$0.472^{+0.012}_{-0.011}$ (+0.3 $\sigma$ )
$A_{143}^{PS}$	49.7	$45^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{810}$	2542.5	$2540^{+32}_{-34}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6637	$0.664^{+0.013}_{-0.012}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	53.0	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	820.1	$819^{+11}_{-12}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4713	$0.472^{+0.011}_{-0.010}$ (+0.2 $\sigma$ )
$A_{217}^{PS}$	121.8	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	232.02	$231.5^{+3.6}_{-4.0}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6213	$0.621^{+0.012}_{-0.011}$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9697	$0.9682^{+0.0095}_{-0.0098}$ (−0.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4668	$0.467^{+0.010}_{-0.0099}$ (+0.2 $\sigma$ )
$A_{100}^{dustTT}$	8.81	$8.8^{+4.4}_{-4.7}$ (−0.0 $\sigma$ )	$Y_P$	0.245450	$0.24544^{+0.00013}_{-0.00014}$ (+0.9 $\sigma$ )	$\sigma_8(0.61)$	0.5913	$0.591^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	11.02	$10.9^{+4.5}_{-4.2}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246777	$0.24677^{+0.00014}_{-0.00014}$ (+0.9 $\sigma$ )	$f\sigma_8(2.33)$	0.2984	$0.2984^{+0.0056}_{-0.0055}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.1	$18.5^{+8.4}_{-8.5}$ (+0.0 $\sigma$ )	$10^5 D/H$	2.559	$2.563^{+0.066}_{-0.063}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3078	$0.3078^{+0.0058}_{-0.0058}$ (+0.0 $\sigma$ )
$A_{217}^{dustTT}$	95.4	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.772	$13.773^{+0.052}_{-0.060}$ (−0.6 $\sigma$ )	$f_{2000}^{143}$	28.0	$29^{+7}_{-8}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	0.113	$0.113^{+0.10}_{-0.091}$	$z_*$	1089.61	$1089.65^{+0.55}_{-0.55}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.49	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.075}_{-0.075}$	$r_*$	144.69	$144.69^{+0.56}_{-0.54}$ (−0.9 $\sigma$ )	$f_{2000}^{217}$	106.12	$106.7^{+4.5}_{-4.9}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	1.04126	$1.04129^{+0.00074}_{-0.00076}$ (−0.1 $\sigma$ )	$\chi^2_{lensing}$	8.79	$9.15$ ( $\nu$ : 0.3) (−0.3 $\sigma$ )
$A_{143}^{dustTE}$	0.223	$0.22^{+0.14}_{-0.15}$	$D_M(z_*)/\text{Gpc}$	13.896	$13.895^{+0.052}_{-0.052}$ (−0.8 $\sigma$ )	$\chi^2_{small}$	396.58	$397.6$ ( $\nu$ : 2.2) (−0.1 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.664	$0.67^{+0.20}_{-0.22}$	$z_{drag}$	1060.16	$1060.12^{+0.76}_{-0.76}$ (+1.1 $\sigma$ )	$\chi^2_{lowl}$	22.65	$22.98$ ( $\nu$ : 0.3) (+0.1 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.07^{+0.70}_{-0.72}$	$r_{drag}$	147.31	$147.32^{+0.60}_{-0.56}$ (−1.0 $\sigma$ )	$\chi^2_{plik}$	2346.5	$2360.5$ ( $\nu$ : 18.1) (+298.4 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0015}$ (+0.0 $\sigma$ )	$k_D$	0.14075	$0.14072^{+0.00068}_{-0.00074}$ (+1.1 $\sigma$ )	$\chi^2_{H073p45}$	10.64	$10.8$ ( $\nu$ : 1.3) (+0.0 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0017}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160632	$0.16066^{+0.00046}_{-0.00046}$ (−1.1 $\sigma$ )	$\chi^2_{6DF}$	0.003	$0.024$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$H_0$	68.04	$68.0^{+1.2}_{-1.0}$ (−0.0 $\sigma$ )	$z_{eq}$	3371	$3372^{+52}_{-51}$ (+0.6 $\sigma$ )	$\chi^2_{MGS}$	1.54	$1.57$ ( $\nu$ : 0.1) (−0.3 $\sigma$ )
$\Omega_\Lambda$	0.6938	$0.693^{+0.015}_{-0.014}$ (−0.2 $\sigma$ )	$k_{eq}$	0.010290	$0.01029^{+0.00016}_{-0.00015}$ (+0.6 $\sigma$ )	$\chi^2_{DR12BAO}$	3.70	$4.05$ ( $\nu$ : 0.3) (+0.1 $\sigma$ )
$\Omega_m$	0.3062	$0.307^{+0.014}_{-0.015}$ (+0.2 $\sigma$ )	$100\theta_{eq}$	0.8194	$0.819^{+0.010}_{-0.0097}$ (−0.5 $\sigma$ )	$\chi^2_{prior}$	1.7	$11.6$ ( $\nu$ : 10.3) (+1.2 $\sigma$ )
$\Omega_m h^2$	0.14173	$0.1418^{+0.0022}_{-0.0021}$ (+0.6 $\sigma$ )	$100\theta_{s,eq}$	0.4524	$0.4524^{+0.0050}_{-0.0050}$ (−0.5 $\sigma$ )	$\chi^2_{CMB}$	2774.5	$2790.2$ ( $\nu$ : 18.3) (+285.5 $\sigma$ )
$\Omega_m h^3$	0.09642	$0.09641^{+0.00075}_{-0.00078}$ (+0.9 $\sigma$ )	$H(0.15)$	73.26	$73.2^{+1.0}_{-0.89}$ (+0.0 $\sigma$ )	$\chi^2_{BAO}$	5.24	$5.64$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$\sigma_8$	0.8089	$0.809^{+0.017}_{-0.016}$ (+0.2 $\sigma$ )	$D_M(0.15)$	637.6	$637.9^{+8.8}_{-10}$ (+0.0 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 2792.01$ ;  $\Delta\chi^2_{eff} = 1585.80$ ;  $\bar{\chi}^2_{eff} = 2818.25$ ;  $\Delta\bar{\chi}^2_{eff} = 1591.79$ ;  $R - 1 = 0.03699$

$\chi^2_{eff}$ : BAO - 6DF: 0.00 ( $\Delta$  0.00) MGS: 1.54 ( $\Delta$  -0.14) DR12BAO: 3.70 ( $\Delta$  0.20) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.79 ( $\Delta$  -0.27) simall\_100x143\_offlike5\_EE\_Aplanck 396.58 ( $\Delta$  0.11) commander\_dx12.v3.2.29: 22.66 ( $\Delta$  0.12) plik\_rd12\_HM.v22b\_TTTEEE: 2346.46 Hubble - H073p45: 10.64 ( $\Delta$  0.07)



## 2.101 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022400	$0.02239^{+0.00036}_{-0.00035}$ (+1.1 $\sigma$ )	$\sigma_8$	0.8112	$0.811^{+0.016}_{-0.015}$ (+0.2 $\sigma$ )	$H(0.15)$	72.77	$72.8^{+1.1}_{-1.1}$ (+0.4 $\sigma$ )
$\Omega_c h^2$	0.11977	$0.1197^{+0.0030}_{-0.0028}$ (+0.0 $\sigma$ )	$S_8$	0.8296	$0.829^{+0.032}_{-0.031}$ (−0.1 $\sigma$ )	$D_M(0.15)$	642.4	$642^{+11}_{-11}$ (−0.3 $\sigma$ )
$100\theta_{MC}$	1.04094	$1.04095^{+0.00080}_{-0.00083}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4544	$0.454^{+0.017}_{-0.017}$ (−0.1 $\sigma$ )	$H(0.38)$	82.93	$82.94^{+0.85}_{-0.83}$ (+0.5 $\sigma$ )
$\tau$	0.0549	$0.055^{+0.019}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6071	$0.607^{+0.016}_{-0.016}$ (+0.0 $\sigma$ )	$D_M(0.38)$	1531.6	$1531^{+23}_{-23}$ (−0.4 $\sigma$ )
$\ln(10^{10} A_s)$	3.0453	$3.045^{+0.037}_{-0.036}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9876	$0.987^{+0.023}_{-0.023}$ (−0.0 $\sigma$ )	$H(0.51)$	89.68	$89.68^{+0.68}_{-0.66}$ (+0.6 $\sigma$ )
$n_s$	0.9664	$0.966^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )	$r_{drag} h$	99.25	$99.3^{+2.3}_{-2.3}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1983.7	$1984^{+27}_{-27}$ (−0.4 $\sigma$ )
$y_{cal}$	1.0006	$1.0007^{+0.0062}_{-0.0063}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.441	$2.443^{+0.055}_{-0.056}$ (+0.0 $\sigma$ )	$H(0.61)$	95.32	$95.32^{+0.55}_{-0.54}$ (+0.7 $\sigma$ )
$A_{217}^{CIB}$	47.2	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$z_{re}$	7.73	$7.7^{+1.8}_{-2.0}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2308.0	$2308^{+29}_{-29}$ (−0.4 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.45	—	$10^9 A_s$	2.102	$2.102^{+0.078}_{-0.075}$ (+0.2 $\sigma$ )	$H(2.33)$	236.44	$236.4^{+1.8}_{-1.7}$ (+0.3 $\sigma$ )
$A_{143}^{tSZ}$	7.20	$5.4^{+4.4}_{-4.9}$ (+0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8832	$1.883^{+0.027}_{-0.026}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5761.6	$5762^{+25}_{-25}$ (−0.8 $\sigma$ )
$A_{100}^{PS}$	250	$259^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{40}$	1228.7	$1231^{+30}_{-31}$ (+0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4588	$0.458^{+0.016}_{-0.016}$ (−0.1 $\sigma$ )
$A_{143}^{PS}$	47.7	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{220}$	5735	$5738^{+100}_{-97}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.7493	$0.749^{+0.014}_{-0.014}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	47.9	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2541.2	$2540^{+33}_{-33}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4766	$0.476^{+0.013}_{-0.013}$ (−0.0 $\sigma$ )
$A_{217}^{PS}$	119.7	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{1420}$	818.5	$817^{+12}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(0.38)$	0.6640	$0.664^{+0.013}_{-0.012}$ (+0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$D_{2000}$	231.33	$231.0^{+3.9}_{-4.0}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4750	$0.475^{+0.011}_{-0.012}$ (+0.0 $\sigma$ )
$A_{100}^{dustTT}$	8.83	$8.9^{+4.4}_{-4.7}$ (−0.0 $\sigma$ )	$n_{s,0.002}$	0.9664	$0.966^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6213	$0.621^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )
$A_{143}^{dustTT}$	11.02	$10.9^{+4.5}_{-4.3}$ (+0.1 $\sigma$ )	$Y_P$	0.245407	$0.24540^{+0.00014}_{-0.00014}$ (+1.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4698	$0.470^{+0.010}_{-0.011}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.8	$18.5^{+8.3}_{-8.5}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246734	$0.24673^{+0.00014}_{-0.00014}$ (+1.1 $\sigma$ )	$\sigma_8(0.61)$	0.5911	$0.591^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )
$A_{217}^{dustTT}$	95.0	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	$10^5 D/H$	2.580	$2.582^{+0.067}_{-0.065}$ (−1.1 $\sigma$ )	$f\sigma_8(2.33)$	0.2979	$0.2978^{+0.0058}_{-0.0056}$ (+0.2 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.10}_{-0.092}$	Age/Gyr	13.793	$13.793^{+0.057}_{-0.057}$ (−0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3071	$0.3070^{+0.0062}_{-0.0060}$ (+0.3 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.073}_{-0.078}$	$z_*$	1089.86	$1089.87^{+0.63}_{-0.63}$ (−0.9 $\sigma$ )	$f_{2000}^{143}$	28.8	$30^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.23}$	$r_*$	144.47	$144.48^{+0.64}_{-0.65}$ (−0.5 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.98	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{143}^{dustTE}$	0.223	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	1.04112	$1.04113^{+0.00079}_{-0.00082}$ (+0.1 $\sigma$ )	$f_{2000}^{217}$	106.61	$107.0^{+4.3}_{-4.9}$ (−0.5 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.664	$0.67^{+0.20}_{-0.21}$	$D_M(z_*)/\text{Gpc}$	13.876	$13.877^{+0.060}_{-0.061}$ (−0.5 $\sigma$ )	$\chi^2_{lensing}$	8.77	$9.17(\nu: 0.2)$ (−0.2 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.69}$	$z_{drag}$	1059.97	$1059.97^{+0.77}_{-0.76}$ (+1.2 $\sigma$ )	$\chi^2_{small}$	396.16	$397.1(\nu: 1.5)$ (+0.0 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{drag}$	147.12	$147.14^{+0.65}_{-0.65}$ (−0.7 $\sigma$ )	$\chi^2_{lowl}$	23.18	$23.42(\nu: 0.4)$ (−0.1 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$k_D$	0.14086	$0.14084^{+0.00073}_{-0.00081}$ (+1.0 $\sigma$ )	$\chi^2_{plik}$	2344.9	$2359.5(\nu: 16.8)$ (+303.8 $\sigma$ )
$H_0$	67.46	$67.5^{+1.3}_{-1.3}$ (+0.3 $\sigma$ )	$100\theta_D$	0.160728	$0.16074^{+0.00045}_{-0.00044}$ (−1.2 $\sigma$ )	$\chi^2_{JLA}$	1035.18	$1035.27(\nu: 0.1)$ (−0.2 $\sigma$ )
$\Omega_\Lambda$	0.6862	$0.686^{+0.017}_{-0.019}$ (+0.2 $\sigma$ )	$z_{eq}$	3397	$3396^{+66}_{-64}$ (+0.2 $\sigma$ )	$\chi^2_{prior}$	1.7	$11.5(\nu: 10.0)$ (+1.1 $\sigma$ )
$\Omega_m$	0.3138	$0.314^{+0.019}_{-0.017}$ (−0.2 $\sigma$ )	$k_{eq}$	0.010369	$0.01037^{+0.00020}_{-0.00019}$ (+0.2 $\sigma$ )	$\chi^2_{CMB}$	2773.0	$2789.2(\nu: 17.2)$ (+292.3 $\sigma$ )
$\Omega_m h^2$	0.14282	$0.1428^{+0.0028}_{-0.0027}$ (+0.2 $\sigma$ )	$100\theta_{eq}$	0.8142	$0.814^{+0.012}_{-0.012}$ (−0.1 $\sigma$ )			
$\Omega_m h^3$	0.09635	$0.09633^{+0.00075}_{-0.00084}$ (+1.0 $\sigma$ )	$100\theta_{s,eq}$	0.4499	$0.4500^{+0.0062}_{-0.0063}$ (−0.1 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 3809.84$ ;  $\Delta\chi^2_{eff} = 1585.97$ ;  $\bar{\chi}^2_{eff} = 3835.97$ ;  $\Delta\bar{\chi}^2_{eff} = 1592.16$ ;  $R - 1 = 0.01281$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.77 ( $\Delta$  -0.07) small\_100x143\_offlike5\_EE\_Aplanck.B: 396.16 ( $\Delta$  0.29) commander\_dx12.v3.2.29: 23.18 ( $\Delta$  -0.05) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.85 SN - JLA Pantheon18: 1035.18 ( $\Delta$  -0.08)



## 2.102 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_JLA\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022522	$0.02250^{+0.00035}_{-0.00036}$ (+1.0 $\sigma$ )	$S_8$	0.8169	$0.817^{+0.027}_{-0.025}$ (+0.3 $\sigma$ )	$H(0.38)$	83.33	$83.29^{+0.75}_{-0.66}$ (+0.1 $\sigma$ )
$\Omega_c h^2$	0.11843	$0.1186^{+0.0022}_{-0.0023}$ (+0.4 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4474	$0.448^{+0.015}_{-0.014}$ (+0.3 $\sigma$ )	$D_M(0.38)$	1520.8	$1522^{+18}_{-20}$ (−0.0 $\sigma$ )
$100\theta_{MC}$	1.04111	$1.04112^{+0.00075}_{-0.00076}$ (−0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6019	$0.602^{+0.015}_{-0.013}$ (+0.3 $\sigma$ )	$H(0.51)$	89.99	$89.96^{+0.61}_{-0.54}$ (+0.3 $\sigma$ )
$\tau$	0.0588	$0.058^{+0.018}_{-0.017}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9812	$0.981^{+0.022}_{-0.020}$ (+0.2 $\sigma$ )	$D_M(0.51)$	1971.1	$1972^{+21}_{-23}$ (−0.0 $\sigma$ )
$\ln(10^{10} A_s)$	3.0511	$3.049^{+0.035}_{-0.035}$ (+0.1 $\sigma$ )	$r_{drag} h$	100.33	$100.2^{+2.0}_{-1.7}$ (−0.3 $\sigma$ )	$H(0.61)$	95.567	$95.54^{+0.53}_{-0.46}$ (+0.4 $\sigma$ )
$n_s$	0.9700	$0.968^{+0.011}_{-0.0098}$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.427	$2.429^{+0.052}_{-0.051}$ (+0.2 $\sigma$ )	$D_M(0.61)$	2294.4	$2296^{+23}_{-25}$ (−0.1 $\sigma$ )
$y_{cal}$	1.0010	$1.0008^{+0.0060}_{-0.0063}$ (−0.1 $\sigma$ )	$z_{re}$	8.07	$8.0^{+1.6}_{-1.8}$ (−0.1 $\sigma$ )	$H(2.33)$	235.69	$235.8^{+1.4}_{-1.3}$ (+0.7 $\sigma$ )
$A_{217}^{CIB}$	45.6	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.114	$2.110^{+0.074}_{-0.074}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5751.0	$5752^{+23}_{-26}$ (−0.6 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.67	—	$10^9 A_s e^{-2\tau}$	1.8793	$1.879^{+0.027}_{-0.028}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4525	$0.453^{+0.014}_{-0.013}$ (+0.3 $\sigma$ )
$A_{143}^{tSZ}$	7.1	—	$D_{40}$	1223.3	$1226^{+30}_{-30}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7488	$0.748^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	247	$258^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{220}$	5747	$5747^{+95}_{-96}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4722	$0.472^{+0.012}_{-0.011}$ (+0.3 $\sigma$ )
$A_{143}^{PS}$	49.8	$45^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{810}$	2542.8	$2540^{+32}_{-34}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6644	$0.664^{+0.013}_{-0.012}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	52.8	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	820.3	$819^{+11}_{-12}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4715	$0.471^{+0.011}_{-0.010}$ (+0.3 $\sigma$ )
$A_{217}^{PS}$	121.8	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	232.10	$231.5^{+3.6}_{-4.0}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6221	$0.621^{+0.012}_{-0.011}$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9700	$0.968^{+0.011}_{-0.0098}$ (−0.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4671	$0.467^{+0.010}_{-0.0098}$ (+0.2 $\sigma$ )
$A_{100}^{dustTT}$	8.81	$8.8^{+4.4}_{-4.7}$ (−0.0 $\sigma$ )	$Y_P$	0.245452	$0.24544^{+0.00013}_{-0.00014}$ (+0.9 $\sigma$ )	$\sigma_8(0.61)$	0.5921	$0.591^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	11.06	$10.9^{+4.5}_{-4.2}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246779	$0.24677^{+0.00013}_{-0.00014}$ (+0.9 $\sigma$ )	$f\sigma_8(2.33)$	0.2988	$0.2984^{+0.0056}_{-0.0055}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.2	$18.5^{+8.4}_{-8.5}$ (+0.0 $\sigma$ )	$10^5 D/H$	2.558	$2.563^{+0.066}_{-0.062}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3083	$0.3079^{+0.0058}_{-0.0058}$ (+0.0 $\sigma$ )
$A_{217}^{dustTT}$	95.8	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.770	$13.773^{+0.052}_{-0.059}$ (−0.6 $\sigma$ )	$f_{2000}^{143}$	28.1	$29^{+7}_{-8}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.113^{+0.10}_{-0.091}$	$z_*$	1089.59	$1089.64^{+0.55}_{-0.54}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.50	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.075}_{-0.075}$	$r_*$	144.72	$144.70^{+0.55}_{-0.54}$ (−0.9 $\sigma$ )	$f_{2000}^{217}$	106.14	$106.7^{+4.5}_{-4.9}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	1.04128	$1.04129^{+0.00073}_{-0.00076}$ (−0.1 $\sigma$ )	$\chi_{lensing}^2$	8.75	$9.16$ ( $\nu$ : 0.3) (−0.3 $\sigma$ )
$A_{143}^{dustTE}$	0.224	$0.22^{+0.14}_{-0.15}$	$D_M(z_*)/\text{Gpc}$	13.898	$13.896^{+0.052}_{-0.052}$ (−0.9 $\sigma$ )	$\chi_{small}^2$	396.93	$397.6$ ( $\nu$ : 2.3) (−0.1 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.664	$0.67^{+0.20}_{-0.22}$	$z_{drag}$	1060.16	$1060.13^{+0.76}_{-0.77}$ (+1.1 $\sigma$ )	$\chi_{lowl}^2$	22.63	$22.96$ ( $\nu$ : 0.3) (+0.1 $\sigma$ )
$A_{217}^{dustTE}$	2.07	$2.06^{+0.70}_{-0.72}$	$r_{drag}$	147.34	$147.33^{+0.59}_{-0.56}$ (−1.0 $\sigma$ )	$\chi_{plik}^2$	2346.4	$2360.6$ ( $\nu$ : 18.1) (+298.4 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0015}$ (+0.0 $\sigma$ )	$k_D$	0.14072	$0.14071^{+0.00069}_{-0.00074}$ (+1.1 $\sigma$ )	$\chi_{H073p45}^2$	10.40	$10.7$ ( $\nu$ : 1.3) (+0.0 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0017}_{-0.0017}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160630	$0.16066^{+0.00046}_{-0.00046}$ (−1.1 $\sigma$ )	$\chi_{JLA}^2$	706.600	$706.64$ ( $\nu$ : 0.0) (+0.2 $\sigma$ )
$H_0$	68.10	$68.0^{+1.2}_{-1.0}$ (−0.0 $\sigma$ )	$z_{eq}$	3368	$3371^{+51}_{-52}$ (+0.6 $\sigma$ )	$\chi_{6DF}^2$	0.001	$0.023$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$\Omega_\Lambda$	0.6947	$0.694^{+0.015}_{-0.014}$ (−0.2 $\sigma$ )	$k_{eq}$	0.010280	$0.01029^{+0.00016}_{-0.00016}$ (+0.6 $\sigma$ )	$\chi_{MGS}^2$	1.61	$1.59$ ( $\nu$ : 0.1) (−0.3 $\sigma$ )
$\Omega_m$	0.3053	$0.306^{+0.014}_{-0.015}$ (+0.2 $\sigma$ )	$100\theta_{eq}$	0.8200	$0.8194^{+0.0099}_{-0.0095}$ (−0.5 $\sigma$ )	$\chi_{DR12BAO}^2$	3.60	$4.01$ ( $\nu$ : 0.3) (+0.1 $\sigma$ )
$\Omega_m h^2$	0.14160	$0.1417^{+0.0021}_{-0.0022}$ (+0.6 $\sigma$ )	$100\theta_{s,eq}$	0.4528	$0.4525^{+0.0051}_{-0.0049}$ (−0.6 $\sigma$ )	$\chi_{prior}^2$	1.7	$11.6$ ( $\nu$ : 10.4) (+1.2 $\sigma$ )
$\Omega_m h^3$	0.09642	$0.09641^{+0.00075}_{-0.00078}$ (+0.9 $\sigma$ )	$H(0.15)$	73.32	$73.3^{+1.0}_{-0.89}$ (+0.0 $\sigma$ )	$\chi_{CMB}^2$	2774.7	$2790.3$ ( $\nu$ : 18.3) (+285.5 $\sigma$ )
$\sigma_8$	0.8097	$0.809^{+0.017}_{-0.016}$ (+0.2 $\sigma$ )	$D_M(0.15)$	637.1	$637.7^{+8.8}_{-9.8}$ (+0.0 $\sigma$ )	$\chi_{BAO}^2$	5.21	$5.62$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )

Best-fit  $\chi_{eff}^2 = 3498.60$ ;  $\Delta\chi_{eff}^2 = 1585.79$ ;  $\bar{\chi}_{eff}^2 = 3524.87$ ;  $\Delta\bar{\chi}_{eff}^2 = 1591.82$ ;  $R - 1 = 0.03975$

$\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  0.00) MGS: 1.61 ( $\Delta$  -0.07) DR12BAO: 3.60 ( $\Delta$  0.11) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.75 ( $\Delta$  -0.19) small\_100x143\_offlike5\_EE\_Aplanck396.93 ( $\Delta$  0.10) commander\_dx12\_v3.2.29: 22.63 ( $\Delta$  0.04) plik\_rd12\_HM\_v22b\_TTTEEE: 2346.36 Hubble - H073p45: 10.40 ( $\Delta$  -0.20) SN - JLA December.2013: 706.60 ( $\Delta$  0.01)



## 2.103 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022451	$0.02243^{+0.00034}_{-0.00035} (+1.1\sigma)$	$S_8$	0.8237	$0.824^{+0.026}_{-0.026} (+0.1\sigma)$	$H(0.38)$	83.12	$83.09^{+0.70}_{-0.67} (+0.4\sigma)$
$\Omega_c h^2$	0.11913	$0.1192^{+0.0023}_{-0.0023} (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4511	$0.451^{+0.014}_{-0.014} (+0.1\sigma)$	$D_M(0.38)$	1526.6	$1527^{+18}_{-18} (-0.3\sigma)$
$100\theta_{MC}$	1.04102	$1.04102^{+0.00075}_{-0.00081} (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6047	$0.605^{+0.015}_{-0.014} (+0.1\sigma)$	$H(0.51)$	89.82	$89.80^{+0.56}_{-0.54} (+0.5\sigma)$
$\tau$	0.0568	$0.056^{+0.018}_{-0.018} (+0.1\sigma)$	$\sigma_8/h^{0.5}$	0.9847	$0.984^{+0.022}_{-0.022} (+0.1\sigma)$	$D_M(0.51)$	1977.8	$1979^{+21}_{-22} (-0.3\sigma)$
$\ln(10^{10} A_s)$	3.0482	$3.047^{+0.036}_{-0.034} (+0.2\sigma)$	$r_{drag} h$	99.77	$99.7^{+1.8}_{-1.8} (-0.1\sigma)$	$H(0.61)$	95.431	$95.41^{+0.47}_{-0.46} (+0.7\sigma)$
$n_s$	0.9682	$0.9668^{+0.0097}_{-0.0096} (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	2.434	$2.437^{+0.053}_{-0.052} (+0.1\sigma)$	$D_M(0.61)$	2301.7	$2303^{+23}_{-24} (-0.3\sigma)$
$y_{cal}$	1.0008	$1.0008^{+0.0062}_{-0.0061} (-0.0\sigma)$	$z_{re}$	7.90	$7.8^{+1.7}_{-1.8} (+0.0\sigma)$	$H(2.33)$	236.07	$236.1^{+1.4}_{-1.4} (+0.5\sigma)$
$A_{217}^{CIB}$	46.6	$47^{+20}_{-20} (-0.2\sigma)$	$10^9 A_s$	2.108	$2.105^{+0.078}_{-0.072} (+0.2\sigma)$	$D_M(2.33)$	5756.9	$5758^{+23}_{-22} (-0.8\sigma)$
$\xi^{tSZ \times CIB}$	0.56	—	$10^9 A_s e^{-2\tau}$	1.8813	$1.881^{+0.027}_{-0.027} (+0.2\sigma)$	$f\sigma_8(0.15)$	0.4559	$0.456^{+0.014}_{-0.014} (+0.1\sigma)$
$A_{143}^{tSZ}$	7.16	$> 0.815 (+0.2\sigma)$	$D_{40}$	1225.7	$1229^{+29}_{-30} (+0.1\sigma)$	$\sigma_8(0.15)$	0.7492	$0.749^{+0.015}_{-0.014} (+0.2\sigma)$
$A_{100}^{PS}$	249	$259^{+70}_{-70} (-0.1\sigma)$	$D_{220}$	5739	$5741^{+100}_{-98} (+0.4\sigma)$	$f\sigma_8(0.38)$	0.4746	$0.475^{+0.012}_{-0.012} (+0.1\sigma)$
$A_{143}^{PS}$	48.8	$46^{+20}_{-20} (-0.4\sigma)$	$D_{810}$	2542.0	$2540^{+33}_{-33} (+0.2\sigma)$	$\sigma_8(0.38)$	0.6643	$0.664^{+0.013}_{-0.012} (+0.2\sigma)$
$A_{143 \times 217}^{PS}$	50.4	$42^{+20}_{-20} (-0.1\sigma)$	$D_{1420}$	819.4	$818^{+11}_{-12} (+0.4\sigma)$	$f\sigma_8(0.51)$	0.4734	$0.473^{+0.011}_{-0.011} (+0.2\sigma)$
$A_{217}^{PS}$	120.6	$115^{+20}_{-30} (+0.0\sigma)$	$D_{2000}$	231.70	$231.2^{+3.7}_{-3.9} (+0.6\sigma)$	$\sigma_8(0.51)$	0.6218	$0.621^{+0.012}_{-0.011} (+0.2\sigma)$
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9682	$0.9668^{+0.0097}_{-0.0096} (+0.1\sigma)$	$f\sigma_8(0.61)$	0.4686	$0.468^{+0.010}_{-0.010} (+0.2\sigma)$
$A_{100}^{dustTT}$	8.84	$8.9^{+4.4}_{-4.7} (-0.0\sigma)$	$Y_P$	0.245427	$0.24542^{+0.00013}_{-0.00014} (+1.1\sigma)$	$\sigma_8(0.61)$	0.5917	$0.591^{+0.012}_{-0.011} (+0.2\sigma)$
$A_{143}^{dustTT}$	11.02	$10.9^{+4.5}_{-4.3} (+0.1\sigma)$	$Y_P^{BBN}$	0.246753	$0.24674^{+0.00013}_{-0.00014} (+1.1\sigma)$	$f\sigma_8(2.33)$	0.2984	$0.2981^{+0.0058}_{-0.0054} (+0.2\sigma)$
$A_{143 \times 217}^{dustTT}$	19.9	$18.5^{+8.4}_{-8.6} (+0.1\sigma)$	$10^5 D/H$	2.571	$2.575^{+0.066}_{-0.061} (-1.1\sigma)$	$\sigma_8(2.33)$	0.3077	$0.3074^{+0.0060}_{-0.0057} (+0.2\sigma)$
$A_{217}^{dustTT}$	95.2	$93^{+20}_{-20} (+0.0\sigma)$	Age/Gyr	13.783	$13.785^{+0.053}_{-0.050} (-0.8\sigma)$	$f_{2000}^{143}$	28.5	$29^{+7}_{-7} (-0.5\sigma)$
$A_{100}^{dustTE}$	0.114	$0.114^{+0.10}_{-0.092}$	$z_*$	1089.74	$1089.78^{+0.53}_{-0.54} (-0.9\sigma)$	$f_{2000}^{143 \times 217}$	31.78	$32^{+5}_{-5} (-0.6\sigma)$
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.073}_{-0.076}$	$r_*$	144.59	$144.59^{+0.55}_{-0.54} (-0.8\sigma)$	$f_{2000}^{217}$	106.41	$106.9^{+4.4}_{-4.9} (-0.5\sigma)$
$A_{100 \times 217}^{dustTE}$	0.484	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04120	$1.04120^{+0.00075}_{-0.00079} (+0.0\sigma)$	$\chi^2_{lensing}$	8.72	$9.10 (\nu: 0.2) (-0.2\sigma)$
$A_{143}^{dustTE}$	0.224	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/Gpc$	13.887	$13.887^{+0.054}_{-0.052} (-0.8\sigma)$	$\chi^2_{small}$	396.52	$397.2 (\nu: 1.8) (+0.0\sigma)$
$A_{143 \times 217}^{dustTE}$	0.665	$0.67^{+0.20}_{-0.21}$	$z_{drag}$	1060.05	$1060.02^{+0.75}_{-0.77} (+1.2\sigma)$	$\chi^2_{lowl}$	22.88	$23.20 (\nu: 0.3) (+0.0\sigma)$
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.72}$	$r_{drag}$	147.23	$147.23^{+0.57}_{-0.57} (-0.9\sigma)$	$\chi^2_{plik}$	2345.3	$2359.7 (\nu: 17.0) (+303.3\sigma)$
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0015} (+0.1\sigma)$	$k_D$	0.14078	$0.14076^{+0.00069}_{-0.00075} (+1.1\sigma)$	$\chi^2_{JLA}$	1034.97	$1035.06 (\nu: 0.0) (-0.1\sigma)$
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0017} (-0.1\sigma)$	$100\theta_D$	0.160690	$0.16072^{+0.00044}_{-0.00043} (-1.2\sigma)$	$\chi^2_{6DF}$	0.022	$0.046 (\nu: 0.0) (-0.1\sigma)$
$H_0$	67.76	$67.7^{+1.1}_{-1.0} (+0.2\sigma)$	$z_{eq}$	3383	$3385^{+52}_{-51} (+0.4\sigma)$	$\chi^2_{MGS}$	1.28	$1.29 (\nu: 0.1) (-0.1\sigma)$
$\Omega_\Lambda$	0.6902	$0.690^{+0.014}_{-0.014} (-0.0\sigma)$	$k_{eq}$	0.010326	$0.01033^{+0.00016}_{-0.00016} (+0.4\sigma)$	$\chi^2_{DR12BAO}$	4.24	$4.7 (\nu: 0.7) (+0.0\sigma)$
$\Omega_m$	0.3098	$0.310^{+0.014}_{-0.014} (+0.0\sigma)$	$100\theta_{eq}$	0.8170	$0.8167^{+0.0097}_{-0.0097} (-0.3\sigma)$	$\chi^2_{prior}$	1.8	$11.5 (\nu: 10.1) (+1.2\sigma)$
$\Omega_m h^2$	0.14222	$0.1423^{+0.0022}_{-0.0021} (+0.4\sigma)$	$100\theta_{s,eq}$	0.4513	$0.4511^{+0.0050}_{-0.0050} (-0.4\sigma)$	$\chi^2_{CMB}$	2773.4	$2789.3 (\nu: 17.2) (+292.5\sigma)$
$\Omega_m h^3$	0.09637	$0.09635^{+0.00074}_{-0.00083} (+1.0\sigma)$	$H(0.15)$	73.03	$72.99^{+0.93}_{-0.89} (+0.3\sigma)$	$\chi^2_{BAO}$	5.55	$6.00 (\nu: 0.4) (-0.0\sigma)$
$\sigma_8$	0.8106	$0.810^{+0.016}_{-0.015} (+0.2\sigma)$	$D_M(0.15)$	639.9	$640.3^{+8.9}_{-9.1} (-0.2\sigma)$			

Best-fit  $\chi^2_{eff} = 3815.67$ ;  $\Delta\chi^2_{eff} = 1585.96$ ;  $\bar{\chi}^2_{eff} = 3841.86$ ;  $\Delta\bar{\chi}^2_{eff} = 1592.08$ ;  $R - 1 = 0.01667$

$\chi^2_{eff}$ : BAO - 6DF: 0.02 ( $\Delta$  0.01) MGS: 1.28 ( $\Delta$  -0.06) DR12BAO: 4.24 ( $\Delta$  0.21) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.72 ( $\Delta$  -0.16) simall\_100x143\_offlike5\_EE\_Aplanck: 396.52 ( $\Delta$  0.15) commander\_dx12.v3.2.29: 22.88 ( $\Delta$  0.07) plik\_rd12\_HM.v22b\_TTTEEE: 2345.27 SN - JLA Pantheon18: 1034.97 ( $\Delta$  0.02)



# 2.104 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022510	$0.02250^{+0.00035}_{-0.00035} (+1.0\sigma)$	$S_8$	0.8183	$0.817^{+0.026}_{-0.024} (+0.3\sigma)$	$H(0.38)$	83.29	$83.29^{+0.74}_{-0.65} (+0.1\sigma)$
$\Omega_c h^2$	0.11858	$0.1186^{+0.0022}_{-0.0023} (+0.4\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4482	$0.448^{+0.014}_{-0.013} (+0.3\sigma)$	$D_M(0.38)$	1521.9	$1522^{+17}_{-20} (-0.0\sigma)$
$100\theta_{MC}$	1.04112	$1.04113^{+0.00075}_{-0.00077} (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6025	$0.602^{+0.015}_{-0.013} (+0.3\sigma)$	$H(0.51)$	89.96	$89.96^{+0.61}_{-0.53} (+0.3\sigma)$
$\tau$	0.0586	$0.058^{+0.018}_{-0.017} (-0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9819	$0.981^{+0.022}_{-0.020} (+0.2\sigma)$	$D_M(0.51)$	1972.3	$1972^{+20}_{-23} (-0.1\sigma)$
$\ln(10^{10} A_s)$	3.0505	$3.049^{+0.035}_{-0.035} (+0.1\sigma)$	$r_{drag} h$	100.22	$100.2^{+2.0}_{-1.7} (-0.3\sigma)$	$H(0.61)$	95.544	$95.54^{+0.52}_{-0.46} (+0.4\sigma)$
$n_s$	0.9697	$0.968^{+0.011}_{-0.0096} (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	2.428	$2.429^{+0.052}_{-0.052} (+0.2\sigma)$	$D_M(0.61)$	2295.7	$2296^{+22}_{-25} (-0.1\sigma)$
$y_{cal}$	1.0008	$1.0008^{+0.0060}_{-0.0063} (-0.1\sigma)$	$z_{re}$	8.06	$8.0^{+1.6}_{-1.8} (-0.1\sigma)$	$H(2.33)$	235.78	$235.8^{+1.4}_{-1.3} (+0.7\sigma)$
$A_{217}^{CIB}$	46.0	$47^{+20}_{-20} (-0.1\sigma)$	$10^9 A_s$	2.113	$2.110^{+0.074}_{-0.073} (+0.1\sigma)$	$D_M(2.33)$	5751.9	$5752^{+23}_{-26} (-0.6\sigma)$
$\xi^{tSZ \times CIB}$	0.62	—	$10^9 A_s e^{-2\tau}$	1.8790	$1.878^{+0.026}_{-0.028} (+0.2\sigma)$	$f\sigma_8(0.15)$	0.4532	$0.453^{+0.014}_{-0.013} (+0.3\sigma)$
$A_{143}^{tSZ}$	7.1	—	$D_{40}$	1223.1	$1226^{+30}_{-30} (+0.1\sigma)$	$\sigma_8(0.15)$	0.7490	$0.748^{+0.015}_{-0.014} (+0.1\sigma)$
$A_{100}^{PS}$	248	$258^{+70}_{-80} (-0.1\sigma)$	$D_{220}$	5742	$5747^{+95}_{-96} (+0.3\sigma)$	$f\sigma_8(0.38)$	0.4727	$0.472^{+0.012}_{-0.011} (+0.3\sigma)$
$A_{143}^{PS}$	48.9	$45^{+20}_{-20} (-0.3\sigma)$	$D_{810}$	2541.7	$2540^{+32}_{-34} (+0.1\sigma)$	$\sigma_8(0.38)$	0.6645	$0.664^{+0.013}_{-0.012} (+0.1\sigma)$
$A_{143 \times 217}^{PS}$	51.5	$42^{+20}_{-20} (-0.1\sigma)$	$D_{1420}$	819.9	$819^{+11}_{-12} (+0.3\sigma)$	$f\sigma_8(0.51)$	0.4719	$0.471^{+0.011}_{-0.0099} (+0.2\sigma)$
$A_{217}^{PS}$	121.2	$115^{+30}_{-30} (+0.0\sigma)$	$D_{2000}$	231.96	$231.5^{+3.6}_{-4.0} (+0.5\sigma)$	$\sigma_8(0.51)$	0.6221	$0.621^{+0.012}_{-0.011} (+0.1\sigma)$
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9697	$0.968^{+0.011}_{-0.0096} (-0.0\sigma)$	$f\sigma_8(0.61)$	0.4674	$0.467^{+0.010}_{-0.0097} (+0.2\sigma)$
$A_{100}^{dustTT}$	8.81	$8.8^{+4.4}_{-4.6} (-0.0\sigma)$	$Y_P$	0.245448	$0.24544^{+0.00013}_{-0.00014} (+0.9\sigma)$	$\sigma_8(0.61)$	0.5921	$0.591^{+0.011}_{-0.011} (+0.1\sigma)$
$A_{143}^{dustTT}$	11.03	$10.9^{+4.5}_{-4.2} (+0.1\sigma)$	$Y_P^{BBN}$	0.246775	$0.24677^{+0.00013}_{-0.00014} (+0.9\sigma)$	$f\sigma_8(2.33)$	0.2987	$0.2984^{+0.0056}_{-0.0055} (+0.1\sigma)$
$A_{143 \times 217}^{dustTT}$	20.0	$18.5^{+8.4}_{-8.5} (+0.0\sigma)$	$10^5 D/H$	2.560	$2.562^{+0.066}_{-0.062} (-1.0\sigma)$	$\sigma_8(2.33)$	0.3082	$0.3079^{+0.0059}_{-0.0058} (+0.0\sigma)$
$A_{217}^{dustTT}$	95.3	$93^{+20}_{-20} (+0.0\sigma)$	Age/Gyr	13.772	$13.772^{+0.051}_{-0.059} (-0.6\sigma)$	$f_{2000}^{143}$	28.1	$29^{+7}_{-8} (-0.5\sigma)$
$A_{100}^{dustTE}$	0.115	$0.113^{+0.10}_{-0.091}$	$z_*$	1089.62	$1089.63^{+0.54}_{-0.54} (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	31.51	$32^{+5}_{-5} (-0.6\sigma)$
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.075}_{-0.075}$	$r_*$	144.69	$144.71^{+0.54}_{-0.53} (-0.9\sigma)$	$f_{2000}^{217}$	106.16	$106.7^{+4.5}_{-4.8} (-0.5\sigma)$
$A_{100 \times 217}^{dustTE}$	0.478	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	1.04128	$1.04130^{+0.00073}_{-0.00076} (-0.1\sigma)$	$\chi_{lensing}^2$	8.74	$9.16 (\nu: 0.3) (-0.3\sigma)$
$A_{143}^{dustTE}$	0.224	$0.22^{+0.14}_{-0.15}$	$D_M(z_*)/\text{Gpc}$	13.896	$13.897^{+0.051}_{-0.051} (-0.9\sigma)$	$\chi_{small}^2$	396.92	$397.6 (\nu: 2.3) (-0.1\sigma)$
$A_{143 \times 217}^{dustTE}$	0.664	$0.67^{+0.20}_{-0.22}$	$z_{drag}$	1060.16	$1060.13^{+0.76}_{-0.77} (+1.1\sigma)$	$\chi_{lowl}^2$	22.67	$22.95 (\nu: 0.3) (+0.1\sigma)$
$A_{217}^{dustTE}$	2.07	$2.06^{+0.70}_{-0.72}$	$r_{drag}$	147.31	$147.33^{+0.59}_{-0.55} (-1.0\sigma)$	$\chi_{plik}^2$	2346.2	$2360.6 (\nu: 18.1) (+298.9\sigma)$
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0015} (+0.0\sigma)$	$k_D$	0.14074	$0.14071^{+0.00069}_{-0.00074} (+1.1\sigma)$	$\chi_{H073p45}^2$	10.64	$10.7 (\nu: 1.2) (+0.0\sigma)$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0017} (-0.1\sigma)$	$100\theta_D$	0.160642	$0.16066^{+0.00047}_{-0.00046} (-1.1\sigma)$	$\chi_{JLA}^2$	1034.843	$1034.90 (\nu: 0.0) (+0.1\sigma)$
$H_0$	68.04	$68.0^{+1.2}_{-1.0} (-0.0\sigma)$	$z_{eq}$	3371	$3371^{+51}_{-52} (+0.6\sigma)$	$\chi_{6DF}^2$	0.003	$0.022 (\nu: 0.0) (-0.1\sigma)$
$\Omega_\Lambda$	0.6938	$0.694^{+0.014}_{-0.013} (-0.3\sigma)$	$k_{eq}$	0.010290	$0.01029^{+0.00015}_{-0.00016} (+0.6\sigma)$	$\chi_{MGS}^2$	1.54	$1.60 (\nu: 0.1) (-0.3\sigma)$
$\Omega_m$	0.3062	$0.306^{+0.013}_{-0.014} (+0.3\sigma)$	$100\theta_{eq}$	0.8194	$0.8195^{+0.0098}_{-0.0094} (-0.5\sigma)$	$\chi_{DR12BAO}^2$	3.69	$3.98 (\nu: 0.3) (+0.1\sigma)$
$\Omega_m h^2$	0.14173	$0.1417^{+0.0021}_{-0.0022} (+0.6\sigma)$	$100\theta_{s,eq}$	0.45245	$0.4525^{+0.0051}_{-0.0048} (-0.6\sigma)$	$\chi_{prior}^2$	1.6	$11.6 (\nu: 10.4) (+1.2\sigma)$
$\Omega_m h^3$	0.09643	$0.09641^{+0.00075}_{-0.00078} (+0.9\sigma)$	$H(0.15)$	73.26	$73.3^{+1.0}_{-0.87} (+0.0\sigma)$	$\chi_{CMB}^2$	2774.5	$2790.3 (\nu: 18.3) (+286.3\sigma)$
$\sigma_8$	0.8099	$0.809^{+0.017}_{-0.016} (+0.2\sigma)$	$D_M(0.15)$	637.6	$637.6^{+8.6}_{-9.7} (+0.0\sigma)$	$\chi_{BAO}^2$	5.23	$5.60 (\nu: 0.1) (-0.1\sigma)$

Best-fit  $\chi_{eff}^2 = 3826.83$ ;  $\Delta\chi_{eff}^2 = 1585.82$ ;  $\bar{\chi}_{eff}^2 = 3853.09$ ;  $\Delta\bar{\chi}_{eff}^2 = 1591.83$ ;  $R - 1 = 0.04098$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  0.00) MGS: 1.54 ( $\Delta$  -0.21) DR12BAO: 3.69 ( $\Delta$  0.26) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.74 ( $\Delta$  -0.26) small\_100x143\_offlike5\_EE\_Aplanck: 396.92 ( $\Delta$  0.03) commander\_dx12.v3.2.29: 22.68 ( $\Delta$  0.08) plik\_rd12\_HM.v22b.TTTEEE: 2346.18 Hubble - H073p45: 10.64 ( $\Delta$  0.31) SN - JLA Pantheon18: 1034.84 ( $\Delta$  0.06)



## 2.105 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02238^{+0.00038}_{-0.00037} \quad (+1.1\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09633^{+0.00074}_{-0.00083} \quad (+1.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.013}_{-0.013} \quad (+0.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1199^{+0.0030}_{-0.0030} \quad (-0.1\sigma)$	$\sigma_8$	$0.812^{+0.015}_{-0.014} \quad (+0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4495^{+0.0066}_{-0.0065} \quad (-0.0\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04092^{+0.00079}_{-0.00084} \quad (+0.2\sigma)$	$S_8$	$0.832^{+0.033}_{-0.033} \quad (-0.2\sigma)$	$H(0.15)$	$72.7^{+1.2}_{-1.2} \quad (+0.4\sigma)$
$\tau$	$0.055^{+0.018}_{-0.013} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.018}_{-0.018} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+12}_{-12} \quad (-0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.036}_{-0.028} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.016}_{-0.017} \quad (-0.1\sigma)$	$H(0.38)$	$82.88^{+0.89}_{-0.85} \quad (+0.5\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.011} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.023}_{-0.023} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1533^{+24}_{-24} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0063}_{-0.0062} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}h$	$99.1^{+2.4}_{-2.4} \quad (+0.2\sigma)$	$H(0.51)$	$89.64^{+0.71}_{-0.67} \quad (+0.6\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.447^{+0.055}_{-0.056} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1985^{+27}_{-28} \quad (-0.5\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_{\mathrm{re}}$	$< 9.36 \quad (+0.1\sigma)$	$H(0.61)$	$95.29^{+0.58}_{-0.55} \quad (+0.7\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.4^{+4.5}_{-4.6} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.077}_{-0.058} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2310^{+30}_{-30} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.027}_{-0.027} \quad (+0.1\sigma)$	$H(2.33)$	$236.5^{+1.8}_{-1.8} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{40}$	$1232^{+29}_{-30} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5763^{+26}_{-27} \quad (-0.8\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5735^{+100}_{-99} \quad (+0.5\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.017}_{-0.017} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{810}$	$2539^{+34}_{-33} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.750^{+0.014}_{-0.012} \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{1420}$	$817^{+12}_{-12} \quad (+0.5\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.013}_{-0.014} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$D_{2000}$	$230.9^{+3.9}_{-4.1} \quad (+0.7\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.012}_{-0.0098} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.5}_{-4.4} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.965^{+0.011}_{-0.011} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.476^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.3}_{-8.3} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24540^{+0.00014}_{-0.00015} \quad (+1.1\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.011}_{-0.0091} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00014}_{-0.00015} \quad (+1.1\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.011} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.099}_{-0.093}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.585^{+0.070}_{-0.068} \quad (-1.1\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0086} \quad (+0.2\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.075}_{-0.076}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.796^{+0.058}_{-0.060} \quad (-0.9\sigma)$	$f\sigma_8(2.33)$	$0.2979^{+0.0056}_{-0.0043} \quad (+0.3\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.91^{+0.64}_{-0.67} \quad (-0.9\sigma)$	$\sigma_8(2.33)$	$0.3070^{+0.0061}_{-0.0046} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$r_*$	$144.44^{+0.66}_{-0.69} \quad (-0.4\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.21}$	$100\theta_*$	$1.04110^{+0.00077}_{-0.00083} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.09^{+0.72}_{-0.69}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.874^{+0.063}_{-0.063} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$107.0^{+4.5}_{-4.6} \quad (-0.6\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.95^{+0.78}_{-0.78} \quad (+1.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.22 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}$	$147.10^{+0.68}_{-0.68} \quad (-0.6\sigma)$	$\chi_{\mathrm{small}}^2$	$397.0 \quad (\nu: 1.4) \quad (+0.1\sigma)$
$H_0$	$67.4^{+1.4}_{-1.4} \quad (+0.4\sigma)$	$k_{\mathrm{D}}$	$0.14086^{+0.00076}_{-0.00079} \quad (+0.9\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.53 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.685^{+0.018}_{-0.019} \quad (+0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.16075^{+0.00044}_{-0.00045} \quad (-1.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.3 \quad (\nu: 16.3) \quad (+303.5\sigma)$
$\Omega_{\mathrm{m}}$	$0.315^{+0.019}_{-0.018} \quad (-0.2\sigma)$	$z_{\mathrm{eq}}$	$3401^{+69}_{-67} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.0) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1430^{+0.0029}_{-0.0028} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01038^{+0.00021}_{-0.00020} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.0 \quad (\nu: 16.6) \quad (+293.2\sigma)$

$\bar{\chi}_{\mathrm{eff}}^2 = 2800.50$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.34$ ;  $R - 1 = 0.01006$



## 2.106 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02242^{+0.00034}_{-0.00035} \quad (+1.1\sigma)$	$S_8$	$0.825^{+0.027}_{-0.027} \quad (+0.1\sigma)$	$H(0.38)$	$83.06^{+0.71}_{-0.68} \quad (+0.4\sigma)$
$\Omega_c h^2$	$0.1193^{+0.0023}_{-0.0024} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.452^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$D_M(0.38)$	$1528^{+18}_{-19} \quad (-0.3\sigma)$
$100\theta_{MC}$	$1.04101^{+0.00076}_{-0.00080} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.605^{+0.015}_{-0.014} \quad (+0.1\sigma)$	$H(0.51)$	$89.78^{+0.57}_{-0.55} \quad (+0.5\sigma)$
$\tau$	$0.057^{+0.017}_{-0.014} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.021}_{-0.021} \quad (+0.0\sigma)$	$D_M(0.51)$	$1980^{+22}_{-22} \quad (-0.3\sigma)$
$\ln(10^{10} A_s)$	$3.048^{+0.036}_{-0.029} \quad (+0.2\sigma)$	$r_{drag} h$	$99.6^{+1.8}_{-1.8} \quad (-0.0\sigma)$	$H(0.61)$	$95.39^{+0.48}_{-0.47} \quad (+0.7\sigma)$
$n_s$	$0.9666^{+0.0097}_{-0.0097} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.054}_{-0.052} \quad (+0.1\sigma)$	$D_M(0.61)$	$2304^{+23}_{-24} \quad (-0.4\sigma)$
$y_{cal}$	$1.0007^{+0.0062}_{-0.0061} \quad (+0.0\sigma)$	$z_{re}$	$< 9.48 \quad (+0.0\sigma)$	$H(2.33)$	$236.2^{+1.4}_{-1.4} \quad (+0.5\sigma)$
$A_{217}^{CIB}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s$	$2.106^{+0.076}_{-0.061} \quad (+0.2\sigma)$	$D_M(2.33)$	$5759^{+23}_{-22} \quad (-0.8\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s e^{-2\tau}$	$1.881^{+0.027}_{-0.026} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.014}_{-0.014} \quad (+0.1\sigma)$
$A_{143}^{tSZ}$	$> 0.817 \quad (+0.2\sigma)$	$D_{40}$	$1229^{+29}_{-31} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.015}_{-0.012} \quad (+0.2\sigma)$
$A_{100}^{PS}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5740^{+100}_{-99} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.012}_{-0.012} \quad (+0.1\sigma)$
$A_{143}^{PS}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2540^{+33}_{-33} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.010} \quad (+0.2\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+11}_{-12} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.011}_{-0.011} \quad (+0.1\sigma)$
$A_{217}^{PS}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.1^{+3.7}_{-3.9} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0096} \quad (+0.2\sigma)$
$A^{kSZ}$	—	$n_{s,0.002}$	$0.9666^{+0.0097}_{-0.0097} \quad (+0.1\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.010}_{-0.0099} \quad (+0.1\sigma)$
$A_{100}^{dustTT}$	$8.9^{+4.4}_{-4.7} \quad (-0.0\sigma)$	$Y_P$	$0.24541^{+0.00013}_{-0.00014} \quad (+1.1\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0092} \quad (+0.2\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.5}_{-4.3} \quad (+0.1\sigma)$	$Y_P^{BBN}$	$0.24674^{+0.00013}_{-0.00014} \quad (+1.1\sigma)$	$f\sigma_8(2.33)$	$0.2982^{+0.0057}_{-0.0046} \quad (+0.2\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.5^{+8.3}_{-8.7} \quad (+0.1\sigma)$	$10^5 D/H$	$2.576^{+0.065}_{-0.061} \quad (-1.1\sigma)$	$\sigma_8(2.33)$	$0.3074^{+0.0059}_{-0.0048} \quad (+0.2\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	Age/Gyr	$13.786^{+0.053}_{-0.050} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100}^{dustTE}$	$0.114^{+0.10}_{-0.092}$	$z_*$	$1089.79^{+0.55}_{-0.56} \quad (-0.9\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.073}_{-0.077}$	$r_*$	$144.57^{+0.56}_{-0.55} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.9^{+4.3}_{-4.9} \quad (-0.5\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04119^{+0.00074}_{-0.00079} \quad (+0.0\sigma)$	$\chi_{lensing}^2$	$9.08 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$13.885^{+0.054}_{-0.053} \quad (-0.7\sigma)$	$\chi_{small}^2$	$397.2 \quad (\nu: 1.7) \quad (+0.0\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.67^{+0.20}_{-0.21}$	$z_{drag}$	$1060.01^{+0.72}_{-0.76} \quad (+1.2\sigma)$	$\chi_{lowl}^2$	$23.25 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$A_{217}^{dustTE}$	$2.08^{+0.69}_{-0.71}$	$r_{drag}$	$147.22^{+0.58}_{-0.57} \quad (-0.9\sigma)$	$\chi_{plik}^2$	$2359.5 \quad (\nu: 16.8) \quad (+304.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$k_D$	$0.14078^{+0.00069}_{-0.00076} \quad (+1.1\sigma)$	$\chi_{6DF}^2$	$0.052 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017} \quad (-0.1\sigma)$	$100\theta_D$	$0.16072^{+0.00045}_{-0.00043} \quad (-1.2\sigma)$	$\chi_{MGS}^2$	$1.25 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$H_0$	$67.7^{+1.1}_{-1.1} \quad (+0.2\sigma)$	$z_{eq}$	$3387^{+53}_{-52} \quad (+0.4\sigma)$	$\chi_{DR12BAO}^2$	$4.8 \quad (\nu: 0.8) \quad (-0.0\sigma)$
$\Omega_\Lambda$	$0.689^{+0.014}_{-0.014} \quad (+0.0\sigma)$	$k_{eq}$	$0.01034^{+0.00016}_{-0.00016} \quad (+0.4\sigma)$	$\chi_{prior}^2$	$11.5 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$\Omega_m$	$0.311^{+0.014}_{-0.014} \quad (-0.0\sigma)$	$100\theta_{eq}$	$0.816^{+0.010}_{-0.0098} \quad (-0.3\sigma)$	$\chi_{CMB}^2$	$2789.1 \quad (\nu: 16.9) \quad (+295.0\sigma)$
$\Omega_m h^2$	$0.1424^{+0.0022}_{-0.0022} \quad (+0.4\sigma)$	$100\theta_{s,eq}$	$0.4509^{+0.0051}_{-0.0050} \quad (-0.3\sigma)$	$\chi_{BAO}^2$	$6.1 \quad (\nu: 0.5) \quad (-0.0\sigma)$
$\Omega_m h^3$	$0.09635^{+0.00074}_{-0.00082} \quad (+1.0\sigma)$	$H(0.15)$	$72.95^{+0.95}_{-0.92} \quad (+0.3\sigma)$		
$\sigma_8$	$0.811^{+0.016}_{-0.014} \quad (+0.2\sigma)$	$D_M(0.15)$	$640.7^{+9.2}_{-9.2} \quad (-0.3\sigma)$		

$$\bar{\chi}_{eff}^2 = 2806.72; \Delta \bar{\chi}_{eff}^2 = 1592.15; R - 1 = 0.01624$$



2.107 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02248^{+0.00042}_{-0.00037} \quad (+0.8\sigma)$	$\sigma_8$	$0.810^{+0.016}_{-0.014} \quad (+0.2\sigma)$	$H(0.15)$	$73.2^{+1.2}_{-1.1} \quad (-0.2\sigma)$
$\Omega_c h^2$	$0.1188^{+0.0028}_{-0.0026} \quad (+0.5\sigma)$	$S_8$	$0.820^{+0.032}_{-0.028} \quad (+0.4\sigma)$	$D_M(0.15)$	$638^{+11}_{-11} \quad (+0.2\sigma)$
$100\theta_{MC}$	$1.04110^{+0.00082}_{-0.00082} \quad (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.449^{+0.017}_{-0.015} \quad (+0.4\sigma)$	$H(0.38)$	$83.23^{+0.91}_{-0.81} \quad (-0.1\sigma)$
$\tau$	$0.058^{+0.018}_{-0.014} \quad (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.603^{+0.016}_{-0.014} \quad (+0.3\sigma)$	$D_M(0.38)$	$1524^{+22}_{-23} \quad (+0.1\sigma)$
$\ln(10^{10} A_s)$	$3.049^{+0.034}_{-0.031} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.982^{+0.023}_{-0.022} \quad (+0.3\sigma)$	$H(0.51)$	$89.91^{+0.76}_{-0.65} \quad (+0.0\sigma)$
$n_s$	$0.968^{+0.011}_{-0.011} \quad (-0.1\sigma)$	$r_{drag} h$	$100.1^{+2.2}_{-2.2} \quad (-0.4\sigma)$	$D_M(0.51)$	$1974^{+26}_{-28} \quad (+0.1\sigma)$
$y_{cal}$	$1.0008^{+0.0061}_{-0.0063} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.056}_{-0.053} \quad (+0.3\sigma)$	$H(0.61)$	$95.51^{+0.64}_{-0.54} \quad (+0.2\sigma)$
$A_{217}^{CIB}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$z_{re}$	$< 9.57 \quad (-0.2\sigma)$	$D_M(0.61)$	$2298^{+28}_{-30} \quad (+0.1\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s$	$2.110^{+0.073}_{-0.065} \quad (-0.0\sigma)$	$H(2.33)$	$235.9^{+1.7}_{-1.6} \quad (+0.7\sigma)$
$A_{143}^{tSZ}$	$> 0.820 \quad (+0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.879^{+0.027}_{-0.029} \quad (+0.3\sigma)$	$D_M(2.33)$	$5754^{+26}_{-30} \quad (-0.3\sigma)$
$A_{100}^{PS}$	$258^{+70}_{-70} \quad (-0.1\sigma)$	$D_{40}$	$1227^{+29}_{-31} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.454^{+0.016}_{-0.014} \quad (+0.4\sigma)$
$A_{143}^{PS}$	$45^{+20}_{-20} \quad (-0.3\sigma)$	$D_{220}$	$5746^{+96}_{-98} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.015}_{-0.012} \quad (+0.2\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2540^{+32}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.473^{+0.013}_{-0.012} \quad (+0.4\sigma)$
$A_{217}^{PS}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$819^{+12}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.011} \quad (+0.1\sigma)$
$A^{kSZ}$	—	$D_{2000}$	$231.5^{+4.1}_{-4.0} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.012}_{-0.011} \quad (+0.3\sigma)$
$A_{100}^{dustTT}$	$8.8^{+4.5}_{-5.2} \quad (-0.1\sigma)$	$n_{s,0.002}$	$0.968^{+0.011}_{-0.011} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.012}_{-0.010} \quad (+0.1\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.5}_{-4.2} \quad (+0.1\sigma)$	$Y_P$	$0.24544^{+0.00017}_{-0.00015} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.010} \quad (+0.3\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.5^{+8.4}_{-8.5} \quad (+0.0\sigma)$	$Y_P^{BBN}$	$0.24676^{+0.00017}_{-0.00015} \quad (+0.8\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.011}_{-0.0098} \quad (+0.1\sigma)$
$A_{217}^{dustTT}$	$93^{+20}_{-20} \quad (-0.0\sigma)$	$10^5 D/H$	$2.565^{+0.070}_{-0.075} \quad (-0.8\sigma)$	$f\sigma_8(2.33)$	$0.2984^{+0.0055}_{-0.0049} \quad (+0.0\sigma)$
$A_{100}^{dustTE}$	$0.114^{+0.10}_{-0.091}$	Age/Gyr	$13.776^{+0.058}_{-0.067} \quad (-0.4\sigma)$	$\sigma_8(2.33)$	$0.3078^{+0.0058}_{-0.0051} \quad (-0.1\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.074}_{-0.076}$	$z_*$	$1089.67^{+0.62}_{-0.63} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-8} \quad (-0.5\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.21}$	$r_*$	$144.66^{+0.62}_{-0.64} \quad (-0.9\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.5\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.15}$	$100\theta_*$	$1.04127^{+0.00081}_{-0.00081} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.7^{+4.5}_{-4.9} \quad (-0.4\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.67^{+0.20}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	$13.893^{+0.057}_{-0.060} \quad (-0.8\sigma)$	$\chi_{lensing}^2$	$9.15 \quad (\nu: 0.2) \quad (-0.4\sigma)$
$A_{217}^{dustTE}$	$2.06^{+0.70}_{-0.71}$	$z_{drag}$	$1060.11^{+0.77}_{-0.79} \quad (+1.0\sigma)$	$\chi_{small}^2$	$397.5 \quad (\nu: 2.2) \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.0\sigma)$	$r_{drag}$	$147.29^{+0.63}_{-0.64} \quad (-1.0\sigma)$	$\chi_{lowl}^2$	$23.05 \quad (\nu: 0.4) \quad (+0.2\sigma)$
$c_{217}$	$0.9982^{+0.0018}_{-0.0017} \quad (-0.1\sigma)$	$k_D$	$0.14075^{+0.00072}_{-0.00076} \quad (+1.1\sigma)$	$\chi_{plik}^2$	$2360.4 \quad (\nu: 18.4) \quad (+288.4\sigma)$
$H_0$	$67.9^{+1.4}_{-1.3} \quad (-0.2\sigma)$	$100\theta_D$	$0.16067^{+0.00046}_{-0.00046} \quad (-1.0\sigma)$	$\chi_{H073p45}^2$	$11.1 \quad (\nu: 2.0) \quad (+0.2\sigma)$
$\Omega_\Lambda$	$0.692^{+0.016}_{-0.017} \quad (-0.3\sigma)$	$z_{eq}$	$3376^{+64}_{-57} \quad (+0.6\sigma)$	$\chi_{prior}^2$	$11.6 \quad (\nu: 10.4) \quad (+1.2\sigma)$
$\Omega_m$	$0.308^{+0.017}_{-0.016} \quad (+0.3\sigma)$	$k_{eq}$	$0.01030^{+0.00019}_{-0.00017} \quad (+0.6\sigma)$	$\chi_{CMB}^2$	$2790.1 \quad (\nu: 18.7) \quad (+268.3\sigma)$
$\Omega_m h^2$	$0.1419^{+0.0027}_{-0.0024} \quad (+0.6\sigma)$	$100\theta_{eq}$	$0.819^{+0.011}_{-0.012} \quad (-0.5\sigma)$		
$\Omega_m h^3$	$0.09641^{+0.00075}_{-0.00079} \quad (+0.9\sigma)$	$100\theta_{s,eq}$	$0.4520^{+0.0058}_{-0.0061} \quad (-0.6\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2812.87; \Delta \bar{\chi}_{\text{eff}}^2 = 1591.80; R - 1 = 0.03339$$



2.108 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02249^{+0.00035}_{-0.00035} (+1.0\sigma)$	$S_8$	$0.818^{+0.027}_{-0.025} (+0.3\sigma)$	$H(0.38)$	$83.28^{+0.76}_{-0.66} (+0.1\sigma)$
$\Omega_c h^2$	$0.1186^{+0.0023}_{-0.0024} (+0.4\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.448^{+0.015}_{-0.014} (+0.3\sigma)$	$D_M(0.38)$	$1522^{+18}_{-20} (-0.0\sigma)$
$100\theta_{MC}$	$1.04112^{+0.00076}_{-0.00077} (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.602^{+0.015}_{-0.014} (+0.3\sigma)$	$H(0.51)$	$89.95^{+0.62}_{-0.54} (+0.3\sigma)$
$\tau$	$0.058^{+0.017}_{-0.014} (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.981^{+0.022}_{-0.021} (+0.2\sigma)$	$D_M(0.51)$	$1973^{+21}_{-24} (-0.0\sigma)$
$\ln(10^{10} A_s)$	$3.050^{+0.034}_{-0.032} (+0.1\sigma)$	$r_{\text{drag}} h$	$100.2^{+2.0}_{-1.7} (-0.3\sigma)$	$H(0.61)$	$95.53^{+0.53}_{-0.46} (+0.4\sigma)$
$n_s$	$0.968^{+0.011}_{-0.0098} (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.430^{+0.052}_{-0.051} (+0.2\sigma)$	$D_M(0.61)$	$2296^{+23}_{-26} (-0.1\sigma)$
$y_{\text{cal}}$	$1.0008^{+0.0061}_{-0.0063} (-0.1\sigma)$	$z_{\text{re}}$	$< 9.57 (-0.1\sigma)$	$H(2.33)$	$235.8^{+1.4}_{-1.4} (+0.7\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} (-0.1\sigma)$	$10^9 A_s$	$2.111^{+0.073}_{-0.066} (+0.1\sigma)$	$D_M(2.33)$	$5752^{+23}_{-27} (-0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_s e^{-2\tau}$	$1.879^{+0.027}_{-0.028} (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.453^{+0.014}_{-0.013} (+0.3\sigma)$
$A_{143}^{\text{tSZ}}$	—	$D_{40}$	$1226^{+30}_{-30} (+0.2\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.013} (+0.1\sigma)$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70} (-0.1\sigma)$	$D_{220}$	$5747^{+96}_{-96} (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.012}_{-0.011} (+0.3\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} (-0.3\sigma)$	$D_{810}$	$2540^{+32}_{-34} (+0.2\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.011} (+0.1\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} (-0.1\sigma)$	$D_{1420}$	$819^{+11}_{-12} (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.010} (+0.2\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} (+0.0\sigma)$	$D_{2000}$	$231.5^{+3.6}_{-4.0} (+0.5\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.012}_{-0.011} (+0.1\sigma)$
$A^{\text{kSZ}}$	—	$n_{s,0.002}$	$0.968^{+0.011}_{-0.0098} (-0.0\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.010}_{-0.0096} (+0.2\sigma)$
$A_{100}^{\text{dustTT}}$	$8.8^{+4.4}_{-4.7} (-0.0\sigma)$	$Y_P$	$0.24544^{+0.00013}_{-0.00014} (+0.9\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.011}_{-0.010} (+0.1\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.5}_{-4.2} (+0.1\sigma)$	$Y_P^{\text{BBN}}$	$0.24677^{+0.00013}_{-0.00014} (+0.9\sigma)$	$f\sigma_8(2.33)$	$0.2985^{+0.0056}_{-0.0050} (+0.1\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.5^{+8.4}_{-8.6} (+0.1\sigma)$	$10^5 D/H$	$2.563^{+0.066}_{-0.063} (-0.9\sigma)$	$\sigma_8(2.33)$	$0.3079^{+0.0057}_{-0.0051} (+0.0\sigma)$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20} (+0.0\sigma)$	$\text{Age/Gyr}$	$13.773^{+0.052}_{-0.060} (-0.6\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-8} (-0.5\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.091}$	$z_*$	$1089.65^{+0.54}_{-0.55} (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} (-0.6\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.074}_{-0.076}$	$r_*$	$144.69^{+0.56}_{-0.54} (-0.9\sigma)$	$f_{2000}^{217}$	$106.7^{+4.5}_{-4.9} (-0.5\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	$1.04129^{+0.00074}_{-0.00076} (-0.1\sigma)$	$\chi_{\text{lensing}}^2$	$9.13 (\nu: 0.2) (-0.3\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.15}$	$D_M(z_*)/\text{Gpc}$	$13.896^{+0.052}_{-0.052} (-0.8\sigma)$	$\chi_{\text{small}}^2$	$397.6 (\nu: 2.3) (-0.1\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.67^{+0.20}_{-0.22}$	$z_{\text{drag}}$	$1060.12^{+0.76}_{-0.76} (+1.1\sigma)$	$\chi_{\text{lowl}}^2$	$22.98 (\nu: 0.3) (+0.1\sigma)$
$A_{217}^{\text{dustTE}}$	$2.06^{+0.70}_{-0.72}$	$r_{\text{drag}}$	$147.32^{+0.60}_{-0.56} (-1.0\sigma)$	$\chi_{\text{plik}}^2$	$2360.5 (\nu: 17.9) (+299.2\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} (+0.0\sigma)$	$k_D$	$0.14072^{+0.00068}_{-0.00074} (+1.1\sigma)$	$\chi_{\text{H073p45}}^2$	$10.8 (\nu: 1.3) (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0017} (-0.1\sigma)$	$100\theta_D$	$0.16066^{+0.00046}_{-0.00046} (-1.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.024 (\nu: 0.0) (-0.1\sigma)$
$H_0$	$68.0^{+1.2}_{-1.0} (-0.0\sigma)$	$z_{\text{eq}}$	$3372^{+51}_{-51} (+0.6\sigma)$	$\chi_{\text{MGS}}^2$	$1.57 (\nu: 0.1) (-0.3\sigma)$
$\Omega_\Lambda$	$0.693^{+0.015}_{-0.014} (-0.2\sigma)$	$k_{\text{eq}}$	$0.01029^{+0.00016}_{-0.00015} (+0.6\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.04 (\nu: 0.3) (+0.1\sigma)$
$\Omega_m$	$0.307^{+0.014}_{-0.015} (+0.2\sigma)$	$100\theta_{\text{eq}}$	$0.819^{+0.010}_{-0.0097} (-0.5\sigma)$	$\chi_{\text{prior}}^2$	$11.6 (\nu: 10.4) (+1.2\sigma)$
$\Omega_m h^2$	$0.1418^{+0.0022}_{-0.0021} (+0.6\sigma)$	$100\theta_{s,\text{eq}}$	$0.4524^{+0.0049}_{-0.0049} (-0.5\sigma)$	$\chi_{\text{CMB}}^2$	$2790.1 (\nu: 18.0) (+286.9\sigma)$
$\Omega_m h^3$	$0.09641^{+0.00075}_{-0.00078} (+0.9\sigma)$	$H(0.15)$	$73.2^{+1.0}_{-0.88} (+0.0\sigma)$	$\chi_{\text{BAO}}^2$	$5.64 (\nu: 0.2) (-0.1\sigma)$
$\sigma_8$	$0.809^{+0.016}_{-0.014} (+0.2\sigma)$	$D_M(0.15)$	$637.8^{+8.8}_{-10} (+0.0\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2818.15; \Delta \bar{\chi}_{\text{eff}}^2 = 1591.80; R - 1 = 0.03902$$



**2.109 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_Pantheon18\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02240^{+0.00036}_{-0.00036} (+1.1\sigma)$	$\sigma_8$	$0.811^{+0.015}_{-0.014} (+0.1\sigma)$	$H(0.15)$	$72.8^{+1.1}_{-1.1} (+0.3\sigma)$
$\Omega_c h^2$	$0.1197^{+0.0029}_{-0.0028} (+0.0\sigma)$	$S_8$	$0.829^{+0.032}_{-0.031} (-0.1\sigma)$	$D_M(0.15)$	$642^{+11}_{-11} (-0.3\sigma)$
$100\theta_{MC}$	$1.04095^{+0.00079}_{-0.00082} (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.454^{+0.017}_{-0.017} (-0.1\sigma)$	$H(0.38)$	$82.95^{+0.84}_{-0.81} (+0.4\sigma)$
$\tau$	$0.056^{+0.018}_{-0.014} (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.607^{+0.016}_{-0.016} (+0.0\sigma)$	$D_M(0.38)$	$1531^{+22}_{-23} (-0.3\sigma)$
$\ln(10^{10} A_s)$	$3.047^{+0.036}_{-0.028} (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.987^{+0.022}_{-0.023} (-0.0\sigma)$	$H(0.51)$	$89.69^{+0.68}_{-0.65} (+0.5\sigma)$
$n_s$	$0.966^{+0.011}_{-0.011} (+0.2\sigma)$	$r_{drag} h$	$99.3^{+2.3}_{-2.2} (+0.1\sigma)$	$D_M(0.51)$	$1983^{+26}_{-27} (-0.4\sigma)$
$y_{cal}$	$1.0007^{+0.0063}_{-0.0062} (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.444^{+0.054}_{-0.056} (+0.0\sigma)$	$H(0.61)$	$95.33^{+0.55}_{-0.53} (+0.6\sigma)$
$A_{217}^{CIB}$	$47^{+20}_{-20} (-0.1\sigma)$	$z_{re}$	$< 9.40 (+0.1\sigma)$	$D_M(0.61)$	$2307^{+28}_{-29} (-0.4\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s$	$2.105^{+0.077}_{-0.059} (+0.2\sigma)$	$H(2.33)$	$236.4^{+1.7}_{-1.7} (+0.3\sigma)$
$A_{143}^{tSZ}$	$5.4^{+4.6}_{-4.6} (+0.2\sigma)$	$10^9 A_s e^{-2\tau}$	$1.882^{+0.027}_{-0.026} (+0.2\sigma)$	$D_M(2.33)$	$5761^{+26}_{-25} (-0.8\sigma)$
$A_{100}^{PS}$	$259^{+70}_{-70} (-0.2\sigma)$	$D_{40}$	$1231^{+30}_{-31} (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.016}_{-0.016} (-0.0\sigma)$
$A_{143}^{PS}$	$46^{+20}_{-20} (-0.3\sigma)$	$D_{220}$	$5737^{+100}_{-97} (+0.4\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.012} (+0.2\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} (-0.1\sigma)$	$D_{810}$	$2539^{+33}_{-33} (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.013}_{-0.013} (-0.0\sigma)$
$A_{217}^{PS}$	$115^{+30}_{-30} (+0.0\sigma)$	$D_{1420}$	$817^{+12}_{-12} (+0.5\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.0098} (+0.2\sigma)$
$A^{kSZ}$	—	$D_{2000}$	$231.0^{+3.9}_{-4.0} (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.011}_{-0.012} (+0.0\sigma)$
$A_{100}^{dustTT}$	$8.9^{+4.4}_{-4.7} (-0.0\sigma)$	$n_{s,0.002}$	$0.966^{+0.011}_{-0.011} (+0.2\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0092} (+0.2\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.5}_{-4.3} (+0.1\sigma)$	$Y_P$	$0.24540^{+0.00013}_{-0.00015} (+1.1\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.010}_{-0.010} (+0.0\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.5^{+8.3}_{-8.6} (+0.1\sigma)$	$Y_P^{BBN}$	$0.24673^{+0.00014}_{-0.00015} (+1.1\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0087} (+0.2\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} (+0.0\sigma)$	$10^5 D/H$	$2.581^{+0.067}_{-0.065} (-1.1\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0057}_{-0.0044} (+0.2\sigma)$
$A_{100}^{dustTE}$	$0.114^{+0.10}_{-0.092}$	Age/Gyr	$13.793^{+0.058}_{-0.057} (-0.8\sigma)$	$\sigma_8(2.33)$	$0.3072^{+0.0060}_{-0.0047} (+0.2\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.073}_{-0.079}$	$z_*$	$1089.86^{+0.62}_{-0.63} (-0.9\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} (-0.5\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.23}$	$r_*$	$144.49^{+0.64}_{-0.65} (-0.5\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} (-0.6\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.04113^{+0.00078}_{-0.00081} (+0.1\sigma)$	$f_{2000}^{217}$	$107.0^{+4.3}_{-4.9} (-0.5\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.67^{+0.20}_{-0.21}$	$D_M(z_*)/\text{Gpc}$	$13.878^{+0.060}_{-0.061} (-0.6\sigma)$	$\chi_{lensing}^2$	$9.16 (\nu: 0.2) (-0.2\sigma)$
$A_{217}^{dustTE}$	$2.08^{+0.69}_{-0.71}$	$z_{drag}$	$1059.97^{+0.76}_{-0.77} (+1.2\sigma)$	$\chi_{small}^2$	$397.1 (\nu: 1.5) (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} (+0.1\sigma)$	$r_{drag}$	$147.14^{+0.64}_{-0.66} (-0.7\sigma)$	$\chi_{lowl}^2$	$23.42 (\nu: 0.4) (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} (-0.1\sigma)$	$k_D$	$0.14083^{+0.00072}_{-0.00081} (+1.0\sigma)$	$\chi_{plik}^2$	$2359.4 (\nu: 16.8) (+303.1\sigma)$
$H_0$	$67.5^{+1.3}_{-1.3} (+0.3\sigma)$	$100\theta_D$	$0.16074^{+0.00045}_{-0.00044} (-1.2\sigma)$	$\chi_{JLA}^2$	$1035.25 (\nu: 0.1) (-0.2\sigma)$
$\Omega_\Lambda$	$0.687^{+0.017}_{-0.018} (+0.1\sigma)$	$z_{eq}$	$3396^{+65}_{-63} (+0.2\sigma)$	$\chi_{prior}^2$	$11.5 (\nu: 10.0) (+1.2\sigma)$
$\Omega_m$	$0.313^{+0.018}_{-0.017} (-0.1\sigma)$	$k_{eq}$	$0.01036^{+0.00020}_{-0.00019} (+0.2\sigma)$	$\chi_{CMB}^2$	$2789.0 (\nu: 17.0) (+293.6\sigma)$
$\Omega_m h^2$	$0.1427^{+0.0027}_{-0.0026} (+0.2\sigma)$	$100\theta_{eq}$	$0.815^{+0.012}_{-0.012} (-0.1\sigma)$		
$\Omega_m h^3$	$0.09634^{+0.00075}_{-0.00084} (+1.0\sigma)$	$100\theta_{s,eq}$	$0.4501^{+0.0063}_{-0.0062} (-0.1\sigma)$		

$$\bar{\chi}_{eff}^2 = 3835.82; \Delta \bar{\chi}_{eff}^2 = 1592.20; R - 1 = 0.01272$$



2.110 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_JLA\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02250^{+0.00035}_{-0.00036} (+1.0\sigma)$	$S_8$	$0.818^{+0.027}_{-0.025} (+0.3\sigma)$	$H(0.38)$	$83.29^{+0.75}_{-0.66} (+0.1\sigma)$
$\Omega_c h^2$	$0.1186^{+0.0022}_{-0.0023} (+0.4\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.448^{+0.015}_{-0.014} (+0.3\sigma)$	$D_M(0.38)$	$1522^{+18}_{-20} (-0.0\sigma)$
$100\theta_{MC}$	$1.04112^{+0.00079}_{-0.00076} (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.602^{+0.015}_{-0.013} (+0.3\sigma)$	$H(0.51)$	$89.96^{+0.61}_{-0.54} (+0.3\sigma)$
$\tau$	$0.058^{+0.017}_{-0.015} (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.981^{+0.022}_{-0.020} (+0.2\sigma)$	$D_M(0.51)$	$1972^{+21}_{-23} (-0.0\sigma)$
$\ln(10^{10} A_s)$	$3.050^{+0.034}_{-0.032} (+0.0\sigma)$	$r_{drag} h$	$100.2^{+2.0}_{-1.7} (-0.3\sigma)$	$H(0.61)$	$95.54^{+0.53}_{-0.46} (+0.4\sigma)$
$n_s$	$0.968^{+0.011}_{-0.0097} (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.430^{+0.052}_{-0.051} (+0.2\sigma)$	$D_M(0.61)$	$2296^{+22}_{-25} (-0.1\sigma)$
$y_{cal}$	$1.0008^{+0.0061}_{-0.0063} (-0.1\sigma)$	$z_{re}$	$< 9.57 (-0.1\sigma)$	$H(2.33)$	$235.8^{+1.4}_{-1.3} (+0.7\sigma)$
$A_{217}^{CIB}$	$47^{+20}_{-20} (-0.1\sigma)$	$10^9 A_s$	$2.111^{+0.073}_{-0.067} (+0.0\sigma)$	$D_M(2.33)$	$5752^{+23}_{-26} (-0.5\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s e^{-2\tau}$	$1.878^{+0.027}_{-0.028} (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.453^{+0.014}_{-0.013} (+0.3\sigma)$
$A_{143}^{tSZ}$	—	$D_{40}$	$1226^{+30}_{-30} (+0.2\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.013} (+0.1\sigma)$
$A_{100}^{PS}$	$258^{+70}_{-80} (-0.1\sigma)$	$D_{220}$	$5747^{+96}_{-96} (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.012}_{-0.011} (+0.3\sigma)$
$A_{143}^{PS}$	$45^{+20}_{-20} (-0.3\sigma)$	$D_{810}$	$2540^{+32}_{-34} (+0.1\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.011} (+0.1\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} (-0.1\sigma)$	$D_{1420}$	$819^{+11}_{-12} (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.0098} (+0.3\sigma)$
$A_{217}^{PS}$	$115^{+30}_{-30} (+0.0\sigma)$	$D_{2000}$	$231.5^{+3.6}_{-4.0} (+0.5\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.012}_{-0.011} (+0.1\sigma)$
$A^{kSZ}$	—	$n_{s,0.002}$	$0.968^{+0.011}_{-0.0097} (-0.0\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.010}_{-0.0094} (+0.2\sigma)$
$A_{100}^{dustTT}$	$8.8^{+4.4}_{-4.6} (-0.0\sigma)$	$Y_P$	$0.24544^{+0.00013}_{-0.00014} (+0.9\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.011}_{-0.010} (+0.1\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.5}_{-4.2} (+0.1\sigma)$	$Y_P^{BBN}$	$0.24677^{+0.00013}_{-0.00014} (+0.9\sigma)$	$f\sigma_8(2.33)$	$0.2985^{+0.0055}_{-0.0050} (+0.0\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.5^{+8.4}_{-8.6} (+0.0\sigma)$	$10^5 D/H$	$2.563^{+0.066}_{-0.062} (-0.9\sigma)$	$\sigma_8(2.33)$	$0.3080^{+0.0058}_{-0.0052} (+0.0\sigma)$
$A_{217}^{dustTT}$	$93^{+20}_{-20} (+0.0\sigma)$	Age/Gyr	$13.772^{+0.052}_{-0.059} (-0.6\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-8} (-0.5\sigma)$
$A_{100}^{dustTE}$	$0.114^{+0.10}_{-0.091}$	$z_*$	$1089.64^{+0.54}_{-0.54} (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} (-0.6\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.074}_{-0.076}$	$r_*$	$144.70^{+0.55}_{-0.54} (-0.9\sigma)$	$f_{2000}^{217}$	$106.6^{+4.5}_{-4.8} (-0.5\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	$1.04130^{+0.00077}_{-0.00076} (-0.1\sigma)$	$\chi_{lensing}^2$	$9.13 (\nu: 0.2) (-0.3\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.15}$	$D_M(z_*)/\text{Gpc}$	$13.896^{+0.052}_{-0.052} (-0.9\sigma)$	$\chi_{small}^2$	$397.6 (\nu: 2.3) (-0.1\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.67^{+0.20}_{-0.22}$	$z_{drag}$	$1060.13^{+0.76}_{-0.77} (+1.1\sigma)$	$\chi_{lowl}^2$	$22.96 (\nu: 0.3) (+0.1\sigma)$
$A_{217}^{dustTE}$	$2.06^{+0.70}_{-0.72}$	$r_{drag}$	$147.33^{+0.59}_{-0.56} (-1.0\sigma)$	$\chi_{plik}^2$	$2360.5 (\nu: 18.0) (+299.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} (+0.0\sigma)$	$k_D$	$0.14071^{+0.00069}_{-0.00074} (+1.1\sigma)$	$\chi_{H073p45}^2$	$10.7 (\nu: 1.2) (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0017} (-0.1\sigma)$	$100\theta_D$	$0.16066^{+0.00046}_{-0.00046} (-1.1\sigma)$	$\chi_{JLA}^2$	$706.64 (\nu: 0.0) (+0.2\sigma)$
$H_0$	$68.0^{+1.2}_{-1.0} (-0.1\sigma)$	$z_{eq}$	$3371^{+51}_{-52} (+0.6\sigma)$	$\chi_{6DF}^2$	$0.023 (\nu: 0.0) (-0.1\sigma)$
$\Omega_\Lambda$	$0.694^{+0.015}_{-0.014} (-0.3\sigma)$	$k_{eq}$	$0.01029^{+0.00016}_{-0.00016} (+0.6\sigma)$	$\chi_{MGS}^2$	$1.60 (\nu: 0.1) (-0.3\sigma)$
$\Omega_m$	$0.306^{+0.014}_{-0.015} (+0.3\sigma)$	$100\theta_{eq}$	$0.8194^{+0.0098}_{-0.0095} (-0.5\sigma)$	$\chi_{DR12BAO}^2$	$4.00 (\nu: 0.3) (+0.1\sigma)$
$\Omega_m h^2$	$0.1417^{+0.0021}_{-0.0022} (+0.6\sigma)$	$100\theta_{s,eq}$	$0.4525^{+0.0051}_{-0.0049} (-0.6\sigma)$	$\chi_{prior}^2$	$11.6 (\nu: 10.4) (+1.2\sigma)$
$\Omega_m h^3$	$0.09641^{+0.00075}_{-0.00078} (+0.9\sigma)$	$H(0.15)$	$73.3^{+1.0}_{-0.88} (-0.0\sigma)$	$\chi_{CMB}^2$	$2790.2 (\nu: 18.1) (+286.9\sigma)$
$\sigma_8$	$0.809^{+0.017}_{-0.014} (+0.2\sigma)$	$D_M(0.15)$	$637.6^{+8.7}_{-9.8} (+0.0\sigma)$	$\chi_{BAO}^2$	$5.62 (\nu: 0.2) (-0.1\sigma)$

$$\bar{\chi}_{eff}^2 = 3524.78; \Delta \bar{\chi}_{eff}^2 = 1591.83; R - 1 = 0.04178$$



2.111 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02243^{+0.00034}_{-0.00035} \quad (+1.1\sigma)$	$S_8$	$0.824^{+0.026}_{-0.026} \quad (+0.1\sigma)$	$H(0.38)$	$83.09^{+0.69}_{-0.66} \quad (+0.4\sigma)$
$\Omega_c h^2$	$0.1192^{+0.0023}_{-0.0023} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.014}_{-0.014} \quad (+0.1\sigma)$	$D_M(0.38)$	$1527^{+18}_{-18} \quad (-0.3\sigma)$
$100\theta_{MC}$	$1.04103^{+0.00076}_{-0.00080} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.605^{+0.014}_{-0.014} \quad (+0.1\sigma)$	$H(0.51)$	$89.80^{+0.56}_{-0.54} \quad (+0.5\sigma)$
$\tau$	$0.057^{+0.018}_{-0.014} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.022}_{-0.021} \quad (+0.1\sigma)$	$D_M(0.51)$	$1979^{+21}_{-22} \quad (-0.3\sigma)$
$\ln(10^{10} A_s)$	$3.048^{+0.035}_{-0.030} \quad (+0.2\sigma)$	$r_{drag} h$	$99.7^{+1.8}_{-1.8} \quad (-0.1\sigma)$	$H(0.61)$	$95.41^{+0.47}_{-0.46} \quad (+0.6\sigma)$
$n_s$	$0.9668^{+0.0096}_{-0.0096} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.053}_{-0.052} \quad (+0.1\sigma)$	$D_M(0.61)$	$2303^{+23}_{-24} \quad (-0.3\sigma)$
$y_{cal}$	$1.0008^{+0.0062}_{-0.0061} \quad (-0.0\sigma)$	$z_{re}$	$< 9.50 \quad (+0.0\sigma)$	$H(2.33)$	$236.1^{+1.4}_{-1.4} \quad (+0.6\sigma)$
$A_{217}^{CIB}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s$	$2.107^{+0.076}_{-0.062} \quad (+0.2\sigma)$	$D_M(2.33)$	$5758^{+23}_{-22} \quad (-0.8\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s e^{-2\tau}$	$1.881^{+0.027}_{-0.027} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.014}_{-0.014} \quad (+0.1\sigma)$
$A_{143}^{tSZ}$	$> 0.817 \quad (+0.2\sigma)$	$D_{40}$	$1229^{+29}_{-30} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.015}_{-0.013} \quad (+0.2\sigma)$
$A_{100}^{PS}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5741^{+100}_{-98} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.012}_{-0.011} \quad (+0.1\sigma)$
$A_{143}^{PS}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2540^{+33}_{-33} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.011} \quad (+0.2\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+11}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.010} \quad (+0.1\sigma)$
$A_{217}^{PS}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.2^{+3.7}_{-4.0} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0098} \quad (+0.2\sigma)$
$A^{kSZ}$	—	$n_{s,0.002}$	$0.9668^{+0.0096}_{-0.0096} \quad (+0.1\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.010}_{-0.0097} \quad (+0.2\sigma)$
$A_{100}^{dustTT}$	$8.9^{+4.4}_{-4.7} \quad (-0.0\sigma)$	$Y_P$	$0.24542^{+0.00013}_{-0.00014} \quad (+1.1\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0092} \quad (+0.2\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.5}_{-4.3} \quad (+0.1\sigma)$	$Y_P^{BBN}$	$0.24674^{+0.00013}_{-0.00014} \quad (+1.1\sigma)$	$f\sigma_8(2.33)$	$0.2982^{+0.0057}_{-0.0047} \quad (+0.2\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.5^{+8.4}_{-8.6} \quad (+0.1\sigma)$	$10^5 D/H$	$2.575^{+0.066}_{-0.061} \quad (-1.1\sigma)$	$\sigma_8(2.33)$	$0.3075^{+0.0059}_{-0.0049} \quad (+0.2\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	Age/Gyr	$13.785^{+0.053}_{-0.049} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100}^{dustTE}$	$0.114^{+0.10}_{-0.092}$	$z_*$	$1089.77^{+0.53}_{-0.54} \quad (-0.9\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.073}_{-0.076}$	$r_*$	$144.59^{+0.55}_{-0.54} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.9^{+4.4}_{-4.9} \quad (-0.5\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04120^{+0.00074}_{-0.00078} \quad (+0.0\sigma)$	$\chi_{lensing}^2$	$9.07 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$13.887^{+0.054}_{-0.052} \quad (-0.8\sigma)$	$\chi_{small}^2$	$397.2 \quad (\nu: 1.8) \quad (+0.0\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.67^{+0.20}_{-0.21}$	$z_{drag}$	$1060.02^{+0.75}_{-0.78} \quad (+1.2\sigma)$	$\chi_{lowl}^2$	$23.21 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$A_{217}^{dustTE}$	$2.08^{+0.69}_{-0.72}$	$r_{drag}$	$147.23^{+0.57}_{-0.56} \quad (-1.0\sigma)$	$\chi_{plik}^2$	$2359.6 \quad (\nu: 16.9) \quad (+304.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$k_D$	$0.14076^{+0.00069}_{-0.00075} \quad (+1.1\sigma)$	$\chi_{JLA}^2$	$1035.05 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017} \quad (-0.1\sigma)$	$100\theta_D$	$0.16072^{+0.00044}_{-0.00043} \quad (-1.2\sigma)$	$\chi_{6DF}^2$	$0.045 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$H_0$	$67.7^{+1.1}_{-1.0} \quad (+0.2\sigma)$	$z_{eq}$	$3385^{+51}_{-51} \quad (+0.4\sigma)$	$\chi_{MGS}^2$	$1.30 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\Omega_\Lambda$	$0.690^{+0.014}_{-0.014} \quad (-0.0\sigma)$	$k_{eq}$	$0.01033^{+0.00016}_{-0.00016} \quad (+0.4\sigma)$	$\chi_{DR12BAO}^2$	$4.6 \quad (\nu: 0.7) \quad (+0.0\sigma)$
$\Omega_m$	$0.310^{+0.014}_{-0.014} \quad (+0.0\sigma)$	$100\theta_{eq}$	$0.8167^{+0.0096}_{-0.0095} \quad (-0.3\sigma)$	$\chi_{prior}^2$	$11.5 \quad (\nu: 10.2) \quad (+1.2\sigma)$
$\Omega_m h^2$	$0.1423^{+0.0022}_{-0.0022} \quad (+0.4\sigma)$	$100\theta_{s,eq}$	$0.4511^{+0.0050}_{-0.0049} \quad (-0.4\sigma)$	$\chi_{CMB}^2$	$2789.2 \quad (\nu: 17.0) \quad (+294.7\sigma)$
$\Omega_m h^3$	$0.09635^{+0.00074}_{-0.00081} \quad (+1.0\sigma)$	$H(0.15)$	$72.99^{+0.93}_{-0.89} \quad (+0.3\sigma)$	$\chi_{BAO}^2$	$5.98 \quad (\nu: 0.4) \quad (-0.0\sigma)$
$\sigma_8$	$0.810^{+0.016}_{-0.014} \quad (+0.2\sigma)$	$D_M(0.15)$	$640.3^{+8.9}_{-9.0} \quad (-0.2\sigma)$		

$\bar{\chi}_{eff}^2 = 3841.74$ ;  $\Delta \bar{\chi}_{eff}^2 = 1592.11$ ;  $R - 1 = 0.01810$



2.112 base\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02250^{+0.00035}_{-0.00035} \quad (+1.0\sigma)$	$S_8$	$0.817^{+0.026}_{-0.024} \quad (+0.3\sigma)$	$H(0.38)$	$83.29^{+0.74}_{-0.65} \quad (+0.1\sigma)$
$\Omega_c h^2$	$0.1186^{+0.0022}_{-0.0023} \quad (+0.4\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.448^{+0.014}_{-0.013} \quad (+0.3\sigma)$	$D_M(0.38)$	$1522^{+17}_{-20} \quad (-0.0\sigma)$
$100\theta_{MC}$	$1.04113^{+0.00079}_{-0.00077} \quad (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.602^{+0.015}_{-0.013} \quad (+0.3\sigma)$	$H(0.51)$	$89.96^{+0.60}_{-0.53} \quad (+0.3\sigma)$
$\tau$	$0.058^{+0.017}_{-0.015} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.981^{+0.022}_{-0.020} \quad (+0.2\sigma)$	$D_M(0.51)$	$1972^{+20}_{-23} \quad (-0.0\sigma)$
$\ln(10^{10} A_s)$	$3.050^{+0.034}_{-0.032} \quad (+0.0\sigma)$	$r_{\text{drag}} h$	$100.2^{+1.9}_{-1.7} \quad (-0.3\sigma)$	$H(0.61)$	$95.54^{+0.52}_{-0.46} \quad (+0.4\sigma)$
$n_s$	$0.968^{+0.011}_{-0.0095} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.051}_{-0.050} \quad (+0.2\sigma)$	$D_M(0.61)$	$2296^{+22}_{-25} \quad (-0.1\sigma)$
$y_{\text{cal}}$	$1.0008^{+0.0060}_{-0.0063} \quad (-0.1\sigma)$	$z_{\text{re}}$	$< 9.57 \quad (-0.1\sigma)$	$H(2.33)$	$235.8^{+1.4}_{-1.3} \quad (+0.7\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_s$	$2.111^{+0.073}_{-0.067} \quad (+0.0\sigma)$	$D_M(2.33)$	$5752^{+22}_{-26} \quad (-0.6\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_s e^{-2\tau}$	$1.878^{+0.026}_{-0.028} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.453^{+0.014}_{-0.013} \quad (+0.3\sigma)$
$A_{143}^{\text{tSZ}}$	—	$D_{40}$	$1226^{+30}_{-30} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.013} \quad (+0.1\sigma)$
$A_{100}^{\text{PS}}$	$258^{+70}_{-80} \quad (-0.1\sigma)$	$D_{220}$	$5747^{+98}_{-96} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.012}_{-0.011} \quad (+0.3\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} \quad (-0.3\sigma)$	$D_{810}$	$2540^{+32}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.011} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$819^{+11}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.011}_{-0.010} \quad (+0.3\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.5^{+3.6}_{-4.0} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.012}_{-0.011} \quad (+0.1\sigma)$
$A^{\text{kSZ}}$	—	$n_{s,0.002}$	$0.968^{+0.011}_{-0.0095} \quad (-0.0\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.010}_{-0.0094} \quad (+0.2\sigma)$
$A_{100}^{\text{dustTT}}$	$8.8^{+4.4}_{-4.6} \quad (-0.0\sigma)$	$Y_P$	$0.24544^{+0.00013}_{-0.00014} \quad (+0.9\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.011}_{-0.010} \quad (+0.1\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.5}_{-4.2} \quad (+0.1\sigma)$	$Y_P^{\text{BBN}}$	$0.24677^{+0.00013}_{-0.00014} \quad (+0.9\sigma)$	$f\sigma_8(2.33)$	$0.2985^{+0.0055}_{-0.0050} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.5^{+8.4}_{-8.6} \quad (+0.0\sigma)$	$10^5 D/H$	$2.562^{+0.066}_{-0.062} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	$0.3080^{+0.0058}_{-0.0052} \quad (+0.0\sigma)$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20} \quad (+0.0\sigma)$	Age/Gyr	$13.772^{+0.051}_{-0.059} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-8} \quad (-0.5\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.091}$	$z_*$	$1089.63^{+0.54}_{-0.54} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.074}_{-0.076}$	$r_*$	$144.71^{+0.54}_{-0.53} \quad (-0.9\sigma)$	$f_{2000}^{217}$	$106.6^{+4.5}_{-4.8} \quad (-0.5\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	$1.04130^{+0.00077}_{-0.00076} \quad (-0.1\sigma)$	$\chi_{\text{lensing}}^2$	$9.13 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.15}$	$D_M(z_*)/\text{Gpc}$	$13.897^{+0.051}_{-0.051} \quad (-0.9\sigma)$	$\chi_{\text{small}}^2$	$397.6 \quad (\nu: 2.3) \quad (-0.1\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.67^{+0.20}_{-0.22}$	$z_{\text{drag}}$	$1060.13^{+0.76}_{-0.77} \quad (+1.1\sigma)$	$\chi_{\text{lowl}}^2$	$22.95 \quad (\nu: 0.3) \quad (+0.1\sigma)$
$A_{217}^{\text{dustTE}}$	$2.06^{+0.70}_{-0.72}$	$r_{\text{drag}}$	$147.33^{+0.59}_{-0.55} \quad (-1.0\sigma)$	$\chi_{\text{plik}}^2$	$2360.6 \quad (\nu: 18.0) \quad (+299.6\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.0\sigma)$	$k_D$	$0.14071^{+0.00069}_{-0.00074} \quad (+1.1\sigma)$	$\chi_{\text{H073p45}}^2$	$10.7 \quad (\nu: 1.2) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0017} \quad (-0.1\sigma)$	$100\theta_D$	$0.16066^{+0.00047}_{-0.00046} \quad (-1.1\sigma)$	$\chi_{\text{JLA}}^2$	$1034.89 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$H_0$	$68.0^{+1.2}_{-1.0} \quad (-0.1\sigma)$	$z_{\text{eq}}$	$3371^{+50}_{-52} \quad (+0.6\sigma)$	$\chi_{6\text{DF}}^2$	$0.022 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_\Lambda$	$0.694^{+0.014}_{-0.013} \quad (-0.3\sigma)$	$k_{\text{eq}}$	$0.01029^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$\chi_{\text{MGS}}^2$	$1.60 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$\Omega_m$	$0.306^{+0.013}_{-0.014} \quad (+0.3\sigma)$	$100\theta_{\text{eq}}$	$0.8195^{+0.0097}_{-0.0093} \quad (-0.5\sigma)$	$\chi_{\text{DR12BAO}}^2$	$3.97 \quad (\nu: 0.3) \quad (+0.1\sigma)$
$\Omega_m h^2$	$0.1417^{+0.0021}_{-0.0022} \quad (+0.6\sigma)$	$100\theta_{s,\text{eq}}$	$0.4525^{+0.0051}_{-0.0048} \quad (-0.6\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.4) \quad (+1.2\sigma)$
$\Omega_m h^3$	$0.09641^{+0.00075}_{-0.00078} \quad (+0.9\sigma)$	$H(0.15)$	$73.3^{+1.0}_{-0.87} \quad (+0.0\sigma)$	$\chi_{\text{CMB}}^2$	$2790.2 \quad (\nu: 18.1) \quad (+287.7\sigma)$
$\sigma_8$	$0.809^{+0.017}_{-0.014} \quad (+0.2\sigma)$	$D_M(0.15)$	$637.6^{+8.6}_{-9.7} \quad (+0.0\sigma)$	$\chi_{\text{BAO}}^2$	$5.60 \quad (\nu: 0.1) \quad (-0.1\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 3853.01; \Delta \bar{\chi}_{\text{eff}}^2 = 1591.84; R - 1 = 0.04302$$



### 2.113 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02213	$0.02215^{+0.00052}_{-0.00052}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6087	$0.609^{+0.020}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	646.2	$646^{+16}_{-15}$
$\Omega_{\mathrm{c}} h^2$	0.12025	$0.1203^{+0.0041}_{-0.0039}$	$\sigma_8/h^{0.5}$	0.9897	$0.990^{+0.027}_{-0.028}$	$H(0.38)$	82.61	$82.6^{+1.2}_{-1.1}$
$100\theta_{\mathrm{MC}}$	1.04085	$1.0408^{+0.0012}_{-0.0011}$	$r_{\mathrm{drag}} h$	98.75	$98.8^{+3.1}_{-3.1}$	$D_{\mathrm{M}}(0.38)$	1539.4	$1539^{+31}_{-31}$
$\tau$	0.0525	$0.053^{+0.021}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.446	$2.446^{+0.065}_{-0.065}$	$H(0.51)$	89.39	$89.41^{+0.94}_{-0.89}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0388	$3.039^{+0.040}_{-0.039}$	$z_{\mathrm{re}}$	7.55	$7.5^{+2.0}_{-2.2}$	$D_{\mathrm{M}}(0.51)$	1993.1	$1993^{+37}_{-36}$
$n_{\mathrm{s}}$	0.9638	$0.964^{+0.012}_{-0.012}$	$10^9 A_{\mathrm{s}}$	2.088	$2.090^{+0.086}_{-0.081}$	$H(0.61)$	95.06	$95.08^{+0.78}_{-0.73}$
$y_{\mathrm{cal}}$	1.0004	$1.0004^{+0.0065}_{-0.0064}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8799	$1.880^{+0.030}_{-0.029}$	$D_{\mathrm{M}}(0.61)$	2318.4	$2318^{+39}_{-39}$
$A_{100}^{\mathrm{PS}}$	242	$243^{+60}_{-60}$	$D_{40}$	1228.9	$1229^{+34}_{-32}$	$H(2.33)$	236.48	$236.5^{+2.5}_{-2.4}$
$A_{143}^{\mathrm{PS}}$	39.7	$41^{+20}_{-20}$	$D_{220}$	5704	$5706^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	5775.5	$5775^{+36}_{-36}$
$A_{217}^{\mathrm{PS}}$	99.6	$101^{+30}_{-30}$	$D_{810}$	2532.9	$2533^{+35}_{-34}$	$f\sigma_8(0.15)$	0.4612	$0.461^{+0.021}_{-0.021}$
$A_{217}^{\mathrm{CIB}}$	44.4	$41^{+20}_{-20}$	$D_{1420}$	813.7	$814^{+13}_{-13}$	$\sigma_8(0.15)$	0.7482	$0.748^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	5.12	$< 8.82$	$D_{2000}$	229.35	$229.5^{+4.6}_{-4.6}$	$f\sigma_8(0.38)$	0.4780	$0.478^{+0.016}_{-0.017}$
$r_{143 \times 217}^{\mathrm{PS}}$	0.571	$0.65^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	0.9638	$0.964^{+0.012}_{-0.012}$	$\sigma_8(0.38)$	0.6625	$0.663^{+0.013}_{-0.013}$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.71	—	$Y_{\mathrm{P}}$	0.245296	$0.24530^{+0.00020}_{-0.00025}$	$f\sigma_8(0.51)$	0.4758	$0.476^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.06	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246622	$0.24663^{+0.00020}_{-0.00025}$	$\sigma_8(0.51)$	0.6197	$0.620^{+0.012}_{-0.012}$
$A^{\mathrm{kSZ}}$	2.5	—	$10^5 \mathrm{D}/\mathrm{H}$	2.632	$2.63^{+0.10}_{-0.095}$	$f\sigma_8(0.61)$	0.4703	$0.470^{+0.012}_{-0.013}$
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.52}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	13.825	$13.823^{+0.081}_{-0.082}$	$\sigma_8(0.61)$	0.5895	$0.590^{+0.012}_{-0.011}$
$A_{143}^{\mathrm{dust}}$	0.989	$0.98^{+0.46}_{-0.45}$	$z_*$	1090.25	$1090.23^{+0.89}_{-0.87}$	$f\sigma_8(2.33)$	0.2969	$0.2970^{+0.0063}_{-0.0060}$
$A_{217}^{\mathrm{dust}}$	0.962	$0.97^{+0.26}_{-0.26}$	$r_*$	144.55	$144.54^{+0.93}_{-0.93}$	$\sigma_8(2.33)$	0.3058	$0.3059^{+0.0069}_{-0.0066}$
$A_{143 \times 217}^{\mathrm{dust}}$	1.008	$1.03^{+0.42}_{-0.42}$	$100\theta_*$	1.04106	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	31.4	$31^{+8}_{-8}$
$c_{100}$	0.99746	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.885	$13.884^{+0.087}_{-0.087}$	$f_{2000}^{217}$	107.8	$107.6^{+5.3}_{-5.2}$
$c_{217}$	1.00134	$1.0012^{+0.0041}_{-0.0040}$	$z_{\mathrm{drag}}$	1059.40	$1059.4^{+1.1}_{-1.1}$	$f_{2000}^{143 \times 217}$	33.2	$33^{+5}_{-6}$
$H_0$	67.04	$67.1^{+1.8}_{-1.8}$	$r_{\mathrm{drag}}$	147.29	$147.27^{+0.96}_{-0.95}$	$\chi_{\mathrm{lensing}}^2$	8.91	$9.52 (\nu: 0.4)$
$\Omega_{\Lambda}$	0.6818	$0.682^{+0.024}_{-0.026}$	$k_{\mathrm{D}}$	0.14047	$0.1405^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{small}}^2$	395.87	$396.9 (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	0.3182	$0.318^{+0.026}_{-0.024}$	$100\theta_{\mathrm{D}}$	0.16108	$0.16105^{+0.00067}_{-0.00063}$	$\chi_{\mathrm{lowl}}^2$	23.42	$23.5 (\nu: 0.5)$
$\Omega_{\mathrm{m}} h^2$	0.14303	$0.1431^{+0.0039}_{-0.0037}$	$z_{\mathrm{eq}}$	3403	$3403^{+92}_{-89}$	$\chi_{\mathrm{CamSpec}}^2$	7050.2	$7062.7 (\nu: 13.0)$
$\Omega_{\mathrm{m}} h^3$	0.09589	$0.0959^{+0.0011}_{-0.0011}$	$k_{\mathrm{eq}}$	0.010385	$0.01039^{+0.00028}_{-0.00027}$	$\chi_{\mathrm{prior}}^2$	2.3	$7.6 (\nu: 6.0)$
$\sigma_8$	0.8104	$0.811^{+0.017}_{-0.016}$	$100\theta_{\mathrm{eq}}$	0.8125	$0.813^{+0.017}_{-0.017}$	$\chi_{\mathrm{CMB}}^2$	7478.4	$7492.6 (\nu: 14.3)$
$S_8$	0.8346	$0.835^{+0.042}_{-0.041}$	$100\theta_{\mathrm{s,eq}}$	0.4492	$0.4491^{+0.0087}_{-0.0087}$			
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4571	$0.457^{+0.023}_{-0.023}$	$H(0.15)$	72.39	$72.4^{+1.6}_{-1.5}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 7480.67$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 7500.24$ ;  $R - 1 = 0.00500$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.91 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2\_29: 23.42 CamSpec like\_10.7HM: 7050.18



## 2.114 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02222^{+0.00047}_{-0.00048}$	$\sigma_8/h^{0.5}$	$0.984^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1530^{+22}_{-22}$
$\Omega_{\mathrm{c}} h^2$	$0.1191^{+0.0029}_{-0.0027}$	$r_{\mathrm{drag}} h$	$99.7^{+2.1}_{-2.2}$	$H(0.51)$	$89.65^{+0.69}_{-0.69}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.056}_{-0.055}$	$D_{\mathrm{M}}(0.51)$	$1983^{+26}_{-25}$
$\tau$	$0.055^{+0.020}_{-0.019}$	$z_{\mathrm{re}}$	$7.8^{+1.9}_{-2.0}$	$H(0.61)$	$95.26^{+0.60}_{-0.59}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.038}_{-0.038}$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.082}_{-0.079}$	$D_{\mathrm{M}}(0.61)$	$2307^{+28}_{-28}$
$n_{\mathrm{s}}$	$0.967^{+0.010}_{-0.010}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.028}_{-0.027}$	$H(2.33)$	$235.9^{+1.8}_{-1.7}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0065}_{-0.0061}$	$D_{40}$	$1225^{+31}_{-31}$	$D_{\mathrm{M}}(2.33)$	$5767^{+30}_{-30}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{220}$	$5714^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2534^{+36}_{-33}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.9^{+4.4}_{-4.5}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.81$	$n_{\mathrm{s},0.002}$	$0.967^{+0.010}_{-0.010}$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.012}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.32}$	$Y_{\mathrm{P}}$	$0.24533^{+0.00018}_{-0.00023}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.012}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00018}_{-0.00023}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.614^{+0.093}_{-0.087}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.806^{+0.069}_{-0.069}$	$f\sigma_8(2.33)$	$0.2976^{+0.0061}_{-0.0059}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.53}_{-0.51}$	$z_*$	$1090.03^{+0.72}_{-0.71}$	$\sigma_8(2.33)$	$0.3068^{+0.0065}_{-0.0063}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.44}$	$r_*$	$144.77^{+0.71}_{-0.73}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.4^{+5.2}_{-5.2}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.903^{+0.071}_{-0.072}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-6}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0028}$	$z_{\mathrm{drag}}$	$1059.5^{+1.0}_{-1.1}$	$\chi_{\mathrm{lensing}}^2$	$9.39 (\nu: 0.3)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0038}$	$r_{\mathrm{drag}}$	$147.48^{+0.80}_{-0.80}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 1.8)$
$H_0$	$67.6^{+1.3}_{-1.3}$	$k_{\mathrm{D}}$	$0.1403^{+0.0010}_{-0.0011}$	$\chi_{\mathrm{lowl}}^2$	$23.04 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.017}$	$100\theta_{\mathrm{D}}$	$0.16101^{+0.00066}_{-0.00060}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.1 (\nu: 13.4)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.017}_{-0.016}$	$z_{\mathrm{eq}}$	$3378^{+66}_{-62}$	$\chi_{6\mathrm{DF}}^2$	$0.059 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1420^{+0.0028}_{-0.0026}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00020}_{-0.00019}$	$\chi_{\mathrm{MGS}}^2$	$1.28 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0011}_{-0.0011}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.2)$
$\sigma_8$	$0.809^{+0.016}_{-0.016}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0060}_{-0.0062}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 6.0)$
$S_8$	$0.824^{+0.032}_{-0.030}$	$H(0.15)$	$72.8^{+1.1}_{-1.1}$	$\chi_{\mathrm{CMB}}^2$	$7492.7 (\nu: 14.3)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.017}$	$D_{\mathrm{M}}(0.15)$	$642^{+11}_{-11}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.8)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.016}_{-0.016}$	$H(0.38)$	$82.94^{+0.83}_{-0.83}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7506.48; R - 1 = 0.00781$



## 2.115 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02233^{+0.00047}_{-0.00051}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.019}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-17}$
$\Omega_{\mathrm{c}}h^2$	$0.1182^{+0.0038}_{-0.0046}$	$\sigma_8/h^{0.5}$	$0.979^{+0.027}_{-0.030}$	$H(0.38)$	$83.3^{+1.3}_{-1.1}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}}h$	$100.5^{+3.9}_{-3.0}$	$D_{\mathrm{M}}(0.38)$	$1522^{+30}_{-35}$
$\tau$	$0.058^{+0.024}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	$2.422^{+0.063}_{-0.071}$	$H(0.51)$	$89.9^{+1.0}_{-0.88}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.038}_{-0.039}$	$z_{\mathrm{re}}$	$8.0^{+2.2}_{-2.0}$	$D_{\mathrm{M}}(0.51)$	$1972^{+35}_{-41}$
$n_{\mathrm{s}}$	$0.969^{+0.016}_{-0.012}$	$10^9 A_{\mathrm{s}}$	$2.106^{+0.081}_{-0.080}$	$H(0.61)$	$95.48^{+0.77}_{-0.73}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0063}_{-0.0059}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.873^{+0.030}_{-0.036}$	$D_{\mathrm{M}}(0.61)$	$2296^{+37}_{-44}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-60}$	$D_{40}$	$1221^{+32}_{-38}$	$H(2.33)$	$235.3^{+2.3}_{-2.8}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5724^{+99}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5757^{+35}_{-31}$
$A_{217}^{\mathrm{PS}}$	$102^{+40}_{-30}$	$D_{810}$	$2535^{+34}_{-33}$	$f\sigma_8(0.15)$	$0.451^{+0.020}_{-0.023}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+11}_{-13}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.83$	$D_{2000}$	$230.5^{+3.9}_{-4.6}$	$f\sigma_8(0.38)$	$0.471^{+0.016}_{-0.017}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.969^{+0.016}_{-0.012}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.013}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00018}_{-0.00023}$	$f\sigma_8(0.51)$	$0.470^{+0.014}_{-0.015}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00018}_{-0.00023}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.593^{+0.098}_{-0.086}$	$f\sigma_8(0.61)$	$0.466^{+0.012}_{-0.014}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.52}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.785^{+0.079}_{-0.070}$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.011}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.43}_{-0.44}$	$z_*$	$1089.81^{+0.84}_{-0.70}$	$f\sigma_8(2.33)$	$0.2982^{+0.0059}_{-0.0059}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$	$r_*$	$144.9^{+1.1}_{-0.91}$	$\sigma_8(2.33)$	$0.3077^{+0.0072}_{-0.0064}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.43}$	$100\theta_*$	$1.0414^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$c_{100}$	$0.9976^{+0.0030}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.918^{+0.096}_{-0.085}$	$f_{2000}^{217}$	$107.0^{+5.2}_{-4.9}$
$c_{217}$	$1.0012^{+0.0040}_{-0.0037}$	$z_{\mathrm{drag}}$	$1059.7^{+1.0}_{-1.1}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$H_0$	$68.1^{+2.1}_{-1.7}$	$r_{\mathrm{drag}}$	$147.6^{+1.1}_{-0.94}$	$\chi_{\mathrm{lensing}}^2$	$9.8 (\nu: 1.0)$
$\Omega_{\Lambda}$	$0.695^{+0.027}_{-0.023}$	$k_{\mathrm{D}}$	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{simall}}^2$	$397.8 (\nu: 3.4)$
$\Omega_{\mathrm{m}}$	$0.305^{+0.023}_{-0.027}$	$100\theta_{\mathrm{D}}$	$0.16092^{+0.00065}_{-0.00056}$	$\chi_{\mathrm{lowl}}^2$	$22.68 (\nu: 0.4)$
$\Omega_{\mathrm{m}}h^2$	$0.1411^{+0.0036}_{-0.0045}$	$z_{\mathrm{eq}}$	$3357^{+87}_{-110}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.4 (\nu: 15.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0010}_{-0.0011}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00027}_{-0.00033}$	$\chi_{\mathrm{H073p45}}^2$	$10.7 (\nu: 3.6)$
$\sigma_8$	$0.808^{+0.017}_{-0.017}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.021}_{-0.016}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 5.9)$
$S_8$	$0.814^{+0.040}_{-0.045}$	$100\theta_{\mathrm{s,eq}}$	$0.454^{+0.011}_{-0.0084}$	$\chi_{\mathrm{CMB}}^2$	$7494.8 (\nu: 19.7)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.446^{+0.022}_{-0.025}$	$H(0.15)$	$73.3^{+1.8}_{-1.5}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 7512.86; R - 1 = 0.03322$					



2.116 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02233^{+0.00048}_{-0.00048}$	$\sigma_8/h^{0.5}$	$0.979^{+0.024}_{-0.024}$	$D_{\mathrm{M}}(0.38)$	$1522^{+21}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.1182^{+0.0027}_{-0.0025}$	$r_{\mathrm{drag}}h$	$100.4^{+1.9}_{-2.1}$	$H(0.51)$	$89.90^{+0.63}_{-0.67}$
$100\theta_{\mathrm{MC}}$	$1.04119^{+0.00093}_{-0.0010}$	$\langle d^2 \rangle^{1/2}$	$2.423^{+0.054}_{-0.054}$	$D_{\mathrm{M}}(0.51)$	$1973^{+25}_{-23}$
$\tau$	$0.058^{+0.020}_{-0.019}$	$z_{\mathrm{re}}$	$8.0^{+1.9}_{-1.9}$	$H(0.61)$	$95.46^{+0.54}_{-0.58}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.040}_{-0.038}$	$10^9 A_{\mathrm{s}}$	$2.106^{+0.086}_{-0.078}$	$D_{\mathrm{M}}(0.61)$	$2297^{+27}_{-25}$
$n_{\mathrm{s}}$	$0.969^{+0.010}_{-0.010}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.874^{+0.028}_{-0.027}$	$H(2.33)$	$235.4^{+1.8}_{-1.7}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0063}_{-0.0060}$	$D_{40}$	$1222^{+30}_{-30}$	$D_{\mathrm{M}}(2.33)$	$5758^{+29}_{-26}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-60}$	$D_{220}$	$5725^{+98}_{-100}$	$f\sigma_8(0.15)$	$0.451^{+0.015}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2535^{+34}_{-33}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.015}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{1420}$	$817^{+11}_{-13}$	$f\sigma_8(0.38)$	$0.471^{+0.013}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{2000}$	$230.5^{+3.9}_{-4.4}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.84$	$n_{\mathrm{s},0.002}$	$0.969^{+0.010}_{-0.010}$	$f\sigma_8(0.51)$	$0.470^{+0.012}_{-0.012}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.32}$	$Y_{\mathrm{P}}$	$0.24538^{+0.00018}_{-0.00021}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.012}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00018}_{-0.00021}$	$f\sigma_8(0.61)$	$0.466^{+0.011}_{-0.012}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.593^{+0.092}_{-0.086}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.786^{+0.067}_{-0.060}$	$f\sigma_8(2.33)$	$0.2982^{+0.0060}_{-0.0057}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.52}_{-0.50}$	$z_*$	$1089.81^{+0.71}_{-0.64}$	$\sigma_8(2.33)$	$0.3077^{+0.0065}_{-0.0063}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.44}_{-0.45}$	$r_*$	$144.92^{+0.68}_{-0.73}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$100\theta_*$	$1.04138^{+0.00093}_{-0.0010}$	$f_{2000}^{217}$	$107.0^{+5.2}_{-5.0}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.43}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.917^{+0.067}_{-0.073}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-6}$
$c_{100}$	$0.9976^{+0.0029}_{-0.0028}$	$z_{\mathrm{drag}}$	$1059.7^{+1.0}_{-1.1}$	$\chi_{\mathrm{lensing}}^2$	$9.6 (\nu: 0.6)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0038}$	$r_{\mathrm{drag}}$	$147.61^{+0.78}_{-0.78}$	$\chi_{\mathrm{simall}}^2$	$397.7 (\nu: 2.6)$
$H_0$	$68.0^{+1.2}_{-1.2}$	$k_{\mathrm{D}}$	$0.1403^{+0.0010}_{-0.0010}$	$\chi_{\mathrm{lowl}}^2$	$22.69 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.695^{+0.014}_{-0.016}$	$100\theta_{\mathrm{D}}$	$0.16091^{+0.00065}_{-0.00059}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.2 (\nu: 14.4)$
$\Omega_{\mathrm{m}}$	$0.305^{+0.016}_{-0.014}$	$z_{\mathrm{eq}}$	$3359^{+65}_{-60}$	$\chi_{\mathrm{H073p45}}^2$	$10.7 (\nu: 1.7)$
$\Omega_{\mathrm{m}}h^2$	$0.1412^{+0.0027}_{-0.0025}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00020}_{-0.00018}$	$\chi_{6\mathrm{DF}}^2$	$0.027 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0011}_{-0.0011}$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.011}_{-0.012}$	$\chi_{\mathrm{MGS}}^2$	$1.73 (\nu: 0.1)$
$\sigma_8$	$0.808^{+0.017}_{-0.017}$	$100\theta_{\mathrm{s,eq}}$	$0.4536^{+0.0058}_{-0.0061}$	$\chi_{\mathrm{DR12BAO}}^2$	$3.91 (\nu: 0.3)$
$S_8$	$0.815^{+0.030}_{-0.031}$	$H(0.15)$	$73.3^{+1.0}_{-1.1}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 6.0)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.446^{+0.016}_{-0.017}$	$D_{\mathrm{M}}(0.15)$	$638^{+10}_{-9.7}$	$\chi_{\mathrm{CMB}}^2$	$7494.2 (\nu: 15.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.016}_{-0.017}$	$H(0.38)$	$83.25^{+0.76}_{-0.80}$	$\chi_{\mathrm{BAO}}^2$	$5.67 (\nu: 0.2)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 7518.00; R - 1 = 0.02714$$



## 2.117 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02217	$0.02218^{+0.00050}_{-0.00052}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6073	$0.607^{+0.019}_{-0.019}$	$D_{\mathrm{M}}(0.15)$	644.4	$644^{+14}_{-14}$
$\Omega_{\mathrm{c}} h^2$	0.11983	$0.1198^{+0.0036}_{-0.0035}$	$\sigma_8/h^{0.5}$	0.9882	$0.987^{+0.025}_{-0.026}$	$H(0.38)$	82.74	$82.8^{+1.1}_{-1.0}$
$100\theta_{\mathrm{MC}}$	1.04091	$1.0409^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	99.09	$99.1^{+2.9}_{-2.8}$	$D_{\mathrm{M}}(0.38)$	1535.9	$1535^{+29}_{-28}$
$\tau$	0.0541	$0.054^{+0.021}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	2.442	$2.441^{+0.062}_{-0.062}$	$H(0.51)$	89.49	$89.51^{+0.88}_{-0.84}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0416	$3.041^{+0.040}_{-0.038}$	$z_{\mathrm{re}}$	7.70	$7.7^{+2.0}_{-2.1}$	$D_{\mathrm{M}}(0.51)$	1989.0	$1988^{+34}_{-34}$
$n_{\mathrm{s}}$	0.9650	$0.965^{+0.012}_{-0.012}$	$10^9 A_{\mathrm{s}}$	2.094	$2.093^{+0.084}_{-0.079}$	$H(0.61)$	95.14	$95.16^{+0.73}_{-0.70}$
$y_{\mathrm{cal}}$	1.0006	$1.0005^{+0.0065}_{-0.0063}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8792	$1.879^{+0.030}_{-0.028}$	$D_{\mathrm{M}}(0.61)$	2314.0	$2313^{+37}_{-36}$
$A_{100}^{\mathrm{PS}}$	240	$243^{+60}_{-60}$	$D_{40}$	1227.5	$1228^{+32}_{-32}$	$H(2.33)$	236.25	$236.2^{+2.2}_{-2.2}$
$A_{143}^{\mathrm{PS}}$	40.1	$41^{+20}_{-20}$	$D_{220}$	5709	$5710^{+100}_{-100}$	$D_{\mathrm{M}}(2.33)$	5771.9	$5771^{+34}_{-35}$
$A_{217}^{\mathrm{PS}}$	100.0	$101^{+30}_{-30}$	$D_{810}$	2534.1	$2534^{+35}_{-34}$	$f\sigma_8(0.15)$	0.4594	$0.459^{+0.020}_{-0.020}$
$A_{217}^{\mathrm{CIB}}$	45.1	$41^{+20}_{-20}$	$D_{1420}$	814.6	$815^{+13}_{-13}$	$\sigma_8(0.15)$	0.7484	$0.748^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	5.90	$< 8.81$	$D_{2000}$	229.69	$229.7^{+4.6}_{-4.6}$	$f\sigma_8(0.38)$	0.4769	$0.476^{+0.015}_{-0.016}$
$r_{143 \times 217}^{\mathrm{PS}}$	0.569	$0.65^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	0.9650	$0.965^{+0.012}_{-0.012}$	$\sigma_8(0.38)$	0.6630	$0.663^{+0.013}_{-0.013}$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.78	—	$Y_{\mathrm{P}}$	0.245314	$0.24532^{+0.00019}_{-0.00025}$	$f\sigma_8(0.51)$	0.4750	$0.475^{+0.013}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.07	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246640	$0.24664^{+0.00019}_{-0.00025}$	$\sigma_8(0.51)$	0.6203	$0.620^{+0.012}_{-0.012}$
$A^{\mathrm{kSZ}}$	1.3	—	$10^5 \mathrm{D}/\mathrm{H}$	2.624	$2.62^{+0.10}_{-0.091}$	$f\sigma_8(0.61)$	0.4697	$0.469^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.53}_{-0.51}$	$\mathrm{Age}/\mathrm{Gyr}$	13.817	$13.815^{+0.078}_{-0.079}$	$\sigma_8(0.61)$	0.5901	$0.590^{+0.012}_{-0.011}$
$A_{143}^{\mathrm{dust}}$	0.991	$0.98^{+0.45}_{-0.45}$	$z_*$	1090.16	$1090.14^{+0.84}_{-0.82}$	$f\sigma_8(2.33)$	0.2974	$0.2973^{+0.0063}_{-0.0059}$
$A_{217}^{\mathrm{dust}}$	0.967	$0.97^{+0.26}_{-0.26}$	$r_*$	144.63	$144.63^{+0.87}_{-0.87}$	$\sigma_8(2.33)$	0.3064	$0.3063^{+0.0068}_{-0.0064}$
$A_{143 \times 217}^{\mathrm{dust}}$	1.000	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	1.04112	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	31.1	$31^{+8}_{-7}$
$c_{100}$	0.99756	$0.9975^{+0.0028}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.892	$13.892^{+0.082}_{-0.082}$	$f_{2000}^{217}$	107.6	$107.5^{+5.2}_{-5.2}$
$c_{217}$	1.00139	$1.0012^{+0.0040}_{-0.0038}$	$z_{\mathrm{drag}}$	1059.47	$1059.5^{+1.1}_{-1.2}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+5}_{-6}$
$H_0$	67.24	$67.3^{+1.7}_{-1.6}$	$r_{\mathrm{drag}}$	147.36	$147.36^{+0.93}_{-0.91}$	$\chi_{\mathrm{lensing}}^2$	8.88	$9.45 (\nu: 0.3)$
$\Omega_{\Lambda}$	0.6845	$0.685^{+0.022}_{-0.023}$	$k_{\mathrm{D}}$	0.14043	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{small}}^2$	396.05	$397.0 (\nu: 1.5)$
$\Omega_{\mathrm{m}}$	0.3155	$0.315^{+0.023}_{-0.022}$	$100\theta_{\mathrm{D}}$	0.16104	$0.16103^{+0.00067}_{-0.00062}$	$\chi_{\mathrm{lowl}}^2$	23.24	$23.30 (\nu: 0.5)$
$\Omega_{\mathrm{m}} h^2$	0.14265	$0.1426^{+0.0035}_{-0.0034}$	$z_{\mathrm{eq}}$	3393	$3392^{+83}_{-80}$	$\chi_{\mathrm{CamSpec}}^2$	7050.4	$7062.8 (\nu: 13.3)$
$\Omega_{\mathrm{m}} h^3$	0.09592	$0.0959^{+0.0011}_{-0.0011}$	$k_{\mathrm{eq}}$	0.010357	$0.01035^{+0.00025}_{-0.00024}$	$\chi_{\mathrm{JLA}}^2$	1035.29	$1035.43 (\nu: 0.2)$
$\sigma_8$	0.8104	$0.810^{+0.016}_{-0.016}$	$100\theta_{\mathrm{eq}}$	0.8143	$0.815^{+0.015}_{-0.015}$	$\chi_{\mathrm{prior}}^2$	2.2	$7.6 (\nu: 6.0)$
$S_8$	0.8310	$0.830^{+0.039}_{-0.038}$	$100\theta_{\mathrm{s,eq}}$	0.4501	$0.4502^{+0.0080}_{-0.0079}$	$\chi_{\mathrm{CMB}}^2$	7478.5	$7492.6 (\nu: 14.3)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4552	$0.455^{+0.021}_{-0.021}$	$H(0.15)$	72.56	$72.6^{+1.4}_{-1.4}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 8516.03$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 8535.63$ ;  $R - 1 = 0.00582$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consect8: 8.88 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.05 commander\_dx12\_v3.2\_29: 23.24 CamSpec like\_10.7HM: 7050.35 SN - JLA Pantheon18: 1035.29



2.118 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_JLA\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02234^{+0.00047}_{-0.00046}$	$r_{\mathrm{drag}}h$	$100.5^{+1.9}_{-2.1}$	$D_{\mathrm{M}}(0.51)$	$1972^{+25}_{-22}$
$\Omega_{\mathrm{c}}h^2$	$0.1181^{+0.0027}_{-0.0024}$	$\langle d^2 \rangle^{1/2}$	$2.421^{+0.056}_{-0.056}$	$H(0.61)$	$95.48^{+0.53}_{-0.58}$
$100\theta_{\mathrm{MC}}$	$1.04120^{+0.00092}_{-0.0010}$	$z_{\mathrm{re}}$	$8.0^{+1.9}_{-2.0}$	$D_{\mathrm{M}}(0.61)$	$2296^{+27}_{-24}$
$\tau$	$0.058^{+0.020}_{-0.019}$	$10^9 A_{\mathrm{s}}$	$2.105^{+0.087}_{-0.080}$	$H(2.33)$	$235.3^{+1.8}_{-1.6}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.040}_{-0.039}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.874^{+0.028}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5757^{+29}_{-29}$
$n_{\mathrm{s}}$	$0.969^{+0.010}_{-0.010}$	$D_{40}$	$1221^{+30}_{-30}$	$f\sigma_8(0.15)$	$0.451^{+0.015}_{-0.018}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0067}_{-0.0060}$	$D_{220}$	$5726^{+100}_{-100}$	$\sigma_8(0.15)$	$0.747^{+0.014}_{-0.015}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{810}$	$2535^{+35}_{-34}$	$f\sigma_8(0.38)$	$0.470^{+0.013}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-13}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.013}$
$A_{217}^{\mathrm{PS}}$	$102^{+40}_{-30}$	$D_{2000}$	$230.6^{+4.0}_{-4.6}$	$f\sigma_8(0.51)$	$0.470^{+0.011}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.969^{+0.010}_{-0.010}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.012}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.68$	$Y_{\mathrm{P}}$	$0.24538^{+0.00018}_{-0.00020}$	$f\sigma_8(0.61)$	$0.466^{+0.010}_{-0.013}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.31}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00018}_{-0.00020}$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.012}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.592^{+0.088}_{-0.086}$	$f\sigma_8(2.33)$	$0.2982^{+0.0060}_{-0.0058}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.784^{+0.069}_{-0.059}$	$\sigma_8(2.33)$	$0.3077^{+0.0065}_{-0.0063}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1089.79^{+0.70}_{-0.68}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.50}_{-0.50}$	$r_*$	$144.95^{+0.66}_{-0.76}$	$f_{2000}^{217}$	$107.0^{+5.4}_{-5.0}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.40}_{-0.46}$	$100\theta_*$	$1.04139^{+0.00092}_{-0.0010}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.24}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.919^{+0.065}_{-0.076}$	$\chi_{\mathrm{lensing}}^2$	$9.7 (\nu: 0.7)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.39}$	$z_{\mathrm{drag}}$	$1059.7^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$397.7 (\nu: 2.5)$
$c_{100}$	$0.9976^{+0.0030}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.63^{+0.70}_{-0.83}$	$\chi_{\mathrm{lowl}}^2$	$22.66 (\nu: 0.3)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$k_{\mathrm{D}}$	$0.1403^{+0.0011}_{-0.0010}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.4 (\nu: 14.7)$
$H_0$	$68.1^{+1.1}_{-1.2}$	$100\theta_{\mathrm{D}}$	$0.16091^{+0.00064}_{-0.00063}$	$\chi_{\mathrm{H073p45}}^2$	$10.5 (\nu: 1.7)$
$\Omega_{\Lambda}$	$0.696^{+0.014}_{-0.016}$	$z_{\mathrm{eq}}$	$3356^{+64}_{-58}$	$\chi_{\mathrm{JLA}}^2$	$706.61 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.016}_{-0.014}$	$k_{\mathrm{eq}}$	$0.01024^{+0.00020}_{-0.00018}$	$\chi_{6\mathrm{DF}}^2$	$0.026 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1411^{+0.0027}_{-0.0024}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.010}_{-0.012}$	$\chi_{\mathrm{MGS}}^2$	$1.79 (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0011}_{-0.0010}$	$100\theta_{\mathrm{s,eq}}$	$0.4538^{+0.0055}_{-0.0061}$	$\chi_{\mathrm{DR12BAO}}^2$	$3.85 (\nu: 0.3)$
$\sigma_8$	$0.807^{+0.016}_{-0.017}$	$H(0.15)$	$73.30^{+0.97}_{-1.0}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 6.3)$
$S_8$	$0.813^{+0.030}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$637^{+10}_{-9.3}$	$\chi_{\mathrm{CMB}}^2$	$7494.5 (\nu: 16.4)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.445^{+0.016}_{-0.019}$	$H(0.38)$	$83.28^{+0.75}_{-0.79}$	$\chi_{\mathrm{BAO}}^2$	$5.67 (\nu: 0.2)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.015}_{-0.019}$	$D_{\mathrm{M}}(0.38)$	$1521^{+21}_{-19}$		
$\sigma_8/h^{0.5}$	$0.979^{+0.022}_{-0.027}$	$H(0.51)$	$89.92^{+0.62}_{-0.66}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 8224.73; R - 1 = 0.08459$$



2.119 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022236	$0.02224^{+0.00047}_{-0.00048}$	$\sigma_8/h^{0.5}$	0.9832	$0.983^{+0.023}_{-0.022}$	$D_M(0.38)$	1529.2	$1529^{+21}_{-21}$
$\Omega_c h^2$	0.11903	$0.1190^{+0.0027}_{-0.0026}$	$r_{\text{drag}} h$	99.76	$99.8^{+2.0}_{-2.1}$	$H(0.51)$	89.68	$89.68^{+0.67}_{-0.67}$
$100\theta_{\text{MC}}$	1.04107	$1.0410^{+0.0010}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.430	$2.432^{+0.055}_{-0.053}$	$D_M(0.51)$	1981.2	$1981^{+25}_{-25}$
$\tau$	0.0552	$0.056^{+0.020}_{-0.019}$	$z_{\text{re}}$	7.79	$7.8^{+1.9}_{-2.0}$	$H(0.61)$	95.29	$95.29^{+0.58}_{-0.58}$
$\ln(10^{10} A_s)$	3.0426	$3.044^{+0.038}_{-0.039}$	$10^9 A_s$	2.096	$2.098^{+0.081}_{-0.080}$	$D_M(0.61)$	2305.5	$2306^{+27}_{-27}$
$n_s$	0.9671	$0.967^{+0.010}_{-0.010}$	$10^9 A_s e^{-2\tau}$	1.8768	$1.876^{+0.028}_{-0.027}$	$H(2.33)$	235.80	$235.8^{+1.8}_{-1.7}$
$y_{\text{cal}}$	1.0007	$1.0007^{+0.0064}_{-0.0060}$	$D_{40}$	1223.7	$1224^{+31}_{-31}$	$D_M(2.33)$	5765.2	$5765^{+30}_{-29}$
$A_{100}^{\text{PS}}$	237	$242^{+60}_{-60}$	$D_{220}$	5715	$5716^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4551	$0.455^{+0.016}_{-0.015}$
$A_{143}^{\text{PS}}$	40.1	$41^{+20}_{-20}$	$D_{810}$	2535.2	$2534^{+36}_{-33}$	$\sigma_8(0.15)$	0.7473	$0.747^{+0.015}_{-0.015}$
$A_{217}^{\text{PS}}$	100.8	$101^{+30}_{-30}$	$D_{1420}$	815.7	$815^{+12}_{-13}$	$f\sigma_8(0.38)$	0.4736	$0.474^{+0.013}_{-0.013}$
$A_{217}^{\text{CIB}}$	45.8	$41^{+20}_{-20}$	$D_{2000}$	230.13	$230.0^{+4.4}_{-4.4}$	$\sigma_8(0.38)$	0.6626	$0.663^{+0.013}_{-0.013}$
$A_{143}^{\text{tSZ}}$	6.62	$< 8.81$	$n_{s,0.002}$	0.9671	$0.967^{+0.010}_{-0.010}$	$f\sigma_8(0.51)$	0.4724	$0.472^{+0.012}_{-0.011}$
$r_{143 \times 217}^{\text{PS}}$	0.572	$0.65^{+0.31}_{-0.32}$	$Y_{\text{P}}$	0.245341	$0.24534^{+0.00018}_{-0.00022}$	$\sigma_8(0.51)$	0.6201	$0.620^{+0.012}_{-0.012}$
$r_{143 \times 217}^{\text{CIB}}$	0.80	—	$Y_{\text{P}}^{\text{BBN}}$	0.246667	$0.24666^{+0.00018}_{-0.00023}$	$f\sigma_8(0.61)$	0.4675	$0.468^{+0.011}_{-0.010}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.04	—	$10^5 D/H$	2.611	$2.612^{+0.092}_{-0.086}$	$\sigma_8(0.61)$	0.5901	$0.590^{+0.012}_{-0.011}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.802	$13.803^{+0.069}_{-0.067}$	$f\sigma_8(2.33)$	0.2976	$0.2977^{+0.0060}_{-0.0058}$
$A_{100}^{\text{dust}}$	1.01	$1.01^{+0.53}_{-0.50}$	$z_*$	1090.00	$1090.00^{+0.72}_{-0.69}$	$\sigma_8(2.33)$	0.3069	$0.3069^{+0.0065}_{-0.0063}$
$A_{143}^{\text{dust}}$	0.988	$0.97^{+0.45}_{-0.44}$	$r_*$	144.79	$144.80^{+0.70}_{-0.71}$	$f_{2000}^{143}$	30.8	$30^{+8}_{-7}$
$A_{217}^{\text{dust}}$	0.965	$0.97^{+0.26}_{-0.26}$	$100\theta_*$	1.04127	$1.0412^{+0.0010}_{-0.0011}$	$f_{2000}^{217}$	107.4	$107.3^{+5.2}_{-5.2}$
$A_{143 \times 217}^{\text{dust}}$	1.000	$1.03^{+0.42}_{-0.42}$	$D_M(z_*)/\text{Gpc}$	13.905	$13.906^{+0.068}_{-0.071}$	$f_{2000}^{143 \times 217}$	32.7	$33^{+5}_{-6}$
$c_{100}$	0.99763	$0.9975^{+0.0028}_{-0.0028}$	$z_{\text{drag}}$	1059.55	$1059.5^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	9.02	$9.41 (\nu: 0.4)$
$c_{217}$	1.00136	$1.0012^{+0.0040}_{-0.0038}$	$r_{\text{drag}}$	147.50	$147.51^{+0.79}_{-0.79}$	$\chi_{\text{small}}^2$	396.2	$397.3 (\nu: 1.9)$
$H_0$	67.64	$67.6^{+1.2}_{-1.2}$	$k_{\text{D}}$	0.14034	$0.1403^{+0.0010}_{-0.0011}$	$\chi_{\text{lowl}}^2$	22.86	$22.98 (\nu: 0.3)$
$\Omega_{\Lambda}$	0.6898	$0.690^{+0.016}_{-0.017}$	$100\theta_{\text{D}}$	0.16100	$0.16100^{+0.00065}_{-0.00060}$	$\chi_{\text{CamSpec}}^2$	7051.2	$7063.2 (\nu: 13.5)$
$\Omega_{\text{m}}$	0.3102	$0.310^{+0.017}_{-0.016}$	$z_{\text{eq}}$	3376	$3375^{+64}_{-60}$	$\chi_{\text{JLA}}^2$	1034.99	$1035.07 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.14191	$0.1419^{+0.0027}_{-0.0025}$	$k_{\text{eq}}$	0.010303	$0.01030^{+0.00019}_{-0.00018}$	$\chi_{6\text{DF}}^2$	0.022	$0.048 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	0.09598	$0.0960^{+0.0011}_{-0.0011}$	$100\theta_{\text{eq}}$	0.8178	$0.818^{+0.011}_{-0.012}$	$\chi_{\text{MGS}}^2$	1.28	$1.35 (\nu: 0.1)$
$\sigma_8$	0.8086	$0.809^{+0.016}_{-0.016}$	$100\theta_{\text{s,eq}}$	0.4518	$0.4519^{+0.0058}_{-0.0060}$	$\chi_{\text{DR12BAO}}^2$	4.18	$4.6 (\nu: 0.9)$
$S_8$	0.8223	$0.822^{+0.030}_{-0.029}$	$H(0.15)$	72.90	$72.9^{+1.0}_{-1.1}$	$\chi_{\text{prior}}^2$	2.1	$7.6 (\nu: 6.0)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4504	$0.450^{+0.017}_{-0.016}$	$D_M(0.15)$	641.1	$641^{+11}_{-10}$	$\chi_{\text{CMB}}^2$	7479.3	$7492.9 (\nu: 14.5)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6035	$0.604^{+0.016}_{-0.016}$	$H(0.38)$	82.98	$82.98^{+0.81}_{-0.80}$	$\chi_{\text{BAO}}^2$	5.48	$6.0 (\nu: 0.6)$

Best-fit  $\chi_{\text{eff}}^2 = 8521.87$ ;  $\bar{\chi}_{\text{eff}}^2 = 8541.50$ ;  $R - 1 = 0.00920$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.18 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 9.02 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.23 commander\_dx12.v3.2.29: 22.86 CamSpec like\_10.7HM: 7051.17 SN - JLA Pantheon18: 1034.99



## 2.120 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022336	$0.02234^{+0.00047}_{-0.00047}$	$r_{\text{drag}} h$	100.44	$100.5^{+1.8}_{-2.0}$	$D_M(0.51)$	1972.8	$1972^{+24}_{-22}$
$\Omega_c h^2$	0.11821	$0.1181^{+0.0026}_{-0.0025}$	$\langle d^2 \rangle^{1/2}$	2.423	$2.422^{+0.055}_{-0.053}$	$H(0.61)$	95.46	$95.48^{+0.52}_{-0.57}$
$100\theta_{\text{MC}}$	1.04119	$1.04120^{+0.00092}_{-0.0010}$	$z_{\text{re}}$	8.05	$8.1^{+1.8}_{-1.9}$	$D_M(0.61)$	2296.4	$2296^{+26}_{-24}$
$\tau$	0.0582	$0.058^{+0.020}_{-0.019}$	$10^9 A_s$	2.106	$2.106^{+0.086}_{-0.079}$	$H(2.33)$	235.37	$235.3^{+1.7}_{-1.6}$
$\ln(10^{10} A_s)$	3.0473	$3.047^{+0.040}_{-0.038}$	$10^9 A_s e^{-2\tau}$	1.8744	$1.874^{+0.028}_{-0.027}$	$D_M(2.33)$	5757.3	$5757^{+29}_{-26}$
$n_s$	0.9692	$0.969^{+0.010}_{-0.010}$	$D_{40}$	1221.3	$1221^{+30}_{-31}$	$f\sigma_8(0.15)$	0.4513	$0.451^{+0.015}_{-0.016}$
$y_{\text{cal}}$	1.0009	$1.0009^{+0.0064}_{-0.0060}$	$D_{220}$	5726	$5726^{+97}_{-100}$	$\sigma_8(0.15)$	0.7473	$0.747^{+0.015}_{-0.015}$
$A_{100}^{\text{PS}}$	235	$241^{+60}_{-60}$	$D_{810}$	2536.3	$2535^{+34}_{-33}$	$f\sigma_8(0.38)$	0.4710	$0.471^{+0.013}_{-0.014}$
$A_{143}^{\text{PS}}$	39.5	$40^{+20}_{-20}$	$D_{1420}$	816.9	$817^{+11}_{-13}$	$\sigma_8(0.38)$	0.6632	$0.663^{+0.013}_{-0.013}$
$A_{217}^{\text{PS}}$	101.5	$102^{+30}_{-30}$	$D_{2000}$	230.67	$230.6^{+3.9}_{-4.4}$	$f\sigma_8(0.51)$	0.4704	$0.470^{+0.012}_{-0.012}$
$A_{217}^{\text{CIB}}$	44.8	$40^{+20}_{-20}$	$n_{\text{s},0.002}$	0.9692	$0.969^{+0.010}_{-0.010}$	$\sigma_8(0.51)$	0.6209	$0.621^{+0.012}_{-0.012}$
$A_{143}^{\text{tSZ}}$	6.49	$< 8.84$	$Y_{\text{P}}$	0.245382	$0.24538^{+0.00018}_{-0.00021}$	$f\sigma_8(0.61)$	0.4660	$0.466^{+0.011}_{-0.012}$
$r_{143 \times 217}^{\text{PS}}$	0.590	$0.66^{+0.31}_{-0.33}$	$Y_{\text{P}}^{\text{BBN}}$	0.246708	$0.24671^{+0.00018}_{-0.00021}$	$\sigma_8(0.61)$	0.5910	$0.591^{+0.012}_{-0.011}$
$r_{143 \times 217}^{\text{CIB}}$	0.78	—	$10^5 D/H$	2.592	$2.592^{+0.091}_{-0.085}$	$f\sigma_8(2.33)$	0.2983	$0.2982^{+0.0059}_{-0.0058}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.09	—	Age/Gyr	13.785	$13.784^{+0.065}_{-0.059}$	$\sigma_8(2.33)$	0.3078	$0.3078^{+0.0064}_{-0.0061}$
$A^{\text{kSZ}}$	0.2	—	$z_*$	1089.81	$1089.80^{+0.69}_{-0.66}$	$f_{2000}^{143}$	30.1	$30^{+8}_{-7}$
$A_{100}^{\text{dust}}$	1.01	$1.02^{+0.53}_{-0.50}$	$r_*$	144.92	$144.94^{+0.67}_{-0.71}$	$f_{2000}^{217}$	107.0	$107.0^{+5.1}_{-5.0}$
$A_{143}^{\text{dust}}$	0.980	$0.97^{+0.44}_{-0.45}$	$100\theta_*$	1.04138	$1.04139^{+0.00092}_{-0.0010}$	$f_{2000}^{143 \times 217}$	32.2	$32^{+6}_{-6}$
$A_{217}^{\text{dust}}$	0.968	$0.97^{+0.26}_{-0.27}$	$D_M(z_*)/\text{Gpc}$	13.916	$13.918^{+0.066}_{-0.072}$	$\chi_{\text{lensing}}^2$	9.17	$9.6 (\nu: 0.6)$
$A_{143 \times 217}^{\text{dust}}$	1.002	$1.02^{+0.43}_{-0.43}$	$z_{\text{drag}}$	1059.74	$1059.7^{+1.0}_{-1.1}$	$\chi_{\text{small}}^2$	396.8	$397.7 (\nu: 2.6)$
$c_{100}$	0.99765	$0.9976^{+0.0029}_{-0.0028}$	$r_{\text{drag}}$	147.60	$147.62^{+0.77}_{-0.77}$	$\chi_{\text{lowl}}^2$	22.60	$22.66 (\nu: 0.3)$
$c_{217}$	1.00136	$1.0012^{+0.0040}_{-0.0038}$	$k_{\text{D}}$	0.14030	$0.1403^{+0.0010}_{-0.0010}$	$\chi_{\text{CamSpec}}^2$	7052.0	$7064.2 (\nu: 14.4)$
$H_0$	68.05	$68.1^{+1.1}_{-1.2}$	$100\theta_{\text{D}}$	0.16090	$0.16091^{+0.00066}_{-0.00059}$	$\chi_{\text{H073p45}}^2$	10.58	$10.5 (\nu: 1.6)$
$\Omega_{\Lambda}$	0.6951	$0.695^{+0.014}_{-0.016}$	$z_{\text{eq}}$	3359	$3357^{+62}_{-59}$	$\chi_{\text{JLA}}^2$	1034.807	$1034.87 (\nu: 0.0)$
$\Omega_{\text{m}}$	0.3049	$0.305^{+0.016}_{-0.014}$	$k_{\text{eq}}$	0.010251	$0.01025^{+0.00019}_{-0.00018}$	$\chi_{6\text{DF}}^2$	0.000	$0.025 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.14119	$0.1411^{+0.0026}_{-0.0025}$	$100\theta_{\text{eq}}$	0.8213	$0.822^{+0.011}_{-0.011}$	$\chi_{\text{MGS}}^2$	1.68	$1.77 (\nu: 0.1)$
$\Omega_{\text{m}} h^3$	0.09608	$0.0961^{+0.0010}_{-0.0011}$	$100\theta_{\text{s,eq}}$	0.4536	$0.4538^{+0.0056}_{-0.0059}$	$\chi_{\text{DR12BAO}}^2$	3.49	$3.85 (\nu: 0.2)$
$\sigma_8$	0.8080	$0.808^{+0.017}_{-0.017}$	$H(0.15)$	73.26	$73.28^{+0.96}_{-1.0}$	$\chi_{\text{prior}}^2$	2.1	$7.5 (\nu: 6.0)$
$S_8$	0.8146	$0.814^{+0.029}_{-0.030}$	$D_M(0.15)$	637.5	$637^{+10}_{-9.4}$	$\chi_{\text{CMB}}^2$	7480.6	$7494.3 (\nu: 15.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4462	$0.446^{+0.016}_{-0.017}$	$H(0.38)$	83.25	$83.27^{+0.74}_{-0.78}$	$\chi_{\text{BAO}}^2$	5.16	$5.64 (\nu: 0.2)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6004	$0.600^{+0.016}_{-0.016}$	$D_M(0.38)$	1522.1	$1522^{+20}_{-19}$			
$\sigma_8/h^{0.5}$	0.9795	$0.979^{+0.023}_{-0.024}$	$H(0.51)$	89.90	$89.91^{+0.61}_{-0.65}$			

Best-fit  $\chi_{\text{eff}}^2 = 8533.26$ ;  $\bar{\chi}_{\text{eff}}^2 = 8552.81$ ;  $R - 1 = 0.02978$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.49 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 9.17 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.83 comman-  
der\_dx12\_v3\_2\_29: 22.60 CamSpec like\_10.7HM: 7051.98 Hubble - H073p45: 10.58 SN - JLA Pantheon18: 1034.81



## 2.121 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02216^{+0.00051}_{-0.00051}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.020}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$646^{+15}_{-15}$
$\Omega_{\mathrm{c}} h^2$	$0.1201^{+0.0038}_{-0.0038}$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.027}$	$H(0.38)$	$82.7^{+1.1}_{-1.1}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0011}$	$r_{\mathrm{drag}} h$	$98.9^{+3.1}_{-2.9}$	$D_{\mathrm{M}}(0.38)$	$1538^{+30}_{-30}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.447^{+0.065}_{-0.064}$	$H(0.51)$	$89.43^{+0.92}_{-0.86}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.039}_{-0.027}$	$z_{\mathrm{re}}$	$< 9.41$	$D_{\mathrm{M}}(0.51)$	$1992^{+35}_{-36}$
$n_{\mathrm{s}}$	$0.964^{+0.012}_{-0.012}$	$10^9 A_{\mathrm{s}}$	$2.095^{+0.082}_{-0.056}$	$H(0.61)$	$95.09^{+0.77}_{-0.72}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0065}_{-0.0064}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.029}_{-0.029}$	$D_{\mathrm{M}}(0.61)$	$2317^{+38}_{-39}$
$A_{100}^{\mathrm{PS}}$	$243^{+60}_{-60}$	$D_{40}$	$1229^{+34}_{-32}$	$H(2.33)$	$236.4^{+2.4}_{-2.3}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5706^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5774^{+35}_{-36}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{810}$	$2533^{+35}_{-34}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.83$	$D_{2000}$	$229.5^{+4.6}_{-4.6}$	$f\sigma_8(0.38)$	$0.478^{+0.016}_{-0.017}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.964^{+0.012}_{-0.012}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.010}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24530^{+0.00020}_{-0.00024}$	$f\sigma_8(0.51)$	$0.476^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0093}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.627^{+0.099}_{-0.094}$	$f\sigma_8(0.61)$	$0.471^{+0.012}_{-0.013}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.52}_{-0.51}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.821^{+0.080}_{-0.082}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0087}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.45}$	$z_*$	$1090.21^{+0.86}_{-0.86}$	$f\sigma_8(2.33)$	$0.2974^{+0.0060}_{-0.0044}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$	$r_*$	$144.56^{+0.91}_{-0.90}$	$\sigma_8(2.33)$	$0.3063^{+0.0067}_{-0.0047}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.886^{+0.086}_{-0.085}$	$f_{2000}^{217}$	$107.6^{+5.3}_{-5.2}$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.4^{+1.1}_{-1.1}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-6}$
$H_0$	$67.1^{+1.8}_{-1.7}$	$r_{\mathrm{drag}}$	$147.29^{+0.95}_{-0.93}$	$\chi_{\mathrm{lensing}}^2$	$9.49 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.682^{+0.023}_{-0.025}$	$k_{\mathrm{D}}$	$0.1405^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.318^{+0.025}_{-0.023}$	$100\theta_{\mathrm{D}}$	$0.16105^{+0.00065}_{-0.00063}$	$\chi_{\mathrm{lowl}}^2$	$23.5 (\nu: 0.5)$
$\Omega_{\mathrm{m}} h^2$	$0.1429^{+0.0037}_{-0.0036}$	$z_{\mathrm{eq}}$	$3401^{+88}_{-87}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.6 (\nu: 13.0)$
$\Omega_{\mathrm{m}} h^3$	$0.0959^{+0.0011}_{-0.0011}$	$k_{\mathrm{eq}}$	$0.01038^{+0.00027}_{-0.00027}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 6.0)$
$\sigma_8$	$0.811^{+0.016}_{-0.015}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.017}_{-0.016}$	$\chi_{\mathrm{CMB}}^2$	$7492.4 (\nu: 13.9)$
$S_8$	$0.835^{+0.042}_{-0.041}$	$100\theta_{\mathrm{s,eq}}$	$0.4494^{+0.0086}_{-0.0083}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.023}_{-0.023}$	$H(0.15)$	$72.5^{+1.5}_{-1.5}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7500.01$ ;  $R - 1 = 0.00502$



## 2.122 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02223^{+0.00047}_{-0.00048}$	$\sigma_8/h^{0.5}$	$0.985^{+0.023}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1530^{+22}_{-21}$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0028}_{-0.0027}$	$r_{\mathrm{drag}}h$	$99.7^{+2.1}_{-2.1}$	$H(0.51)$	$89.66^{+0.69}_{-0.68}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.434^{+0.055}_{-0.054}$	$D_{\mathrm{M}}(0.51)$	$1982^{+26}_{-25}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$z_{\mathrm{re}}$	$< 9.54$	$H(0.61)$	$95.27^{+0.59}_{-0.59}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.037}_{-0.029}$	$10^9 A_{\mathrm{s}}$	$2.100^{+0.080}_{-0.061}$	$D_{\mathrm{M}}(0.61)$	$2307^{+28}_{-27}$
$n_{\mathrm{s}}$	$0.967^{+0.010}_{-0.010}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.877^{+0.028}_{-0.027}$	$H(2.33)$	$235.8^{+1.8}_{-1.7}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0065}_{-0.0060}$	$D_{40}$	$1225^{+31}_{-31}$	$D_{\mathrm{M}}(2.33)$	$5766^{+30}_{-30}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{220}$	$5714^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2534^{+35}_{-33}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.012}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.9^{+4.4}_{-4.5}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.011}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.81$	$n_{\mathrm{s},0.002}$	$0.967^{+0.010}_{-0.010}$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.012}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.32}$	$Y_{\mathrm{P}}$	$0.24533^{+0.00018}_{-0.00023}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0099}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00018}_{-0.00023}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.613^{+0.093}_{-0.086}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0094}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.805^{+0.069}_{-0.068}$	$f\sigma_8(2.33)$	$0.2978^{+0.0059}_{-0.0047}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.53}_{-0.51}$	$z_*$	$1090.03^{+0.72}_{-0.70}$	$\sigma_8(2.33)$	$0.3070^{+0.0063}_{-0.0049}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.44}$	$r_*$	$144.77^{+0.72}_{-0.73}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.4^{+5.2}_{-5.2}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.904^{+0.070}_{-0.071}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-6}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$z_{\mathrm{drag}}$	$1059.5^{+1.0}_{-1.1}$	$\chi_{\mathrm{lensing}}^2$	$9.35 (\nu: 0.3)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0038}$	$r_{\mathrm{drag}}$	$147.49^{+0.81}_{-0.80}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 1.8)$
$H_0$	$67.6^{+1.2}_{-1.3}$	$k_{\mathrm{D}}$	$0.1403^{+0.0010}_{-0.0011}$	$\chi_{\mathrm{lowl}}^2$	$23.04 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.017}$	$100\theta_{\mathrm{D}}$	$0.16101^{+0.00066}_{-0.00060}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.0 (\nu: 13.4)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.017}_{-0.016}$	$z_{\mathrm{eq}}$	$3378^{+65}_{-62}$	$\chi_{6\mathrm{DF}}^2$	$0.056 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0027}_{-0.0026}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00020}_{-0.00019}$	$\chi_{\mathrm{MGS}}^2$	$1.29 (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0011}_{-0.0011}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.1)$
$\sigma_8$	$0.809^{+0.016}_{-0.014}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0060}_{-0.0062}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 6.0)$
$S_8$	$0.824^{+0.032}_{-0.030}$	$H(0.15)$	$72.9^{+1.1}_{-1.1}$	$\chi_{\mathrm{CMB}}^2$	$7492.6 (\nu: 14.1)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.017}$	$D_{\mathrm{M}}(0.15)$	$642^{+11}_{-11}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.7)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.016}_{-0.016}$	$H(0.38)$	$82.95^{+0.82}_{-0.83}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7506.32; R - 1 = 0.00854$$



### 2.123 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02234^{+0.00047}_{-0.00051}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.019}_{-0.023}$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-17}$
$\Omega_{\mathrm{c}}h^2$	$0.1181^{+0.0037}_{-0.0046}$	$\sigma_8/h^{0.5}$	$0.979^{+0.027}_{-0.032}$	$H(0.38)$	$83.3^{+1.3}_{-1.1}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}}h$	$100.5^{+3.8}_{-2.9}$	$D_{\mathrm{M}}(0.38)$	$1521^{+29}_{-34}$
$\tau$	$0.059^{+0.023}_{-0.017}$	$\langle d^2 \rangle^{1/2}$	$2.422^{+0.063}_{-0.080}$	$H(0.51)$	$89.92^{+0.99}_{-0.87}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.048^{+0.038}_{-0.031}$	$z_{\mathrm{re}}$	$< 10.2$	$D_{\mathrm{M}}(0.51)$	$1972^{+34}_{-40}$
$n_{\mathrm{s}}$	$0.969^{+0.016}_{-0.012}$	$10^9 A_{\mathrm{s}}$	$2.107^{+0.081}_{-0.065}$	$H(0.61)$	$95.48^{+0.76}_{-0.72}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0063}_{-0.0059}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.873^{+0.029}_{-0.036}$	$D_{\mathrm{M}}(0.61)$	$2296^{+37}_{-43}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-60}$	$D_{40}$	$1221^{+32}_{-38}$	$H(2.33)$	$235.3^{+2.3}_{-2.8}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5724^{+99}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5757^{+35}_{-32}$
$A_{217}^{\mathrm{PS}}$	$102^{+40}_{-30}$	$D_{810}$	$2535^{+34}_{-33}$	$f\sigma_8(0.15)$	$0.451^{+0.020}_{-0.023}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+11}_{-13}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.84$	$D_{2000}$	$230.5^{+4.3}_{-4.5}$	$f\sigma_8(0.38)$	$0.471^{+0.016}_{-0.019}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.969^{+0.016}_{-0.012}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.011}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00018}_{-0.00023}$	$f\sigma_8(0.51)$	$0.470^{+0.014}_{-0.016}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00018}_{-0.00023}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.593^{+0.098}_{-0.085}$	$f\sigma_8(0.61)$	$0.466^{+0.012}_{-0.015}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.52}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.784^{+0.078}_{-0.070}$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.010}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.43}_{-0.44}$	$z_*$	$1089.80^{+0.84}_{-0.71}$	$f\sigma_8(2.33)$	$0.2983^{+0.0058}_{-0.0052}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$r_*$	$144.9^{+1.1}_{-0.90}$	$\sigma_8(2.33)$	$0.3079^{+0.0070}_{-0.0055}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.44}$	$100\theta_*$	$1.0414^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$c_{100}$	$0.9976^{+0.0030}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.918^{+0.095}_{-0.085}$	$f_{2000}^{217}$	$107.0^{+5.1}_{-5.0}$
$c_{217}$	$1.0012^{+0.0040}_{-0.0037}$	$z_{\mathrm{drag}}$	$1059.7^{+1.0}_{-1.1}$	$f_{2000}^{143\times 217}$	$32^{+6}_{-6}$
$H_0$	$68.1^{+2.1}_{-1.7}$	$r_{\mathrm{drag}}$	$147.6^{+1.1}_{-0.94}$	$\chi_{\mathrm{lensing}}^2$	$9.8 (\nu: 1.0)$
$\Omega_{\Lambda}$	$0.695^{+0.027}_{-0.023}$	$k_{\mathrm{D}}$	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{simall}}^2$	$397.9 (\nu: 3.4)$
$\Omega_{\mathrm{m}}$	$0.305^{+0.023}_{-0.027}$	$100\theta_{\mathrm{D}}$	$0.16091^{+0.00065}_{-0.00056}$	$\chi_{\mathrm{lowl}}^2$	$22.67 (\nu: 0.4)$
$\Omega_{\mathrm{m}}h^2$	$0.1411^{+0.0036}_{-0.0045}$	$z_{\mathrm{eq}}$	$3357^{+86}_{-110}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.4 (\nu: 15.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0010}_{-0.0011}$	$k_{\mathrm{eq}}$	$0.01024^{+0.00026}_{-0.00033}$	$\chi_{\mathrm{H073p45}}^2$	$10.6 (\nu: 3.5)$
$\sigma_8$	$0.808^{+0.017}_{-0.017}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.021}_{-0.016}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 5.9)$
$S_8$	$0.814^{+0.040}_{-0.045}$	$100\theta_{\mathrm{s,eq}}$	$0.454^{+0.011}_{-0.0083}$	$\chi_{\mathrm{CMB}}^2$	$7494.7 (\nu: 19.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.446^{+0.022}_{-0.025}$	$H(0.15)$	$73.3^{+1.8}_{-1.5}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7512.76$ ;  $R - 1 = 0.03489$



## 2.124 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02233^{+0.00047}_{-0.00048}$	$\sigma_8/h^{0.5}$	$0.980^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1522^{+21}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.1182^{+0.0027}_{-0.0025}$	$r_{\mathrm{drag}}h$	$100.5^{+1.9}_{-2.1}$	$H(0.51)$	$89.90^{+0.63}_{-0.67}$
$100\theta_{\mathrm{MC}}$	$1.04119^{+0.00093}_{-0.0010}$	$\langle d^2 \rangle^{1/2}$	$2.423^{+0.054}_{-0.054}$	$D_{\mathrm{M}}(0.51)$	$1973^{+25}_{-23}$
$\tau$	$0.059^{+0.019}_{-0.016}$	$z_{\mathrm{re}}$	$< 9.79$	$H(0.61)$	$95.47^{+0.53}_{-0.58}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.048^{+0.040}_{-0.031}$	$10^9 A_{\mathrm{s}}$	$2.107^{+0.085}_{-0.064}$	$D_{\mathrm{M}}(0.61)$	$2296^{+27}_{-25}$
$n_{\mathrm{s}}$	$0.969^{+0.010}_{-0.010}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.874^{+0.028}_{-0.027}$	$H(2.33)$	$235.4^{+1.8}_{-1.6}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0064}_{-0.0060}$	$D_{40}$	$1222^{+30}_{-31}$	$D_{\mathrm{M}}(2.33)$	$5757^{+29}_{-26}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-60}$	$D_{220}$	$5725^{+98}_{-100}$	$f\sigma_8(0.15)$	$0.451^{+0.015}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2535^{+34}_{-33}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{1420}$	$817^{+11}_{-13}$	$f\sigma_8(0.38)$	$0.471^{+0.013}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{2000}$	$230.5^{+3.9}_{-4.4}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.012}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.84$	$n_{\mathrm{s},0.002}$	$0.969^{+0.010}_{-0.010}$	$f\sigma_8(0.51)$	$0.470^{+0.012}_{-0.012}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.32}$	$Y_{\mathrm{P}}$	$0.24538^{+0.00018}_{-0.00021}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.011}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00018}_{-0.00021}$	$f\sigma_8(0.61)$	$0.466^{+0.011}_{-0.011}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.593^{+0.092}_{-0.086}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.010}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.785^{+0.067}_{-0.060}$	$f\sigma_8(2.33)$	$0.2983^{+0.0059}_{-0.0052}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.53}_{-0.50}$	$z_*$	$1089.81^{+0.71}_{-0.67}$	$\sigma_8(2.33)$	$0.3078^{+0.0064}_{-0.0054}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.44}_{-0.45}$	$r_*$	$144.93^{+0.68}_{-0.72}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$100\theta_*$	$1.04138^{+0.00093}_{-0.0010}$	$f_{2000}^{217}$	$107.0^{+5.2}_{-5.0}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.43}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.917^{+0.067}_{-0.073}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-6}$
$c_{100}$	$0.9976^{+0.0029}_{-0.0028}$	$z_{\mathrm{drag}}$	$1059.7^{+1.0}_{-1.1}$	$\chi_{\mathrm{lensing}}^2$	$9.6 (\nu: 0.6)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0038}$	$r_{\mathrm{drag}}$	$147.61^{+0.78}_{-0.76}$	$\chi_{\mathrm{simall}}^2$	$397.7 (\nu: 2.6)$
$H_0$	$68.1^{+1.2}_{-1.2}$	$k_{\mathrm{D}}$	$0.1403^{+0.0010}_{-0.0010}$	$\chi_{\mathrm{lowl}}^2$	$22.69 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.695^{+0.014}_{-0.016}$	$100\theta_{\mathrm{D}}$	$0.16091^{+0.00066}_{-0.00059}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.1 (\nu: 14.4)$
$\Omega_{\mathrm{m}}$	$0.305^{+0.016}_{-0.014}$	$z_{\mathrm{eq}}$	$3358^{+64}_{-60}$	$\chi_{\mathrm{H073p45}}^2$	$10.6 (\nu: 1.7)$
$\Omega_{\mathrm{m}}h^2$	$0.1412^{+0.0027}_{-0.0025}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00020}_{-0.00018}$	$\chi_{6\mathrm{DF}}^2$	$0.027 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0010}_{-0.0011}$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.011}_{-0.012}$	$\chi_{\mathrm{MGS}}^2$	$1.74 (\nu: 0.1)$
$\sigma_8$	$0.808^{+0.017}_{-0.015}$	$100\theta_{\mathrm{s,eq}}$	$0.4536^{+0.0057}_{-0.0060}$	$\chi_{\mathrm{DR12BAO}}^2$	$3.90 (\nu: 0.3)$
$S_8$	$0.815^{+0.030}_{-0.031}$	$H(0.15)$	$73.3^{+1.0}_{-1.1}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 6.0)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.446^{+0.016}_{-0.017}$	$D_{\mathrm{M}}(0.15)$	$638^{+10}_{-9.6}$	$\chi_{\mathrm{CMB}}^2$	$7494.1 (\nu: 15.7)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.016}_{-0.017}$	$H(0.38)$	$83.25^{+0.76}_{-0.80}$	$\chi_{\mathrm{BAO}}^2$	$5.67 (\nu: 0.2)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 7517.92; R - 1 = 0.02825$$



## 2.125 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02219^{+0.00049}_{-0.00051}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.019}_{-0.019}$	$D_{\mathrm{M}}(0.15)$	$644^{+14}_{-14}$
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0036}_{-0.0035}$	$\sigma_8/h^{0.5}$	$0.988^{+0.025}_{-0.026}$	$H(0.38)$	$82.8^{+1.1}_{-1.0}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}}h$	$99.2^{+2.8}_{-2.7}$	$D_{\mathrm{M}}(0.38)$	$1535^{+28}_{-28}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.442^{+0.062}_{-0.063}$	$H(0.51)$	$89.53^{+0.88}_{-0.83}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.038}_{-0.028}$	$z_{\mathrm{re}}$	$< 9.48$	$D_{\mathrm{M}}(0.51)$	$1988^{+33}_{-33}$
$n_{\mathrm{s}}$	$0.965^{+0.012}_{-0.012}$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.081}_{-0.058}$	$H(0.61)$	$95.17^{+0.72}_{-0.69}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0063}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.030}_{-0.028}$	$D_{\mathrm{M}}(0.61)$	$2312^{+36}_{-36}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{40}$	$1227^{+32}_{-32}$	$H(2.33)$	$236.2^{+2.2}_{-2.2}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5710^{+100}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5771^{+34}_{-35}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{810}$	$2534^{+35}_{-33}$	$f\sigma_8(0.15)$	$0.459^{+0.020}_{-0.020}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.81$	$D_{2000}$	$229.7^{+4.6}_{-4.6}$	$f\sigma_8(0.38)$	$0.477^{+0.015}_{-0.016}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.012}_{-0.012}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.011}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24532^{+0.00019}_{-0.00024}$	$f\sigma_8(0.51)$	$0.475^{+0.013}_{-0.014}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00019}_{-0.00024}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0097}$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.620^{+0.098}_{-0.090}$	$f\sigma_8(0.61)$	$0.470^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.53}_{-0.51}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.814^{+0.078}_{-0.078}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0090}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.45}$	$z_*$	$1090.12^{+0.84}_{-0.81}$	$f\sigma_8(2.33)$	$0.2975^{+0.0060}_{-0.0045}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$r_*$	$144.65^{+0.86}_{-0.85}$	$\sigma_8(2.33)$	$0.3066^{+0.0066}_{-0.0048}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.893^{+0.081}_{-0.081}$	$f_{2000}^{217}$	$107.5^{+5.1}_{-5.1}$
$c_{217}$	$1.0012^{+0.0041}_{-0.0038}$	$z_{\mathrm{drag}}$	$1059.5^{+1.0}_{-1.1}$	$f_{2000}^{143\times 217}$	$33^{+5}_{-6}$
$H_0$	$67.3^{+1.7}_{-1.6}$	$r_{\mathrm{drag}}$	$147.37^{+0.92}_{-0.89}$	$\chi_{\mathrm{lensing}}^2$	$9.41\ (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.685^{+0.022}_{-0.023}$	$k_{\mathrm{D}}$	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{simall}}^2$	$397.0\ (\nu: 1.6)$
$\Omega_{\mathrm{m}}$	$0.315^{+0.023}_{-0.022}$	$100\theta_{\mathrm{D}}$	$0.16102^{+0.00066}_{-0.00062}$	$\chi_{\mathrm{lowl}}^2$	$23.29\ (\nu: 0.5)$
$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0034}_{-0.0033}$	$z_{\mathrm{eq}}$	$3391^{+82}_{-79}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.8\ (\nu: 13.3)$
$\Omega_{\mathrm{m}}h^3$	$0.0959^{+0.0011}_{-0.0011}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00025}_{-0.00024}$	$\chi_{\mathrm{JLA}}^2$	$1035.39\ (\nu: 0.2)$
$\sigma_8$	$0.810^{+0.016}_{-0.015}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.015}_{-0.015}$	$\chi_{\mathrm{prior}}^2$	$7.6\ (\nu: 6.1)$
$S_8$	$0.830^{+0.039}_{-0.039}$	$100\theta_{\mathrm{s,eq}}$	$0.4504^{+0.0079}_{-0.0078}$	$\chi_{\mathrm{CMB}}^2$	$7492.5\ (\nu: 14.2)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.021}_{-0.021}$	$H(0.15)$	$72.6^{+1.4}_{-1.4}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 8535.44$ ;  $R - 1 = 0.00636$



## 2.126 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_JLA\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02234^{+0.00047}_{-0.00046}$	$r_{\text{drag}} h$	$100.5^{+1.9}_{-2.0}$	$D_{\text{M}}(0.51)$	$1972^{+24}_{-22}$
$\Omega_c h^2$	$0.1181^{+0.0027}_{-0.0024}$	$\langle d^2 \rangle^{1/2}$	$2.422^{+0.055}_{-0.052}$	$H(0.61)$	$95.48^{+0.53}_{-0.58}$
$100\theta_{\text{MC}}$	$1.04120^{+0.00092}_{-0.0010}$	$z_{\text{re}}$	$< 9.81$	$D_{\text{M}}(0.61)$	$2295^{+27}_{-24}$
$\tau$	$0.059^{+0.019}_{-0.016}$	$10^9 A_{\text{s}}$	$2.107^{+0.079}_{-0.069}$	$H(2.33)$	$235.3^{+1.8}_{-1.6}$
$\ln(10^{10} A_{\text{s}})$	$3.048^{+0.037}_{-0.033}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.874^{+0.028}_{-0.028}$	$D_{\text{M}}(2.33)$	$5757^{+29}_{-29}$
$n_{\text{s}}$	$0.9692^{+0.0099}_{-0.010}$	$D_{40}$	$1221^{+30}_{-30}$	$f\sigma_8(0.15)$	$0.451^{+0.015}_{-0.018}$
$y_{\text{cal}}$	$1.0008^{+0.0067}_{-0.0060}$	$D_{220}$	$5726^{+100}_{-100}$	$\sigma_8(0.15)$	$0.747^{+0.014}_{-0.014}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-60}$	$D_{810}$	$2535^{+35}_{-34}$	$f\sigma_8(0.38)$	$0.471^{+0.013}_{-0.016}$
$A_{143}^{\text{PS}}$	$40^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-13}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.012}$
$A_{217}^{\text{PS}}$	$102^{+40}_{-30}$	$D_{2000}$	$230.6^{+4.0}_{-4.6}$	$f\sigma_8(0.51)$	$0.470^{+0.011}_{-0.014}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$n_{\text{s},0.002}$	$0.9692^{+0.0099}_{-0.010}$	$\sigma_8(0.51)$	$0.621^{+0.011}_{-0.011}$
$A_{143}^{\text{tSZ}}$	$< 8.71$	$Y_{\text{P}}$	$0.24538^{+0.00018}_{-0.00020}$	$f\sigma_8(0.61)$	$0.466^{+0.010}_{-0.013}$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.31}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24671^{+0.00018}_{-0.00020}$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.011}$
$r_{143 \times 217}^{\text{CIB}}$	—	$10^5 \text{D/H}$	$2.592^{+0.088}_{-0.086}$	$f\sigma_8(2.33)$	$0.2983^{+0.0059}_{-0.0051}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	Age/Gyr	$13.784^{+0.069}_{-0.059}$	$\sigma_8(2.33)$	$0.3078^{+0.0064}_{-0.0055}$
$A^{\text{kSZ}}$	—	$z_*$	$1089.79^{+0.70}_{-0.68}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$A_{100}^{\text{dust}}$	$1.02^{+0.52}_{-0.50}$	$r_*$	$144.95^{+0.65}_{-0.73}$	$f_{2000}^{217}$	$107.0^{+5.3}_{-5.0}$
$A_{143}^{\text{dust}}$	$0.96^{+0.41}_{-0.46}$	$100\theta_*$	$1.04139^{+0.00092}_{-0.0010}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.25}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.919^{+0.065}_{-0.074}$	$\chi_{\text{lensing}}^2$	$9.6 (\nu: 0.6)$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.43}_{-0.38}$	$z_{\text{drag}}$	$1059.7^{+1.1}_{-1.1}$	$\chi_{\text{simall}}^2$	$397.7 (\nu: 2.6)$
$c_{100}$	$0.9976^{+0.0030}_{-0.0027}$	$r_{\text{drag}}$	$147.64^{+0.70}_{-0.76}$	$\chi_{\text{lowl}}^2$	$22.66 (\nu: 0.3)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0041}$	$k_{\text{D}}$	$0.1403^{+0.0011}_{-0.0010}$	$\chi_{\text{CamSpec}}^2$	$7064.4 (\nu: 14.7)$
$H_0$	$68.1^{+1.1}_{-1.2}$	$100\theta_{\text{D}}$	$0.16091^{+0.00064}_{-0.00063}$	$\chi_{\text{H073p45}}^2$	$10.4 (\nu: 1.6)$
$\Omega_{\Lambda}$	$0.696^{+0.014}_{-0.016}$	$z_{\text{eq}}$	$3356^{+64}_{-58}$	$\chi_{\text{JLA}}^2$	$706.61 (\nu: 0.0)$
$\Omega_{\text{m}}$	$0.304^{+0.016}_{-0.014}$	$k_{\text{eq}}$	$0.01024^{+0.00020}_{-0.00018}$	$\chi_{6\text{DF}}^2$	$0.026 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	$0.1411^{+0.0027}_{-0.0024}$	$100\theta_{\text{eq}}$	$0.822^{+0.010}_{-0.012}$	$\chi_{\text{MGS}}^2$	$1.80 (\nu: 0.1)$
$\Omega_{\text{m}} h^3$	$0.0961^{+0.0011}_{-0.0010}$	$100\theta_{\text{s,eq}}$	$0.4539^{+0.0054}_{-0.0060}$	$\chi_{\text{DR12BAO}}^2$	$3.84 (\nu: 0.2)$
$\sigma_8$	$0.808^{+0.016}_{-0.017}$	$H(0.15)$	$73.31^{+0.96}_{-1.0}$	$\chi_{\text{prior}}^2$	$7.5 (\nu: 6.4)$
$S_8$	$0.813^{+0.030}_{-0.034}$	$D_{\text{M}}(0.15)$	$637^{+10}_{-9.2}$	$\chi_{\text{CMB}}^2$	$7494.4 (\nu: 16.3)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.446^{+0.016}_{-0.019}$	$H(0.38)$	$83.28^{+0.74}_{-0.79}$	$\chi_{\text{BAO}}^2$	$5.67 (\nu: 0.2)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.600^{+0.015}_{-0.019}$	$D_{\text{M}}(0.38)$	$1521^{+21}_{-19}$		
$\sigma_8/h^{0.5}$	$0.979^{+0.022}_{-0.027}$	$H(0.51)$	$89.92^{+0.62}_{-0.66}$		

$$\bar{\chi}_{\text{eff}}^2 = 8224.63; R - 1 = 0.08788$$



2.127 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02224^{+0.00047}_{-0.00048}$	$\sigma_8/h^{0.5}$	$0.984^{+0.023}_{-0.022}$	$D_M(0.38)$	$1529^{+21}_{-21}$
$\Omega_c h^2$	$0.1190^{+0.0027}_{-0.0026}$	$r_{\text{drag}} h$	$99.8^{+2.0}_{-2.1}$	$H(0.51)$	$89.69^{+0.67}_{-0.67}$
$100\theta_{\text{MC}}$	$1.0410^{+0.0010}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.054}_{-0.053}$	$D_M(0.51)$	$1981^{+25}_{-24}$
$\tau$	$0.057^{+0.018}_{-0.015}$	$z_{\text{re}}$	$< 9.57$	$H(0.61)$	$95.29^{+0.58}_{-0.58}$
$\ln(10^{10} A_s)$	$3.045^{+0.037}_{-0.030}$	$10^9 A_s$	$2.101^{+0.080}_{-0.062}$	$D_M(0.61)$	$2305^{+27}_{-27}$
$n_s$	$0.967^{+0.010}_{-0.010}$	$10^9 A_s e^{-2\tau}$	$1.876^{+0.028}_{-0.027}$	$H(2.33)$	$235.8^{+1.8}_{-1.7}$
$y_{\text{cal}}$	$1.0007^{+0.0066}_{-0.0060}$	$D_{40}$	$1224^{+31}_{-31}$	$D_M(2.33)$	$5765^{+30}_{-29}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-60}$	$D_{220}$	$5715^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.455^{+0.015}_{-0.015}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2534^{+35}_{-33}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.012}$
$A_{217}^{\text{PS}}$	$101^{+30}_{-30}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$230.0^{+4.4}_{-4.4}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.011}$
$A_{143}^{\text{tSZ}}$	$< 8.81$	$n_{\text{s},0.002}$	$0.967^{+0.010}_{-0.010}$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.011}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.32}$	$Y_{\text{P}}$	$0.24534^{+0.00018}_{-0.00022}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.010}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24667^{+0.00018}_{-0.00022}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.010}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^5 \text{D}/\text{H}$	$2.611^{+0.092}_{-0.086}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0095}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.803^{+0.068}_{-0.067}$	$f\sigma_8(2.33)$	$0.2978^{+0.0059}_{-0.0048}$
$A_{100}^{\text{dust}}$	$1.01^{+0.53}_{-0.50}$	$z_*$	$1090.00^{+0.71}_{-0.68}$	$\sigma_8(2.33)$	$0.3071^{+0.0064}_{-0.0050}$
$A_{143}^{\text{dust}}$	$0.97^{+0.45}_{-0.44}$	$r_*$	$144.80^{+0.70}_{-0.71}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.27}$	$100\theta_*$	$1.0412^{+0.0010}_{-0.0011}$	$f_{2000}^{217}$	$107.3^{+5.2}_{-5.2}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.42}$	$D_M(z_*)/\text{Gpc}$	$13.907^{+0.068}_{-0.071}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-6}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$z_{\text{drag}}$	$1059.6^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	$9.36 (\nu: 0.3)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0038}$	$r_{\text{drag}}$	$147.52^{+0.78}_{-0.79}$	$\chi_{\text{simall}}^2$	$397.2 (\nu: 1.9)$
$H_0$	$67.7^{+1.2}_{-1.2}$	$k_{\text{D}}$	$0.1403^{+0.0010}_{-0.0011}$	$\chi_{\text{lowl}}^2$	$22.98 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.690^{+0.015}_{-0.017}$	$100\theta_{\text{D}}$	$0.16100^{+0.00064}_{-0.00060}$	$\chi_{\text{CamSpec}}^2$	$7063.2 (\nu: 13.5)$
$\Omega_{\text{m}}$	$0.310^{+0.017}_{-0.015}$	$z_{\text{eq}}$	$3374^{+63}_{-60}$	$\chi_{\text{JLA}}^2$	$1035.06 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	$0.1418^{+0.0027}_{-0.0025}$	$k_{\text{eq}}$	$0.01030^{+0.00019}_{-0.00018}$	$\chi_{6\text{DF}}^2$	$0.046 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.0960^{+0.0011}_{-0.0011}$	$100\theta_{\text{eq}}$	$0.818^{+0.011}_{-0.011}$	$\chi_{\text{MGS}}^2$	$1.36 (\nu: 0.1)$
$\sigma_8$	$0.809^{+0.016}_{-0.014}$	$100\theta_{\text{s,eq}}$	$0.4520^{+0.0058}_{-0.0060}$	$\chi_{\text{DR12BAO}}^2$	$4.6 (\nu: 0.9)$
$S_8$	$0.822^{+0.030}_{-0.029}$	$H(0.15)$	$72.9^{+1.0}_{-1.1}$	$\chi_{\text{prior}}^2$	$7.6 (\nu: 6.0)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.450^{+0.017}_{-0.016}$	$D_M(0.15)$	$641^{+11}_{-10}$	$\chi_{\text{CMB}}^2$	$7492.8 (\nu: 14.3)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.604^{+0.016}_{-0.015}$	$H(0.38)$	$82.99^{+0.80}_{-0.80}$	$\chi_{\text{BAO}}^2$	$6.0 (\nu: 0.5)$

$$\bar{\chi}_{\text{eff}}^2 = 8541.35; R - 1 = 0.00983$$



2.128 base\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02234^{+0.00047}_{-0.00048}$	$r_{\mathrm{drag}}h$	$100.5^{+1.8}_{-2.0}$	$D_{\mathrm{M}}(0.51)$	$1972^{+24}_{-22}$
$\Omega_{\mathrm{c}}h^2$	$0.1181^{+0.0026}_{-0.0024}$	$\langle d^2 \rangle^{1/2}$	$2.423^{+0.055}_{-0.053}$	$H(0.61)$	$95.48^{+0.52}_{-0.56}$
$100\theta_{\mathrm{MC}}$	$1.04120^{+0.00092}_{-0.0010}$	$z_{\mathrm{re}}$	$< 9.79$	$D_{\mathrm{M}}(0.61)$	$2296^{+26}_{-24}$
$\tau$	$0.059^{+0.019}_{-0.016}$	$10^9 A_{\mathrm{s}}$	$2.107^{+0.084}_{-0.065}$	$H(2.33)$	$235.3^{+1.7}_{-1.6}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.048^{+0.039}_{-0.031}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.874^{+0.028}_{-0.027}$	$D_{\mathrm{M}}(2.33)$	$5757^{+29}_{-26}$
$n_{\mathrm{s}}$	$0.969^{+0.010}_{-0.010}$	$D_{40}$	$1221^{+30}_{-31}$	$f\sigma_8(0.15)$	$0.451^{+0.015}_{-0.016}$
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0060}$	$D_{220}$	$5726^{+97}_{-100}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.014}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-60}$	$D_{810}$	$2535^{+34}_{-33}$	$f\sigma_8(0.38)$	$0.471^{+0.013}_{-0.014}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{1420}$	$817^{+11}_{-13}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.012}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{2000}$	$230.6^{+3.9}_{-4.4}$	$f\sigma_8(0.51)$	$0.470^{+0.012}_{-0.012}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.969^{+0.010}_{-0.010}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.011}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.84$	$Y_{\mathrm{P}}$	$0.24538^{+0.00018}_{-0.00021}$	$f\sigma_8(0.61)$	$0.466^{+0.011}_{-0.011}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.32}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00018}_{-0.00021}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.010}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.592^{+0.091}_{-0.085}$	$f\sigma_8(2.33)$	$0.2983^{+0.0058}_{-0.0052}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.784^{+0.066}_{-0.059}$	$\sigma_8(2.33)$	$0.3079^{+0.0063}_{-0.0054}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1089.80^{+0.69}_{-0.65}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.53}_{-0.50}$	$r_*$	$144.94^{+0.66}_{-0.70}$	$f_{2000}^{217}$	$107.0^{+5.1}_{-5.0}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.44}_{-0.45}$	$100\theta_*$	$1.04139^{+0.00092}_{-0.0010}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.918^{+0.066}_{-0.071}$	$\chi_{\mathrm{lensing}}^2$	$9.6 (\nu: 0.6)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.43}$	$z_{\mathrm{drag}}$	$1059.7^{+1.0}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$397.7 (\nu: 2.7)$
$c_{100}$	$0.9976^{+0.0029}_{-0.0028}$	$r_{\mathrm{drag}}$	$147.63^{+0.76}_{-0.77}$	$\chi_{\mathrm{lowl}}^2$	$22.66 (\nu: 0.3)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0038}$	$k_{\mathrm{D}}$	$0.1403^{+0.0010}_{-0.0010}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.2 (\nu: 14.4)$
$H_0$	$68.1^{+1.1}_{-1.2}$	$100\theta_{\mathrm{D}}$	$0.16091^{+0.00066}_{-0.00059}$	$\chi_{\mathrm{H073p45}}^2$	$10.5 (\nu: 1.5)$
$\Omega_{\Lambda}$	$0.696^{+0.014}_{-0.016}$	$z_{\mathrm{eq}}$	$3357^{+62}_{-58}$	$\chi_{\mathrm{JLA}}^2$	$1034.87 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.016}_{-0.014}$	$k_{\mathrm{eq}}$	$0.01024^{+0.00019}_{-0.00018}$	$\chi_{6\mathrm{DF}}^2$	$0.025 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1411^{+0.0026}_{-0.0024}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.011}_{-0.011}$	$\chi_{\mathrm{MGS}}^2$	$1.77 (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0010}_{-0.0011}$	$100\theta_{\mathrm{s,eq}}$	$0.4538^{+0.0056}_{-0.0059}$	$\chi_{\mathrm{DR12BAO}}^2$	$3.84 (\nu: 0.2)$
$\sigma_8$	$0.808^{+0.016}_{-0.015}$	$H(0.15)$	$73.29^{+0.96}_{-1.0}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 6.1)$
$S_8$	$0.814^{+0.029}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$637^{+10}_{-9.4}$	$\chi_{\mathrm{CMB}}^2$	$7494.2 (\nu: 15.7)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.446^{+0.016}_{-0.017}$	$H(0.38)$	$83.27^{+0.74}_{-0.77}$	$\chi_{\mathrm{BAO}}^2$	$5.64 (\nu: 0.2)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.015}_{-0.017}$	$D_{\mathrm{M}}(0.38)$	$1522^{+20}_{-19}$		
$\sigma_8/h^{0.5}$	$0.979^{+0.023}_{-0.023}$	$H(0.51)$	$89.92^{+0.61}_{-0.64}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 8552.73; R - 1 = 0.03088$$



## 2.129 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022277	$0.02229^{+0.00039}_{-0.00039}$ (+0.7 $\sigma$ )	$S_8$	0.8292	$0.828^{+0.034}_{-0.031}$ (−0.4 $\sigma$ )	$100\theta_{s,eq}$	0.4499	$0.4502^{+0.0066}_{-0.0068}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.11981	$0.1197^{+0.0031}_{-0.0030}$ (−0.4 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4542	$0.454^{+0.018}_{-0.017}$ (−0.4 $\sigma$ )	$H(0.15)$	72.64	$72.7^{+1.2}_{-1.2}$ (+0.5 $\sigma$ )
$100\theta_{MC}$	1.04085	$1.04087^{+0.00079}_{-0.00084}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6063	$0.606^{+0.017}_{-0.016}$ (−0.4 $\sigma$ )	$D_M(0.15)$	643.7	$643^{+12}_{-11}$ (−0.5 $\sigma$ )
$\tau$	0.0529	$0.054^{+0.021}_{-0.019}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9864	$0.986^{+0.023}_{-0.023}$ (−0.4 $\sigma$ )	$H(0.38)$	82.81	$82.85^{+0.87}_{-0.86}$ (+0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0402	$3.041^{+0.039}_{-0.038}$ (+0.1 $\sigma$ )	$r_{drag} h$	99.13	$99.2^{+2.3}_{-2.4}$ (+0.4 $\sigma$ )	$D_M(0.38)$	1534.4	$1533^{+24}_{-23}$ (−0.5 $\sigma$ )
$n_s$	0.9653	$0.966^{+0.011}_{-0.010}$ (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.439	$2.438^{+0.057}_{-0.054}$ (−0.3 $\sigma$ )	$H(0.51)$	89.56	$89.60^{+0.69}_{-0.68}$ (+0.5 $\sigma$ )
$y_{cal}$	1.0006	$1.0005^{+0.0065}_{-0.0066}$ (+0.1 $\sigma$ )	$z_{re}$	7.56	$7.6^{+2.0}_{-2.0}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1987.1	$1986^{+28}_{-27}$ (−0.5 $\sigma$ )
$A_{100}^{PS}$	235	$239^{+60}_{-60}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.091	$2.092^{+0.084}_{-0.079}$ (+0.1 $\sigma$ )	$H(0.61)$	95.20	$95.23^{+0.56}_{-0.56}$ (+0.5 $\sigma$ )
$A_{143}^{PS}$	46.5	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8810	$1.879^{+0.029}_{-0.027}$ (−0.1 $\sigma$ )	$D_M(0.61)$	2311.9	$2310^{+30}_{-29}$ (−0.5 $\sigma$ )
$A_{217}^{PS}$	103.1	$102^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{40}$	1228.3	$1227^{+31}_{-30}$ (−0.2 $\sigma$ )	$H(2.33)$	236.34	$236.3^{+1.9}_{-1.8}$ (−0.2 $\sigma$ )
$A_{217}^{CIB}$	43.3	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5722	$5720^{+98}_{-98}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5768.1	$5767^{+27}_{-26}$ (−0.6 $\sigma$ )
$A_{143}^{tSZ}$	6.16	< 8.85 (+0.1 $\sigma$ )	$D_{810}$	2537.0	$2535^{+35}_{-34}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4585	$0.458^{+0.017}_{-0.016}$ (−0.4 $\sigma$ )
$r_{143 \times 217}^{PS}$	0.667	$0.66^{+0.31}_{-0.33}$ (+0.1 $\sigma$ )	$D_{1420}$	816.1	$816^{+13}_{-12}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7475	$0.747^{+0.014}_{-0.014}$ (−0.2 $\sigma$ )
$r_{143 \times 217}^{CIB}$	0.85	—	$D_{2000}$	230.34	$230.3^{+4.2}_{-4.2}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4760	$0.476^{+0.014}_{-0.013}$ (−0.4 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.52	—	$n_{s,0.002}$	0.9653	$0.966^{+0.011}_{-0.010}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6623	$0.662^{+0.013}_{-0.012}$ (−0.1 $\sigma$ )
$A^{kSZ}$	0.8	—	$Y_P$	0.245358	$0.24536^{+0.00015}_{-0.00017}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4742	$0.474^{+0.012}_{-0.011}$ (−0.4 $\sigma$ )
$A_{100}^{dust}$	1.00	$1.01^{+0.51}_{-0.51}$ (−0.0 $\sigma$ )	$Y_P^{BBN}$	0.246684	$0.24669^{+0.00015}_{-0.00017}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6196	$0.620^{+0.012}_{-0.012}$ (−0.0 $\sigma$ )
$A_{143}^{dust}$	0.978	$0.96^{+0.45}_{-0.45}$ (−0.1 $\sigma$ )	$10^5 D/H$	2.603	$2.600^{+0.075}_{-0.070}$ (−0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4690	$0.469^{+0.011}_{-0.010}$ (−0.3 $\sigma$ )
$A_{217}^{dust}$	0.975	$0.97^{+0.27}_{-0.27}$ (+0.1 $\sigma$ )	Age/Gyr	13.808	$13.805^{+0.062}_{-0.058}$ (−0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5895	$0.590^{+0.012}_{-0.011}$ (−0.0 $\sigma$ )
$A_{143 \times 217}^{dust}$	0.996	$1.03^{+0.42}_{-0.42}$ (−0.0 $\sigma$ )	$z_*$	1090.02	$1089.99^{+0.68}_{-0.64}$ (−0.7 $\sigma$ )	$f\sigma_8(2.33)$	0.2971	$0.2971^{+0.0061}_{-0.0058}$ (+0.1 $\sigma$ )
$c_{100}$	0.99777	$0.9975^{+0.0027}_{-0.0027}$ (+0.0 $\sigma$ )	$r_*$	144.55	$144.57^{+0.70}_{-0.72}$ (+0.1 $\sigma$ )	$\sigma_8(2.33)$	0.3061	$0.3062^{+0.0066}_{-0.0062}$ (+0.1 $\sigma$ )
$c_{217}$	1.00133	$1.0011^{+0.0041}_{-0.0041}$ (−0.0 $\sigma$ )	$100\theta_*$	1.04104	$1.04106^{+0.00078}_{-0.00082}$ (+0.0 $\sigma$ )	$f_{2000}^{143}$	30.4	$30^{+7}_{-7}$ (−0.4 $\sigma$ )
$c_{TE}$	0.9967	$0.997^{+0.013}_{-0.013}$	$D_M(z_*)/\text{Gpc}$	13.885	$13.887^{+0.066}_{-0.067}$ (+0.1 $\sigma$ )	$f_{2000}^{217}$	106.92	$106.9^{+4.9}_{-5.0}$ (−0.4 $\sigma$ )
$c_{EE}$	0.9925	$0.992^{+0.013}_{-0.013}$	$z_{drag}$	1059.70	$1059.74^{+0.84}_{-0.83}$ (+0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.3	$32^{+5}_{-5}$ (−0.4 $\sigma$ )
$H_0$	67.32	$67.4^{+1.3}_{-1.4}$ (+0.5 $\sigma$ )	$r_{drag}$	147.25	$147.26^{+0.71}_{-0.74}$ (−0.0 $\sigma$ )	$\chi^2_{lensing}$	8.83	9.30 ( $\nu$ : 0.2) (−0.2 $\sigma$ )
$\Omega_\Lambda$	0.6851	$0.686^{+0.018}_{-0.019}$ (+0.4 $\sigma$ )	$k_D$	0.14063	$0.14063^{+0.00087}_{-0.00085}$ (+0.3 $\sigma$ )	$\chi^2_{small}$	395.87	396.9 ( $\nu$ : 1.3) (−0.0 $\sigma$ )
$\Omega_m$	0.3149	$0.314^{+0.019}_{-0.018}$ (−0.4 $\sigma$ )	$100\theta_D$	0.160882	$0.16087^{+0.00050}_{-0.00049}$ (−0.7 $\sigma$ )	$\chi^2_{lowl}$	23.22	23.22 ( $\nu$ : 0.4) (−0.3 $\sigma$ )
$\Omega_m h^2$	0.14273	$0.1426^{+0.0030}_{-0.0028}$ (−0.3 $\sigma$ )	$z_{eq}$	3395	$3393^{+71}_{-67}$ (−0.3 $\sigma$ )	$\chi^2_{CamSpec}$	11499.6	11514.1 ( $\nu$ : 15.3) (+871.7 $\sigma$ )
$\Omega_m h^3$	0.09609	$0.09610^{+0.00080}_{-0.00081}$ (+0.4 $\sigma$ )	$k_{eq}$	0.010363	$0.01036^{+0.00022}_{-0.00021}$ (−0.3 $\sigma$ )	$\chi^2_{prior}$	2.1	7.9 ( $\nu$ : 6.0) (+0.1 $\sigma$ )
$\sigma_8$	0.8093	$0.809^{+0.016}_{-0.016}$ (−0.2 $\sigma$ )	$100\theta_{eq}$	0.8142	$0.815^{+0.013}_{-0.013}$ (+0.3 $\sigma$ )	$\chi^2_{CMB}$	11927.6	11943.6 ( $\nu$ : 16.5) (+833.2 $\sigma$ )

Best-fit  $\chi^2_{eff} = 11929.66$ ;  $\Delta\chi^2_{eff} = 4448.98$ ;  $\bar{\chi}^2_{eff} = 11951.44$ ;  $\Delta\bar{\chi}^2_{eff} = 4451.20$ ;  $R - 1 = 0.00801$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.83 ( $\Delta$  -0.08) small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 ( $\Delta$  -0.00) commander\_dx12\_v3\_2\_29: 23.22 ( $\Delta$  -0.20) CamSpec like\_10.7HM\_1400\_unified: 11499.65



### 2.130 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02234^{+0.00036}_{-0.00037} \quad (+0.6\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.015}_{-0.014} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1529^{+19}_{-18} \quad (-0.2\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1191^{+0.0025}_{-0.0024} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.022}_{-0.021} \quad (-0.2\sigma)$	$H(0.51)$	$89.73^{+0.56}_{-0.57} \quad (+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00076}_{-0.00075} \quad (-0.2\sigma)$	$r_{\mathrm{drag}} h$	$99.7^{+1.9}_{-1.9} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1980^{+22}_{-21} \quad (-0.2\sigma)$
$\tau$	$0.055^{+0.020}_{-0.017} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.052}_{-0.052} \quad (-0.1\sigma)$	$H(0.61)$	$95.33^{+0.46}_{-0.48} \quad (+0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.039}_{-0.037} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$7.8^{+1.9}_{-1.8} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2305^{+24}_{-23} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.9671^{+0.0098}_{-0.0099} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.083}_{-0.077} \quad (-0.0\sigma)$	$H(2.33)$	$235.9^{+1.5}_{-1.5} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0064} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.028}_{-0.026} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5763^{+23}_{-22} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{40}$	$1225^{+30}_{-29} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.013} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5725^{+98}_{-97} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.014} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2536^{+35}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.473^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.013}_{-0.012} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87 \quad (+0.1\sigma)$	$D_{2000}$	$230.5^{+4.1}_{-4.2} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.011} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.9671^{+0.0098}_{-0.0099} \quad (+0.1\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00013}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.010}_{-0.0099} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00013}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.592^{+0.071}_{-0.064} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.2975^{+0.0060}_{-0.0056} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.796^{+0.053}_{-0.051} \quad (-0.4\sigma)$	$\sigma_8(2.33)$	$0.3067^{+0.0065}_{-0.0059} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.44} \quad (-0.1\sigma)$	$z_*$	$1089.88^{+0.59}_{-0.55} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.28}_{-0.27} \quad (+0.1\sigma)$	$r_*$	$144.70^{+0.59}_{-0.60} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.8^{+4.9}_{-5.1} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42} \quad (+0.0\sigma)$	$100\theta_*$	$1.04114^{+0.00076}_{-0.00075} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0026} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.898^{+0.058}_{-0.056} \quad (-0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.31 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0041} \quad (-0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.79^{+0.79}_{-0.85} \quad (+0.6\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.6) \quad (-0.1\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.38^{+0.63}_{-0.64} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.98 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14054^{+0.00080}_{-0.00078} \quad (+0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.2 \quad (\nu: 15.4) \quad (+861.3\sigma)$
$H_0$	$67.7^{+1.1}_{-1.1} \quad (+0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00049}_{-0.00047} \quad (-0.7\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.047 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.014}_{-0.015} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3379^{+56}_{-55} \quad (+0.0\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.31 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.015}_{-0.014} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01031^{+0.00017}_{-0.00017} \quad (+0.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1421^{+0.0023}_{-0.0023} \quad (+0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.010}_{-0.010} \quad (+0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 6.0) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09611^{+0.00077}_{-0.00080} \quad (+0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4515^{+0.0053}_{-0.0053} \quad (-0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11943.6 \quad (\nu: 16.6) \quad (+831.3\sigma)$
$\sigma_8$	$0.808^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$H(0.15)$	$72.93^{+0.91}_{-0.93} \quad (+0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.00 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$S_8$	$0.822^{+0.028}_{-0.025} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$640.8^{+9.3}_{-8.9} \quad (-0.2\sigma)$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.015}_{-0.014} \quad (-0.2\sigma)$	$H(0.38)$	$83.02^{+0.69}_{-0.69} \quad (+0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11957.40; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.92; R - 1 = 0.01372$$



### 2.131 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00036}_{-0.00039} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.017}_{-0.021} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$638^{+11}_{-16} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1185^{+0.0030}_{-0.0042} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.016}_{-0.016} \quad (+0.1\sigma)$	$H(0.38)$	$83.2^{+1.2}_{-0.83} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04105^{+0.00098}_{-0.00080} \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.980^{+0.023}_{-0.022} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1523^{+23}_{-31} \quad (+0.1\sigma)$
$\tau$	$0.057^{+0.020}_{-0.018} \quad (-0.2\sigma)$	$r_{\mathrm{drag}}h$	$100.2^{+3.5}_{-2.3} \quad (-0.2\sigma)$	$H(0.51)$	$89.88^{+0.90}_{-0.67} \quad (-0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.040}_{-0.037} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.056}_{-0.052} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1974^{+27}_{-37} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.9685^{+0.0098}_{-0.010} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$7.9^{+1.9}_{-1.9} \quad (-0.2\sigma)$	$H(0.61)$	$95.46^{+0.69}_{-0.55} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0065}_{-0.0066} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.085}_{-0.077} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2298^{+29}_{-39} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-60} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.876^{+0.028}_{-0.026} \quad (+0.2\sigma)$	$H(2.33)$	$235.6^{+1.8}_{-2.6} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{40}$	$1223^{+30}_{-29} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5757^{+26}_{-27} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+40}_{-40} \quad (+0.1\sigma)$	$D_{220}$	$5732^{+96}_{-100} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.452^{+0.016}_{-0.020} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2537^{+34}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.015} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.86 \quad (+0.1\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.471^{+0.013}_{-0.014} \quad (+0.1\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.67^{+0.30}_{-0.35} \quad (+0.1\sigma)$	$D_{2000}$	$230.9^{+4.0}_{-4.2} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.9685^{+0.0098}_{-0.010} \quad (-0.1\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.012}_{-0.011} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24540^{+0.00013}_{-0.00016} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00013}_{-0.00016} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.011}_{-0.010} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.49} \quad (-0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.581^{+0.073}_{-0.064} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.011} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.45}_{-0.47} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.784^{+0.059}_{-0.056} \quad (-0.0\sigma)$	$f\sigma_8(2.33)$	$0.2979^{+0.0058}_{-0.0057} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$z_*$	$1089.75^{+0.64}_{-0.61} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.3073^{+0.0066}_{-0.0060} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.44}_{-0.43} \quad (-0.0\sigma)$	$r_*$	$144.8^{+1.0}_{-0.69} \quad (-0.4\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.2\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0025} \quad (+0.0\sigma)$	$100\theta_*$	$1.04123^{+0.00097}_{-0.00080} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$106.6^{+4.7}_{-5.1} \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0041} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.907^{+0.086}_{-0.064} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.2\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.89^{+0.73}_{-0.84} \quad (+0.4\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.46 \quad (\nu: 0.4) \quad (-0.3\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	$147.47^{+0.99}_{-0.72} \quad (-0.4\sigma)$	$\chi_{\mathrm{small}}^2$	$397.4 \quad (\nu: 2.3) \quad (-0.2\sigma)$
$H_0$	$68.0^{+1.9}_{-1.3} \quad (-0.2\sigma)$	$k_{\mathrm{D}}$	$0.14049^{+0.00085}_{-0.00095} \quad (+0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.78 \quad (\nu: 0.3) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.025}_{-0.018} \quad (-0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.16079^{+0.00048}_{-0.00045} \quad (-0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11515.1 \quad (\nu: 16.8) \quad (+808.5\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.018}_{-0.025} \quad (+0.2\sigma)$	$z_{\mathrm{eq}}$	$3366^{+67}_{-97} \quad (+0.3\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$11.0 \quad (\nu: 2.1) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1415^{+0.0028}_{-0.0041} \quad (+0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01027^{+0.00021}_{-0.00030} \quad (+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09617^{+0.00074}_{-0.00081} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.019}_{-0.013} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.8 \quad (\nu: 19.6) \quad (+708.3\sigma)$
$\sigma_8$	$0.808^{+0.016}_{-0.016} \quad (-0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4529^{+0.0099}_{-0.0065} \quad (-0.3\sigma)$		
$S_8$	$0.816^{+0.031}_{-0.039} \quad (+0.1\sigma)$	$H(0.15)$	$73.2^{+1.6}_{-1.1} \quad (-0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11963.63; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.76; R - 1 = 0.02452$$



## 2.132 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00034}_{-0.00037} \quad (+0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.015}_{-0.014} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1523^{+18}_{-17} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1184^{+0.0024}_{-0.0022} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.979^{+0.022}_{-0.021} \quad (-0.0\sigma)$	$H(0.51)$	$89.90^{+0.57}_{-0.55} \quad (+0.0\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04106^{+0.00081}_{-0.00078} \quad (-0.3\sigma)$	$r_{\mathrm{drag}}h$	$100.3^{+1.8}_{-1.8} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1973^{+21}_{-20} \quad (+0.1\sigma)$
$\tau$	$0.057^{+0.020}_{-0.017} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.423^{+0.053}_{-0.050} \quad (+0.0\sigma)$	$H(0.61)$	$95.47^{+0.46}_{-0.47} \quad (+0.0\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.039}_{-0.037} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$7.9^{+1.8}_{-1.8} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2297^{+23}_{-22} \quad (+0.0\sigma)$
$n_{\mathrm{s}}$	$0.9688^{+0.0093}_{-0.0097} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.084}_{-0.076} \quad (-0.1\sigma)$	$H(2.33)$	$235.5^{+1.5}_{-1.4} \quad (+0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.875^{+0.026}_{-0.026} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5756^{+23}_{-22} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-60} \quad (-0.2\sigma)$	$D_{40}$	$1223^{+30}_{-28} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.452^{+0.014}_{-0.013} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5733^{+97}_{-100} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+40}_{-40} \quad (+0.1\sigma)$	$D_{810}$	$2537^{+34}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.471^{+0.012}_{-0.012} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.89 \quad (+0.1\sigma)$	$D_{2000}$	$230.9^{+4.0}_{-4.2} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.470^{+0.011}_{-0.011} \quad (+0.0\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.67^{+0.30}_{-0.35} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.9688^{+0.0093}_{-0.0097} \quad (-0.0\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00015} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.010}_{-0.010} \quad (-0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00013}_{-0.00015} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.580^{+0.070}_{-0.060} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.2979^{+0.0058}_{-0.0056} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.48} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.783^{+0.052}_{-0.051} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.3074^{+0.0063}_{-0.0058} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.46}_{-0.47} \quad (-0.1\sigma)$	$z_*$	$1089.73^{+0.57}_{-0.53} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$r_*$	$144.83^{+0.54}_{-0.58} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$106.5^{+4.7}_{-5.1} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.42} \quad (-0.0\sigma)$	$100\theta_*$	$1.04124^{+0.00081}_{-0.00077} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0025} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.909^{+0.053}_{-0.057} \quad (-0.3\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.45 \quad (\nu: 0.4) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0041} \quad (-0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.90^{+0.72}_{-0.81} \quad (+0.4\sigma)$	$\chi_{\mathrm{small}}^2$	$397.4 \quad (\nu: 2.2) \quad (-0.1\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.49^{+0.58}_{-0.62} \quad (-0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.72 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$c_{EE}$	$0.992^{+0.012}_{-0.012}$	$k_{\mathrm{D}}$	$0.14048^{+0.00079}_{-0.00073} \quad (+0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11515.0 \quad (\nu: 16.1) \quad (+830.0\sigma)$
$H_0$	$68.0^{+1.0}_{-1.1} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16079^{+0.00048}_{-0.00044} \quad (-0.5\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$10.8 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.013}_{-0.014} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3364^{+54}_{-50} \quad (+0.2\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.021 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.014}_{-0.013} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01027^{+0.00016}_{-0.00015} \quad (+0.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.64 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1414^{+0.0022}_{-0.0021} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.8204^{+0.0097}_{-0.010} \quad (-0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$3.92 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09617^{+0.00074}_{-0.00081} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4531^{+0.0050}_{-0.0052} \quad (-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\sigma_8$	$0.808^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$H(0.15)$	$73.23^{+0.89}_{-0.91} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.6 \quad (\nu: 17.8) \quad (+791.6\sigma)$
$S_8$	$0.815^{+0.027}_{-0.025} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$637.9^{+9.0}_{-8.6} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.58 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.015}_{-0.013} \quad (+0.1\sigma)$	$H(0.38)$	$83.24^{+0.67}_{-0.68} \quad (-0.0\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11968.81; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.81; R - 1 = 0.02105$$



### 2.133 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022311	$0.02231^{+0.00037}_{-0.00039}$ $(+0.6\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4521	$0.452^{+0.018}_{-0.016}$ $(-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	642.2	$642^{+11}_{-11}$ $(-0.3\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.11940	$0.1194^{+0.0029}_{-0.0028}$ $(-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6047	$0.605^{+0.016}_{-0.016}$ $(-0.3\sigma)$	$H(0.38)$	82.92	$82.92^{+0.82}_{-0.82}$ $(+0.4\sigma)$
$100\theta_{\mathrm{MC}}$	1.04088	$1.04090^{+0.00079}_{-0.00081}$ $(-0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9844	$0.984^{+0.024}_{-0.022}$ $(-0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	1531.3	$1531^{+23}_{-22}$ $(-0.3\sigma)$
$\tau$	0.0544	$0.054^{+0.021}_{-0.019}$ $(+0.0\sigma)$	$r_{\mathrm{drag}}h$	99.45	$99.4^{+2.2}_{-2.3}$ $(+0.3\sigma)$	$H(0.51)$	89.65	$89.65^{+0.66}_{-0.66}$ $(+0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0418	$3.042^{+0.040}_{-0.038}$ $(+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	2.434	$2.435^{+0.055}_{-0.055}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	1983.5	$1984^{+27}_{-25}$ $(-0.4\sigma)$
$n_{\mathrm{s}}$	0.9664	$0.966^{+0.010}_{-0.010}$ $(+0.2\sigma)$	$z_{\mathrm{re}}$	7.69	$7.7^{+2.0}_{-2.0}$ $(+0.0\sigma)$	$H(0.61)$	95.27	$95.27^{+0.54}_{-0.54}$ $(+0.4\sigma)$
$y_{\mathrm{cal}}$	1.0006	$1.0006^{+0.0066}_{-0.0065}$ $(+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	2.094	$2.094^{+0.085}_{-0.079}$ $(+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	2308.0	$2308^{+29}_{-28}$ $(-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	234	$239^{+60}_{-60}$ $(-0.1\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8785	$1.878^{+0.028}_{-0.027}$ $(-0.0\sigma)$	$H(2.33)$	236.10	$236.1^{+1.8}_{-1.7}$ $(-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	41.2	$39^{+20}_{-20}$ $(-0.2\sigma)$	$D_{40}$	1225.9	$1226^{+30}_{-29}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	5765.3	$5765^{+26}_{-25}$ $(-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	102.2	$103^{+30}_{-30}$ $(+0.1\sigma)$	$D_{220}$	5722	$5722^{+98}_{-99}$ $(+0.3\sigma)$	$f\sigma_8(0.15)$	0.4566	$0.457^{+0.017}_{-0.015}$ $(-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	44.3	$40^{+20}_{-20}$ $(-0.2\sigma)$	$D_{810}$	2535.9	$2535^{+35}_{-34}$ $(+0.1\sigma)$	$\sigma_8(0.15)$	0.7473	$0.747^{+0.014}_{-0.014}$ $(-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	6.54	$< 8.89$ $(+0.1\sigma)$	$D_{1420}$	816.2	$816^{+13}_{-12}$ $(+0.3\sigma)$	$f\sigma_8(0.38)$	0.4747	$0.475^{+0.013}_{-0.013}$ $(-0.3\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	0.612	$0.66^{+0.31}_{-0.34}$ $(+0.1\sigma)$	$D_{2000}$	230.41	$230.3^{+4.2}_{-4.1}$ $(+0.4\sigma)$	$\sigma_8(0.38)$	0.6623	$0.662^{+0.013}_{-0.013}$ $(-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.79	—	$n_{\mathrm{s},0.002}$	0.9664	$0.966^{+0.010}_{-0.010}$ $(+0.2\sigma)$	$f\sigma_8(0.51)$	0.4732	$0.473^{+0.012}_{-0.011}$ $(-0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.18	—	$Y_{\mathrm{P}}$	0.245372	$0.24537^{+0.00014}_{-0.00017}$ $(+0.6\sigma)$	$\sigma_8(0.51)$	0.6198	$0.620^{+0.012}_{-0.012}$ $(-0.1\sigma)$
$A^{\mathrm{kSZ}}$	0.1	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246698	$0.24670^{+0.00014}_{-0.00017}$ $(+0.6\sigma)$	$f\sigma_8(0.61)$	0.4681	$0.468^{+0.011}_{-0.011}$ $(-0.2\sigma)$
$A_{100}^{\mathrm{dust}}$	1.00	$1.01^{+0.50}_{-0.51}$ $(-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	2.597	$2.597^{+0.075}_{-0.068}$ $(-0.6\sigma)$	$\sigma_8(0.61)$	0.5897	$0.590^{+0.012}_{-0.011}$ $(-0.0\sigma)$
$A_{143}^{\mathrm{dust}}$	0.969	$0.96^{+0.44}_{-0.44}$ $(-0.1\sigma)$	Age/Gyr	13.802	$13.802^{+0.060}_{-0.056}$ $(-0.5\sigma)$	$f\sigma_8(2.33)$	0.2973	$0.2973^{+0.0062}_{-0.0059}$ $(+0.0\sigma)$
$A_{217}^{\mathrm{dust}}$	0.972	$0.97^{+0.28}_{-0.27}$ $(+0.1\sigma)$	$z_*$	1089.94	$1089.95^{+0.65}_{-0.61}$ $(-0.6\sigma)$	$\sigma_8(2.33)$	0.3065	$0.3064^{+0.0066}_{-0.0062}$ $(+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	1.006	$1.03^{+0.42}_{-0.42}$ $(+0.0\sigma)$	$r_*$	144.63	$144.62^{+0.68}_{-0.69}$ $(-0.0\sigma)$	$f_{2000}^{143}$	30.0	$30^{+7}_{-7}$ $(-0.4\sigma)$
$c_{100}$	0.99767	$0.9976^{+0.0027}_{-0.0027}$ $(+0.1\sigma)$	$100\theta_*$	1.04107	$1.04109^{+0.00079}_{-0.00080}$ $(-0.1\sigma)$	$f_{2000}^{217}$	106.8	$106.8^{+4.9}_{-5.1}$ $(-0.3\sigma)$
$c_{217}$	1.00131	$1.0011^{+0.0042}_{-0.0041}$ $(-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.893	$13.891^{+0.065}_{-0.063}$ $(-0.0\sigma)$	$f_{2000}^{143 \times 217}$	32.1	$32^{+5}_{-5}$ $(-0.4\sigma)$
$c_{TE}$	0.9967	$0.997^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	1059.74	$1059.76^{+0.82}_{-0.82}$ $(+0.6\sigma)$	$\chi_{\mathrm{lensing}}^2$	8.86	$9.30 (\nu: 0.3)$ $(-0.2\sigma)$
$c_{EE}$	0.9923	$0.992^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	147.32	$147.31^{+0.69}_{-0.71}$ $(-0.2\sigma)$	$\chi_{\mathrm{small}}^2$	396.07	$397.0 (\nu: 1.5)$ $(-0.0\sigma)$
$H_0$	67.50	$67.5^{+1.3}_{-1.3}$ $(+0.3\sigma)$	$k_{\mathrm{D}}$	0.14058	$0.14060^{+0.00084}_{-0.00082}$ $(+0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	23.03	$23.13 (\nu: 0.3)$ $(-0.2\sigma)$
$\Omega_{\Lambda}$	0.6876	$0.687^{+0.017}_{-0.019}$ $(+0.3\sigma)$	$100\theta_{\mathrm{D}}$	0.160852	$0.16086^{+0.00050}_{-0.00048}$ $(-0.7\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	11499.5	$11514.2 (\nu: 15.5)$ $(+864.2\sigma)$
$\Omega_{\mathrm{m}}$	0.3124	$0.313^{+0.019}_{-0.017}$ $(-0.3\sigma)$	$z_{\mathrm{eq}}$	3386	$3387^{+66}_{-64}$ $(-0.2\sigma)$	$\chi_{\mathrm{JLA}}^2$	1035.10	$1035.21 (\nu: 0.1)$ $(-0.3\sigma)$
$\Omega_{\mathrm{m}}h^2$	0.14235	$0.1424^{+0.0028}_{-0.0027}$ $(-0.2\sigma)$	$k_{\mathrm{eq}}$	0.010336	$0.01034^{+0.00020}_{-0.00020}$ $(-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	2.2	$7.8 (\nu: 6.1)$ $(+0.1\sigma)$
$\Omega_{\mathrm{m}}h^3$	0.09609	$0.09611^{+0.00077}_{-0.00080}$ $(+0.4\sigma)$	$100\theta_{\mathrm{eq}}$	0.8159	$0.816^{+0.012}_{-0.012}$ $(+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	11927.5	$11943.6 (\nu: 16.8)$ $(+831.7\sigma)$
$\sigma_8$	0.8088	$0.809^{+0.016}_{-0.016}$ $(-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4508	$0.4507^{+0.0062}_{-0.0063}$ $(+0.2\sigma)$			
$S_8$	0.8254	$0.826^{+0.033}_{-0.030}$ $(-0.3\sigma)$	$H(0.15)$	72.79	$72.8^{+1.1}_{-1.1}$ $(+0.3\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 12964.78$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4448.76$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 12986.66$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.03$ ;  $R - 1 = 0.01285$

$\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.86 ( $\Delta$  -0.02) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.07 ( $\Delta$  0.02) commander\_dx12.v3.2.29: 23.03 ( $\Delta$  -0.20) CamSpec like\_10.7HM\_1400\_unified: 11499.55 SN - JLA Pantheon18: 1035.10 ( $\Delta$  -0.19)



### 2.134 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_JLA\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02241^{+0.00037}_{-0.00036}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.015}_{-0.016}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1522^{+18}_{-17}$ (+0.1 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1183^{+0.0023}_{-0.0022}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.979^{+0.022}_{-0.023}$ (+0.1 $\sigma$ )	$H(0.51)$	$89.91^{+0.53}_{-0.55}$ (−0.1 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.04107^{+0.00072}_{-0.00079}$ (−0.3 $\sigma$ )	$r_{\mathrm{drag}}h$	$100.3^{+1.7}_{-1.8}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1973^{+21}_{-20}$ (+0.1 $\sigma$ )
$\tau$	$0.058^{+0.018}_{-0.017}$ (−0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.423^{+0.054}_{-0.052}$ (+0.1 $\sigma$ )	$H(0.61)$	$95.48^{+0.46}_{-0.46}$ (−0.0 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.037}_{-0.035}$ (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	$8.0^{+1.7}_{-1.8}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2297^{+23}_{-22}$ (+0.1 $\sigma$ )
$n_{\mathrm{s}}$	$0.9690^{+0.0093}_{-0.0099}$ (−0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}$	$2.104^{+0.080}_{-0.074}$ (−0.0 $\sigma$ )	$H(2.33)$	$235.5^{+1.4}_{-1.4}$ (+0.3 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0009^{+0.0063}_{-0.0066}$ (+0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.875^{+0.026}_{-0.026}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5756^{+23}_{-22}$ (−0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$237^{+70}_{-60}$ (−0.2 $\sigma$ )	$D_{40}$	$1222^{+30}_{-29}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	$0.451^{+0.013}_{-0.014}$ (+0.2 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	$5732^{+92}_{-92}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	$0.747^{+0.014}_{-0.015}$ (+0.0 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$103^{+40}_{-40}$ (+0.1 $\sigma$ )	$D_{810}$	$2537^{+32}_{-33}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	$0.471^{+0.012}_{-0.013}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	$817^{+12}_{-12}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.012}$ (−0.0 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	$< 8.99$ (+0.1 $\sigma$ )	$D_{2000}$	$231.0^{+4.1}_{-4.0}$ (+0.2 $\sigma$ )	$f\sigma_8(0.51)$	$0.470^{+0.011}_{-0.012}$ (+0.1 $\sigma$ )
$r_{143\times 217}^{\mathrm{PS}}$	$0.67^{+0.31}_{-0.34}$ (+0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	$0.9690^{+0.0093}_{-0.0099}$ (−0.0 $\sigma$ )	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.012}$ (−0.0 $\sigma$ )
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00014}_{-0.00015}$ (+0.4 $\sigma$ )	$f\sigma_8(0.61)$	$0.466^{+0.010}_{-0.011}$ (+0.1 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00014}_{-0.00015}$ (+0.4 $\sigma$ )	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.011}$ (−0.0 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.579^{+0.069}_{-0.066}$ (−0.4 $\sigma$ )	$f\sigma_8(2.33)$	$0.2980^{+0.0056}_{-0.0054}$ (−0.1 $\sigma$ )
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.45}$ (−0.0 $\sigma$ )	$\mathrm{Age}/\mathrm{Gyr}$	$13.782^{+0.051}_{-0.049}$ (−0.1 $\sigma$ )	$\sigma_8(2.33)$	$0.3075^{+0.0060}_{-0.0058}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.42}_{-0.43}$ (−0.1 $\sigma$ )	$z_*$	$1089.73^{+0.54}_{-0.54}$ (−0.2 $\sigma$ )	$f_{2000}^{143}$	$29^{+7}_{-7}$ (−0.3 $\sigma$ )
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.25}_{-0.25}$ (+0.0 $\sigma$ )	$r_*$	$144.84^{+0.53}_{-0.58}$ (−0.4 $\sigma$ )	$f_{2000}^{217}$	$106.5^{+4.6}_{-5.3}$ (−0.2 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.45}$ (−0.0 $\sigma$ )	$100\theta_*$	$1.04125^{+0.00069}_{-0.00079}$ (−0.3 $\sigma$ )	$f_{2000}^{143\times 217}$	$32^{+5}_{-5}$ (−0.3 $\sigma$ )
$c_{100}$	$0.9976^{+0.0026}_{-0.0025}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.910^{+0.052}_{-0.055}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	$9.46$ ( $\nu$ : 0.4) (−0.2 $\sigma$ )
$c_{217}$	$1.0011^{+0.0042}_{-0.0038}$ (−0.1 $\sigma$ )	$z_{\mathrm{drag}}$	$1059.90^{+0.84}_{-0.80}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{small}}^2$	$397.5$ ( $\nu$ : 2.2) (−0.1 $\sigma$ )
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$r_{\mathrm{drag}}$	$147.50^{+0.60}_{-0.61}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$22.68$ ( $\nu$ : 0.3) (+0.0 $\sigma$ )
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14047^{+0.00080}_{-0.00074}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{CamSpec}}^2$	$11515.3$ ( $\nu$ : 17.8) (+820.9 $\sigma$ )
$H_0$	$68.0^{+1.0}_{-1.0}$ (−0.2 $\sigma$ )	$100\theta_{\mathrm{D}}$	$0.16079^{+0.00047}_{-0.00049}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	$10.7$ ( $\nu$ : 1.2) (+0.1 $\sigma$ )
$\Omega_{\Lambda}$	$0.694^{+0.013}_{-0.014}$ (−0.2 $\sigma$ )	$z_{\mathrm{eq}}$	$3363^{+53}_{-51}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	$706.63$ ( $\nu$ : 0.0) (+0.1 $\sigma$ )
$\Omega_{\mathrm{m}}$	$0.306^{+0.014}_{-0.013}$ (+0.2 $\sigma$ )	$k_{\mathrm{eq}}$	$0.01026^{+0.00016}_{-0.00015}$ (+0.3 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	$0.021$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	$0.1414^{+0.0022}_{-0.0021}$ (+0.3 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.8206^{+0.0095}_{-0.0099}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$1.66$ ( $\nu$ : 0.1) (−0.3 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	$0.09617^{+0.00076}_{-0.00082}$ (+0.2 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4532^{+0.0049}_{-0.0051}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$3.89$ ( $\nu$ : 0.2) (+0.1 $\sigma$ )
$\sigma_8$	$0.808^{+0.016}_{-0.016}$ (+0.0 $\sigma$ )	$H(0.15)$	$73.24^{+0.87}_{-0.90}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$7.7$ ( $\nu$ : 5.6) (+0.0 $\sigma$ )
$S_8$	$0.815^{+0.026}_{-0.027}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$637.7^{+8.9}_{-8.5}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$11944.9$ ( $\nu$ : 19.5) (+777.2 $\sigma$ )
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.446^{+0.014}_{-0.015}$ (+0.2 $\sigma$ )	$H(0.38)$	$83.25^{+0.64}_{-0.67}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$5.57$ ( $\nu$ : 0.1) (−0.1 $\sigma$ )

$$\bar{\chi}_{\mathrm{eff}}^2 = 12675.57; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.84; R - 1 = 0.05190$$



## 2.135 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022352	$0.02234^{+0.00035}_{-0.00037}$ $(+0.6\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6027	$0.603^{+0.015}_{-0.014}$ $(-0.1\sigma)$	$D_M(0.38)$	1528.0	$1528^{+18}_{-17}$ $(-0.2\sigma)$
$\Omega_c h^2$	0.11901	$0.1190^{+0.0024}_{-0.0023}$ $(-0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9818	$0.982^{+0.022}_{-0.021}$ $(-0.1\sigma)$	$H(0.51)$	89.74	$89.75^{+0.55}_{-0.56}$ $(+0.3\sigma)$
$100\theta_{MC}$	1.04094	$1.04096^{+0.00076}_{-0.00075}$ $(-0.2\sigma)$	$r_{drag}h$	99.76	$99.8^{+1.8}_{-1.8}$ $(+0.0\sigma)$	$D_M(0.51)$	1979.7	$1979^{+22}_{-21}$ $(-0.2\sigma)$
$\tau$	0.0546	$0.056^{+0.020}_{-0.017}$ $(-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	2.427	$2.429^{+0.052}_{-0.051}$ $(-0.1\sigma)$	$H(0.61)$	95.348	$95.35^{+0.46}_{-0.47}$ $(+0.3\sigma)$
$\ln(10^{10} A_s)$	3.0417	$3.043^{+0.039}_{-0.037}$ $(-0.0\sigma)$	$z_{re}$	7.70	$7.8^{+1.9}_{-1.8}$ $(-0.1\sigma)$	$D_M(0.61)$	2303.8	$2303^{+23}_{-23}$ $(-0.2\sigma)$
$n_s$	0.9678	$0.9673^{+0.0096}_{-0.0096}$ $(+0.1\sigma)$	$10^9 A_s$	2.094	$2.098^{+0.084}_{-0.077}$ $(-0.0\sigma)$	$H(2.33)$	235.89	$235.8^{+1.5}_{-1.4}$ $(+0.1\sigma)$
$y_{cal}$	1.0006	$1.0007^{+0.0065}_{-0.0064}$ $(+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	1.8776	$1.877^{+0.028}_{-0.026}$ $(+0.1\sigma)$	$D_M(2.33)$	5761.8	$5762^{+23}_{-22}$ $(-0.3\sigma)$
$A_{100}^{PS}$	232	$239^{+60}_{-60}$ $(-0.1\sigma)$	$D_{40}$	1223.2	$1225^{+30}_{-29}$ $(+0.0\sigma)$	$f\sigma_8(0.15)$	0.4544	$0.454^{+0.014}_{-0.013}$ $(-0.1\sigma)$
$A_{143}^{PS}$	47.8	$39^{+20}_{-20}$ $(-0.2\sigma)$	$D_{220}$	5724	$5726^{+98}_{-97}$ $(+0.3\sigma)$	$\sigma_8(0.15)$	0.7466	$0.747^{+0.015}_{-0.014}$ $(-0.1\sigma)$
$A_{217}^{PS}$	104.1	$103^{+30}_{-30}$ $(+0.1\sigma)$	$D_{810}$	2537.0	$2536^{+35}_{-34}$ $(+0.1\sigma)$	$f\sigma_8(0.38)$	0.4730	$0.473^{+0.012}_{-0.011}$ $(-0.1\sigma)$
$A_{217}^{CIB}$	42.7	$40^{+20}_{-20}$ $(-0.2\sigma)$	$D_{1420}$	817.1	$816^{+13}_{-12}$ $(+0.2\sigma)$	$\sigma_8(0.38)$	0.6620	$0.662^{+0.013}_{-0.013}$ $(-0.1\sigma)$
$A_{143}^{tSZ}$	6.37	$< 8.87$ $(+0.1\sigma)$	$D_{2000}$	230.78	$230.5^{+4.1}_{-4.2}$ $(+0.3\sigma)$	$f\sigma_8(0.51)$	0.4718	$0.472^{+0.011}_{-0.010}$ $(-0.1\sigma)$
$r_{143 \times 217}^{PS}$	0.695	$0.66^{+0.31}_{-0.34}$ $(+0.1\sigma)$	$n_{s,0.002}$	0.9678	$0.9673^{+0.0096}_{-0.0096}$ $(+0.1\sigma)$	$\sigma_8(0.51)$	0.6196	$0.620^{+0.012}_{-0.012}$ $(-0.1\sigma)$
$r_{143 \times 217}^{CIB}$	0.87	—	$Y_P$	0.245389	$0.24538^{+0.00013}_{-0.00016}$ $(+0.6\sigma)$	$f\sigma_8(0.61)$	0.4670	$0.467^{+0.010}_{-0.0098}$ $(-0.1\sigma)$
$\xi^{tSZ \times CIB}$	0.64	—	$Y_P^{BBN}$	0.246715	$0.24671^{+0.00013}_{-0.00016}$ $(+0.6\sigma)$	$\sigma_8(0.61)$	0.5896	$0.590^{+0.012}_{-0.011}$ $(-0.1\sigma)$
$A^{kSZ}$	0.3	—	$10^5 D/H$	2.589	$2.591^{+0.071}_{-0.063}$ $(-0.6\sigma)$	$f\sigma_8(2.33)$	0.2973	$0.2975^{+0.0060}_{-0.0055}$ $(-0.1\sigma)$
$A_{100}^{dust}$	1.01	$1.01^{+0.50}_{-0.50}$ $(-0.0\sigma)$	Age/Gyr	13.794	$13.794^{+0.052}_{-0.050}$ $(-0.3\sigma)$	$\sigma_8(2.33)$	0.3066	$0.3068^{+0.0064}_{-0.0058}$ $(-0.0\sigma)$
$A_{143}^{dust}$	0.980	$0.95^{+0.46}_{-0.43}$ $(-0.1\sigma)$	$z_*$	1089.86	$1089.86^{+0.58}_{-0.53}$ $(-0.5\sigma)$	$f_{2000}^{143}$	29.8	$29^{+7}_{-7}$ $(-0.3\sigma)$
$A_{217}^{dust}$	0.979	$0.97^{+0.28}_{-0.27}$ $(+0.1\sigma)$	$r_*$	144.70	$144.72^{+0.57}_{-0.58}$ $(-0.3\sigma)$	$f_{2000}^{217}$	106.5	$106.7^{+4.9}_{-5.1}$ $(-0.3\sigma)$
$A_{143 \times 217}^{dust}$	0.995	$1.03^{+0.43}_{-0.42}$ $(-0.0\sigma)$	$100\theta_*$	1.04113	$1.04115^{+0.00075}_{-0.00075}$ $(-0.2\sigma)$	$f_{2000}^{143 \times 217}$	31.9	$32^{+5}_{-5}$ $(-0.3\sigma)$
$c_{100}$	0.99779	$0.9976^{+0.0027}_{-0.0026}$ $(+0.1\sigma)$	$D_M(z_*)/\text{Gpc}$	13.898	$13.900^{+0.057}_{-0.055}$ $(-0.2\sigma)$	$\chi_{lensing}^2$	8.97	$9.32 (\nu: 0.3)$ $(-0.1\sigma)$
$c_{217}$	1.00131	$1.0011^{+0.0041}_{-0.0041}$ $(-0.0\sigma)$	$z_{drag}$	1059.82	$1059.80^{+0.78}_{-0.86}$ $(+0.6\sigma)$	$\chi_{small}^2$	396.05	$397.1 (\nu: 1.7)$ $(-0.1\sigma)$
$c_{TE}$	0.9966	$0.997^{+0.013}_{-0.013}$	$r_{drag}$	147.37	$147.40^{+0.61}_{-0.63}$ $(-0.4\sigma)$	$\chi_{lowl}^2$	22.77	$22.94 (\nu: 0.3)$ $(-0.1\sigma)$
$c_{EE}$	0.9924	$0.992^{+0.013}_{-0.012}$	$k_D$	0.14056	$0.14052^{+0.00080}_{-0.00077}$ $(+0.5\sigma)$	$\chi_{CamSpec}^2$	11500.2	$11514.3 (\nu: 15.5)$ $(+857.9\sigma)$
$H_0$	67.69	$67.7^{+1.0}_{-1.1}$ $(+0.2\sigma)$	$100\theta_D$	0.160819	$0.16084^{+0.00050}_{-0.00046}$ $(-0.7\sigma)$	$\chi_{JLA}^2$	1034.98	$1035.03 (\nu: 0.0)$ $(-0.1\sigma)$
$\Omega_\Lambda$	0.6901	$0.690^{+0.013}_{-0.014}$ $(+0.1\sigma)$	$z_{eq}$	3378	$3377^{+55}_{-53}$ $(+0.1\sigma)$	$\chi_{6DF}^2$	0.022	$0.040 (\nu: 0.0)$ $(-0.1\sigma)$
$\Omega_m$	0.3099	$0.310^{+0.014}_{-0.013}$ $(-0.1\sigma)$	$k_{eq}$	0.010310	$0.01031^{+0.00017}_{-0.00016}$ $(+0.1\sigma)$	$\chi_{MGS}^2$	1.28	$1.36 (\nu: 0.1)$ $(+0.0\sigma)$
$\Omega_m h^2$	0.14201	$0.1419^{+0.0023}_{-0.0022}$ $(+0.1\sigma)$	$100\theta_{eq}$	0.8176	$0.8179^{+0.0099}_{-0.010}$ $(-0.0\sigma)$	$\chi_{DR12BAO}^2$	4.23	$4.5 (\nu: 0.7)$ $(-0.1\sigma)$
$\Omega_m h^3$	0.09613	$0.09612^{+0.00076}_{-0.00080}$ $(+0.4\sigma)$	$100\theta_{s,eq}$	0.4516	$0.4518^{+0.0051}_{-0.0052}$ $(-0.1\sigma)$	$\chi_{prior}^2$	2.0	$7.8 (\nu: 5.9)$ $(+0.1\sigma)$
$\sigma_8$	0.8078	$0.808^{+0.016}_{-0.016}$ $(-0.1\sigma)$	$H(0.15)$	72.96	$72.98^{+0.88}_{-0.91}$ $(+0.2\sigma)$	$\chi_{CMB}^2$	11928.0	$11943.7 (\nu: 16.7)$ $(+827.3\sigma)$
$S_8$	0.8210	$0.821^{+0.027}_{-0.025}$ $(-0.1\sigma)$	$D_M(0.15)$	640.5	$640.4^{+9.1}_{-8.6}$ $(-0.2\sigma)$	$\chi_{BAO}^2$	5.53	$5.88 (\nu: 0.4)$ $(-0.1\sigma)$
$\sigma_8 \Omega_m^{0.5}$	0.4497	$0.450^{+0.015}_{-0.014}$ $(-0.1\sigma)$	$H(0.38)$	83.04	$83.05^{+0.67}_{-0.68}$ $(+0.2\sigma)$			

Best-fit  $\chi_{eff}^2 = 12970.49$ ;  $\Delta\chi_{eff}^2 = 4448.61$ ;  $\bar{\chi}_{eff}^2 = 12992.39$ ;  $\Delta\bar{\chi}_{eff}^2 = 4450.90$ ;  $R - 1 = 0.01438$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.02 ( $\Delta$  0.00) MGS: 1.28 ( $\Delta$  0.00) DR12BAO: 4.23 ( $\Delta$  0.05) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp-p.teb.consext8: 8.97 ( $\Delta$  -0.05) small\_100x143\_offlike5\_EE\_Aplanck: 396.05 ( $\Delta$  -0.19) commander\_dx12\_v3.2\_29: 22.77 ( $\Delta$  -0.08) CamSpec like\_10.7HM\_1400\_unified: 11500.17 SN - JLA Pantheon18: 1034.98 ( $\Delta$  -0.01)



# 2.136 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02241^{+0.00033}_{-0.00037} \quad (+0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.015}_{-0.014} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1522^{+18}_{-17} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1183^{+0.0023}_{-0.0022} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.979^{+0.022}_{-0.021} \quad (-0.0\sigma)$	$H(0.51)$	$89.91^{+0.56}_{-0.54} \quad (-0.0\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04107^{+0.00089}_{-0.00078} \quad (-0.3\sigma)$	$r_{\mathrm{drag}} h$	$100.4^{+1.7}_{-1.8} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1973^{+21}_{-20} \quad (+0.1\sigma)$
$\tau$	$0.057^{+0.020}_{-0.017} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.423^{+0.052}_{-0.050} \quad (+0.0\sigma)$	$H(0.61)$	$95.48^{+0.45}_{-0.46} \quad (+0.0\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.046^{+0.039}_{-0.036} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$7.9^{+1.8}_{-1.8} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2296^{+22}_{-21} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.9689^{+0.0094}_{-0.0095} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.084}_{-0.075} \quad (-0.1\sigma)$	$H(2.33)$	$235.5^{+1.4}_{-1.4} \quad (+0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.875^{+0.026}_{-0.026} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5756^{+22}_{-22} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$237^{+60}_{-60} \quad (-0.2\sigma)$	$D_{40}$	$1223^{+30}_{-28} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.451^{+0.013}_{-0.013} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5733^{+97}_{-100} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+40}_{-40} \quad (+0.1\sigma)$	$D_{810}$	$2537^{+34}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.471^{+0.012}_{-0.011} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.89 \quad (+0.1\sigma)$	$D_{2000}$	$230.9^{+3.9}_{-4.2} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.470^{+0.011}_{-0.010} \quad (+0.0\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.67^{+0.30}_{-0.35} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.9689^{+0.0094}_{-0.0095} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00012}_{-0.00015} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.010}_{-0.010} \quad (-0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00012}_{-0.00015} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.579^{+0.069}_{-0.059} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0058}_{-0.0056} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.48} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.782^{+0.051}_{-0.050} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.3074^{+0.0063}_{-0.0058} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.46}_{-0.46} \quad (-0.1\sigma)$	$z_*$	$1089.72^{+0.55}_{-0.52} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$r_*$	$144.84^{+0.52}_{-0.58} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$106.5^{+4.7}_{-5.1} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.42} \quad (-0.0\sigma)$	$100\theta_*$	$1.04125^{+0.00088}_{-0.00077} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0025} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.910^{+0.052}_{-0.055} \quad (-0.3\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.47 \quad (\nu: 0.4) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0041} \quad (-0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.90^{+0.71}_{-0.81} \quad (+0.4\sigma)$	$\chi_{\mathrm{small}}^2$	$397.5 \quad (\nu: 2.3) \quad (-0.1\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.50^{+0.57}_{-0.61} \quad (-0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.70 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$c_{EE}$	$0.992^{+0.012}_{-0.012}$	$k_{\mathrm{D}}$	$0.14047^{+0.00077}_{-0.00072} \quad (+0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11515.1 \quad (\nu: 16.1) \quad (+829.3\sigma)$
$H_0$	$68.0^{+1.0}_{-1.0} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16078^{+0.00048}_{-0.00044} \quad (-0.5\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$10.7 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.695^{+0.013}_{-0.014} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3363^{+53}_{-49} \quad (+0.2\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1034.87 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.305^{+0.014}_{-0.013} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01026^{+0.00016}_{-0.00015} \quad (+0.2\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.019 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1414^{+0.0022}_{-0.0020} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.8207^{+0.0094}_{-0.0097} \quad (-0.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.67 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09617^{+0.00074}_{-0.00081} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4532^{+0.0048}_{-0.0050} \quad (-0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$3.87 \quad (\nu: 0.2) \quad (+0.0\sigma)$
$\sigma_8$	$0.807^{+0.016}_{-0.015} \quad (-0.1\sigma)$	$H(0.15)$	$73.25^{+0.86}_{-0.89} \quad (-0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$S_8$	$0.815^{+0.026}_{-0.024} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$637.7^{+8.8}_{-8.4} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.7 \quad (\nu: 17.8) \quad (+791.7\sigma)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.446^{+0.014}_{-0.013} \quad (+0.1\sigma)$	$H(0.38)$	$83.26^{+0.65}_{-0.66} \quad (-0.0\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.56 \quad (\nu: 0.1) \quad (-0.1\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 13003.64; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.83; R - 1 = 0.02217$$



### 2.137 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02230^{+0.00039}_{-0.00040} \quad (+0.7\sigma)$	$S_8$	$0.828^{+0.034}_{-0.030} \quad (-0.4\sigma)$	$100\theta_{\text{s,eq}}$	$0.4503^{+0.0066}_{-0.0067} \quad (+0.3\sigma)$
$\Omega_{\text{c}}h^2$	$0.1196^{+0.0030}_{-0.0029} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.454^{+0.018}_{-0.017} \quad (-0.4\sigma)$	$H(0.15)$	$72.7^{+1.1}_{-1.2} \quad (+0.5\sigma)$
$100\theta_{\text{MC}}$	$1.04087^{+0.00078}_{-0.00082} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.606^{+0.017}_{-0.016} \quad (-0.4\sigma)$	$D_{\text{M}}(0.15)$	$643^{+12}_{-11} \quad (-0.4\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.986^{+0.023}_{-0.022} \quad (-0.4\sigma)$	$H(0.38)$	$82.87^{+0.85}_{-0.85} \quad (+0.5\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.043^{+0.038}_{-0.027} \quad (+0.1\sigma)$	$r_{\text{drag}}h$	$99.3^{+2.3}_{-2.3} \quad (+0.4\sigma)$	$D_{\text{M}}(0.38)$	$1533^{+24}_{-23} \quad (-0.5\sigma)$
$n_{\text{s}}$	$0.966^{+0.011}_{-0.010} \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.057}_{-0.053} \quad (-0.3\sigma)$	$H(0.51)$	$89.61^{+0.68}_{-0.67} \quad (+0.5\sigma)$
$y_{\text{cal}}$	$1.0005^{+0.0066}_{-0.0065} \quad (+0.1\sigma)$	$z_{\text{re}}$	$< 9.41 \quad (+0.0\sigma)$	$D_{\text{M}}(0.51)$	$1985^{+28}_{-27} \quad (-0.5\sigma)$
$A_{100}^{\text{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$10^9 A_{\text{s}}$	$2.096^{+0.080}_{-0.057} \quad (+0.1\sigma)$	$H(0.61)$	$95.24^{+0.55}_{-0.56} \quad (+0.5\sigma)$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.879^{+0.028}_{-0.027} \quad (-0.1\sigma)$	$D_{\text{M}}(0.61)$	$2310^{+30}_{-29} \quad (-0.5\sigma)$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{40}$	$1227^{+31}_{-30} \quad (-0.1\sigma)$	$H(2.33)$	$236.2^{+1.8}_{-1.8} \quad (-0.2\sigma)$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5720^{+98}_{-98} \quad (+0.3\sigma)$	$D_{\text{M}}(2.33)$	$5766^{+27}_{-26} \quad (-0.5\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.86 \quad (+0.1\sigma)$	$D_{810}$	$2535^{+35}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.016} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.014}_{-0.012} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$D_{2000}$	$230.3^{+4.2}_{-4.2} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.013}_{-0.013} \quad (-0.4\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$n_{\text{s},0.002}$	$0.966^{+0.011}_{-0.010} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.0099} \quad (-0.1\sigma)$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}$	$0.24537^{+0.00015}_{-0.00017} \quad (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.012}_{-0.011} \quad (-0.4\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.51} \quad (-0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24669^{+0.00015}_{-0.00017} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0090} \quad (-0.1\sigma)$
$A_{143}^{\text{dust}}$	$0.96^{+0.45}_{-0.45} \quad (-0.1\sigma)$	$10^5 \text{D}/\text{H}$	$2.599^{+0.076}_{-0.070} \quad (-0.7\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.010} \quad (-0.4\sigma)$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$\text{Age}/\text{Gyr}$	$13.804^{+0.061}_{-0.058} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0084} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.42} \quad (-0.0\sigma)$	$z_*$	$1089.98^{+0.67}_{-0.63} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.2974^{+0.0059}_{-0.0042} \quad (+0.0\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$r_*$	$144.58^{+0.69}_{-0.71} \quad (+0.1\sigma)$	$\sigma_8(2.33)$	$0.3065^{+0.0064}_{-0.0045} \quad (+0.1\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0041} \quad (-0.0\sigma)$	$100\theta_*$	$1.04107^{+0.00078}_{-0.00081} \quad (-0.0\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.4\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.888^{+0.065}_{-0.066} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$106.9^{+4.9}_{-5.0} \quad (-0.3\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$z_{\text{drag}}$	$1059.74^{+0.84}_{-0.84} \quad (+0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$H_0$	$67.4^{+1.3}_{-1.4} \quad (+0.4\sigma)$	$r_{\text{drag}}$	$147.27^{+0.71}_{-0.74} \quad (-0.1\sigma)$	$\chi_{\text{lensing}}^2$	$9.26 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$\Omega_{\Lambda}$	$0.686^{+0.018}_{-0.019} \quad (+0.4\sigma)$	$k_{\text{D}}$	$0.14062^{+0.00086}_{-0.00084} \quad (+0.3\sigma)$	$\chi_{\text{small}}^2$	$396.9 \quad (\nu: 1.4) \quad (+0.0\sigma)$
$\Omega_{\text{m}}$	$0.314^{+0.019}_{-0.018} \quad (-0.4\sigma)$	$100\theta_{\text{D}}$	$0.16086^{+0.00049}_{-0.00049} \quad (-0.7\sigma)$	$\chi_{\text{lowl}}^2$	$23.21 \quad (\nu: 0.4) \quad (-0.3\sigma)$
$\Omega_{\text{m}}h^2$	$0.1426^{+0.0029}_{-0.0028} \quad (-0.3\sigma)$	$z_{\text{eq}}$	$3391^{+70}_{-66} \quad (-0.3\sigma)$	$\chi_{\text{CamSpec}}^2$	$11514.0 \quad (\nu: 15.1) \quad (+873.1\sigma)$
$\Omega_{\text{m}}h^3$	$0.09611^{+0.00080}_{-0.00082} \quad (+0.4\sigma)$	$k_{\text{eq}}$	$0.01035^{+0.00021}_{-0.00020} \quad (-0.3\sigma)$	$\chi_{\text{prior}}^2$	$7.9 \quad (\nu: 6.0) \quad (+0.1\sigma)$
$\sigma_8$	$0.810^{+0.015}_{-0.014} \quad (-0.3\sigma)$	$100\theta_{\text{eq}}$	$0.815^{+0.013}_{-0.013} \quad (+0.3\sigma)$	$\chi_{\text{CMB}}^2$	$11943.4 \quad (\nu: 16.0) \quad (+844.3\sigma)$

$\bar{\chi}_{\text{eff}}^2 = 11951.25; \Delta\bar{\chi}_{\text{eff}}^2 = 4451.24; R - 1 = 0.00847$



# 2.138 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02234^{+0.00036}_{-0.00037} \quad (+0.6\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.015}_{-0.013} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1528^{+19}_{-18} \quad (-0.2\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1190^{+0.0024}_{-0.0024} \quad (-0.1\sigma)$	$\sigma_8 / h^{0.5}$	$0.983^{+0.021}_{-0.019} \quad (-0.2\sigma)$	$H(0.51)$	$89.73^{+0.56}_{-0.57} \quad (+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00076}_{-0.00074} \quad (-0.2\sigma)$	$r_{\mathrm{drag}} h$	$99.7^{+1.8}_{-1.9} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1980^{+22}_{-21} \quad (-0.2\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.051}_{-0.047} \quad (-0.1\sigma)$	$H(0.61)$	$95.34^{+0.47}_{-0.47} \quad (+0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.039}_{-0.029} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.52 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2304^{+24}_{-23} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.9671^{+0.0097}_{-0.0098} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.099^{+0.082}_{-0.060} \quad (-0.0\sigma)$	$H(2.33)$	$235.9^{+1.5}_{-1.5} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.028}_{-0.026} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5762^{+23}_{-22} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{40}$	$1225^{+30}_{-29} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.013} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5725^{+99}_{-97} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.012} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2536^{+35}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.010} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.89 \quad (+0.1\sigma)$	$D_{2000}$	$230.5^{+4.1}_{-4.1} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.0099} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.9671^{+0.0097}_{-0.0098} \quad (+0.1\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0093} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00013}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.010}_{-0.0091} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00013}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.0088} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.592^{+0.071}_{-0.064} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.2976^{+0.0059}_{-0.0044} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.796^{+0.053}_{-0.051} \quad (-0.4\sigma)$	$\sigma_8(2.33)$	$0.3069^{+0.0063}_{-0.0047} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.44} \quad (-0.1\sigma)$	$z_*$	$1089.88^{+0.59}_{-0.54} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.28}_{-0.27} \quad (+0.1\sigma)$	$r_*$	$144.70^{+0.59}_{-0.59} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.7^{+4.9}_{-5.1} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42} \quad (-0.0\sigma)$	$100\theta_*$	$1.04114^{+0.00076}_{-0.00074} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.899^{+0.058}_{-0.056} \quad (-0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.26 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041} \quad (-0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.79^{+0.79}_{-0.85} \quad (+0.6\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.7) \quad (-0.1\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.38^{+0.62}_{-0.64} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.98 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14054^{+0.00080}_{-0.00078} \quad (+0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.2 \quad (\nu: 15.3) \quad (+861.2\sigma)$
$H_0$	$67.7^{+1.0}_{-1.1} \quad (+0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00050}_{-0.00047} \quad (-0.7\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.045 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.014}_{-0.015} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3379^{+55}_{-54} \quad (+0.0\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.32 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.015}_{-0.014} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01031^{+0.00017}_{-0.00017} \quad (+0.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1420^{+0.0023}_{-0.0023} \quad (+0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.010}_{-0.010} \quad (+0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 6.0) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09611^{+0.00077}_{-0.00080} \quad (+0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0052}_{-0.0053} \quad (-0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11943.5 \quad (\nu: 16.3) \quad (+836.7\sigma)$
$\sigma_8$	$0.809^{+0.016}_{-0.013} \quad (-0.1\sigma)$	$H(0.15)$	$72.94^{+0.91}_{-0.93} \quad (+0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.97 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$S_8$	$0.822^{+0.027}_{-0.025} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$640.7^{+9.2}_{-8.9} \quad (-0.2\sigma)$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.015}_{-0.014} \quad (-0.1\sigma)$	$H(0.38)$	$83.03^{+0.69}_{-0.69} \quad (+0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11957.26; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.93; R - 1 = 0.01434$$



### 2.139 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02240^{+0.00035}_{-0.00039} \quad (+0.3\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.017}_{-0.021} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$638^{+11}_{-16} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1184^{+0.0029}_{-0.0042} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.016}_{-0.017} \quad (+0.1\sigma)$	$H(0.38)$	$83.2^{+1.2}_{-0.82} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04105^{+0.00097}_{-0.00080} \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.980^{+0.023}_{-0.020} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1523^{+22}_{-31} \quad (+0.2\sigma)$
$\tau$	$0.058^{+0.019}_{-0.015} \quad (-0.2\sigma)$	$r_{\mathrm{drag}} h$	$100.2^{+3.5}_{-2.3} \quad (-0.2\sigma)$	$H(0.51)$	$89.88^{+0.89}_{-0.66} \quad (-0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.039}_{-0.031} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.055}_{-0.049} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1974^{+26}_{-36} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.9686^{+0.0097}_{-0.010} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.64 \quad (-0.2\sigma)$	$H(0.61)$	$95.46^{+0.69}_{-0.55} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0065}_{-0.0066} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.105^{+0.083}_{-0.065} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2298^{+28}_{-39} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-60} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.876^{+0.028}_{-0.026} \quad (+0.2\sigma)$	$H(2.33)$	$235.6^{+1.8}_{-2.5} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{40}$	$1223^{+30}_{-30} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5757^{+26}_{-27} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+40}_{-40} \quad (+0.1\sigma)$	$D_{220}$	$5732^{+96}_{-100} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.452^{+0.016}_{-0.020} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2537^{+34}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.014}_{-0.013} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.86 \quad (+0.1\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.013}_{-0.014} \quad (+0.1\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.30}_{-0.35} \quad (+0.1\sigma)$	$D_{2000}$	$230.9^{+4.0}_{-4.2} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.011} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.9686^{+0.0097}_{-0.010} \quad (-0.1\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.012}_{-0.011} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00016} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0098} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00013}_{-0.00016} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.011}_{-0.0095} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.49} \quad (-0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.580^{+0.073}_{-0.063} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0093} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.45}_{-0.47} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.784^{+0.058}_{-0.056} \quad (-0.0\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0057}_{-0.0047} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$z_*$	$1089.75^{+0.64}_{-0.60} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.3075^{+0.0065}_{-0.0051} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.44}_{-0.42} \quad (-0.0\sigma)$	$r_*$	$144.8^{+1.0}_{-0.69} \quad (-0.4\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.2\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0025} \quad (+0.0\sigma)$	$100\theta_*$	$1.04123^{+0.00096}_{-0.00080} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$106.5^{+4.7}_{-5.1} \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.908^{+0.085}_{-0.064} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.2\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.89^{+0.72}_{-0.84} \quad (+0.4\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.41 \quad (\nu: 0.4) \quad (-0.3\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	$147.47^{+0.99}_{-0.71} \quad (-0.4\sigma)$	$\chi_{\mathrm{small}}^2$	$397.5 \quad (\nu: 2.4) \quad (-0.2\sigma)$
$H_0$	$68.0^{+1.9}_{-1.3} \quad (-0.2\sigma)$	$k_{\mathrm{D}}$	$0.14049^{+0.00084}_{-0.00094} \quad (+0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.78 \quad (\nu: 0.3) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.025}_{-0.018} \quad (-0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.16079^{+0.00048}_{-0.00045} \quad (-0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11515.1 \quad (\nu: 16.8) \quad (+807.3\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.018}_{-0.025} \quad (+0.2\sigma)$	$z_{\mathrm{eq}}$	$3366^{+66}_{-97} \quad (+0.3\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$11.0 \quad (\nu: 2.0) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1415^{+0.0028}_{-0.0040} \quad (+0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01027^{+0.00020}_{-0.00029} \quad (+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09617^{+0.00074}_{-0.00081} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.019}_{-0.012} \quad (-0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.7 \quad (\nu: 19.5) \quad (+706.8\sigma)$
$\sigma_8$	$0.808^{+0.016}_{-0.014} \quad (+0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4529^{+0.0098}_{-0.0064} \quad (-0.3\sigma)$		
$S_8$	$0.816^{+0.031}_{-0.039} \quad (+0.2\sigma)$	$H(0.15)$	$73.2^{+1.6}_{-1.1} \quad (-0.2\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 11963.51$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.75$ ;  $R - 1 = 0.02593$



2.140 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02241^{+0.00034}_{-0.00037} \quad (+0.4\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.601^{+0.015}_{-0.013} \quad (+0.0\sigma)$	$D_M(0.38)$	$1523^{+18}_{-17} \quad (+0.1\sigma)$
$\Omega_c h^2$	$0.1184^{+0.0023}_{-0.0022} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.980^{+0.022}_{-0.019} \quad (-0.0\sigma)$	$H(0.51)$	$89.90^{+0.57}_{-0.55} \quad (+0.0\sigma)$
$100\theta_{MC}$	$1.04106^{+0.00090}_{-0.00078} \quad (-0.3\sigma)$	$r_{drag} h$	$100.3^{+1.8}_{-1.8} \quad (-0.2\sigma)$	$D_M(0.51)$	$1973^{+21}_{-20} \quad (+0.1\sigma)$
$\tau$	$0.058^{+0.019}_{-0.015} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.052}_{-0.047} \quad (+0.0\sigma)$	$H(0.61)$	$95.48^{+0.46}_{-0.46} \quad (+0.0\sigma)$
$\ln(10^{10} A_s)$	$3.047^{+0.039}_{-0.031} \quad (-0.1\sigma)$	$z_{re}$	$< 9.64 \quad (-0.1\sigma)$	$D_M(0.61)$	$2297^{+23}_{-22} \quad (+0.1\sigma)$
$n_s$	$0.9688^{+0.0093}_{-0.0097} \quad (-0.0\sigma)$	$10^9 A_s$	$2.105^{+0.082}_{-0.065} \quad (-0.1\sigma)$	$H(2.33)$	$235.5^{+1.5}_{-1.4} \quad (+0.2\sigma)$
$y_{cal}$	$1.0009^{+0.0064}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	$1.875^{+0.026}_{-0.026} \quad (+0.1\sigma)$	$D_M(2.33)$	$5756^{+23}_{-22} \quad (-0.1\sigma)$
$A_{100}^{PS}$	$237^{+60}_{-60} \quad (-0.2\sigma)$	$D_{40}$	$1223^{+30}_{-28} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.452^{+0.014}_{-0.012} \quad (+0.1\sigma)$
$A_{143}^{PS}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5733^{+98}_{-100} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.013} \quad (-0.1\sigma)$
$A_{217}^{PS}$	$103^{+40}_{-40} \quad (+0.1\sigma)$	$D_{810}$	$2537^{+34}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.471^{+0.012}_{-0.010} \quad (+0.0\sigma)$
$A_{217}^{CIB}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.011} \quad (-0.1\sigma)$
$A_{143}^{tSZ}$	$< 8.89 \quad (+0.1\sigma)$	$D_{2000}$	$230.9^{+4.0}_{-4.2} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.011}_{-0.0094} \quad (+0.0\sigma)$
$r_{143 \times 217}^{PS}$	$0.67^{+0.30}_{-0.35} \quad (+0.1\sigma)$	$n_{s,0.002}$	$0.9688^{+0.0093}_{-0.0097} \quad (-0.0\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0099} \quad (-0.1\sigma)$
$r_{143 \times 217}^{CIB}$	—	$Y_P$	$0.24541^{+0.00012}_{-0.00015} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.010}_{-0.0091} \quad (+0.0\sigma)$
$\xi^{tSZ \times CIB}$	—	$Y_P^{BBN}$	$0.24673^{+0.00012}_{-0.00015} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0094} \quad (-0.1\sigma)$
$A^{kSZ}$	—	$10^5 D/H$	$2.579^{+0.070}_{-0.060} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0057}_{-0.0047} \quad (-0.1\sigma)$
$A_{100}^{dust}$	$1.01^{+0.50}_{-0.48} \quad (-0.1\sigma)$	$Age/Gyr$	$13.783^{+0.052}_{-0.051} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.3075^{+0.0062}_{-0.0050} \quad (-0.1\sigma)$
$A_{143}^{dust}$	$0.95^{+0.46}_{-0.47} \quad (-0.1\sigma)$	$z_*$	$1089.73^{+0.56}_{-0.53} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{dust}$	$0.97^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$r_*$	$144.83^{+0.53}_{-0.58} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$106.5^{+4.8}_{-5.1} \quad (-0.2\sigma)$
$A_{143 \times 217}^{dust}$	$1.02^{+0.43}_{-0.42} \quad (-0.0\sigma)$	$100\theta_*$	$1.04124^{+0.00088}_{-0.00077} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{100}$	$0.9976^{+0.0026}_{-0.0025} \quad (+0.0\sigma)$	$D_M(z_*)/Gpc$	$13.909^{+0.053}_{-0.056} \quad (-0.3\sigma)$	$\chi_{lensing}^2$	$9.40 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040} \quad (-0.1\sigma)$	$z_{drag}$	$1059.90^{+0.72}_{-0.81} \quad (+0.4\sigma)$	$\chi_{small}^2$	$397.4 \quad (\nu: 2.3) \quad (-0.1\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$r_{drag}$	$147.49^{+0.58}_{-0.62} \quad (-0.4\sigma)$	$\chi_{lowl}^2$	$22.73 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$c_{EE}$	$0.992^{+0.012}_{-0.012}$	$k_D$	$0.14048^{+0.00079}_{-0.00073} \quad (+0.5\sigma)$	$\chi_{CamSpec}^2$	$11515.0 \quad (\nu: 16.0) \quad (+830.3\sigma)$
$H_0$	$68.0^{+1.0}_{-1.0} \quad (-0.1\sigma)$	$100\theta_D$	$0.16078^{+0.00048}_{-0.00044} \quad (-0.5\sigma)$	$\chi_{H073p45}^2$	$10.8 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$\Omega_\Lambda$	$0.694^{+0.013}_{-0.014} \quad (-0.1\sigma)$	$z_{eq}$	$3364^{+54}_{-50} \quad (+0.2\sigma)$	$\chi_{6DF}^2$	$0.021 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$\Omega_m$	$0.306^{+0.014}_{-0.013} \quad (+0.1\sigma)$	$k_{eq}$	$0.01027^{+0.00016}_{-0.00015} \quad (+0.2\sigma)$	$\chi_{MGS}^2$	$1.65 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_m h^2$	$0.1414^{+0.0022}_{-0.0021} \quad (+0.2\sigma)$	$100\theta_{eq}$	$0.8205^{+0.0097}_{-0.0099} \quad (-0.2\sigma)$	$\chi_{DR12BAO}^2$	$3.91 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$\Omega_m h^3$	$0.09617^{+0.00074}_{-0.00082} \quad (+0.2\sigma)$	$100\theta_{s,eq}$	$0.4531^{+0.0050}_{-0.0051} \quad (-0.2\sigma)$	$\chi_{prior}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\sigma_8$	$0.808^{+0.016}_{-0.014} \quad (-0.0\sigma)$	$H(0.15)$	$73.23^{+0.88}_{-0.90} \quad (-0.1\sigma)$	$\chi_{CMB}^2$	$11944.5 \quad (\nu: 17.6) \quad (+793.5\sigma)$
$S_8$	$0.815^{+0.026}_{-0.024} \quad (+0.1\sigma)$	$D_M(0.15)$	$637.8^{+9.0}_{-8.6} \quad (+0.1\sigma)$	$\chi_{BAO}^2$	$5.58 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\sigma_8 \Omega_m^{0.5}$	$0.447^{+0.014}_{-0.013} \quad (+0.1\sigma)$	$H(0.38)$	$83.24^{+0.67}_{-0.67} \quad (-0.0\sigma)$		

$$\bar{\chi}_{eff}^2 = 11968.71; \Delta\bar{\chi}_{eff}^2 = 4450.79; R - 1 = 0.02252$$



2.141 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02232^{+0.00038}_{-0.00039} \quad (+0.6\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.016} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$642^{+11}_{-11} \quad (-0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1194^{+0.0029}_{-0.0028} \quad (-0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.016}_{-0.015} \quad (-0.3\sigma)$	$H(0.38)$	$82.93^{+0.81}_{-0.82} \quad (+0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04090^{+0.00079}_{-0.00079} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.023}_{-0.021} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1531^{+23}_{-22} \quad (-0.3\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.0\sigma)$	$r_{\mathrm{drag}} h$	$99.5^{+2.2}_{-2.3} \quad (+0.2\sigma)$	$H(0.51)$	$89.66^{+0.66}_{-0.66} \quad (+0.4\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.039}_{-0.028} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.436^{+0.055}_{-0.050} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1983^{+26}_{-25} \quad (-0.3\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.47 \quad (-0.0\sigma)$	$H(0.61)$	$95.28^{+0.54}_{-0.54} \quad (+0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0066}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.082}_{-0.058} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2308^{+28}_{-27} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.028}_{-0.027} \quad (-0.0\sigma)$	$H(2.33)$	$236.1^{+1.7}_{-1.7} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1226^{+31}_{-29} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5765^{+26}_{-25} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5722^{+99}_{-99} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.016}_{-0.015} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2535^{+35}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.014}_{-0.012} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.89 \quad (+0.1\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.013}_{-0.012} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$D_{2000}$	$230.4^{+4.2}_{-4.1} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.010} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.011} \quad (-0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24537^{+0.00014}_{-0.00017} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0092} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00014}_{-0.00017} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.0098} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.52} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.596^{+0.075}_{-0.068} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0087} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.43} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.801^{+0.059}_{-0.056} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.2975^{+0.0059}_{-0.0043} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.28}_{-0.27} \quad (+0.1\sigma)$	$z_*$	$1089.94^{+0.65}_{-0.60} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.3067^{+0.0064}_{-0.0046} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42} \quad (+0.0\sigma)$	$r_*$	$144.63^{+0.67}_{-0.66} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0026} \quad (+0.1\sigma)$	$100\theta_*$	$1.04109^{+0.00080}_{-0.00079} \quad (-0.1\sigma)$	$f_{2000}^{217}$	$106.8^{+4.9}_{-5.1} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0041} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.892^{+0.064}_{-0.063} \quad (-0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.76^{+0.82}_{-0.82} \quad (+0.6\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.25 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	$147.31^{+0.68}_{-0.70} \quad (-0.2\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.5) \quad (-0.0\sigma)$
$H_0$	$67.5^{+1.3}_{-1.3} \quad (+0.3\sigma)$	$k_{\mathrm{D}}$	$0.14059^{+0.00083}_{-0.00081} \quad (+0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.12 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$\Omega_{\Lambda}$	$0.688^{+0.017}_{-0.018} \quad (+0.3\sigma)$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00049}_{-0.00048} \quad (-0.7\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.1 \quad (\nu: 15.4) \quad (+863.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.018}_{-0.017} \quad (-0.3\sigma)$	$z_{\mathrm{eq}}$	$3386^{+65}_{-63} \quad (-0.1\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.20 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1424^{+0.0027}_{-0.0026} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01034^{+0.00020}_{-0.00019} \quad (-0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 6.1) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09611^{+0.00078}_{-0.00079} \quad (+0.4\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.012}_{-0.012} \quad (+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11943.5 \quad (\nu: 16.5) \quad (+836.7\sigma)$
$\sigma_8$	$0.809^{+0.016}_{-0.013} \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4508^{+0.0062}_{-0.0062} \quad (+0.2\sigma)$		
$S_8$	$0.826^{+0.033}_{-0.029} \quad (-0.3\sigma)$	$H(0.15)$	$72.8^{+1.1}_{-1.1} \quad (+0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12986.49; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.05; R - 1 = 0.01335$$



2.142 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_JLA\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02241^{+0.00037}_{-0.00036} \quad (+0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.015}_{-0.014} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1522^{+18}_{-17} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1183^{+0.0023}_{-0.0022} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.980^{+0.022}_{-0.020} \quad (+0.1\sigma)$	$H(0.51)$	$89.91^{+0.53}_{-0.54} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04107^{+0.00072}_{-0.00079} \quad (-0.3\sigma)$	$r_{\mathrm{drag}} h$	$100.3^{+1.7}_{-1.8} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.51)$	$1973^{+21}_{-20} \quad (+0.1\sigma)$
$\tau$	$0.058^{+0.018}_{-0.014} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.053}_{-0.044} \quad (+0.1\sigma)$	$H(0.61)$	$95.48^{+0.46}_{-0.46} \quad (-0.0\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.037}_{-0.032} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.62 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2297^{+22}_{-22} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.9691^{+0.0093}_{-0.0099} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.106^{+0.078}_{-0.066} \quad (-0.0\sigma)$	$H(2.33)$	$235.5^{+1.4}_{-1.4} \quad (+0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0063}_{-0.0066} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.875^{+0.026}_{-0.026} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5756^{+22}_{-22} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$237^{+60}_{-60} \quad (-0.2\sigma)$	$D_{40}$	$1222^{+30}_{-29} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.452^{+0.013}_{-0.013} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5732^{+95}_{-93} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.014}_{-0.013} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+40}_{-40} \quad (+0.1\sigma)$	$D_{810}$	$2537^{+32}_{-33} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.471^{+0.012}_{-0.012} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.011} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.99 \quad (+0.1\sigma)$	$D_{2000}$	$231.0^{+4.1}_{-4.0} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.011}_{-0.011} \quad (+0.1\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.67^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.9691^{+0.0093}_{-0.0099} \quad (-0.0\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.011}_{-0.0098} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00014}_{-0.00015} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.010}_{-0.0093} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00014}_{-0.00015} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0094} \quad (-0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.579^{+0.068}_{-0.066} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.2981^{+0.0055}_{-0.0048} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.45} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.782^{+0.051}_{-0.049} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.3076^{+0.0058}_{-0.0051} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.42}_{-0.43} \quad (-0.1\sigma)$	$z_*$	$1089.73^{+0.54}_{-0.53} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.25}_{-0.25} \quad (+0.0\sigma)$	$r_*$	$144.84^{+0.53}_{-0.58} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$106.5^{+4.6}_{-5.2} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.45} \quad (-0.0\sigma)$	$100\theta_*$	$1.04125^{+0.00069}_{-0.00079} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{100}$	$0.9976^{+0.0026}_{-0.0025} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.910^{+0.052}_{-0.054} \quad (-0.3\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.41 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0038} \quad (-0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.90^{+0.84}_{-0.81} \quad (+0.4\sigma)$	$\chi_{\mathrm{small}}^2$	$397.5 \quad (\nu: 2.3) \quad (-0.1\sigma)$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$r_{\mathrm{drag}}$	$147.50^{+0.60}_{-0.61} \quad (-0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.69 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14047^{+0.00080}_{-0.00074} \quad (+0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11515.3 \quad (\nu: 17.9) \quad (+820.3\sigma)$
$H_0$	$68.0^{+1.0}_{-1.0} \quad (-0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.16079^{+0.00047}_{-0.00049} \quad (-0.5\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$10.7 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.013}_{-0.014} \quad (-0.2\sigma)$	$z_{\mathrm{eq}}$	$3363^{+53}_{-51} \quad (+0.3\sigma)$	$\chi_{\mathrm{JLA}}^2$	$706.63 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.014}_{-0.013} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01026^{+0.00016}_{-0.00016} \quad (+0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.020 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1414^{+0.0022}_{-0.0021} \quad (+0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.8206^{+0.0098}_{-0.0098} \quad (-0.3\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.66 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09617^{+0.00076}_{-0.00082} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4532^{+0.0051}_{-0.0050} \quad (-0.3\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$3.89 \quad (\nu: 0.2) \quad (+0.1\sigma)$
$\sigma_8$	$0.808^{+0.016}_{-0.015} \quad (+0.0\sigma)$	$H(0.15)$	$73.25^{+0.87}_{-0.89} \quad (-0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.7 \quad (\nu: 5.7) \quad (+0.0\sigma)$
$S_8$	$0.815^{+0.026}_{-0.025} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$637.7^{+8.8}_{-8.4} \quad (+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.9 \quad (\nu: 19.6) \quad (+779.3\sigma)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.014}_{-0.013} \quad (+0.2\sigma)$	$H(0.38)$	$83.25^{+0.64}_{-0.66} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.57 \quad (\nu: 0.1) \quad (-0.1\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 12675.50; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.87; R - 1 = 0.05354$$



2.143 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02235^{+0.00035}_{-0.00037} \quad (+0.6\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.014}_{-0.013} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1528^{+18}_{-17} \quad (-0.2\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1189^{+0.0023}_{-0.0023} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.982^{+0.021}_{-0.019} \quad (-0.1\sigma)$	$H(0.51)$	$89.75^{+0.55}_{-0.55} \quad (+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04096^{+0.00076}_{-0.00075} \quad (-0.2\sigma)$	$r_{\mathrm{drag}} h$	$99.8^{+1.8}_{-1.8} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1979^{+21}_{-21} \quad (-0.2\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.430^{+0.051}_{-0.047} \quad (-0.1\sigma)$	$H(0.61)$	$95.36^{+0.46}_{-0.47} \quad (+0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.039}_{-0.029} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.54 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2303^{+23}_{-22} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.9674^{+0.0096}_{-0.0096} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.100^{+0.084}_{-0.060} \quad (-0.0\sigma)$	$H(2.33)$	$235.8^{+1.5}_{-1.4} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0064} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.028}_{-0.026} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5762^{+23}_{-22} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{40}$	$1225^{+30}_{-29} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.013} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5726^{+98}_{-97} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.012} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2536^{+35}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.473^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.010} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.86 \quad (+0.1\sigma)$	$D_{2000}$	$230.6^{+4.1}_{-4.2} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.0097} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.9674^{+0.0096}_{-0.0096} \quad (+0.1\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0093} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00013}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.010}_{-0.0089} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00013}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.0089} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.590^{+0.071}_{-0.063} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.2977^{+0.0059}_{-0.0044} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.794^{+0.052}_{-0.050} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.3070^{+0.0062}_{-0.0047} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.43} \quad (-0.1\sigma)$	$z_*$	$1089.86^{+0.58}_{-0.52} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.28}_{-0.27} \quad (+0.1\sigma)$	$r_*$	$144.73^{+0.57}_{-0.58} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$106.7^{+4.8}_{-5.1} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.42} \quad (-0.0\sigma)$	$100\theta_*$	$1.04115^{+0.00076}_{-0.00074} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0026} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.901^{+0.057}_{-0.056} \quad (-0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.27 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041} \quad (-0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.80^{+0.78}_{-0.82} \quad (+0.6\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.8) \quad (-0.1\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.40^{+0.61}_{-0.62} \quad (-0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.94 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14052^{+0.00080}_{-0.00077} \quad (+0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.3 \quad (\nu: 15.4) \quad (+858.1\sigma)$
$H_0$	$67.7^{+1.0}_{-1.1} \quad (+0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.16083^{+0.00050}_{-0.00046} \quad (-0.7\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.02 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.691^{+0.013}_{-0.014} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3376^{+54}_{-52} \quad (+0.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.038 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.014}_{-0.013} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01030^{+0.00017}_{-0.00016} \quad (+0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.37 \quad (\nu: 0.1) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1419^{+0.0023}_{-0.0022} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.8180^{+0.0098}_{-0.010} \quad (-0.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 \quad (\nu: 0.6) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09612^{+0.00077}_{-0.00080} \quad (+0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4518^{+0.0051}_{-0.0051} \quad (-0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\sigma_8$	$0.809^{+0.016}_{-0.013} \quad (-0.1\sigma)$	$H(0.15)$	$72.98^{+0.87}_{-0.90} \quad (+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11943.6 \quad (\nu: 16.4) \quad (+832.4\sigma)$
$S_8$	$0.821^{+0.027}_{-0.024} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$640.3^{+9.0}_{-8.6} \quad (-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.86 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.015}_{-0.013} \quad (-0.1\sigma)$	$H(0.38)$	$83.06^{+0.67}_{-0.68} \quad (+0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12992.25; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.90; R - 1 = 0.01504$$



2.144 base\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_Pantheon18\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02241^{+0.00033}_{-0.00037} \quad (+0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.015}_{-0.012} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1522^{+18}_{-17} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1183^{+0.0023}_{-0.0021} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.979^{+0.022}_{-0.019} \quad (-0.0\sigma)$	$H(0.51)$	$89.91^{+0.55}_{-0.54} \quad (-0.0\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04107^{+0.00089}_{-0.00078} \quad (-0.3\sigma)$	$r_{\mathrm{drag}} h$	$100.4^{+1.7}_{-1.7} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1973^{+21}_{-20} \quad (+0.1\sigma)$
$\tau$	$0.058^{+0.019}_{-0.014} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.423^{+0.052}_{-0.047} \quad (+0.0\sigma)$	$H(0.61)$	$95.49^{+0.48}_{-0.46} \quad (+0.0\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.038}_{-0.032} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.64 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2296^{+22}_{-21} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.9690^{+0.0093}_{-0.0095} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.106^{+0.082}_{-0.066} \quad (-0.1\sigma)$	$H(2.33)$	$235.5^{+1.4}_{-1.4} \quad (+0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.875^{+0.026}_{-0.026} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5756^{+22}_{-22} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$237^{+60}_{-60} \quad (-0.2\sigma)$	$D_{40}$	$1223^{+30}_{-28} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.451^{+0.013}_{-0.012} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5733^{+97}_{-100} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.013} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+40}_{-40} \quad (+0.1\sigma)$	$D_{810}$	$2537^{+34}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.471^{+0.012}_{-0.010} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.011} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.89 \quad (+0.1\sigma)$	$D_{2000}$	$230.9^{+3.9}_{-4.2} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.470^{+0.011}_{-0.0093} \quad (+0.0\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.67^{+0.30}_{-0.35} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.9690^{+0.0093}_{-0.0095} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0099} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00012}_{-0.00015} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.010}_{-0.0091} \quad (+0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00012}_{-0.00015} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0094} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.578^{+0.069}_{-0.059} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.2981^{+0.0059}_{-0.0048} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.48} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.782^{+0.051}_{-0.050} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.3076^{+0.0062}_{-0.0051} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.46}_{-0.46} \quad (-0.1\sigma)$	$z_*$	$1089.72^{+0.55}_{-0.52} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$r_*$	$144.84^{+0.53}_{-0.58} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$106.5^{+4.7}_{-5.1} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.42} \quad (-0.0\sigma)$	$100\theta_*$	$1.04125^{+0.00088}_{-0.00077} \quad (-0.4\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{100}$	$0.9976^{+0.0026}_{-0.0025} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.911^{+0.052}_{-0.055} \quad (-0.3\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.42 \quad (\nu: 0.4) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040} \quad (-0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.91^{+0.71}_{-0.81} \quad (+0.4\sigma)$	$\chi_{\mathrm{small}}^2$	$397.5 \quad (\nu: 2.3) \quad (-0.1\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.50^{+0.57}_{-0.61} \quad (-0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.71 \quad (\nu: 0.3) \quad (+0.1\sigma)$
$c_{EE}$	$0.992^{+0.012}_{-0.012}$	$k_{\mathrm{D}}$	$0.14047^{+0.00077}_{-0.00074} \quad (+0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11515.0 \quad (\nu: 16.0) \quad (+829.7\sigma)$
$H_0$	$68.0^{+1.0}_{-1.0} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16078^{+0.00048}_{-0.00044} \quad (-0.5\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$10.7 \quad (\nu: 1.1) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.695^{+0.012}_{-0.014} \quad (-0.2\sigma)$	$z_{\mathrm{eq}}$	$3362^{+52}_{-49} \quad (+0.2\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1034.87 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.305^{+0.014}_{-0.012} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01026^{+0.00016}_{-0.00015} \quad (+0.2\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.019 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1413^{+0.0022}_{-0.0020} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.8207^{+0.0094}_{-0.0097} \quad (-0.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.67 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09617^{+0.00074}_{-0.00082} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4532^{+0.0048}_{-0.0050} \quad (-0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$3.86 \quad (\nu: 0.2) \quad (+0.0\sigma)$
$\sigma_8$	$0.808^{+0.016}_{-0.014} \quad (-0.0\sigma)$	$H(0.15)$	$73.26^{+0.86}_{-0.88} \quad (-0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$S_8$	$0.815^{+0.026}_{-0.023} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$637.6^{+8.7}_{-8.3} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.6 \quad (\nu: 17.7) \quad (+793.6\sigma)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.446^{+0.014}_{-0.013} \quad (+0.1\sigma)$	$H(0.38)$	$83.26^{+0.65}_{-0.65} \quad (-0.0\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.55 \quad (\nu: 0.1) \quad (-0.1\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 13003.54; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.81; R - 1 = 0.02380$$



## 2.145 base\_CleanedCamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02208	$0.02210^{+0.00057}_{-0.00055}$	$\sigma_8/h^{0.5}$	0.9900	$0.990^{+0.043}_{-0.041}$	$H(0.15)$	72.29	$72.3^{+2.0}_{-2.0}$
$\Omega_c h^2$	0.1204	$0.1204^{+0.0055}_{-0.0052}$	$r_{\text{drag}} h$	98.58	$98.6^{+4.2}_{-4.1}$	$D_M(0.15)$	647.2	$647^{+21}_{-20}$
$100\theta_{\text{MC}}$	1.04082	$1.0408^{+0.0013}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	2.448	$2.449^{+0.099}_{-0.097}$	$H(0.38)$	82.53	$82.6^{+1.5}_{-1.4}$
$\tau$	0.0511	$0.052^{+0.023}_{-0.021}$	$z_{\text{re}}$	7.41	$7.5^{+2.2}_{-2.4}$	$D_M(0.38)$	1541.5	$1541^{+41}_{-40}$
$\ln(10^{10} A_s)$	3.0368	$3.038^{+0.046}_{-0.044}$	$10^9 A_s$	2.084	$2.086^{+0.097}_{-0.091}$	$H(0.51)$	89.32	$89.3^{+1.2}_{-1.1}$
$n_s$	0.9623	$0.962^{+0.015}_{-0.015}$	$10^9 A_s e^{-2\tau}$	1.8816	$1.880^{+0.037}_{-0.034}$	$D_M(0.51)$	1995.6	$1995^{+48}_{-46}$
$y_{\text{cal}}$	1.0005	$1.0004^{+0.0062}_{-0.0063}$	$D_{40}$	1232.5	$1232^{+40}_{-39}$	$H(0.61)$	95.00	$95.02^{+0.93}_{-0.86}$
$A_{100}^{\text{PS}}$	252	$255^{+70}_{-70}$	$D_{220}$	5708	$5705^{+100}_{-100}$	$D_M(0.61)$	2321	$2321^{+51}_{-50}$
$A_{143}^{\text{tSZ}}$	6.20	$< 8.87$	$D_{810}$	2533.2	$2531^{+35}_{-34}$	$H(2.33)$	236.56	$236.6^{+3.3}_{-3.2}$
$A^{\text{kSZ}}$	0.3	—	$D_{1420}$	813.1	$813^{+13}_{-14}$	$D_M(2.33)$	5778.3	$5778^{+41}_{-42}$
$A_{100}^{\text{dust}}$	0.99	$1.00^{+0.51}_{-0.49}$	$D_{2000}$	229.01	$228.9^{+4.8}_{-4.8}$	$f\sigma_8(0.15)$	0.4618	$0.462^{+0.033}_{-0.031}$
$A_{143}^{\text{power}}$	12.3	$10.4^{+6.6}_{-5.5}$	$n_{s,0.002}$	0.9623	$0.962^{+0.015}_{-0.015}$	$\sigma_8(0.15)$	0.7476	$0.748^{+0.020}_{-0.019}$
$A_{217}^{\text{power}}$	11.8	$8.2^{+7.1}_{-5.0}$	$Y_P$	0.245277	$0.24528^{+0.00023}_{-0.00026}$	$f\sigma_8(0.38)$	0.4783	$0.478^{+0.025}_{-0.025}$
$A_{143 \times 217}^{\text{power}}$	8.0	$< 10.6$	$Y_P^{\text{BBN}}$	0.246603	$0.24660^{+0.00023}_{-0.00026}$	$\sigma_8(0.38)$	0.6618	$0.662^{+0.017}_{-0.016}$
$\gamma_{143}^{\text{power}}$	1.33	$> 0.370$	$10^5 \text{D/H}$	2.640	$2.64^{+0.11}_{-0.11}$	$f\sigma_8(0.51)$	0.4760	$0.476^{+0.022}_{-0.021}$
$\gamma_{217}^{\text{power}}$	1.23	—	Age/Gyr	13.831	$13.830^{+0.093}_{-0.093}$	$\sigma_8(0.51)$	0.6190	$0.619^{+0.015}_{-0.015}$
$\gamma_{143 \times 217}^{\text{power}}$	1.17	—	$z_*$	1090.33	$1090.3^{+1.1}_{-1.0}$	$f\sigma_8(0.61)$	0.4703	$0.470^{+0.019}_{-0.019}$
$c_{100}$	0.99810	$0.9978^{+0.0027}_{-0.0028}$	$r_*$	144.53	$144.5^{+1.2}_{-1.2}$	$\sigma_8(0.61)$	0.5888	$0.589^{+0.014}_{-0.014}$
$c_{217}$	0.99914	$0.9994^{+0.0043}_{-0.0034}$	$100\theta_*$	1.04103	$1.0410^{+0.0012}_{-0.0012}$	$f\sigma_8(2.33)$	0.2965	$0.2966^{+0.0071}_{-0.0067}$
$H_0$	66.93	$66.9^{+2.4}_{-2.4}$	$D_M(z_*)/\text{Gpc}$	13.884	$13.88^{+0.11}_{-0.11}$	$\sigma_8(2.33)$	0.3054	$0.3054^{+0.0075}_{-0.0070}$
$\Omega_\Lambda$	0.6803	$0.680^{+0.032}_{-0.036}$	$z_{\text{drag}}$	1059.28	$1059.3^{+1.2}_{-1.1}$	$f_{2000}^{143}$	23.8	$24^{+8}_{-8}$
$\Omega_m$	0.3197	$0.320^{+0.036}_{-0.032}$	$r_{\text{drag}}$	147.29	$147.3^{+1.2}_{-1.2}$	$f_{2000}^{217}$	17.1	$16.9^{+5.3}_{-5.1}$
$\Omega_m h^2$	0.1432	$0.1432^{+0.0052}_{-0.0050}$	$k_D$	0.14043	$0.1405^{+0.0013}_{-0.0013}$	$f_{2000}^{143 \times 217}$	11.6	$11.2^{+5.7}_{-5.5}$
$\Omega_m h^3$	0.09582	$0.0958^{+0.0012}_{-0.0011}$	$100\theta_D$	0.16113	$0.16111^{+0.00068}_{-0.00068}$	$\chi_{\text{simall}}^2$	395.79	$396.9 (\nu: 1.5)$
$\sigma_8$	0.8099	$0.810^{+0.024}_{-0.023}$	$z_{\text{eq}}$	3406	$3406^{+120}_{-120}$	$\chi_{\text{lowl}}^2$	23.70	$23.8 (\nu: 0.9)$
$S_8$	0.836	$0.836^{+0.065}_{-0.060}$	$k_{\text{eq}}$	0.010396	$0.01040^{+0.00038}_{-0.00036}$	$\chi_{\text{CamSpec}}^2$	6704.4	$6716.2 (\nu: 13.3)$
$\sigma_8 \Omega_m^{0.5}$	0.4579	$0.458^{+0.036}_{-0.033}$	$100\theta_{\text{eq}}$	0.8117	$0.812^{+0.023}_{-0.023}$	$\chi_{\text{prior}}^2$	1.2	$5.3 (\nu: 4.2)$
$\sigma_8 \Omega_m^{0.25}$	0.6090	$0.609^{+0.031}_{-0.030}$	$100\theta_{s,\text{eq}}$	0.4488	$0.449^{+0.012}_{-0.012}$	$\chi_{\text{CMB}}^2$	7123.9	$7137.0 (\nu: 13.6)$

Best-fit  $\chi_{\text{eff}}^2 = 7125.11$ ;  $\bar{\chi}_{\text{eff}}^2 = 7142.20$ ;  $R - 1 = 0.00552$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.79 commander\_dx12\_v3\_2\_29: 23.70 CamSpec like\_10.7cleaned: 6704.43



## 2.146 base\_lensing\_lenspriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	2788	$2628^{+1000}_{-900}$	$H(0.38)$	107.7	$84^{+30}_{-20}$
$\Omega_c h^2$	0.1163	$0.111^{+0.033}_{-0.027}$	$D_{1420}$	756	$819^{+400}_{-300}$	$D_M(0.38)$	1121	$1585^{+700}_{-500}$
$100\theta_{MC}$	1.118	$1.03^{+0.11}_{-0.11}$	$D_{2000}$	215	$264^{+200}_{-100}$	$H(0.51)$	112.9	$90^{+30}_{-20}$
$\ln(10^{10} A_s)$	3.262	$3.13^{+0.33}_{-0.33}$	$n_{s,0.002}$	0.961	$0.960^{+0.050}_{-0.051}$	$D_M(0.51)$	1475	$2047^{+900}_{-600}$
$n_s$	0.961	$0.960^{+0.050}_{-0.051}$	$Y_P$	0.24533	$0.24531^{+0.00055}_{-0.00055}$	$H(0.61)$	117.3	$95^{+30}_{-20}$
$H_0$	96.6	—	$Y_P^{BBN}$	0.24666	$0.24664^{+0.00055}_{-0.00055}$	$D_M(0.61)$	1736	$2378^{+1000}_{-700}$
$\Omega_\Lambda$	0.851	$0.66^{+0.22}_{-0.46}$	$10^5 D/H$	2.616	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	243.6	$230^{+30}_{-30}$
$\Omega_m$	0.149	$0.34^{+0.46}_{-0.22}$	Age/Gyr	11.74	$14.2^{+3.8}_{-3.0}$	$D_M(2.33)$	4847	$5909^{+2000}_{-1000}$
$\Omega_m h^2$	0.1391	$0.134^{+0.033}_{-0.027}$	$z_*$	1089.79	$1089.4^{+3.2}_{-2.8}$	$f\sigma_8(0.15)$	0.374	$0.439^{+0.084}_{-0.098}$
$\Omega_m h^3$	0.134	$0.093^{+0.061}_{-0.049}$	$r_*$	145.5	$147.0^{+8.0}_{-8.4}$	$\sigma_8(0.15)$	0.890	$0.74^{+0.18}_{-0.20}$
$\sigma_8$	0.939	$0.80^{+0.18}_{-0.20}$	$100\theta_*$	1.118	$1.03^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	0.432	$0.453^{+0.045}_{-0.056}$
$S_8$	0.662	$0.80^{+0.24}_{-0.20}$	$D_M(z_*)/\text{Gpc}$	13.01	$14.3^{+2.4}_{-2.0}$	$\sigma_8(0.38)$	0.817	$0.66^{+0.19}_{-0.21}$
$\sigma_8 \Omega_m^{0.5}$	0.362	$0.44^{+0.13}_{-0.11}$	$z_{\text{drag}}$	1059.28	$1058.9^{+3.8}_{-3.9}$	$f\sigma_8(0.51)$	0.453	$0.453^{+0.048}_{-0.054}$
$\sigma_8 \Omega_m^{0.25}$	0.583	$0.589^{+0.050}_{-0.053}$	$r_{\text{drag}}$	148.3	$149.8^{+8.3}_{-8.7}$	$\sigma_8(0.51)$	0.777	$0.62^{+0.19}_{-0.21}$
$\sigma_8/h^{0.5}$	0.955	$0.974^{+0.052}_{-0.062}$	$k_D$	0.1395	$0.1380^{+0.0096}_{-0.0085}$	$f\sigma_8(0.61)$	0.466	$0.449^{+0.055}_{-0.071}$
$r_{\text{drag}} h$	143.3	$103^{+50}_{-40}$	$100\theta_D$	0.1731	$0.160^{+0.016}_{-0.017}$	$\sigma_8(0.61)$	0.748	$0.59^{+0.19}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	2.492	$2.50^{+0.14}_{-0.14}$	$z_{\text{eq}}$	3309	$3189^{+800}_{-600}$	$f\sigma_8(2.33)$	0.388	$0.30^{+0.10}_{-0.11}$
$z_{\text{re}}$	7.89	$7.63^{+0.75}_{-0.70}$	$k_{\text{eq}}$	0.01010	$0.0097^{+0.0024}_{-0.0019}$	$\sigma_8(2.33)$	0.419	$0.31^{+0.13}_{-0.12}$
$10^9 A_s$	2.61	$2.32^{+0.88}_{-0.67}$	$100\theta_{\text{eq}}$	0.892	$0.85^{+0.13}_{-0.12}$	$\chi^2_{\text{lensing}}$	7.49	$9.6 (\nu: 2.0)$
$10^9 A_s e^{-2\tau}$	2.34	$2.07^{+0.79}_{-0.60}$	$100\theta_{s,\text{eq}}$	0.492	$0.468^{+0.067}_{-0.061}$	$\chi^2_{\text{prior}}$	0.00	$2.0 (\nu: 1.9)$
$D_{40}$	1641	$1400^{+600}_{-500}$	$H(0.15)$	100.3	$74^{+30}_{-30}$			
$D_{220}$	7133	$6564^{+3000}_{-2000}$	$D_M(0.15)$	457	$670^{+400}_{-200}$			

Best-fit  $\chi^2_{\text{eff}} = 7.49$ ;  $\bar{\chi}^2_{\text{eff}} = 11.58$ ;  $R - 1 = 0.00149$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.49



## 2.147 base\_lensing\_lenspriors\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.0222^{+0.0012}_{-0.0013}$	$D_{810}$	2815	$2748^{+700}_{-800}$	$H(0.38)$	81.0	$82^{+10}_{-10}$
$\Omega_c h^2$	0.1091	$0.112^{+0.034}_{-0.025}$	$D_{1420}$	892	$866^{+200}_{-300}$	$D_M(0.38)$	1561	$1547^{+200}_{-200}$
$100\theta_{MC}$	1.027	$1.031^{+0.062}_{-0.058}$	$D_{2000}$	253	$253^{+100}_{-90}$	$H(0.51)$	87.4	$88^{+10}_{-10}$
$\ln(10^{10} A_s)$	3.147	$3.13^{+0.25}_{-0.25}$	$n_{s,0.002}$	0.961	$0.959^{+0.052}_{-0.052}$	$D_M(0.51)$	2024	$2007^{+300}_{-300}$
$n_s$	0.961	$0.959^{+0.052}_{-0.052}$	$Y_P$	0.24533	$0.24532^{+0.00052}_{-0.00054}$	$H(0.61)$	92.8	$94^{+10}_{-10}$
$H_0$	66.5	$67^{+10}_{-9}$	$Y_P^{BBN}$	0.24665	$0.24664^{+0.00052}_{-0.00054}$	$D_M(0.61)$	2357	$2337^{+300}_{-300}$
$\Omega_\Lambda$	0.702	$0.702^{+0.054}_{-0.059}$	$10^5 D/H$	2.618	$2.62^{+0.25}_{-0.22}$	$H(2.33)$	227.7	$230^{+30}_{-20}$
$\Omega_m$	0.298	$0.298^{+0.059}_{-0.054}$	Age/Gyr	14.19	$14.1^{+1.8}_{-1.7}$	$D_M(2.33)$	5928	$5881^{+700}_{-700}$
$\Omega_m h^2$	0.1319	$0.134^{+0.033}_{-0.025}$	$z_*$	1089.15	$1089.4^{+3.3}_{-2.7}$	$f\sigma_8(0.15)$	0.4428	$0.443^{+0.041}_{-0.040}$
$\Omega_m h^3$	0.0877	$0.091^{+0.038}_{-0.027}$	$r_*$	147.5	$146.9^{+7.5}_{-8.3}$	$\sigma_8(0.15)$	0.741	$0.744^{+0.077}_{-0.074}$
$\sigma_8$	0.800	$0.804^{+0.082}_{-0.075}$	$100\theta_*$	1.027	$1.031^{+0.062}_{-0.058}$	$f\sigma_8(0.38)$	0.4638	$0.465^{+0.040}_{-0.038}$
$S_8$	0.798	$0.799^{+0.078}_{-0.075}$	$D_M(z_*)/\text{Gpc}$	14.36	$14.3^{+1.6}_{-1.6}$	$\sigma_8(0.38)$	0.658	$0.661^{+0.074}_{-0.067}$
$\sigma_8 \Omega_m^{0.5}$	0.4372	$0.438^{+0.043}_{-0.041}$	$z_{\text{drag}}$	1058.75	$1058.9^{+3.7}_{-3.8}$	$f\sigma_8(0.51)$	0.4640	$0.465^{+0.040}_{-0.040}$
$\sigma_8 \Omega_m^{0.25}$	0.592	$0.593^{+0.052}_{-0.050}$	$r_{\text{drag}}$	150.3	$149.7^{+8.0}_{-8.5}$	$\sigma_8(0.51)$	0.617	$0.619^{+0.072}_{-0.064}$
$\sigma_8/h^{0.5}$	0.9815	$0.980^{+0.050}_{-0.048}$	$k_D$	0.1374	$0.1381^{+0.0091}_{-0.0081}$	$f\sigma_8(0.61)$	0.4601	$0.461^{+0.041}_{-0.040}$
$r_{\text{drag}} h$	99.9	$101^{+10}_{-10}$	$100\theta_D$	0.1592	$0.1598^{+0.0088}_{-0.0082}$	$\sigma_8(0.61)$	0.587	$0.590^{+0.070}_{-0.062}$
$\langle d^2 \rangle^{1/2}$	2.508	$2.50^{+0.15}_{-0.14}$	$z_{\text{eq}}$	3136	$3196^{+800}_{-600}$	$f\sigma_8(2.33)$	0.2966	$0.298^{+0.037}_{-0.032}$
$z_{\text{re}}$	7.58	$7.63^{+0.71}_{-0.58}$	$k_{\text{eq}}$	0.00957	$0.0098^{+0.0024}_{-0.0018}$	$\sigma_8(2.33)$	0.3063	$0.308^{+0.040}_{-0.034}$
$10^9 A_s$	2.33	$2.30^{+0.63}_{-0.52}$	$100\theta_{\text{eq}}$	0.852	$0.847^{+0.091}_{-0.094}$	$\chi^2_{\text{lensing}}$	7.6	9.6 ( $\nu: 2.0$ )
$10^9 A_s e^{-2\tau}$	2.08	$2.06^{+0.57}_{-0.47}$	$100\theta_{s,\text{eq}}$	0.4693	$0.467^{+0.046}_{-0.047}$	$\chi^2_{\text{JLA}}$	1034.73	1035.7 ( $\nu: 1.0$ )
$D_{40}$	1400	$1387^{+400}_{-300}$	$H(0.15)$	71.5	$72^{+10}_{-10}$	$\chi^2_{\text{prior}}$	0.00	2.0 ( $\nu: 2.0$ )
$D_{220}$	6666	$6566^{+3000}_{-2000}$	$D_M(0.15)$	653	$647^{+100}_{-90}$			

Best-fit  $\chi^2_{\text{eff}} = 1042.33$ ;  $\bar{\chi}^2_{\text{eff}} = 1047.30$ ;  $R - 1 = 0.00566$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.59 SN - JLA Pantheon18: 1034.73



## 2.148 base\_lensing\_lenspriors\_post\_agr2

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2732^{+1000}_{-900}$	$H(0.38)$	$84^{+30}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.107^{+0.029}_{-0.023}$	$D_{1420}$	$854^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1572^{+700}_{-500}$
$100\theta_{\mathrm{MC}}$	$1.03^{+0.11}_{-0.11}$	$D_{2000}$	$276^{+200}_{-100}$	$H(0.51)$	$90^{+30}_{-20}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.17^{+0.31}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2033^{+900}_{-600}$
$n_{\mathrm{s}}$	$0.959^{+0.050}_{-0.050}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00055}$	$H(0.61)$	$95^{+30}_{-20}$
$H_0$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00056}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2364^{+1000}_{-700}$
$\Omega_{\Lambda}$	$0.68^{+0.21}_{-0.44}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$227^{+30}_{-30}$
$\Omega_{\mathrm{m}}$	$0.32^{+0.44}_{-0.21}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.2^{+3.9}_{-3.0}$	$D_{\mathrm{M}}(2.33)$	$5925^{+2000}_{-1000}$
$\Omega_{\mathrm{m}}h^2$	$0.130^{+0.029}_{-0.024}$	$z_{*}$	$1089.0^{+2.9}_{-2.6}$	$f\sigma_8(0.15)$	$0.426^{+0.081}_{-0.089}$
$\Omega_{\mathrm{m}}h^3$	$0.091^{+0.057}_{-0.048}$	$r_{*}$	$148.2^{+7.2}_{-7.6}$	$\sigma_8(0.15)$	$0.74^{+0.17}_{-0.20}$
$\sigma_8$	$0.80^{+0.17}_{-0.19}$	$100\theta_{*}$	$1.03^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	$0.444^{+0.039}_{-0.052}$
$S_8$	$0.78^{+0.23}_{-0.18}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.4^{+2.4}_{-2.0}$	$\sigma_8(0.38)$	$0.66^{+0.18}_{-0.21}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.425^{+0.13}_{-0.099}$	$z_{\mathrm{drag}}$	$1058.5^{+3.7}_{-3.7}$	$f\sigma_8(0.51)$	$0.445^{+0.040}_{-0.050}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.578^{+0.042}_{-0.044}$	$r_{\mathrm{drag}}$	$151.0^{+7.4}_{-7.9}$	$\sigma_8(0.51)$	$0.62^{+0.18}_{-0.20}$
$\sigma_8/h^{0.5}$	$0.963^{+0.047}_{-0.056}$	$k_{\mathrm{D}}$	$0.1367^{+0.0086}_{-0.0076}$	$f\sigma_8(0.61)$	$0.443^{+0.047}_{-0.067}$
$r_{\mathrm{drag}}h$	$105^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.160^{+0.016}_{-0.017}$	$\sigma_8(0.61)$	$0.59^{+0.18}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.14}_{-0.14}$	$z_{\mathrm{eq}}$	$3086^{+700}_{-600}$	$f\sigma_8(2.33)$	$0.300^{+0.099}_{-0.11}$
$z_{\mathrm{re}}$	$7.56^{+0.70}_{-0.68}$	$k_{\mathrm{eq}}$	$0.0094^{+0.0021}_{-0.0017}$	$\sigma_8(2.33)$	$0.31^{+0.12}_{-0.13}$
$10^9A_{\mathrm{s}}$	$2.40^{+0.85}_{-0.68}$	$100\theta_{\mathrm{eq}}$	$0.87^{+0.11}_{-0.11}$	$\chi^2_{\mathrm{lensing}}$	$11.9 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.15^{+0.76}_{-0.61}$	$100\theta_{\mathrm{s,eq}}$	$0.477^{+0.060}_{-0.058}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 1.9)$
$D_{40}$	$1464^{+600}_{-500}$	$H(0.15)$	$75^{+30}_{-30}$		
$D_{220}$	$6917^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$663^{+400}_{-200}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 13.89; R - 1 = 0.00196$$



## 2.149 base\_lensing\_lenspriors\_post\_conslmin40

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2642^{+1000}_{-1000}$	$H(0.38)$	$84^{+30}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.111^{+0.039}_{-0.030}$	$D_{1420}$	$825^{+400}_{-400}$	$D_{\mathrm{M}}(0.38)$	$1584^{+700}_{-500}$
$100\theta_{\mathrm{MC}}$	$1.03^{+0.11}_{-0.12}$	$D_{2000}$	$267^{+200}_{-100}$	$H(0.51)$	$90^{+30}_{-20}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.14^{+0.36}_{-0.37}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2046^{+900}_{-600}$
$n_{\mathrm{s}}$	$0.960^{+0.050}_{-0.050}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00055}$	$H(0.61)$	$95^{+30}_{-20}$
$H_0$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00056}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2377^{+1000}_{-700}$
$\Omega_{\Lambda}$	$0.66^{+0.22}_{-0.47}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$230^{+30}_{-30}$
$\Omega_{\mathrm{m}}$	$0.34^{+0.47}_{-0.22}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.2^{+3.9}_{-3.1}$	$D_{\mathrm{M}}(2.33)$	$5912^{+2000}_{-1000}$
$\Omega_{\mathrm{m}}h^2$	$0.134^{+0.039}_{-0.030}$	$z_{*}$	$1089.3^{+3.6}_{-3.2}$	$f\sigma_8(0.15)$	$0.438^{+0.086}_{-0.10}$
$\Omega_{\mathrm{m}}h^3$	$0.093^{+0.064}_{-0.050}$	$r_{*}$	$147.1^{+8.9}_{-9.8}$	$\sigma_8(0.15)$	$0.74^{+0.18}_{-0.20}$
$\sigma_8$	$0.80^{+0.18}_{-0.20}$	$100\theta_{*}$	$1.03^{+0.11}_{-0.12}$	$f\sigma_8(0.38)$	$0.453^{+0.047}_{-0.060}$
$S_8$	$0.80^{+0.25}_{-0.21}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.3^{+2.5}_{-2.2}$	$\sigma_8(0.38)$	$0.66^{+0.19}_{-0.21}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.44^{+0.14}_{-0.11}$	$z_{\mathrm{drag}}$	$1058.8^{+4.0}_{-4.1}$	$f\sigma_8(0.51)$	$0.452^{+0.051}_{-0.055}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.588^{+0.052}_{-0.059}$	$r_{\mathrm{drag}}$	$149.9^{+9.3}_{-10}$	$\sigma_8(0.51)$	$0.62^{+0.19}_{-0.20}$
$\sigma_8/h^{0.5}$	$0.973^{+0.053}_{-0.063}$	$k_{\mathrm{D}}$	$0.138^{+0.011}_{-0.0095}$	$f\sigma_8(0.61)$	$0.449^{+0.059}_{-0.071}$
$r_{\mathrm{drag}}h$	$103^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.160^{+0.017}_{-0.017}$	$\sigma_8(0.61)$	$0.59^{+0.19}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.17}_{-0.16}$	$z_{\mathrm{eq}}$	$3183^{+900}_{-700}$	$f\sigma_8(2.33)$	$0.30^{+0.10}_{-0.11}$
$z_{\mathrm{re}}$	$7.62^{+0.81}_{-0.78}$	$k_{\mathrm{eq}}$	$0.0097^{+0.0028}_{-0.0022}$	$\sigma_8(2.33)$	$0.31^{+0.13}_{-0.12}$
$10^9A_{\mathrm{s}}$	$2.33^{+0.98}_{-0.74}$	$100\theta_{\mathrm{eq}}$	$0.85^{+0.14}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$9.6 (\nu: 1.9)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.09^{+0.88}_{-0.66}$	$100\theta_{\mathrm{s,eq}}$	$0.469^{+0.075}_{-0.066}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$D_{40}$	$1413^{+700}_{-500}$	$H(0.15)$	$74^{+30}_{-30}$		
$D_{220}$	$6635^{+4000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$670^{+400}_{-200}$		

$\bar{\chi}^2_{\mathrm{eff}} = 11.55$ ;  $R - 1 = 0.00268$



## 2.150 base\_lensing\_lenspriors\_post\_agrlmax425

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2593^{+1000}_{-900}$	$H(0.38)$	$84^{+30}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.113^{+0.034}_{-0.027}$	$D_{1420}$	$806^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1585^{+700}_{-500}$
$100\theta_{\mathrm{MC}}$	$1.03^{+0.11}_{-0.11}$	$D_{2000}$	$259^{+200}_{-100}$	$H(0.51)$	$90^{+30}_{-20}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.12^{+0.33}_{-0.34}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2047^{+900}_{-600}$
$n_{\mathrm{s}}$	$0.959^{+0.050}_{-0.050}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00055}$	$H(0.61)$	$96^{+30}_{-20}$
$H_0$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2377^{+1000}_{-700}$
$\Omega_{\Lambda}$	$0.65^{+0.23}_{-0.47}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$231^{+30}_{-30}$
$\Omega_{\mathrm{m}}$	$0.35^{+0.47}_{-0.23}$	Age/Gyr	$14.1^{+3.8}_{-3.0}$	$D_{\mathrm{M}}(2.33)$	$5896^{+2000}_{-1000}$
$\Omega_{\mathrm{m}}h^2$	$0.135^{+0.034}_{-0.027}$	$z_{*}$	$1089.5^{+3.2}_{-2.8}$	$f\sigma_8(0.15)$	$0.441^{+0.084}_{-0.098}$
$\Omega_{\mathrm{m}}h^3$	$0.094^{+0.062}_{-0.049}$	$r_{*}$	$146.7^{+8.0}_{-8.5}$	$\sigma_8(0.15)$	$0.74^{+0.19}_{-0.20}$
$\sigma_8$	$0.80^{+0.18}_{-0.20}$	$100\theta_{*}$	$1.03^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	$0.455^{+0.044}_{-0.056}$
$S_8$	$0.81^{+0.24}_{-0.20}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.2^{+2.4}_{-2.0}$	$\sigma_8(0.38)$	$0.66^{+0.19}_{-0.21}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.44^{+0.13}_{-0.11}$	$z_{\mathrm{drag}}$	$1059.0^{+3.8}_{-3.9}$	$f\sigma_8(0.51)$	$0.454^{+0.049}_{-0.056}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.591^{+0.049}_{-0.052}$	$r_{\mathrm{drag}}$	$149.4^{+8.3}_{-8.7}$	$\sigma_8(0.51)$	$0.62^{+0.19}_{-0.21}$
$\sigma_8/h^{0.5}$	$0.976^{+0.052}_{-0.061}$	$k_{\mathrm{D}}$	$0.1383^{+0.0098}_{-0.0085}$	$f\sigma_8(0.61)$	$0.451^{+0.056}_{-0.072}$
$r_{\mathrm{drag}}h$	$102^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.160^{+0.016}_{-0.017}$	$\sigma_8(0.61)$	$0.59^{+0.19}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.14}_{-0.14}$	$z_{\mathrm{eq}}$	$3220^{+800}_{-600}$	$f\sigma_8(2.33)$	$0.30^{+0.11}_{-0.11}$
$z_{\mathrm{re}}$	$7.66^{+0.75}_{-0.71}$	$k_{\mathrm{eq}}$	$0.0098^{+0.0025}_{-0.0020}$	$\sigma_8(2.33)$	$0.31^{+0.13}_{-0.12}$
$10^9A_{\mathrm{s}}$	$2.29^{+0.86}_{-0.68}$	$100\theta_{\mathrm{eq}}$	$0.84^{+0.13}_{-0.12}$	$\chi^2_{\mathrm{lensing}}$	$7.5 (\nu: 1.9)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.05^{+0.77}_{-0.61}$	$100\theta_{\mathrm{s,eq}}$	$0.465^{+0.067}_{-0.062}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 1.9)$
$D_{40}$	$1381^{+600}_{-500}$	$H(0.15)$	$74^{+30}_{-30}$		
$D_{220}$	$6452^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$671^{+400}_{-200}$		

$\bar{\chi}^2_{\mathrm{eff}} = 9.48; R - 1 = 0.00229$



## 2.151 base\_lensing\_lenspriors\_post\_ptt

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0015}$	$D_{810}$	$3025^{+1000}_{-1000}$	$H(0.38)$	$82^{+30}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.099^{+0.033}_{-0.026}$	$D_{1420}$	$964^{+300}_{-400}$	$D_{\mathrm{M}}(0.38)$	$1600^{+800}_{-600}$
$100\theta_{\mathrm{MC}}$	$1.02^{+0.11}_{-0.11}$	$D_{2000}$	$324^{+200}_{-200}$	$H(0.51)$	$88^{+30}_{-20}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.27^{+0.28}_{-0.37}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.048}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2071^{+900}_{-700}$
$n_{\mathrm{s}}$	$0.960^{+0.048}_{-0.050}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00057}_{-0.00066}$	$H(0.61)$	$93^{+30}_{-20}$
$H_0$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00057}_{-0.00066}$	$D_{\mathrm{M}}(0.61)$	$2410^{+1000}_{-800}$
$\Omega_{\Lambda}$	$0.69^{+0.22}_{-0.43}$	$10^5\mathrm{D}/\mathrm{H}$	$2.63^{+0.30}_{-0.24}$	$H(2.33)$	$221^{+30}_{-30}$
$\Omega_{\mathrm{m}}$	$0.31^{+0.43}_{-0.22}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.6^{+4.0}_{-3.5}$	$D_{\mathrm{M}}(2.33)$	$6070^{+2000}_{-2000}$
$\Omega_{\mathrm{m}}h^2$	$0.122^{+0.033}_{-0.026}$	$z_{*}$	$1088.3^{+3.2}_{-2.7}$	$f\sigma_8(0.15)$	$0.419^{+0.093}_{-0.097}$
$\Omega_{\mathrm{m}}h^3$	$0.084^{+0.059}_{-0.046}$	$r_{*}$	$150.4^{+8.3}_{-9.0}$	$\sigma_8(0.15)$	$0.74^{+0.18}_{-0.20}$
$\sigma_8$	$0.79^{+0.17}_{-0.18}$	$100\theta_{*}$	$1.02^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	$0.440^{+0.048}_{-0.060}$
$S_8$	$0.76^{+0.25}_{-0.19}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.8^{+2.5}_{-2.2}$	$\sigma_8(0.38)$	$0.66^{+0.19}_{-0.20}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.42^{+0.14}_{-0.11}$	$z_{\mathrm{drag}}$	$1057.9^{+4.0}_{-4.1}$	$f\sigma_8(0.51)$	$0.442^{+0.048}_{-0.051}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.572^{+0.053}_{-0.065}$	$r_{\mathrm{drag}}$	$153.3^{+8.6}_{-9.3}$	$\sigma_8(0.51)$	$0.62^{+0.19}_{-0.20}$
$\sigma_8/h^{0.5}$	$0.968^{+0.065}_{-0.070}$	$k_{\mathrm{D}}$	$0.1344^{+0.0099}_{-0.0083}$	$f\sigma_8(0.61)$	$0.440^{+0.054}_{-0.065}$
$r_{\mathrm{drag}}h$	$105^{+50}_{-50}$	$100\theta_{\mathrm{D}}$	$0.158^{+0.017}_{-0.017}$	$\sigma_8(0.61)$	$0.59^{+0.19}_{-0.19}$
$\langle d^2 \rangle^{1/2}$	$2.58^{+0.16}_{-0.17}$	$z_{\mathrm{eq}}$	$2904^{+800}_{-600}$	$f\sigma_8(2.33)$	$0.30^{+0.10}_{-0.11}$
$z_{\mathrm{re}}$	$7.40^{+0.76}_{-0.73}$	$k_{\mathrm{eq}}$	$0.0089^{+0.0024}_{-0.0019}$	$\sigma_8(2.33)$	$0.31^{+0.12}_{-0.12}$
$10^9A_{\mathrm{s}}$	$2.65^{+0.84}_{-0.84}$	$100\theta_{\mathrm{eq}}$	$0.90^{+0.13}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$11.0 (\nu: 1.9)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.38^{+0.75}_{-0.76}$	$100\theta_{\mathrm{s,eq}}$	$0.493^{+0.065}_{-0.069}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.1)$
$D_{40}$	$1645^{+600}_{-600}$	$H(0.15)$	$73^{+30}_{-30}$		
$D_{220}$	$7958^{+3000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$673^{+400}_{-300}$		

$\bar{\chi}^2_{\mathrm{eff}} = 13.04$ ;  $R - 1 = 0.02912$



## 2.152 base\_lensing\_lenspriors\_post\_bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2552^{+1000}_{-900}$	$H(0.38)$	$84^{+30}_{-20}$
$\Omega_{\mathrm{c}} h^2$	$0.113^{+0.034}_{-0.027}$	$D_{1420}$	$793^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1582^{+700}_{-500}$
$100\theta_{\mathrm{MC}}$	$1.03^{+0.11}_{-0.11}$	$D_{2000}$	$254^{+200}_{-100}$	$H(0.51)$	$90^{+30}_{-20}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.11^{+0.33}_{-0.34}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2043^{+900}_{-600}$
$n_{\mathrm{s}}$	$0.959^{+0.050}_{-0.050}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00055}$	$H(0.61)$	$96^{+30}_{-20}$
$H_0$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00054}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2372^{+1000}_{-700}$
$\Omega_{\Lambda}$	$0.65^{+0.23}_{-0.48}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$231^{+30}_{-30}$
$\Omega_{\mathrm{m}}$	$0.35^{+0.47}_{-0.23}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.1^{+3.8}_{-3.0}$	$D_{\mathrm{M}}(2.33)$	$5890^{+2000}_{-1000}$
$\Omega_{\mathrm{m}} h^2$	$0.135^{+0.034}_{-0.027}$	$z_*$	$1089.5^{+3.2}_{-2.9}$	$f\sigma_8(0.15)$	$0.437^{+0.083}_{-0.098}$
$\Omega_{\mathrm{m}} h^3$	$0.094^{+0.062}_{-0.050}$	$r_*$	$146.7^{+8.1}_{-8.5}$	$\sigma_8(0.15)$	$0.74^{+0.19}_{-0.21}$
$\sigma_8$	$0.79^{+0.18}_{-0.20}$	$100\theta_*$	$1.03^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	$0.451^{+0.044}_{-0.056}$
$S_8$	$0.80^{+0.24}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.2^{+2.4}_{-2.0}$	$\sigma_8(0.38)$	$0.65^{+0.19}_{-0.20}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.44^{+0.13}_{-0.11}$	$z_{\mathrm{drag}}$	$1058.9^{+3.9}_{-3.8}$	$f\sigma_8(0.51)$	$0.450^{+0.049}_{-0.055}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.586^{+0.050}_{-0.052}$	$r_{\mathrm{drag}}$	$149.5^{+8.4}_{-8.8}$	$\sigma_8(0.51)$	$0.61^{+0.19}_{-0.20}$
$\sigma_8/h^{0.5}$	$0.967^{+0.051}_{-0.060}$	$k_{\mathrm{D}}$	$0.1383^{+0.0098}_{-0.0085}$	$f\sigma_8(0.61)$	$0.447^{+0.056}_{-0.071}$
$r_{\mathrm{drag}} h$	$103^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.160^{+0.016}_{-0.017}$	$\sigma_8(0.61)$	$0.59^{+0.18}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	$2.48^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$3219^{+800}_{-600}$	$f\sigma_8(2.33)$	$0.30^{+0.10}_{-0.11}$
$z_{\mathrm{re}}$	$7.66^{+0.75}_{-0.71}$	$k_{\mathrm{eq}}$	$0.0098^{+0.0025}_{-0.0020}$	$\sigma_8(2.33)$	$0.31^{+0.12}_{-0.12}$
$10^9 A_{\mathrm{s}}$	$2.25^{+0.84}_{-0.66}$	$100\theta_{\mathrm{eq}}$	$0.84^{+0.13}_{-0.12}$	$\chi^2_{\mathrm{lensing}}$	$9.8 (\nu: 1.9)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$2.02^{+0.76}_{-0.59}$	$100\theta_{\mathrm{s,eq}}$	$0.465^{+0.068}_{-0.062}$	$\chi^2_{\mathrm{prior}}$	$1.9 (\nu: 1.9)$
$D_{40}$	$1359^{+600}_{-400}$	$H(0.15)$	$74^{+30}_{-30}$		
$D_{220}$	$6347^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$669^{+400}_{-200}$		

$\bar{\chi}^2_{\mathrm{eff}} = 11.76$ ;  $R - 1 = 0.00271$



### 2.153 base\_lensing\_lenspriors\_post\_agr2bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2653^{+1000}_{-900}$	$H(0.38)$	$84^{+30}_{-30}$
$\Omega_{\mathrm{c}}h^2$	$0.108^{+0.029}_{-0.024}$	$D_{1420}$	$828^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1570^{+700}_{-500}$
$100\theta_{\mathrm{MC}}$	$1.03^{+0.11}_{-0.11}$	$D_{2000}$	$266^{+200}_{-100}$	$H(0.51)$	$90^{+30}_{-20}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.14^{+0.30}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.049}_{-0.051}$	$D_{\mathrm{M}}(0.51)$	$2030^{+900}_{-600}$
$n_{\mathrm{s}}$	$0.959^{+0.049}_{-0.051}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00054}_{-0.00054}$	$H(0.61)$	$96^{+30}_{-20}$
$H_0$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00055}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2360^{+1000}_{-700}$
$\Omega_{\Lambda}$	$0.68^{+0.21}_{-0.45}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.23}$	$H(2.33)$	$228^{+30}_{-30}$
$\Omega_{\mathrm{m}}$	$0.32^{+0.45}_{-0.21}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.2^{+3.9}_{-3.0}$	$D_{\mathrm{M}}(2.33)$	$5907^{+2000}_{-1000}$
$\Omega_{\mathrm{m}}h^2$	$0.131^{+0.029}_{-0.024}$	$z_{*}$	$1089.1^{+2.9}_{-2.7}$	$f\sigma_8(0.15)$	$0.425^{+0.080}_{-0.089}$
$\Omega_{\mathrm{m}}h^3$	$0.092^{+0.058}_{-0.049}$	$r_{*}$	$147.8^{+7.2}_{-7.6}$	$\sigma_8(0.15)$	$0.73^{+0.17}_{-0.20}$
$\sigma_8$	$0.79^{+0.17}_{-0.20}$	$100\theta_{*}$	$1.03^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	$0.442^{+0.039}_{-0.051}$
$S_8$	$0.78^{+0.23}_{-0.18}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.4^{+2.4}_{-2.0}$	$\sigma_8(0.38)$	$0.65^{+0.18}_{-0.20}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.424^{+0.13}_{-0.099}$	$z_{\mathrm{drag}}$	$1058.6^{+3.7}_{-3.7}$	$f\sigma_8(0.51)$	$0.443^{+0.041}_{-0.050}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.575^{+0.042}_{-0.044}$	$r_{\mathrm{drag}}$	$150.6^{+7.6}_{-8.0}$	$\sigma_8(0.51)$	$0.62^{+0.18}_{-0.20}$
$\sigma_8/h^{0.5}$	$0.957^{+0.046}_{-0.054}$	$k_{\mathrm{D}}$	$0.1371^{+0.0088}_{-0.0077}$	$f\sigma_8(0.61)$	$0.441^{+0.048}_{-0.067}$
$r_{\mathrm{drag}}h$	$105^{+50}_{-50}$	$100\theta_{\mathrm{D}}$	$0.160^{+0.016}_{-0.017}$	$\sigma_8(0.61)$	$0.59^{+0.18}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	$2.48^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$3117^{+700}_{-600}$	$f\sigma_8(2.33)$	$0.298^{+0.099}_{-0.11}$
$z_{\mathrm{re}}$	$7.58^{+0.69}_{-0.67}$	$k_{\mathrm{eq}}$	$0.0095^{+0.0021}_{-0.0017}$	$\sigma_8(2.33)$	$0.31^{+0.12}_{-0.13}$
$10^9A_{\mathrm{s}}$	$2.33^{+0.80}_{-0.65}$	$100\theta_{\mathrm{eq}}$	$0.86^{+0.11}_{-0.11}$	$\chi^2_{\mathrm{lensing}}$	$12.1 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.08^{+0.72}_{-0.58}$	$100\theta_{\mathrm{s,eq}}$	$0.475^{+0.060}_{-0.059}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 1.9)$
$D_{40}$	$1420^{+500}_{-400}$	$H(0.15)$	$75^{+30}_{-30}$		
$D_{220}$	$6682^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$662^{+400}_{-200}$		

$\bar{\chi}^2_{\mathrm{eff}} = 14.06$ ;  $R - 1 = 0.00285$



## 2.154 base\_lensing\_lenspriors\_post\_linear

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2557^{+1000}_{-900}$	$H(0.38)$	$84^{+30}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.115^{+0.035}_{-0.027}$	$D_{1420}$	$793^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1582^{+700}_{-500}$
$100\theta_{\mathrm{MC}}$	$1.04^{+0.11}_{-0.11}$	$D_{2000}$	$252^{+200}_{-100}$	$H(0.51)$	$91^{+30}_{-20}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.11^{+0.33}_{-0.34}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.051}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2041^{+900}_{-600}$
$n_{\mathrm{s}}$	$0.960^{+0.051}_{-0.050}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00056}_{-0.00056}$	$H(0.61)$	$96^{+30}_{-20}$
$H_0$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00057}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2370^{+1000}_{-700}$
$\Omega_{\Lambda}$	$0.65^{+0.23}_{-0.48}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.24}$	$H(2.33)$	$233^{+30}_{-30}$
$\Omega_{\mathrm{m}}$	$0.35^{+0.48}_{-0.23}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.1^{+3.7}_{-3.0}$	$D_{\mathrm{M}}(2.33)$	$5866^{+2000}_{-1000}$
$\Omega_{\mathrm{m}}h^2$	$0.138^{+0.035}_{-0.028}$	$z_{*}$	$1089.7^{+3.4}_{-2.8}$	$f\sigma_8(0.15)$	$0.447^{+0.088}_{-0.10}$
$\Omega_{\mathrm{m}}h^3$	$0.095^{+0.063}_{-0.050}$	$r_{*}$	$146.0^{+8.1}_{-8.8}$	$\sigma_8(0.15)$	$0.74^{+0.19}_{-0.20}$
$\sigma_8$	$0.81^{+0.18}_{-0.19}$	$100\theta_{*}$	$1.04^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	$0.460^{+0.047}_{-0.059}$
$S_8$	$0.82^{+0.24}_{-0.21}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.1^{+2.4}_{-2.0}$	$\sigma_8(0.38)$	$0.66^{+0.19}_{-0.21}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.45^{+0.13}_{-0.12}$	$z_{\mathrm{drag}}$	$1059.1^{+3.8}_{-3.9}$	$f\sigma_8(0.51)$	$0.458^{+0.050}_{-0.056}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.597^{+0.050}_{-0.055}$	$r_{\mathrm{drag}}$	$148.8^{+8.4}_{-9.0}$	$\sigma_8(0.51)$	$0.62^{+0.19}_{-0.21}$
$\sigma_8/h^{0.5}$	$0.981^{+0.052}_{-0.065}$	$k_{\mathrm{D}}$	$0.1390^{+0.0098}_{-0.0087}$	$f\sigma_8(0.61)$	$0.454^{+0.057}_{-0.073}$
$r_{\mathrm{drag}}h$	$102^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.160^{+0.016}_{-0.017}$	$\sigma_8(0.61)$	$0.59^{+0.19}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.14}_{-0.14}$	$z_{\mathrm{eq}}$	$3274^{+800}_{-700}$	$f\sigma_8(2.33)$	$0.30^{+0.11}_{-0.11}$
$z_{\mathrm{re}}$	$7.70^{+0.76}_{-0.71}$	$k_{\mathrm{eq}}$	$0.00999^{+0.0026}_{-0.0020}$	$\sigma_8(2.33)$	$0.31^{+0.13}_{-0.12}$
$10^9A_{\mathrm{s}}$	$2.26^{+0.87}_{-0.66}$	$100\theta_{\mathrm{eq}}$	$0.84^{+0.13}_{-0.11}$	$\chi^2_{\mathrm{lensing}}$	$10.1 (\nu: 1.8)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.02^{+0.78}_{-0.59}$	$100\theta_{\mathrm{s,eq}}$	$0.461^{+0.068}_{-0.060}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$D_{40}$	$1357^{+600}_{-400}$	$H(0.15)$	$74^{+30}_{-30}$		
$D_{220}$	$6306^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$670^{+400}_{-200}$		

$\bar{\chi}^2_{\mathrm{eff}} = 12.03$ ;  $R - 1 = 0.00429$



## 2.155 base\_lensing\_lenspriors\_post\_acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2618^{+1000}_{-900}$	$H(0.38)$	$83^{+30}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.111^{+0.033}_{-0.027}$	$D_{1420}$	$816^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1592^{+700}_{-500}$
$100\theta_{\mathrm{MC}}$	$1.03^{+0.11}_{-0.11}$	$D_{2000}$	$264^{+200}_{-100}$	$H(0.51)$	$90^{+30}_{-20}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.13^{+0.33}_{-0.34}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2055^{+900}_{-600}$
$n_{\mathrm{s}}$	$0.959^{+0.050}_{-0.050}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00055}$	$H(0.61)$	$95^{+30}_{-20}$
$H_0$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00056}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2387^{+1000}_{-700}$
$\Omega_{\Lambda}$	$0.65^{+0.23}_{-0.47}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$230^{+30}_{-30}$
$\Omega_{\mathrm{m}}$	$0.35^{+0.47}_{-0.23}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.2^{+3.8}_{-3.1}$	$D_{\mathrm{M}}(2.33)$	$5923^{+2000}_{-1000}$
$\Omega_{\mathrm{m}}h^2$	$0.134^{+0.032}_{-0.027}$	$z_*$	$1089.4^{+3.3}_{-2.9}$	$f\sigma_8(0.15)$	$0.439^{+0.084}_{-0.097}$
$\Omega_{\mathrm{m}}h^3$	$0.092^{+0.062}_{-0.049}$	$r_*$	$147.0^{+8.1}_{-8.3}$	$\sigma_8(0.15)$	$0.74^{+0.19}_{-0.20}$
$\sigma_8$	$0.80^{+0.18}_{-0.19}$	$100\theta_*$	$1.03^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	$0.453^{+0.045}_{-0.054}$
$S_8$	$0.81^{+0.24}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.3^{+2.4}_{-2.0}$	$\sigma_8(0.38)$	$0.66^{+0.19}_{-0.20}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.44^{+0.13}_{-0.11}$	$z_{\mathrm{drag}}$	$1058.8^{+3.8}_{-3.9}$	$f\sigma_8(0.51)$	$0.452^{+0.048}_{-0.054}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.589^{+0.050}_{-0.052}$	$r_{\mathrm{drag}}$	$149.8^{+8.5}_{-8.6}$	$\sigma_8(0.51)$	$0.62^{+0.19}_{-0.20}$
$\sigma_8/h^{0.5}$	$0.973^{+0.051}_{-0.059}$	$k_{\mathrm{D}}$	$0.1379^{+0.0094}_{-0.0086}$	$f\sigma_8(0.61)$	$0.448^{+0.056}_{-0.071}$
$r_{\mathrm{drag}}h$	$102^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.160^{+0.017}_{-0.017}$	$\sigma_8(0.61)$	$0.59^{+0.19}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.14}_{-0.14}$	$z_{\mathrm{eq}}$	$3187^{+800}_{-600}$	$f\sigma_8(2.33)$	$0.30^{+0.10}_{-0.11}$
$z_{\mathrm{re}}$	$7.63^{+0.75}_{-0.71}$	$k_{\mathrm{eq}}$	$0.0097^{+0.0024}_{-0.0020}$	$\sigma_8(2.33)$	$0.31^{+0.13}_{-0.12}$
$10^9A_{\mathrm{s}}$	$2.31^{+0.86}_{-0.68}$	$100\theta_{\mathrm{eq}}$	$0.85^{+0.13}_{-0.12}$	$\chi^2_{\mathrm{lensing}}$	$9.6 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.07^{+0.77}_{-0.61}$	$100\theta_{\mathrm{s,eq}}$	$0.467^{+0.067}_{-0.062}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 1.9)$
$D_{40}$	$1396^{+600}_{-500}$	$H(0.15)$	$74^{+30}_{-30}$		
$D_{220}$	$6548^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$673^{+400}_{-200}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 11.57; R - 1 = 0.00392$$



## 2.156 base\_lensing\_lenspriors\_post\_agr2acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2731^{+1000}_{-900}$	$H(0.38)$	$84^{+30}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.107^{+0.029}_{-0.024}$	$D_{1420}$	$855^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1579^{+700}_{-500}$
$100\theta_{\mathrm{MC}}$	$1.03^{+0.11}_{-0.11}$	$D_{2000}$	$277^{+200}_{-100}$	$H(0.51)$	$90^{+30}_{-20}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.17^{+0.31}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.051}_{-0.051}$	$D_{\mathrm{M}}(0.51)$	$2041^{+900}_{-600}$
$n_{\mathrm{s}}$	$0.959^{+0.051}_{-0.051}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00056}_{-0.00055}$	$H(0.61)$	$95^{+30}_{-20}$
$H_0$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00056}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2373^{+1000}_{-700}$
$\Omega_{\Lambda}$	$0.68^{+0.21}_{-0.44}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$227^{+30}_{-30}$
$\Omega_{\mathrm{m}}$	$0.32^{+0.44}_{-0.21}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.3^{+3.9}_{-3.0}$	$D_{\mathrm{M}}(2.33)$	$5943^{+2000}_{-1000}$
$\Omega_{\mathrm{m}}h^2$	$0.129^{+0.029}_{-0.024}$	$z_{*}$	$1088.9^{+2.9}_{-2.6}$	$f\sigma_8(0.15)$	$0.425^{+0.080}_{-0.087}$
$\Omega_{\mathrm{m}}h^3$	$0.090^{+0.057}_{-0.048}$	$r_{*}$	$148.3^{+7.3}_{-7.6}$	$\sigma_8(0.15)$	$0.74^{+0.18}_{-0.20}$
$\sigma_8$	$0.79^{+0.17}_{-0.19}$	$100\theta_{*}$	$1.03^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	$0.443^{+0.038}_{-0.051}$
$S_8$	$0.78^{+0.23}_{-0.18}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.5^{+2.4}_{-2.0}$	$\sigma_8(0.38)$	$0.66^{+0.18}_{-0.21}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.425^{+0.13}_{-0.098}$	$z_{\mathrm{drag}}$	$1058.5^{+3.7}_{-3.7}$	$f\sigma_8(0.51)$	$0.445^{+0.040}_{-0.050}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.577^{+0.041}_{-0.043}$	$r_{\mathrm{drag}}$	$151.1^{+7.5}_{-7.9}$	$\sigma_8(0.51)$	$0.62^{+0.18}_{-0.20}$
$\sigma_8/h^{0.5}$	$0.962^{+0.047}_{-0.054}$	$k_{\mathrm{D}}$	$0.1366^{+0.0086}_{-0.0078}$	$f\sigma_8(0.61)$	$0.442^{+0.047}_{-0.067}$
$r_{\mathrm{drag}}h$	$104^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.160^{+0.016}_{-0.017}$	$\sigma_8(0.61)$	$0.59^{+0.18}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.14}_{-0.14}$	$z_{\mathrm{eq}}$	$3077^{+700}_{-600}$	$f\sigma_8(2.33)$	$0.30^{+0.10}_{-0.11}$
$z_{\mathrm{re}}$	$7.55^{+0.70}_{-0.67}$	$k_{\mathrm{eq}}$	$0.0094^{+0.0021}_{-0.0017}$	$\sigma_8(2.33)$	$0.31^{+0.12}_{-0.12}$
$10^9A_{\mathrm{s}}$	$2.40^{+0.85}_{-0.68}$	$100\theta_{\mathrm{eq}}$	$0.87^{+0.11}_{-0.11}$	$\chi^2_{\mathrm{lensing}}$	$12.0 (\nu: 2.1)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.15^{+0.76}_{-0.61}$	$100\theta_{\mathrm{s,eq}}$	$0.478^{+0.060}_{-0.058}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 1.9)$
$D_{40}$	$1466^{+600}_{-500}$	$H(0.15)$	$74^{+30}_{-30}$		
$D_{220}$	$6931^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$665^{+400}_{-200}$		

$\bar{\chi}^2_{\mathrm{eff}} = 13.97$ ;  $R - 1 = 0.00539$



## 2.157 base\_lensing\_lenspriors\_post\_takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2645^{+1000}_{-900}$	$H(0.38)$	$83^{+30}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.110^{+0.033}_{-0.026}$	$D_{1420}$	$825^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1588^{+700}_{-500}$
$100\theta_{\mathrm{MC}}$	$1.03^{+0.11}_{-0.11}$	$D_{2000}$	$266^{+200}_{-100}$	$H(0.51)$	$90^{+30}_{-20}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.14^{+0.33}_{-0.34}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2051^{+900}_{-600}$
$n_{\mathrm{s}}$	$0.960^{+0.050}_{-0.050}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00055}$	$H(0.61)$	$95^{+30}_{-20}$
$H_0$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2382^{+1000}_{-700}$
$\Omega_{\Lambda}$	$0.66^{+0.22}_{-0.47}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$230^{+30}_{-30}$
$\Omega_{\mathrm{m}}$	$0.34^{+0.47}_{-0.22}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.2^{+3.8}_{-3.0}$	$D_{\mathrm{M}}(2.33)$	$5923^{+2000}_{-1000}$
$\Omega_{\mathrm{m}}h^2$	$0.133^{+0.033}_{-0.026}$	$z_{*}$	$1089.3^{+3.2}_{-2.8}$	$f\sigma_8(0.15)$	$0.437^{+0.087}_{-0.099}$
$\Omega_{\mathrm{m}}h^3$	$0.092^{+0.061}_{-0.048}$	$r_{*}$	$147.3^{+7.9}_{-8.3}$	$\sigma_8(0.15)$	$0.74^{+0.19}_{-0.21}$
$\sigma_8$	$0.80^{+0.18}_{-0.19}$	$100\theta_{*}$	$1.03^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	$0.452^{+0.046}_{-0.059}$
$S_8$	$0.80^{+0.25}_{-0.20}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.3^{+2.4}_{-2.0}$	$\sigma_8(0.38)$	$0.66^{+0.19}_{-0.20}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.44^{+0.14}_{-0.11}$	$z_{\mathrm{drag}}$	$1058.8^{+3.8}_{-3.9}$	$f\sigma_8(0.51)$	$0.451^{+0.049}_{-0.053}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.587^{+0.051}_{-0.055}$	$r_{\mathrm{drag}}$	$150.0^{+8.3}_{-8.7}$	$\sigma_8(0.51)$	$0.62^{+0.19}_{-0.20}$
$\sigma_8/h^{0.5}$	$0.972^{+0.055}_{-0.065}$	$k_{\mathrm{D}}$	$0.1377^{+0.0095}_{-0.0085}$	$f\sigma_8(0.61)$	$0.448^{+0.056}_{-0.070}$
$r_{\mathrm{drag}}h$	$103^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.160^{+0.016}_{-0.017}$	$\sigma_8(0.61)$	$0.59^{+0.19}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.14}_{-0.14}$	$z_{\mathrm{eq}}$	$3168^{+800}_{-600}$	$f\sigma_8(2.33)$	$0.30^{+0.10}_{-0.11}$
$z_{\mathrm{re}}$	$7.61^{+0.74}_{-0.70}$	$k_{\mathrm{eq}}$	$0.0097^{+0.0024}_{-0.0019}$	$\sigma_8(2.33)$	$0.31^{+0.12}_{-0.12}$
$10^9A_{\mathrm{s}}$	$2.33^{+0.87}_{-0.68}$	$100\theta_{\mathrm{eq}}$	$0.85^{+0.13}_{-0.12}$	$\chi^2_{\mathrm{lensing}}$	$9.6 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.09^{+0.78}_{-0.61}$	$100\theta_{\mathrm{s,eq}}$	$0.469^{+0.067}_{-0.063}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 1.9)$
$D_{40}$	$1410^{+600}_{-500}$	$H(0.15)$	$74^{+30}_{-30}$		
$D_{220}$	$6626^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$671^{+400}_{-200}$		

$\bar{\chi}^2_{\mathrm{eff}} = 11.52$ ;  $R - 1 = 0.00192$



## 2.158 base\_lensing\_lenspriors\_post\_agr2takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2761^{+1000}_{-1000}$	$H(0.38)$	$84^{+30}_{-30}$
$\Omega_{\mathrm{c}}h^2$	$0.106^{+0.029}_{-0.023}$	$D_{1420}$	$865^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1572^{+800}_{-500}$
$100\theta_{\mathrm{MC}}$	$1.03^{+0.10}_{-0.11}$	$D_{2000}$	$280^{+200}_{-100}$	$H(0.51)$	$90^{+30}_{-20}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.18^{+0.31}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2034^{+900}_{-600}$
$n_{\mathrm{s}}$	$0.959^{+0.050}_{-0.050}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00055}$	$H(0.61)$	$95^{+30}_{-20}$
$H_0$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00055}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2365^{+1000}_{-700}$
$\Omega_{\Lambda}$	$0.68^{+0.20}_{-0.44}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.23}$	$H(2.33)$	$226^{+30}_{-30}$
$\Omega_{\mathrm{m}}$	$0.32^{+0.44}_{-0.20}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.3^{+3.9}_{-3.0}$	$D_{\mathrm{M}}(2.33)$	$5937^{+2000}_{-1000}$
$\Omega_{\mathrm{m}}h^2$	$0.129^{+0.029}_{-0.023}$	$z_{*}$	$1088.9^{+2.9}_{-2.6}$	$f\sigma_8(0.15)$	$0.422^{+0.083}_{-0.092}$
$\Omega_{\mathrm{m}}h^3$	$0.090^{+0.056}_{-0.047}$	$r_{*}$	$148.5^{+7.1}_{-7.6}$	$\sigma_8(0.15)$	$0.74^{+0.17}_{-0.20}$
$\sigma_8$	$0.79^{+0.17}_{-0.19}$	$100\theta_{*}$	$1.03^{+0.10}_{-0.11}$	$f\sigma_8(0.38)$	$0.441^{+0.040}_{-0.054}$
$S_8$	$0.77^{+0.23}_{-0.18}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.5^{+2.4}_{-2.0}$	$\sigma_8(0.38)$	$0.66^{+0.18}_{-0.20}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.42^{+0.13}_{-0.10}$	$z_{\mathrm{drag}}$	$1058.4^{+3.7}_{-3.8}$	$f\sigma_8(0.51)$	$0.443^{+0.041}_{-0.048}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.574^{+0.043}_{-0.046}$	$r_{\mathrm{drag}}$	$151.3^{+7.4}_{-7.9}$	$\sigma_8(0.51)$	$0.62^{+0.18}_{-0.20}$
$\sigma_8/h^{0.5}$	$0.960^{+0.050}_{-0.060}$	$k_{\mathrm{D}}$	$0.1364^{+0.0086}_{-0.0077}$	$f\sigma_8(0.61)$	$0.441^{+0.047}_{-0.065}$
$r_{\mathrm{drag}}h$	$105^{+50}_{-50}$	$100\theta_{\mathrm{D}}$	$0.160^{+0.016}_{-0.017}$	$\sigma_8(0.61)$	$0.59^{+0.18}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.13}_{-0.14}$	$z_{\mathrm{eq}}$	$3057^{+700}_{-600}$	$f\sigma_8(2.33)$	$0.300^{+0.098}_{-0.11}$
$z_{\mathrm{re}}$	$7.53^{+0.69}_{-0.68}$	$k_{\mathrm{eq}}$	$0.0093^{+0.0021}_{-0.0017}$	$\sigma_8(2.33)$	$0.31^{+0.12}_{-0.13}$
$10^9A_{\mathrm{s}}$	$2.42^{+0.84}_{-0.69}$	$100\theta_{\mathrm{eq}}$	$0.87^{+0.12}_{-0.11}$	$\chi^2_{\mathrm{lensing}}$	$11.9 (\nu: 2.1)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.16^{+0.75}_{-0.62}$	$100\theta_{\mathrm{s,eq}}$	$0.480^{+0.062}_{-0.059}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 1.9)$
$D_{40}$	$1481^{+600}_{-500}$	$H(0.15)$	$75^{+30}_{-30}$		
$D_{220}$	$7017^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$662^{+400}_{-200}$		

$\bar{\chi}^2_{\mathrm{eff}} = 13.92$ ;  $R - 1 = 0.00257$



## 2.159 base\_lensing\_lenspriors\_post\_Apr6

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2562^{+1000}_{-900}$	$H(0.38)$	$84^{+30}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.113^{+0.034}_{-0.027}$	$D_{1420}$	$796^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1586^{+700}_{-500}$
$100\theta_{\mathrm{MC}}$	$1.03^{+0.11}_{-0.11}$	$D_{2000}$	$255^{+200}_{-100}$	$H(0.51)$	$90^{+30}_{-20}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.11^{+0.33}_{-0.34}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2047^{+900}_{-600}$
$n_{\mathrm{s}}$	$0.959^{+0.050}_{-0.050}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00055}$	$H(0.61)$	$96^{+30}_{-20}$
$H_0$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2377^{+1000}_{-700}$
$\Omega_{\Lambda}$	$0.65^{+0.23}_{-0.47}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$232^{+30}_{-30}$
$\Omega_{\mathrm{m}}$	$0.35^{+0.47}_{-0.23}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.1^{+3.8}_{-3.0}$	$D_{\mathrm{M}}(2.33)$	$5891^{+2000}_{-1000}$
$\Omega_{\mathrm{m}}h^2$	$0.136^{+0.034}_{-0.027}$	$z_*$	$1089.5^{+3.2}_{-2.8}$	$f\sigma_8(0.15)$	$0.442^{+0.084}_{-0.098}$
$\Omega_{\mathrm{m}}h^3$	$0.094^{+0.062}_{-0.050}$	$r_*$	$146.5^{+8.1}_{-8.5}$	$\sigma_8(0.15)$	$0.74^{+0.19}_{-0.20}$
$\sigma_8$	$0.80^{+0.18}_{-0.20}$	$100\theta_*$	$1.03^{+0.11}_{-0.11}$	$f\sigma_8(0.38)$	$0.455^{+0.044}_{-0.055}$
$S_8$	$0.81^{+0.24}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.2^{+2.4}_{-2.0}$	$\sigma_8(0.38)$	$0.66^{+0.19}_{-0.21}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.44^{+0.13}_{-0.11}$	$z_{\mathrm{drag}}$	$1059.0^{+3.8}_{-3.9}$	$f\sigma_8(0.51)$	$0.454^{+0.049}_{-0.056}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.591^{+0.049}_{-0.052}$	$r_{\mathrm{drag}}$	$149.3^{+8.4}_{-8.8}$	$\sigma_8(0.51)$	$0.62^{+0.19}_{-0.21}$
$\sigma_8/h^{0.5}$	$0.974^{+0.052}_{-0.060}$	$k_{\mathrm{D}}$	$0.1385^{+0.0098}_{-0.0086}$	$f\sigma_8(0.61)$	$0.450^{+0.057}_{-0.072}$
$r_{\mathrm{drag}}h$	$102^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.160^{+0.016}_{-0.017}$	$\sigma_8(0.61)$	$0.59^{+0.19}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	$2.49^{+0.14}_{-0.14}$	$z_{\mathrm{eq}}$	$3236^{+800}_{-600}$	$f\sigma_8(2.33)$	$0.30^{+0.11}_{-0.11}$
$z_{\mathrm{re}}$	$7.67^{+0.74}_{-0.71}$	$k_{\mathrm{eq}}$	$0.0099^{+0.0025}_{-0.0020}$	$\sigma_8(2.33)$	$0.31^{+0.13}_{-0.12}$
$10^9A_{\mathrm{s}}$	$2.26^{+0.86}_{-0.67}$	$100\theta_{\mathrm{eq}}$	$0.84^{+0.13}_{-0.12}$	$\chi^2_{\mathrm{lensing}}$	$8.4 (\nu: 1.9)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.03^{+0.77}_{-0.60}$	$100\theta_{\mathrm{s,eq}}$	$0.464^{+0.067}_{-0.061}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 1.9)$
$D_{40}$	$1364^{+600}_{-500}$	$H(0.15)$	$74^{+30}_{-30}$		
$D_{220}$	$6361^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$671^{+400}_{-200}$		

$\bar{\chi}^2_{\mathrm{eff}} = 10.40$ ;  $R - 1 = 0.00244$



## 2.160 base\_lensing\_lenspriors\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	2895	$2857^{+1000}_{-900}$	$H(0.38)$	84.8	$84.6^{+6.0}_{-5.0}$
$\Omega_c h^2$	0.1100	$0.112^{+0.029}_{-0.022}$	$D_{1420}$	921	$909^{+400}_{-300}$	$D_M(0.38)$	1477	$1487^{+160}_{-140}$
$100\theta_{MC}$	1.04090	$1.0409^{+0.0016}_{-0.0016}$	$D_{2000}$	258	$255^{+100}_{-80}$	$H(0.51)$	90.97	$90.9^{+4.6}_{-3.3}$
$\ln(10^{10} A_s)$	3.168	$3.15^{+0.31}_{-0.33}$	$n_{s,0.002}$	0.961	$0.960^{+0.052}_{-0.052}$	$D_M(0.51)$	1921	$1932^{+180}_{-170}$
$n_s$	0.961	$0.960^{+0.052}_{-0.052}$	$Y_P$	0.24533	$0.24532^{+0.00055}_{-0.00055}$	$H(0.61)$	96.15	$96.1^{+3.4}_{-2.4}$
$H_0$	70.9	$70^{+9}_{-10}$	$Y_P^{BBN}$	0.24665	$0.24664^{+0.00056}_{-0.00056}$	$D_M(0.61)$	2242	$2253^{+190}_{-180}$
$\Omega_\Lambda$	0.736	$0.723^{+0.099}_{-0.17}$	$10^5 D/H$	2.618	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	229.8	$231^{+19}_{-15}$
$\Omega_m$	0.264	$0.277^{+0.17}_{-0.099}$	Age/Gyr	13.765	$13.77^{+0.17}_{-0.19}$	$D_M(2.33)$	5742	$5742^{+84}_{-110}$
$\Omega_m h^2$	0.1329	$0.135^{+0.029}_{-0.022}$	$z_*$	1089.24	$1089.4^{+2.9}_{-2.4}$	$f\sigma_8(0.15)$	0.432	$0.435^{+0.073}_{-0.072}$
$\Omega_m h^3$	0.0942	$0.0945^{+0.0056}_{-0.0053}$	$r_*$	147.2	$146.8^{+6.6}_{-7.4}$	$\sigma_8(0.15)$	0.766	$0.761^{+0.058}_{-0.067}$
$\sigma_8$	0.824	$0.819^{+0.054}_{-0.059}$	$100\theta_*$	1.04112	$1.0411^{+0.0016}_{-0.0016}$	$f\sigma_8(0.38)$	0.4607	$0.462^{+0.041}_{-0.053}$
$S_8$	0.773	$0.78^{+0.16}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	14.14	$14.10^{+0.63}_{-0.71}$	$\sigma_8(0.38)$	0.685	$0.679^{+0.062}_{-0.075}$
$\sigma_8 \Omega_m^{0.5}$	0.423	$0.429^{+0.088}_{-0.076}$	$z_{\text{drag}}$	1058.83	$1058.9^{+3.7}_{-3.7}$	$f\sigma_8(0.51)$	0.4652	$0.465^{+0.031}_{-0.041}$
$\sigma_8 \Omega_m^{0.25}$	0.591	$0.592^{+0.048}_{-0.053}$	$r_{\text{drag}}$	150.0	$149.5^{+6.9}_{-7.7}$	$\sigma_8(0.51)$	0.643	$0.638^{+0.064}_{-0.076}$
$\sigma_8/h^{0.5}$	0.978	$0.978^{+0.054}_{-0.057}$	$k_D$	0.1377	$0.1382^{+0.0085}_{-0.0073}$	$f\sigma_8(0.61)$	0.4642	$0.463^{+0.026}_{-0.033}$
$r_{\text{drag}} h$	106.4	$105^{+20}_{-20}$	$100\theta_D$	0.16133	$0.1613^{+0.0021}_{-0.0020}$	$\sigma_8(0.61)$	0.614	$0.608^{+0.064}_{-0.076}$
$\langle d^2 \rangle^{1/2}$	2.506	$2.50^{+0.13}_{-0.13}$	$z_{\text{eq}}$	3160	$3207^{+700}_{-500}$	$f\sigma_8(2.33)$	0.3115	$0.308^{+0.038}_{-0.044}$
$z_{\text{re}}$	7.625	$7.66^{+0.53}_{-0.43}$	$k_{\text{eq}}$	0.00964	$0.0098^{+0.0021}_{-0.0016}$	$\sigma_8(2.33)$	0.3237	$0.320^{+0.047}_{-0.051}$
$10^9 A_s$	2.38	$2.35^{+0.83}_{-0.67}$	$100\theta_{\text{eq}}$	0.859	$0.85^{+0.12}_{-0.12}$	$\chi^2_{\text{lensing}}$	7.57	$9.6 (\nu: 2.0)$
$10^9 A_s e^{-2\tau}$	2.13	$2.10^{+0.74}_{-0.60}$	$100\theta_{s,\text{eq}}$	0.473	$0.470^{+0.062}_{-0.062}$	$\chi^2_{\text{prior}}$	0.0	$3.0 (\nu: 3.2)$
$D_{40}$	1441	$1422^{+500}_{-400}$	$H(0.15)$	75.6	$75.2^{+8.1}_{-7.9}$			
$D_{220}$	6780	$6683^{+3000}_{-2000}$	$D_M(0.15)$	615	$620^{+80}_{-70}$			

Best-fit  $\chi^2_{\text{eff}} = 7.57$ ;  $\bar{\chi}^2_{\text{eff}} = 12.61$ ;  $R - 1 = 0.00164$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.57



## 2.161 base\_lensing\_lenspriors\_theta\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.0222^{+0.0013}_{-0.0012}$	$D_{810}$	2676	$2678^{+500}_{-400}$	$H(0.38)$	83.55	$83.6^{+2.4}_{-2.0}$
$\Omega_c h^2$	0.1158	$0.116^{+0.010}_{-0.010}$	$D_{1420}$	853	$854^{+200}_{-100}$	$D_M(0.38)$	1512	$1512^{+60}_{-62}$
$100\theta_{MC}$	1.04089	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	239.7	$240^{+50}_{-40}$	$H(0.51)$	90.06	$90.1^{+1.8}_{-1.6}$
$\ln(10^{10} A_s)$	3.096	$3.10^{+0.15}_{-0.14}$	$n_{s,0.002}$	0.9562	$0.956^{+0.047}_{-0.046}$	$D_M(0.51)$	1961	$1961^{+69}_{-73}$
$n_s$	0.9562	$0.956^{+0.047}_{-0.046}$	$Y_P$	0.24533	$0.24532^{+0.00055}_{-0.00053}$	$H(0.61)$	95.52	$95.6^{+1.4}_{-1.3}$
$H_0$	68.71	$68.7^{+3.9}_{-3.6}$	$Y_P^{BBN}$	0.24666	$0.24665^{+0.00056}_{-0.00054}$	$D_M(0.61)$	2285	$2284^{+73}_{-78}$
$\Omega_\Lambda$	0.706	$0.706^{+0.050}_{-0.056}$	$10^5 D/H$	2.616	$2.62^{+0.25}_{-0.23}$	$H(2.33)$	233.6	$233.6^{+7.0}_{-7.0}$
$\Omega_m$	0.294	$0.294^{+0.056}_{-0.050}$	Age/Gyr	13.796	$13.79^{+0.14}_{-0.14}$	$D_M(2.33)$	5760	$5759^{+60}_{-63}$
$\Omega_m h^2$	0.1387	$0.139^{+0.011}_{-0.010}$	$z_*$	1089.75	$1089.8^{+1.8}_{-1.7}$	$f\sigma_8(0.15)$	0.4481	$0.448^{+0.035}_{-0.036}$
$\Omega_m h^3$	0.09528	$0.0953^{+0.0033}_{-0.0033}$	$r_*$	145.65	$145.7^{+3.1}_{-2.9}$	$\sigma_8(0.15)$	0.7556	$0.755^{+0.041}_{-0.040}$
$\sigma_8$	0.8157	$0.815^{+0.042}_{-0.041}$	$100\theta_*$	1.04110	$1.0411^{+0.0016}_{-0.0015}$	$f\sigma_8(0.38)$	0.4705	$0.470^{+0.027}_{-0.028}$
$S_8$	0.807	$0.806^{+0.070}_{-0.070}$	$D_M(z_*)/\text{Gpc}$	13.990	$13.99^{+0.29}_{-0.28}$	$\sigma_8(0.38)$	0.6718	$0.671^{+0.041}_{-0.039}$
$\sigma_8 \Omega_m^{0.5}$	0.4420	$0.442^{+0.038}_{-0.038}$	$z_{\text{drag}}$	1059.25	$1059.3^{+3.2}_{-3.2}$	$f\sigma_8(0.51)$	0.4713	$0.471^{+0.024}_{-0.024}$
$\sigma_8 \Omega_m^{0.25}$	0.6005	$0.600^{+0.032}_{-0.032}$	$r_{\text{drag}}$	148.40	$148.4^{+3.3}_{-3.3}$	$\sigma_8(0.51)$	0.6295	$0.629^{+0.040}_{-0.038}$
$\sigma_8/h^{0.5}$	0.9840	$0.983^{+0.048}_{-0.047}$	$k_D$	0.13938	$0.1394^{+0.0041}_{-0.0041}$	$f\sigma_8(0.61)$	0.4677	$0.467^{+0.022}_{-0.023}$
$r_{\text{drag}} h$	102.0	$102.0^{+7.8}_{-7.0}$	$100\theta_D$	0.16111	$0.1611^{+0.0019}_{-0.0018}$	$\sigma_8(0.61)$	0.5995	$0.599^{+0.039}_{-0.037}$
$\langle d^2 \rangle^{1/2}$	2.487	$2.49^{+0.10}_{-0.10}$	$z_{\text{eq}}$	3298	$3299^{+250}_{-250}$	$f\sigma_8(2.33)$	0.3030	$0.303^{+0.022}_{-0.020}$
$z_{\text{re}}$	7.719	$7.72^{+0.33}_{-0.30}$	$k_{\text{eq}}$	0.01007	$0.01007^{+0.00077}_{-0.00076}$	$\sigma_8(2.33)$	0.3132	$0.313^{+0.025}_{-0.023}$
$10^9 A_s$	2.212	$2.21^{+0.35}_{-0.29}$	$100\theta_{\text{eq}}$	0.8319	$0.832^{+0.049}_{-0.044}$	$\chi^2_{\text{lensing}}$	7.88	9.2 ( $\nu$ : 1.2)
$10^9 A_s e^{-2\tau}$	1.981	$1.98^{+0.31}_{-0.26}$	$100\theta_{s,\text{eq}}$	0.4592	$0.459^{+0.026}_{-0.023}$	$\chi^2_{\text{JLA}}$	1034.79	1035.7 ( $\nu$ : 0.9)
$D_{40}$	1333	$1335^{+200}_{-200}$	$H(0.15)$	73.79	$73.8^{+3.3}_{-3.0}$	$\chi^2_{\text{prior}}$	0.0	2.9 ( $\nu$ : 3.0)
$D_{220}$	6178	$6189^{+1000}_{-1000}$	$D_M(0.15)$	632.2	$632^{+30}_{-31}$			

Best-fit  $\chi^2_{\text{eff}} = 1042.71$ ;  $\bar{\chi}^2_{\text{eff}} = 1047.77$ ;  $R - 1 = 0.00295$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.88 SN - JLA Pantheon18: 1034.79



## 2.162 base\_lensing\_lenspriors\_theta\_post\_agr2

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2982^{+1000}_{-900}$	$H(0.38)$	$85.5^{+5.4}_{-4.7}$
$\Omega_{\mathrm{c}}h^2$	$0.108^{+0.024}_{-0.019}$	$D_{1420}$	$945^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1462^{+140}_{-120}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$265^{+100}_{-80}$	$H(0.51)$	$91.5^{+4.3}_{-3.4}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.19^{+0.29}_{-0.30}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.051}$	$D_{\mathrm{M}}(0.51)$	$1902^{+160}_{-150}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.051}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00058}$	$H(0.61)$	$96.6^{+3.4}_{-2.4}$
$H_0$	$72^{+8}_{-9}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00059}$	$D_{\mathrm{M}}(0.61)$	$2221^{+170}_{-160}$
$\Omega_{\Lambda}$	$0.745^{+0.081}_{-0.13}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.27}_{-0.23}$	$H(2.33)$	$228^{+16}_{-12}$
$\Omega_{\mathrm{m}}$	$0.255^{+0.13}_{-0.081}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.74^{+0.17}_{-0.18}$	$D_{\mathrm{M}}(2.33)$	$5729^{+85}_{-100}$
$\Omega_{\mathrm{m}}h^2$	$0.131^{+0.024}_{-0.019}$	$z_*$	$1089.0^{+2.6}_{-2.1}$	$f\sigma_8(0.15)$	$0.420^{+0.061}_{-0.060}$
$\Omega_{\mathrm{m}}h^3$	$0.0937^{+0.0051}_{-0.0048}$	$r_*$	$147.9^{+5.8}_{-6.4}$	$\sigma_8(0.15)$	$0.763^{+0.054}_{-0.062}$
$\sigma_8$	$0.819^{+0.050}_{-0.055}$	$100\theta_*$	$1.0411^{+0.0016}_{-0.0015}$	$f\sigma_8(0.38)$	$0.451^{+0.037}_{-0.044}$
$S_8$	$0.75^{+0.13}_{-0.11}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.21^{+0.56}_{-0.61}$	$\sigma_8(0.38)$	$0.683^{+0.059}_{-0.067}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.412^{+0.071}_{-0.062}$	$z_{\mathrm{drag}}$	$1058.6^{+3.6}_{-3.6}$	$f\sigma_8(0.51)$	$0.456^{+0.027}_{-0.036}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.580^{+0.040}_{-0.045}$	$r_{\mathrm{drag}}$	$150.7^{+6.2}_{-6.6}$	$\sigma_8(0.51)$	$0.643^{+0.061}_{-0.068}$
$\sigma_8/h^{0.5}$	$0.965^{+0.047}_{-0.050}$	$k_{\mathrm{D}}$	$0.1370^{+0.0073}_{-0.0065}$	$f\sigma_8(0.61)$	$0.456^{+0.024}_{-0.029}$
$r_{\mathrm{drag}}h$	$109^{+20}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1615^{+0.0021}_{-0.0020}$	$\sigma_8(0.61)$	$0.614^{+0.061}_{-0.068}$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$3104^{+600}_{-500}$	$f\sigma_8(2.33)$	$0.312^{+0.036}_{-0.039}$
$z_{\mathrm{re}}$	$7.59^{+0.46}_{-0.38}$	$k_{\mathrm{eq}}$	$0.0095^{+0.0017}_{-0.0014}$	$\sigma_8(2.33)$	$0.326^{+0.045}_{-0.046}$
$10^9A_{\mathrm{s}}$	$2.44^{+0.80}_{-0.65}$	$100\theta_{\mathrm{eq}}$	$0.87^{+0.11}_{-0.10}$	$\chi^2_{\mathrm{lensing}}$	$11.9 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.18^{+0.71}_{-0.58}$	$100\theta_{\mathrm{s,eq}}$	$0.481^{+0.056}_{-0.055}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 3.2)$
$D_{40}$	$1497^{+500}_{-400}$	$H(0.15)$	$76.6^{+7.3}_{-7.1}$		
$D_{220}$	$7076^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$607^{+70}_{-60}$		

$\bar{\chi}^2_{\mathrm{eff}} = 14.87; R - 1 = 0.00258$



## 2.163 base\_lensing\_lenspriors\_theta\_post\_conslmin40

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2872^{+1000}_{-1000}$	$H(0.38)$	$84.7^{+6.7}_{-5.4}$
$\Omega_{\mathrm{c}}h^2$	$0.112^{+0.033}_{-0.025}$	$D_{1420}$	$913^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1487^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$256^{+100}_{-90}$	$H(0.51)$	$90.9^{+5.2}_{-3.6}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.15^{+0.38}_{-0.37}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.052}_{-0.051}$	$D_{\mathrm{M}}(0.51)$	$1931^{+200}_{-180}$
$n_{\mathrm{s}}$	$0.960^{+0.052}_{-0.051}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00056}$	$H(0.61)$	$96.2^{+3.8}_{-2.6}$
$H_0$	$70^{+10}_{-10}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2252^{+210}_{-200}$
$\Omega_{\Lambda}$	$0.72^{+0.11}_{-0.19}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$231^{+22}_{-17}$
$\Omega_{\mathrm{m}}$	$0.28^{+0.19}_{-0.11}$	Age/Gyr	$13.76^{+0.18}_{-0.21}$	$D_{\mathrm{M}}(2.33)$	$5741^{+86}_{-120}$
$\Omega_{\mathrm{m}}h^2$	$0.135^{+0.033}_{-0.026}$	$z_{*}$	$1089.4^{+3.1}_{-2.6}$	$f\sigma_8(0.15)$	$0.435^{+0.079}_{-0.077}$
$\Omega_{\mathrm{m}}h^3$	$0.0945^{+0.0062}_{-0.0060}$	$r_{*}$	$146.8^{+7.7}_{-8.3}$	$\sigma_8(0.15)$	$0.761^{+0.064}_{-0.073}$
$\sigma_8$	$0.819^{+0.058}_{-0.064}$	$100\theta_{*}$	$1.0411^{+0.0016}_{-0.0015}$	$f\sigma_8(0.38)$	$0.461^{+0.043}_{-0.057}$
$S_8$	$0.78^{+0.18}_{-0.15}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.10^{+0.73}_{-0.79}$	$\sigma_8(0.38)$	$0.679^{+0.072}_{-0.081}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.428^{+0.097}_{-0.081}$	$z_{\mathrm{drag}}$	$1058.9^{+3.8}_{-3.8}$	$f\sigma_8(0.51)$	$0.464^{+0.031}_{-0.045}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.592^{+0.051}_{-0.059}$	$r_{\mathrm{drag}}$	$149.6^{+7.9}_{-8.6}$	$\sigma_8(0.51)$	$0.638^{+0.074}_{-0.083}$
$\sigma_8/h^{0.5}$	$0.977^{+0.053}_{-0.059}$	$k_{\mathrm{D}}$	$0.1382^{+0.0096}_{-0.0083}$	$f\sigma_8(0.61)$	$0.462^{+0.026}_{-0.036}$
$r_{\mathrm{drag}}h$	$105^{+20}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1613^{+0.0022}_{-0.0020}$	$\sigma_8(0.61)$	$0.608^{+0.075}_{-0.083}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.16}_{-0.15}$	$z_{\mathrm{eq}}$	$3206^{+800}_{-600}$	$f\sigma_8(2.33)$	$0.309^{+0.044}_{-0.048}$
$z_{\mathrm{re}}$	$7.66^{+0.58}_{-0.45}$	$k_{\mathrm{eq}}$	$0.0098^{+0.0024}_{-0.0019}$	$\sigma_8(2.33)$	$0.321^{+0.055}_{-0.056}$
$10^9A_{\mathrm{s}}$	$2.36^{+1.0}_{-0.75}$	$100\theta_{\mathrm{eq}}$	$0.85^{+0.14}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$9.5 (\nu: 1.9)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.11^{+0.94}_{-0.67}$	$100\theta_{\mathrm{s,eq}}$	$0.471^{+0.074}_{-0.069}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 3.2)$
$D_{40}$	$1432^{+700}_{-500}$	$H(0.15)$	$75^{+9}_{-9}$		
$D_{220}$	$6733^{+4000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$620^{+90}_{-80}$		

$\bar{\chi}^2_{\mathrm{eff}} = 12.57$ ;  $R - 1 = 0.00195$



## 2.164 base\_lensing\_lenspriors\_theta\_post\_agrlmax425

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2814^{+1000}_{-900}$	$H(0.38)$	$84.3^{+6.0}_{-4.9}$
$\Omega_{\mathrm{c}}h^2$	$0.113^{+0.029}_{-0.022}$	$D_{1420}$	$896^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1495^{+160}_{-140}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$252^{+100}_{-80}$	$H(0.51)$	$90.7^{+4.7}_{-3.3}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.13^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.051}$	$D_{\mathrm{M}}(0.51)$	$1941^{+180}_{-170}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.051}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00056}$	$H(0.61)$	$96.0^{+3.3}_{-2.3}$
$H_0$	$70^{+10}_{-9}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2262^{+190}_{-180}$
$\Omega_{\Lambda}$	$0.72^{+0.10}_{-0.17}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$232^{+19}_{-15}$
$\Omega_{\mathrm{m}}$	$0.28^{+0.17}_{-0.10}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.77^{+0.17}_{-0.20}$	$D_{\mathrm{M}}(2.33)$	$5746^{+80}_{-110}$
$\Omega_{\mathrm{m}}h^2$	$0.136^{+0.029}_{-0.023}$	$z_{*}$	$1089.5^{+2.9}_{-2.5}$	$f\sigma_8(0.15)$	$0.439^{+0.073}_{-0.072}$
$\Omega_{\mathrm{m}}h^3$	$0.0947^{+0.0057}_{-0.0052}$	$r_{*}$	$146.4^{+6.7}_{-7.4}$	$\sigma_8(0.15)$	$0.760^{+0.059}_{-0.068}$
$\sigma_8$	$0.818^{+0.055}_{-0.059}$	$100\theta_{*}$	$1.0411^{+0.0016}_{-0.0016}$	$f\sigma_8(0.38)$	$0.464^{+0.040}_{-0.052}$
$S_8$	$0.79^{+0.16}_{-0.14}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.07^{+0.64}_{-0.72}$	$\sigma_8(0.38)$	$0.677^{+0.064}_{-0.075}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.433^{+0.089}_{-0.077}$	$z_{\mathrm{drag}}$	$1059.0^{+3.7}_{-3.8}$	$f\sigma_8(0.51)$	$0.466^{+0.030}_{-0.040}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.595^{+0.047}_{-0.053}$	$r_{\mathrm{drag}}$	$149.2^{+7.0}_{-7.7}$	$\sigma_8(0.51)$	$0.635^{+0.065}_{-0.075}$
$\sigma_8/h^{0.5}$	$0.980^{+0.052}_{-0.057}$	$k_{\mathrm{D}}$	$0.1386^{+0.0083}_{-0.0074}$	$f\sigma_8(0.61)$	$0.464^{+0.025}_{-0.032}$
$r_{\mathrm{drag}}h$	$104^{+20}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1613^{+0.0022}_{-0.0020}$	$\sigma_8(0.61)$	$0.606^{+0.066}_{-0.075}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$3236^{+700}_{-500}$	$f\sigma_8(2.33)$	$0.307^{+0.038}_{-0.043}$
$z_{\mathrm{re}}$	$7.68^{+0.53}_{-0.44}$	$k_{\mathrm{eq}}$	$0.0099^{+0.0021}_{-0.0017}$	$\sigma_8(2.33)$	$0.319^{+0.048}_{-0.051}$
$10^9A_{\mathrm{s}}$	$2.31^{+0.84}_{-0.66}$	$100\theta_{\mathrm{eq}}$	$0.85^{+0.12}_{-0.12}$	$\chi^2_{\mathrm{lensing}}$	$7.5 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.07^{+0.76}_{-0.59}$	$100\theta_{\mathrm{s,eq}}$	$0.467^{+0.063}_{-0.061}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 3.3)$
$D_{40}$	$1400^{+500}_{-400}$	$H(0.15)$	$75^{+8}_{-8}$		
$D_{220}$	$6561^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$624^{+80}_{-70}$		

$\bar{\chi}^2_{\mathrm{eff}} = 10.53$ ;  $R - 1 = 0.00161$



## 2.165 base\_lensing\_lenspriors\_theta\_post\_ptt

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{810}$	$3350^{+1000}_{-1000}$	$H(0.38)$	$87.2^{+6.2}_{-6.0}$
$\Omega_{\mathrm{c}}h^2$	$0.102^{+0.028}_{-0.020}$	$D_{1420}$	$1056^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1423^{+200}_{-100}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$295^{+100}_{-90}$	$H(0.51)$	$92.8^{+5.0}_{-4.4}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.29^{+0.32}_{-0.35}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.052}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$1857^{+190}_{-150}$
$n_{\mathrm{s}}$	$0.961^{+0.052}_{-0.050}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00053}$	$H(0.61)$	$97.6^{+4.0}_{-3.2}$
$H_0$	$75^{+9}_{-10}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00054}_{-0.00053}$	$D_{\mathrm{M}}(0.61)$	$2172^{+200}_{-170}$
$\Omega_{\Lambda}$	$0.772^{+0.087}_{-0.13}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.23}$	$H(2.33)$	$224^{+19}_{-13}$
$\Omega_{\mathrm{m}}$	$0.228^{+0.13}_{-0.087}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.70^{+0.20}_{-0.20}$	$D_{\mathrm{M}}(2.33)$	$5701^{+110}_{-110}$
$\Omega_{\mathrm{m}}h^2$	$0.125^{+0.028}_{-0.020}$	$z_{*}$	$1088.5^{+2.9}_{-2.1}$	$f\sigma_8(0.15)$	$0.405^{+0.081}_{-0.076}$
$\Omega_{\mathrm{m}}h^3$	$0.0925^{+0.0058}_{-0.0052}$	$r_{*}$	$149.7^{+6.5}_{-7.6}$	$\sigma_8(0.15)$	$0.781^{+0.056}_{-0.063}$
$\sigma_8$	$0.834^{+0.053}_{-0.056}$	$100\theta_{*}$	$1.0411^{+0.0017}_{-0.0015}$	$f\sigma_8(0.38)$	$0.442^{+0.052}_{-0.062}$
$S_8$	$0.72^{+0.17}_{-0.14}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.38^{+0.63}_{-0.73}$	$\sigma_8(0.38)$	$0.703^{+0.065}_{-0.068}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.396^{+0.091}_{-0.077}$	$z_{\mathrm{drag}}$	$1058.1^{+3.7}_{-3.4}$	$f\sigma_8(0.51)$	$0.452^{+0.040}_{-0.052}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.574^{+0.055}_{-0.060}$	$r_{\mathrm{drag}}$	$152.5^{+6.9}_{-7.9}$	$\sigma_8(0.51)$	$0.663^{+0.066}_{-0.070}$
$\sigma_8/h^{0.5}$	$0.967^{+0.063}_{-0.062}$	$k_{\mathrm{D}}$	$0.1352^{+0.0084}_{-0.0069}$	$f\sigma_8(0.61)$	$0.455^{+0.035}_{-0.044}$
$r_{\mathrm{drag}}h$	$114^{+20}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1617^{+0.0019}_{-0.0020}$	$\sigma_8(0.61)$	$0.634^{+0.067}_{-0.071}$
$\langle d^2 \rangle^{1/2}$	$2.57^{+0.13}_{-0.16}$	$z_{\mathrm{eq}}$	$2960^{+700}_{-500}$	$f\sigma_8(2.33)$	$0.324^{+0.039}_{-0.042}$
$z_{\mathrm{re}}$	$7.49^{+0.51}_{-0.37}$	$k_{\mathrm{eq}}$	$0.0090^{+0.0020}_{-0.0015}$	$\sigma_8(2.33)$	$0.341^{+0.048}_{-0.051}$
$10^9A_{\mathrm{s}}$	$2.72^{+0.92}_{-0.83}$	$100\theta_{\mathrm{eq}}$	$0.91^{+0.13}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$10.7 (\nu: 1.7)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.44^{+0.83}_{-0.75}$	$100\theta_{\mathrm{s,eq}}$	$0.498^{+0.066}_{-0.068}$	$\chi^2_{\mathrm{prior}}$	$3.1 (\nu: 3.1)$
$D_{40}$	$1698^{+600}_{-600}$	$H(0.15)$	$78.8^{+8.1}_{-8.8}$		
$D_{220}$	$8124^{+3000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$588^{+80}_{-60}$		

$\bar{\chi}^2_{\mathrm{eff}} = 13.85; R - 1 = 0.02914$



## 2.166 base\_lensing\_lenspriors\_theta\_post\_bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2768^{+1000}_{-800}$	$H(0.38)$	$84.3^{+6.0}_{-4.9}$
$\Omega_{\mathrm{c}}h^2$	$0.113^{+0.029}_{-0.022}$	$D_{1420}$	$882^{+300}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1494^{+160}_{-140}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$247^{+100}_{-70}$	$H(0.51)$	$90.7^{+4.6}_{-3.3}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.12^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.051}_{-0.052}$	$D_{\mathrm{M}}(0.51)$	$1940^{+180}_{-170}$
$n_{\mathrm{s}}$	$0.960^{+0.051}_{-0.052}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00056}$	$H(0.61)$	$96.0^{+3.4}_{-2.3}$
$H_0$	$70^{+10}_{-10}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2262^{+190}_{-180}$
$\Omega_{\Lambda}$	$0.72^{+0.10}_{-0.17}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$232^{+19}_{-15}$
$\Omega_{\mathrm{m}}$	$0.28^{+0.17}_{-0.10}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.77^{+0.17}_{-0.20}$	$D_{\mathrm{M}}(2.33)$	$5746^{+82}_{-110}$
$\Omega_{\mathrm{m}}h^2$	$0.136^{+0.029}_{-0.023}$	$z_{*}$	$1089.5^{+2.9}_{-2.5}$	$f\sigma_8(0.15)$	$0.435^{+0.074}_{-0.073}$
$\Omega_{\mathrm{m}}h^3$	$0.0947^{+0.0057}_{-0.0053}$	$r_{*}$	$146.5^{+6.7}_{-7.6}$	$\sigma_8(0.15)$	$0.753^{+0.057}_{-0.065}$
$\sigma_8$	$0.811^{+0.052}_{-0.057}$	$100\theta_{*}$	$1.0411^{+0.0016}_{-0.0015}$	$f\sigma_8(0.38)$	$0.460^{+0.040}_{-0.053}$
$S_8$	$0.78^{+0.17}_{-0.14}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.07^{+0.65}_{-0.73}$	$\sigma_8(0.38)$	$0.671^{+0.061}_{-0.072}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.429^{+0.091}_{-0.078}$	$z_{\mathrm{drag}}$	$1059.0^{+3.6}_{-3.7}$	$f\sigma_8(0.51)$	$0.462^{+0.030}_{-0.042}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.589^{+0.048}_{-0.056}$	$r_{\mathrm{drag}}$	$149.2^{+7.1}_{-7.8}$	$\sigma_8(0.51)$	$0.630^{+0.063}_{-0.074}$
$\sigma_8/h^{0.5}$	$0.971^{+0.051}_{-0.058}$	$k_{\mathrm{D}}$	$0.1385^{+0.0083}_{-0.0075}$	$f\sigma_8(0.61)$	$0.460^{+0.025}_{-0.034}$
$r_{\mathrm{drag}}h$	$104^{+20}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1613^{+0.0021}_{-0.0020}$	$\sigma_8(0.61)$	$0.601^{+0.064}_{-0.074}$
$\langle d^2 \rangle^{1/2}$	$2.47^{+0.12}_{-0.12}$	$z_{\mathrm{eq}}$	$3235^{+700}_{-500}$	$f\sigma_8(2.33)$	$0.304^{+0.038}_{-0.042}$
$z_{\mathrm{re}}$	$7.68^{+0.54}_{-0.44}$	$k_{\mathrm{eq}}$	$0.0099^{+0.0021}_{-0.0016}$	$\sigma_8(2.33)$	$0.316^{+0.047}_{-0.049}$
$10^9A_{\mathrm{s}}$	$2.27^{+0.81}_{-0.64}$	$100\theta_{\mathrm{eq}}$	$0.85^{+0.12}_{-0.12}$	$\chi^2_{\mathrm{lensing}}$	$9.8 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.04^{+0.73}_{-0.57}$	$100\theta_{\mathrm{s,eq}}$	$0.467^{+0.063}_{-0.061}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 3.2)$
$D_{40}$	$1375^{+500}_{-400}$	$H(0.15)$	$74.8^{+8.3}_{-7.7}$		
$D_{220}$	$6450^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$624^{+80}_{-70}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 12.85; R - 1 = 0.00230$$



## 2.167 base\_lensing\_lenspriors\_theta\_post\_agr2bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2887^{+1000}_{-800}$	$H(0.38)$	$85.2^{+5.4}_{-4.6}$
$\Omega_{\mathrm{c}}h^2$	$0.109^{+0.024}_{-0.019}$	$D_{1420}$	$916^{+300}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1469^{+140}_{-120}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$256^{+90}_{-70}$	$H(0.51)$	$91.3^{+4.3}_{-3.3}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.16^{+0.30}_{-0.30}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(0.51)$	$1911^{+160}_{-150}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.052}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00056}_{-0.00056}$	$H(0.61)$	$96.5^{+3.4}_{-2.3}$
$H_0$	$72^{+8}_{-8}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00056}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2230^{+170}_{-160}$
$\Omega_{\Lambda}$	$0.739^{+0.084}_{-0.13}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.24}$	$H(2.33)$	$229^{+16}_{-13}$
$\Omega_{\mathrm{m}}$	$0.261^{+0.13}_{-0.084}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.75^{+0.17}_{-0.18}$	$D_{\mathrm{M}}(2.33)$	$5733^{+83}_{-100}$
$\Omega_{\mathrm{m}}h^2$	$0.132^{+0.024}_{-0.019}$	$z_{*}$	$1089.1^{+2.6}_{-2.2}$	$f\sigma_8(0.15)$	$0.420^{+0.061}_{-0.060}$
$\Omega_{\mathrm{m}}h^3$	$0.0939^{+0.0051}_{-0.0048}$	$r_{*}$	$147.6^{+5.8}_{-6.4}$	$\sigma_8(0.15)$	$0.755^{+0.054}_{-0.059}$
$\sigma_8$	$0.811^{+0.050}_{-0.053}$	$100\theta_{*}$	$1.0411^{+0.0016}_{-0.0015}$	$f\sigma_8(0.38)$	$0.449^{+0.037}_{-0.045}$
$S_8$	$0.75^{+0.13}_{-0.12}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.18^{+0.56}_{-0.61}$	$\sigma_8(0.38)$	$0.676^{+0.057}_{-0.065}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.412^{+0.071}_{-0.063}$	$z_{\mathrm{drag}}$	$1058.7^{+3.6}_{-3.6}$	$f\sigma_8(0.51)$	$0.454^{+0.027}_{-0.036}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.578^{+0.041}_{-0.046}$	$r_{\mathrm{drag}}$	$150.4^{+6.3}_{-6.6}$	$\sigma_8(0.51)$	$0.635^{+0.060}_{-0.066}$
$\sigma_8/h^{0.5}$	$0.959^{+0.045}_{-0.049}$	$k_{\mathrm{D}}$	$0.1373^{+0.0073}_{-0.0066}$	$f\sigma_8(0.61)$	$0.454^{+0.023}_{-0.029}$
$r_{\mathrm{drag}}h$	$108^{+20}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1614^{+0.0021}_{-0.0020}$	$\sigma_8(0.61)$	$0.606^{+0.060}_{-0.067}$
$\langle d^2 \rangle^{1/2}$	$2.48^{+0.12}_{-0.12}$	$z_{\mathrm{eq}}$	$3132^{+600}_{-500}$	$f\sigma_8(2.33)$	$0.308^{+0.035}_{-0.039}$
$z_{\mathrm{re}}$	$7.61^{+0.47}_{-0.39}$	$k_{\mathrm{eq}}$	$0.0096^{+0.0018}_{-0.0014}$	$\sigma_8(2.33)$	$0.321^{+0.044}_{-0.046}$
$10^9A_{\mathrm{s}}$	$2.36^{+0.79}_{-0.62}$	$100\theta_{\mathrm{eq}}$	$0.87^{+0.11}_{-0.10}$	$\chi^2_{\mathrm{lensing}}$	$12.1 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.12^{+0.71}_{-0.56}$	$100\theta_{\mathrm{s,eq}}$	$0.478^{+0.056}_{-0.055}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 3.2)$
$D_{40}$	$1445^{+500}_{-400}$	$H(0.15)$	$76.2^{+7.3}_{-7.1}$		
$D_{220}$	$6820^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$611^{+70}_{-60}$		

$\bar{\chi}^2_{\mathrm{eff}} = 15.12; R - 1 = 0.00542$



## 2.168 base\_lensing\_lenspriors\_theta\_post\_linear

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2761^{+1000}_{-800}$	$H(0.38)$	$83.9^{+6.1}_{-4.7}$
$\Omega_c h^2$	$0.115^{+0.029}_{-0.024}$	$D_{1420}$	$881^{+400}_{-300}$	$D_M(0.38)$	$1507^{+160}_{-150}$
$100\theta_{MC}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$247^{+100}_{-70}$	$H(0.51)$	$90.4^{+4.7}_{-3.2}$
$\ln(10^{10} A_s)$	$3.12^{+0.32}_{-0.32}$	$n_{s,0.002}$	$0.960^{+0.052}_{-0.051}$	$D_M(0.51)$	$1955^{+180}_{-170}$
$n_s$	$0.960^{+0.052}_{-0.051}$	$Y_P$	$0.24532^{+0.00055}_{-0.00054}$	$H(0.61)$	$95.8^{+3.4}_{-2.2}$
$H_0$	$69^{+10}_{-9}$	$Y_P^{BBN}$	$0.24664^{+0.00055}_{-0.00055}$	$D_M(0.61)$	$2277^{+190}_{-190}$
$\Omega_\Lambda$	$0.71^{+0.11}_{-0.17}$	$10^5 D/H$	$2.62^{+0.25}_{-0.23}$	$H(2.33)$	$233^{+19}_{-16}$
$\Omega_m$	$0.29^{+0.17}_{-0.11}$	Age/Gyr	$13.78^{+0.16}_{-0.20}$	$D_M(2.33)$	$5752^{+76}_{-110}$
$\Omega_m h^2$	$0.138^{+0.030}_{-0.024}$	$z_*$	$1089.7^{+2.9}_{-2.6}$	$f\sigma_8(0.15)$	$0.447^{+0.071}_{-0.077}$
$\Omega_m h^3$	$0.0951^{+0.0056}_{-0.0054}$	$r_*$	$145.9^{+7.0}_{-7.4}$	$\sigma_8(0.15)$	$0.759^{+0.059}_{-0.067}$
$\sigma_8$	$0.819^{+0.055}_{-0.059}$	$100\theta_*$	$1.0411^{+0.0016}_{-0.0015}$	$f\sigma_8(0.38)$	$0.470^{+0.041}_{-0.055}$
$S_8$	$0.81^{+0.16}_{-0.15}$	$D_M(z_*)/\text{Gpc}$	$14.01^{+0.67}_{-0.70}$	$\sigma_8(0.38)$	$0.675^{+0.064}_{-0.075}$
$\sigma_8 \Omega_m^{0.5}$	$0.442^{+0.088}_{-0.083}$	$z_{\text{drag}}$	$1059.2^{+3.6}_{-3.8}$	$f\sigma_8(0.51)$	$0.470^{+0.031}_{-0.042}$
$\sigma_8 \Omega_m^{0.25}$	$0.601^{+0.048}_{-0.056}$	$r_{\text{drag}}$	$148.6^{+7.3}_{-7.7}$	$\sigma_8(0.51)$	$0.633^{+0.066}_{-0.077}$
$\sigma_8/h^{0.5}$	$0.986^{+0.056}_{-0.060}$	$k_D$	$0.1392^{+0.0086}_{-0.0076}$	$f\sigma_8(0.61)$	$0.467^{+0.026}_{-0.033}$
$r_{\text{drag}} h$	$103^{+20}_{-20}$	$100\theta_D$	$0.1612^{+0.0022}_{-0.0020}$	$\sigma_8(0.61)$	$0.603^{+0.066}_{-0.077}$
$\langle d^2 \rangle^{1/2}$	$2.49^{+0.13}_{-0.13}$	$z_{\text{eq}}$	$3287^{+700}_{-600}$	$f\sigma_8(2.33)$	$0.305^{+0.039}_{-0.044}$
$z_{\text{re}}$	$7.71^{+0.53}_{-0.46}$	$k_{\text{eq}}$	$0.0100^{+0.0022}_{-0.0018}$	$\sigma_8(2.33)$	$0.316^{+0.049}_{-0.050}$
$10^9 A_s$	$2.27^{+0.84}_{-0.64}$	$100\theta_{\text{eq}}$	$0.84^{+0.13}_{-0.11}$	$\chi^2_{\text{lensing}}$	$10.1 (\nu: 1.9)$
$10^9 A_s e^{-2\tau}$	$2.04^{+0.75}_{-0.57}$	$100\theta_{s,\text{eq}}$	$0.462^{+0.066}_{-0.060}$	$\chi^2_{\text{prior}}$	$3.0 (\nu: 3.2)$
$D_{40}$	$1367^{+500}_{-400}$	$H(0.15)$	$74^{+8}_{-8}$		
$D_{220}$	$6389^{+3000}_{-2000}$	$D_M(0.15)$	$630^{+80}_{-70}$		

$\bar{\chi}^2_{\text{eff}} = 13.09; R - 1 = 0.00194$



## 2.169 base\_lensing\_lenspriors\_theta\_post\_acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2862^{+1000}_{-900}$	$H(0.38)$	$84.6^{+6.0}_{-4.9}$
$\Omega_c h^2$	$0.112^{+0.029}_{-0.022}$	$D_{1420}$	$910^{+400}_{-300}$	$D_M(0.38)$	$1486^{+160}_{-140}$
$100\theta_{MC}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$256^{+100}_{-80}$	$H(0.51)$	$90.9^{+4.7}_{-3.3}$
$\ln(10^{10} A_s)$	$3.15^{+0.32}_{-0.33}$	$n_{s,0.002}$	$0.960^{+0.052}_{-0.052}$	$D_M(0.51)$	$1931^{+180}_{-170}$
$n_s$	$0.960^{+0.052}_{-0.052}$	$Y_P$	$0.24532^{+0.00055}_{-0.00056}$	$H(0.61)$	$96.2^{+3.4}_{-2.4}$
$H_0$	$70^{+9}_{-10}$	$Y_P^{BBN}$	$0.24664^{+0.00055}_{-0.00057}$	$D_M(0.61)$	$2252^{+190}_{-180}$
$\Omega_\Lambda$	$0.72^{+0.10}_{-0.17}$	$10^5 D/H$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$231^{+19}_{-15}$
$\Omega_m$	$0.28^{+0.17}_{-0.10}$	Age/Gyr	$13.77^{+0.17}_{-0.19}$	$D_M(2.33)$	$5742^{+83}_{-110}$
$\Omega_m h^2$	$0.135^{+0.029}_{-0.022}$	$z_*$	$1089.4^{+2.9}_{-2.4}$	$f\sigma_8(0.15)$	$0.435^{+0.073}_{-0.071}$
$\Omega_m h^3$	$0.0945^{+0.0056}_{-0.0052}$	$r_*$	$146.8^{+6.6}_{-7.3}$	$\sigma_8(0.15)$	$0.761^{+0.057}_{-0.066}$
$\sigma_8$	$0.819^{+0.053}_{-0.058}$	$100\theta_*$	$1.0411^{+0.0016}_{-0.0015}$	$f\sigma_8(0.38)$	$0.461^{+0.041}_{-0.052}$
$S_8$	$0.78^{+0.16}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$14.10^{+0.63}_{-0.70}$	$\sigma_8(0.38)$	$0.679^{+0.063}_{-0.074}$
$\sigma_8 \Omega_m^{0.5}$	$0.428^{+0.088}_{-0.075}$	$z_{\text{drag}}$	$1058.9^{+3.6}_{-3.8}$	$f\sigma_8(0.51)$	$0.464^{+0.031}_{-0.041}$
$\sigma_8 \Omega_m^{0.25}$	$0.592^{+0.049}_{-0.053}$	$r_{\text{drag}}$	$149.6^{+6.9}_{-7.5}$	$\sigma_8(0.51)$	$0.638^{+0.064}_{-0.075}$
$\sigma_8/h^{0.5}$	$0.977^{+0.052}_{-0.057}$	$k_D$	$0.1382^{+0.0084}_{-0.0073}$	$f\sigma_8(0.61)$	$0.463^{+0.026}_{-0.033}$
$r_{\text{drag}} h$	$105^{+20}_{-20}$	$100\theta_D$	$0.1613^{+0.0022}_{-0.0020}$	$\sigma_8(0.61)$	$0.608^{+0.064}_{-0.075}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.13}_{-0.13}$	$z_{\text{eq}}$	$3203^{+700}_{-500}$	$f\sigma_8(2.33)$	$0.309^{+0.038}_{-0.043}$
$z_{\text{re}}$	$7.66^{+0.52}_{-0.42}$	$k_{\text{eq}}$	$0.0098^{+0.0021}_{-0.0016}$	$\sigma_8(2.33)$	$0.321^{+0.049}_{-0.050}$
$10^9 A_s$	$2.35^{+0.85}_{-0.67}$	$100\theta_{\text{eq}}$	$0.85^{+0.12}_{-0.12}$	$\chi^2_{\text{lensing}}$	$9.6 (\nu: 2.0)$
$10^9 A_s e^{-2\tau}$	$2.10^{+0.77}_{-0.60}$	$100\theta_{s,\text{eq}}$	$0.470^{+0.063}_{-0.062}$	$\chi^2_{\text{prior}}$	$3.0 (\nu: 3.3)$
$D_{40}$	$1425^{+500}_{-400}$	$H(0.15)$	$75.3^{+8.2}_{-7.9}$		
$D_{220}$	$6697^{+3000}_{-2000}$	$D_M(0.15)$	$620^{+80}_{-70}$		

$\bar{\chi}^2_{\text{eff}} = 12.59; R - 1 = 0.00106$



## 2.170 base\_lensing\_lenspriors\_theta\_post\_agr2acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2998^{+1000}_{-900}$	$H(0.38)$	$85.6^{+5.4}_{-4.7}$
$\Omega_{\mathrm{c}}h^2$	$0.107^{+0.023}_{-0.018}$	$D_{1420}$	$950^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1459^{+140}_{-120}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$266^{+100}_{-80}$	$H(0.51)$	$91.6^{+4.3}_{-3.4}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.19^{+0.29}_{-0.30}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(0.51)$	$1899^{+160}_{-140}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.052}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00059}$	$H(0.61)$	$96.7^{+3.4}_{-2.4}$
$H_0$	$72^{+8}_{-9}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00059}$	$D_{\mathrm{M}}(0.61)$	$2218^{+170}_{-160}$
$\Omega_{\Lambda}$	$0.747^{+0.079}_{-0.13}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.27}_{-0.23}$	$H(2.33)$	$228^{+16}_{-12}$
$\Omega_{\mathrm{m}}$	$0.253^{+0.13}_{-0.079}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.74^{+0.17}_{-0.18}$	$D_{\mathrm{M}}(2.33)$	$5727^{+85}_{-100}$
$\Omega_{\mathrm{m}}h^2$	$0.130^{+0.024}_{-0.018}$	$z_{*}$	$1089.0^{+2.5}_{-2.1}$	$f\sigma_8(0.15)$	$0.418^{+0.060}_{-0.058}$
$\Omega_{\mathrm{m}}h^3$	$0.0936^{+0.0049}_{-0.0047}$	$r_{*}$	$148.1^{+5.6}_{-6.3}$	$\sigma_8(0.15)$	$0.763^{+0.055}_{-0.062}$
$\sigma_8$	$0.819^{+0.050}_{-0.054}$	$100\theta_{*}$	$1.0411^{+0.0016}_{-0.0015}$	$f\sigma_8(0.38)$	$0.449^{+0.037}_{-0.043}$
$S_8$	$0.75^{+0.13}_{-0.11}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.22^{+0.54}_{-0.60}$	$\sigma_8(0.38)$	$0.684^{+0.059}_{-0.066}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.410^{+0.070}_{-0.060}$	$z_{\mathrm{drag}}$	$1058.6^{+3.6}_{-3.7}$	$f\sigma_8(0.51)$	$0.455^{+0.028}_{-0.035}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.579^{+0.040}_{-0.045}$	$r_{\mathrm{drag}}$	$150.9^{+6.0}_{-6.5}$	$\sigma_8(0.51)$	$0.643^{+0.061}_{-0.067}$
$\sigma_8/h^{0.5}$	$0.964^{+0.047}_{-0.051}$	$k_{\mathrm{D}}$	$0.1369^{+0.0072}_{-0.0064}$	$f\sigma_8(0.61)$	$0.456^{+0.024}_{-0.029}$
$r_{\mathrm{drag}}h$	$109^{+20}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1615^{+0.0021}_{-0.0020}$	$\sigma_8(0.61)$	$0.614^{+0.062}_{-0.067}$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$3093^{+600}_{-400}$	$f\sigma_8(2.33)$	$0.313^{+0.036}_{-0.038}$
$z_{\mathrm{re}}$	$7.58^{+0.45}_{-0.38}$	$k_{\mathrm{eq}}$	$0.0094^{+0.0017}_{-0.0013}$	$\sigma_8(2.33)$	$0.326^{+0.045}_{-0.046}$
$10^9A_{\mathrm{s}}$	$2.45^{+0.80}_{-0.64}$	$100\theta_{\mathrm{eq}}$	$0.88^{+0.11}_{-0.11}$	$\chi^2_{\mathrm{lensing}}$	$11.9 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.19^{+0.71}_{-0.58}$	$100\theta_{\mathrm{s,eq}}$	$0.482^{+0.055}_{-0.055}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 3.3)$
$D_{40}$	$1506^{+500}_{-400}$	$H(0.15)$	$76.7^{+7.2}_{-7.1}$		
$D_{220}$	$7122^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$606^{+70}_{-60}$		

$\bar{\chi}^2_{\mathrm{eff}} = 14.92$ ;  $R - 1 = 0.00317$



## 2.171 base\_lensing\_lenspriors\_theta\_post\_takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2878^{+1000}_{-900}$	$H(0.38)$	$84.8^{+6.0}_{-5.1}$
$\Omega_{\mathrm{c}}h^2$	$0.111^{+0.029}_{-0.022}$	$D_{1420}$	$915^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1483^{+160}_{-140}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$257^{+100}_{-80}$	$H(0.51)$	$91.0^{+4.7}_{-3.4}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.15^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.052}_{-0.051}$	$D_{\mathrm{M}}(0.51)$	$1927^{+180}_{-170}$
$n_{\mathrm{s}}$	$0.960^{+0.052}_{-0.051}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00056}$	$H(0.61)$	$96.2^{+3.4}_{-2.5}$
$H_0$	$71^{+9}_{-10}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2247^{+190}_{-180}$
$\Omega_{\Lambda}$	$0.727^{+0.098}_{-0.17}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$231^{+19}_{-15}$
$\Omega_{\mathrm{m}}$	$0.273^{+0.17}_{-0.098}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.76^{+0.17}_{-0.20}$	$D_{\mathrm{M}}(2.33)$	$5740^{+84}_{-110}$
$\Omega_{\mathrm{m}}h^2$	$0.134^{+0.029}_{-0.022}$	$z_{*}$	$1089.3^{+2.9}_{-2.4}$	$f\sigma_8(0.15)$	$0.432^{+0.075}_{-0.073}$
$\Omega_{\mathrm{m}}h^3$	$0.0943^{+0.0055}_{-0.0053}$	$r_{*}$	$147.0^{+6.6}_{-7.3}$	$\sigma_8(0.15)$	$0.761^{+0.057}_{-0.066}$
$\sigma_8$	$0.819^{+0.053}_{-0.058}$	$100\theta_{*}$	$1.0411^{+0.0016}_{-0.0015}$	$f\sigma_8(0.38)$	$0.459^{+0.044}_{-0.054}$
$S_8$	$0.78^{+0.16}_{-0.14}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.12^{+0.63}_{-0.70}$	$\sigma_8(0.38)$	$0.680^{+0.062}_{-0.073}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.426^{+0.090}_{-0.077}$	$z_{\mathrm{drag}}$	$1058.9^{+3.6}_{-3.8}$	$f\sigma_8(0.51)$	$0.463^{+0.032}_{-0.043}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.590^{+0.051}_{-0.056}$	$r_{\mathrm{drag}}$	$149.8^{+7.0}_{-7.6}$	$\sigma_8(0.51)$	$0.638^{+0.063}_{-0.075}$
$\sigma_8/h^{0.5}$	$0.975^{+0.056}_{-0.062}$	$k_{\mathrm{D}}$	$0.1380^{+0.0083}_{-0.0073}$	$f\sigma_8(0.61)$	$0.461^{+0.028}_{-0.036}$
$r_{\mathrm{drag}}h$	$106^{+20}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1613^{+0.0022}_{-0.0020}$	$\sigma_8(0.61)$	$0.609^{+0.064}_{-0.075}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$3188^{+700}_{-500}$	$f\sigma_8(2.33)$	$0.309^{+0.038}_{-0.043}$
$z_{\mathrm{re}}$	$7.65^{+0.53}_{-0.42}$	$k_{\mathrm{eq}}$	$0.0097^{+0.0021}_{-0.0016}$	$\sigma_8(2.33)$	$0.321^{+0.048}_{-0.050}$
$10^9A_{\mathrm{s}}$	$2.36^{+0.85}_{-0.67}$	$100\theta_{\mathrm{eq}}$	$0.86^{+0.12}_{-0.12}$	$\chi^2_{\mathrm{lensing}}$	$9.5 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.12^{+0.76}_{-0.60}$	$100\theta_{\mathrm{s,eq}}$	$0.472^{+0.063}_{-0.062}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 3.2)$
$D_{40}$	$1436^{+500}_{-500}$	$H(0.15)$	$75.5^{+8.1}_{-8.0}$		
$D_{220}$	$6754^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$618^{+80}_{-70}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 12.55; R - 1 = 0.00157$$



## 2.172 base\_lensing\_lenspriors\_theta\_post\_agr2takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$3015^{+1000}_{-900}$	$H(0.38)$	$85.8^{+5.4}_{-4.8}$
$\Omega_{\mathrm{c}}h^2$	$0.107^{+0.024}_{-0.019}$	$D_{1420}$	$955^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1455^{+140}_{-120}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$267^{+100}_{-80}$	$H(0.51)$	$91.8^{+4.3}_{-3.4}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.20^{+0.29}_{-0.30}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.051}$	$D_{\mathrm{M}}(0.51)$	$1894^{+160}_{-140}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.051}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00059}$	$H(0.61)$	$96.8^{+3.4}_{-2.5}$
$H_0$	$72^{+8}_{-9}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00056}_{-0.00059}$	$D_{\mathrm{M}}(0.61)$	$2212^{+170}_{-160}$
$\Omega_{\Lambda}$	$0.750^{+0.081}_{-0.13}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.27}_{-0.23}$	$H(2.33)$	$228^{+16}_{-12}$
$\Omega_{\mathrm{m}}$	$0.250^{+0.13}_{-0.081}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.74^{+0.18}_{-0.18}$	$D_{\mathrm{M}}(2.33)$	$5724^{+87}_{-100}$
$\Omega_{\mathrm{m}}h^2$	$0.129^{+0.024}_{-0.019}$	$z_{*}$	$1088.9^{+2.5}_{-2.1}$	$f\sigma_8(0.15)$	$0.415^{+0.063}_{-0.059}$
$\Omega_{\mathrm{m}}h^3$	$0.0935^{+0.0050}_{-0.0048}$	$r_{*}$	$148.2^{+5.8}_{-6.4}$	$\sigma_8(0.15)$	$0.763^{+0.054}_{-0.060}$
$\sigma_8$	$0.818^{+0.050}_{-0.054}$	$100\theta_{*}$	$1.0411^{+0.0016}_{-0.0015}$	$f\sigma_8(0.38)$	$0.447^{+0.039}_{-0.046}$
$S_8$	$0.74^{+0.13}_{-0.11}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.24^{+0.55}_{-0.61}$	$\sigma_8(0.38)$	$0.684^{+0.058}_{-0.065}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.407^{+0.072}_{-0.061}$	$z_{\mathrm{drag}}$	$1058.5^{+3.5}_{-3.5}$	$f\sigma_8(0.51)$	$0.454^{+0.030}_{-0.037}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.576^{+0.043}_{-0.047}$	$r_{\mathrm{drag}}$	$151.1^{+6.1}_{-6.6}$	$\sigma_8(0.51)$	$0.644^{+0.060}_{-0.066}$
$\sigma_8/h^{0.5}$	$0.961^{+0.049}_{-0.052}$	$k_{\mathrm{D}}$	$0.1367^{+0.0073}_{-0.0063}$	$f\sigma_8(0.61)$	$0.454^{+0.025}_{-0.031}$
$r_{\mathrm{drag}}h$	$110^{+20}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1615^{+0.0021}_{-0.0020}$	$\sigma_8(0.61)$	$0.615^{+0.060}_{-0.067}$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.12}_{-0.13}$	$z_{\mathrm{eq}}$	$3077^{+600}_{-500}$	$f\sigma_8(2.33)$	$0.313^{+0.035}_{-0.038}$
$z_{\mathrm{re}}$	$7.57^{+0.45}_{-0.37}$	$k_{\mathrm{eq}}$	$0.0094^{+0.0017}_{-0.0014}$	$\sigma_8(2.33)$	$0.327^{+0.044}_{-0.045}$
$10^9A_{\mathrm{s}}$	$2.46^{+0.80}_{-0.65}$	$100\theta_{\mathrm{eq}}$	$0.88^{+0.11}_{-0.11}$	$\chi^2_{\mathrm{lensing}}$	$11.9 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.21^{+0.72}_{-0.58}$	$100\theta_{\mathrm{s,eq}}$	$0.484^{+0.056}_{-0.056}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 3.2)$
$D_{40}$	$1517^{+500}_{-400}$	$H(0.15)$	$77.0^{+7.3}_{-7.2}$		
$D_{220}$	$7184^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$604^{+70}_{-60}$		

$\bar{\chi}^2_{\mathrm{eff}} = 14.89; R - 1 = 0.00293$



## 2.173 base\_lensing\_lenspriors\_theta\_post\_Apr6

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2779^{+1000}_{-900}$	$H(0.38)$	$84.2^{+5.9}_{-4.8}$
$\Omega_{\mathrm{c}}h^2$	$0.114^{+0.029}_{-0.023}$	$D_{1420}$	$886^{+300}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1498^{+160}_{-140}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$249^{+100}_{-80}$	$H(0.51)$	$90.6^{+4.6}_{-3.2}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.12^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(0.51)$	$1945^{+180}_{-170}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.052}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00056}$	$H(0.61)$	$95.9^{+3.3}_{-2.3}$
$H_0$	$70^{+9}_{-9}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2267^{+190}_{-180}$
$\Omega_{\Lambda}$	$0.71^{+0.11}_{-0.17}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$232^{+19}_{-15}$
$\Omega_{\mathrm{m}}$	$0.29^{+0.17}_{-0.11}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.78^{+0.17}_{-0.20}$	$D_{\mathrm{M}}(2.33)$	$5748^{+80}_{-110}$
$\Omega_{\mathrm{m}}h^2$	$0.137^{+0.029}_{-0.023}$	$z_{*}$	$1089.6^{+2.9}_{-2.5}$	$f\sigma_8(0.15)$	$0.440^{+0.072}_{-0.073}$
$\Omega_{\mathrm{m}}h^3$	$0.0948^{+0.0057}_{-0.0053}$	$r_{*}$	$146.3^{+6.7}_{-7.4}$	$\sigma_8(0.15)$	$0.757^{+0.058}_{-0.067}$
$\sigma_8$	$0.816^{+0.053}_{-0.059}$	$100\theta_{*}$	$1.0411^{+0.0016}_{-0.0016}$	$f\sigma_8(0.38)$	$0.464^{+0.040}_{-0.053}$
$S_8$	$0.79^{+0.16}_{-0.14}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.05^{+0.64}_{-0.72}$	$\sigma_8(0.38)$	$0.675^{+0.063}_{-0.074}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.434^{+0.089}_{-0.078}$	$z_{\mathrm{drag}}$	$1059.1^{+3.6}_{-3.7}$	$f\sigma_8(0.51)$	$0.466^{+0.030}_{-0.040}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.595^{+0.047}_{-0.053}$	$r_{\mathrm{drag}}$	$149.0^{+7.0}_{-7.7}$	$\sigma_8(0.51)$	$0.633^{+0.064}_{-0.075}$
$\sigma_8/h^{0.5}$	$0.979^{+0.052}_{-0.057}$	$k_{\mathrm{D}}$	$0.1388^{+0.0084}_{-0.0073}$	$f\sigma_8(0.61)$	$0.464^{+0.026}_{-0.032}$
$r_{\mathrm{drag}}h$	$104^{+20}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0022}_{-0.0020}$	$\sigma_8(0.61)$	$0.603^{+0.065}_{-0.075}$
$\langle d^2 \rangle^{1/2}$	$2.49^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$3252^{+700}_{-500}$	$f\sigma_8(2.33)$	$0.305^{+0.038}_{-0.043}$
$z_{\mathrm{re}}$	$7.69^{+0.53}_{-0.44}$	$k_{\mathrm{eq}}$	$0.0099^{+0.0021}_{-0.0017}$	$\sigma_8(2.33)$	$0.317^{+0.047}_{-0.050}$
$10^9A_{\mathrm{s}}$	$2.29^{+0.82}_{-0.65}$	$100\theta_{\mathrm{eq}}$	$0.84^{+0.12}_{-0.12}$	$\chi^2_{\mathrm{lensing}}$	$8.4 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.05^{+0.73}_{-0.58}$	$100\theta_{\mathrm{s,eq}}$	$0.465^{+0.063}_{-0.060}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 3.2)$
$D_{40}$	$1380^{+500}_{-400}$	$H(0.15)$	$74.6^{+8.2}_{-7.7}$		
$D_{220}$	$6464^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$626^{+80}_{-70}$		

$\bar{\chi}^2_{\mathrm{eff}} = 11.47; R - 1 = 0.00170$



## 2.174 base\_lensing\_lenspriors\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	847	$835^{+200}_{-300}$	$H(0.51)$	89.3	$89.6^{+6.9}_{-5.5}$
$\Omega_c h^2$	0.1156	$0.117^{+0.035}_{-0.026}$	$D_{2000}$	238	$237^{+90}_{-70}$	$D_M(0.51)$	1984	$1978^{+110}_{-120}$
$100\theta_{MC}$	1.0379	$1.040^{+0.041}_{-0.038}$	$n_{s,0.002}$	0.955	$0.956^{+0.051}_{-0.051}$	$H(0.61)$	94.8	$95.2^{+7.7}_{-6.2}$
$\ln(10^{10} A_s)$	3.090	$3.08^{+0.26}_{-0.27}$	$Y_P$	0.24532	$0.24531^{+0.00054}_{-0.00056}$	$D_M(0.61)$	2310	$2303^{+130}_{-140}$
$n_s$	0.955	$0.956^{+0.051}_{-0.051}$	$Y_P^{BBN}$	0.24665	$0.24663^{+0.00054}_{-0.00057}$	$H(2.33)$	233.2	$234^{+30}_{-20}$
$H_0$	67.75	$67.9^{+3.4}_{-3.1}$	$10^5 D/H$	2.621	$2.62^{+0.26}_{-0.23}$	$D_M(2.33)$	5800	$5781^{+420}_{-460}$
$\Omega_\Lambda$	0.6983	$0.697^{+0.040}_{-0.049}$	Age/Gyr	13.89	$13.8^{+1.0}_{-1.1}$	$f\sigma_8(0.15)$	0.4501	$0.452^{+0.048}_{-0.046}$
$\Omega_m$	0.3017	$0.303^{+0.049}_{-0.040}$	$z_*$	1089.77	$1089.9^{+3.2}_{-2.7}$	$\sigma_8(0.15)$	0.7493	$0.750^{+0.043}_{-0.043}$
$\Omega_m h^2$	0.1385	$0.140^{+0.035}_{-0.026}$	$r_*$	145.7	$145.4^{+7.4}_{-8.5}$	$f\sigma_8(0.38)$	0.4707	$0.472^{+0.040}_{-0.039}$
$\Omega_m h^3$	0.0938	$0.095^{+0.029}_{-0.020}$	$100\theta_*$	1.0381	$1.040^{+0.041}_{-0.038}$	$\sigma_8(0.38)$	0.6653	$0.666^{+0.037}_{-0.037}$
$\sigma_8$	0.8098	$0.811^{+0.048}_{-0.049}$	$D_M(z_*)/\text{Gpc}$	14.04	$14.0^{+1.2}_{-1.3}$	$f\sigma_8(0.51)$	0.4704	$0.471^{+0.036}_{-0.036}$
$S_8$	0.812	$0.815^{+0.096}_{-0.087}$	$z_{\text{drag}}$	1059.17	$1059.3^{+3.9}_{-3.9}$	$\sigma_8(0.51)$	0.6230	$0.624^{+0.034}_{-0.034}$
$\sigma_8 \Omega_m^{0.5}$	0.445	$0.447^{+0.052}_{-0.048}$	$r_{\text{drag}}$	148.5	$148.1^{+7.7}_{-8.7}$	$f\sigma_8(0.61)$	0.4663	$0.467^{+0.034}_{-0.033}$
$\sigma_8 \Omega_m^{0.25}$	0.6001	$0.602^{+0.050}_{-0.048}$	$k_D$	0.1393	$0.1397^{+0.0098}_{-0.0081}$	$\sigma_8(0.61)$	0.5931	$0.594^{+0.033}_{-0.032}$
$\sigma_8/h^{0.5}$	0.984	$0.984^{+0.050}_{-0.051}$	$100\theta_D$	0.1607	$0.1609^{+0.0057}_{-0.0051}$	$f\sigma_8(2.33)$	0.2995	$0.300^{+0.016}_{-0.016}$
$r_{\text{drag}} h$	100.59	$100.6^{+3.1}_{-3.2}$	$z_{\text{eq}}$	3293	$3333^{+800}_{-600}$	$\sigma_8(2.33)$	0.3092	$0.309^{+0.017}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	2.487	$2.48^{+0.14}_{-0.13}$	$k_{\text{eq}}$	0.01005	$0.0102^{+0.0026}_{-0.0019}$	$\chi^2_{\text{lensing}}$	7.9	9.9 ( $\nu: 2.6$ )
$z_{\text{re}}$	7.72	$7.74^{+0.67}_{-0.56}$	$100\theta_{\text{eq}}$	0.830	$0.827^{+0.099}_{-0.10}$	$\chi^2_{6\text{DF}}$	0.000	0.062 ( $\nu: 0.0$ )
$10^9 A_s$	2.20	$2.19^{+0.64}_{-0.53}$	$100\theta_{s,\text{eq}}$	0.458	$0.457^{+0.050}_{-0.052}$	$\chi^2_{\text{MGS}}$	1.75	1.85 ( $\nu: 0.3$ )
$10^9 A_s e^{-2\tau}$	1.97	$1.96^{+0.57}_{-0.48}$	$H(0.15)$	72.88	$73.1^{+4.2}_{-3.6}$	$\chi^2_{\text{DR12BAO}}$	3.62	4.5 ( $\nu: 1.3$ )
$D_{40}$	1325	$1317^{+400}_{-300}$	$D_M(0.15)$	640.6	$639^{+31}_{-33}$	$\chi^2_{\text{prior}}$	0.05	2.0 ( $\nu: 2.1$ )
$D_{220}$	6146	$6116^{+2000}_{-2000}$	$H(0.38)$	82.7	$83.0^{+5.8}_{-4.7}$	$\chi^2_{\text{BAO}}$	5.37	6.4 ( $\nu: 1.5$ )
$D_{810}$	2656	$2630^{+800}_{-800}$	$D_M(0.38)$	1530	$1526^{+81}_{-86}$			

Best-fit  $\chi^2_{\text{eff}} = 13.31$ ;  $\bar{\chi}^2_{\text{eff}} = 18.39$ ;  $R - 1 = 0.00184$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.62 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.88



## 2.175 base\_lensing\_lenspriors\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	859	$844^{+200}_{-200}$	$H(0.51)$	89.1	$89.4^{+5.5}_{-5.0}$
$\Omega_c h^2$	0.1143	$0.116^{+0.026}_{-0.022}$	$D_{2000}$	241	$239^{+70}_{-60}$	$D_M(0.51)$	1988	$1981^{+100}_{-100}$
$100\theta_{MC}$	1.0362	$1.038^{+0.033}_{-0.032}$	$n_{s,0.002}$	0.9567	$0.956^{+0.050}_{-0.050}$	$H(0.61)$	94.5	$94.9^{+6.2}_{-5.5}$
$\ln(10^{10} A_s)$	3.104	$3.09^{+0.22}_{-0.22}$	$Y_P$	0.24532	$0.24531^{+0.00054}_{-0.00056}$	$D_M(0.61)$	2315	$2307^{+120}_{-120}$
$n_s$	0.9567	$0.956^{+0.050}_{-0.050}$	$Y_P^{BBN}$	0.24664	$0.24663^{+0.00054}_{-0.00056}$	$H(2.33)$	232.1	$233^{+20}_{-18}$
$H_0$	67.67	$67.9^{+3.1}_{-3.0}$	$10^5 D/H$	2.622	$2.62^{+0.26}_{-0.23}$	$D_M(2.33)$	5819	$5796^{+370}_{-370}$
$\Omega_\Lambda$	0.7006	$0.699^{+0.033}_{-0.036}$	Age/Gyr	13.93	$13.88^{+0.89}_{-0.89}$	$f\sigma_8(0.15)$	0.4485	$0.450^{+0.041}_{-0.039}$
$\Omega_m$	0.2994	$0.301^{+0.036}_{-0.033}$	$z_*$	1089.65	$1089.8^{+2.6}_{-2.4}$	$\sigma_8(0.15)$	0.7492	$0.750^{+0.043}_{-0.043}$
$\Omega_m h^2$	0.1371	$0.139^{+0.026}_{-0.022}$	$r_*$	146.1	$145.7^{+6.3}_{-6.6}$	$f\sigma_8(0.38)$	0.4695	$0.471^{+0.035}_{-0.035}$
$\Omega_m h^3$	0.0928	$0.094^{+0.022}_{-0.018}$	$100\theta_*$	1.0364	$1.038^{+0.033}_{-0.032}$	$\sigma_8(0.38)$	0.6655	$0.666^{+0.038}_{-0.037}$
$\sigma_8$	0.8095	$0.810^{+0.048}_{-0.048}$	$D_M(z_*)/\text{Gpc}$	14.10	$14.0^{+1.1}_{-1.0}$	$f\sigma_8(0.51)$	0.4695	$0.471^{+0.033}_{-0.033}$
$S_8$	0.809	$0.812^{+0.079}_{-0.075}$	$z_{\text{drag}}$	1059.06	$1059.2^{+3.6}_{-3.7}$	$\sigma_8(0.51)$	0.6233	$0.624^{+0.035}_{-0.034}$
$\sigma_8 \Omega_m^{0.5}$	0.4429	$0.445^{+0.043}_{-0.041}$	$r_{\text{drag}}$	148.9	$148.4^{+6.6}_{-6.9}$	$f\sigma_8(0.61)$	0.4656	$0.466^{+0.031}_{-0.031}$
$\sigma_8 \Omega_m^{0.25}$	0.5988	$0.600^{+0.044}_{-0.044}$	$k_D$	0.1389	$0.1394^{+0.0078}_{-0.0070}$	$\sigma_8(0.61)$	0.5935	$0.594^{+0.033}_{-0.032}$
$\sigma_8/h^{0.5}$	0.984	$0.984^{+0.051}_{-0.051}$	$100\theta_D$	0.16048	$0.1608^{+0.0046}_{-0.0045}$	$f\sigma_8(2.33)$	0.2997	$0.300^{+0.017}_{-0.016}$
$r_{\text{drag}} h$	100.73	$100.7^{+2.8}_{-2.7}$	$z_{\text{eq}}$	3261	$3304^{+600}_{-500}$	$\sigma_8(2.33)$	0.3096	$0.310^{+0.017}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	2.493	$2.49^{+0.12}_{-0.12}$	$k_{\text{eq}}$	0.00995	$0.0101^{+0.0019}_{-0.0016}$	$\chi^2_{\text{lensing}}$	7.78	9.6 ( $\nu$ : 1.8)
$z_{\text{re}}$	7.69	$7.72^{+0.53}_{-0.49}$	$100\theta_{\text{eq}}$	0.835	$0.831^{+0.083}_{-0.078}$	$\chi^2_{\text{JLA}}$	1034.73	1035.12 ( $\nu$ : 0.1)
$10^9 A_s$	2.228	$2.21^{+0.54}_{-0.44}$	$100\theta_{s,\text{eq}}$	0.4608	$0.459^{+0.043}_{-0.041}$	$\chi^2_{6\text{DF}}$	0.002	0.050 ( $\nu$ : 0.0)
$10^9 A_s e^{-2\tau}$	1.996	$1.98^{+0.48}_{-0.39}$	$H(0.15)$	72.76	$73.0^{+3.7}_{-3.4}$	$\chi^2_{\text{MGS}}$	1.82	1.90 ( $\nu$ : 0.2)
$D_{40}$	1343	$1328^{+300}_{-300}$	$D_M(0.15)$	641.5	$640^{+30}_{-30}$	$\chi^2_{\text{DR12BAO}}$	3.68	4.5 ( $\nu$ : 1.2)
$D_{220}$	6262	$6181^{+2000}_{-2000}$	$H(0.38)$	82.54	$82.9^{+4.8}_{-4.3}$	$\chi^2_{\text{prior}}$	0.03	2.0 ( $\nu$ : 1.9)
$D_{810}$	2696	$2656^{+600}_{-600}$	$D_M(0.38)$	1533	$1528^{+75}_{-75}$	$\chi^2_{\text{BAO}}$	5.50	6.4 ( $\nu$ : 1.3)

Best-fit  $\chi^2_{\text{eff}} = 1048.05$ ;  $\bar{\chi}^2_{\text{eff}} = 1053.10$ ;  $R - 1 = 0.00233$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 3.68 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.78 SN - JLA Pantheon18: 1034.73



## 2.176 base\_lensing\_lenspriors\_BAO\_post\_agr2

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	$863^{+200}_{-200}$	$H(0.51)$	$88.5^{+5.5}_{-4.9}$
$\Omega_c h^2$	$0.111^{+0.027}_{-0.021}$	$D_{2000}$	$246^{+90}_{-60}$	$D_M(0.51)$	$1998^{+100}_{-99}$
$100\theta_{MC}$	$1.032^{+0.035}_{-0.033}$	$n_{s,0.002}$	$0.954^{+0.051}_{-0.052}$	$H(0.61)$	$93.8^{+6.2}_{-5.5}$
$\ln(10^{10} A_s)$	$3.12^{+0.24}_{-0.25}$	$Y_P$	$0.24531^{+0.00054}_{-0.00055}$	$D_M(0.61)$	$2328^{+120}_{-120}$
$n_s$	$0.954^{+0.051}_{-0.052}$	$Y_P^{BBN}$	$0.24663^{+0.00054}_{-0.00055}$	$H(2.33)$	$230^{+21}_{-18}$
$H_0$	$67.4^{+3.0}_{-2.9}$	$10^5 D/H$	$2.62^{+0.26}_{-0.23}$	$D_M(2.33)$	$5868^{+380}_{-380}$
$\Omega_\Lambda$	$0.705^{+0.034}_{-0.041}$	Age/Gyr	$14.05^{+0.92}_{-0.93}$	$f\sigma_8(0.15)$	$0.439^{+0.038}_{-0.036}$
$\Omega_m$	$0.295^{+0.041}_{-0.034}$	$z_*$	$1089.4^{+2.7}_{-2.5}$	$\sigma_8(0.15)$	$0.739^{+0.036}_{-0.039}$
$\Omega_m h^2$	$0.134^{+0.027}_{-0.021}$	$r_*$	$147.0^{+6.3}_{-7.0}$	$f\sigma_8(0.38)$	$0.460^{+0.032}_{-0.032}$
$\Omega_m h^3$	$0.091^{+0.022}_{-0.017}$	$100\theta_*$	$1.032^{+0.035}_{-0.033}$	$\sigma_8(0.38)$	$0.657^{+0.032}_{-0.034}$
$\sigma_8$	$0.797^{+0.040}_{-0.043}$	$D_M(z_*)/\text{Gpc}$	$14.2^{+1.1}_{-1.1}$	$f\sigma_8(0.51)$	$0.461^{+0.029}_{-0.030}$
$S_8$	$0.790^{+0.075}_{-0.069}$	$z_{\text{drag}}$	$1058.9^{+3.5}_{-3.7}$	$\sigma_8(0.51)$	$0.615^{+0.030}_{-0.031}$
$\sigma_8 \Omega_m^{0.5}$	$0.433^{+0.041}_{-0.038}$	$r_{\text{drag}}$	$149.7^{+6.6}_{-7.3}$	$f\sigma_8(0.61)$	$0.457^{+0.027}_{-0.027}$
$\sigma_8 \Omega_m^{0.25}$	$0.587^{+0.039}_{-0.039}$	$k_D$	$0.1380^{+0.0080}_{-0.0070}$	$\sigma_8(0.61)$	$0.586^{+0.029}_{-0.030}$
$\sigma_8/h^{0.5}$	$0.971^{+0.044}_{-0.047}$	$100\theta_D$	$0.1599^{+0.0048}_{-0.0046}$	$f\sigma_8(2.33)$	$0.296^{+0.015}_{-0.015}$
$r_{\text{drag}} h$	$101.0^{+3.1}_{-3.0}$	$z_{\text{eq}}$	$3190^{+600}_{-500}$	$\sigma_8(2.33)$	$0.306^{+0.016}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	$2.49^{+0.13}_{-0.13}$	$k_{\text{eq}}$	$0.0097^{+0.0020}_{-0.0015}$	$\chi^2_{\text{lensing}}$	$12.1 (\nu: 2.5)$
$z_{\text{re}}$	$7.63^{+0.56}_{-0.51}$	$100\theta_{\text{eq}}$	$0.848^{+0.087}_{-0.086}$	$\chi^2_{6\text{DF}}$	$0.063 (\nu: 0.0)$
$10^9 A_s$	$2.27^{+0.62}_{-0.50}$	$100\theta_{s,\text{eq}}$	$0.467^{+0.044}_{-0.044}$	$\chi^2_{\text{MGS}}$	$2.02 (\nu: 0.3)$
$10^9 A_s e^{-2\tau}$	$2.03^{+0.55}_{-0.45}$	$H(0.15)$	$72.4^{+3.6}_{-3.3}$	$\chi^2_{\text{DR12BAO}}$	$4.9 (\nu: 1.3)$
$D_{40}$	$1382^{+400}_{-300}$	$D_M(0.15)$	$644^{+29}_{-29}$	$\chi^2_{\text{prior}}$	$2.1 (\nu: 2.2)$
$D_{220}$	$6502^{+2000}_{-2000}$	$H(0.38)$	$82.1^{+4.7}_{-4.3}$	$\chi^2_{\text{BAO}}$	$6.9 (\nu: 1.4)$
$D_{810}$	$2733^{+700}_{-700}$	$D_M(0.38)$	$1541^{+74}_{-74}$		

$$\bar{\chi}^2_{\text{eff}} = 21.15; R - 1 = 0.00403$$



## 2.177 base\_lensing\_lenspriors\_BAO\_post\_conslmin40

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	$819^{+300}_{-300}$	$H(0.51)$	$90.0^{+8.8}_{-6.2}$
$\Omega_{\mathrm{c}}h^2$	$0.119^{+0.046}_{-0.029}$	$D_{2000}$	$233^{+100}_{-90}$	$D_{\mathrm{M}}(0.51)$	$1972^{+120}_{-140}$
$100\theta_{\mathrm{MC}}$	$1.042^{+0.050}_{-0.042}$	$n_{\mathrm{s},0.002}$	$0.956^{+0.052}_{-0.052}$	$H(0.61)$	$95.6^{+10}_{-7.0}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.06^{+0.30}_{-0.33}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2295^{+140}_{-170}$
$n_{\mathrm{s}}$	$0.956^{+0.052}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00054}_{-0.00056}$	$H(2.33)$	$236^{+30}_{-20}$
$H_0$	$68.1^{+4.1}_{-3.3}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5754^{+470}_{-570}$
$\Omega_{\Lambda}$	$0.694^{+0.044}_{-0.058}$	Age/Gyr	$13.8^{+1.1}_{-1.4}$	$f\sigma_8(0.15)$	$0.454^{+0.059}_{-0.050}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.058}_{-0.044}$	$z_*$	$1090.1^{+4.0}_{-3.1}$	$\sigma_8(0.15)$	$0.751^{+0.045}_{-0.045}$
$\Omega_{\mathrm{m}}h^2$	$0.142^{+0.047}_{-0.029}$	$r_*$	$144.9^{+8.2}_{-11}$	$f\sigma_8(0.38)$	$0.474^{+0.048}_{-0.042}$
$\Omega_{\mathrm{m}}h^3$	$0.097^{+0.039}_{-0.023}$	$100\theta_*$	$1.042^{+0.050}_{-0.042}$	$\sigma_8(0.38)$	$0.667^{+0.037}_{-0.038}$
$\sigma_8$	$0.813^{+0.051}_{-0.050}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.9^{+1.4}_{-1.7}$	$f\sigma_8(0.51)$	$0.473^{+0.042}_{-0.038}$
$S_8$	$0.821^{+0.12}_{-0.096}$	$z_{\mathrm{drag}}$	$1059.4^{+4.2}_{-4.0}$	$\sigma_8(0.51)$	$0.624^{+0.035}_{-0.035}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.064}_{-0.053}$	$r_{\mathrm{drag}}$	$147.6^{+8.5}_{-11}$	$f\sigma_8(0.61)$	$0.469^{+0.038}_{-0.035}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.059}_{-0.052}$	$k_{\mathrm{D}}$	$0.140^{+0.013}_{-0.0090}$	$\sigma_8(0.61)$	$0.594^{+0.033}_{-0.033}$
$\sigma_8/h^{0.5}$	$0.985^{+0.052}_{-0.052}$	$100\theta_{\mathrm{D}}$	$0.1613^{+0.0069}_{-0.0059}$	$f\sigma_8(2.33)$	$0.300^{+0.017}_{-0.016}$
$r_{\mathrm{drag}}h$	$100.5^{+3.2}_{-3.3}$	$z_{\mathrm{eq}}$	$3383^{+1000}_{-700}$	$\sigma_8(2.33)$	$0.309^{+0.017}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	$2.47^{+0.16}_{-0.16}$	$k_{\mathrm{eq}}$	$0.0103^{+0.0034}_{-0.0021}$	$\chi^2_{\mathrm{lensing}}$	$10.1 (\nu: 2.9)$
$z_{\mathrm{re}}$	$7.78^{+0.81}_{-0.64}$	$100\theta_{\mathrm{eq}}$	$0.82^{+0.11}_{-0.12}$	$\chi^2_{6\mathrm{DF}}$	$0.064 (\nu: 0.0)$
$10^9 A_{\mathrm{s}}$	$2.16^{+0.73}_{-0.62}$	$100\theta_{\mathrm{s,eq}}$	$0.454^{+0.056}_{-0.064}$	$\chi^2_{\mathrm{MGS}}$	$1.81 (\nu: 0.3)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.93^{+0.66}_{-0.56}$	$H(0.15)$	$73.3^{+5.1}_{-4.0}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.4 (\nu: 1.3)$
$D_{40}$	$1294^{+500}_{-400}$	$D_{\mathrm{M}}(0.15)$	$637^{+34}_{-39}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.1)$
$D_{220}$	$5984^{+3000}_{-2000}$	$H(0.38)$	$83.4^{+7.4}_{-5.3}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 1.6)$
$D_{810}$	$2581^{+900}_{-900}$	$D_{\mathrm{M}}(0.38)$	$1521^{+89}_{-100}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 18.35; R - 1 = 0.00540$$



## 2.178 base\_lensing\_lenspriors\_BAO\_post\_agrlmax425

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	$825^{+200}_{-300}$	$H(0.51)$	$89.9^{+7.2}_{-5.6}$
$\Omega_{\mathrm{c}}h^2$	$0.119^{+0.036}_{-0.026}$	$D_{2000}$	$234^{+90}_{-70}$	$D_{\mathrm{M}}(0.51)$	$1973^{+110}_{-120}$
$100\theta_{\mathrm{MC}}$	$1.041^{+0.042}_{-0.038}$	$n_{\mathrm{s},0.002}$	$0.955^{+0.052}_{-0.051}$	$H(0.61)$	$95.5^{+8.1}_{-6.3}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.07^{+0.26}_{-0.28}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2297^{+130}_{-150}$
$n_{\mathrm{s}}$	$0.955^{+0.052}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00054}_{-0.00056}$	$H(2.33)$	$235^{+30}_{-20}$
$H_0$	$68.1^{+3.5}_{-3.1}$	$10^5D/H$	$2.62^{+0.26}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5761^{+420}_{-470}$
$\Omega_{\Lambda}$	$0.695^{+0.040}_{-0.050}$	Age/Gyr	$13.8^{+1.0}_{-1.1}$	$f\sigma_8(0.15)$	$0.454^{+0.050}_{-0.045}$
$\Omega_{\mathrm{m}}$	$0.305^{+0.050}_{-0.040}$	$z_*$	$1090.0^{+3.3}_{-2.7}$	$\sigma_8(0.15)$	$0.752^{+0.044}_{-0.043}$
$\Omega_{\mathrm{m}}h^2$	$0.142^{+0.036}_{-0.026}$	$r_*$	$145.0^{+7.4}_{-8.6}$	$f\sigma_8(0.38)$	$0.474^{+0.041}_{-0.040}$
$\Omega_{\mathrm{m}}h^3$	$0.096^{+0.030}_{-0.021}$	$100\theta_*$	$1.042^{+0.042}_{-0.038}$	$\sigma_8(0.38)$	$0.667^{+0.037}_{-0.037}$
$\sigma_8$	$0.813^{+0.049}_{-0.049}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.9^{+1.2}_{-1.3}$	$f\sigma_8(0.51)$	$0.473^{+0.037}_{-0.036}$
$S_8$	$0.820^{+0.098}_{-0.087}$	$z_{\mathrm{drag}}$	$1059.4^{+3.9}_{-3.8}$	$\sigma_8(0.51)$	$0.625^{+0.035}_{-0.034}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.054}_{-0.047}$	$r_{\mathrm{drag}}$	$147.8^{+7.7}_{-9.0}$	$f\sigma_8(0.61)$	$0.469^{+0.034}_{-0.033}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.051}_{-0.048}$	$k_{\mathrm{D}}$	$0.140^{+0.010}_{-0.0081}$	$\sigma_8(0.61)$	$0.595^{+0.033}_{-0.032}$
$\sigma_8/h^{0.5}$	$0.986^{+0.051}_{-0.051}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0058}_{-0.0051}$	$f\sigma_8(2.33)$	$0.300^{+0.017}_{-0.016}$
$r_{\mathrm{drag}}h$	$100.5^{+3.2}_{-3.2}$	$z_{\mathrm{eq}}$	$3367^{+900}_{-600}$	$\sigma_8(2.33)$	$0.310^{+0.017}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	$2.48^{+0.14}_{-0.14}$	$k_{\mathrm{eq}}$	$0.0103^{+0.0026}_{-0.0019}$	$\chi^2_{\mathrm{lensing}}$	$7.8 (\nu: 2.6)$
$z_{\mathrm{re}}$	$7.77^{+0.68}_{-0.56}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.099}_{-0.10}$	$\chi^2_{6\mathrm{DF}}$	$0.061 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.17^{+0.63}_{-0.54}$	$100\theta_{\mathrm{s,eq}}$	$0.454^{+0.050}_{-0.053}$	$\chi^2_{\mathrm{MGS}}$	$1.82 (\nu: 0.3)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.94^{+0.57}_{-0.49}$	$H(0.15)$	$73.3^{+4.4}_{-3.6}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.4 (\nu: 1.3)$
$D_{40}$	$1301^{+400}_{-300}$	$D_{\mathrm{M}}(0.15)$	$638^{+32}_{-34}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.1)$
$D_{220}$	$6015^{+2000}_{-2000}$	$H(0.38)$	$83.3^{+6.1}_{-4.8}$	$\chi^2_{\mathrm{BAO}}$	$6.3 (\nu: 1.5)$
$D_{810}$	$2598^{+800}_{-800}$	$D_{\mathrm{M}}(0.38)$	$1523^{+81}_{-89}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 16.15; R - 1 = 0.00217$$



## 2.179 base\_lensing\_lenspriors\_BAO\_post\_ptt

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.0222^{+0.0014}_{-0.0013}$	$D_{1420}$	$918^{+200}_{-300}$	$H(0.51)$	$87.6^{+6.6}_{-5.4}$
$\Omega_c h^2$	$0.107^{+0.033}_{-0.023}$	$D_{2000}$	$266^{+100}_{-80}$	$D_M(0.51)$	$2015^{+100}_{-120}$
$100\theta_{MC}$	$1.025^{+0.042}_{-0.038}$	$n_{s,0.002}$	$0.955^{+0.055}_{-0.054}$	$H(0.61)$	$92.8^{+7.5}_{-6.0}$
$\ln(10^{10} A_s)$	$3.19^{+0.25}_{-0.29}$	$Y_P$	$0.24531^{+0.00057}_{-0.00056}$	$D_M(0.61)$	$2348^{+130}_{-140}$
$n_s$	$0.955^{+0.055}_{-0.054}$	$Y_P^{BBN}$	$0.24664^{+0.00058}_{-0.00056}$	$H(2.33)$	$226^{+30}_{-20}$
$H_0$	$67.0^{+3.4}_{-2.7}$	$10^5 D/H$	$2.62^{+0.26}_{-0.24}$	$D_M(2.33)$	$5937^{+430}_{-470}$
$\Omega_\Lambda$	$0.712^{+0.035}_{-0.049}$	Age/Gyr	$14.2^{+1.0}_{-1.1}$	$f\sigma_8(0.15)$	$0.437^{+0.050}_{-0.053}$
$\Omega_m$	$0.288^{+0.049}_{-0.035}$	$z_*$	$1089.0^{+3.2}_{-2.7}$	$\sigma_8(0.15)$	$0.744^{+0.046}_{-0.054}$
$\Omega_m h^2$	$0.130^{+0.033}_{-0.023}$	$r_*$	$148.2^{+7.1}_{-8.5}$	$f\sigma_8(0.38)$	$0.460^{+0.043}_{-0.050}$
$\Omega_m h^3$	$0.087^{+0.026}_{-0.018}$	$100\theta_*$	$1.025^{+0.042}_{-0.037}$	$\sigma_8(0.38)$	$0.662^{+0.038}_{-0.045}$
$\sigma_8$	$0.803^{+0.052}_{-0.061}$	$D_M(z_*)/\text{Gpc}$	$14.5^{+1.3}_{-1.4}$	$f\sigma_8(0.51)$	$0.462^{+0.039}_{-0.046}$
$S_8$	$0.787^{+0.098}_{-0.099}$	$z_{\text{drag}}$	$1058.5^{+3.8}_{-3.8}$	$\sigma_8(0.51)$	$0.621^{+0.035}_{-0.042}$
$\sigma_8 \Omega_m^{0.5}$	$0.431^{+0.054}_{-0.054}$	$r_{\text{drag}}$	$151.0^{+7.4}_{-8.8}$	$f\sigma_8(0.61)$	$0.459^{+0.036}_{-0.043}$
$\sigma_8 \Omega_m^{0.25}$	$0.588^{+0.053}_{-0.061}$	$k_D$	$0.1368^{+0.0095}_{-0.0075}$	$\sigma_8(0.61)$	$0.591^{+0.033}_{-0.040}$
$\sigma_8/h^{0.5}$	$0.980^{+0.053}_{-0.062}$	$100\theta_D$	$0.1591^{+0.0058}_{-0.0048}$	$f\sigma_8(2.33)$	$0.299^{+0.017}_{-0.021}$
$r_{\text{drag}} h$	$101.2^{+2.9}_{-3.2}$	$z_{\text{eq}}$	$3088^{+800}_{-600}$	$\sigma_8(2.33)$	$0.310^{+0.017}_{-0.021}$
$\langle d^2 \rangle^{1/2}$	$2.55^{+0.13}_{-0.16}$	$k_{\text{eq}}$	$0.0094^{+0.0024}_{-0.0017}$	$\chi^2_{\text{lensing}}$	$11.5 (\nu: 2.8)$
$z_{\text{re}}$	$7.54^{+0.65}_{-0.54}$	$100\theta_{\text{eq}}$	$0.864^{+0.098}_{-0.11}$	$\chi^2_{6\text{DF}}$	$0.071 (\nu: 0.0)$
$10^9 A_s$	$2.43^{+0.68}_{-0.63}$	$100\theta_{s,\text{eq}}$	$0.476^{+0.050}_{-0.055}$	$\chi^2_{\text{MGS}}$	$2.12 (\nu: 0.3)$
$10^9 A_s e^{-2\tau}$	$2.18^{+0.61}_{-0.57}$	$H(0.15)$	$71.9^{+4.2}_{-3.4}$	$\chi^2_{\text{DR12BAO}}$	$5.2 (\nu: 1.5)$
$D_{40}$	$1493^{+400}_{-400}$	$D_M(0.15)$	$648^{+30}_{-34}$	$\chi^2_{\text{prior}}$	$2.1 (\nu: 2.3)$
$D_{220}$	$7122^{+3000}_{-2000}$	$H(0.38)$	$81.3^{+5.7}_{-4.5}$	$\chi^2_{\text{BAO}}$	$7.4 (\nu: 1.6)$
$D_{810}$	$2923^{+700}_{-800}$	$D_M(0.38)$	$1552^{+76}_{-88}$		

$$\bar{\chi}^2_{\text{eff}} = 21.02; R - 1 = 0.01428$$



## 2.180 base\_lensing\_lenspriors\_BAO\_post\_bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	$812^{+200}_{-300}$	$H(0.51)$	$89.9^{+7.0}_{-5.7}$
$\Omega_c h^2$	$0.119^{+0.035}_{-0.026}$	$D_{2000}$	$231^{+80}_{-70}$	$D_M(0.51)$	$1974^{+110}_{-120}$
$100\theta_{MC}$	$1.041^{+0.041}_{-0.038}$	$n_{s,0.002}$	$0.956^{+0.052}_{-0.052}$	$H(0.61)$	$95.5^{+7.9}_{-6.3}$
$\ln(10^{10} A_s)$	$3.05^{+0.26}_{-0.28}$	$Y_P$	$0.24531^{+0.00053}_{-0.00056}$	$D_M(0.61)$	$2298^{+130}_{-140}$
$n_s$	$0.956^{+0.052}_{-0.052}$	$Y_P^{BBN}$	$0.24663^{+0.00054}_{-0.00056}$	$H(2.33)$	$235^{+30}_{-20}$
$H_0$	$68.0^{+3.5}_{-3.2}$	$10^5 D/H$	$2.62^{+0.26}_{-0.22}$	$D_M(2.33)$	$5763^{+420}_{-460}$
$\Omega_\Lambda$	$0.695^{+0.040}_{-0.051}$	Age/Gyr	$13.8^{+1.0}_{-1.1}$	$f\sigma_8(0.15)$	$0.450^{+0.049}_{-0.046}$
$\Omega_m$	$0.305^{+0.051}_{-0.040}$	$z_*$	$1090.0^{+3.3}_{-2.8}$	$\sigma_8(0.15)$	$0.745^{+0.043}_{-0.046}$
$\Omega_m h^2$	$0.141^{+0.035}_{-0.026}$	$r_*$	$145.1^{+7.3}_{-8.5}$	$f\sigma_8(0.38)$	$0.470^{+0.041}_{-0.039}$
$\Omega_m h^3$	$0.096^{+0.030}_{-0.020}$	$100\theta_*$	$1.041^{+0.041}_{-0.038}$	$\sigma_8(0.38)$	$0.661^{+0.036}_{-0.038}$
$\sigma_8$	$0.806^{+0.048}_{-0.052}$	$D_M(z_*)/\text{Gpc}$	$13.9^{+1.2}_{-1.3}$	$f\sigma_8(0.51)$	$0.469^{+0.036}_{-0.036}$
$S_8$	$0.812^{+0.098}_{-0.088}$	$z_{\text{drag}}$	$1059.4^{+3.9}_{-3.9}$	$\sigma_8(0.51)$	$0.619^{+0.033}_{-0.035}$
$\sigma_8 \Omega_m^{0.5}$	$0.445^{+0.054}_{-0.048}$	$r_{\text{drag}}$	$147.8^{+7.6}_{-8.8}$	$f\sigma_8(0.61)$	$0.465^{+0.034}_{-0.034}$
$\sigma_8 \Omega_m^{0.25}$	$0.599^{+0.051}_{-0.049}$	$k_D$	$0.1400^{+0.0099}_{-0.0081}$	$\sigma_8(0.61)$	$0.589^{+0.032}_{-0.033}$
$\sigma_8/h^{0.5}$	$0.977^{+0.048}_{-0.052}$	$100\theta_D$	$0.1611^{+0.0057}_{-0.0052}$	$f\sigma_8(2.33)$	$0.298^{+0.016}_{-0.017}$
$r_{\text{drag}} h$	$100.5^{+3.1}_{-3.2}$	$z_{\text{eq}}$	$3363^{+800}_{-600}$	$\sigma_8(2.33)$	$0.307^{+0.016}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	$2.46^{+0.13}_{-0.13}$	$k_{\text{eq}}$	$0.0103^{+0.0026}_{-0.0019}$	$\chi^2_{\text{lensing}}$	$10.1 (\nu: 2.6)$
$z_{\text{re}}$	$7.77^{+0.68}_{-0.57}$	$100\theta_{\text{eq}}$	$0.823^{+0.098}_{-0.10}$	$\chi^2_{6\text{DF}}$	$0.060 (\nu: 0.0)$
$10^9 A_s$	$2.13^{+0.61}_{-0.52}$	$100\theta_{s,\text{eq}}$	$0.455^{+0.050}_{-0.052}$	$\chi^2_{\text{MGS}}$	$1.83 (\nu: 0.3)$
$10^9 A_s e^{-2\tau}$	$1.91^{+0.54}_{-0.47}$	$H(0.15)$	$73.3^{+4.4}_{-3.8}$	$\chi^2_{\text{DR12BAO}}$	$4.4 (\nu: 1.3)$
$D_{40}$	$1280^{+400}_{-300}$	$D_M(0.15)$	$638^{+32}_{-34}$	$\chi^2_{\text{prior}}$	$2.0 (\nu: 2.1)$
$D_{220}$	$5922^{+2000}_{-2000}$	$H(0.38)$	$83.3^{+6.0}_{-4.9}$	$\chi^2_{\text{BAO}}$	$6.3 (\nu: 1.5)$
$D_{810}$	$2558^{+700}_{-800}$	$D_M(0.38)$	$1523^{+83}_{-89}$		

$\bar{\chi}^2_{\text{eff}} = 18.42; R - 1 = 0.00341$



## 2.181 base\_lensing\_lenspriors\_BAO\_post\_agr2bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	$842^{+200}_{-200}$	$H(0.51)$	$88.7^{+5.7}_{-5.0}$
$\Omega_{\mathrm{c}}h^2$	$0.113^{+0.028}_{-0.021}$	$D_{2000}$	$239^{+90}_{-60}$	$D_{\mathrm{M}}(0.51)$	$1994^{+100}_{-100}$
$100\theta_{\mathrm{MC}}$	$1.033^{+0.035}_{-0.033}$	$n_{\mathrm{s},0.002}$	$0.954^{+0.053}_{-0.052}$	$H(0.61)$	$94.1^{+6.3}_{-5.4}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.09^{+0.23}_{-0.25}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00053}_{-0.00054}$	$D_{\mathrm{M}}(0.61)$	$2322^{+120}_{-120}$
$n_{\mathrm{s}}$	$0.954^{+0.053}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00054}_{-0.00054}$	$H(2.33)$	$231^{+22}_{-18}$
$H_0$	$67.6^{+3.0}_{-3.0}$	$10^5D/H$	$2.62^{+0.25}_{-0.22}$	$D_{\mathrm{M}}(2.33)$	$5849^{+380}_{-390}$
$\Omega_{\Lambda}$	$0.704^{+0.035}_{-0.041}$	Age/Gyr	$14.01^{+0.92}_{-0.94}$	$f\sigma_8(0.15)$	$0.437^{+0.039}_{-0.036}$
$\Omega_{\mathrm{m}}$	$0.296^{+0.041}_{-0.035}$	$z_*$	$1089.5^{+2.8}_{-2.5}$	$\sigma_8(0.15)$	$0.734^{+0.036}_{-0.042}$
$\Omega_{\mathrm{m}}h^2$	$0.135^{+0.028}_{-0.021}$	$r_*$	$146.6^{+6.3}_{-7.2}$	$f\sigma_8(0.38)$	$0.458^{+0.032}_{-0.033}$
$\Omega_{\mathrm{m}}h^3$	$0.092^{+0.023}_{-0.017}$	$100\theta_*$	$1.033^{+0.035}_{-0.033}$	$\sigma_8(0.38)$	$0.652^{+0.031}_{-0.036}$
$\sigma_8$	$0.793^{+0.040}_{-0.046}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.2^{+1.1}_{-1.1}$	$f\sigma_8(0.51)$	$0.459^{+0.029}_{-0.030}$
$S_8$	$0.788^{+0.075}_{-0.070}$	$z_{\mathrm{drag}}$	$1059.0^{+3.5}_{-3.7}$	$\sigma_8(0.51)$	$0.611^{+0.029}_{-0.032}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.431^{+0.041}_{-0.039}$	$r_{\mathrm{drag}}$	$149.4^{+6.5}_{-7.5}$	$f\sigma_8(0.61)$	$0.455^{+0.027}_{-0.028}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.585^{+0.040}_{-0.040}$	$k_{\mathrm{D}}$	$0.1383^{+0.0082}_{-0.0070}$	$\sigma_8(0.61)$	$0.582^{+0.028}_{-0.031}$
$\sigma_8/h^{0.5}$	$0.964^{+0.042}_{-0.047}$	$100\theta_{\mathrm{D}}$	$0.1601^{+0.0048}_{-0.0046}$	$f\sigma_8(2.33)$	$0.294^{+0.014}_{-0.016}$
$r_{\mathrm{drag}}h$	$100.9^{+3.0}_{-3.0}$	$z_{\mathrm{eq}}$	$3219^{+700}_{-500}$	$\sigma_8(2.33)$	$0.304^{+0.015}_{-0.016}$
$\langle d^2 \rangle^{1/2}$	$2.47^{+0.12}_{-0.12}$	$k_{\mathrm{eq}}$	$0.0098^{+0.0020}_{-0.0016}$	$\chi^2_{\mathrm{lensing}}$	$12.3 (\nu: 2.4)$
$z_{\mathrm{re}}$	$7.65^{+0.56}_{-0.52}$	$100\theta_{\mathrm{eq}}$	$0.843^{+0.083}_{-0.088}$	$\chi^2_{6\mathrm{DF}}$	$0.062 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.21^{+0.57}_{-0.49}$	$100\theta_{\mathrm{s,eq}}$	$0.465^{+0.042}_{-0.045}$	$\chi^2_{\mathrm{MGS}}$	$1.99 (\nu: 0.3)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.98^{+0.51}_{-0.44}$	$H(0.15)$	$72.6^{+3.6}_{-3.5}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.8 (\nu: 1.3)$
$D_{40}$	$1342^{+300}_{-300}$	$D_{\mathrm{M}}(0.15)$	$643^{+31}_{-29}$	$\chi^2_{\mathrm{prior}}$	$2.1 (\nu: 2.2)$
$D_{220}$	$6298^{+2000}_{-2000}$	$H(0.38)$	$82.3^{+4.8}_{-4.3}$	$\chi^2_{\mathrm{BAO}}$	$6.8 (\nu: 1.4)$
$D_{810}$	$2662^{+700}_{-700}$	$D_{\mathrm{M}}(0.38)$	$1537^{+76}_{-75}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 21.20; R - 1 = 0.00647$$



## 2.182 base\_lensing\_lenspriors\_BAO\_post\_linear

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	$812^{+200}_{-300}$	$H(0.51)$	$90.5^{+7.7}_{-5.9}$
$\Omega_{\mathrm{c}}h^2$	$0.122^{+0.040}_{-0.027}$	$D_{2000}$	$230^{+90}_{-80}$	$D_{\mathrm{M}}(0.51)$	$1964^{+110}_{-130}$
$100\theta_{\mathrm{MC}}$	$1.045^{+0.046}_{-0.039}$	$n_{\mathrm{s},0.002}$	$0.956^{+0.052}_{-0.051}$	$H(0.61)$	$96.1^{+8.6}_{-6.6}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.06^{+0.27}_{-0.30}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00057}$	$D_{\mathrm{M}}(0.61)$	$2286^{+140}_{-150}$
$n_{\mathrm{s}}$	$0.956^{+0.052}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00054}_{-0.00057}$	$H(2.33)$	$238^{+30}_{-20}$
$H_0$	$68.3^{+3.6}_{-3.1}$	$10^5D/H$	$2.62^{+0.26}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5720^{+440}_{-490}$
$\Omega_{\Lambda}$	$0.691^{+0.043}_{-0.052}$	Age/Gyr	$13.7^{+1.1}_{-1.2}$	$f\sigma_8(0.15)$	$0.461^{+0.054}_{-0.049}$
$\Omega_{\mathrm{m}}$	$0.309^{+0.052}_{-0.043}$	$z_*$	$1090.3^{+3.8}_{-2.8}$	$\sigma_8(0.15)$	$0.758^{+0.046}_{-0.045}$
$\Omega_{\mathrm{m}}h^2$	$0.144^{+0.041}_{-0.028}$	$r_*$	$144.3^{+7.7}_{-9.4}$	$f\sigma_8(0.38)$	$0.480^{+0.044}_{-0.042}$
$\Omega_{\mathrm{m}}h^3$	$0.099^{+0.033}_{-0.022}$	$100\theta_*$	$1.045^{+0.046}_{-0.039}$	$\sigma_8(0.38)$	$0.672^{+0.039}_{-0.038}$
$\sigma_8$	$0.820^{+0.051}_{-0.051}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.8^{+1.3}_{-1.4}$	$f\sigma_8(0.51)$	$0.479^{+0.039}_{-0.039}$
$S_8$	$0.833^{+0.11}_{-0.093}$	$z_{\mathrm{drag}}$	$1059.6^{+4.0}_{-3.9}$	$\sigma_8(0.51)$	$0.629^{+0.037}_{-0.035}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.059}_{-0.051}$	$r_{\mathrm{drag}}$	$147.0^{+8.0}_{-9.5}$	$f\sigma_8(0.61)$	$0.474^{+0.034}_{-0.036}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.612^{+0.055}_{-0.052}$	$k_{\mathrm{D}}$	$0.141^{+0.010}_{-0.0085}$	$\sigma_8(0.61)$	$0.599^{+0.035}_{-0.033}$
$\sigma_8/h^{0.5}$	$0.993^{+0.054}_{-0.052}$	$100\theta_{\mathrm{D}}$	$0.1616^{+0.0062}_{-0.0053}$	$f\sigma_8(2.33)$	$0.302^{+0.018}_{-0.016}$
$r_{\mathrm{drag}}h$	$100.3^{+3.2}_{-3.2}$	$z_{\mathrm{eq}}$	$3437^{+1000}_{-700}$	$\sigma_8(2.33)$	$0.312^{+0.018}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	$2.47^{+0.14}_{-0.14}$	$k_{\mathrm{eq}}$	$0.0105^{+0.0030}_{-0.0020}$	$\chi^2_{\mathrm{lensing}}$	$10.4 (\nu: 2.7)$
$z_{\mathrm{re}}$	$7.82^{+0.77}_{-0.58}$	$100\theta_{\mathrm{eq}}$	$0.81^{+0.10}_{-0.11}$	$\chi^2_{6\mathrm{DF}}$	$0.063 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.13^{+0.64}_{-0.56}$	$100\theta_{\mathrm{s,eq}}$	$0.450^{+0.052}_{-0.057}$	$\chi^2_{\mathrm{MGS}}$	$1.74 (\nu: 0.3)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.91^{+0.57}_{-0.50}$	$H(0.15)$	$73.6^{+4.7}_{-3.8}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.2 (\nu: 1.3)$
$D_{40}$	$1274^{+400}_{-300}$	$D_{\mathrm{M}}(0.15)$	$635^{+32}_{-35}$	$\chi^2_{\mathrm{prior}}$	$2.1 (\nu: 2.0)$
$D_{220}$	$5855^{+2000}_{-2000}$	$H(0.38)$	$83.8^{+6.5}_{-5.0}$	$\chi^2_{\mathrm{BAO}}$	$6.0 (\nu: 1.5)$
$D_{810}$	$2554^{+800}_{-800}$	$D_{\mathrm{M}}(0.38)$	$1516^{+83}_{-93}$		

$\bar{\chi}^2_{\mathrm{eff}} = 18.54; R - 1 = 0.00374$



## 2.183 base\_lensing\_lenspriors\_BAO\_post\_acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	$835^{+200}_{-300}$	$H(0.51)$	$89.6^{+6.9}_{-5.5}$
$\Omega_{\mathrm{c}}h^2$	$0.117^{+0.035}_{-0.025}$	$D_{2000}$	$238^{+90}_{-70}$	$D_{\mathrm{M}}(0.51)$	$1979^{+110}_{-120}$
$100\theta_{\mathrm{MC}}$	$1.039^{+0.041}_{-0.038}$	$n_{\mathrm{s},0.002}$	$0.956^{+0.051}_{-0.052}$	$H(0.61)$	$95.1^{+7.8}_{-6.2}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.08^{+0.26}_{-0.28}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2304^{+130}_{-140}$
$n_{\mathrm{s}}$	$0.956^{+0.051}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00054}_{-0.00056}$	$H(2.33)$	$234^{+30}_{-20}$
$H_0$	$67.9^{+3.4}_{-3.1}$	$10^5 D/H$	$2.62^{+0.26}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5784^{+420}_{-460}$
$\Omega_{\Lambda}$	$0.697^{+0.039}_{-0.049}$	Age/Gyr	$13.8^{+1.0}_{-1.1}$	$f\sigma_8(0.15)$	$0.451^{+0.048}_{-0.045}$
$\Omega_{\mathrm{m}}$	$0.303^{+0.049}_{-0.039}$	$z_*$	$1089.9^{+3.2}_{-2.7}$	$\sigma_8(0.15)$	$0.750^{+0.044}_{-0.044}$
$\Omega_{\mathrm{m}}h^2$	$0.140^{+0.035}_{-0.025}$	$r_*$	$145.4^{+7.2}_{-8.6}$	$f\sigma_8(0.38)$	$0.471^{+0.041}_{-0.039}$
$\Omega_{\mathrm{m}}h^3$	$0.095^{+0.029}_{-0.020}$	$100\theta_*$	$1.040^{+0.041}_{-0.038}$	$\sigma_8(0.38)$	$0.666^{+0.037}_{-0.038}$
$\sigma_8$	$0.811^{+0.049}_{-0.049}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.0^{+1.2}_{-1.3}$	$f\sigma_8(0.51)$	$0.471^{+0.037}_{-0.036}$
$S_8$	$0.814^{+0.096}_{-0.086}$	$z_{\mathrm{drag}}$	$1059.3^{+3.9}_{-3.8}$	$\sigma_8(0.51)$	$0.623^{+0.035}_{-0.035}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.446^{+0.053}_{-0.047}$	$r_{\mathrm{drag}}$	$148.2^{+7.5}_{-8.8}$	$f\sigma_8(0.61)$	$0.467^{+0.033}_{-0.033}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.051}_{-0.048}$	$k_{\mathrm{D}}$	$0.1396^{+0.0098}_{-0.0080}$	$\sigma_8(0.61)$	$0.593^{+0.033}_{-0.032}$
$\sigma_8/h^{0.5}$	$0.984^{+0.051}_{-0.051}$	$100\theta_{\mathrm{D}}$	$0.1609^{+0.0056}_{-0.0051}$	$f\sigma_8(2.33)$	$0.300^{+0.016}_{-0.016}$
$r_{\mathrm{drag}}h$	$100.6^{+3.1}_{-3.2}$	$z_{\mathrm{eq}}$	$3329^{+800}_{-600}$	$\sigma_8(2.33)$	$0.309^{+0.017}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	$2.48^{+0.13}_{-0.13}$	$k_{\mathrm{eq}}$	$0.0102^{+0.0026}_{-0.0018}$	$\chi^2_{\mathrm{lensing}}$	$9.9 (\nu: 2.6)$
$z_{\mathrm{re}}$	$7.74^{+0.66}_{-0.56}$	$100\theta_{\mathrm{eq}}$	$0.828^{+0.096}_{-0.10}$	$\chi^2_{6\mathrm{DF}}$	$0.061 (\nu: 0.0)$
$10^9 A_{\mathrm{s}}$	$2.19^{+0.65}_{-0.54}$	$100\theta_{\mathrm{s,eq}}$	$0.457^{+0.049}_{-0.052}$	$\chi^2_{\mathrm{MGS}}$	$1.86 (\nu: 0.3)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.96^{+0.58}_{-0.48}$	$H(0.15)$	$73.1^{+4.3}_{-3.6}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.5 (\nu: 1.3)$
$D_{40}$	$1319^{+400}_{-300}$	$D_{\mathrm{M}}(0.15)$	$639^{+31}_{-33}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.1)$
$D_{220}$	$6124^{+2000}_{-2000}$	$H(0.38)$	$83.0^{+5.9}_{-4.7}$	$\chi^2_{\mathrm{BAO}}$	$6.4 (\nu: 1.5)$
$D_{810}$	$2633^{+800}_{-800}$	$D_{\mathrm{M}}(0.38)$	$1526^{+81}_{-87}$		

$\bar{\chi}^2_{\mathrm{eff}} = 18.36; R - 1 = 0.00214$



## 2.184 base\_lensing\_lenspriors\_BAO\_post\_agr2acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	$866^{+200}_{-200}$	$H(0.51)$	$88.4^{+5.5}_{-4.9}$
$\Omega_c h^2$	$0.111^{+0.027}_{-0.021}$	$D_{2000}$	$247^{+90}_{-60}$	$D_M(0.51)$	$2000^{+99}_{-99}$
$100\theta_{MC}$	$1.031^{+0.034}_{-0.032}$	$n_{s,0.002}$	$0.954^{+0.051}_{-0.052}$	$H(0.61)$	$93.7^{+6.2}_{-5.4}$
$\ln(10^{10} A_s)$	$3.12^{+0.24}_{-0.25}$	$Y_P$	$0.24531^{+0.00054}_{-0.00055}$	$D_M(0.61)$	$2330^{+120}_{-120}$
$n_s$	$0.954^{+0.051}_{-0.052}$	$Y_P^{BBN}$	$0.24663^{+0.00054}_{-0.00055}$	$H(2.33)$	$229^{+21}_{-18}$
$H_0$	$67.4^{+3.0}_{-2.8}$	$10^5 D/H$	$2.62^{+0.26}_{-0.23}$	$D_M(2.33)$	$5876^{+370}_{-380}$
$\Omega_\Lambda$	$0.706^{+0.034}_{-0.041}$	Age/Gyr	$14.07^{+0.91}_{-0.93}$	$f\sigma_8(0.15)$	$0.437^{+0.038}_{-0.036}$
$\Omega_m$	$0.294^{+0.041}_{-0.034}$	$z_*$	$1089.3^{+2.7}_{-2.5}$	$\sigma_8(0.15)$	$0.738^{+0.036}_{-0.040}$
$\Omega_m h^2$	$0.134^{+0.027}_{-0.021}$	$r_*$	$147.1^{+6.3}_{-7.0}$	$f\sigma_8(0.38)$	$0.459^{+0.032}_{-0.031}$
$\Omega_m h^3$	$0.090^{+0.022}_{-0.017}$	$100\theta_*$	$1.031^{+0.034}_{-0.032}$	$\sigma_8(0.38)$	$0.656^{+0.032}_{-0.036}$
$\sigma_8$	$0.796^{+0.040}_{-0.043}$	$D_M(z_*)/\text{Gpc}$	$14.3^{+1.1}_{-1.1}$	$f\sigma_8(0.51)$	$0.460^{+0.029}_{-0.029}$
$S_8$	$0.788^{+0.074}_{-0.068}$	$z_{\text{drag}}$	$1058.8^{+3.5}_{-3.7}$	$\sigma_8(0.51)$	$0.614^{+0.030}_{-0.033}$
$\sigma_8 \Omega_m^{0.5}$	$0.432^{+0.041}_{-0.037}$	$r_{\text{drag}}$	$149.9^{+6.6}_{-7.2}$	$f\sigma_8(0.61)$	$0.456^{+0.027}_{-0.028}$
$\sigma_8 \Omega_m^{0.25}$	$0.586^{+0.039}_{-0.038}$	$k_D$	$0.1379^{+0.0079}_{-0.0071}$	$\sigma_8(0.61)$	$0.585^{+0.029}_{-0.031}$
$\sigma_8/h^{0.5}$	$0.970^{+0.044}_{-0.047}$	$100\theta_D$	$0.1598^{+0.0048}_{-0.0045}$	$f\sigma_8(2.33)$	$0.296^{+0.015}_{-0.016}$
$r_{\text{drag}} h$	$101.0^{+3.1}_{-3.0}$	$z_{\text{eq}}$	$3178^{+600}_{-500}$	$\sigma_8(2.33)$	$0.306^{+0.016}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	$2.49^{+0.13}_{-0.13}$	$k_{\text{eq}}$	$0.0097^{+0.0020}_{-0.0015}$	$\chi^2_{\text{lensing}}$	$12.2 (\nu: 2.5)$
$z_{\text{re}}$	$7.62^{+0.56}_{-0.51}$	$100\theta_{\text{eq}}$	$0.850^{+0.087}_{-0.086}$	$\chi^2_{6\text{DF}}$	$0.064 (\nu: 0.0)$
$10^9 A_s$	$2.28^{+0.61}_{-0.50}$	$100\theta_{s,\text{eq}}$	$0.468^{+0.044}_{-0.044}$	$\chi^2_{\text{MGS}}$	$2.03 (\nu: 0.3)$
$10^9 A_s e^{-2\tau}$	$2.04^{+0.55}_{-0.45}$	$H(0.15)$	$72.4^{+3.5}_{-3.3}$	$\chi^2_{\text{DR12BAO}}$	$4.9 (\nu: 1.3)$
$D_{40}$	$1388^{+400}_{-300}$	$D_M(0.15)$	$645^{+29}_{-29}$	$\chi^2_{\text{prior}}$	$2.1 (\nu: 2.2)$
$D_{220}$	$6540^{+2000}_{-2000}$	$H(0.38)$	$82.0^{+4.7}_{-4.2}$	$\chi^2_{\text{BAO}}$	$7.0 (\nu: 1.5)$
$D_{810}$	$2744^{+700}_{-700}$	$D_M(0.38)$	$1542^{+74}_{-74}$		

$$\bar{\chi}^2_{\text{eff}} = 21.26; R - 1 = 0.00444$$



## 2.185 base\_lensing\_lenspriors\_BAO\_post\_takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	$838^{+200}_{-300}$	$H(0.51)$	$89.5^{+6.9}_{-5.6}$
$\Omega_{\mathrm{c}}h^2$	$0.117^{+0.035}_{-0.025}$	$D_{2000}$	$238^{+90}_{-70}$	$D_{\mathrm{M}}(0.51)$	$1981^{+110}_{-120}$
$100\theta_{\mathrm{MC}}$	$1.039^{+0.041}_{-0.038}$	$n_{\mathrm{s},0.002}$	$0.956^{+0.052}_{-0.052}$	$H(0.61)$	$95.0^{+7.8}_{-6.2}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.09^{+0.27}_{-0.28}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2306^{+130}_{-140}$
$n_{\mathrm{s}}$	$0.956^{+0.052}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00054}_{-0.00056}$	$H(2.33)$	$234^{+30}_{-20}$
$H_0$	$67.9^{+3.4}_{-3.0}$	$10^5D/H$	$2.62^{+0.26}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5792^{+420}_{-460}$
$\Omega_{\Lambda}$	$0.698^{+0.039}_{-0.049}$	Age/Gyr	$13.9^{+1.0}_{-1.1}$	$f\sigma_8(0.15)$	$0.450^{+0.050}_{-0.046}$
$\Omega_{\mathrm{m}}$	$0.302^{+0.049}_{-0.039}$	$z_*$	$1089.8^{+3.2}_{-2.7}$	$\sigma_8(0.15)$	$0.749^{+0.046}_{-0.046}$
$\Omega_{\mathrm{m}}h^2$	$0.139^{+0.035}_{-0.025}$	$r_*$	$145.6^{+7.2}_{-8.6}$	$f\sigma_8(0.38)$	$0.470^{+0.043}_{-0.040}$
$\Omega_{\mathrm{m}}h^3$	$0.095^{+0.029}_{-0.020}$	$100\theta_*$	$1.039^{+0.041}_{-0.038}$	$\sigma_8(0.38)$	$0.665^{+0.039}_{-0.040}$
$\sigma_8$	$0.809^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.0^{+1.2}_{-1.3}$	$f\sigma_8(0.51)$	$0.470^{+0.038}_{-0.037}$
$S_8$	$0.812^{+0.099}_{-0.088}$	$z_{\mathrm{drag}}$	$1059.2^{+3.9}_{-3.8}$	$\sigma_8(0.51)$	$0.623^{+0.036}_{-0.037}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.445^{+0.054}_{-0.048}$	$r_{\mathrm{drag}}$	$148.3^{+7.6}_{-8.8}$	$f\sigma_8(0.61)$	$0.466^{+0.035}_{-0.035}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.053}_{-0.049}$	$k_{\mathrm{D}}$	$0.1395^{+0.0099}_{-0.0080}$	$\sigma_8(0.61)$	$0.593^{+0.034}_{-0.035}$
$\sigma_8/h^{0.5}$	$0.982^{+0.054}_{-0.054}$	$100\theta_{\mathrm{D}}$	$0.1608^{+0.0056}_{-0.0052}$	$f\sigma_8(2.33)$	$0.299^{+0.017}_{-0.017}$
$r_{\mathrm{drag}}h$	$100.6^{+3.1}_{-3.2}$	$z_{\mathrm{eq}}$	$3316^{+800}_{-600}$	$\sigma_8(2.33)$	$0.309^{+0.018}_{-0.018}$
$\langle d^2 \rangle^{1/2}$	$2.48^{+0.13}_{-0.13}$	$k_{\mathrm{eq}}$	$0.0101^{+0.0026}_{-0.0018}$	$\chi^2_{\mathrm{lensing}}$	$9.9 (\nu: 2.7)$
$z_{\mathrm{re}}$	$7.73^{+0.65}_{-0.56}$	$100\theta_{\mathrm{eq}}$	$0.830^{+0.096}_{-0.10}$	$\chi^2_{6\mathrm{DF}}$	$0.061 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.20^{+0.65}_{-0.54}$	$100\theta_{\mathrm{s,eq}}$	$0.458^{+0.049}_{-0.053}$	$\chi^2_{\mathrm{MGS}}$	$1.87 (\nu: 0.3)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.97^{+0.59}_{-0.48}$	$H(0.15)$	$73.0^{+4.2}_{-3.7}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.5 (\nu: 1.3)$
$D_{40}$	$1324^{+400}_{-300}$	$D_{\mathrm{M}}(0.15)$	$640^{+31}_{-33}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.1)$
$D_{220}$	$6160^{+2000}_{-2000}$	$H(0.38)$	$82.9^{+5.9}_{-4.8}$	$\chi^2_{\mathrm{BAO}}$	$6.5 (\nu: 1.5)$
$D_{810}$	$2642^{+800}_{-800}$	$D_{\mathrm{M}}(0.38)$	$1528^{+81}_{-87}$		

$\bar{\chi}^2_{\mathrm{eff}} = 18.40$ ;  $R - 1 = 0.00240$



## 2.186 base\_lensing\_lenspriors\_BAO\_post\_agr2takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	$868^{+200}_{-200}$	$H(0.51)$	$88.2^{+5.5}_{-4.9}$
$\Omega_{\mathrm{c}}h^2$	$0.110^{+0.027}_{-0.021}$	$D_{2000}$	$248^{+90}_{-60}$	$D_{\mathrm{M}}(0.51)$	$2003^{+99}_{-99}$
$100\theta_{\mathrm{MC}}$	$1.030^{+0.034}_{-0.033}$	$n_{\mathrm{s},0.002}$	$0.955^{+0.051}_{-0.052}$	$H(0.61)$	$93.6^{+6.2}_{-5.4}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.12^{+0.24}_{-0.25}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2333^{+120}_{-120}$
$n_{\mathrm{s}}$	$0.955^{+0.051}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00054}_{-0.00055}$	$H(2.33)$	$229^{+21}_{-18}$
$H_0$	$67.3^{+3.0}_{-2.8}$	$10^5D/H$	$2.62^{+0.26}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5885^{+380}_{-380}$
$\Omega_{\Lambda}$	$0.707^{+0.034}_{-0.041}$	Age/Gyr	$14.10^{+0.91}_{-0.93}$	$f\sigma_8(0.15)$	$0.436^{+0.039}_{-0.037}$
$\Omega_{\mathrm{m}}$	$0.293^{+0.041}_{-0.034}$	$z_*$	$1089.3^{+2.7}_{-2.5}$	$\sigma_8(0.15)$	$0.736^{+0.038}_{-0.043}$
$\Omega_{\mathrm{m}}h^2$	$0.133^{+0.027}_{-0.021}$	$r_*$	$147.3^{+6.4}_{-7.0}$	$f\sigma_8(0.38)$	$0.458^{+0.033}_{-0.032}$
$\Omega_{\mathrm{m}}h^3$	$0.090^{+0.022}_{-0.017}$	$100\theta_*$	$1.030^{+0.034}_{-0.033}$	$\sigma_8(0.38)$	$0.655^{+0.033}_{-0.037}$
$\sigma_8$	$0.795^{+0.042}_{-0.048}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.3^{+1.1}_{-1.1}$	$f\sigma_8(0.51)$	$0.459^{+0.030}_{-0.031}$
$S_8$	$0.785^{+0.077}_{-0.071}$	$z_{\mathrm{drag}}$	$1058.8^{+3.5}_{-3.7}$	$\sigma_8(0.51)$	$0.613^{+0.031}_{-0.034}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.430^{+0.042}_{-0.039}$	$r_{\mathrm{drag}}$	$150.1^{+6.7}_{-7.2}$	$f\sigma_8(0.61)$	$0.455^{+0.028}_{-0.030}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.584^{+0.041}_{-0.041}$	$k_{\mathrm{D}}$	$0.1377^{+0.0079}_{-0.0072}$	$\sigma_8(0.61)$	$0.584^{+0.030}_{-0.032}$
$\sigma_8/h^{0.5}$	$0.968^{+0.046}_{-0.049}$	$100\theta_{\mathrm{D}}$	$0.1597^{+0.0048}_{-0.0046}$	$f\sigma_8(2.33)$	$0.295^{+0.015}_{-0.017}$
$r_{\mathrm{drag}}h$	$101.0^{+3.1}_{-3.0}$	$z_{\mathrm{eq}}$	$3162^{+600}_{-500}$	$\sigma_8(2.33)$	$0.305^{+0.016}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	$2.49^{+0.13}_{-0.13}$	$k_{\mathrm{eq}}$	$0.0097^{+0.0020}_{-0.0016}$	$\chi^2_{\mathrm{lensing}}$	$12.2 (\nu: 2.5)$
$z_{\mathrm{re}}$	$7.61^{+0.55}_{-0.51}$	$100\theta_{\mathrm{eq}}$	$0.852^{+0.087}_{-0.087}$	$\chi^2_{6\mathrm{DF}}$	$0.065 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.28^{+0.61}_{-0.50}$	$100\theta_{\mathrm{s,eq}}$	$0.469^{+0.045}_{-0.045}$	$\chi^2_{\mathrm{MGS}}$	$2.05 (\nu: 0.3)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.05^{+0.54}_{-0.45}$	$H(0.15)$	$72.3^{+3.5}_{-3.2}$	$\chi^2_{\mathrm{DR12BAO}}$	$5.0 (\nu: 1.4)$
$D_{40}$	$1394^{+400}_{-300}$	$D_{\mathrm{M}}(0.15)$	$645^{+29}_{-29}$	$\chi^2_{\mathrm{prior}}$	$2.1 (\nu: 2.2)$
$D_{220}$	$6581^{+2000}_{-2000}$	$H(0.38)$	$81.9^{+4.7}_{-4.2}$	$\chi^2_{\mathrm{BAO}}$	$7.1 (\nu: 1.5)$
$D_{810}$	$2752^{+700}_{-700}$	$D_{\mathrm{M}}(0.38)$	$1544^{+74}_{-74}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 21.32; R - 1 = 0.00478$$



## 2.187 base\_lensing\_lenspriors\_BAO\_post\_Apr6

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	$817^{+200}_{-300}$	$H(0.51)$	$90.1^{+7.2}_{-5.7}$
$\Omega_{\mathrm{c}}h^2$	$0.119^{+0.036}_{-0.026}$	$D_{2000}$	$232^{+90}_{-80}$	$D_{\mathrm{M}}(0.51)$	$1971^{+110}_{-120}$
$100\theta_{\mathrm{MC}}$	$1.042^{+0.043}_{-0.038}$	$n_{\mathrm{s},0.002}$	$0.956^{+0.052}_{-0.051}$	$H(0.61)$	$95.6^{+8.1}_{-6.3}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.06^{+0.26}_{-0.28}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2294^{+130}_{-150}$
$n_{\mathrm{s}}$	$0.956^{+0.052}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00054}_{-0.00056}$	$H(2.33)$	$236^{+30}_{-20}$
$H_0$	$68.1^{+3.6}_{-3.1}$	$10^5D/H$	$2.62^{+0.26}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5751^{+420}_{-470}$
$\Omega_{\Lambda}$	$0.694^{+0.040}_{-0.050}$	Age/Gyr	$13.8^{+1.0}_{-1.1}$	$f\sigma_8(0.15)$	$0.454^{+0.050}_{-0.046}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.050}_{-0.040}$	$z_*$	$1090.1^{+3.3}_{-2.7}$	$\sigma_8(0.15)$	$0.751^{+0.044}_{-0.044}$
$\Omega_{\mathrm{m}}h^2$	$0.142^{+0.036}_{-0.026}$	$r_*$	$144.8^{+7.3}_{-8.6}$	$f\sigma_8(0.38)$	$0.474^{+0.042}_{-0.040}$
$\Omega_{\mathrm{m}}h^3$	$0.097^{+0.031}_{-0.021}$	$100\theta_*$	$1.042^{+0.043}_{-0.038}$	$\sigma_8(0.38)$	$0.666^{+0.038}_{-0.037}$
$\sigma_8$	$0.812^{+0.050}_{-0.049}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.9^{+1.2}_{-1.3}$	$f\sigma_8(0.51)$	$0.473^{+0.037}_{-0.036}$
$S_8$	$0.820^{+0.099}_{-0.087}$	$z_{\mathrm{drag}}$	$1059.4^{+3.9}_{-3.8}$	$\sigma_8(0.51)$	$0.624^{+0.035}_{-0.034}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.054}_{-0.048}$	$r_{\mathrm{drag}}$	$147.6^{+7.7}_{-8.9}$	$f\sigma_8(0.61)$	$0.469^{+0.034}_{-0.034}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.052}_{-0.049}$	$k_{\mathrm{D}}$	$0.140^{+0.010}_{-0.0082}$	$\sigma_8(0.61)$	$0.594^{+0.033}_{-0.032}$
$\sigma_8/h^{0.5}$	$0.984^{+0.052}_{-0.051}$	$100\theta_{\mathrm{D}}$	$0.1613^{+0.0059}_{-0.0052}$	$f\sigma_8(2.33)$	$0.300^{+0.017}_{-0.016}$
$r_{\mathrm{drag}}h$	$100.5^{+3.2}_{-3.2}$	$z_{\mathrm{eq}}$	$3383^{+900}_{-600}$	$\sigma_8(2.33)$	$0.309^{+0.017}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	$2.47^{+0.13}_{-0.14}$	$k_{\mathrm{eq}}$	$0.0103^{+0.0026}_{-0.0019}$	$\chi^2_{\mathrm{lensing}}$	$8.8 (\nu: 2.7)$
$z_{\mathrm{re}}$	$7.78^{+0.69}_{-0.56}$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.099}_{-0.10}$	$\chi^2_{6\mathrm{DF}}$	$0.060 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.15^{+0.62}_{-0.53}$	$100\theta_{\mathrm{s,eq}}$	$0.453^{+0.050}_{-0.053}$	$\chi^2_{\mathrm{MGS}}$	$1.80 (\nu: 0.3)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.92^{+0.56}_{-0.48}$	$H(0.15)$	$73.3^{+4.4}_{-3.7}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3 (\nu: 1.3)$
$D_{40}$	$1287^{+400}_{-300}$	$D_{\mathrm{M}}(0.15)$	$637^{+32}_{-34}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.1)$
$D_{220}$	$5941^{+2000}_{-2000}$	$H(0.38)$	$83.4^{+6.1}_{-4.9}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 1.5)$
$D_{810}$	$2573^{+800}_{-800}$	$D_{\mathrm{M}}(0.38)$	$1521^{+81}_{-90}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 17.02; R - 1 = 0.00221$$



## 2.188 base\_lensing\_lenspriors\_BAO\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	831	$831^{+100}_{-90}$	$H(0.51)$	89.79	$89.8^{+1.1}_{-1.1}$
$\Omega_c h^2$	0.11776	$0.1178^{+0.0044}_{-0.0043}$	$D_{2000}$	233.6	$234^{+30}_{-30}$	$D_M(0.51)$	1974.6	$1974^{+36}_{-35}$
$100\theta_{MC}$	1.04090	$1.0409^{+0.0015}_{-0.0015}$	$n_{s,0.002}$	0.9545	$0.955^{+0.048}_{-0.046}$	$H(0.61)$	95.34	$95.3^{+1.0}_{-1.0}$
$\ln(10^{10} A_s)$	3.072	$3.071^{+0.089}_{-0.090}$	$Y_P$	0.24533	$0.24532^{+0.00055}_{-0.00054}$	$D_M(0.61)$	2298.7	$2299^{+40}_{-38}$
$n_s$	0.9545	$0.955^{+0.048}_{-0.046}$	$Y_P^{BBN}$	0.24666	$0.24665^{+0.00055}_{-0.00054}$	$H(2.33)$	234.92	$234.9^{+3.4}_{-3.4}$
$H_0$	68.01	$68.0^{+1.7}_{-1.7}$	$10^5 D/H$	2.616	$2.62^{+0.25}_{-0.23}$	$D_M(2.33)$	5765	$5765^{+57}_{-57}$
$\Omega_\Lambda$	0.6960	$0.696^{+0.022}_{-0.023}$	Age/Gyr	13.805	$13.80^{+0.13}_{-0.13}$	$f\sigma_8(0.15)$	0.4531	$0.453^{+0.024}_{-0.024}$
$\Omega_m$	0.3040	$0.304^{+0.023}_{-0.022}$	$z_*$	1089.93	$1089.9^{+1.7}_{-1.5}$	$\sigma_8(0.15)$	0.7514	$0.751^{+0.037}_{-0.036}$
$\Omega_m h^2$	0.14061	$0.1406^{+0.0047}_{-0.0047}$	$r_*$	145.14	$145.1^{+1.6}_{-1.6}$	$f\sigma_8(0.38)$	0.4732	$0.473^{+0.024}_{-0.023}$
$\Omega_m h^3$	0.09563	$0.0956^{+0.0028}_{-0.0027}$	$100\theta_*$	1.04110	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	0.6669	$0.667^{+0.034}_{-0.032}$
$\sigma_8$	0.8124	$0.812^{+0.040}_{-0.039}$	$D_M(z_*)/\text{Gpc}$	13.941	$13.94^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	0.4727	$0.473^{+0.023}_{-0.023}$
$S_8$	0.8178	$0.818^{+0.046}_{-0.046}$	$z_{\text{drag}}$	1059.40	$1059.4^{+3.0}_{-3.1}$	$\sigma_8(0.51)$	0.6245	$0.624^{+0.032}_{-0.031}$
$\sigma_8 \Omega_m^{0.5}$	0.4479	$0.448^{+0.025}_{-0.025}$	$r_{\text{drag}}$	147.87	$147.9^{+2.0}_{-2.0}$	$f\sigma_8(0.61)$	0.4683	$0.468^{+0.023}_{-0.022}$
$\sigma_8 \Omega_m^{0.25}$	0.6032	$0.603^{+0.030}_{-0.029}$	$k_D$	0.13993	$0.1399^{+0.0030}_{-0.0029}$	$\sigma_8(0.61)$	0.5944	$0.594^{+0.031}_{-0.029}$
$\sigma_8/h^{0.5}$	0.9851	$0.985^{+0.048}_{-0.047}$	$100\theta_D$	0.16105	$0.1611^{+0.0019}_{-0.0018}$	$f\sigma_8(2.33)$	0.3000	$0.300^{+0.016}_{-0.015}$
$r_{\text{drag}} h$	100.56	$100.6^{+3.0}_{-2.9}$	$z_{\text{eq}}$	3345	$3345^{+110}_{-110}$	$\sigma_8(2.33)$	0.3096	$0.310^{+0.017}_{-0.016}$
$\langle d^2 \rangle^{1/2}$	2.480	$2.48^{+0.10}_{-0.10}$	$k_{\text{eq}}$	0.010209	$0.01021^{+0.00035}_{-0.00034}$	$\chi^2_{\text{lensing}}$	8.10	9.3 ( $\nu$ : 1.2)
$z_{\text{re}}$	7.753	$7.75^{+0.30}_{-0.27}$	$100\theta_{\text{eq}}$	0.8232	$0.823^{+0.020}_{-0.019}$	$\chi^2_{6\text{DF}}$	0.000	0.055 ( $\nu$ : 0.0)
$10^9 A_s$	2.159	$2.16^{+0.20}_{-0.19}$	$100\theta_{s,\text{eq}}$	0.4547	$0.455^{+0.011}_{-0.010}$	$\chi^2_{\text{MGS}}$	1.75	1.84 ( $\nu$ : 0.2)
$10^9 A_s e^{-2\tau}$	1.934	$1.93^{+0.18}_{-0.17}$	$H(0.15)$	73.20	$73.2^{+1.5}_{-1.5}$	$\chi^2_{\text{DR12BAO}}$	3.43	4.3 ( $\nu$ : 0.9)
$D_{40}$	1300	$1299^{+200}_{-100}$	$D_M(0.15)$	638.0	$638^{+15}_{-14}$	$\chi^2_{\text{prior}}$	0.1	2.9 ( $\nu$ : 2.7)
$D_{220}$	5991	$5987^{+590}_{-560}$	$H(0.38)$	83.16	$83.2^{+1.2}_{-1.2}$	$\chi^2_{\text{BAO}}$	5.17	6.2 ( $\nu$ : 1.0)
$D_{810}$	2605	$2605^{+270}_{-250}$	$D_M(0.38)$	1523.4	$1523^{+31}_{-29}$			

Best-fit  $\chi^2_{\text{eff}} = 13.35$ ;  $\bar{\chi}^2_{\text{eff}} = 18.35$ ;  $R - 1 = 0.00243$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.43 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 8.10



## 2.189 base\_lensing\_lenspriors\_BAO\_theta\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02222	$0.0222^{+0.0013}_{-0.0012}$	$D_{1420}$	834	$833^{+100}_{-90}$	$H(0.51)$	89.82	$89.8^{+1.1}_{-1.1}$
$\Omega_c h^2$	0.11761	$0.1176^{+0.0041}_{-0.0040}$	$D_{2000}$	234.4	$234^{+30}_{-30}$	$D_M(0.51)$	1973.4	$1974^{+34}_{-32}$
$100\theta_{MC}$	1.04090	$1.0409^{+0.0015}_{-0.0015}$	$n_{s,0.002}$	0.9547	$0.955^{+0.048}_{-0.046}$	$H(0.61)$	95.36	$95.4^{+1.0}_{-0.99}$
$\ln(10^{10} A_s)$	3.075	$3.073^{+0.088}_{-0.087}$	$Y_P$	0.24533	$0.24532^{+0.00055}_{-0.00053}$	$D_M(0.61)$	2297.4	$2298^{+38}_{-35}$
$n_s$	0.9547	$0.955^{+0.048}_{-0.046}$	$Y_P^{BBN}$	0.24666	$0.24665^{+0.00055}_{-0.00053}$	$H(2.33)$	234.82	$234.8^{+3.2}_{-3.2}$
$H_0$	68.07	$68.1^{+1.5}_{-1.6}$	$10^5 D/H$	2.615	$2.62^{+0.25}_{-0.23}$	$D_M(2.33)$	5765	$5765^{+56}_{-57}$
$\Omega_\Lambda$	0.6968	$0.697^{+0.020}_{-0.022}$	Age/Gyr	13.803	$13.80^{+0.13}_{-0.13}$	$f\sigma_8(0.15)$	0.4530	$0.453^{+0.024}_{-0.024}$
$\Omega_m$	0.3032	$0.303^{+0.022}_{-0.020}$	$z_*$	1089.90	$1089.9^{+1.6}_{-1.5}$	$\sigma_8(0.15)$	0.7522	$0.752^{+0.037}_{-0.035}$
$\Omega_m h^2$	0.14047	$0.1405^{+0.0045}_{-0.0044}$	$r_*$	145.17	$145.2^{+1.5}_{-1.6}$	$f\sigma_8(0.38)$	0.4733	$0.473^{+0.024}_{-0.023}$
$\Omega_m h^3$	0.09561	$0.0956^{+0.0028}_{-0.0026}$	$100\theta_*$	1.04111	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	0.6677	$0.667^{+0.034}_{-0.032}$
$\sigma_8$	0.8131	$0.812^{+0.040}_{-0.038}$	$D_M(z_*)/\text{Gpc}$	13.944	$13.94^{+0.15}_{-0.16}$	$f\sigma_8(0.51)$	0.4728	$0.472^{+0.023}_{-0.022}$
$S_8$	0.8174	$0.817^{+0.045}_{-0.045}$	$z_{\text{drag}}$	1059.40	$1059.4^{+3.0}_{-3.0}$	$\sigma_8(0.51)$	0.6252	$0.625^{+0.032}_{-0.030}$
$\sigma_8 \Omega_m^{0.5}$	0.4477	$0.447^{+0.025}_{-0.025}$	$r_{\text{drag}}$	147.90	$147.9^{+1.9}_{-2.0}$	$f\sigma_8(0.61)$	0.4685	$0.468^{+0.023}_{-0.022}$
$\sigma_8 \Omega_m^{0.25}$	0.6034	$0.603^{+0.030}_{-0.029}$	$k_D$	0.13990	$0.1399^{+0.0030}_{-0.0028}$	$\sigma_8(0.61)$	0.5952	$0.595^{+0.030}_{-0.029}$
$\sigma_8/h^{0.5}$	0.9856	$0.985^{+0.049}_{-0.046}$	$100\theta_D$	0.16105	$0.1611^{+0.0019}_{-0.0018}$	$f\sigma_8(2.33)$	0.3004	$0.300^{+0.016}_{-0.015}$
$r_{\text{drag}} h$	100.67	$100.7^{+2.8}_{-2.7}$	$z_{\text{eq}}$	3341	$3342^{+110}_{-110}$	$\sigma_8(2.33)$	0.3101	$0.310^{+0.017}_{-0.016}$
$\langle d^2 \rangle^{1/2}$	2.482	$2.48^{+0.10}_{-0.10}$	$k_{\text{eq}}$	0.010198	$0.01020^{+0.00033}_{-0.00032}$	$\chi^2_{\text{lensing}}$	8.08	9.3 ( $\nu: 1.2$ )
$z_{\text{re}}$	7.747	$7.75^{+0.29}_{-0.26}$	$100\theta_{\text{eq}}$	0.8239	$0.824^{+0.018}_{-0.018}$	$\chi^2_{\text{JLA}}$	1034.77	1034.91 ( $\nu: 0.0$ )
$10^9 A_s$	2.166	$2.16^{+0.20}_{-0.18}$	$100\theta_{s,\text{eq}}$	0.4550	$0.4550^{+0.0099}_{-0.0096}$	$\chi^2_{6\text{DF}}$	0.002	0.049 ( $\nu: 0.0$ )
$10^9 A_s e^{-2\tau}$	1.940	$1.94^{+0.18}_{-0.16}$	$H(0.15)$	73.25	$73.2^{+1.4}_{-1.4}$	$\chi^2_{\text{MGS}}$	1.82	1.89 ( $\nu: 0.2$ )
$D_{40}$	1304	$1301^{+200}_{-100}$	$D_M(0.15)$	637.5	$638^{+14}_{-13}$	$\chi^2_{\text{DR12BAO}}$	3.39	4.1 ( $\nu: 0.6$ )
$D_{220}$	6012	$5999^{+580}_{-530}$	$H(0.38)$	83.20	$83.2^{+1.1}_{-1.1}$	$\chi^2_{\text{prior}}$	0.1	2.9 ( $\nu: 2.7$ )
$D_{810}$	2614	$2610^{+270}_{-240}$	$D_M(0.38)$	1522.4	$1522^{+29}_{-27}$	$\chi^2_{\text{BAO}}$	5.21	6.1 ( $\nu: 0.8$ )

Best-fit  $\chi^2_{\text{eff}} = 1048.13$ ;  $\bar{\chi}^2_{\text{eff}} = 1053.13$ ;  $R - 1 = 0.00215$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 3.39 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 8.08 SN - JLA Pantheon18: 1034.77



## 2.190 base\_lensing\_lenspriors\_BAO\_theta\_post\_agr2

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{1420}$	$814^{+89}_{-83}$	$H(0.51)$	$89.8^{+1.1}_{-1.1}$
$\Omega_{\mathrm{c}}h^2$	$0.1176^{+0.0044}_{-0.0041}$	$D_{2000}$	$228^{+30}_{-30}$	$D_{\mathrm{M}}(0.51)$	$1973^{+36}_{-33}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$n_{\mathrm{s},0.002}$	$0.949^{+0.046}_{-0.045}$	$H(0.61)$	$95.4^{+1.0}_{-0.98}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.054^{+0.085}_{-0.083}$	$Y_{\mathrm{P}}$	$0.24533^{+0.00055}_{-0.00052}$	$D_{\mathrm{M}}(0.61)$	$2297^{+39}_{-37}$
$n_{\mathrm{s}}$	$0.949^{+0.046}_{-0.045}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00055}_{-0.00052}$	$H(2.33)$	$234.8^{+3.3}_{-3.2}$
$H_0$	$68.1^{+1.6}_{-1.7}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.24}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5764^{+55}_{-58}$
$\Omega_{\Lambda}$	$0.697^{+0.021}_{-0.023}$	Age/Gyr	$13.80^{+0.13}_{-0.14}$	$f\sigma_8(0.15)$	$0.447^{+0.022}_{-0.022}$
$\Omega_{\mathrm{m}}$	$0.303^{+0.023}_{-0.021}$	$z_*$	$1089.9^{+1.6}_{-1.5}$	$\sigma_8(0.15)$	$0.743^{+0.034}_{-0.034}$
$\Omega_{\mathrm{m}}h^2$	$0.1404^{+0.0048}_{-0.0046}$	$r_*$	$145.2^{+1.6}_{-1.6}$	$f\sigma_8(0.38)$	$0.467^{+0.021}_{-0.021}$
$\Omega_{\mathrm{m}}h^3$	$0.0956^{+0.0028}_{-0.0026}$	$100\theta_*$	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	$0.659^{+0.031}_{-0.030}$
$\sigma_8$	$0.803^{+0.036}_{-0.036}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	$0.467^{+0.021}_{-0.020}$
$S_8$	$0.807^{+0.042}_{-0.041}$	$z_{\mathrm{drag}}$	$1059.4^{+3.1}_{-2.9}$	$\sigma_8(0.51)$	$0.617^{+0.029}_{-0.028}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.442^{+0.023}_{-0.022}$	$r_{\mathrm{drag}}$	$147.9^{+1.9}_{-2.0}$	$f\sigma_8(0.61)$	$0.462^{+0.020}_{-0.020}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.595^{+0.027}_{-0.026}$	$k_{\mathrm{D}}$	$0.1399^{+0.0030}_{-0.0028}$	$\sigma_8(0.61)$	$0.588^{+0.028}_{-0.027}$
$\sigma_8/h^{0.5}$	$0.973^{+0.043}_{-0.042}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0018}_{-0.0018}$	$f\sigma_8(2.33)$	$0.297^{+0.015}_{-0.014}$
$r_{\mathrm{drag}}h$	$100.7^{+3.0}_{-2.9}$	$z_{\mathrm{eq}}$	$3341^{+110}_{-110}$	$\sigma_8(2.33)$	$0.306^{+0.016}_{-0.015}$
$\langle d^2 \rangle^{1/2}$	$2.47^{+0.10}_{-0.096}$	$k_{\mathrm{eq}}$	$0.01020^{+0.00035}_{-0.00033}$	$\chi^2_{\mathrm{lensing}}$	$12.5 (\nu: 1.6)$
$z_{\mathrm{re}}$	$7.75^{+0.29}_{-0.27}$	$100\theta_{\mathrm{eq}}$	$0.824^{+0.019}_{-0.019}$	$\chi^2_{6\mathrm{DF}}$	$0.057 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.12^{+0.19}_{-0.17}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.010}_{-0.010}$	$\chi^2_{\mathrm{MGS}}$	$1.93 (\nu: 0.3)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.90^{+0.17}_{-0.15}$	$H(0.15)$	$73.3^{+1.4}_{-1.5}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.2 (\nu: 0.8)$
$D_{40}$	$1294^{+200}_{-100}$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-14}$	$\chi^2_{\mathrm{prior}}$	$3.1 (\nu: 3.0)$
$D_{220}$	$5927^{+580}_{-530}$	$H(0.38)$	$83.2^{+1.2}_{-1.2}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 1.0)$
$D_{810}$	$2557^{+250}_{-220}$	$D_{\mathrm{M}}(0.38)$	$1522^{+30}_{-28}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 21.73; R - 1 = 0.00232$$



## 2.191 base\_lensing\_lenspriors\_BAO\_theta\_post\_conslmin40

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{1420}$	$831^{+100}_{-90}$	$H(0.51)$	$89.8^{+1.1}_{-1.1}$
$\Omega_{\mathrm{c}}h^2$	$0.1178^{+0.0045}_{-0.0043}$	$D_{2000}$	$234^{+30}_{-30}$	$D_{\mathrm{M}}(0.51)$	$1975^{+36}_{-34}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$n_{\mathrm{s},0.002}$	$0.956^{+0.049}_{-0.047}$	$H(0.61)$	$95.3^{+1.0}_{-1.0}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.070^{+0.091}_{-0.090}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00055}_{-0.00053}$	$D_{\mathrm{M}}(0.61)$	$2299^{+40}_{-37}$
$n_{\mathrm{s}}$	$0.956^{+0.049}_{-0.047}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00053}$	$H(2.33)$	$234.9^{+3.4}_{-3.3}$
$H_0$	$68.0^{+1.6}_{-1.7}$	$10^5D/H$	$2.62^{+0.25}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5765^{+57}_{-57}$
$\Omega_{\Lambda}$	$0.696^{+0.022}_{-0.023}$	Age/Gyr	$13.80^{+0.13}_{-0.14}$	$f\sigma_8(0.15)$	$0.453^{+0.024}_{-0.024}$
$\Omega_{\mathrm{m}}$	$0.304^{+0.023}_{-0.022}$	$z_*$	$1089.9^{+1.7}_{-1.5}$	$\sigma_8(0.15)$	$0.751^{+0.037}_{-0.036}$
$\Omega_{\mathrm{m}}h^2$	$0.1407^{+0.0048}_{-0.0047}$	$r_*$	$145.1^{+1.6}_{-1.6}$	$f\sigma_8(0.38)$	$0.473^{+0.024}_{-0.023}$
$\Omega_{\mathrm{m}}h^3$	$0.0956^{+0.0028}_{-0.0026}$	$100\theta_*$	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	$0.667^{+0.034}_{-0.032}$
$\sigma_8$	$0.812^{+0.040}_{-0.038}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	$0.473^{+0.023}_{-0.023}$
$S_8$	$0.818^{+0.046}_{-0.046}$	$z_{\mathrm{drag}}$	$1059.4^{+3.1}_{-3.0}$	$\sigma_8(0.51)$	$0.624^{+0.032}_{-0.030}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.025}_{-0.025}$	$r_{\mathrm{drag}}$	$147.9^{+2.0}_{-2.0}$	$f\sigma_8(0.61)$	$0.468^{+0.023}_{-0.022}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.030}_{-0.029}$	$k_{\mathrm{D}}$	$0.1399^{+0.0030}_{-0.0029}$	$\sigma_8(0.61)$	$0.594^{+0.031}_{-0.029}$
$\sigma_8/h^{0.5}$	$0.985^{+0.049}_{-0.046}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0019}_{-0.0018}$	$f\sigma_8(2.33)$	$0.300^{+0.016}_{-0.015}$
$r_{\mathrm{drag}}h$	$100.6^{+3.0}_{-3.0}$	$z_{\mathrm{eq}}$	$3346^{+110}_{-110}$	$\sigma_8(2.33)$	$0.310^{+0.017}_{-0.016}$
$\langle d^2 \rangle^{1/2}$	$2.47^{+0.11}_{-0.11}$	$k_{\mathrm{eq}}$	$0.01021^{+0.00035}_{-0.00034}$	$\chi^2_{\mathrm{lensing}}$	$9.2 (\nu: 1.1)$
$z_{\mathrm{re}}$	$7.75^{+0.29}_{-0.27}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.019}_{-0.019}$	$\chi^2_{6\mathrm{DF}}$	$0.055 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.16^{+0.20}_{-0.19}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.010}_{-0.010}$	$\chi^2_{\mathrm{MGS}}$	$1.83 (\nu: 0.2)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.93^{+0.18}_{-0.17}$	$H(0.15)$	$73.2^{+1.4}_{-1.5}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3 (\nu: 0.9)$
$D_{40}$	$1293^{+200}_{-200}$	$D_{\mathrm{M}}(0.15)$	$638^{+15}_{-14}$	$\chi^2_{\mathrm{prior}}$	$2.9 (\nu: 2.7)$
$D_{220}$	$5970^{+620}_{-570}$	$H(0.38)$	$83.2^{+1.2}_{-1.2}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 1.0)$
$D_{810}$	$2602^{+270}_{-250}$	$D_{\mathrm{M}}(0.38)$	$1524^{+30}_{-28}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 18.27; R - 1 = 0.00270$$



## 2.192 base\_lensing\_lenspriors\_BAO\_theta\_post\_agrlmax425

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{1420}$	$833^{+100}_{-90}$	$H(0.51)$	$89.8^{+1.1}_{-1.1}$
$\Omega_{\mathrm{c}}h^2$	$0.1178^{+0.0045}_{-0.0043}$	$D_{2000}$	$234^{+30}_{-30}$	$D_{\mathrm{M}}(0.51)$	$1975^{+37}_{-34}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$n_{\mathrm{s},0.002}$	$0.956^{+0.047}_{-0.046}$	$H(0.61)$	$95.3^{+1.0}_{-1.0}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.072^{+0.091}_{-0.089}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00055}_{-0.00053}$	$D_{\mathrm{M}}(0.61)$	$2299^{+40}_{-37}$
$n_{\mathrm{s}}$	$0.956^{+0.047}_{-0.046}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00053}$	$H(2.33)$	$234.9^{+3.4}_{-3.3}$
$H_0$	$68.0^{+1.6}_{-1.7}$	$10^5D/H$	$2.62^{+0.25}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5765^{+57}_{-57}$
$\Omega_{\Lambda}$	$0.696^{+0.022}_{-0.023}$	Age/Gyr	$13.80^{+0.13}_{-0.14}$	$f\sigma_8(0.15)$	$0.454^{+0.025}_{-0.025}$
$\Omega_{\mathrm{m}}$	$0.304^{+0.023}_{-0.022}$	$z_*$	$1089.9^{+1.7}_{-1.5}$	$\sigma_8(0.15)$	$0.752^{+0.037}_{-0.035}$
$\Omega_{\mathrm{m}}h^2$	$0.1407^{+0.0048}_{-0.0047}$	$r_*$	$145.1^{+1.6}_{-1.6}$	$f\sigma_8(0.38)$	$0.474^{+0.024}_{-0.023}$
$\Omega_{\mathrm{m}}h^3$	$0.0956^{+0.0028}_{-0.0027}$	$100\theta_*$	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	$0.667^{+0.034}_{-0.032}$
$\sigma_8$	$0.813^{+0.040}_{-0.038}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	$0.473^{+0.023}_{-0.023}$
$S_8$	$0.819^{+0.046}_{-0.046}$	$z_{\mathrm{drag}}$	$1059.4^{+3.1}_{-3.0}$	$\sigma_8(0.51)$	$0.625^{+0.032}_{-0.030}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.025}_{-0.025}$	$r_{\mathrm{drag}}$	$147.9^{+2.0}_{-2.0}$	$f\sigma_8(0.61)$	$0.469^{+0.023}_{-0.022}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.030}_{-0.029}$	$k_{\mathrm{D}}$	$0.1399^{+0.0030}_{-0.0029}$	$\sigma_8(0.61)$	$0.595^{+0.031}_{-0.029}$
$\sigma_8/h^{0.5}$	$0.986^{+0.049}_{-0.047}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0019}_{-0.0018}$	$f\sigma_8(2.33)$	$0.300^{+0.016}_{-0.015}$
$r_{\mathrm{drag}}h$	$100.6^{+3.0}_{-3.0}$	$z_{\mathrm{eq}}$	$3346^{+110}_{-110}$	$\sigma_8(2.33)$	$0.310^{+0.017}_{-0.016}$
$\langle d^2 \rangle^{1/2}$	$2.48^{+0.10}_{-0.10}$	$k_{\mathrm{eq}}$	$0.01021^{+0.00035}_{-0.00034}$	$\chi^2_{\mathrm{lensing}}$	$7.0 (\nu: 1.1)$
$z_{\mathrm{re}}$	$7.75^{+0.29}_{-0.27}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.019}_{-0.019}$	$\chi^2_{6\mathrm{DF}}$	$0.055 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.16^{+0.20}_{-0.19}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.011}_{-0.010}$	$\chi^2_{\mathrm{MGS}}$	$1.82 (\nu: 0.2)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.94^{+0.18}_{-0.17}$	$H(0.15)$	$73.2^{+1.4}_{-1.5}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3 (\nu: 0.9)$
$D_{40}$	$1298^{+200}_{-100}$	$D_{\mathrm{M}}(0.15)$	$638^{+15}_{-14}$	$\chi^2_{\mathrm{prior}}$	$2.9 (\nu: 2.7)$
$D_{220}$	$5988^{+600}_{-550}$	$H(0.38)$	$83.2^{+1.2}_{-1.2}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 1.0)$
$D_{810}$	$2608^{+270}_{-240}$	$D_{\mathrm{M}}(0.38)$	$1524^{+30}_{-28}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 16.09; R - 1 = 0.00233$$



## 2.193 base\_lensing\_lenspriors\_BAO\_theta\_post\_ptt

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{1420}$	$837^{+100}_{-100}$	$H(0.51)$	$89.8^{+1.1}_{-1.1}$
$\Omega_{\mathrm{c}}h^2$	$0.1176^{+0.0043}_{-0.0045}$	$D_{2000}$	$235^{+30}_{-30}$	$D_{\mathrm{M}}(0.51)$	$1973^{+36}_{-34}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$n_{\mathrm{s},0.002}$	$0.948^{+0.048}_{-0.047}$	$H(0.61)$	$95.4^{+1.0}_{-1.0}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.08^{+0.10}_{-0.10}$	$Y_{\mathrm{P}}$	$0.24533^{+0.00055}_{-0.00053}$	$D_{\mathrm{M}}(0.61)$	$2297^{+39}_{-37}$
$n_{\mathrm{s}}$	$0.948^{+0.048}_{-0.047}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00055}_{-0.00053}$	$H(2.33)$	$234.8^{+3.3}_{-3.5}$
$H_0$	$68.1^{+1.7}_{-1.7}$	$10^5D/H$	$2.61^{+0.25}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5764^{+56}_{-56}$
$\Omega_{\Lambda}$	$0.697^{+0.022}_{-0.023}$	Age/Gyr	$13.80^{+0.13}_{-0.13}$	$f\sigma_8(0.15)$	$0.453^{+0.027}_{-0.026}$
$\Omega_{\mathrm{m}}$	$0.303^{+0.023}_{-0.022}$	$z_*$	$1089.9^{+1.6}_{-1.5}$	$\sigma_8(0.15)$	$0.753^{+0.042}_{-0.040}$
$\Omega_{\mathrm{m}}h^2$	$0.1404^{+0.0048}_{-0.0049}$	$r_*$	$145.2^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	$0.474^{+0.026}_{-0.025}$
$\Omega_{\mathrm{m}}h^3$	$0.0956^{+0.0028}_{-0.0027}$	$100\theta_*$	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	$0.669^{+0.038}_{-0.036}$
$\sigma_8$	$0.814^{+0.045}_{-0.042}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	$0.473^{+0.026}_{-0.025}$
$S_8$	$0.818^{+0.050}_{-0.049}$	$z_{\mathrm{drag}}$	$1059.4^{+3.1}_{-2.9}$	$\sigma_8(0.51)$	$0.626^{+0.036}_{-0.034}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.028}_{-0.027}$	$r_{\mathrm{drag}}$	$147.9^{+2.0}_{-2.0}$	$f\sigma_8(0.61)$	$0.469^{+0.026}_{-0.025}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.033}_{-0.032}$	$k_{\mathrm{D}}$	$0.1399^{+0.0030}_{-0.0029}$	$\sigma_8(0.61)$	$0.596^{+0.034}_{-0.032}$
$\sigma_8/h^{0.5}$	$0.987^{+0.054}_{-0.052}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0018}_{-0.0018}$	$f\sigma_8(2.33)$	$0.301^{+0.018}_{-0.016}$
$r_{\mathrm{drag}}h$	$100.7^{+3.1}_{-2.9}$	$z_{\mathrm{eq}}$	$3341^{+110}_{-120}$	$\sigma_8(2.33)$	$0.311^{+0.019}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.11}_{-0.12}$	$k_{\mathrm{eq}}$	$0.01020^{+0.00035}_{-0.00036}$	$\chi^2_{\mathrm{lensing}}$	$12.9 (\nu: 1.8)$
$z_{\mathrm{re}}$	$7.74^{+0.29}_{-0.27}$	$100\theta_{\mathrm{eq}}$	$0.824^{+0.020}_{-0.019}$	$\chi^2_{6\mathrm{DF}}$	$0.057 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.18^{+0.24}_{-0.21}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.011}_{-0.010}$	$\chi^2_{\mathrm{MGS}}$	$1.93 (\nu: 0.3)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.96^{+0.21}_{-0.19}$	$H(0.15)$	$73.3^{+1.5}_{-1.5}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.2 (\nu: 0.8)$
$D_{40}$	$1334^{+200}_{-200}$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-14}$	$\chi^2_{\mathrm{prior}}$	$3.2 (\nu: 3.1)$
$D_{220}$	$6104^{+700}_{-600}$	$H(0.38)$	$83.2^{+1.2}_{-1.2}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 1.1)$
$D_{810}$	$2631^{+300}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1522^{+30}_{-29}$		

$\bar{\chi}^2_{\mathrm{eff}} = 22.40; R - 1 = 0.00650$



## 2.194 base\_lensing\_lenspriors\_BAO\_theta\_post\_bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{1420}$	$819^{+90}_{-90}$	$H(0.51)$	$89.8^{+1.1}_{-1.1}$
$\Omega_{\mathrm{c}}h^2$	$0.1178^{+0.0045}_{-0.0042}$	$D_{2000}$	$230^{+30}_{-30}$	$D_{\mathrm{M}}(0.51)$	$1975^{+36}_{-34}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$n_{\mathrm{s},0.002}$	$0.956^{+0.048}_{-0.047}$	$H(0.61)$	$95.3^{+1.0}_{-0.99}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.055^{+0.086}_{-0.084}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00056}_{-0.00053}$	$D_{\mathrm{M}}(0.61)$	$2299^{+39}_{-37}$
$n_{\mathrm{s}}$	$0.956^{+0.048}_{-0.047}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00056}_{-0.00053}$	$H(2.33)$	$234.9^{+3.4}_{-3.2}$
$H_0$	$68.0^{+1.6}_{-1.7}$	$10^5D/H$	$2.62^{+0.25}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5765^{+55}_{-58}$
$\Omega_{\Lambda}$	$0.696^{+0.021}_{-0.023}$	Age/Gyr	$13.80^{+0.13}_{-0.14}$	$f\sigma_8(0.15)$	$0.450^{+0.024}_{-0.023}$
$\Omega_{\mathrm{m}}$	$0.304^{+0.023}_{-0.021}$	$z_*$	$1089.9^{+1.6}_{-1.5}$	$\sigma_8(0.15)$	$0.746^{+0.036}_{-0.035}$
$\Omega_{\mathrm{m}}h^2$	$0.1406^{+0.0048}_{-0.0045}$	$r_*$	$145.1^{+1.6}_{-1.6}$	$f\sigma_8(0.38)$	$0.469^{+0.023}_{-0.023}$
$\Omega_{\mathrm{m}}h^3$	$0.0956^{+0.0028}_{-0.0026}$	$100\theta_*$	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	$0.662^{+0.033}_{-0.032}$
$\sigma_8$	$0.806^{+0.039}_{-0.038}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.15}_{-0.16}$	$f\sigma_8(0.51)$	$0.469^{+0.022}_{-0.022}$
$S_8$	$0.811^{+0.046}_{-0.045}$	$z_{\mathrm{drag}}$	$1059.4^{+3.1}_{-3.0}$	$\sigma_8(0.51)$	$0.620^{+0.031}_{-0.030}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.025}_{-0.024}$	$r_{\mathrm{drag}}$	$147.9^{+1.9}_{-2.0}$	$f\sigma_8(0.61)$	$0.465^{+0.022}_{-0.021}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.599^{+0.029}_{-0.028}$	$k_{\mathrm{D}}$	$0.1399^{+0.0031}_{-0.0028}$	$\sigma_8(0.61)$	$0.590^{+0.030}_{-0.029}$
$\sigma_8/h^{0.5}$	$0.977^{+0.047}_{-0.045}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0018}_{-0.0018}$	$f\sigma_8(2.33)$	$0.298^{+0.015}_{-0.015}$
$r_{\mathrm{drag}}h$	$100.6^{+3.0}_{-2.9}$	$z_{\mathrm{eq}}$	$3345^{+110}_{-110}$	$\sigma_8(2.33)$	$0.307^{+0.016}_{-0.015}$
$\langle d^2 \rangle^{1/2}$	$2.457^{+0.097}_{-0.093}$	$k_{\mathrm{eq}}$	$0.01021^{+0.00035}_{-0.00033}$	$\chi^2_{\mathrm{lensing}}$	$9.3 (\nu: 1.1)$
$z_{\mathrm{re}}$	$7.75^{+0.29}_{-0.27}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.019}_{-0.019}$	$\chi^2_{6\mathrm{DF}}$	$0.055 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.12^{+0.19}_{-0.17}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.010}_{-0.010}$	$\chi^2_{\mathrm{MGS}}$	$1.84 (\nu: 0.2)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.90^{+0.17}_{-0.15}$	$H(0.15)$	$73.2^{+1.4}_{-1.5}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3 (\nu: 0.9)$
$D_{40}$	$1275^{+140}_{-130}$	$D_{\mathrm{M}}(0.15)$	$638^{+15}_{-14}$	$\chi^2_{\mathrm{prior}}$	$2.8 (\nu: 2.6)$
$D_{220}$	$5886^{+560}_{-520}$	$H(0.38)$	$83.2^{+1.2}_{-1.2}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 1.0)$
$D_{810}$	$2565^{+250}_{-230}$	$D_{\mathrm{M}}(0.38)$	$1523^{+30}_{-28}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 18.37; R - 1 = 0.00253$$



## 2.195 base\_lensing\_lenspriors\_BAO\_theta\_post\_agr2bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{1420}$	$803^{+87}_{-82}$	$H(0.51)$	$89.8^{+1.1}_{-1.0}$
$\Omega_{\mathrm{c}}h^2$	$0.1176^{+0.0044}_{-0.0040}$	$D_{2000}$	$225^{+30}_{-30}$	$D_{\mathrm{M}}(0.51)$	$1973^{+35}_{-33}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0016}$	$n_{\mathrm{s},0.002}$	$0.950^{+0.047}_{-0.046}$	$H(0.61)$	$95.4^{+1.1}_{-0.96}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.040^{+0.082}_{-0.085}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00056}_{-0.00052}$	$D_{\mathrm{M}}(0.61)$	$2297^{+38}_{-36}$
$n_{\mathrm{s}}$	$0.950^{+0.047}_{-0.046}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00056}_{-0.00052}$	$H(2.33)$	$234.8^{+3.3}_{-3.1}$
$H_0$	$68.1^{+1.6}_{-1.6}$	$10^5D/H$	$2.62^{+0.24}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5764^{+54}_{-58}$
$\Omega_{\Lambda}$	$0.697^{+0.021}_{-0.023}$	Age/Gyr	$13.80^{+0.13}_{-0.14}$	$f\sigma_8(0.15)$	$0.444^{+0.022}_{-0.021}$
$\Omega_{\mathrm{m}}$	$0.303^{+0.023}_{-0.021}$	$z_*$	$1089.9^{+1.6}_{-1.6}$	$\sigma_8(0.15)$	$0.738^{+0.033}_{-0.035}$
$\Omega_{\mathrm{m}}h^2$	$0.1404^{+0.0048}_{-0.0044}$	$r_*$	$145.2^{+1.5}_{-1.6}$	$f\sigma_8(0.38)$	$0.464^{+0.021}_{-0.021}$
$\Omega_{\mathrm{m}}h^3$	$0.0956^{+0.0028}_{-0.0025}$	$100\theta_*$	$1.0411^{+0.0015}_{-0.0016}$	$\sigma_8(0.38)$	$0.655^{+0.030}_{-0.032}$
$\sigma_8$	$0.797^{+0.035}_{-0.037}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.15}_{-0.16}$	$f\sigma_8(0.51)$	$0.464^{+0.020}_{-0.020}$
$S_8$	$0.801^{+0.041}_{-0.039}$	$z_{\mathrm{drag}}$	$1059.4^{+3.1}_{-2.9}$	$\sigma_8(0.51)$	$0.613^{+0.029}_{-0.030}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.439^{+0.022}_{-0.021}$	$r_{\mathrm{drag}}$	$147.9^{+1.9}_{-2.0}$	$f\sigma_8(0.61)$	$0.459^{+0.020}_{-0.020}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.592^{+0.026}_{-0.026}$	$k_{\mathrm{D}}$	$0.1399^{+0.0029}_{-0.0027}$	$\sigma_8(0.61)$	$0.584^{+0.028}_{-0.028}$
$\sigma_8/h^{0.5}$	$0.966^{+0.042}_{-0.043}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0018}_{-0.0018}$	$f\sigma_8(2.33)$	$0.295^{+0.014}_{-0.014}$
$r_{\mathrm{drag}}h$	$100.7^{+2.9}_{-2.8}$	$z_{\mathrm{eq}}$	$3341^{+110}_{-100}$	$\sigma_8(2.33)$	$0.304^{+0.015}_{-0.015}$
$\langle d^2 \rangle^{1/2}$	$2.448^{+0.092}_{-0.092}$	$k_{\mathrm{eq}}$	$0.01020^{+0.00035}_{-0.00032}$	$\chi^2_{\mathrm{lensing}}$	$12.3 (\nu: 1.5)$
$z_{\mathrm{re}}$	$7.75^{+0.29}_{-0.28}$	$100\theta_{\mathrm{eq}}$	$0.824^{+0.019}_{-0.019}$	$\chi^2_{6\mathrm{DF}}$	$0.056 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.09^{+0.18}_{-0.17}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.010}_{-0.010}$	$\chi^2_{\mathrm{MGS}}$	$1.92 (\nu: 0.3)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.87^{+0.16}_{-0.15}$	$H(0.15)$	$73.3^{+1.4}_{-1.5}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.2 (\nu: 0.8)$
$D_{40}$	$1273^{+140}_{-140}$	$D_{\mathrm{M}}(0.15)$	$637^{+14}_{-13}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.8)$
$D_{220}$	$5834^{+550}_{-490}$	$H(0.38)$	$83.2^{+1.2}_{-1.1}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 1.0)$
$D_{810}$	$2522^{+240}_{-230}$	$D_{\mathrm{M}}(0.38)$	$1522^{+29}_{-27}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 21.52; R - 1 = 0.00519$$



## 2.196 base\_lensing\_lenspriors\_BAO\_theta\_post\_linear

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	$841^{+100}_{-90}$	$H(0.51)$	$89.8^{+1.1}_{-1.1}$
$\Omega_{\mathrm{c}}h^2$	$0.1179^{+0.0044}_{-0.0043}$	$D_{2000}$	$236^{+30}_{-30}$	$D_{\mathrm{M}}(0.51)$	$1975^{+36}_{-34}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$n_{\mathrm{s},0.002}$	$0.958^{+0.048}_{-0.046}$	$H(0.61)$	$95.3^{+1.0}_{-1.0}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.080^{+0.091}_{-0.090}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00054}$	$D_{\mathrm{M}}(0.61)$	$2299^{+40}_{-37}$
$n_{\mathrm{s}}$	$0.958^{+0.048}_{-0.046}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00056}_{-0.00054}$	$H(2.33)$	$235.0^{+3.4}_{-3.3}$
$H_0$	$68.0^{+1.6}_{-1.7}$	$10^5D/H$	$2.62^{+0.25}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5766^{+57}_{-57}$
$\Omega_{\Lambda}$	$0.695^{+0.022}_{-0.024}$	Age/Gyr	$13.81^{+0.14}_{-0.13}$	$f\sigma_8(0.15)$	$0.456^{+0.026}_{-0.025}$
$\Omega_{\mathrm{m}}$	$0.305^{+0.024}_{-0.022}$	$z_*$	$1090.0^{+1.7}_{-1.5}$	$\sigma_8(0.15)$	$0.756^{+0.039}_{-0.037}$
$\Omega_{\mathrm{m}}h^2$	$0.1407^{+0.0047}_{-0.0047}$	$r_*$	$145.1^{+1.6}_{-1.6}$	$f\sigma_8(0.38)$	$0.476^{+0.025}_{-0.024}$
$\Omega_{\mathrm{m}}h^3$	$0.0956^{+0.0028}_{-0.0027}$	$100\theta_*$	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	$0.671^{+0.035}_{-0.033}$
$\sigma_8$	$0.817^{+0.042}_{-0.039}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	$0.476^{+0.024}_{-0.023}$
$S_8$	$0.823^{+0.047}_{-0.047}$	$z_{\mathrm{drag}}$	$1059.4^{+3.0}_{-3.0}$	$\sigma_8(0.51)$	$0.628^{+0.033}_{-0.031}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.026}_{-0.026}$	$r_{\mathrm{drag}}$	$147.9^{+2.0}_{-2.0}$	$f\sigma_8(0.61)$	$0.471^{+0.024}_{-0.022}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.032}_{-0.030}$	$k_{\mathrm{D}}$	$0.1399^{+0.0031}_{-0.0029}$	$\sigma_8(0.61)$	$0.598^{+0.031}_{-0.030}$
$\sigma_8/h^{0.5}$	$0.991^{+0.051}_{-0.048}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0019}_{-0.0018}$	$f\sigma_8(2.33)$	$0.302^{+0.016}_{-0.015}$
$r_{\mathrm{drag}}h$	$100.5^{+3.0}_{-3.0}$	$z_{\mathrm{eq}}$	$3347^{+110}_{-110}$	$\sigma_8(2.33)$	$0.311^{+0.017}_{-0.016}$
$\langle d^2 \rangle^{1/2}$	$2.48^{+0.10}_{-0.10}$	$k_{\mathrm{eq}}$	$0.01022^{+0.00035}_{-0.00034}$	$\chi^2_{\mathrm{lensing}}$	$9.4 (\nu: 1.1)$
$z_{\mathrm{re}}$	$7.76^{+0.30}_{-0.27}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.019}_{-0.019}$	$\chi^2_{6\mathrm{DF}}$	$0.055 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.18^{+0.21}_{-0.19}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.010}_{-0.010}$	$\chi^2_{\mathrm{MGS}}$	$1.80 (\nu: 0.2)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.95^{+0.18}_{-0.17}$	$H(0.15)$	$73.2^{+1.4}_{-1.5}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3 (\nu: 0.9)$
$D_{40}$	$1303^{+200}_{-100}$	$D_{\mathrm{M}}(0.15)$	$638^{+15}_{-14}$	$\chi^2_{\mathrm{prior}}$	$2.9 (\nu: 2.7)$
$D_{220}$	$6024^{+600}_{-550}$	$H(0.38)$	$83.1^{+1.2}_{-1.2}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 1.0)$
$D_{810}$	$2631^{+270}_{-250}$	$D_{\mathrm{M}}(0.38)$	$1524^{+30}_{-28}$		

$\bar{\chi}^2_{\mathrm{eff}} = 18.45; R - 1 = 0.00265$



## 2.197 base\_lensing\_lenspriors\_BAO\_theta\_post\_acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{1420}$	$831^{+100}_{-90}$	$H(0.51)$	$89.8^{+1.1}_{-1.1}$
$\Omega_{\mathrm{c}}h^2$	$0.1178^{+0.0045}_{-0.0043}$	$D_{2000}$	$234^{+30}_{-30}$	$D_{\mathrm{M}}(0.51)$	$1974^{+37}_{-33}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$n_{\mathrm{s},0.002}$	$0.955^{+0.048}_{-0.046}$	$H(0.61)$	$95.4^{+1.0}_{-0.99}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.071^{+0.091}_{-0.088}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00055}_{-0.00053}$	$D_{\mathrm{M}}(0.61)$	$2298^{+40}_{-37}$
$n_{\mathrm{s}}$	$0.955^{+0.048}_{-0.046}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00056}_{-0.00053}$	$H(2.33)$	$234.9^{+3.4}_{-3.3}$
$H_0$	$68.0^{+1.6}_{-1.7}$	$10^5D/H$	$2.62^{+0.25}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5765^{+56}_{-57}$
$\Omega_{\Lambda}$	$0.696^{+0.022}_{-0.024}$	Age/Gyr	$13.80^{+0.13}_{-0.14}$	$f\sigma_8(0.15)$	$0.453^{+0.024}_{-0.024}$
$\Omega_{\mathrm{m}}$	$0.304^{+0.024}_{-0.022}$	$z_*$	$1089.9^{+1.7}_{-1.5}$	$\sigma_8(0.15)$	$0.751^{+0.037}_{-0.035}$
$\Omega_{\mathrm{m}}h^2$	$0.1406^{+0.0048}_{-0.0047}$	$r_*$	$145.1^{+1.6}_{-1.6}$	$f\sigma_8(0.38)$	$0.473^{+0.024}_{-0.023}$
$\Omega_{\mathrm{m}}h^3$	$0.0956^{+0.0028}_{-0.0026}$	$100\theta_*$	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	$0.667^{+0.034}_{-0.032}$
$\sigma_8$	$0.812^{+0.039}_{-0.038}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	$0.472^{+0.023}_{-0.022}$
$S_8$	$0.817^{+0.046}_{-0.046}$	$z_{\mathrm{drag}}$	$1059.4^{+3.1}_{-3.0}$	$\sigma_8(0.51)$	$0.624^{+0.032}_{-0.031}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.025}_{-0.025}$	$r_{\mathrm{drag}}$	$147.9^{+2.0}_{-2.0}$	$f\sigma_8(0.61)$	$0.468^{+0.023}_{-0.022}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.030}_{-0.029}$	$k_{\mathrm{D}}$	$0.1399^{+0.0030}_{-0.0029}$	$\sigma_8(0.61)$	$0.594^{+0.031}_{-0.029}$
$\sigma_8/h^{0.5}$	$0.984^{+0.049}_{-0.046}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0019}_{-0.0018}$	$f\sigma_8(2.33)$	$0.300^{+0.016}_{-0.015}$
$r_{\mathrm{drag}}h$	$100.6^{+3.0}_{-3.0}$	$z_{\mathrm{eq}}$	$3345^{+120}_{-110}$	$\sigma_8(2.33)$	$0.309^{+0.017}_{-0.016}$
$\langle d^2 \rangle^{1/2}$	$2.48^{+0.10}_{-0.10}$	$k_{\mathrm{eq}}$	$0.01021^{+0.00035}_{-0.00034}$	$\chi^2_{\mathrm{lensing}}$	$9.3 (\nu: 1.2)$
$z_{\mathrm{re}}$	$7.75^{+0.29}_{-0.27}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.020}_{-0.019}$	$\chi^2_{6\mathrm{DF}}$	$0.055 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.16^{+0.20}_{-0.18}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.011}_{-0.010}$	$\chi^2_{\mathrm{MGS}}$	$1.84 (\nu: 0.2)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.93^{+0.18}_{-0.16}$	$H(0.15)$	$73.2^{+1.4}_{-1.5}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3 (\nu: 0.9)$
$D_{40}$	$1298^{+200}_{-100}$	$D_{\mathrm{M}}(0.15)$	$638^{+15}_{-14}$	$\chi^2_{\mathrm{prior}}$	$2.9 (\nu: 2.7)$
$D_{220}$	$5984^{+590}_{-560}$	$H(0.38)$	$83.2^{+1.2}_{-1.2}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 1.0)$
$D_{810}$	$2604^{+270}_{-240}$	$D_{\mathrm{M}}(0.38)$	$1523^{+31}_{-28}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 18.35; R - 1 = 0.00361$$



## 2.198 base\_lensing\_lenspriors\_BAO\_theta\_post\_agr2acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{1420}$	$813^{+88}_{-81}$	$H(0.51)$	$89.8^{+1.1}_{-1.1}$
$\Omega_c h^2$	$0.1175^{+0.0045}_{-0.0041}$	$D_{2000}$	$228^{+30}_{-30}$	$D_M(0.51)$	$1973^{+36}_{-33}$
$100\theta_{MC}$	$1.0409^{+0.0015}_{-0.0016}$	$n_{s,0.002}$	$0.948^{+0.046}_{-0.045}$	$H(0.61)$	$95.4^{+1.1}_{-0.98}$
$\ln(10^{10} A_s)$	$3.053^{+0.083}_{-0.082}$	$Y_P$	$0.24533^{+0.00056}_{-0.00052}$	$D_M(0.61)$	$2297^{+39}_{-36}$
$n_s$	$0.948^{+0.046}_{-0.045}$	$Y_P^{BBN}$	$0.24665^{+0.00056}_{-0.00052}$	$H(2.33)$	$234.8^{+3.3}_{-3.2}$
$H_0$	$68.1^{+1.6}_{-1.7}$	$10^5 D/H$	$2.61^{+0.24}_{-0.23}$	$D_M(2.33)$	$5764^{+55}_{-58}$
$\Omega_\Lambda$	$0.697^{+0.021}_{-0.023}$	Age/Gyr	$13.80^{+0.13}_{-0.14}$	$f\sigma_8(0.15)$	$0.446^{+0.022}_{-0.022}$
$\Omega_m$	$0.303^{+0.023}_{-0.021}$	$z_*$	$1089.9^{+1.6}_{-1.6}$	$\sigma_8(0.15)$	$0.742^{+0.034}_{-0.032}$
$\Omega_m h^2$	$0.1404^{+0.0048}_{-0.0045}$	$r_*$	$145.2^{+1.6}_{-1.6}$	$f\sigma_8(0.38)$	$0.467^{+0.021}_{-0.020}$
$\Omega_m h^3$	$0.0956^{+0.0028}_{-0.0026}$	$100\theta_*$	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	$0.659^{+0.031}_{-0.029}$
$\sigma_8$	$0.802^{+0.036}_{-0.034}$	$D_M(z_*)/\text{Gpc}$	$13.94^{+0.15}_{-0.16}$	$f\sigma_8(0.51)$	$0.466^{+0.021}_{-0.020}$
$S_8$	$0.806^{+0.042}_{-0.041}$	$z_{\text{drag}}$	$1059.4^{+3.1}_{-2.9}$	$\sigma_8(0.51)$	$0.617^{+0.029}_{-0.028}$
$\sigma_8 \Omega_m^{0.5}$	$0.441^{+0.023}_{-0.022}$	$r_{\text{drag}}$	$147.9^{+1.9}_{-2.0}$	$f\sigma_8(0.61)$	$0.462^{+0.020}_{-0.019}$
$\sigma_8 \Omega_m^{0.25}$	$0.595^{+0.026}_{-0.026}$	$k_D$	$0.1399^{+0.0030}_{-0.0028}$	$\sigma_8(0.61)$	$0.587^{+0.028}_{-0.026}$
$\sigma_8/h^{0.5}$	$0.972^{+0.043}_{-0.041}$	$100\theta_D$	$0.1610^{+0.0018}_{-0.0018}$	$f\sigma_8(2.33)$	$0.296^{+0.014}_{-0.014}$
$r_{\text{drag}} h$	$100.7^{+3.0}_{-2.9}$	$z_{\text{eq}}$	$3340^{+120}_{-110}$	$\sigma_8(2.33)$	$0.306^{+0.015}_{-0.015}$
$\langle d^2 \rangle^{1/2}$	$2.47^{+0.10}_{-0.096}$	$k_{\text{eq}}$	$0.01020^{+0.00035}_{-0.00033}$	$\chi^2_{\text{lensing}}$	$12.6 (\nu: 1.7)$
$z_{\text{re}}$	$7.74^{+0.29}_{-0.28}$	$100\theta_{\text{eq}}$	$0.824^{+0.019}_{-0.020}$	$\chi^2_{6\text{DF}}$	$0.057 (\nu: 0.0)$
$10^9 A_s$	$2.12^{+0.18}_{-0.17}$	$100\theta_{s,\text{eq}}$	$0.455^{+0.010}_{-0.010}$	$\chi^2_{\text{MGS}}$	$1.93 (\nu: 0.3)$
$10^9 A_s e^{-2\tau}$	$1.90^{+0.16}_{-0.15}$	$H(0.15)$	$73.3^{+1.4}_{-1.5}$	$\chi^2_{\text{DR12BAO}}$	$4.2 (\nu: 0.8)$
$D_{40}$	$1295^{+200}_{-100}$	$D_M(0.15)$	$637^{+15}_{-13}$	$\chi^2_{\text{prior}}$	$3.1 (\nu: 3.0)$
$D_{220}$	$5923^{+570}_{-540}$	$H(0.38)$	$83.2^{+1.2}_{-1.2}$	$\chi^2_{\text{BAO}}$	$6.2 (\nu: 1.0)$
$D_{810}$	$2555^{+240}_{-220}$	$D_M(0.38)$	$1522^{+30}_{-27}$		

$$\bar{\chi}^2_{\text{eff}} = 21.94; R - 1 = 0.00291$$



## 2.199 base\_lensing\_lenspriors\_BAO\_theta\_post\_takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{1420}$	$830^{+100}_{-90}$	$H(0.51)$	$89.8^{+1.1}_{-1.1}$
$\Omega_{\mathrm{c}}h^2$	$0.1177^{+0.0045}_{-0.0042}$	$D_{2000}$	$233^{+30}_{-30}$	$D_{\mathrm{M}}(0.51)$	$1974^{+36}_{-34}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$n_{\mathrm{s},0.002}$	$0.955^{+0.048}_{-0.047}$	$H(0.61)$	$95.4^{+1.0}_{-1.0}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.070^{+0.091}_{-0.090}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00055}_{-0.00053}$	$D_{\mathrm{M}}(0.61)$	$2298^{+40}_{-37}$
$n_{\mathrm{s}}$	$0.955^{+0.048}_{-0.047}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00055}_{-0.00053}$	$H(2.33)$	$234.9^{+3.4}_{-3.3}$
$H_0$	$68.0^{+1.6}_{-1.7}$	$10^5D/H$	$2.62^{+0.25}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5765^{+56}_{-57}$
$\Omega_{\Lambda}$	$0.696^{+0.022}_{-0.023}$	Age/Gyr	$13.80^{+0.13}_{-0.14}$	$f\sigma_8(0.15)$	$0.452^{+0.025}_{-0.025}$
$\Omega_{\mathrm{m}}$	$0.304^{+0.023}_{-0.022}$	$z_*$	$1089.9^{+1.7}_{-1.5}$	$\sigma_8(0.15)$	$0.751^{+0.039}_{-0.036}$
$\Omega_{\mathrm{m}}h^2$	$0.1406^{+0.0047}_{-0.0046}$	$r_*$	$145.1^{+1.6}_{-1.6}$	$f\sigma_8(0.38)$	$0.473^{+0.025}_{-0.024}$
$\Omega_{\mathrm{m}}h^3$	$0.0956^{+0.0028}_{-0.0026}$	$100\theta_*$	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	$0.666^{+0.035}_{-0.033}$
$\sigma_8$	$0.811^{+0.041}_{-0.039}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	$0.472^{+0.024}_{-0.023}$
$S_8$	$0.817^{+0.047}_{-0.047}$	$z_{\mathrm{drag}}$	$1059.4^{+3.0}_{-3.0}$	$\sigma_8(0.51)$	$0.624^{+0.033}_{-0.031}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.026}_{-0.026}$	$r_{\mathrm{drag}}$	$147.9^{+2.0}_{-2.0}$	$f\sigma_8(0.61)$	$0.468^{+0.024}_{-0.023}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.031}_{-0.030}$	$k_{\mathrm{D}}$	$0.1399^{+0.0030}_{-0.0029}$	$\sigma_8(0.61)$	$0.594^{+0.031}_{-0.030}$
$\sigma_8/h^{0.5}$	$0.984^{+0.051}_{-0.048}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0019}_{-0.0018}$	$f\sigma_8(2.33)$	$0.300^{+0.016}_{-0.015}$
$r_{\mathrm{drag}}h$	$100.6^{+3.0}_{-3.0}$	$z_{\mathrm{eq}}$	$3345^{+110}_{-110}$	$\sigma_8(2.33)$	$0.309^{+0.018}_{-0.016}$
$\langle d^2 \rangle^{1/2}$	$2.48^{+0.10}_{-0.099}$	$k_{\mathrm{eq}}$	$0.01021^{+0.00035}_{-0.00034}$	$\chi^2_{\mathrm{lensing}}$	$9.3 (\nu: 1.2)$
$z_{\mathrm{re}}$	$7.75^{+0.29}_{-0.27}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.019}_{-0.019}$	$\chi^2_{6\mathrm{DF}}$	$0.055 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	$2.15^{+0.20}_{-0.19}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.010}_{-0.010}$	$\chi^2_{\mathrm{MGS}}$	$1.85 (\nu: 0.2)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.93^{+0.18}_{-0.17}$	$H(0.15)$	$73.2^{+1.4}_{-1.5}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3 (\nu: 0.9)$
$D_{40}$	$1297^{+200}_{-100}$	$D_{\mathrm{M}}(0.15)$	$638^{+15}_{-14}$	$\chi^2_{\mathrm{prior}}$	$2.9 (\nu: 2.7)$
$D_{220}$	$5978^{+590}_{-550}$	$H(0.38)$	$83.2^{+1.2}_{-1.2}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 1.0)$
$D_{810}$	$2600^{+270}_{-250}$	$D_{\mathrm{M}}(0.38)$	$1523^{+30}_{-28}$		

$\bar{\chi}^2_{\mathrm{eff}} = 18.40; R - 1 = 0.00218$



## 2.200 base\_lensing\_lenspriors\_BAO\_theta\_post\_agr2takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{1420}$	$811^{+90}_{-90}$	$H(0.51)$	$89.8^{+1.1}_{-1.0}$
$\Omega_{\mathrm{c}}h^2$	$0.1175^{+0.0044}_{-0.0041}$	$D_{2000}$	$227^{+30}_{-30}$	$D_{\mathrm{M}}(0.51)$	$1973^{+36}_{-33}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0016}$	$n_{\mathrm{s},0.002}$	$0.948^{+0.047}_{-0.046}$	$H(0.61)$	$95.4^{+1.1}_{-0.97}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.051^{+0.086}_{-0.083}$	$Y_{\mathrm{P}}$	$0.24533^{+0.00055}_{-0.00052}$	$D_{\mathrm{M}}(0.61)$	$2297^{+39}_{-37}$
$n_{\mathrm{s}}$	$0.948^{+0.047}_{-0.046}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00055}_{-0.00052}$	$H(2.33)$	$234.8^{+3.4}_{-3.2}$
$H_0$	$68.1^{+1.6}_{-1.7}$	$10^5 D/H$	$2.61^{+0.24}_{-0.23}$	$D_{\mathrm{M}}(2.33)$	$5764^{+55}_{-58}$
$\Omega_{\Lambda}$	$0.697^{+0.021}_{-0.023}$	Age/Gyr	$13.80^{+0.13}_{-0.14}$	$f\sigma_8(0.15)$	$0.446^{+0.023}_{-0.022}$
$\Omega_{\mathrm{m}}$	$0.303^{+0.023}_{-0.021}$	$z_*$	$1089.9^{+1.6}_{-1.5}$	$\sigma_8(0.15)$	$0.741^{+0.035}_{-0.036}$
$\Omega_{\mathrm{m}}h^2$	$0.1404^{+0.0048}_{-0.0046}$	$r_*$	$145.2^{+1.5}_{-1.6}$	$f\sigma_8(0.38)$	$0.466^{+0.022}_{-0.022}$
$\Omega_{\mathrm{m}}h^3$	$0.0956^{+0.0028}_{-0.0026}$	$100\theta_*$	$1.0411^{+0.0015}_{-0.0016}$	$\sigma_8(0.38)$	$0.658^{+0.032}_{-0.033}$
$\sigma_8$	$0.801^{+0.037}_{-0.037}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.95^{+0.15}_{-0.16}$	$f\sigma_8(0.51)$	$0.466^{+0.022}_{-0.022}$
$S_8$	$0.805^{+0.044}_{-0.041}$	$z_{\mathrm{drag}}$	$1059.4^{+3.1}_{-2.9}$	$\sigma_8(0.51)$	$0.616^{+0.030}_{-0.031}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.441^{+0.024}_{-0.023}$	$r_{\mathrm{drag}}$	$147.9^{+1.9}_{-2.0}$	$f\sigma_8(0.61)$	$0.461^{+0.021}_{-0.021}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.594^{+0.028}_{-0.028}$	$k_{\mathrm{D}}$	$0.1399^{+0.0030}_{-0.0028}$	$\sigma_8(0.61)$	$0.586^{+0.029}_{-0.030}$
$\sigma_8/h^{0.5}$	$0.971^{+0.045}_{-0.045}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0018}_{-0.0018}$	$f\sigma_8(2.33)$	$0.296^{+0.015}_{-0.015}$
$r_{\mathrm{drag}}h$	$100.7^{+3.0}_{-2.9}$	$z_{\mathrm{eq}}$	$3340^{+110}_{-110}$	$\sigma_8(2.33)$	$0.306^{+0.016}_{-0.015}$
$\langle d^2 \rangle^{1/2}$	$2.46^{+0.10}_{-0.095}$	$k_{\mathrm{eq}}$	$0.01019^{+0.00035}_{-0.00033}$	$\chi^2_{\mathrm{lensing}}$	$12.8 (\nu: 1.7)$
$z_{\mathrm{re}}$	$7.74^{+0.29}_{-0.28}$	$100\theta_{\mathrm{eq}}$	$0.824^{+0.019}_{-0.019}$	$\chi^2_{6\mathrm{DF}}$	$0.057 (\nu: 0.0)$
$10^9 A_{\mathrm{s}}$	$2.11^{+0.19}_{-0.17}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.010}_{-0.010}$	$\chi^2_{\mathrm{MGS}}$	$1.95 (\nu: 0.3)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.89^{+0.17}_{-0.15}$	$H(0.15)$	$73.3^{+1.4}_{-1.5}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.2 (\nu: 0.8)$
$D_{40}$	$1291^{+100}_{-100}$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-13}$	$\chi^2_{\mathrm{prior}}$	$3.1 (\nu: 3.0)$
$D_{220}$	$5911^{+580}_{-530}$	$H(0.38)$	$83.2^{+1.2}_{-1.2}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 1.1)$
$D_{810}$	$2548^{+250}_{-230}$	$D_{\mathrm{M}}(0.38)$	$1522^{+30}_{-28}$		

$\bar{\chi}^2_{\mathrm{eff}} = 22.09; R - 1 = 0.00237$



## 2.201 base\_lensing\_lenspriors\_BAO\_theta\_post\_Apr6

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{1420}$	$830^{+100}_{-90}$	$H(0.51)$	$89.8^{+1.1}_{-1.1}$
$\Omega_c h^2$	$0.1178^{+0.0045}_{-0.0042}$	$D_{2000}$	$233^{+30}_{-30}$	$D_M(0.51)$	$1975^{+36}_{-34}$
$100\theta_{MC}$	$1.0409^{+0.0015}_{-0.0015}$	$n_{s,0.002}$	$0.956^{+0.048}_{-0.047}$	$H(0.61)$	$95.3^{+1.0}_{-1.0}$
$\ln(10^{10} A_s)$	$3.068^{+0.090}_{-0.089}$	$Y_P$	$0.24532^{+0.00055}_{-0.00053}$	$D_M(0.61)$	$2299^{+40}_{-37}$
$n_s$	$0.956^{+0.048}_{-0.047}$	$Y_P^{BBN}$	$0.24664^{+0.00056}_{-0.00053}$	$H(2.33)$	$234.9^{+3.4}_{-3.3}$
$H_0$	$68.0^{+1.6}_{-1.7}$	$10^5 D/H$	$2.62^{+0.25}_{-0.23}$	$D_M(2.33)$	$5765^{+57}_{-58}$
$\Omega_\Lambda$	$0.696^{+0.022}_{-0.023}$	Age/Gyr	$13.80^{+0.13}_{-0.14}$	$f\sigma_8(0.15)$	$0.453^{+0.024}_{-0.025}$
$\Omega_m$	$0.304^{+0.023}_{-0.022}$	$z_*$	$1089.9^{+1.7}_{-1.5}$	$\sigma_8(0.15)$	$0.751^{+0.037}_{-0.035}$
$\Omega_m h^2$	$0.1407^{+0.0048}_{-0.0046}$	$r_*$	$145.1^{+1.6}_{-1.6}$	$f\sigma_8(0.38)$	$0.473^{+0.024}_{-0.023}$
$\Omega_m h^3$	$0.0956^{+0.0028}_{-0.0026}$	$100\theta_*$	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	$0.666^{+0.034}_{-0.032}$
$\sigma_8$	$0.812^{+0.040}_{-0.038}$	$D_M(z_*)/\text{Gpc}$	$13.94^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	$0.472^{+0.023}_{-0.022}$
$S_8$	$0.817^{+0.045}_{-0.046}$	$z_{\text{drag}}$	$1059.4^{+3.1}_{-3.0}$	$\sigma_8(0.51)$	$0.624^{+0.032}_{-0.031}$
$\sigma_8 \Omega_m^{0.5}$	$0.448^{+0.025}_{-0.025}$	$r_{\text{drag}}$	$147.9^{+2.0}_{-2.0}$	$f\sigma_8(0.61)$	$0.468^{+0.023}_{-0.022}$
$\sigma_8 \Omega_m^{0.25}$	$0.603^{+0.030}_{-0.029}$	$k_D$	$0.1399^{+0.0030}_{-0.0029}$	$\sigma_8(0.61)$	$0.594^{+0.031}_{-0.029}$
$\sigma_8/h^{0.5}$	$0.984^{+0.049}_{-0.046}$	$100\theta_D$	$0.1611^{+0.0019}_{-0.0018}$	$f\sigma_8(2.33)$	$0.300^{+0.016}_{-0.015}$
$r_{\text{drag}} h$	$100.5^{+3.0}_{-3.0}$	$z_{\text{eq}}$	$3346^{+110}_{-110}$	$\sigma_8(2.33)$	$0.309^{+0.017}_{-0.016}$
$\langle d^2 \rangle^{1/2}$	$2.47^{+0.10}_{-0.099}$	$k_{\text{eq}}$	$0.01021^{+0.00035}_{-0.00034}$	$\chi^2_{\text{lensing}}$	$7.9 (\nu: 1.1)$
$z_{\text{re}}$	$7.75^{+0.29}_{-0.27}$	$100\theta_{\text{eq}}$	$0.823^{+0.019}_{-0.019}$	$\chi^2_{6\text{DF}}$	$0.055 (\nu: 0.0)$
$10^9 A_s$	$2.15^{+0.20}_{-0.18}$	$100\theta_{s,\text{eq}}$	$0.455^{+0.010}_{-0.010}$	$\chi^2_{\text{MGS}}$	$1.82 (\nu: 0.2)$
$10^9 A_s e^{-2\tau}$	$1.93^{+0.18}_{-0.16}$	$H(0.15)$	$73.2^{+1.4}_{-1.5}$	$\chi^2_{\text{DR12BAO}}$	$4.3 (\nu: 0.9)$
$D_{40}$	$1291^{+200}_{-100}$	$D_M(0.15)$	$638^{+15}_{-14}$	$\chi^2_{\text{prior}}$	$2.9 (\nu: 2.7)$
$D_{220}$	$5961^{+590}_{-540}$	$H(0.38)$	$83.2^{+1.2}_{-1.2}$	$\chi^2_{\text{BAO}}$	$6.2 (\nu: 1.0)$
$D_{810}$	$2598^{+270}_{-250}$	$D_M(0.38)$	$1524^{+30}_{-28}$		

$\bar{\chi}^2_{\text{eff}} = 16.94; R - 1 = 0.00237$



## 2.202 base\_lensing\_lenspriors\_pttagr2

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	3632	$3282^{+2000}_{-1000}$	$H(0.38)$	109.4	$84^{+30}_{-30}$
$\Omega_c h^2$	0.0991	$0.094^{+0.026}_{-0.021}$	$D_{1420}$	1013	$1046^{+500}_{-400}$	$D_M(0.38)$	1094	$1556^{+800}_{-500}$
$100\theta_{MC}$	1.107	$1.02^{+0.10}_{-0.12}$	$D_{2000}$	287	$344^{+200}_{-100}$	$H(0.51)$	113.8	$89^{+30}_{-30}$
$\ln(10^{10} A_s)$	3.465	$3.34^{+0.33}_{-0.36}$	$n_{s,0.002}$	0.959	$0.959^{+0.051}_{-0.051}$	$D_M(0.51)$	1444	$2019^{+1000}_{-600}$
$n_s$	0.959	$0.959^{+0.051}_{-0.051}$	$Y_P$	0.24532	$0.24531^{+0.00055}_{-0.00056}$	$H(0.61)$	117.7	$94^{+20}_{-20}$
$H_0$	99.9	—	$Y_P^{BBN}$	0.24665	$0.24664^{+0.00055}_{-0.00056}$	$D_M(0.61)$	1703	$2353^{+1000}_{-700}$
$\Omega_\Lambda$	0.878	$0.72^{+0.18}_{-0.41}$	$10^5 D/H$	2.621	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	232.0	$217^{+30}_{-30}$
$\Omega_m$	0.122	$0.28^{+0.41}_{-0.18}$	Age/Gyr	11.92	$14.5^{+4.1}_{-2.9}$	$D_M(2.33)$	4894	$6028^{+2000}_{-1000}$
$\Omega_m h^2$	0.1219	$0.117^{+0.026}_{-0.021}$	$z_*$	1088.25	$1087.7^{+2.7}_{-2.5}$	$f\sigma_8(0.15)$	0.333	$0.399^{+0.093}_{-0.089}$
$\Omega_m h^3$	0.1218	$0.084^{+0.049}_{-0.045}$	$r_*$	150.4	$151.9^{+7.2}_{-7.3}$	$\sigma_8(0.15)$	0.881	$0.74^{+0.16}_{-0.20}$
$\sigma_8$	0.924	$0.80^{+0.15}_{-0.19}$	$100\theta_*$	1.107	$1.02^{+0.10}_{-0.12}$	$f\sigma_8(0.38)$	0.393	$0.426^{+0.043}_{-0.059}$
$S_8$	0.589	$0.72^{+0.24}_{-0.17}$	$D_M(z_*)/\text{Gpc}$	13.58	$15.0^{+2.6}_{-2.0}$	$\sigma_8(0.38)$	0.815	$0.67^{+0.17}_{-0.20}$
$\sigma_8 \Omega_m^{0.5}$	0.323	$0.396^{+0.13}_{-0.095}$	$z_{\text{drag}}$	1057.95	$1057.6^{+3.5}_{-3.7}$	$f\sigma_8(0.51)$	0.4177	$0.431^{+0.039}_{-0.044}$
$\sigma_8 \Omega_m^{0.25}$	0.5460	$0.557^{+0.043}_{-0.050}$	$r_{\text{drag}}$	153.2	$154.9^{+7.5}_{-7.6}$	$\sigma_8(0.51)$	0.778	$0.63^{+0.17}_{-0.20}$
$\sigma_8/h^{0.5}$	0.924	$0.954^{+0.056}_{-0.070}$	$k_D$	0.1345	$0.1329^{+0.0079}_{-0.0073}$	$f\sigma_8(0.61)$	0.4326	$0.432^{+0.041}_{-0.055}$
$r_{\text{drag}} h$	153.0	$110^{+40}_{-50}$	$100\theta_D$	0.1720	$0.158^{+0.016}_{-0.018}$	$\sigma_8(0.61)$	0.751	$0.60^{+0.17}_{-0.20}$
$\langle d^2 \rangle^{1/2}$	2.597	$2.61^{+0.17}_{-0.16}$	$z_{\text{eq}}$	2898	$2778^{+600}_{-500}$	$f\sigma_8(2.33)$	0.392	$0.307^{+0.094}_{-0.11}$
$z_{\text{re}}$	7.60	$7.31^{+0.65}_{-0.66}$	$k_{\text{eq}}$	0.00884	$0.0085^{+0.0019}_{-0.0016}$	$\sigma_8(2.33)$	0.432	$0.32^{+0.12}_{-0.13}$
$10^9 A_s$	3.20	$2.84^{+1.1}_{-0.87}$	$100\theta_{\text{eq}}$	0.975	$0.93^{+0.13}_{-0.12}$	$\chi^2_{\text{lensing}}$	15.57	$18.0 (\nu: 2.0)$
$10^9 A_s e^{-2\tau}$	2.87	$2.55^{+0.95}_{-0.78}$	$100\theta_{s,\text{eq}}$	0.535	$0.509^{+0.067}_{-0.065}$	$\chi^2_{\text{prior}}$	0.00	$2.0 (\nu: 2.0)$
$D_{40}$	2108	$1794^{+800}_{-600}$	$H(0.15)$	103.0	$75^{+30}_{-30}$			
$D_{220}$	9493	$8741^{+4000}_{-3000}$	$D_M(0.15)$	444	$651^{+400}_{-200}$			

Best-fit  $\chi^2_{\text{eff}} = 15.57$ ;  $\bar{\chi}^2_{\text{eff}} = 20.05$ ;  $R - 1 = 0.00735$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpttptt\_p\_teb\_agr2\_CMBmargd: 15.57



## 2.203 base\_lensing\_lenspriors\_pttagr2\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	3672	$3627^{+1000}_{-1000}$	$H(0.38)$	89.1	$88.9^{+6.5}_{-6.0}$
$\Omega_c h^2$	0.0943	$0.096^{+0.023}_{-0.018}$	$D_{1420}$	1150	$1137^{+400}_{-400}$	$D_M(0.38)$	1376	$1384^{+150}_{-120}$
$100\theta_{MC}$	1.04090	$1.0409^{+0.0015}_{-0.0016}$	$D_{2000}$	320	$317^{+100}_{-100}$	$H(0.51)$	94.3	$94.2^{+5.4}_{-4.6}$
$\ln(10^{10} A_s)$	3.389	$3.37^{+0.31}_{-0.34}$	$n_{s,0.002}$	0.960	$0.959^{+0.052}_{-0.050}$	$D_M(0.51)$	1801	$1811^{+170}_{-150}$
$n_s$	0.960	$0.959^{+0.052}_{-0.050}$	$Y_P$	0.24532	$0.24532^{+0.00054}_{-0.00059}$	$H(0.61)$	98.76	$98.7^{+4.6}_{-3.6}$
$H_0$	77.7	$77^{+9}_{-10}$	$Y_P^{BBN}$	0.24665	$0.24665^{+0.00054}_{-0.00059}$	$D_M(0.61)$	2112	$2122^{+190}_{-170}$
$\Omega_\Lambda$	0.806	$0.798^{+0.066}_{-0.11}$	$10^5 D/H$	2.618	$2.62^{+0.27}_{-0.23}$	$H(2.33)$	219.5	$220^{+15}_{-11}$
$\Omega_m$	0.194	$0.202^{+0.11}_{-0.066}$	Age/Gyr	13.645	$13.65^{+0.21}_{-0.23}$	$D_M(2.33)$	5668	$5670^{+110}_{-140}$
$\Omega_m h^2$	0.1171	$0.119^{+0.024}_{-0.018}$	$z_*$	1087.78	$1087.9^{+2.6}_{-2.2}$	$f\sigma_8(0.15)$	0.380	$0.383^{+0.068}_{-0.064}$
$\Omega_m h^3$	0.0910	$0.0913^{+0.0051}_{-0.0049}$	$r_*$	151.8	$151.4^{+5.9}_{-6.7}$	$\sigma_8(0.15)$	0.788	$0.784^{+0.053}_{-0.056}$
$\sigma_8$	0.837	$0.834^{+0.051}_{-0.051}$	$100\theta_*$	1.04114	$1.0411^{+0.0015}_{-0.0016}$	$f\sigma_8(0.38)$	0.424	$0.425^{+0.047}_{-0.054}$
$S_8$	0.674	$0.68^{+0.13}_{-0.12}$	$D_M(z_*)/\text{Gpc}$	14.58	$14.54^{+0.56}_{-0.64}$	$\sigma_8(0.38)$	0.714	$0.710^{+0.054}_{-0.063}$
$\sigma_8 \Omega_m^{0.5}$	0.369	$0.373^{+0.072}_{-0.063}$	$z_{\text{drag}}$	1057.61	$1057.7^{+3.4}_{-3.7}$	$f\sigma_8(0.51)$	0.4377	$0.438^{+0.037}_{-0.047}$
$\sigma_8 \Omega_m^{0.25}$	0.5559	$0.557^{+0.047}_{-0.051}$	$r_{\text{drag}}$	154.7	$154.3^{+6.3}_{-6.9}$	$\sigma_8(0.51)$	0.676	$0.671^{+0.056}_{-0.064}$
$\sigma_8/h^{0.5}$	0.950	$0.950^{+0.056}_{-0.061}$	$k_D$	0.1330	$0.1335^{+0.0072}_{-0.0064}$	$f\sigma_8(0.61)$	0.4436	$0.443^{+0.031}_{-0.040}$
$r_{\text{drag}} h$	120.1	$119^{+20}_{-20}$	$100\theta_D$	0.16199	$0.1619^{+0.0021}_{-0.0020}$	$\sigma_8(0.61)$	0.648	$0.643^{+0.056}_{-0.066}$
$\langle d^2 \rangle^{1/2}$	2.607	$2.60^{+0.15}_{-0.16}$	$z_{\text{eq}}$	2784	$2819^{+600}_{-400}$	$f\sigma_8(2.33)$	0.3330	$0.330^{+0.033}_{-0.039}$
$z_{\text{re}}$	7.362	$7.38^{+0.46}_{-0.39}$	$k_{\text{eq}}$	0.00850	$0.0086^{+0.0017}_{-0.0013}$	$\sigma_8(2.33)$	0.3524	$0.350^{+0.044}_{-0.049}$
$10^9 A_s$	2.96	$2.93^{+1.0}_{-0.86}$	$100\theta_{\text{eq}}$	0.946	$0.94^{+0.12}_{-0.12}$	$\chi^2_{\text{lensing}}$	15.8	$17.9 (\nu: 2.1)$
$10^9 A_s e^{-2\tau}$	2.65	$2.62^{+0.93}_{-0.77}$	$100\theta_{s,\text{eq}}$	0.518	$0.515^{+0.063}_{-0.064}$	$\chi^2_{\text{prior}}$	0.0	$3.0 (\nu: 3.0)$
$D_{40}$	1891	$1868^{+700}_{-600}$	$H(0.15)$	81.5	$81.1^{+8.2}_{-8.3}$			
$D_{220}$	9125	$9009^{+4000}_{-3000}$	$D_M(0.15)$	566	$570^{+70}_{-60}$			

Best-fit  $\chi^2_{\text{eff}} = 15.83$ ;  $\bar{\chi}^2_{\text{eff}} = 20.91$ ;  $R - 1 = 0.00715$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpttptt\_p\_teb\_agr2\_CMBmarged: 15.83



## 2.204 base\_lensing\_lenspriors\_pttagr2\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02219	$0.0222^{+0.0013}_{-0.0013}$	$D_{1420}$	973	$967^{+200}_{-200}$	$H(0.51)$	85.6	$85.9^{+5.3}_{-4.9}$
$\Omega_c h^2$	0.0976	$0.099^{+0.024}_{-0.020}$	$D_{2000}$	287	$290^{+100}_{-90}$	$D_M(0.51)$	2048	$2044^{+100}_{-100}$
$100\theta_{MC}$	1.0117	$1.013^{+0.034}_{-0.035}$	$n_{s,0.002}$	0.954	$0.954^{+0.052}_{-0.051}$	$H(0.61)$	90.6	$90.9^{+5.9}_{-5.4}$
$\ln(10^{10} A_s)$	3.266	$3.26^{+0.26}_{-0.25}$	$Y_P$	0.24532	$0.24532^{+0.00057}_{-0.00056}$	$D_M(0.61)$	2389	$2383^{+120}_{-120}$
$n_s$	0.954	$0.954^{+0.052}_{-0.051}$	$Y_P^{BBN}$	0.24665	$0.24664^{+0.00057}_{-0.00056}$	$H(2.33)$	218.4	$219^{+20}_{-18}$
$H_0$	66.26	$66.4^{+2.9}_{-2.8}$	$10^5 D/H$	2.620	$2.62^{+0.26}_{-0.24}$	$D_M(2.33)$	6085	$6069^{+400}_{-390}$
$\Omega_\Lambda$	0.7257	$0.725^{+0.033}_{-0.037}$	Age/Gyr	14.58	$14.54^{+0.98}_{-0.95}$	$f\sigma_8(0.15)$	0.4189	$0.419^{+0.039}_{-0.039}$
$\Omega_m$	0.2743	$0.275^{+0.037}_{-0.033}$	$z_*$	1088.10	$1088.2^{+2.6}_{-2.3}$	$\sigma_8(0.15)$	0.7302	$0.730^{+0.040}_{-0.041}$
$\Omega_m h^2$	0.1204	$0.122^{+0.024}_{-0.021}$	$r_*$	150.8	$150.5^{+6.7}_{-6.8}$	$f\sigma_8(0.38)$	0.4447	$0.445^{+0.034}_{-0.035}$
$\Omega_m h^3$	0.0798	$0.081^{+0.019}_{-0.016}$	$100\theta_*$	1.0120	$1.013^{+0.034}_{-0.035}$	$\sigma_8(0.38)$	0.6514	$0.651^{+0.036}_{-0.036}$
$\sigma_8$	0.7861	$0.786^{+0.044}_{-0.045}$	$D_M(z_*)/\text{Gpc}$	14.90	$14.9^{+1.2}_{-1.1}$	$f\sigma_8(0.51)$	0.4477	$0.448^{+0.032}_{-0.032}$
$S_8$	0.752	$0.753^{+0.075}_{-0.075}$	$z_{\text{drag}}$	1057.84	$1057.9^{+3.6}_{-3.7}$	$\sigma_8(0.51)$	0.6114	$0.611^{+0.033}_{-0.033}$
$\sigma_8 \Omega_m^{0.5}$	0.4117	$0.412^{+0.041}_{-0.041}$	$r_{\text{drag}}$	153.7	$153.4^{+7.0}_{-7.1}$	$f\sigma_8(0.61)$	0.4459	$0.446^{+0.030}_{-0.030}$
$\sigma_8 \Omega_m^{0.25}$	0.5689	$0.569^{+0.042}_{-0.042}$	$k_D$	0.1340	$0.1343^{+0.0075}_{-0.0072}$	$\sigma_8(0.61)$	0.5829	$0.583^{+0.032}_{-0.031}$
$\sigma_8/h^{0.5}$	0.9658	$0.965^{+0.048}_{-0.051}$	$100\theta_D$	0.15731	$0.1575^{+0.0048}_{-0.0045}$	$f\sigma_8(2.33)$	0.2956	$0.295^{+0.016}_{-0.016}$
$r_{\text{drag}} h$	101.82	$101.8^{+3.0}_{-2.9}$	$z_{\text{eq}}$	2862	$2889^{+600}_{-500}$	$\sigma_8(2.33)$	0.3065	$0.306^{+0.017}_{-0.017}$
$\langle d^2 \rangle^{1/2}$	2.585	$2.58^{+0.16}_{-0.17}$	$k_{\text{eq}}$	0.00873	$0.0088^{+0.0018}_{-0.0015}$	$\chi^2_{\text{lensing}}$	16.4	18.4 ( $\nu: 2.6$ )
$z_{\text{re}}$	7.36	$7.37^{+0.54}_{-0.48}$	$100\theta_{\text{eq}}$	0.900	$0.897^{+0.099}_{-0.090}$	$\chi^2_{6\text{DF}}$	0.051	0.11 ( $\nu: 0.0$ )
$10^9 A_s$	2.62	$2.61^{+0.77}_{-0.59}$	$100\theta_{s,\text{eq}}$	0.4937	$0.492^{+0.050}_{-0.046}$	$\chi^2_{\text{MGS}}$	2.35	2.43 ( $\nu: 0.3$ )
$10^9 A_s e^{-2\tau}$	2.35	$2.34^{+0.69}_{-0.53}$	$H(0.15)$	70.83	$71.0^{+3.4}_{-3.2}$	$\chi^2_{\text{DR12BAO}}$	5.16	6.0 ( $\nu: 1.5$ )
$D_{40}$	1640	$1633^{+500}_{-400}$	$D_M(0.15)$	657.1	$656^{+29}_{-29}$	$\chi^2_{\text{prior}}$	0.09	2.1 ( $\nu: 2.2$ )
$D_{220}$	7982	$7943^{+3000}_{-2000}$	$H(0.38)$	79.69	$79.9^{+4.6}_{-4.2}$	$\chi^2_{\text{BAO}}$	7.56	8.6 ( $\nu: 1.7$ )
$D_{810}$	3143	$3114^{+700}_{-700}$	$D_M(0.38)$	1576	$1573^{+75}_{-75}$			

Best-fit  $\chi^2_{\text{eff}} = 24.05$ ;  $\bar{\chi}^2_{\text{eff}} = 29.10$ ;  $R - 1 = 0.00706$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.05 MGS: 2.35 DR12BAO: 5.16 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpttptt\_p\_teb\_agr2\_CMBmarged: 16.40



## 2.205 base\_lensing\_lenspriors\_pttagr2\_BAO\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02225	$0.0223^{+0.0013}_{-0.0013}$	$D_{1420}$	812	$812^{+100}_{-90}$	$H(0.51)$	89.87	$89.9^{+1.1}_{-1.1}$
$\Omega_c h^2$	0.11724	$0.1173^{+0.0045}_{-0.0044}$	$D_{2000}$	226.8	$227^{+30}_{-30}$	$D_M(0.51)$	1970.9	$1970^{+36}_{-37}$
$100\theta_{MC}$	1.04081	$1.0409^{+0.0015}_{-0.0015}$	$n_{s,0.002}$	0.9377	$0.938^{+0.046}_{-0.047}$	$H(0.61)$	95.40	$95.4^{+1.0}_{-1.0}$
$\ln(10^{10} A_s)$	3.062	$3.061^{+0.099}_{-0.097}$	$Y_P$	0.24535	$0.24535^{+0.00054}_{-0.00056}$	$D_M(0.61)$	2294.8	$2294^{+39}_{-40}$
$n_s$	0.9377	$0.938^{+0.046}_{-0.047}$	$Y_P^{BBN}$	0.24667	$0.24667^{+0.00054}_{-0.00056}$	$H(2.33)$	234.61	$234.6^{+3.4}_{-3.4}$
$H_0$	68.20	$68.2^{+1.8}_{-1.7}$	$10^5 D/H$	2.608	$2.61^{+0.26}_{-0.23}$	$D_M(2.33)$	5763	$5761^{+59}_{-57}$
$\Omega_\Lambda$	0.6987	$0.699^{+0.022}_{-0.023}$	Age/Gyr	13.801	$13.80^{+0.14}_{-0.13}$	$f\sigma_8(0.15)$	0.4450	$0.445^{+0.024}_{-0.025}$
$\Omega_m$	0.3013	$0.301^{+0.023}_{-0.022}$	$z_*$	1089.83	$1089.8^{+1.8}_{-1.5}$	$\sigma_8(0.15)$	0.7411	$0.741^{+0.038}_{-0.037}$
$\Omega_m h^2$	0.14014	$0.1402^{+0.0049}_{-0.0047}$	$r_*$	145.24	$145.2^{+1.6}_{-1.6}$	$f\sigma_8(0.38)$	0.4654	$0.465^{+0.023}_{-0.024}$
$\Omega_m h^3$	0.09557	$0.0957^{+0.0028}_{-0.0027}$	$100\theta_*$	1.04101	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8(0.38)$	0.6581	$0.658^{+0.034}_{-0.033}$
$\sigma_8$	0.8010	$0.801^{+0.040}_{-0.039}$	$D_M(z_*)/\text{Gpc}$	13.952	$13.95^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	0.4652	$0.465^{+0.022}_{-0.023}$
$S_8$	0.8027	$0.802^{+0.046}_{-0.046}$	$z_{\text{drag}}$	1059.47	$1059.5^{+3.0}_{-3.1}$	$\sigma_8(0.51)$	0.6163	$0.616^{+0.033}_{-0.031}$
$\sigma_8 \Omega_m^{0.5}$	0.4396	$0.439^{+0.025}_{-0.025}$	$r_{\text{drag}}$	147.96	$147.9^{+2.0}_{-2.0}$	$f\sigma_8(0.61)$	0.4611	$0.461^{+0.022}_{-0.022}$
$\sigma_8 \Omega_m^{0.25}$	0.5934	$0.593^{+0.029}_{-0.030}$	$k_D$	0.13987	$0.1399^{+0.0029}_{-0.0029}$	$\sigma_8(0.61)$	0.5867	$0.587^{+0.032}_{-0.030}$
$\sigma_8/h^{0.5}$	0.9699	$0.969^{+0.047}_{-0.048}$	$100\theta_D$	0.16099	$0.1610^{+0.0020}_{-0.0017}$	$f\sigma_8(2.33)$	0.2962	$0.296^{+0.016}_{-0.016}$
$r_{\text{drag}} h$	100.91	$101.0^{+3.0}_{-3.0}$	$z_{\text{eq}}$	3333	$3334^{+120}_{-110}$	$\sigma_8(2.33)$	0.3059	$0.306^{+0.017}_{-0.016}$
$\langle d^2 \rangle^{1/2}$	2.496	$2.50^{+0.12}_{-0.12}$	$k_{\text{eq}}$	0.010174	$0.01018^{+0.00035}_{-0.00034}$	$\chi^2_{\text{lensing}}$	21.7	23 ( $\nu$ : 3.4)
$z_{\text{re}}$	7.732	$7.73^{+0.32}_{-0.28}$	$100\theta_{\text{eq}}$	0.8254	$0.825^{+0.020}_{-0.019}$	$\chi^2_{6\text{DF}}$	0.008	0.066 ( $\nu$ : 0.0)
$10^9 A_s$	2.136	$2.14^{+0.22}_{-0.20}$	$100\theta_{s,\text{eq}}$	0.4558	$0.456^{+0.011}_{-0.010}$	$\chi^2_{\text{MGS}}$	1.97	2.07 ( $\nu$ : 0.3)
$10^9 A_s e^{-2\tau}$	1.914	$1.91^{+0.20}_{-0.18}$	$H(0.15)$	73.36	$73.4^{+1.6}_{-1.5}$	$\chi^2_{\text{DR12BAO}}$	3.37	4.3 ( $\nu$ : 0.8)
$D_{40}$	1335	$1335^{+200}_{-200}$	$D_M(0.15)$	636.4	$636^{+14}_{-15}$	$\chi^2_{\text{prior}}$	1.3	4.1 ( $\nu$ : 4.9)
$D_{220}$	6040	$6041^{+700}_{-600}$	$H(0.38)$	83.27	$83.3^{+1.3}_{-1.2}$	$\chi^2_{\text{BAO}}$	5.34	6.4 ( $\nu$ : 1.4)
$D_{810}$	2567	$2567^{+300}_{-300}$	$D_M(0.38)$	1520.2	$1519^{+30}_{-31}$			

Best-fit  $\chi^2_{\text{eff}} = 28.33$ ;  $\bar{\chi}^2_{\text{eff}} = 33.48$ ;  $R - 1 = 0.01261$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.01 MGS: 1.97 DR12BAO: 3.37 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpttptt\_p\_teb\_agr2\_CMBmarged: 21.72

## 2.206 base\_lensing\_DESpriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_m$	0.259	$0.28^{+0.14}_{-0.11}$	$\Omega_b h^2$	0.0276	$0.026^{+0.025}_{-0.017}$	$S_8$	0.779	$0.78^{+0.12}_{-0.13}$
$\Omega_b$	0.0541	—	$\Omega_c h^2$	0.104	$0.112^{+0.061}_{-0.045}$	$\sigma_8 \Omega_m^{0.5}$	0.427	$0.427^{+0.065}_{-0.072}$
$H_0$	71.5	—	$\Omega_\Lambda$	0.741	$0.72^{+0.11}_{-0.14}$	$\sigma_8 \Omega_m^{0.25}$	0.598	$0.591^{+0.051}_{-0.051}$
$10^9 A_s$	2.73	$2.47^{+1.2}_{-0.93}$	$\ln(10^{10} A_s)$	3.308	$3.19^{+0.42}_{-0.42}$	$\chi^2_{\text{lensing}}$	7.4	9.6 ( $\nu$ : 2.1)
$n_s$	1.037	—	$\sigma_8$	0.839	$0.82^{+0.12}_{-0.10}$			

Best-fit  $\chi^2_{\text{eff}} = 7.38$ ;  $\bar{\chi}^2_{\text{eff}} = 9.64$ ;  $R - 1 = 0.01504$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.38

## 2.207 base\_lensing\_DESpriors\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_m$	0.336	$0.302^{+0.066}_{-0.053}$	$\Omega_c h^2$	0.120	$0.122^{+0.068}_{-0.048}$	$\sigma_8 \Omega_m^{0.25}$	0.591	$0.598^{+0.051}_{-0.050}$
$\Omega_b$	0.0373	—	$\Omega_\Lambda$	0.664	$0.698^{+0.053}_{-0.066}$	$\chi^2_{\text{lensing}}$	8.2	9.9 ( $\nu$ : 2.3)
$H_0$	63.6	—	$\ln(10^{10} A_s)$	2.925	$3.07^{+0.46}_{-0.35}$	$\chi^2_{6\text{DF}}$	0.047	0.08 ( $\nu$ : 0.0)
$10^9 A_s$	1.86	$2.18^{+1.1}_{-0.71}$	$\sigma_8$	0.776	$0.808^{+0.070}_{-0.060}$	$\chi^2_{\text{MGS}}$	1.16	1.87 ( $\nu$ : 0.3)
$n_s$	0.870	—	$S_8$	0.822	$0.810^{+0.094}_{-0.087}$	$\chi^2_{\text{DR12BAO}}$	2.43	4.7 ( $\nu$ : 1.5)
$\Omega_b h^2$	0.0151	$0.025^{+0.028}_{-0.016}$	$\sigma_8 \Omega_m^{0.5}$	0.4502	$0.443^{+0.052}_{-0.048}$	$\chi^2_{\text{BAO}}$	3.6	6.6 ( $\nu$ : 2.0)

Best-fit  $\chi^2_{\text{eff}} = 11.80$ ;  $\bar{\chi}^2_{\text{eff}} = 16.52$ ;  $R - 1 = 0.00617$



$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.05 MGS: 1.16 DR12BAO: 2.43 CMB - smicadx12.Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 8.16

## 2.208 base\_lensing\_DESpriors\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.239	$0.30^{+0.18}_{-0.15}$	$\Omega_{\text{b}}h^2$	0.02224	$0.0222^{+0.0013}_{-0.0013}$	$S_8$	0.762	$0.80^{+0.14}_{-0.14}$
$\Omega_{\text{b}}$	0.0445	—	$\Omega_{\text{c}}h^2$	0.0966	$0.108^{+0.042}_{-0.030}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.417	$0.437^{+0.078}_{-0.076}$
$H_0$	70.7	$67^{+20}_{-10}$	$\Omega_{\Lambda}$	0.761	$0.70^{+0.15}_{-0.18}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.597	$0.593^{+0.052}_{-0.051}$
$10^9 A_{\text{s}}$	2.89	$2.46^{+1.1}_{-0.89}$	$\ln(10^{10} A_{\text{s}})$	3.364	$3.18^{+0.39}_{-0.44}$	$\chi^2_{\text{lensing}}$	7.4	$9.6 (\nu: 2.1)$
$n_{\text{s}}$	1.036	—	$\sigma_8$	0.854	$0.81^{+0.14}_{-0.11}$	$\chi^2_{\text{prior}}$	0.01	$1.0 (\nu: 1.1)$

Best-fit  $\chi^2_{\text{eff}} = 7.37$ ;  $\bar{\chi}^2_{\text{eff}} = 10.57$ ;  $R - 1 = 0.00800$

$\chi^2_{\text{eff}}$ : CMB - smicadx12.Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.36

## 2.209 base\_lensing\_DESpriors\_CookeDH\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.328	$0.306^{+0.055}_{-0.053}$	$\Omega_{\Lambda}$	0.672	$0.694^{+0.053}_{-0.055}$	$\chi^2_{6\text{DF}}$	0.028	$0.070 (\nu: 0.0)$
$\Omega_{\text{b}}$	0.0462	$0.0480^{+0.0055}_{-0.0050}$	$\ln(10^{10} A_{\text{s}})$	2.890	$3.06^{+0.40}_{-0.32}$	$\chi^2_{\text{MGS}}$	1.28	$1.79 (\nu: 0.3)$
$H_0$	69.24	$68.0^{+3.8}_{-3.5}$	$\sigma_8$	0.783	$0.807^{+0.064}_{-0.056}$	$\chi^2_{\text{DR12BAO}}$	2.67	$4.5 (\nu: 1.6)$
$10^9 A_{\text{s}}$	1.80	$2.17^{+1.0}_{-0.62}$	$S_8$	0.819	$0.813^{+0.091}_{-0.089}$	$\chi^2_{\text{prior}}$	0.01	$0.99 (\nu: 1.0)$
$n_{\text{s}}$	0.870	—	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4487	$0.446^{+0.050}_{-0.049}$	$\chi^2_{\text{BAO}}$	3.98	$6.4 (\nu: 1.9)$
$\Omega_{\text{b}}h^2$	0.02215	$0.0222^{+0.0013}_{-0.0013}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.593	$0.599^{+0.051}_{-0.050}$			
$\Omega_{\text{c}}h^2$	0.1345	$0.119^{+0.040}_{-0.034}$	$\chi^2_{\text{lensing}}$	8.0	$9.8 (\nu: 2.3)$			

Best-fit  $\chi^2_{\text{eff}} = 11.99$ ;  $\bar{\chi}^2_{\text{eff}} = 17.15$ ;  $R - 1 = 0.00446$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.03 MGS: 1.28 DR12BAO: 2.67 CMB - smicadx12.Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 8.00



## 2.210 base\_plikHM\_TT

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02256	$0.02242^{+0.00076}_{-0.00072}$	$\sigma_8 \Omega_m^{0.5}$	0.4799	$0.478^{+0.037}_{-0.037}$	$100\theta_{\text{eq}}$	0.8255	$0.821^{+0.030}_{-0.030}$
$\Omega_c h^2$	0.1172	$0.1182^{+0.0072}_{-0.0067}$	$\sigma_8 \Omega_m^{0.25}$	0.6495	$0.643^{+0.042}_{-0.046}$	$100\theta_{\text{s,eq}}$	0.4556	$0.454^{+0.015}_{-0.015}$
$100\theta_{\text{MC}}$	1.04130	$1.0411^{+0.0014}_{-0.0014}$	$\sigma_8/h^{0.5}$	1.061	$1.049^{+0.068}_{-0.075}$	$H(0.15)$	73.77	$73.3^{+2.8}_{-2.7}$
$\tau$	0.147	$0.127^{+0.086}_{-0.098}$	$r_{\text{drag}} h$	101.3	$100.5^{+5.6}_{-5.5}$	$D_{\text{M}}(0.15)$	632.6	$637^{+28}_{-26}$
$\ln(10^{10} A_s)$	3.222	$3.18^{+0.16}_{-0.19}$	$\langle d^2 \rangle^{1/2}$	2.618	$2.59^{+0.16}_{-0.18}$	$H(0.38)$	83.65	$83.3^{+2.1}_{-2.0}$
$n_s$	0.9756	$0.971^{+0.022}_{-0.021}$	$z_{\text{re}}$	15.4	$13.8^{+5.8}_{-8.8}$	$D_{\text{M}}(0.38)$	1512	$1521^{+56}_{-53}$
$A_{217}^{\text{CIB}}$	42.9	$46^{+20}_{-20}$	$10^9 A_s$	2.508	$2.42^{+0.42}_{-0.41}$	$H(0.51)$	90.23	$90.0^{+1.7}_{-1.5}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.999	—	$10^9 A_s e^{-2\tau}$	1.8692	$1.873^{+0.042}_{-0.041}$	$D_{\text{M}}(0.51)$	1961	$1971^{+65}_{-63}$
$A_{143}^{\text{tSZ}}$	6.81	$5.5^{+4.2}_{-4.8}$	$D_{40}$	1254.8	$1255^{+52}_{-46}$	$H(0.61)$	95.75	$95.5^{+1.4}_{-1.2}$
$A_{100}^{\text{PS}}$	240	$254^{+70}_{-70}$	$D_{220}$	5725	$5725^{+110}_{-100}$	$D_{\text{M}}(0.61)$	2283	$2295^{+70}_{-68}$
$A_{143}^{\text{PS}}$	49.8	$44^{+20}_{-20}$	$D_{810}$	2530.1	$2529^{+37}_{-36}$	$H(2.33)$	234.93	$235.4^{+4.2}_{-3.9}$
$A_{143 \times 217}^{\text{PS}}$	57.4	$42^{+20}_{-20}$	$D_{1420}$	816.4	$814^{+13}_{-13}$	$D_{\text{M}}(2.33)$	5744	$5754^{+56}_{-60}$
$A_{217}^{\text{PS}}$	123.1	$115^{+20}_{-30}$	$D_{2000}$	232.9	$231.5^{+5.5}_{-5.5}$	$f\sigma_8(0.15)$	0.4860	$0.483^{+0.036}_{-0.036}$
$A^{\text{kSZ}}$	0.0	—	$n_{\text{s},0.002}$	0.9756	$0.971^{+0.022}_{-0.021}$	$\sigma_8(0.15)$	0.814	$0.801^{+0.059}_{-0.064}$
$A_{100}^{\text{dustTT}}$	8.63	$8.7^{+4.7}_{-4.7}$	$Y_{\text{P}}$	0.245465	$0.24541^{+0.00033}_{-0.00033}$	$f\sigma_8(0.38)$	0.5092	$0.504^{+0.034}_{-0.036}$
$A_{143}^{\text{dustTT}}$	10.54	$10.5^{+4.7}_{-4.6}$	$Y_{\text{P}}^{\text{BBN}}$	0.246791	$0.24674^{+0.00033}_{-0.00033}$	$\sigma_8(0.38)$	0.723	$0.711^{+0.055}_{-0.059}$
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.0^{+8.4}_{-8.4}$	$10^5 \text{D}/\text{H}$	2.552	$2.58^{+0.14}_{-0.14}$	$f\sigma_8(0.51)$	0.5094	$0.504^{+0.033}_{-0.036}$
$A_{217}^{\text{dustTT}}$	95.9	$94^{+20}_{-20}$	Age/Gyr	13.755	$13.78^{+0.12}_{-0.13}$	$\sigma_8(0.51)$	0.677	$0.665^{+0.053}_{-0.057}$
$c_{100}$	0.99971	$0.9996^{+0.0016}_{-0.0016}$	$z_*$	1089.44	$1089.7^{+1.4}_{-1.4}$	$f\sigma_8(0.61)$	0.5052	$0.499^{+0.033}_{-0.036}$
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$	$r_*$	145.02	$144.9^{+1.5}_{-1.5}$	$\sigma_8(0.61)$	0.645	$0.633^{+0.051}_{-0.055}$
$y_{\text{cal}}$	1.0001	$1.0002^{+0.0064}_{-0.0064}$	$100\theta_*$	1.04147	$1.0413^{+0.0014}_{-0.0013}$	$f\sigma_8(2.33)$	0.3258	$0.320^{+0.027}_{-0.029}$
$H_0$	68.64	$68.1^{+3.2}_{-3.2}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.925	$13.91^{+0.13}_{-0.14}$	$\sigma_8(2.33)$	0.3365	$0.330^{+0.029}_{-0.031}$
$\Omega_{\Lambda}$	0.7020	$0.695^{+0.039}_{-0.046}$	$z_{\text{drag}}$	1060.16	$1059.9^{+1.5}_{-1.4}$	$f_{2000}^{143}$	25.7	$28^{+9}_{-9}$
$\Omega_{\text{m}}$	0.2980	$0.305^{+0.046}_{-0.039}$	$r_{\text{drag}}$	147.63	$147.5^{+1.4}_{-1.4}$	$f_{2000}^{143 \times 217}$	29.7	$31^{+7}_{-7}$
$\Omega_{\text{m}} h^2$	0.1404	$0.1412^{+0.0067}_{-0.0063}$	$k_{\text{D}}$	0.14044	$0.1404^{+0.0014}_{-0.0014}$	$f_{2000}^{217}$	104.3	$105.8^{+6.1}_{-5.9}$
$\Omega_{\text{m}} h^3$	0.09635	$0.0962^{+0.0013}_{-0.0012}$	$100\theta_{\text{D}}$	0.16065	$0.16080^{+0.00078}_{-0.00078}$	$\chi_{\text{plik}}^2$	752.7	$767.4 (\nu: 15.2)$
$\sigma_8$	0.879	$0.866^{+0.061}_{-0.067}$	$z_{\text{eq}}$	3339	$3360^{+160}_{-150}$	$\chi_{\text{prior}}^2$	0.98	$7.1 (\nu: 6.4)$
$S_8$	0.876	$0.872^{+0.068}_{-0.068}$	$k_{\text{eq}}$	0.010192	$0.01025^{+0.00049}_{-0.00046}$			

Best-fit  $\chi_{\text{eff}}^2 = 753.73$ ;  $\bar{\chi}_{\text{eff}}^2 = 774.46$ ;  $R - 1 = 0.00674$   
 $\chi_{\text{eff}}^2$ : CMB - plik\_rd12\_HM\_v22\_TT: 752.75



## 2.211 base\_plikHM\_TT\_lowl

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02250	$0.02238^{+0.00070}_{-0.00068}$	$\sigma_8 \Omega_m^{0.25}$	0.6370	$0.630^{+0.040}_{-0.043}$	$H(0.15)$	73.68	$73.3^{+2.6}_{-2.5}$
$\Omega_c h^2$	0.1173	$0.1181^{+0.0064}_{-0.0061}$	$\sigma_8/h^{0.5}$	1.041	$1.028^{+0.064}_{-0.069}$	$D_M(0.15)$	633.5	$637^{+25}_{-24}$
$100\theta_{MC}$	1.04124	$1.0411^{+0.0013}_{-0.0013}$	$r_{drag}h$	101.2	$100.6^{+5.1}_{-5.0}$	$H(0.38)$	83.57	$83.3^{+1.9}_{-1.8}$
$\tau$	0.126	$0.108^{+0.080}_{-0.085}$	$\langle d^2 \rangle^{1/2}$	2.564	$2.54^{+0.15}_{-0.17}$	$D_M(0.38)$	1514	$1521^{+50}_{-49}$
$\ln(10^{10} A_s)$	3.180	$3.15^{+0.15}_{-0.16}$	$z_{re}$	13.8	$12.3^{+5.7}_{-8.1}$	$H(0.51)$	90.16	$90.0^{+1.5}_{-1.4}$
$n_s$	0.9756	$0.971^{+0.020}_{-0.019}$	$10^9 A_s$	2.405	$2.33^{+0.37}_{-0.35}$	$D_M(0.51)$	1963	$1971^{+59}_{-58}$
$y_{cal}$	1.0001	$1.0003^{+0.0064}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	1.8693	$1.872^{+0.039}_{-0.038}$	$H(0.61)$	95.68	$95.5^{+1.3}_{-1.1}$
$A_{217}^{CIB}$	42.8	$46^{+20}_{-20}$	$D_{40}$	1238.9	$1240^{+42}_{-41}$	$D_M(0.61)$	2286	$2295^{+63}_{-63}$
$\xi^{tSZ \times CIB}$	0.99	—	$D_{220}$	5715	$5718^{+110}_{-110}$	$H(2.33)$	234.92	$235.3^{+3.8}_{-3.6}$
$A_{143}^{tSZ}$	6.86	$5.5^{+4.2}_{-4.9}$	$D_{810}$	2531.7	$2531^{+37}_{-36}$	$D_M(2.33)$	5748	$5755^{+52}_{-55}$
$A_{100}^{PS}$	240	$254^{+70}_{-70}$	$D_{1420}$	817.1	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	0.4770	$0.473^{+0.034}_{-0.036}$
$A_{143}^{PS}$	50.5	$44^{+20}_{-20}$	$D_{2000}$	232.6	$231.4^{+5.4}_{-5.4}$	$\sigma_8(0.15)$	0.797	$0.785^{+0.054}_{-0.057}$
$A_{143 \times 217}^{PS}$	58.0	$42^{+20}_{-20}$	$n_{s,0.002}$	0.9756	$0.971^{+0.020}_{-0.019}$	$f\sigma_8(0.38)$	0.4994	$0.494^{+0.032}_{-0.034}$
$A_{217}^{PS}$	123.8	$115^{+30}_{-30}$	$Y_P$	0.245443	$0.24540^{+0.00030}_{-0.00031}$	$\sigma_8(0.38)$	0.708	$0.697^{+0.050}_{-0.052}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246770	$0.24672^{+0.00030}_{-0.00031}$	$f\sigma_8(0.51)$	0.4995	$0.494^{+0.031}_{-0.034}$
$A_{100}^{dustTT}$	8.74	$8.8^{+4.7}_{-4.7}$	$10^5 D/H$	2.563	$2.58^{+0.13}_{-0.13}$	$\sigma_8(0.51)$	0.6634	$0.652^{+0.048}_{-0.049}$
$A_{143}^{dustTT}$	10.66	$10.5^{+4.6}_{-4.7}$	Age/Gyr	13.764	$13.78^{+0.12}_{-0.12}$	$f\sigma_8(0.61)$	0.4953	$0.489^{+0.031}_{-0.033}$
$A_{143 \times 217}^{dustTT}$	19.9	$18.1^{+8.4}_{-8.6}$	$z_*$	1089.53	$1089.7^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	0.6316	$0.621^{+0.046}_{-0.048}$
$A_{217}^{dustTT}$	96.2	$94^{+20}_{-20}$	$r_*$	145.04	$144.9^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	0.3190	$0.313^{+0.024}_{-0.025}$
$c_{100}$	0.99968	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04141	$1.0413^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	0.3295	$0.323^{+0.026}_{-0.026}$
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.927	$13.92^{+0.13}_{-0.13}$	$f_{2000}^{143}$	26.1	$28^{+9}_{-9}$
$H_0$	68.53	$68.1^{+3.0}_{-2.9}$	$z_{drag}$	1060.05	$1059.8^{+1.4}_{-1.3}$	$f_{2000}^{143 \times 217}$	30.1	$31^{+6}_{-6}$
$\Omega_\Lambda$	0.7010	$0.696^{+0.036}_{-0.041}$	$r_{drag}$	147.67	$147.6^{+1.3}_{-1.4}$	$f_{2000}^{217}$	104.7	$106.1^{+5.8}_{-5.7}$
$\Omega_m$	0.2990	$0.304^{+0.041}_{-0.036}$	$k_D$	0.14035	$0.1403^{+0.0014}_{-0.0014}$	$\chi_{lowl}^2$	24.89	25.0 ( $\nu$ : 1.5)
$\Omega_m h^2$	0.1404	$0.1411^{+0.0060}_{-0.0058}$	$100\theta_D$	0.16072	$0.16084^{+0.00077}_{-0.00074}$	$\chi_{plik}^2$	753.5	768.0 ( $\nu$ : 16.1)
$\Omega_m h^3$	0.09623	$0.0961^{+0.0012}_{-0.0012}$	$z_{eq}$	3340	$3356^{+140}_{-140}$	$\chi_{prior}^2$	1.1	7.2 ( $\nu$ : 6.5)
$\sigma_8$	0.861	$0.849^{+0.057}_{-0.060}$	$k_{eq}$	0.010195	$0.01024^{+0.00044}_{-0.00042}$	$\chi_{CMB}^2$	778.4	793.0 ( $\nu$ : 15.1)
$S_8$	0.860	$0.854^{+0.065}_{-0.067}$	$100\theta_{eq}$	0.8251	$0.822^{+0.028}_{-0.027}$			
$\sigma_8 \Omega_m^{0.5}$	0.4710	$0.468^{+0.036}_{-0.037}$	$100\theta_{s,eq}$	0.4555	$0.454^{+0.014}_{-0.014}$			

Best-fit  $\chi_{\text{eff}}^2 = 779.48$ ;  $\bar{\chi}_{\text{eff}}^2 = 800.20$ ;  $R - 1 = 0.00744$

$\chi_{\text{eff}}^2$ : CMB - commander\_dx12\_v3\_2\_29: 24.89 plik\_rd12\_HM\_v22\_TT: 753.54



## 2.212 base\_plikHM\_TT\_lowl\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02243	$0.02237^{+0.00055}_{-0.00055}$	$\sigma_8/h^{0.5}$	1.036	$1.028^{+0.065}_{-0.071}$	$H(0.38)$	83.37	$83.3^{+1.0}_{-0.98}$
$\Omega_c h^2$	0.11792	$0.1182^{+0.0033}_{-0.0033}$	$r_{\text{drag}} h$	100.68	$100.5^{+2.7}_{-2.6}$	$D_M(0.38)$	1519.1	$1522^{+26}_{-26}$
$100\theta_{\text{MC}}$	1.04117	$1.0411^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.554	$2.54^{+0.15}_{-0.17}$	$H(0.51)$	90.00	$89.91^{+0.85}_{-0.81}$
$\tau$	0.116	$0.107^{+0.065}_{-0.076}$	$z_{\text{re}}$	13.1	$12.3^{+4.8}_{-7.2}$	$D_M(0.51)$	1969.2	$1972^{+31}_{-31}$
$\ln(10^{10} A_s)$	3.163	$3.14^{+0.13}_{-0.15}$	$10^9 A_s$	2.363	$2.32^{+0.32}_{-0.32}$	$H(0.61)$	95.55	$95.48^{+0.73}_{-0.69}$
$n_s$	0.9735	$0.971^{+0.013}_{-0.012}$	$10^9 A_s e^{-2\tau}$	1.8728	$1.873^{+0.030}_{-0.030}$	$D_M(0.61)$	2292.5	$2296^{+33}_{-34}$
$y_{\text{cal}}$	1.0003	$1.0003^{+0.0063}_{-0.0065}$	$D_{40}$	1238.1	$1240^{+42}_{-38}$	$H(2.33)$	235.27	$235.4^{+2.1}_{-2.1}$
$A_{217}^{\text{CIB}}$	43.1	$46^{+20}_{-20}$	$D_{220}$	5715	$5718^{+110}_{-100}$	$D_M(2.33)$	5752.9	$5757^{+35}_{-35}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.999	—	$D_{810}$	2533.5	$2531^{+35}_{-35}$	$f\sigma_8(0.15)$	0.4767	$0.474^{+0.032}_{-0.035}$
$A_{143}^{\text{tSZ}}$	6.73	$5.5^{+4.5}_{-4.5}$	$D_{1420}$	817.0	$815^{+13}_{-13}$	$\sigma_8(0.15)$	0.792	$0.784^{+0.051}_{-0.056}$
$A_{100}^{\text{PS}}$	242	$254^{+70}_{-70}$	$D_{2000}$	232.25	$231.3^{+4.8}_{-4.9}$	$f\sigma_8(0.38)$	0.4981	$0.494^{+0.032}_{-0.035}$
$A_{143}^{\text{PS}}$	52.4	$45^{+20}_{-20}$	$n_{\text{s},0.002}$	0.9735	$0.971^{+0.013}_{-0.012}$	$\sigma_8(0.38)$	0.7029	$0.696^{+0.045}_{-0.049}$
$A_{143 \times 217}^{\text{PS}}$	59.3	$42^{+20}_{-20}$	$Y_{\text{P}}$	0.245419	$0.24539^{+0.00022}_{-0.00024}$	$f\sigma_8(0.51)$	0.4977	$0.494^{+0.032}_{-0.034}$
$A_{217}^{\text{PS}}$	124.6	$115^{+30}_{-30}$	$Y_{\text{P}}^{\text{BBN}}$	0.246745	$0.24672^{+0.00022}_{-0.00024}$	$\sigma_8(0.51)$	0.6582	$0.652^{+0.043}_{-0.046}$
$A^{\text{kSZ}}$	0.0	—	$10^5 \text{D}/\text{H}$	2.575	$2.59^{+0.10}_{-0.10}$	$f\sigma_8(0.61)$	0.4931	$0.489^{+0.031}_{-0.034}$
$A_{100}^{\text{dustTT}}$	8.74	$8.8^{+4.6}_{-4.6}$	Age/Gyr	13.775	$13.784^{+0.079}_{-0.079}$	$\sigma_8(0.61)$	0.6265	$0.620^{+0.041}_{-0.044}$
$A_{143}^{\text{dustTT}}$	10.65	$10.5^{+4.6}_{-4.7}$	$z_*$	1089.66	$1089.76^{+0.84}_{-0.84}$	$f\sigma_8(2.33)$	0.3163	$0.313^{+0.021}_{-0.023}$
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.1^{+8.4}_{-8.6}$	$r_*$	144.92	$144.91^{+0.82}_{-0.82}$	$\sigma_8(2.33)$	0.3265	$0.323^{+0.022}_{-0.024}$
$A_{217}^{\text{dustTT}}$	95.8	$94^{+20}_{-20}$	$100\theta_*$	1.04135	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	26.8	$28^{+8}_{-8}$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.917	$13.916^{+0.080}_{-0.078}$	$f_{2000}^{143 \times 217}$	30.7	$31^{+6}_{-6}$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.93	$1059.8^{+1.2}_{-1.2}$	$f_{2000}^{217}$	105.2	$106.2^{+5.5}_{-5.3}$
$H_0$	68.22	$68.1^{+1.6}_{-1.5}$	$r_{\text{drag}}$	147.58	$147.58^{+0.91}_{-0.87}$	$\chi_{\text{lowl}}^2$	24.68	$24.9 (\nu: 1.4)$
$\Omega_\Lambda$	0.6970	$0.695^{+0.019}_{-0.021}$	$k_{\text{D}}$	0.14040	$0.1404^{+0.0011}_{-0.0012}$	$\chi_{\text{plik}}^2$	753.8	$767.3 (\nu: 15.1)$
$\Omega_{\text{m}}$	0.3030	$0.305^{+0.021}_{-0.019}$	$100\theta_{\text{D}}$	0.16078	$0.16085^{+0.00070}_{-0.00069}$	$\chi_{6\text{DF}}^2$	0.002	$0.043 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.14100	$0.1412^{+0.0032}_{-0.0032}$	$z_{\text{eq}}$	3354	$3359^{+77}_{-76}$	$\chi_{\text{MGS}}^2$	1.82	$1.75 (\nu: 0.2)$
$\Omega_{\text{m}} h^3$	0.09619	$0.0961^{+0.0012}_{-0.0012}$	$k_{\text{eq}}$	0.010237	$0.01025^{+0.00023}_{-0.00023}$	$\chi_{\text{DR12BAO}}^2$	3.40	$4.2 (\nu: 0.6)$
$\sigma_8$	0.856	$0.848^{+0.055}_{-0.059}$	$100\theta_{\text{eq}}$	0.8224	$0.821^{+0.015}_{-0.014}$	$\chi_{\text{prior}}^2$	1.0	$7.2 (\nu: 6.5)$
$S_8$	0.860	$0.855^{+0.058}_{-0.063}$	$100\theta_{\text{s,eq}}$	0.4541	$0.4536^{+0.0075}_{-0.0073}$	$\chi_{\text{BAO}}^2$	5.22	$6.0 (\nu: 0.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4711	$0.468^{+0.032}_{-0.034}$	$H(0.15)$	73.41	$73.3^{+1.4}_{-1.3}$	$\chi_{\text{CMB}}^2$	778.5	$792.3 (\nu: 13.8)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6350	$0.630^{+0.041}_{-0.044}$	$D_M(0.15)$	636.1	$637^{+13}_{-13}$			

Best-fit  $\chi_{\text{eff}}^2 = 784.78$ ;  $\bar{\chi}_{\text{eff}}^2 = 805.42$ ;  $R - 1 = 0.01210$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 3.40 CMB - commander\_dx12\_v3.2.29: 24.68 plik\_rd12\_HM\_v22\_TT: 753.84



## 2.213 base\_plikHM\_TT\_lowl\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02239^{+0.00069}_{-0.00066}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.631^{+0.040}_{-0.039}$	$H(0.15)$	$73.4^{+2.5}_{-2.4}$
$\Omega_{\mathrm{c}} h^2$	$0.1180^{+0.0062}_{-0.0061}$	$\sigma_8/h^{0.5}$	$1.029^{+0.063}_{-0.061}$	$D_{\mathrm{M}}(0.15)$	$637^{+24}_{-24}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0013}_{-0.0013}$	$r_{\mathrm{drag}} h$	$100.6^{+5.1}_{-4.9}$	$H(0.38)$	$83.3^{+1.9}_{-1.7}$
$\tau$	$0.110^{+0.075}_{-0.069}$	$\langle d^2 \rangle^{1/2}$	$2.54^{+0.15}_{-0.15}$	$D_{\mathrm{M}}(0.38)$	$1520^{+48}_{-49}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.15^{+0.15}_{-0.12}$	$z_{\mathrm{re}}$	$< 17.5$	$H(0.51)$	$90.0^{+1.5}_{-1.4}$
$n_{\mathrm{s}}$	$0.972^{+0.020}_{-0.019}$	$10^9 A_{\mathrm{s}}$	$2.34^{+0.35}_{-0.30}$	$D_{\mathrm{M}}(0.51)$	$1971^{+57}_{-57}$
$y_{\mathrm{cal}}$	$1.0003^{+0.0064}_{-0.0065}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.038}_{-0.038}$	$H(0.61)$	$95.5^{+1.3}_{-1.1}$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20}$	$D_{40}$	$1240^{+42}_{-41}$	$D_{\mathrm{M}}(0.61)$	$2294^{+61}_{-62}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{220}$	$5718^{+110}_{-110}$	$H(2.33)$	$235.3^{+3.7}_{-3.6}$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.2}_{-4.9}$	$D_{810}$	$2531^{+36}_{-37}$	$D_{\mathrm{M}}(2.33)$	$5755^{+50}_{-55}$
$A_{100}^{\mathrm{PS}}$	$254^{+70}_{-70}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	$0.474^{+0.034}_{-0.035}$
$A_{143}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$D_{2000}$	$231.4^{+5.4}_{-5.3}$	$\sigma_8(0.15)$	$0.786^{+0.053}_{-0.046}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.972^{+0.020}_{-0.019}$	$f\sigma_8(0.38)$	$0.495^{+0.031}_{-0.032}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}$	$0.24540^{+0.00029}_{-0.00030}$	$\sigma_8(0.38)$	$0.698^{+0.049}_{-0.041}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00029}_{-0.00030}$	$f\sigma_8(0.51)$	$0.494^{+0.031}_{-0.030}$
$A_{100}^{\mathrm{dustTT}}$	$8.8^{+4.8}_{-4.7}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.58^{+0.13}_{-0.12}$	$\sigma_8(0.51)$	$0.653^{+0.047}_{-0.039}$
$A_{143}^{\mathrm{dustTT}}$	$10.5^{+4.6}_{-4.7}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.78^{+0.11}_{-0.12}$	$f\sigma_8(0.61)$	$0.490^{+0.030}_{-0.029}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.0^{+8.4}_{-8.6}$	$z_*$	$1089.7^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	$0.622^{+0.045}_{-0.038}$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$	$r_*$	$144.9^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	$0.314^{+0.023}_{-0.021}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0413^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	$0.324^{+0.025}_{-0.022}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.92^{+0.13}_{-0.13}$	$f_{2000}^{143}$	$28^{+9}_{-9}$
$H_0$	$68.2^{+2.9}_{-2.8}$	$z_{\mathrm{drag}}$	$1059.8^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6}$
$\Omega_{\Lambda}$	$0.696^{+0.036}_{-0.039}$	$r_{\mathrm{drag}}$	$147.6^{+1.3}_{-1.3}$	$f_{2000}^{217}$	$106.0^{+5.6}_{-5.7}$
$\Omega_{\mathrm{m}}$	$0.304^{+0.039}_{-0.036}$	$k_{\mathrm{D}}$	$0.1403^{+0.0014}_{-0.0014}$	$\chi_{\mathrm{lowl}}^2$	$25.0 (\nu: 1.5)$
$\Omega_{\mathrm{m}} h^2$	$0.1410^{+0.0059}_{-0.0057}$	$100\theta_{\mathrm{D}}$	$0.16083^{+0.00075}_{-0.00073}$	$\chi_{\mathrm{plik}}^2$	$767.9 (\nu: 15.7)$
$\Omega_{\mathrm{m}} h^3$	$0.0961^{+0.0012}_{-0.0012}$	$z_{\mathrm{eq}}$	$3355^{+140}_{-140}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.5)$
$\sigma_8$	$0.850^{+0.056}_{-0.049}$	$k_{\mathrm{eq}}$	$0.01024^{+0.00043}_{-0.00042}$	$\chi_{\mathrm{CMB}}^2$	$792.9 (\nu: 14.8)$
$S_8$	$0.855^{+0.065}_{-0.065}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.027}_{-0.026}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.468^{+0.036}_{-0.036}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.454^{+0.014}_{-0.014}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 800.08; R - 1 = 0.00767$



## 2.214 base\_plikHM\_TT\_lowl\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02237^{+0.00055}_{-0.00055}$	$\sigma_8/h^{0.5}$	$1.029^{+0.064}_{-0.059}$	$H(0.38)$	$83.3^{+1.0}_{-0.97}$
$\Omega_{\mathrm{c}}h^2$	$0.1182^{+0.0033}_{-0.0033}$	$r_{\mathrm{drag}}h$	$100.5^{+2.7}_{-2.6}$	$D_{\mathrm{M}}(0.38)$	$1522^{+26}_{-26}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.54^{+0.15}_{-0.14}$	$H(0.51)$	$89.92^{+0.85}_{-0.81}$
$\tau$	$0.108^{+0.064}_{-0.061}$	$z_{\mathrm{re}}$	$12.4^{+4.7}_{-5.5}$	$D_{\mathrm{M}}(0.51)$	$1972^{+30}_{-31}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.15^{+0.13}_{-0.12}$	$10^9 A_{\mathrm{s}}$	$2.33^{+0.31}_{-0.27}$	$H(0.61)$	$95.48^{+0.73}_{-0.69}$
$n_{\mathrm{s}}$	$0.971^{+0.013}_{-0.012}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.873^{+0.030}_{-0.030}$	$D_{\mathrm{M}}(0.61)$	$2296^{+33}_{-34}$
$y_{\mathrm{cal}}$	$1.0003^{+0.0063}_{-0.0065}$	$D_{40}$	$1240^{+42}_{-37}$	$H(2.33)$	$235.4^{+2.1}_{-2.1}$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20}$	$D_{220}$	$5718^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5756^{+35}_{-35}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2531^{+34}_{-35}$	$f\sigma_8(0.15)$	$0.474^{+0.031}_{-0.029}$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.5}_{-4.5}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.785^{+0.050}_{-0.046}$
$A_{100}^{\mathrm{PS}}$	$254^{+70}_{-70}$	$D_{2000}$	$231.3^{+4.7}_{-5.0}$	$f\sigma_8(0.38)$	$0.495^{+0.032}_{-0.029}$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.971^{+0.013}_{-0.012}$	$\sigma_8(0.38)$	$0.697^{+0.045}_{-0.041}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24539^{+0.00022}_{-0.00024}$	$f\sigma_8(0.51)$	$0.494^{+0.031}_{-0.029}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00022}_{-0.00024}$	$\sigma_8(0.51)$	$0.652^{+0.042}_{-0.039}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.59^{+0.10}_{-0.099}$	$f\sigma_8(0.61)$	$0.490^{+0.031}_{-0.028}$
$A_{100}^{\mathrm{dustTT}}$	$8.8^{+4.6}_{-4.6}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.783^{+0.079}_{-0.079}$	$\sigma_8(0.61)$	$0.621^{+0.040}_{-0.037}$
$A_{143}^{\mathrm{dustTT}}$	$10.5^{+4.6}_{-4.7}$	$z_*$	$1089.76^{+0.83}_{-0.83}$	$f\sigma_8(2.33)$	$0.313^{+0.021}_{-0.019}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.1^{+8.4}_{-8.6}$	$r_*$	$144.91^{+0.83}_{-0.82}$	$\sigma_8(2.33)$	$0.323^{+0.022}_{-0.020}$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$28^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.916^{+0.080}_{-0.078}$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.8^{+1.2}_{-1.2}$	$f_{2000}^{217}$	$106.2^{+5.4}_{-5.2}$
$H_0$	$68.1^{+1.5}_{-1.5}$	$r_{\mathrm{drag}}$	$147.58^{+0.91}_{-0.87}$	$\chi_{\mathrm{lowl}}^2$	$25.0 (\nu: 1.4)$
$\Omega_{\Lambda}$	$0.695^{+0.019}_{-0.020}$	$k_{\mathrm{D}}$	$0.1404^{+0.0011}_{-0.0012}$	$\chi_{\mathrm{plik}}^2$	$767.2 (\nu: 14.7)$
$\Omega_{\mathrm{m}}$	$0.305^{+0.020}_{-0.019}$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00071}_{-0.00069}$	$\chi_{6\mathrm{DF}}^2$	$0.043 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1412^{+0.0032}_{-0.0032}$	$z_{\mathrm{eq}}$	$3358^{+77}_{-76}$	$\chi_{\mathrm{MGS}}^2$	$1.76 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0012}_{-0.0012}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00023}_{-0.00023}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.2 (\nu: 0.6)$
$\sigma_8$	$0.849^{+0.054}_{-0.050}$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.015}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.5)$
$S_8$	$0.856^{+0.058}_{-0.054}$	$100\theta_{\mathrm{s,eq}}$	$0.4536^{+0.0075}_{-0.0073}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.469^{+0.032}_{-0.030}$	$H(0.15)$	$73.3^{+1.4}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$792.2 (\nu: 13.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.631^{+0.040}_{-0.037}$	$D_{\mathrm{M}}(0.15)$	$637^{+13}_{-13}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 805.33; R - 1 = 0.01264$$



## 2.215 base\_plikHM\_TT\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02207	$0.02205^{+0.00056}_{-0.00055}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6170	$0.617^{+0.031}_{-0.030}$	$H(0.15)$	71.88	$71.8^{+2.0}_{-2.0}$
$\Omega_{\mathrm{c}} h^2$	0.1217	$0.1218^{+0.0058}_{-0.0055}$	$\sigma_8/h^{0.5}$	1.0009	$1.001^{+0.042}_{-0.041}$	$D_{\mathrm{M}}(0.15)$	651.4	$652^{+22}_{-21}$
$100\theta_{\mathrm{MC}}$	1.04068	$1.0406^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	97.64	$97.6^{+4.2}_{-4.2}$	$H(0.38)$	82.26	$82.2^{+1.5}_{-1.4}$
$\tau$	0.0520	$0.051^{+0.022}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.474	$2.48^{+0.10}_{-0.097}$	$D_{\mathrm{M}}(0.38)$	1549.8	$1551^{+42}_{-41}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0431	$3.042^{+0.044}_{-0.044}$	$z_{\mathrm{re}}$	7.54	$7.5^{+2.1}_{-2.4}$	$H(0.51)$	89.13	$89.1^{+1.2}_{-1.1}$
$n_{\mathrm{s}}$	0.9600	$0.959^{+0.015}_{-0.016}$	$10^9 A_{\mathrm{s}}$	2.097	$2.096^{+0.094}_{-0.090}$	$D_{\mathrm{M}}(0.51)$	2005.2	$2007^{+49}_{-48}$
$y_{\mathrm{cal}}$	1.0002	$1.0004^{+0.0065}_{-0.0067}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8898	$1.891^{+0.037}_{-0.036}$	$H(0.61)$	94.86	$94.84^{+0.94}_{-0.85}$
$A_{217}^{\mathrm{CIB}}$	49.7	$48^{+20}_{-20}$	$D_{40}$	1239.9	$1243^{+41}_{-40}$	$D_{\mathrm{M}}(0.61)$	2331	$2333^{+52}_{-52}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.22	—	$D_{220}$	5713	$5718^{+110}_{-110}$	$H(2.33)$	237.38	$237.4^{+3.5}_{-3.4}$
$A_{143}^{\mathrm{tSZ}}$	7.0	—	$D_{810}$	2538.0	$2537^{+36}_{-36}$	$D_{\mathrm{M}}(2.33)$	5783.3	$5785^{+41}_{-42}$
$A_{100}^{\mathrm{PS}}$	257	$266^{+70}_{-70}$	$D_{1420}$	814.2	$813^{+13}_{-14}$	$f\sigma_8(0.15)$	0.4700	$0.470^{+0.033}_{-0.032}$
$A_{143}^{\mathrm{PS}}$	49.6	$50^{+20}_{-20}$	$D_{2000}$	229.46	$229.1^{+4.8}_{-4.9}$	$\sigma_8(0.15)$	0.7523	$0.752^{+0.020}_{-0.019}$
$A_{143 \times 217}^{\mathrm{PS}}$	45.1	$44^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	0.9600	$0.959^{+0.015}_{-0.016}$	$f\sigma_8(0.38)$	0.4848	$0.485^{+0.025}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	118.5	$115^{+30}_{-30}$	$Y_{\mathrm{P}}$	0.245272	$0.24525^{+0.00023}_{-0.00026}$	$\sigma_8(0.38)$	0.6651	$0.665^{+0.016}_{-0.016}$
$A^{\mathrm{kSZ}}$	0.0	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246598	$0.24658^{+0.00023}_{-0.00026}$	$f\sigma_8(0.51)$	0.4816	$0.482^{+0.021}_{-0.021}$
$A_{100}^{\mathrm{dustTT}}$	8.79	$8.8^{+4.6}_{-4.8}$	$10^5 \mathrm{D}/\mathrm{H}$	2.642	$2.65^{+0.11}_{-0.11}$	$\sigma_8(0.51)$	0.6218	$0.621^{+0.015}_{-0.014}$
$A_{143}^{\mathrm{dustTT}}$	10.79	$10.7^{+4.6}_{-4.7}$	Age/Gyr	13.842	$13.845^{+0.093}_{-0.094}$	$f\sigma_8(0.61)$	0.4753	$0.475^{+0.019}_{-0.019}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.4	$18.3^{+8.4}_{-8.6}$	$z_*$	1090.45	$1090.5^{+1.1}_{-1.0}$	$\sigma_8(0.61)$	0.5912	$0.591^{+0.014}_{-0.013}$
$A_{217}^{\mathrm{dustTT}}$	94.5	$93^{+20}_{-20}$	$r_*$	144.22	$144.2^{+1.3}_{-1.3}$	$f\sigma_8(2.33)$	0.2975	$0.2972^{+0.0069}_{-0.0066}$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04089	$1.0409^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.3060	$0.3057^{+0.0073}_{-0.0070}$
$c_{217}$	0.99828	$0.9983^{+0.0016}_{-0.0017}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.855	$13.85^{+0.12}_{-0.11}$	$f_{2000}^{143}$	31.2	$32^{+8}_{-8}$
$H_0$	66.43	$66.4^{+2.4}_{-2.4}$	$z_{\mathrm{drag}}$	1059.36	$1059.3^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	33.8	$34^{+5}_{-5}$
$\Omega_{\Lambda}$	0.6727	$0.672^{+0.033}_{-0.038}$	$r_{\mathrm{drag}}$	146.97	$147.0^{+1.3}_{-1.2}$	$f_{2000}^{217}$	108.16	$108.6^{+4.9}_{-4.8}$
$\Omega_{\mathrm{m}}$	0.3273	$0.328^{+0.038}_{-0.033}$	$k_{\mathrm{D}}$	0.14076	$0.1407^{+0.0013}_{-0.0014}$	$\chi_{\mathrm{simall}}^2$	395.90	$397.0 (\nu: 1.5)$
$\Omega_{\mathrm{m}} h^2$	0.1444	$0.1445^{+0.0055}_{-0.0052}$	$100\theta_{\mathrm{D}}$	0.16109	$0.16112^{+0.00070}_{-0.00067}$	$\chi_{\mathrm{plik}}^2$	758.3	$771.1 (\nu: 14.3)$
$\Omega_{\mathrm{m}} h^3$	0.09595	$0.0959^{+0.0012}_{-0.0012}$	$z_{\mathrm{eq}}$	3436	$3438^{+130}_{-120}$	$\chi_{\mathrm{prior}}^2$	1.4	$7.3 (\nu: 6.9)$
$\sigma_8$	0.8158	$0.815^{+0.023}_{-0.023}$	$k_{\mathrm{eq}}$	0.010487	$0.01049^{+0.00040}_{-0.00038}$	$\chi_{\mathrm{CMB}}^2$	1154.2	$1168.0 (\nu: 15.2)$
$S_8$	0.852	$0.853^{+0.066}_{-0.062}$	$100\theta_{\mathrm{eq}}$	0.8063	$0.806^{+0.023}_{-0.023}$			
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4667	$0.467^{+0.036}_{-0.034}$	$100\theta_{\mathrm{s,eq}}$	0.4459	$0.446^{+0.012}_{-0.012}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 1155.55$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 1175.37$ ;  $R - 1 = 0.00555$

$\chi_{\mathrm{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.90 plik\_rd12\_HM\_v22\_TT: 758.28



## 2.216 base\_plikHM\_TTTEEE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022555	$0.02253^{+0.00042}_{-0.00045}$ $(+0.4\sigma)$	$\Omega_{\mathrm{m}}h^2$	0.14173	$0.1418^{+0.0039}_{-0.0038}$ $(+0.2\sigma)$	$z_{\mathrm{eq}}$	3372	$3373^{+94}_{-91}$ $(+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.11853	$0.1186^{+0.0043}_{-0.0041}$ $(+0.2\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.09649	$0.09646^{+0.00076}_{-0.00074}$ $(+0.6\sigma)$	$k_{\mathrm{eq}}$	0.010290	$0.01030^{+0.00029}_{-0.00028}$ $(+0.2\sigma)$
$100\theta_{\mathrm{MC}}$	1.04109	$1.04108^{+0.00082}_{-0.00084}$ $(-0.1\sigma)$	$\sigma_8$	0.8637	$0.860^{+0.049}_{-0.050}$ $(-0.2\sigma)$	$100\theta_{\mathrm{eq}}$	0.8195	$0.819^{+0.018}_{-0.018}$ $(-0.2\sigma)$
$\tau$	0.123	$0.120^{+0.064}_{-0.069}$ $(-0.2\sigma)$	$S_8$	0.8720	$0.870^{+0.050}_{-0.049}$ $(-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4525	$0.4523^{+0.0091}_{-0.0091}$ $(-0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.179	$3.17^{+0.12}_{-0.13}$ $(-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4776	$0.476^{+0.027}_{-0.027}$ $(-0.1\sigma)$	$H(0.15)$	73.30	$73.3^{+1.6}_{-1.6}$ $(-0.1\sigma)$
$n_{\mathrm{s}}$	0.9715	$0.970^{+0.014}_{-0.014}$ $(-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6423	$0.640^{+0.034}_{-0.034}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	637.2	$638^{+16}_{-16}$ $(+0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	42.8	$45^{+20}_{-20}$ $(-0.1\sigma)$	$\sigma_8/h^{0.5}$	1.047	$1.043^{+0.056}_{-0.056}$ $(-0.2\sigma)$	$H(0.38)$	83.33	$83.3^{+1.2}_{-1.2}$ $(-0.0\sigma)$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	1.00	—	$r_{\mathrm{drag}}h$	100.26	$100.2^{+3.3}_{-3.2}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	1521.1	$1522^{+33}_{-31}$ $(+0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	6.83	$> 1.26$ $(+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	2.585	$2.58^{+0.13}_{-0.13}$ $(-0.2\sigma)$	$H(0.51)$	89.99	$89.97^{+0.95}_{-0.93}$ $(+0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	241	$251^{+70}_{-70}$ $(-0.1\sigma)$	$z_{\mathrm{re}}$	13.7	$13.3^{+4.5}_{-5.9}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	1971.3	$1972^{+38}_{-37}$ $(+0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	50.2	$43^{+20}_{-20}$ $(-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	2.402	$2.39^{+0.31}_{-0.30}$ $(-0.2\sigma)$	$H(0.61)$	95.58	$95.55^{+0.76}_{-0.74}$ $(+0.0\sigma)$
$A_{143\times 217}^{\mathrm{PS}}$	57.9	$42^{+20}_{-20}$ $(-0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8762	$1.876^{+0.032}_{-0.033}$ $(+0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	2294.6	$2296^{+41}_{-40}$ $(+0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	124.0	$116^{+30}_{-30}$ $(+0.1\sigma)$	$D_{40}$	1249.1	$1252^{+40}_{-37}$ $(-0.2\sigma)$	$H(2.33)$	235.79	$235.8^{+2.5}_{-2.4}$ $(+0.3\sigma)$
$A^{\mathrm{kSZ}}$	0.00	$< 8.80$ $(-0.1\sigma)$	$D_{220}$	5733	$5737^{+98}_{-99}$ $(+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	5750.2	$5751^{+33}_{-33}$ $(-0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	8.56	$8.7^{+4.8}_{-4.7}$ $(-0.0\sigma)$	$D_{810}$	2533.8	$2532^{+35}_{-37}$ $(+0.2\sigma)$	$f\sigma_8(0.15)$	0.4830	$0.482^{+0.027}_{-0.026}$ $(-0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	10.70	$10.5^{+4.6}_{-4.7}$ $(+0.0\sigma)$	$D_{1420}$	817.0	$816^{+12}_{-12}$ $(+0.3\sigma)$	$\sigma_8(0.15)$	0.7987	$0.796^{+0.046}_{-0.047}$ $(-0.2\sigma)$
$A_{143\times 217}^{\mathrm{dustTT}}$	19.8	$18.1^{+8.4}_{-8.4}$ $(+0.0\sigma)$	$D_{2000}$	232.62	$232.0^{+4.2}_{-4.4}$ $(+0.2\sigma)$	$f\sigma_8(0.38)$	0.5039	$0.502^{+0.027}_{-0.026}$ $(-0.1\sigma)$
$A_{217}^{\mathrm{dustTT}}$	95.3	$93^{+20}_{-20}$ $(-0.0\sigma)$	$n_{\mathrm{s},0.002}$	0.9715	$0.970^{+0.014}_{-0.014}$ $(-0.1\sigma)$	$\sigma_8(0.38)$	0.7087	$0.706^{+0.042}_{-0.043}$ $(-0.2\sigma)$
$A_{100}^{\mathrm{dustTE}}$	0.112	$0.113^{+0.098}_{-0.094}$	$Y_{\mathrm{P}}$	0.245464	$0.24546^{+0.00017}_{-0.00018}$ $(+0.4\sigma)$	$f\sigma_8(0.51)$	0.5031	$0.501^{+0.027}_{-0.027}$ $(-0.2\sigma)$
$A_{100\times 143}^{\mathrm{dustTE}}$	0.135	$0.134^{+0.076}_{-0.076}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246791	$0.24678^{+0.00017}_{-0.00018}$ $(+0.4\sigma)$	$\sigma_8(0.51)$	0.6635	$0.661^{+0.040}_{-0.041}$ $(-0.2\sigma)$
$A_{100\times 217}^{\mathrm{dustTE}}$	0.480	$0.48^{+0.22}_{-0.21}$	$10^5\mathrm{D}/\mathrm{H}$	2.552	$2.557^{+0.084}_{-0.076}$ $(-0.4\sigma)$	$f\sigma_8(0.61)$	0.4983	$0.497^{+0.027}_{-0.027}$ $(-0.2\sigma)$
$A_{143}^{\mathrm{dustTE}}$	0.223	$0.22^{+0.14}_{-0.13}$	Age/Gyr	13.768	$13.771^{+0.074}_{-0.072}$ $(-0.2\sigma)$	$\sigma_8(0.61)$	0.6315	$0.629^{+0.038}_{-0.039}$ $(-0.2\sigma)$
$A_{143\times 217}^{\mathrm{dustTE}}$	0.662	$0.66^{+0.21}_{-0.21}$	$z_*$	1089.56	$1089.60^{+0.87}_{-0.81}$ $(-0.2\sigma)$	$f\sigma_8(2.33)$	0.3187	$0.317^{+0.020}_{-0.020}$ $(-0.2\sigma)$
$A_{217}^{\mathrm{dustTE}}$	2.07	$2.06^{+0.70}_{-0.69}$	$r_*$	144.67	$144.66^{+0.88}_{-0.87}$ $(-0.4\sigma)$	$\sigma_8(2.33)$	0.3288	$0.327^{+0.021}_{-0.022}$ $(-0.2\sigma)$
$c_{100}$	0.99976	$0.9997^{+0.0016}_{-0.0016}$ $(+0.1\sigma)$	$100\theta_*$	1.04125	$1.04124^{+0.00081}_{-0.00082}$ $(-0.1\sigma)$	$f_{2000}^{143}$	25.9	$27^{+8}_{-8}$ $(-0.2\sigma)$
$c_{217}$	0.99812	$0.9981^{+0.0016}_{-0.0016}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.894	$13.893^{+0.081}_{-0.081}$ $(-0.4\sigma)$	$f_{2000}^{143\times 217}$	29.9	$30^{+5}_{-5}$ $(-0.3\sigma)$
$y_{\mathrm{cal}}$	0.99995	$1.0001^{+0.0064}_{-0.0067}$ $(-0.0\sigma)$	$z_{\mathrm{drag}}$	1060.28	$1060.21^{+0.79}_{-0.85}$ $(+0.6\sigma)$	$f_{2000}^{217}$	104.56	$105.3^{+5.1}_{-4.9}$ $(-0.2\sigma)$
$H_0$	68.08	$68.0^{+1.9}_{-1.9}$ $(-0.1\sigma)$	$r_{\mathrm{drag}}$	147.27	$147.28^{+0.85}_{-0.83}$ $(-0.5\sigma)$	$\chi_{\mathrm{plik}}^2$	2337.1	$2353.9$ $(\nu: 16.5)$ $(+287.4\sigma)$
$\Omega_{\Lambda}$	0.6942	$0.693^{+0.024}_{-0.026}$ $(-0.1\sigma)$	$k_{\mathrm{D}}$	0.14081	$0.14079^{+0.00082}_{-0.00085}$ $(+0.6\sigma)$	$\chi_{\mathrm{prior}}^2$	1.3	$11.2$ $(\nu: 9.5)$ $(+1.2\sigma)$
$\Omega_{\mathrm{m}}$	0.3058	$0.307^{+0.026}_{-0.024}$ $(+0.1\sigma)$	$100\theta_{\mathrm{D}}$	0.160577	$0.16061^{+0.00049}_{-0.00045}$ $(-0.6\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2338.36$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1584.63$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2365.14$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1590.67$ ;  $R - 1 = 0.00675$

$\chi_{\mathrm{eff}}^2$ : CMB - plik\_rd12\_HM\_v22b\_TTTEEE: 2337.05



## 2.217 base\_plikHM\_TTTEEE\_lowl

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.022555	$0.02251^{+0.00041}_{-0.00042}$ (+0.5 $\sigma$ )	$\Omega_{\text{m}}h^3$	0.09646	$0.09641^{+0.00073}_{-0.00078}$ (+0.6 $\sigma$ )	$100\theta_{\text{eq}}$	0.8205	$0.820^{+0.017}_{-0.017}$ (−0.2 $\sigma$ )
$\Omega_{\text{c}}h^2$	0.11829	$0.1185^{+0.0040}_{-0.0039}$ (+0.2 $\sigma$ )	$\sigma_8$	0.8551	$0.848^{+0.047}_{-0.049}$ (−0.0 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4530	$0.4526^{+0.0086}_{-0.0087}$ (−0.2 $\sigma$ )
$100\theta_{\text{MC}}$	1.04110	$1.04108^{+0.00083}_{-0.00085}$ (−0.1 $\sigma$ )	$S_8$	0.8614	$0.857^{+0.048}_{-0.050}$ (+0.1 $\sigma$ )	$H(0.15)$	73.38	$73.3^{+1.5}_{-1.6}$ (−0.0 $\sigma$ )
$\tau$	0.114	$0.106^{+0.063}_{-0.067}$ (−0.1 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4718	$0.469^{+0.026}_{-0.027}$ (+0.1 $\sigma$ )	$D_{\text{M}}(0.15)$	636.4	$637^{+16}_{-15}$ (+0.0 $\sigma$ )
$\ln(10^{10}A_{\text{s}})$	3.160	$3.14^{+0.12}_{-0.13}$ (−0.0 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.6352	$0.631^{+0.033}_{-0.035}$ (+0.1 $\sigma$ )	$H(0.38)$	83.38	$83.3^{+1.1}_{-1.1}$ (−0.0 $\sigma$ )
$n_{\text{s}}$	0.9730	$0.971^{+0.014}_{-0.013}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	1.036	$1.028^{+0.053}_{-0.056}$ (+0.0 $\sigma$ )	$D_{\text{M}}(0.38)$	1519.6	$1522^{+31}_{-30}$ (+0.0 $\sigma$ )
$y_{\text{cal}}$	1.0002	$1.0003^{+0.0063}_{-0.0063}$ (−0.0 $\sigma$ )	$r_{\text{drag}}h$	100.44	$100.3^{+3.1}_{-3.1}$ (−0.1 $\sigma$ )	$H(0.51)$	90.03	$89.97^{+0.91}_{-0.88}$ (+0.0 $\sigma$ )
$A_{217}^{\text{CIB}}$	42.5	$45^{+20}_{-20}$ (−0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.554	$2.54^{+0.12}_{-0.13}$ (+0.0 $\sigma$ )	$D_{\text{M}}(0.51)$	1969.6	$1972^{+36}_{-35}$ (+0.0 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	1.00	—	$z_{\text{re}}$	12.9	$12.2^{+4.6}_{-6.2}$ (−0.0 $\sigma$ )	$H(0.61)$	95.60	$95.55^{+0.73}_{-0.69}$ (+0.1 $\sigma$ )
$A_{143}^{\text{tSZ}}$	6.85	$> 1.25$ (+0.1 $\sigma$ )	$10^9 A_{\text{s}}$	2.356	$2.32^{+0.29}_{-0.28}$ (−0.1 $\sigma$ )	$D_{\text{M}}(0.61)$	2292.8	$2295^{+39}_{-38}$ (+0.0 $\sigma$ )
$A_{100}^{\text{PS}}$	239	$251^{+70}_{-70}$ (−0.1 $\sigma$ )	$10^9 A_{\text{s}}e^{-2\tau}$	1.8754	$1.875^{+0.031}_{-0.030}$ (+0.2 $\sigma$ )	$H(2.33)$	235.64	$235.7^{+2.4}_{-2.3}$ (+0.3 $\sigma$ )
$A_{143}^{\text{PS}}$	49.7	$43^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{40}$	1239.7	$1241^{+36}_{-35}$ (+0.1 $\sigma$ )	$D_{\text{M}}(2.33)$	5749.3	$5752^{+31}_{-32}$ (−0.2 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	57.7	$42^{+20}_{-20}$ (−0.0 $\sigma$ )	$D_{220}$	5728	$5731^{+100}_{-99}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4773	$0.474^{+0.026}_{-0.027}$ (+0.1 $\sigma$ )
$A_{217}^{\text{PS}}$	124.3	$116^{+20}_{-30}$ (+0.1 $\sigma$ )	$D_{810}$	2535.6	$2534^{+34}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7909	$0.785^{+0.045}_{-0.047}$ (−0.0 $\sigma$ )
$A^{\text{kSZ}}$	0.00	$< 8.89$ (−0.1 $\sigma$ )	$D_{1420}$	818.3	$817^{+12}_{-12}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4983	$0.495^{+0.026}_{-0.027}$ (+0.1 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.68	$8.8^{+4.8}_{-4.7}$ (−0.0 $\sigma$ )	$D_{2000}$	232.84	$232.0^{+4.1}_{-4.3}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.7019	$0.696^{+0.041}_{-0.042}$ (−0.0 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.72	$10.6^{+4.6}_{-4.5}$ (+0.0 $\sigma$ )	$n_{\text{s},0.002}$	0.9730	$0.971^{+0.014}_{-0.013}$ (−0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4977	$0.494^{+0.026}_{-0.027}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.2^{+8.6}_{-8.4}$ (+0.0 $\sigma$ )	$Y_{\text{P}}$	0.245464	$0.24545^{+0.00016}_{-0.00017}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6572	$0.652^{+0.039}_{-0.040}$ (−0.0 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.5	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.246791	$0.24678^{+0.00017}_{-0.00017}$ (+0.5 $\sigma$ )	$f\sigma_8(0.61)$	0.4930	$0.489^{+0.026}_{-0.027}$ (+0.0 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.113	$0.113^{+0.098}_{-0.095}$	$10^5 \text{D/H}$	2.552	$2.560^{+0.078}_{-0.074}$ (−0.5 $\sigma$ )	$\sigma_8(0.61)$	0.6255	$0.620^{+0.037}_{-0.038}$ (−0.0 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.134^{+0.076}_{-0.074}$	Age/Gyr	13.766	$13.772^{+0.070}_{-0.070}$ (−0.2 $\sigma$ )	$f\sigma_8(2.33)$	0.3157	$0.313^{+0.019}_{-0.020}$ (−0.0 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.477	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.54	$1089.61^{+0.80}_{-0.77}$ (−0.2 $\sigma$ )	$\sigma_8(2.33)$	0.3258	$0.323^{+0.021}_{-0.021}$ (−0.0 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.221	$0.22^{+0.14}_{-0.14}$	$r_*$	144.73	$144.71^{+0.84}_{-0.86}$ (−0.4 $\sigma$ )	$f_{2000}^{143}$	25.7	$27^{+8}_{-7}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.662	$0.66^{+0.21}_{-0.21}$	$100\theta_*$	1.04127	$1.04125^{+0.00082}_{-0.00083}$ (−0.1 $\sigma$ )	$f_{2000}^{143 \times 217}$	29.8	$30^{+5}_{-5}$ (−0.3 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.06	$2.07^{+0.71}_{-0.70}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.900	$13.897^{+0.078}_{-0.078}$ (−0.4 $\sigma$ )	$f_{2000}^{217}$	104.53	$105.4^{+5.0}_{-4.9}$ (−0.3 $\sigma$ )
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1060.24	$1060.16^{+0.80}_{-0.84}$ (+0.6 $\sigma$ )	$\chi_{\text{lowl}}^2$	24.77	$25.0$ ( $\nu$ : 1.0) (−0.0 $\sigma$ )
$c_{217}$	0.99812	$0.9981^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	147.34	$147.33^{+0.82}_{-0.83}$ (−0.5 $\sigma$ )	$\chi_{\text{plik}}^2$	2337.6	$2354.2$ ( $\nu$ : 17.3) (+279.7 $\sigma$ )
$H_0$	68.17	$68.1^{+1.8}_{-1.8}$ (−0.1 $\sigma$ )	$k_{\text{D}}$	0.14075	$0.14073^{+0.00084}_{-0.00086}$ (+0.7 $\sigma$ )	$\chi_{\text{prior}}^2$	1.3	$11.3$ ( $\nu$ : 10.0) (+1.2 $\sigma$ )
$\Omega_{\Lambda}$	0.6955	$0.694^{+0.023}_{-0.025}$ (−0.1 $\sigma$ )	$100\theta_{\text{D}}$	0.160589	$0.16064^{+0.00046}_{-0.00045}$ (−0.7 $\sigma$ )	$\chi_{\text{CMB}}^2$	2362.3	$2379.2$ ( $\nu$ : 16.7) (+288.7 $\sigma$ )
$\Omega_{\text{m}}$	0.3045	$0.306^{+0.025}_{-0.023}$ (+0.1 $\sigma$ )	$z_{\text{eq}}$	3366	$3370^{+90}_{-86}$ (+0.2 $\sigma$ )			
$\Omega_{\text{m}}h^2$	0.14149	$0.1417^{+0.0038}_{-0.0036}$ (+0.2 $\sigma$ )	$k_{\text{eq}}$	0.010273	$0.01029^{+0.00028}_{-0.00026}$ (+0.2 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 2363.64$ ;  $\Delta\chi_{\text{eff}}^2 = 1584.16$ ;  $\bar{\chi}_{\text{eff}}^2 = 2390.54$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1590.34$ ;  $R - 1 = 0.00817$   
 $\chi_{\text{eff}}^2$ : CMB - commander\_dx12.v3.2.29: 24.77 ( $\Delta$  -0.12) plik\_rd12\_HM.v22b.TTTEEE: 2337.58



## 2.218 base\_plikHM\_TTTEEE\_lowl\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022555	$0.02252^{+0.00036}_{-0.00036}$ (+0.7 $\sigma$ )	$\sigma_8$	0.8549	$0.849^{+0.046}_{-0.049}$ (+0.0 $\sigma$ )	$H(0.15)$	73.39	$73.3^{+1.1}_{-1.1}$ (+0.1 $\sigma$ )
$\Omega_c h^2$	0.11828	$0.1184^{+0.0028}_{-0.0028}$ (+0.2 $\sigma$ )	$S_8$	0.8611	$0.856^{+0.046}_{-0.047}$ (+0.1 $\sigma$ )	$D_M(0.15)$	636.4	$637^{+10}_{-11}$ (-0.1 $\sigma$ )
$100\theta_{MC}$	1.04110	$1.04110^{+0.00075}_{-0.00077}$ (-0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4716	$0.469^{+0.025}_{-0.026}$ (+0.1 $\sigma$ )	$H(0.38)$	83.38	$83.34^{+0.81}_{-0.78}$ (+0.2 $\sigma$ )
$\tau$	0.114	$0.107^{+0.054}_{-0.062}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6350	$0.631^{+0.033}_{-0.035}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1519.5	$1521^{+21}_{-21}$ (-0.1 $\sigma$ )
$\ln(10^{10} A_s)$	3.159	$3.15^{+0.11}_{-0.12}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	1.035	$1.029^{+0.054}_{-0.057}$ (+0.0 $\sigma$ )	$H(0.51)$	90.03	$89.99^{+0.66}_{-0.62}$ (+0.2 $\sigma$ )
$n_s$	0.9728	$0.971^{+0.011}_{-0.011}$ (+0.0 $\sigma$ )	$r_{drag} h$	100.45	$100.4^{+2.2}_{-2.1}$ (-0.1 $\sigma$ )	$D_M(0.51)$	1969.5	$1971^{+25}_{-25}$ (-0.1 $\sigma$ )
$y_{cal}$	0.99998	$1.0003^{+0.0063}_{-0.0064}$ (-0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.554	$2.54^{+0.13}_{-0.14}$ (+0.0 $\sigma$ )	$H(0.61)$	95.60	$95.57^{+0.54}_{-0.52}$ (+0.3 $\sigma$ )
$A_{217}^{CIB}$	42.4	$45^{+20}_{-20}$ (-0.1 $\sigma$ )	$z_{re}$	12.91	$12.3^{+4.1}_{-5.6}$ (+0.0 $\sigma$ )	$D_M(0.61)$	2292.7	$2294^{+27}_{-27}$ (-0.1 $\sigma$ )
$\xi^{tSZ \times CIB}$	1.00	—	$10^9 A_s$	2.355	$2.32^{+0.26}_{-0.27}$ (+0.0 $\sigma$ )	$H(2.33)$	235.63	$235.7^{+1.7}_{-1.7}$ (+0.4 $\sigma$ )
$A_{143}^{tSZ}$	6.90	> 1.17 (+0.1 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8744	$1.875^{+0.029}_{-0.028}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5749.3	$5751^{+25}_{-24}$ (-0.4 $\sigma$ )
$A_{100}^{PS}$	238	$251^{+70}_{-70}$ (-0.1 $\sigma$ )	$D_{40}$	1239.8	$1241^{+36}_{-34}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4771	$0.474^{+0.025}_{-0.026}$ (+0.1 $\sigma$ )
$A_{143}^{PS}$	50.0	$43^{+20}_{-20}$ (-0.2 $\sigma$ )	$D_{220}$	5726	$5731^{+100}_{-100}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7907	$0.785^{+0.043}_{-0.046}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{PS}$	57.8	$42^{+20}_{-20}$ (-0.0 $\sigma$ )	$D_{810}$	2534.3	$2534^{+34}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4981	$0.495^{+0.026}_{-0.027}$ (+0.1 $\sigma$ )
$A_{217}^{PS}$	124.3	$116^{+20}_{-30}$ (+0.1 $\sigma$ )	$D_{1420}$	817.7	$817^{+12}_{-12}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.7017	$0.697^{+0.038}_{-0.041}$ (+0.0 $\sigma$ )
$A^{kSZ}$	0.00	< 8.79 (-0.2 $\sigma$ )	$D_{2000}$	232.67	$232.1^{+4.0}_{-4.1}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4975	$0.494^{+0.026}_{-0.028}$ (+0.0 $\sigma$ )
$A_{100}^{dustTT}$	8.67	$8.8^{+4.7}_{-4.7}$ (-0.0 $\sigma$ )	$n_{s,0.002}$	0.9728	$0.971^{+0.011}_{-0.011}$ (+0.0 $\sigma$ )	$\sigma_8(0.51)$	0.6570	$0.652^{+0.036}_{-0.039}$ (+0.0 $\sigma$ )
$A_{143}^{dustTT}$	10.75	$10.6^{+4.4}_{-4.4}$ (+0.0 $\sigma$ )	$Y_P$	0.245464	$0.24545^{+0.00014}_{-0.00014}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4929	$0.490^{+0.026}_{-0.027}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.0	$18.2^{+8.7}_{-8.5}$ (+0.0 $\sigma$ )	$Y_P^{BBN}$	0.246791	$0.24678^{+0.00014}_{-0.00014}$ (+0.7 $\sigma$ )	$\sigma_8(0.61)$	0.6254	$0.621^{+0.034}_{-0.037}$ (+0.0 $\sigma$ )
$A_{217}^{dustTT}$	95.9	$94^{+20}_{-20}$ (-0.0 $\sigma$ )	$10^5 D/H$	2.552	$2.559^{+0.067}_{-0.065}$ (-0.7 $\sigma$ )	$f\sigma_8(2.33)$	0.3156	$0.313^{+0.017}_{-0.019}$ (+0.0 $\sigma$ )
$A_{100}^{dustTE}$	0.113	$0.114^{+0.097}_{-0.093}$	Age/Gyr	13.766	$13.770^{+0.055}_{-0.054}$ (-0.5 $\sigma$ )	$\sigma_8(2.33)$	0.3257	$0.323^{+0.018}_{-0.020}$ (+0.0 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.133	$0.135^{+0.076}_{-0.075}$	$z_*$	1089.54	$1089.59^{+0.60}_{-0.60}$ (-0.5 $\sigma$ )	$f_{2000}^{143}$	25.8	$27^{+7}_{-7}$ (-0.4 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.487	$0.48^{+0.22}_{-0.21}$	$r_*$	144.74	$144.73^{+0.63}_{-0.63}$ (-0.5 $\sigma$ )	$f_{2000}^{143 \times 217}$	29.8	$30^{+5}_{-5}$ (-0.4 $\sigma$ )
$A_{143}^{dustTE}$	0.220	$0.22^{+0.14}_{-0.13}$	$100\theta_*$	1.04127	$1.04127^{+0.00074}_{-0.00076}$ (-0.1 $\sigma$ )	$f_{2000}^{217}$	104.50	$105.4^{+4.9}_{-4.8}$ (-0.4 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.661	$0.66^{+0.20}_{-0.20}$	$D_M(z_*)/\text{Gpc}$	13.900	$13.900^{+0.060}_{-0.061}$ (-0.5 $\sigma$ )	$\chi_{lowl}^2$	24.83	24.9 ( $\nu$ : 1.0) (-0.0 $\sigma$ )
$A_{217}^{dustTE}$	2.07	$2.07^{+0.71}_{-0.69}$	$z_{drag}$	1060.24	$1060.17^{+0.76}_{-0.77}$ (+0.8 $\sigma$ )	$\chi_{plik}^2$	2337.4	2353.9 ( $\nu$ : 16.5) (+289.0 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{drag}$	147.34	$147.35^{+0.64}_{-0.65}$ (-0.7 $\sigma$ )	$\chi_{6DF}^2$	0.000	0.030 ( $\nu$ : 0.0) (-0.2 $\sigma$ )
$c_{217}$	0.99813	$0.9981^{+0.0016}_{-0.0016}$ (-0.1 $\sigma$ )	$k_D$	0.14074	$0.14071^{+0.00076}_{-0.00073}$ (+0.8 $\sigma$ )	$\chi_{MGS}^2$	1.68	1.68 ( $\nu$ : 0.1) (-0.1 $\sigma$ )
$H_0$	68.18	$68.1^{+1.3}_{-1.2}$ (+0.1 $\sigma$ )	$100\theta_D$	0.160588	$0.16063^{+0.00045}_{-0.00044}$ (-0.8 $\sigma$ )	$\chi_{DR12BAO}^2$	3.53	4.05 ( $\nu$ : 0.4) (-0.1 $\sigma$ )
$\Omega_\Lambda$	0.6956	$0.695^{+0.016}_{-0.017}$ (-0.1 $\sigma$ )	$z_{eq}$	3365	$3367^{+62}_{-62}$ (+0.3 $\sigma$ )	$\chi_{prior}^2$	1.4	11.3 ( $\nu$ : 9.6) (+1.1 $\sigma$ )
$\Omega_m$	0.3044	$0.305^{+0.017}_{-0.016}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010272	$0.01028^{+0.00019}_{-0.00019}$ (+0.3 $\sigma$ )	$\chi_{BAO}^2$	5.21	5.77 ( $\nu$ : 0.3) (-0.2 $\sigma$ )
$\Omega_m h^2$	0.14148	$0.1416^{+0.0026}_{-0.0026}$ (+0.3 $\sigma$ )	$100\theta_{eq}$	0.8206	$0.820^{+0.012}_{-0.012}$ (-0.2 $\sigma$ )	$\chi_{CMB}^2$	2362.3	2378.8 ( $\nu$ : 15.8) (+301.4 $\sigma$ )
$\Omega_m h^3$	0.09645	$0.09641^{+0.00074}_{-0.00078}$ (+0.7 $\sigma$ )	$100\theta_{s,eq}$	0.4530	$0.4529^{+0.0062}_{-0.0060}$ (-0.3 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 2368.86$ ;  $\Delta\chi_{eff}^2 = 1584.08$ ;  $\bar{\chi}_{eff}^2 = 2395.83$ ;  $\Delta\bar{\chi}_{eff}^2 = 1590.41$ ;  $R - 1 = 0.01077$

$\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  -0.00) MGS: 1.68 ( $\Delta$  -0.14) DR12BAO: 3.53 ( $\Delta$  0.13) CMB - commander\_dx12\_v3.2.29: 24.83 ( $\Delta$  0.14) plik\_rd12\_HM\_v22b\_TTTEEE: 2337.43



## 2.219 base\_plikHM\_TTTEEE\_lowl\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02252^{+0.00041}_{-0.00041} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09641^{+0.00073}_{-0.00077} \quad (+0.6\sigma)$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.017}_{-0.017} \quad (-0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1185^{+0.0040}_{-0.0038} \quad (+0.2\sigma)$	$\sigma_8$	$0.849^{+0.047}_{-0.043} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4526^{+0.0086}_{-0.0086} \quad (-0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04109^{+0.00083}_{-0.00085} \quad (-0.1\sigma)$	$S_8$	$0.857^{+0.048}_{-0.048} \quad (+0.1\sigma)$	$H(0.15)$	$73.3^{+1.5}_{-1.5} \quad (-0.1\sigma)$
$\tau$	$0.106^{+0.062}_{-0.058} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.469^{+0.026}_{-0.026} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-15} \quad (+0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.14^{+0.12}_{-0.11} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.631^{+0.032}_{-0.032} \quad (+0.0\sigma)$	$H(0.38)$	$83.3^{+1.1}_{-1.1} \quad (-0.0\sigma)$
$n_{\mathrm{s}}$	$0.971^{+0.014}_{-0.013} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$1.029^{+0.053}_{-0.051} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1521^{+31}_{-30} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0003^{+0.0063}_{-0.0063} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}h$	$100.3^{+3.1}_{-3.1} \quad (-0.2\sigma)$	$H(0.51)$	$89.98^{+0.91}_{-0.87} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$45^{+20}_{-20} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.54^{+0.12}_{-0.12} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1972^{+36}_{-35} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_{\mathrm{re}}$	$12.2^{+4.6}_{-5.2} \quad (-0.1\sigma)$	$H(0.61)$	$95.56^{+0.73}_{-0.69} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.25 \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.32^{+0.29}_{-0.25} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2295^{+39}_{-38} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$251^{+70}_{-70} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.875^{+0.031}_{-0.030} \quad (+0.2\sigma)$	$H(2.33)$	$235.7^{+2.3}_{-2.3} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1241^{+36}_{-35} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5752^{+31}_{-32} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.0\sigma)$	$D_{220}$	$5731^{+100}_{-99} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.475^{+0.026}_{-0.026} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$116^{+20}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2534^{+34}_{-34} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.785^{+0.044}_{-0.040} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	$< 8.89 \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.495^{+0.025}_{-0.025} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.8^{+4.8}_{-4.7} \quad (-0.0\sigma)$	$D_{2000}$	$232.1^{+4.1}_{-4.2} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.696^{+0.041}_{-0.037} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.6^{+4.6}_{-4.5} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.971^{+0.014}_{-0.013} \quad (-0.1\sigma)$	$f\sigma_8(0.51)$	$0.494^{+0.025}_{-0.025} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.2^{+8.6}_{-8.4} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24545^{+0.00016}_{-0.00016} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.652^{+0.039}_{-0.035} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24678^{+0.00017}_{-0.00016} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	$0.490^{+0.025}_{-0.024} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.113^{+0.098}_{-0.095}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.560^{+0.076}_{-0.074} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.621^{+0.037}_{-0.033} \quad (-0.1\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.076}_{-0.074}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.771^{+0.069}_{-0.069} \quad (-0.2\sigma)$	$f\sigma_8(2.33)$	$0.313^{+0.019}_{-0.017} \quad (-0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.61^{+0.78}_{-0.76} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.323^{+0.020}_{-0.018} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$r_*$	$144.71^{+0.84}_{-0.86} \quad (-0.4\sigma)$	$f_{2000}^{143}$	$27^{+8}_{-7} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$100\theta_*$	$1.04126^{+0.00081}_{-0.00083} \quad (-0.1\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+5}_{-5} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.07^{+0.71}_{-0.70}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.898^{+0.078}_{-0.078} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$105.4^{+5.0}_{-4.9} \quad (-0.3\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1060.16^{+0.80}_{-0.80} \quad (+0.6\sigma)$	$\chi_{\mathrm{lowl}}^2$	$25.0 \quad (\nu: 1.0) \quad (-0.0\sigma)$
$c_{217}$	$0.9981^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}$	$147.33^{+0.81}_{-0.82} \quad (-0.5\sigma)$	$\chi_{\mathrm{plik}}^2$	$2354.2 \quad (\nu: 17.0) \quad (+283.3\sigma)$
$H_0$	$68.1^{+1.8}_{-1.8} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14072^{+0.00084}_{-0.00085} \quad (+0.7\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.3 \quad (\nu: 10.0) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.023}_{-0.025} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16063^{+0.00046}_{-0.00045} \quad (-0.7\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2379.2 \quad (\nu: 16.5) \quad (+291.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.025}_{-0.023} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3370^{+89}_{-86} \quad (+0.3\sigma)$		
$\Omega_{\mathrm{m}}h^2$	$0.1417^{+0.0037}_{-0.0036} \quad (+0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01028^{+0.00027}_{-0.00026} \quad (+0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2390.49; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1590.41; R - 1 = 0.00813$$



## 2.220 base\_plikHM\_TTTEEE\_lowl\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02252^{+0.00036}_{-0.00036} \quad (+0.7\sigma)$	$\sigma_8$	$0.849^{+0.046}_{-0.043} \quad (+0.0\sigma)$	$H(0.15)$	$73.3^{+1.1}_{-1.1} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1184^{+0.0028}_{-0.0028} \quad (+0.2\sigma)$	$S_8$	$0.856^{+0.046}_{-0.046} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$637^{+10}_{-11} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04110^{+0.00075}_{-0.00077} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.469^{+0.025}_{-0.025} \quad (+0.0\sigma)$	$H(0.38)$	$83.34^{+0.81}_{-0.77} \quad (+0.2\sigma)$
$\tau$	$0.107^{+0.054}_{-0.057} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.631^{+0.032}_{-0.031} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1521^{+21}_{-21} \quad (-0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.15^{+0.11}_{-0.11} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$1.029^{+0.054}_{-0.051} \quad (-0.0\sigma)$	$H(0.51)$	$90.00^{+0.66}_{-0.62} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.971^{+0.011}_{-0.011} \quad (+0.0\sigma)$	$r_{\mathrm{drag}}h$	$100.4^{+2.2}_{-2.1} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1971^{+25}_{-25} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0003^{+0.0064}_{-0.0064} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.54^{+0.13}_{-0.12} \quad (+0.0\sigma)$	$H(0.61)$	$95.57^{+0.54}_{-0.51} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$45^{+20}_{-20} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$12.3^{+4.1}_{-5.0} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2294^{+27}_{-27} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.33^{+0.26}_{-0.24} \quad (-0.0\sigma)$	$H(2.33)$	$235.7^{+1.7}_{-1.7} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.17 \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.875^{+0.029}_{-0.028} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5751^{+24}_{-24} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$251^{+70}_{-70} \quad (-0.1\sigma)$	$D_{40}$	$1241^{+36}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.474^{+0.025}_{-0.025} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5731^{+100}_{-100} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.785^{+0.043}_{-0.041} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.0\sigma)$	$D_{810}$	$2533^{+34}_{-34} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.495^{+0.026}_{-0.025} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$116^{+20}_{-30} \quad (+0.1\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.697^{+0.038}_{-0.037} \quad (+0.0\sigma)$
$A^{\mathrm{kSZ}}$	$< 8.79 \quad (-0.2\sigma)$	$D_{2000}$	$232.1^{+4.0}_{-4.1} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.494^{+0.026}_{-0.024} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.8^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.971^{+0.011}_{-0.011} \quad (+0.0\sigma)$	$\sigma_8(0.51)$	$0.652^{+0.036}_{-0.035} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.6^{+4.4}_{-4.4} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24545^{+0.00014}_{-0.00014} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.490^{+0.026}_{-0.024} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.2^{+8.7}_{-8.5} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24678^{+0.00014}_{-0.00014} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.621^{+0.034}_{-0.033} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.558^{+0.067}_{-0.065} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.313^{+0.017}_{-0.017} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.097}_{-0.093}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.770^{+0.055}_{-0.054} \quad (-0.4\sigma)$	$\sigma_8(2.33)$	$0.323^{+0.018}_{-0.018} \quad (-0.0\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.075}$	$z_*$	$1089.59^{+0.60}_{-0.60} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$27^{+7}_{-7} \quad (-0.4\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.21}$	$r_*$	$144.73^{+0.62}_{-0.63} \quad (-0.5\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+5}_{-5} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.13}$	$100\theta_*$	$1.04127^{+0.00074}_{-0.00076} \quad (-0.1\sigma)$	$f_{2000}^{217}$	$105.4^{+4.9}_{-4.8} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.20}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.900^{+0.059}_{-0.060} \quad (-0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.9 \quad (\nu: 1.0) \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.07^{+0.71}_{-0.69}$	$z_{\mathrm{drag}}$	$1060.17^{+0.76}_{-0.77} \quad (+0.8\sigma)$	$\chi_{\mathrm{plik}}^2$	$2353.8 \quad (\nu: 16.3) \quad (+293.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.35^{+0.64}_{-0.65} \quad (-0.7\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.030 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$c_{217}$	$0.9981^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14071^{+0.00076}_{-0.00073} \quad (+0.8\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.69 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$H_0$	$68.1^{+1.3}_{-1.2} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16063^{+0.00045}_{-0.00044} \quad (-0.8\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.05 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.695^{+0.016}_{-0.017} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3367^{+62}_{-62} \quad (+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.3 \quad (\nu: 9.6) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.305^{+0.017}_{-0.016} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01028^{+0.00019}_{-0.00019} \quad (+0.3\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.77 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1416^{+0.0026}_{-0.0026} \quad (+0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.012}_{-0.012} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2378.8 \quad (\nu: 15.6) \quad (+303.7\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09641^{+0.00073}_{-0.00078} \quad (+0.7\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4529^{+0.0062}_{-0.0060} \quad (-0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2395.80; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1590.47; R - 1 = 0.01085$$



## 2.221 base\_plikHM\_TTTEEE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022348	$0.02233^{+0.00039}_{-0.00038}$ (+1.3 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09636	$0.09634^{+0.00076}_{-0.00074}$ (+1.0 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8107	$0.811^{+0.016}_{-0.015}$ (+0.5 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.12060	$0.1207^{+0.0036}_{-0.0036}$ (−0.5 $\sigma$ )	$\sigma_8$	0.8136	$0.814^{+0.020}_{-0.019}$ (−0.2 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4481	$0.4480^{+0.0080}_{-0.0076}$ (+0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04086	$1.04086^{+0.00081}_{-0.00079}$ (+0.4 $\sigma$ )	$S_8$	0.8387	$0.840^{+0.042}_{-0.042}$ (−0.5 $\sigma$ )	$H(0.15)$	72.47	$72.4^{+1.4}_{-1.3}$ (+0.8 $\sigma$ )
$\tau$	0.0540	$0.055^{+0.022}_{-0.019}$ (+0.4 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4594	$0.460^{+0.023}_{-0.023}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	645.5	$646^{+13}_{-14}$ (−0.8 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0460	$3.047^{+0.045}_{-0.041}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6113	$0.612^{+0.022}_{-0.022}$ (−0.5 $\sigma$ )	$H(0.38)$	82.72	$82.7^{+1.0}_{-0.91}$ (+0.8 $\sigma$ )
$n_{\mathrm{s}}$	0.9638	$0.963^{+0.012}_{-0.012}$ (+0.6 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9931	$0.994^{+0.031}_{-0.031}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1537.7	$1538^{+26}_{-27}$ (−0.8 $\sigma$ )
$y_{\mathrm{cal}}$	1.0008	$1.0006^{+0.0063}_{-0.0064}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	98.62	$98.6^{+2.8}_{-2.7}$ (+0.6 $\sigma$ )	$H(0.51)$	89.52	$89.50^{+0.79}_{-0.72}$ (+0.9 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	47.5	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.456	$2.460^{+0.075}_{-0.076}$ (−0.4 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1990.8	$1992^{+30}_{-32}$ (−0.8 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.43	—	$z_{\mathrm{re}}$	7.66	$7.7^{+2.1}_{-2.1}$ (+0.3 $\sigma$ )	$H(0.61)$	95.20	$95.18^{+0.63}_{-0.57}$ (+1.0 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.1	—	$10^9 A_{\mathrm{s}}$	2.103	$2.105^{+0.096}_{-0.085}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2315.6	$2316^{+33}_{-35}$ (−0.8 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	252	$261^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8879	$1.887^{+0.030}_{-0.031}$ (−0.3 $\sigma$ )	$H(2.33)$	236.93	$237.0^{+2.2}_{-2.2}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	48.5	$47^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{40}$	1235.0	$1238^{+34}_{-34}$ (−0.4 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5766.7	$5767^{+27}_{-28}$ (−1.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	48.0	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5738	$5739^{+98}_{-100}$ (+0.5 $\sigma$ )	$f\sigma_8(0.15)$	0.4634	$0.464^{+0.021}_{-0.022}$ (−0.5 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	119.8	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{810}$	2542.6	$2540^{+34}_{-35}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7510	$0.751^{+0.018}_{-0.017}$ (−0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{1420}$	818.0	$817^{+12}_{-12}$ (+0.6 $\sigma$ )	$f\sigma_8(0.38)$	0.4801	$0.480^{+0.018}_{-0.018}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.79	$8.8^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	$D_{2000}$	231.10	$230.6^{+4.0}_{-4.1}$ (+0.8 $\sigma$ )	$\sigma_8(0.38)$	0.6649	$0.665^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	10.98	$10.9^{+4.6}_{-4.5}$ (+0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9638	$0.963^{+0.012}_{-0.012}$ (+0.6 $\sigma$ )	$f\sigma_8(0.51)$	0.4779	$0.478^{+0.015}_{-0.016}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.8	$18.6^{+8.5}_{-8.5}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.245387	$0.24538^{+0.00014}_{-0.00016}$ (+1.3 $\sigma$ )	$\sigma_8(0.51)$	0.6219	$0.622^{+0.014}_{-0.013}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.0	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246713	$0.24670^{+0.00015}_{-0.00016}$ (+1.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4723	$0.472^{+0.014}_{-0.014}$ (−0.4 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.115	$0.115^{+0.10}_{-0.095}$	$10^5 \mathrm{D}/\mathrm{H}$	2.590	$2.593^{+0.073}_{-0.070}$ (−1.3 $\sigma$ )	$\sigma_8(0.61)$	0.5916	$0.592^{+0.014}_{-0.012}$ (+0.2 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.134	$0.135^{+0.075}_{-0.077}$	Age/Gyr	13.804	$13.806^{+0.061}_{-0.062}$ (−1.1 $\sigma$ )	$f\sigma_8(2.33)$	0.2980	$0.2979^{+0.0069}_{-0.0062}$ (+0.3 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.484	$0.48^{+0.22}_{-0.22}$	$z_*$	1090.00	$1090.03^{+0.71}_{-0.71}$ (−1.1 $\sigma$ )	$\sigma_8(2.33)$	0.3069	$0.3068^{+0.0072}_{-0.0064}$ (+0.4 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.226	$0.23^{+0.14}_{-0.14}$	$r_*$	144.29	$144.29^{+0.81}_{-0.79}$ (+0.2 $\sigma$ )	$f_{2000}^{143}$	29.3	$30^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.664	$0.67^{+0.21}_{-0.20}$	$100\theta_*$	1.04104	$1.04104^{+0.00080}_{-0.00078}$ (+0.4 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.33	$33^{+5}_{-5}$ (−0.8 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.09	$2.09^{+0.70}_{-0.69}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.861	$13.860^{+0.074}_{-0.073}$ (+0.1 $\sigma$ )	$f_{2000}^{217}$	106.90	$107.4^{+4.6}_{-4.5}$ (−0.7 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\mathrm{drag}}$	1059.93	$1059.90^{+0.76}_{-0.76}$ (+1.3 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.06	$397.2$ ( $\nu$ : 2.1) (+0.1 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\mathrm{drag}}$	146.96	$146.96^{+0.78}_{-0.78}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2344.5	$2359.4$ ( $\nu$ : 16.6) (+297.4 $\sigma$ )
$H_0$	67.11	$67.1^{+1.6}_{-1.5}$ (+0.7 $\sigma$ )	$k_{\mathrm{D}}$	0.14099	$0.14098^{+0.00083}_{-0.00084}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.7	$11.5$ ( $\nu$ : 10.0) (+1.1 $\sigma$ )
$\Omega_{\Lambda}$	0.6811	$0.681^{+0.022}_{-0.022}$ (+0.6 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.160761	$0.16078^{+0.00047}_{-0.00045}$ (−1.3 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2740.5	$2756.7$ ( $\nu$ : 16.8) (+288.2 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3189	$0.319^{+0.022}_{-0.022}$ (−0.6 $\sigma$ )	$z_{\mathrm{eq}}$	3416	$3417^{+81}_{-82}$ (−0.4 $\sigma$ )			
$\Omega_{\mathrm{m}}h^2$	0.14359	$0.1436^{+0.0034}_{-0.0034}$ (−0.4 $\sigma$ )	$k_{\mathrm{eq}}$	0.010426	$0.01043^{+0.00025}_{-0.00025}$ (−0.4 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2742.24$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1586.69$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2768.16$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.79$ ;  $R - 1 = 0.00605$

$\chi_{\mathrm{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.06 ( $\Delta$  0.16) plik\_rd12\_HM.v22b.TTTEEE: 2344.46



## 2.222 base\_CamSpecHM\_TT

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02257	$0.02248^{+0.00075}_{-0.00072}$	$S_8$	0.875	$0.871^{+0.068}_{-0.066}$	$k_{\mathrm{eq}}$	0.010181	$0.01023^{+0.00050}_{-0.00046}$
$\Omega_{\mathrm{c}} h^2$	0.1170	$0.1178^{+0.0074}_{-0.0068}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4793	$0.477^{+0.037}_{-0.036}$	$100\theta_{\mathrm{eq}}$	0.8263	$0.823^{+0.031}_{-0.031}$
$100\theta_{\mathrm{MC}}$	1.04136	$1.0413^{+0.0015}_{-0.0014}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6493	$0.644^{+0.042}_{-0.046}$	$100\theta_{\mathrm{s,eq}}$	0.4560	$0.454^{+0.016}_{-0.016}$
$\tau$	0.149	$0.134^{+0.087}_{-0.10}$	$\sigma_8/h^{0.5}$	1.061	$1.051^{+0.068}_{-0.076}$	$H(0.15)$	73.86	$73.5^{+2.8}_{-2.8}$
$\ln(10^{10} A_{\mathrm{s}})$	3.224	$3.20^{+0.16}_{-0.19}$	$r_{\mathrm{drag}} h$	101.5	$100.9^{+5.7}_{-5.8}$	$D_{\mathrm{M}}(0.15)$	631.8	$635^{+29}_{-27}$
$n_{\mathrm{s}}$	0.9767	$0.973^{+0.023}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.615	$2.60^{+0.15}_{-0.18}$	$H(0.38)$	83.71	$83.5^{+2.1}_{-2.1}$
$A_{100}^{\mathrm{PS}}$	218	$232^{+70}_{-70}$	$z_{\mathrm{re}}$	15.5	$14.3^{+5.8}_{-8.8}$	$D_{\mathrm{M}}(0.38)$	1510	$1517^{+58}_{-54}$
$A_{143}^{\mathrm{PS}}$	45.5	$35^{+20}_{-20}$	$10^9 A_{\mathrm{s}}$	2.512	$2.45^{+0.43}_{-0.43}$	$H(0.51)$	90.29	$90.1^{+1.7}_{-1.6}$
$A_{217}^{\mathrm{PS}}$	108.9	$104^{+30}_{-30}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8666	$1.869^{+0.043}_{-0.041}$	$D_{\mathrm{M}}(0.51)$	1959	$1966^{+67}_{-64}$
$A_{217}^{\mathrm{CIB}}$	37.5	$37^{+20}_{-20}$	$D_{40}$	1251.9	$1253^{+49}_{-44}$	$H(0.61)$	95.79	$95.6^{+1.4}_{-1.3}$
$A_{143}^{\mathrm{tSZ}}$	6.29	$< 8.86$	$D_{220}$	5717	$5717^{+110}_{-110}$	$D_{\mathrm{M}}(0.61)$	2281	$2289^{+72}_{-69}$
$r_{143 \times 217}^{\mathrm{PS}}$	0.787	$> 0.357$	$D_{810}$	2527.8	$2527^{+38}_{-36}$	$H(2.33)$	234.84	$235.2^{+4.3}_{-3.9}$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.78	—	$D_{1420}$	816.1	$814^{+14}_{-13}$	$D_{\mathrm{M}}(2.33)$	5742	$5749^{+59}_{-60}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.99	—	$D_{2000}$	232.9	$231.9^{+5.7}_{-5.6}$	$f\sigma_8(0.15)$	0.4855	$0.483^{+0.035}_{-0.036}$
$A^{\mathrm{kSZ}}$	0.0	—	$n_{\mathrm{s},0.002}$	0.9767	$0.973^{+0.023}_{-0.022}$	$\sigma_8(0.15)$	0.814	$0.804^{+0.059}_{-0.066}$
$A_{100}^{\mathrm{dust}}$	0.99	$0.998^{+0.51}_{-0.50}$	$Y_{\mathrm{P}}$	0.245470	$0.24543^{+0.00033}_{-0.00032}$	$f\sigma_8(0.38)$	0.5089	$0.505^{+0.033}_{-0.036}$
$A_{143}^{\mathrm{dust}}$	0.958	$0.95^{+0.46}_{-0.45}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246797	$0.24676^{+0.00033}_{-0.00032}$	$\sigma_8(0.38)$	0.724	$0.714^{+0.055}_{-0.061}$
$A_{217}^{\mathrm{dust}}$	0.992	$0.98^{+0.27}_{-0.27}$	$10^5 \mathrm{D}/\mathrm{H}$	2.549	$2.57^{+0.14}_{-0.13}$	$f\sigma_8(0.51)$	0.5093	$0.505^{+0.033}_{-0.036}$
$A_{143 \times 217}^{\mathrm{dust}}$	1.017	$1.02^{+0.42}_{-0.41}$	$\mathrm{Age}/\mathrm{Gyr}$	13.751	$13.77^{+0.13}_{-0.13}$	$\sigma_8(0.51)$	0.678	$0.669^{+0.053}_{-0.059}$
$y_{\mathrm{cal}}$	1.0001	$1.0002^{+0.0066}_{-0.0064}$	$z_*$	1089.41	$1089.6^{+1.5}_{-1.4}$	$f\sigma_8(0.61)$	0.5052	$0.500^{+0.033}_{-0.037}$
$c_{100}$	0.99785	$0.9975^{+0.0027}_{-0.0028}$	$r_*$	145.05	$144.9^{+1.5}_{-1.5}$	$\sigma_8(0.61)$	0.646	$0.637^{+0.052}_{-0.056}$
$c_{217}$	1.00088	$1.0009^{+0.0040}_{-0.0040}$	$100\theta_*$	1.04153	$1.0414^{+0.0014}_{-0.0014}$	$f\sigma_8(2.33)$	0.3261	$0.322^{+0.027}_{-0.030}$
$H_0$	68.73	$68.4^{+3.3}_{-3.3}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.927	$13.92^{+0.13}_{-0.14}$	$\sigma_8(2.33)$	0.3370	$0.332^{+0.030}_{-0.032}$
$\Omega_{\Lambda}$	0.7031	$0.698^{+0.040}_{-0.047}$	$z_{\mathrm{drag}}$	1060.20	$1060.0^{+1.4}_{-1.4}$	$f_{2000}^{143}$	25.9	$27^{+10}_{-9}$
$\Omega_{\mathrm{m}}$	0.2969	$0.302^{+0.047}_{-0.040}$	$r_{\mathrm{drag}}$	147.66	$147.6^{+1.4}_{-1.4}$	$f_{2000}^{217}$	103.7	$104.9^{+6.4}_{-6.3}$
$\Omega_{\mathrm{m}} h^2$	0.1402	$0.1409^{+0.0068}_{-0.0063}$	$k_{\mathrm{D}}$	0.14042	$0.1404^{+0.0014}_{-0.0014}$	$f_{2000}^{143 \times 217}$	29.0	$30^{+7}_{-7}$
$\Omega_{\mathrm{m}} h^3$	0.09638	$0.0963^{+0.0013}_{-0.0012}$	$100\theta_{\mathrm{D}}$	0.16065	$0.16074^{+0.00078}_{-0.00077}$	$\chi_{\mathrm{CamSpec}}^2$	7045.3	$7059.6 (\nu: 14.0)$
$\sigma_8$	0.880	$0.869^{+0.061}_{-0.069}$	$z_{\mathrm{eq}}$	3336	$3351^{+160}_{-150}$	$\chi_{\mathrm{prior}}^2$	1.4	$7.3 (\nu: 5.7)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 7046.70$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 7066.87$ ;  $R - 1 = 0.00646$   
 $\chi_{\mathrm{eff}}^2$ : CMB - CamSpec like\_10.7HM: 7045.25



## 2.223 base\_CamSpecHM\_TT\_lowl

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02253	$0.02242^{+0.00073}_{-0.00069}$	$\sigma_8 \Omega_m^{0.5}$	0.4693	$0.468^{+0.037}_{-0.036}$	$100\theta_{s,eq}$	0.4563	$0.455^{+0.015}_{-0.014}$
$\Omega_c h^2$	0.1169	$0.1177^{+0.0068}_{-0.0065}$	$\sigma_8 \Omega_m^{0.25}$	0.6359	$0.631^{+0.040}_{-0.042}$	$H(0.15)$	73.84	$73.5^{+2.7}_{-2.6}$
$100\theta_{MC}$	1.04132	$1.0412^{+0.0014}_{-0.0014}$	$\sigma_8/h^{0.5}$	1.039	$1.030^{+0.065}_{-0.068}$	$D_M(0.15)$	631.9	$635^{+26}_{-26}$
$\tau$	0.128	$0.113^{+0.081}_{-0.088}$	$r_{drag}h$	101.5	$100.9^{+5.5}_{-5.2}$	$H(0.38)$	83.69	$83.4^{+2.1}_{-1.9}$
$\ln(10^{10}A_s)$	3.183	$3.15^{+0.15}_{-0.17}$	$\langle d^2 \rangle^{1/2}$	2.560	$2.54^{+0.15}_{-0.16}$	$D_M(0.38)$	1511	$1518^{+52}_{-52}$
$n_s$	0.9775	$0.973^{+0.021}_{-0.020}$	$z_{re}$	14.0	$12.7^{+5.6}_{-8.3}$	$H(0.51)$	90.26	$90.1^{+1.7}_{-1.5}$
$y_{cal}$	1.0002	$1.0003^{+0.0063}_{-0.0064}$	$10^9 A_s$	2.411	$2.35^{+0.37}_{-0.37}$	$D_M(0.51)$	1959	$1967^{+61}_{-62}$
$A_{100}^{PS}$	219	$233^{+70}_{-60}$	$10^9 A_s e^{-2\tau}$	1.8656	$1.868^{+0.040}_{-0.040}$	$H(0.61)$	95.76	$95.6^{+1.4}_{-1.2}$
$A_{143}^{PS}$	45.0	$36^{+20}_{-20}$	$D_{40}$	1234.6	$1237^{+42}_{-41}$	$D_M(0.61)$	2282	$2291^{+65}_{-67}$
$A_{217}^{PS}$	109.7	$104^{+30}_{-40}$	$D_{220}$	5706	$5708^{+100}_{-110}$	$H(2.33)$	234.71	$235.1^{+4.0}_{-3.8}$
$A_{217}^{CIB}$	37.6	$38^{+20}_{-20}$	$D_{810}$	2529.3	$2528^{+36}_{-35}$	$D_M(2.33)$	5744	$5752^{+54}_{-58}$
$A_{143}^{tSZ}$	6.20	$< 8.89$	$D_{1420}$	817.0	$815^{+13}_{-14}$	$f\sigma_8(0.15)$	0.4754	$0.473^{+0.035}_{-0.035}$
$r_{143 \times 217}^{PS}$	0.807	$> 0.359$	$D_{2000}$	232.7	$231.6^{+5.7}_{-5.8}$	$\sigma_8(0.15)$	0.798	$0.788^{+0.054}_{-0.058}$
$r_{143 \times 217}^{CIB}$	0.70	—	$n_{s,0.002}$	0.9775	$0.973^{+0.021}_{-0.020}$	$f\sigma_8(0.38)$	0.4984	$0.495^{+0.032}_{-0.033}$
$\xi^{tSZ \times CIB}$	0.96	—	$Y_P$	0.245453	$0.24541^{+0.00031}_{-0.00031}$	$\sigma_8(0.38)$	0.709	$0.700^{+0.050}_{-0.054}$
$A^{kSZ}$	0.1	—	$Y_P^{BBN}$	0.246780	$0.24674^{+0.00031}_{-0.00031}$	$f\sigma_8(0.51)$	0.4988	$0.495^{+0.032}_{-0.033}$
$A_{100}^{dust}$	1.01	$1.01^{+0.50}_{-0.51}$	$10^5 D/H$	2.557	$2.58^{+0.13}_{-0.13}$	$\sigma_8(0.51)$	0.6642	$0.655^{+0.048}_{-0.051}$
$A_{143}^{dust}$	0.962	$0.96^{+0.46}_{-0.46}$	Age/Gyr	13.756	$13.77^{+0.12}_{-0.13}$	$f\sigma_8(0.61)$	0.4948	$0.490^{+0.031}_{-0.033}$
$A_{217}^{dust}$	0.978	$0.98^{+0.27}_{-0.27}$	$z_*$	1089.46	$1089.7^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	0.6324	$0.624^{+0.046}_{-0.049}$
$A_{143 \times 217}^{dust}$	1.030	$1.02^{+0.42}_{-0.42}$	$r_*$	145.12	$145.0^{+1.4}_{-1.5}$	$f\sigma_8(2.33)$	0.3195	$0.315^{+0.024}_{-0.026}$
$c_{100}$	0.99783	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_*$	1.04150	$1.0414^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	0.3302	$0.325^{+0.027}_{-0.028}$
$c_{217}$	1.00070	$1.0009^{+0.0040}_{-0.0040}$	$D_M(z_*)/\text{Gpc}$	13.934	$13.92^{+0.13}_{-0.13}$	$f_{2000}^{143}$	25.9	$27^{+10}_{-9}$
$H_0$	68.72	$68.3^{+3.2}_{-3.0}$	$z_{drag}$	1060.09	$1059.9^{+1.4}_{-1.3}$	$f_{2000}^{217}$	103.9	$105.3^{+6.2}_{-6.1}$
$\Omega_\Lambda$	0.7034	$0.698^{+0.038}_{-0.043}$	$r_{drag}$	147.74	$147.6^{+1.4}_{-1.4}$	$f_{2000}^{143 \times 217}$	29.3	$30^{+7}_{-7}$
$\Omega_m$	0.2966	$0.302^{+0.043}_{-0.038}$	$k_D$	0.14030	$0.1403^{+0.0014}_{-0.0013}$	$\chi_{lowl}^2$	24.50	$24.8 (\nu: 1.4)$
$\Omega_m h^2$	0.1401	$0.1408^{+0.0063}_{-0.0061}$	$100\theta_D$	0.16071	$0.16081^{+0.00076}_{-0.00075}$	$\chi_{CamSpec}^2$	7046.4	$7060.1 (\nu: 15.0)$
$\Omega_m h^3$	0.09626	$0.0962^{+0.0013}_{-0.0012}$	$z_{eq}$	3332	$3349^{+150}_{-150}$	$\chi_{prior}^2$	1.4	$7.4 (\nu: 5.6)$
$\sigma_8$	0.862	$0.851^{+0.056}_{-0.061}$	$k_{eq}$	0.010170	$0.01022^{+0.00046}_{-0.00045}$	$\chi_{CMB}^2$	7070.9	$7084.8 (\nu: 14.5)$
$S_8$	0.857	$0.854^{+0.067}_{-0.066}$	$100\theta_{eq}$	0.8268	$0.824^{+0.030}_{-0.028}$			

Best-fit  $\chi_{eff}^2 = 7072.29$ ;  $\bar{\chi}_{eff}^2 = 7092.24$ ;  $R - 1 = 0.00797$

$\chi_{eff}^2$ : CMB - commander\_dx12\_v3\_2\_29: 24.50 CamSpec like\_10.7HM: 7046.38



## 2.224 base\_CamSpecHM\_TT\_lowl\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02239^{+0.00058}_{-0.00054}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.631^{+0.039}_{-0.043}$	$D_{\mathrm{M}}(0.15)$	$637^{+13}_{-13}$
$\Omega_{\mathrm{c}} h^2$	$0.1181^{+0.0033}_{-0.0033}$	$\sigma_8 / h^{0.5}$	$1.030^{+0.064}_{-0.070}$	$H(0.38)$	$83.3^{+1.0}_{-1.0}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	$100.6^{+2.6}_{-2.6}$	$D_{\mathrm{M}}(0.38)$	$1521^{+27}_{-26}$
$\tau$	$0.109^{+0.065}_{-0.074}$	$\langle d^2 \rangle^{1/2}$	$2.54^{+0.15}_{-0.16}$	$H(0.51)$	$89.96^{+0.85}_{-0.83}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.15^{+0.13}_{-0.15}$	$z_{\mathrm{re}}$	$12.5^{+4.9}_{-6.9}$	$D_{\mathrm{M}}(0.51)$	$1971^{+32}_{-31}$
$n_{\mathrm{s}}$	$0.972^{+0.013}_{-0.013}$	$10^9 A_{\mathrm{s}}$	$2.33^{+0.31}_{-0.32}$	$H(0.61)$	$95.52^{+0.73}_{-0.70}$
$y_{\mathrm{cal}}$	$1.0003^{+0.0062}_{-0.0064}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.870^{+0.030}_{-0.030}$	$D_{\mathrm{M}}(0.61)$	$2294^{+34}_{-34}$
$A_{100}^{\mathrm{PS}}$	$234^{+60}_{-60}$	$D_{40}$	$1237^{+41}_{-39}$	$H(2.33)$	$235.3^{+2.1}_{-2.0}$
$A_{143}^{\mathrm{PS}}$	$36^{+20}_{-20}$	$D_{220}$	$5707^{+100}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5755^{+35}_{-35}$
$A_{217}^{\mathrm{PS}}$	$104^{+30}_{-40}$	$D_{810}$	$2529^{+35}_{-34}$	$f\sigma_8(0.15)$	$0.474^{+0.031}_{-0.032}$
$A_{217}^{\mathrm{CIB}}$	$38^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.786^{+0.050}_{-0.054}$
$A_{143}^{\mathrm{tSZ}}$	$< 9.02$	$D_{2000}$	$231.4^{+4.9}_{-5.2}$	$f\sigma_8(0.38)$	$0.495^{+0.031}_{-0.034}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.359$	$n_{\mathrm{s}, 0.002}$	$0.972^{+0.013}_{-0.013}$	$\sigma_8(0.38)$	$0.698^{+0.045}_{-0.049}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24540^{+0.00023}_{-0.00024}$	$f\sigma_8(0.51)$	$0.494^{+0.030}_{-0.034}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00024}_{-0.00024}$	$\sigma_8(0.51)$	$0.653^{+0.043}_{-0.046}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.58^{+0.10}_{-0.10}$	$f\sigma_8(0.61)$	$0.490^{+0.031}_{-0.034}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.780^{+0.078}_{-0.081}$	$\sigma_8(0.61)$	$0.622^{+0.041}_{-0.044}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.45}$	$z_*$	$1089.73^{+0.85}_{-0.83}$	$f\sigma_8(2.33)$	$0.314^{+0.021}_{-0.022}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.28}_{-0.26}$	$r_*$	$144.91^{+0.81}_{-0.82}$	$\sigma_8(2.33)$	$0.324^{+0.022}_{-0.023}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.41}$	$100\theta_*$	$1.0414^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$28^{+9}_{-9}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0026}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.916^{+0.078}_{-0.080}$	$f_{2000}^{217}$	$105.5^{+5.9}_{-5.7}$
$c_{217}$	$1.0010^{+0.0041}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.8^{+1.3}_{-1.2}$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6}$
$H_0$	$68.1^{+1.5}_{-1.5}$	$r_{\mathrm{drag}}$	$147.58^{+0.86}_{-0.89}$	$\chi_{\mathrm{lowl}}^2$	$24.7 (\nu: 1.4)$
$\Omega_{\Lambda}$	$0.696^{+0.019}_{-0.020}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$7059.6 (\nu: 14.6)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.020}_{-0.019}$	$100\theta_{\mathrm{D}}$	$0.16083^{+0.00071}_{-0.00070}$	$\chi_{6\mathrm{DF}}^2$	$0.044 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1411^{+0.0032}_{-0.0031}$	$z_{\mathrm{eq}}$	$3357^{+76}_{-75}$	$\chi_{\mathrm{MGS}}^2$	$1.82 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0961^{+0.0012}_{-0.0012}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00023}_{-0.00023}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.1 (\nu: 0.6)$
$\sigma_8$	$0.850^{+0.054}_{-0.058}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.015}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 5.5)$
$S_8$	$0.856^{+0.056}_{-0.058}$	$100\theta_{\mathrm{s}, \mathrm{eq}}$	$0.4538^{+0.0074}_{-0.0073}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.6)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.469^{+0.030}_{-0.032}$	$H(0.15)$	$73.3^{+1.3}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$7084.3 (\nu: 14.0)$
$\bar{\chi}_{\mathrm{eff}}^2 = 7097.63; R - 1 = 0.01179$					



## 2.225 base\_CamSpecHM\_TT\_lowl\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02243^{+0.00072}_{-0.00066}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.468^{+0.037}_{-0.036}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.015}_{-0.014}$
$\Omega_{\mathrm{c}} h^2$	$0.1176^{+0.0065}_{-0.0065}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.632^{+0.040}_{-0.039}$	$H(0.15)$	$73.5^{+2.7}_{-2.5}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0014}_{-0.0013}$	$\sigma_8/h^{0.5}$	$1.031^{+0.064}_{-0.062}$	$D_{\mathrm{M}}(0.15)$	$635^{+25}_{-25}$
$\tau$	$0.115^{+0.079}_{-0.070}$	$r_{\mathrm{drag}} h$	$100.9^{+5.5}_{-5.0}$	$H(0.38)$	$83.5^{+2.0}_{-1.8}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.16^{+0.15}_{-0.13}$	$\langle d^2 \rangle^{1/2}$	$2.54^{+0.14}_{-0.15}$	$D_{\mathrm{M}}(0.38)$	$1517^{+50}_{-52}$
$n_{\mathrm{s}}$	$0.974^{+0.021}_{-0.019}$	$z_{\mathrm{re}}$	$12.9^{+5.5}_{-6.1}$	$H(0.51)$	$90.1^{+1.6}_{-1.4}$
$y_{\mathrm{cal}}$	$1.0003^{+0.0063}_{-0.0064}$	$10^9 A_{\mathrm{s}}$	$2.36^{+0.35}_{-0.31}$	$D_{\mathrm{M}}(0.51)$	$1967^{+58}_{-61}$
$A_{100}^{\mathrm{PS}}$	$232^{+60}_{-60}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.868^{+0.039}_{-0.040}$	$H(0.61)$	$95.6^{+1.3}_{-1.1}$
$A_{143}^{\mathrm{PS}}$	$35^{+20}_{-20}$	$D_{40}$	$1237^{+43}_{-41}$	$D_{\mathrm{M}}(0.61)$	$2290^{+63}_{-67}$
$A_{217}^{\mathrm{PS}}$	$104^{+30}_{-30}$	$D_{220}$	$5708^{+100}_{-110}$	$H(2.33)$	$235.1^{+3.9}_{-3.8}$
$A_{217}^{\mathrm{CIB}}$	$38^{+20}_{-20}$	$D_{810}$	$2528^{+36}_{-35}$	$D_{\mathrm{M}}(2.33)$	$5751^{+51}_{-57}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.88$	$D_{1420}$	$815^{+13}_{-14}$	$f\sigma_8(0.15)$	$0.474^{+0.035}_{-0.034}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.359$	$D_{2000}$	$231.6^{+5.6}_{-5.6}$	$\sigma_8(0.15)$	$0.789^{+0.053}_{-0.048}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.974^{+0.021}_{-0.019}$	$f\sigma_8(0.38)$	$0.495^{+0.032}_{-0.032}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24542^{+0.00031}_{-0.00030}$	$\sigma_8(0.38)$	$0.701^{+0.049}_{-0.044}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00031}_{-0.00030}$	$f\sigma_8(0.51)$	$0.495^{+0.031}_{-0.030}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.58^{+0.13}_{-0.13}$	$\sigma_8(0.51)$	$0.656^{+0.047}_{-0.041}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.46}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.77^{+0.11}_{-0.12}$	$f\sigma_8(0.61)$	$0.491^{+0.031}_{-0.030}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27}$	$z_*$	$1089.6^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	$0.625^{+0.045}_{-0.040}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.42}_{-0.42}$	$r_*$	$145.0^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	$0.315^{+0.024}_{-0.021}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_*$	$1.0414^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	$0.326^{+0.026}_{-0.022}$
$c_{217}$	$1.0009^{+0.0040}_{-0.0040}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.92^{+0.13}_{-0.13}$	$f_{2000}^{143}$	$27^{+9}_{-9}$
$H_0$	$68.4^{+3.1}_{-2.9}$	$z_{\mathrm{drag}}$	$1059.9^{+1.4}_{-1.3}$	$f_{2000}^{217}$	$105.2^{+6.1}_{-6.1}$
$\Omega_{\Lambda}$	$0.698^{+0.038}_{-0.041}$	$r_{\mathrm{drag}}$	$147.7^{+1.4}_{-1.4}$	$f_{2000}^{143 \times 217}$	$30^{+7}_{-7}$
$\Omega_{\mathrm{m}}$	$0.302^{+0.041}_{-0.038}$	$k_{\mathrm{D}}$	$0.1403^{+0.0014}_{-0.0013}$	$\chi_{\mathrm{lowl}}^2$	$24.8 (\nu: 1.4)$
$\Omega_{\mathrm{m}} h^2$	$0.1407^{+0.0061}_{-0.0061}$	$100\theta_{\mathrm{D}}$	$0.16081^{+0.00075}_{-0.00075}$	$\chi_{\mathrm{CamSpec}}^2$	$7060.0 (\nu: 14.7)$
$\Omega_{\mathrm{m}} h^3$	$0.0962^{+0.0013}_{-0.0012}$	$z_{\mathrm{eq}}$	$3347^{+150}_{-150}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 5.6)$
$\sigma_8$	$0.853^{+0.055}_{-0.051}$	$k_{\mathrm{eq}}$	$0.01022^{+0.00045}_{-0.00044}$	$\chi_{\mathrm{CMB}}^2$	$7084.8 (\nu: 14.3)$
$S_8$	$0.854^{+0.067}_{-0.065}$	$100\theta_{\mathrm{eq}}$	$0.824^{+0.029}_{-0.027}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7092.14$ ;  $R - 1 = 0.00760$



## 2.226 base\_CamSpecHM\_TT\_lowl\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00058}_{-0.00053}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.632^{+0.039}_{-0.037}$	$D_{\mathrm{M}}(0.15)$	$637^{+13}_{-13}$
$\Omega_{\mathrm{c}}h^2$	$0.1181^{+0.0033}_{-0.0033}$	$\sigma_8/h^{0.5}$	$1.030^{+0.063}_{-0.059}$	$H(0.38)$	$83.3^{+1.0}_{-0.99}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}}h$	$100.6^{+2.6}_{-2.6}$	$D_{\mathrm{M}}(0.38)$	$1521^{+26}_{-26}$
$\tau$	$0.110^{+0.064}_{-0.063}$	$\langle d^2 \rangle^{1/2}$	$2.54^{+0.15}_{-0.14}$	$H(0.51)$	$89.96^{+0.85}_{-0.82}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.15^{+0.13}_{-0.12}$	$z_{\mathrm{re}}$	$12.6^{+4.8}_{-5.5}$	$D_{\mathrm{M}}(0.51)$	$1971^{+31}_{-31}$
$n_{\mathrm{s}}$	$0.972^{+0.013}_{-0.013}$	$10^9 A_{\mathrm{s}}$	$2.33^{+0.31}_{-0.27}$	$H(0.61)$	$95.52^{+0.73}_{-0.70}$
$y_{\mathrm{cal}}$	$1.0003^{+0.0062}_{-0.0064}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.870^{+0.030}_{-0.029}$	$D_{\mathrm{M}}(0.61)$	$2294^{+34}_{-34}$
$A_{100}^{\mathrm{PS}}$	$233^{+60}_{-60}$	$D_{40}$	$1237^{+41}_{-38}$	$H(2.33)$	$235.3^{+2.1}_{-2.0}$
$A_{143}^{\mathrm{PS}}$	$36^{+20}_{-20}$	$D_{220}$	$5707^{+100}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5755^{+34}_{-35}$
$A_{217}^{\mathrm{PS}}$	$104^{+30}_{-40}$	$D_{810}$	$2529^{+35}_{-34}$	$f\sigma_8(0.15)$	$0.474^{+0.030}_{-0.029}$
$A_{217}^{\mathrm{CIB}}$	$38^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.787^{+0.050}_{-0.046}$
$A_{143}^{\mathrm{tSZ}}$	$< 9.02$	$D_{2000}$	$231.4^{+4.9}_{-5.1}$	$f\sigma_8(0.38)$	$0.495^{+0.031}_{-0.029}$
$r_{143\times 217}^{\mathrm{PS}}$	$> 0.359$	$n_{\mathrm{s},0.002}$	$0.972^{+0.013}_{-0.013}$	$\sigma_8(0.38)$	$0.698^{+0.045}_{-0.042}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24540^{+0.00023}_{-0.00023}$	$f\sigma_8(0.51)$	$0.495^{+0.030}_{-0.029}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00023}_{-0.00023}$	$\sigma_8(0.51)$	$0.654^{+0.042}_{-0.039}$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.58^{+0.10}_{-0.10}$	$f\sigma_8(0.61)$	$0.490^{+0.030}_{-0.028}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.779^{+0.078}_{-0.081}$	$\sigma_8(0.61)$	$0.622^{+0.041}_{-0.038}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.45}$	$z_*$	$1089.73^{+0.84}_{-0.82}$	$f\sigma_8(2.33)$	$0.314^{+0.021}_{-0.019}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.28}_{-0.26}$	$r_*$	$144.91^{+0.81}_{-0.82}$	$\sigma_8(2.33)$	$0.324^{+0.022}_{-0.020}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.41}$	$100\theta_*$	$1.0414^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$28^{+9}_{-9}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0026}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.916^{+0.078}_{-0.080}$	$f_{2000}^{217}$	$105.5^{+5.8}_{-5.7}$
$c_{217}$	$1.0010^{+0.0041}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.8^{+1.3}_{-1.2}$	$f_{2000}^{143\times 217}$	$31^{+6}_{-6}$
$H_0$	$68.1^{+1.5}_{-1.5}$	$r_{\mathrm{drag}}$	$147.58^{+0.86}_{-0.89}$	$\chi_{\mathrm{lowl}}^2$	$24.7\ (\nu: 1.3)$
$\Omega_{\Lambda}$	$0.696^{+0.019}_{-0.020}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$7059.5\ (\nu: 14.2)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.020}_{-0.019}$	$100\theta_{\mathrm{D}}$	$0.16083^{+0.00070}_{-0.00070}$	$\chi_{6\mathrm{DF}}^2$	$0.043\ (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1411^{+0.0032}_{-0.0031}$	$z_{\mathrm{eq}}$	$3357^{+76}_{-75}$	$\chi_{\mathrm{MGS}}^2$	$1.82\ (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0012}_{-0.0012}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00023}_{-0.00023}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.1\ (\nu: 0.5)$
$\sigma_8$	$0.851^{+0.053}_{-0.049}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.014}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.4\ (\nu: 5.5)$
$S_8$	$0.856^{+0.055}_{-0.053}$	$100\theta_{\mathrm{s,eq}}$	$0.4538^{+0.0074}_{-0.0072}$	$\chi_{\mathrm{BAO}}^2$	$6.0\ (\nu: 0.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.469^{+0.030}_{-0.029}$	$H(0.15)$	$73.3^{+1.3}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$7084.2\ (\nu: 13.8)$
$\bar{\chi}_{\mathrm{eff}}^2 = 7097.56; R - 1 = 0.01150$					



## 2.227 base\_CamSpecHM\_TT\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02205	$0.02207^{+0.00056}_{-0.00053}$	$\sigma_8 \Omega_m^{0.5}$	0.4653	$0.465^{+0.036}_{-0.035}$	$100\theta_{s,eq}$	0.4462	$0.446^{+0.012}_{-0.012}$
$\Omega_c h^2$	0.1216	$0.1216^{+0.0056}_{-0.0054}$	$\sigma_8 \Omega_m^{0.25}$	0.6154	$0.615^{+0.031}_{-0.032}$	$H(0.15)$	71.90	$71.9^{+2.1}_{-2.0}$
$100\theta_{MC}$	1.04072	$1.0407^{+0.0013}_{-0.0012}$	$\sigma_8/h^{0.5}$	0.9985	$0.998^{+0.042}_{-0.043}$	$D_M(0.15)$	651.2	$651^{+21}_{-21}$
$\tau$	0.0513	$0.052^{+0.021}_{-0.022}$	$r_{drag} h$	97.71	$97.8^{+4.3}_{-4.2}$	$H(0.38)$	82.27	$82.3^{+1.5}_{-1.4}$
$\ln(10^{10} A_s)$	3.0400	$3.041^{+0.043}_{-0.046}$	$\langle d^2 \rangle^{1/2}$	2.471	$2.47^{+0.10}_{-0.10}$	$D_M(0.38)$	1549.3	$1549^{+42}_{-42}$
$n_s$	0.9590	$0.960^{+0.016}_{-0.015}$	$z_{re}$	7.47	$7.5^{+2.1}_{-2.5}$	$H(0.51)$	89.13	$89.2^{+1.2}_{-1.1}$
$y_{cal}$	1.0003	$1.0004^{+0.0064}_{-0.0065}$	$10^9 A_s$	2.091	$2.092^{+0.092}_{-0.094}$	$D_M(0.51)$	2004.6	$2004^{+48}_{-49}$
$A_{100}^{PS}$	249	$245^{+60}_{-60}$	$10^9 A_s e^{-2\tau}$	1.8866	$1.887^{+0.036}_{-0.036}$	$H(0.61)$	94.87	$94.90^{+0.96}_{-0.85}$
$A_{143}^{PS}$	39.9	$42^{+20}_{-20}$	$D_{40}$	1240.5	$1239^{+42}_{-42}$	$D_M(0.61)$	2331	$2330^{+51}_{-52}$
$A_{217}^{PS}$	97.9	$100^{+30}_{-30}$	$D_{220}$	5710	$5709^{+110}_{-110}$	$H(2.33)$	237.30	$237.3^{+3.4}_{-3.3}$
$A_{217}^{CIB}$	44.6	$42^{+20}_{-20}$	$D_{810}$	2533.3	$2534^{+36}_{-36}$	$D_M(2.33)$	5783.3	$5782^{+40}_{-43}$
$A_{143}^{tSZ}$	4.22	$< 8.71$	$D_{1420}$	812.1	$813^{+13}_{-13}$	$f\sigma_8(0.15)$	0.4686	$0.468^{+0.032}_{-0.032}$
$r_{143 \times 217}^{PS}$	0.539	$0.64^{+0.32}_{-0.32}$	$D_{2000}$	228.72	$229.0^{+4.6}_{-4.7}$	$\sigma_8(0.15)$	0.7507	$0.751^{+0.019}_{-0.021}$
$r_{143 \times 217}^{CIB}$	0.69	—	$n_{s,0.002}$	0.9590	$0.960^{+0.016}_{-0.015}$	$f\sigma_8(0.38)$	0.4836	$0.483^{+0.025}_{-0.026}$
$\xi^{tSZ \times CIB}$	0.01	—	$Y_P$	0.245264	$0.24526^{+0.00023}_{-0.00025}$	$\sigma_8(0.38)$	0.6638	$0.664^{+0.016}_{-0.017}$
$A^{kSZ}$	3.9	—	$Y_P^{BBN}$	0.246590	$0.24659^{+0.00023}_{-0.00025}$	$f\sigma_8(0.51)$	0.4804	$0.480^{+0.021}_{-0.022}$
$A_{100}^{dust}$	1.005	$1.01^{+0.50}_{-0.49}$	$10^5 D/H$	2.646	$2.64^{+0.10}_{-0.10}$	$\sigma_8(0.51)$	0.6206	$0.621^{+0.015}_{-0.015}$
$A_{143}^{dust}$	0.986	$0.97^{+0.45}_{-0.46}$	Age/Gyr	13.842	$13.839^{+0.092}_{-0.095}$	$f\sigma_8(0.61)$	0.4742	$0.474^{+0.019}_{-0.020}$
$A_{217}^{dust}$	0.958	$0.97^{+0.27}_{-0.27}$	$z_*$	1090.47	$1090.4^{+1.1}_{-1.1}$	$\sigma_8(0.61)$	0.5901	$0.590^{+0.014}_{-0.014}$
$A_{143 \times 217}^{dust}$	1.001	$1.03^{+0.42}_{-0.41}$	$r_*$	144.25	$144.3^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	0.2969	$0.2971^{+0.0067}_{-0.0070}$
$c_{100}$	0.99748	$0.9975^{+0.0027}_{-0.0028}$	$100\theta_*$	1.04094	$1.0409^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.3055	$0.3056^{+0.0071}_{-0.0072}$
$c_{217}$	1.00140	$1.0013^{+0.0042}_{-0.0040}$	$D_M(z_*)/\text{Gpc}$	13.858	$13.86^{+0.11}_{-0.11}$	$f_{2000}^{143}$	32.3	$32^{+8}_{-8}$
$H_0$	66.46	$66.5^{+2.4}_{-2.4}$	$z_{drag}$	1059.32	$1059.3^{+1.2}_{-1.1}$	$f_{2000}^{217}$	108.4	$108.0^{+5.1}_{-5.3}$
$\Omega_\Lambda$	0.6733	$0.674^{+0.034}_{-0.037}$	$r_{drag}$	147.02	$147.0^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	33.8	$34^{+6}_{-6}$
$\Omega_m$	0.3267	$0.326^{+0.037}_{-0.034}$	$k_D$	0.14070	$0.1407^{+0.0013}_{-0.0013}$	$\chi_{simall}^2$	395.83	$397.0 (\nu: 1.4)$
$\Omega_m h^2$	0.1443	$0.1443^{+0.0053}_{-0.0052}$	$100\theta_D$	0.16112	$0.16111^{+0.00066}_{-0.00067}$	$\chi_{CamSpec}^2$	7049.7	$7062.9 (\nu: 14.0)$
$\Omega_m h^3$	0.09592	$0.0959^{+0.0012}_{-0.0011}$	$z_{eq}$	3434	$3432^{+130}_{-120}$	$\chi_{prior}^2$	2.3	$7.7 (\nu: 6.1)$
$\sigma_8$	0.8140	$0.814^{+0.023}_{-0.025}$	$k_{eq}$	0.010479	$0.01048^{+0.00038}_{-0.00038}$	$\chi_{CMB}^2$	7445.5	$7459.8 (\nu: 15.0)$
$S_8$	0.850	$0.849^{+0.065}_{-0.064}$	$100\theta_{eq}$	0.8067	$0.807^{+0.024}_{-0.022}$			

Best-fit  $\chi_{eff}^2 = 7447.83$ ;  $\bar{\chi}_{eff}^2 = 7467.49$ ;  $R - 1 = 0.00861$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.83 CamSpec like\_10.7HM: 7049.71



## 2.228 base\_CamSpecHM\_TTTEE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02249	$0.02246^{+0.00051}_{-0.00049} \quad (-0.0\sigma)$	$\sigma_8$	0.852	$0.850^{+0.068}_{-0.059} \quad (-0.7\sigma)$	$k_{\mathrm{eq}}$	0.010269	$0.01027^{+0.00030}_{-0.00030} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}} h^2$	0.11831	$0.1183^{+0.0044}_{-0.0044} \quad (+0.2\sigma)$	$S_8$	0.860	$0.858^{+0.058}_{-0.056} \quad (-0.5\sigma)$	$100\theta_{\mathrm{eq}}$	0.8205	$0.821^{+0.019}_{-0.018} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	1.04104	$1.04104^{+0.00089}_{-0.00086} \quad (-0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4709	$0.470^{+0.032}_{-0.031} \quad (-0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4531	$0.4531^{+0.0098}_{-0.0094} \quad (-0.2\sigma)$
$\tau$	0.112	$0.110^{+0.089}_{-0.081} \quad (-0.7\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6336	$0.632^{+0.045}_{-0.041} \quad (-0.7\sigma)$	$H(0.15)$	73.30	$73.3^{+1.8}_{-1.7} \quad (-0.2\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	3.154	$3.15^{+0.17}_{-0.16} \quad (-0.7\sigma)$	$\sigma_8/h^{0.5}$	1.033	$1.031^{+0.075}_{-0.067} \quad (-0.7\sigma)$	$D_{\mathrm{M}}(0.15)$	637.2	$637^{+17}_{-17} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	0.9714	$0.970^{+0.017}_{-0.015} \quad (-0.3\sigma)$	$r_{\mathrm{drag}} h$	100.37	$100.4^{+3.6}_{-3.4} \quad (-0.2\sigma)$	$H(0.38)$	83.31	$83.3^{+1.3}_{-1.2} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	221	$233^{+60}_{-70} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	2.551	$2.55^{+0.17}_{-0.16} \quad (-0.7\sigma)$	$D_{\mathrm{M}}(0.38)$	1521.1	$1522^{+34}_{-35} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	48.6	$36^{+20}_{-20} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	12.8	$12.4^{+6.4}_{-7.6} \quad (-0.7\sigma)$	$H(0.51)$	89.96	$90.0^{+1.1}_{-0.97} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	107.7	$104^{+30}_{-30} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	2.343	$2.34^{+0.43}_{-0.34} \quad (-0.7\sigma)$	$D_{\mathrm{M}}(0.51)$	1971.5	$1972^{+39}_{-41} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	39.2	$37^{+20}_{-20} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8728	$1.872^{+0.032}_{-0.033} \quad (+0.2\sigma)$	$H(0.61)$	95.53	$95.52^{+0.88}_{-0.78} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	6.49	$< 8.83 \quad (-0.0\sigma)$	$D_{40}$	1240.1	$1243^{+48}_{-38} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.61)$	2295.0	$2295^{+42}_{-45} \quad (+0.2\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	0.774	$0.68^{+0.32}_{-0.31} \quad (-0.0\sigma)$	$D_{220}$	5721	$5722^{+100}_{-98} \quad (+0.1\sigma)$	$H(2.33)$	235.57	$235.6^{+2.6}_{-2.6} \quad (+0.2\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.87	—	$D_{810}$	2531.0	$2529^{+36}_{-35} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	5753.1	$5754^{+35}_{-38} \quad (+0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.999	—	$D_{1420}$	815.9	$815^{+13}_{-12} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	0.4762	$0.475^{+0.032}_{-0.031} \quad (-0.6\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	231.86	$231.4^{+4.9}_{-4.5} \quad (-0.2\sigma)$	$\sigma_8(0.15)$	0.788	$0.786^{+0.064}_{-0.055} \quad (-0.7\sigma)$
$A_{100}^{\mathrm{dust}}$	0.995	$1.00^{+0.50}_{-0.51} \quad (+0.0\sigma)$	$n_{\mathrm{s},0.002}$	0.9714	$0.970^{+0.017}_{-0.015} \quad (-0.3\sigma)$	$f\sigma_8(0.38)$	0.4971	$0.496^{+0.035}_{-0.032} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{dust}}$	0.963	$0.95^{+0.45}_{-0.45} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	0.245439	$0.24543^{+0.00021}_{-0.00020} \quad (-0.0\sigma)$	$\sigma_8(0.38)$	0.700	$0.698^{+0.059}_{-0.051} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dust}}$	0.987	$0.98^{+0.26}_{-0.27} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246766	$0.24676^{+0.00021}_{-0.00020} \quad (-0.0\sigma)$	$f\sigma_8(0.51)$	0.4964	$0.495^{+0.036}_{-0.032} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	0.998	$1.02^{+0.41}_{-0.41} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	2.565	$2.569^{+0.092}_{-0.092} \quad (+0.0\sigma)$	$\sigma_8(0.51)$	0.655	$0.653^{+0.056}_{-0.048} \quad (-0.7\sigma)$
$y_{\mathrm{cal}}$	1.0000	$1.0001^{+0.0065}_{-0.0063} \quad (-0.0\sigma)$	Age/Gyr	13.775	$13.777^{+0.079}_{-0.084} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	0.4917	$0.490^{+0.036}_{-0.033} \quad (-0.7\sigma)$
$c_{100}$	0.99792	$0.9976^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$z_*$	1089.63	$1089.66^{+0.92}_{-0.92} \quad (+0.1\sigma)$	$\sigma_8(0.61)$	0.623	$0.622^{+0.054}_{-0.046} \quad (-0.7\sigma)$
$c_{217}$	1.00103	$1.0009^{+0.0040}_{-0.0041} \quad (+0.0\sigma)$	$r_*$	144.78	$144.80^{+0.94}_{-0.92} \quad (-0.2\sigma)$	$f\sigma_8(2.33)$	0.3146	$0.314^{+0.028}_{-0.024} \quad (-0.7\sigma)$
$c_{TE}$	0.9925	$0.992^{+0.014}_{-0.014}$	$100\theta_*$	1.04122	$1.04122^{+0.00087}_{-0.00084} \quad (-0.4\sigma)$	$\sigma_8(2.33)$	0.3247	$0.324^{+0.030}_{-0.025} \quad (-0.7\sigma)$
$c_{EE}$	0.9903	$0.990^{+0.013}_{-0.013}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.905	$13.907^{+0.086}_{-0.084} \quad (-0.2\sigma)$	$f_{2000}^{143}$	27.3	$27^{+8}_{-8} \quad (+0.1\sigma)$
$H_0$	68.09	$68.1^{+2.1}_{-2.0} \quad (-0.2\sigma)$	$z_{\mathrm{drag}}$	1060.09	$1060.03^{+0.97}_{-0.97} \quad (+0.0\sigma)$	$f_{2000}^{217}$	104.7	$105.3^{+5.6}_{-5.7} \quad (+0.2\sigma)$
$\Omega_{\Lambda}$	0.6949	$0.695^{+0.026}_{-0.027} \quad (-0.2\sigma)$	$r_{\mathrm{drag}}$	147.41	$147.44^{+0.90}_{-0.88} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	30.1	$30^{+6}_{-6} \quad (+0.2\sigma)$
$\Omega_{\mathrm{m}}$	0.3051	$0.305^{+0.027}_{-0.026} \quad (+0.2\sigma)$	$k_{\mathrm{D}}$	0.14062	$0.14057^{+0.00090}_{-0.00092} \quad (+0.2\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	11495.8	$11512.0 \quad (\nu: 15.9) \quad (+842.7\sigma)$
$\Omega_{\mathrm{m}} h^2$	0.14144	$0.1414^{+0.0041}_{-0.0041} \quad (+0.2\sigma)$	$100\theta_{\mathrm{D}}$	0.16067	$0.16071^{+0.00056}_{-0.00054} \quad (-0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	1.9	$7.7 \quad (\nu: 5.5) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	0.09630	$0.09626^{+0.00083}_{-0.00083} \quad (-0.0\sigma)$	$z_{\mathrm{eq}}$	3364	$3364^{+97}_{-97} \quad (+0.2\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 11497.65$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4450.95$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 11519.77$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4452.89$ ;  $R - 1 = 0.00880$

$\chi_{\mathrm{eff}}^2$ : CMB - CamSpec like\_10.7HM\_1400\_unified: 11495.79



## 2.229 base\_CamSpecHM\_TTTEEE\_lowl

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022467	$0.02243^{+0.00048}_{-0.00046}$ (+0.0 $\sigma$ )	$S_8$	0.850	$0.846^{+0.053}_{-0.053}$ (−0.3 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4533	$0.4530^{+0.0090}_{-0.0089}$ (−0.3 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11820	$0.1184^{+0.0042}_{-0.0040}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4655	$0.463^{+0.029}_{-0.029}$ (−0.3 $\sigma$ )	$H(0.15)$	73.32	$73.2^{+1.6}_{-1.6}$ (−0.3 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04104	$1.04102^{+0.00085}_{-0.00085}$ (−0.4 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6265	$0.623^{+0.037}_{-0.039}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	637.0	$638^{+16}_{-15}$ (+0.2 $\sigma$ )
$\tau$	0.101	$0.094^{+0.074}_{-0.073}$ (−0.6 $\sigma$ )	$\sigma_8/h^{0.5}$	1.022	$1.015^{+0.062}_{-0.063}$ (−0.6 $\sigma$ )	$H(0.38)$	83.31	$83.2^{+1.2}_{-1.2}$ (−0.2 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.132	$3.12^{+0.14}_{-0.14}$ (−0.6 $\sigma$ )	$r_{\mathrm{drag}}h$	100.44	$100.3^{+3.2}_{-3.3}$ (−0.3 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1520.8	$1523^{+32}_{-32}$ (+0.2 $\sigma$ )
$n_{\mathrm{s}}$	0.9723	$0.971^{+0.014}_{-0.014}$ (−0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.521	$2.51^{+0.14}_{-0.15}$ (−0.5 $\sigma$ )	$H(0.51)$	89.96	$89.91^{+0.96}_{-0.93}$ (−0.2 $\sigma$ )
$y_{\mathrm{cal}}$	1.0002	$1.0002^{+0.0067}_{-0.0062}$ (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	11.9	$11.2^{+5.6}_{-7.4}$ (−0.6 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1971.2	$1973^{+38}_{-37}$ (+0.2 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	222	$234^{+70}_{-60}$ (+0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.293	$2.26^{+0.34}_{-0.30}$ (−0.6 $\sigma$ )	$H(0.61)$	95.53	$95.48^{+0.78}_{-0.75}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	48.3	$37^{+20}_{-20}$ (+0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8726	$1.872^{+0.032}_{-0.030}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2294.6	$2297^{+41}_{-40}$ (+0.2 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	108.5	$104^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{40}$	1231.7	$1233^{+37}_{-33}$ (−0.3 $\sigma$ )	$H(2.33)$	235.48	$235.6^{+2.4}_{-2.3}$ (+0.3 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	38.8	$38^{+20}_{-20}$ (−0.0 $\sigma$ )	$D_{220}$	5716	$5716^{+98}_{-99}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5753.6	$5756^{+34}_{-35}$ (+0.2 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	6.38	< 8.87 (−0.0 $\sigma$ )	$D_{810}$	2532.6	$2531^{+37}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4708	$0.468^{+0.029}_{-0.029}$ (−0.4 $\sigma$ )
$r_{143\times 217}^{\mathrm{PS}}$	0.768	> 0.364 (+0.0 $\sigma$ )	$D_{1420}$	816.9	$816^{+12}_{-12}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.780	$0.774^{+0.052}_{-0.051}$ (−0.6 $\sigma$ )
$r_{143\times 217}^{\mathrm{CIB}}$	0.84	—	$D_{2000}$	231.94	$231.3^{+4.6}_{-4.4}$ (−0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4915	$0.489^{+0.029}_{-0.030}$ (−0.5 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.96	—	$n_{\mathrm{s},0.002}$	0.9723	$0.971^{+0.014}_{-0.014}$ (−0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6922	$0.687^{+0.048}_{-0.047}$ (−0.6 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$Y_{\mathrm{P}}$	0.245433	$0.24542^{+0.00019}_{-0.00019}$ (+0.0 $\sigma$ )	$f\sigma_8(0.51)$	0.4909	$0.488^{+0.030}_{-0.030}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{dust}}$	1.00	$1.00^{+0.51}_{-0.49}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246759	$0.24674^{+0.00019}_{-0.00019}$ (+0.0 $\sigma$ )	$\sigma_8(0.51)$	0.6481	$0.643^{+0.045}_{-0.044}$ (−0.6 $\sigma$ )
$A_{143}^{\mathrm{dust}}$	0.960	$0.95^{+0.45}_{-0.46}$ (−0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.568	$2.575^{+0.087}_{-0.087}$ (−0.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4863	$0.483^{+0.030}_{-0.030}$ (−0.6 $\sigma$ )
$A_{217}^{\mathrm{dust}}$	0.993	$0.98^{+0.27}_{-0.27}$ (−0.0 $\sigma$ )	Age/Gyr	13.776	$13.781^{+0.075}_{-0.076}$ (+0.2 $\sigma$ )	$\sigma_8(0.61)$	0.6169	$0.612^{+0.043}_{-0.042}$ (−0.6 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}}$	1.008	$1.01^{+0.41}_{-0.41}$ (−0.0 $\sigma$ )	$z_*$	1089.64	$1089.70^{+0.88}_{-0.85}$ (+0.1 $\sigma$ )	$f\sigma_8(2.33)$	0.3114	$0.309^{+0.023}_{-0.022}$ (−0.6 $\sigma$ )
$c_{100}$	0.99782	$0.9975^{+0.0028}_{-0.0026}$ (+0.0 $\sigma$ )	$r_*$	144.82	$144.81^{+0.88}_{-0.85}$ (−0.3 $\sigma$ )	$\sigma_8(2.33)$	0.3213	$0.319^{+0.024}_{-0.023}$ (−0.6 $\sigma$ )
$c_{217}$	1.00104	$1.0009^{+0.0041}_{-0.0040}$ (−0.0 $\sigma$ )	$100\theta_*$	1.04122	$1.04120^{+0.00083}_{-0.00083}$ (−0.4 $\sigma$ )	$f_{2000}^{143}$	27.4	$28^{+8}_{-8}$ (+0.1 $\sigma$ )
$c_{TE}$	0.9932	$0.994^{+0.014}_{-0.014}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.909	$13.908^{+0.081}_{-0.080}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	104.8	$105.5^{+5.4}_{-5.5}$ (+0.1 $\sigma$ )
$c_{EE}$	0.9906	$0.991^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	1060.05	$1059.96^{+0.97}_{-0.90}$ (+0.1 $\sigma$ )	$f_{2000}^{143\times 217}$	30.1	$31^{+6}_{-6}$ (+0.1 $\sigma$ )
$H_0$	68.11	$68.0^{+1.9}_{-1.9}$ (−0.3 $\sigma$ )	$r_{\mathrm{drag}}$	147.46	$147.46^{+0.85}_{-0.83}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.92	24.1 ( $\nu$ : 0.9) (−0.4 $\sigma$ )
$\Omega_{\Lambda}$	0.6954	$0.694^{+0.024}_{-0.026}$ (−0.2 $\sigma$ )	$k_{\mathrm{D}}$	0.14055	$0.14053^{+0.00089}_{-0.00090}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{CamSpec}}^2$	11496.2	11512.2 ( $\nu$ : 16.0) (+812.8 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3046	$0.306^{+0.026}_{-0.024}$ (+0.2 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16070	$0.16075^{+0.00054}_{-0.00055}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.9	7.8 ( $\nu$ : 5.7) (+0.1 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.14131	$0.1415^{+0.0038}_{-0.0037}$ (+0.3 $\sigma$ )	$z_{\mathrm{eq}}$	3361	$3365^{+92}_{-89}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	11520.1	11536.3 ( $\nu$ : 15.7) (+827.7 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	0.09625	$0.09620^{+0.00084}_{-0.00082}$ (+0.1 $\sigma$ )	$k_{\mathrm{eq}}$	0.010259	$0.01027^{+0.00028}_{-0.00027}$ (+0.3 $\sigma$ )			
$\sigma_8$	0.843	$0.837^{+0.055}_{-0.055}$ (−0.6 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8210	$0.820^{+0.018}_{-0.018}$ (−0.3 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 11522.05$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4449.76$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 11544.10$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.86$ ;  $R - 1 = 0.00836$

$\chi_{\mathrm{eff}}^2$ : CMB - commander\_dx12\_v3\_2\_29: 23.92 ( $\Delta$  -0.58) CamSpec like\_10.7HM\_1400\_unified: 11496.23



## 2.230 base\_CamSpecHM\_TTTEEE\_lowl\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02244^{+0.00043}_{-0.00040} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.463^{+0.028}_{-0.029} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	$637^{+11}_{-11} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1183^{+0.0028}_{-0.0028} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.623^{+0.036}_{-0.039} \quad (-0.5\sigma)$	$H(0.38)$	$83.28^{+0.84}_{-0.81} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04103^{+0.00076}_{-0.00078} \quad (-0.3\sigma)$	$\sigma_8/h^{0.5}$	$1.015^{+0.059}_{-0.064} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.38)$	$1522^{+22}_{-22} \quad (+0.1\sigma)$
$\tau$	$0.095^{+0.063}_{-0.071} \quad (-0.5\sigma)$	$r_{\mathrm{drag}} h$	$100.4^{+2.2}_{-2.1} \quad (-0.2\sigma)$	$H(0.51)$	$89.93^{+0.69}_{-0.66} \quad (-0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.12^{+0.12}_{-0.14} \quad (-0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.51^{+0.14}_{-0.15} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.51)$	$1972^{+26}_{-26} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.971^{+0.011}_{-0.011} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	$11.3^{+4.9}_{-7.0} \quad (-0.5\sigma)$	$H(0.61)$	$95.50^{+0.58}_{-0.55} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0002^{+0.0067}_{-0.0064} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.26^{+0.29}_{-0.30} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.61)$	$2296^{+28}_{-28} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$233^{+60}_{-60} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.031}_{-0.028} \quad (+0.1\sigma)$	$H(2.33)$	$235.5^{+1.6}_{-1.7} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$36^{+20}_{-20} \quad (+0.0\sigma)$	$D_{40}$	$1232^{+38}_{-33} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5755^{+26}_{-27} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$104^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5717^{+96}_{-100} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.468^{+0.028}_{-0.029} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	$38^{+20}_{-20} \quad (-0.0\sigma)$	$D_{810}$	$2530^{+36}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.775^{+0.046}_{-0.051} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87 \quad (+0.0\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.488^{+0.028}_{-0.030} \quad (-0.5\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.360 \quad (+0.0\sigma)$	$D_{2000}$	$231.3^{+4.5}_{-4.2} \quad (-0.0\sigma)$	$\sigma_8(0.38)$	$0.688^{+0.042}_{-0.046} \quad (-0.5\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.971^{+0.011}_{-0.011} \quad (-0.2\sigma)$	$f\sigma_8(0.51)$	$0.488^{+0.028}_{-0.031} \quad (-0.5\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24542^{+0.00017}_{-0.00016} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.644^{+0.040}_{-0.044} \quad (-0.5\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24675^{+0.00017}_{-0.00016} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.483^{+0.028}_{-0.031} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.52}_{-0.49} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.574^{+0.076}_{-0.078} \quad (-0.2\sigma)$	$\sigma_8(0.61)$	$0.613^{+0.038}_{-0.042} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.44}_{-0.46} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.780^{+0.059}_{-0.060} \quad (+0.0\sigma)$	$f\sigma_8(2.33)$	$0.309^{+0.019}_{-0.021} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.28}_{-0.26} \quad (-0.0\sigma)$	$z_*$	$1089.68^{+0.64}_{-0.67} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.319^{+0.020}_{-0.022} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.01^{+0.42}_{-0.41} \quad (-0.0\sigma)$	$r_*$	$144.83^{+0.65}_{-0.64} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$28^{+8}_{-8} \quad (-0.0\sigma)$
$c_{100}$	$0.9975^{+0.0029}_{-0.0026} \quad (+0.0\sigma)$	$100\theta_*$	$1.04121^{+0.00076}_{-0.00077} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$105.5^{+5.3}_{-5.2} \quad (+0.0\sigma)$
$c_{217}$	$1.0009^{+0.0042}_{-0.0040} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.910^{+0.062}_{-0.061} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6} \quad (-0.0\sigma)$
$c_{TE}$	$0.994^{+0.014}_{-0.014}$	$z_{\mathrm{drag}}$	$1059.97^{+0.88}_{-0.87} \quad (+0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.1 \quad (\nu: 0.9) \quad (-0.4\sigma)$
$c_{EE}$	$0.991^{+0.012}_{-0.013}$	$r_{\mathrm{drag}}$	$147.48^{+0.67}_{-0.66} \quad (-0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11511.7 \quad (\nu: 15.0) \quad (+824.8\sigma)$
$H_0$	$68.1^{+1.3}_{-1.3} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14051^{+0.00079}_{-0.00083} \quad (+0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.030 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$\Omega_{\Lambda}$	$0.695^{+0.016}_{-0.017} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00051}_{-0.00052} \quad (-0.3\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.69 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.305^{+0.017}_{-0.016} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3362^{+62}_{-63} \quad (+0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.03 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1413^{+0.0026}_{-0.0026} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01026^{+0.00019}_{-0.00019} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.7 \quad (\nu: 5.7) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09620^{+0.00082}_{-0.00080} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.012}_{-0.012} \quad (-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.76 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$\sigma_8$	$0.838^{+0.049}_{-0.055} \quad (-0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4532^{+0.0062}_{-0.0060} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11535.7 \quad (\nu: 14.4) \quad (+842.1\sigma)$
$S_8$	$0.845^{+0.052}_{-0.053} \quad (-0.5\sigma)$	$H(0.15)$	$73.3^{+1.1}_{-1.1} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11549.23; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.60; R - 1 = 0.01419$$



## 2.231 base\_CamSpecHM\_TTTEEE\_lowl\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02244^{+0.00048}_{-0.00045} \quad (+0.0\sigma)$	$S_8$	$0.847^{+0.052}_{-0.049} \quad (-0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4532^{+0.0089}_{-0.0086} \quad (-0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1183^{+0.0040}_{-0.0040} \quad (+0.3\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.464^{+0.029}_{-0.027} \quad (-0.3\sigma)$	$H(0.15)$	$73.3^{+1.6}_{-1.5} \quad (-0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04102^{+0.00085}_{-0.00085} \quad (-0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.624^{+0.036}_{-0.032} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	$638^{+15}_{-15} \quad (+0.3\sigma)$
$\tau$	$0.097^{+0.067}_{-0.056} \quad (-0.6\sigma)$	$\sigma_8/h^{0.5}$	$1.018^{+0.060}_{-0.050} \quad (-0.6\sigma)$	$H(0.38)$	$83.3^{+1.2}_{-1.1} \quad (-0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.12^{+0.13}_{-0.11} \quad (-0.6\sigma)$	$r_{\mathrm{drag}} h$	$100.3^{+3.2}_{-3.1} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1522^{+31}_{-31} \quad (+0.3\sigma)$
$n_{\mathrm{s}}$	$0.971^{+0.014}_{-0.013} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.51^{+0.14}_{-0.12} \quad (-0.5\sigma)$	$H(0.51)$	$89.93^{+0.95}_{-0.89} \quad (-0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0002^{+0.0067}_{-0.0062} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 16.2 \quad (-0.6\sigma)$	$D_{\mathrm{M}}(0.51)$	$1973^{+36}_{-37} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$233^{+70}_{-60} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.27^{+0.31}_{-0.24} \quad (-0.6\sigma)$	$H(0.61)$	$95.50^{+0.77}_{-0.72} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$36^{+20}_{-20} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.032}_{-0.030} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2296^{+39}_{-39} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$104^{+30}_{-30} \quad (+0.1\sigma)$	$D_{40}$	$1233^{+37}_{-33} \quad (-0.3\sigma)$	$H(2.33)$	$235.5^{+2.3}_{-2.3} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$38^{+20}_{-20} \quad (-0.0\sigma)$	$D_{220}$	$5716^{+97}_{-99} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5755^{+33}_{-34} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.89 \quad (-0.0\sigma)$	$D_{810}$	$2530^{+37}_{-34} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.469^{+0.028}_{-0.026} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.364 \quad (+0.0\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.776^{+0.048}_{-0.040} \quad (-0.6\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$231.3^{+4.6}_{-4.3} \quad (-0.1\sigma)$	$f\sigma_8(0.38)$	$0.489^{+0.029}_{-0.025} \quad (-0.5\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.971^{+0.014}_{-0.013} \quad (-0.3\sigma)$	$\sigma_8(0.38)$	$0.689^{+0.043}_{-0.036} \quad (-0.6\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24542^{+0.00019}_{-0.00018} \quad (+0.0\sigma)$	$f\sigma_8(0.51)$	$0.489^{+0.029}_{-0.025} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.51}_{-0.49} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24675^{+0.00019}_{-0.00019} \quad (+0.0\sigma)$	$\sigma_8(0.51)$	$0.645^{+0.041}_{-0.034} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.45}_{-0.46} \quad (-0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.574^{+0.085}_{-0.086} \quad (-0.0\sigma)$	$f\sigma_8(0.61)$	$0.484^{+0.029}_{-0.024} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.780^{+0.073}_{-0.075} \quad (+0.2\sigma)$	$\sigma_8(0.61)$	$0.614^{+0.040}_{-0.033} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.01^{+0.41}_{-0.41} \quad (-0.0\sigma)$	$z_*$	$1089.69^{+0.85}_{-0.83} \quad (+0.1\sigma)$	$f\sigma_8(2.33)$	$0.310^{+0.021}_{-0.017} \quad (-0.6\sigma)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027} \quad (+0.0\sigma)$	$r_*$	$144.82^{+0.87}_{-0.83} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.320^{+0.022}_{-0.018} \quad (-0.6\sigma)$
$c_{217}$	$1.0009^{+0.0041}_{-0.0040} \quad (-0.0\sigma)$	$100\theta_*$	$1.04120^{+0.00083}_{-0.00083} \quad (-0.4\sigma)$	$f_{2000}^{143}$	$28^{+8}_{-8} \quad (+0.1\sigma)$
$c_{TE}$	$0.994^{+0.014}_{-0.013}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.909^{+0.080}_{-0.078} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$105.4^{+5.3}_{-5.5} \quad (+0.1\sigma)$
$c_{EE}$	$0.991^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.97^{+0.95}_{-0.92} \quad (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6} \quad (+0.1\sigma)$
$H_0$	$68.0^{+1.8}_{-1.8} \quad (-0.3\sigma)$	$r_{\mathrm{drag}}$	$147.47^{+0.85}_{-0.82} \quad (-0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.2 \quad (\nu: 0.9) \quad (-0.4\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.023}_{-0.025} \quad (-0.3\sigma)$	$k_{\mathrm{D}}$	$0.14052^{+0.00088}_{-0.00090} \quad (+0.4\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11512.0 \quad (\nu: 15.5) \quad (+821.5\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.025}_{-0.023} \quad (+0.3\sigma)$	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00052}_{-0.00054} \quad (-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.7 \quad (\nu: 5.6) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1414^{+0.0037}_{-0.0037} \quad (+0.3\sigma)$	$z_{\mathrm{eq}}$	$3363^{+89}_{-88} \quad (+0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11536.2 \quad (\nu: 15.4) \quad (+832.9\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09620^{+0.00083}_{-0.00081} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01027^{+0.00027}_{-0.00027} \quad (+0.3\sigma)$		
$\sigma_8$	$0.839^{+0.053}_{-0.041} \quad (-0.6\sigma)$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.017}_{-0.017} \quad (-0.3\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 11543.93$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.79$ ;  $R - 1 = 0.00900$



## 2.232 base\_CamSpecHM\_TTTEEE\_lowl\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02244^{+0.00043}_{-0.00040} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.463^{+0.028}_{-0.025} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	$637^{+11}_{-11} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1182^{+0.0027}_{-0.0028} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.624^{+0.035}_{-0.031} \quad (-0.5\sigma)$	$H(0.38)$	$83.29^{+0.83}_{-0.80} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04104^{+0.00077}_{-0.00078} \quad (-0.3\sigma)$	$\sigma_8/h^{0.5}$	$1.017^{+0.058}_{-0.050} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.38)$	$1522^{+22}_{-22} \quad (+0.1\sigma)$
$\tau$	$0.097^{+0.062}_{-0.051} \quad (-0.5\sigma)$	$r_{\mathrm{drag}} h$	$100.4^{+2.2}_{-2.1} \quad (-0.2\sigma)$	$H(0.51)$	$89.94^{+0.69}_{-0.65} \quad (-0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.12^{+0.12}_{-0.10} \quad (-0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.51^{+0.13}_{-0.12} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.51)$	$1972^{+25}_{-26} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.971^{+0.011}_{-0.011} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	$< 15.8 \quad (-0.5\sigma)$	$H(0.61)$	$95.51^{+0.57}_{-0.54} \quad (-0.0\sigma)$
$y_{\mathrm{cal}}$	$1.0002^{+0.0067}_{-0.0064} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.27^{+0.28}_{-0.22} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.61)$	$2296^{+27}_{-28} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$233^{+70}_{-60} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.871^{+0.031}_{-0.028} \quad (+0.1\sigma)$	$H(2.33)$	$235.5^{+1.6}_{-1.7} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$36^{+20}_{-20} \quad (+0.0\sigma)$	$D_{40}$	$1233^{+37}_{-32} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5755^{+26}_{-27} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$105^{+30}_{-40} \quad (+0.1\sigma)$	$D_{220}$	$5717^{+98}_{-100} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.469^{+0.028}_{-0.025} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	$38^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2530^{+37}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.776^{+0.045}_{-0.038} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87 \quad (+0.0\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.489^{+0.028}_{-0.025} \quad (-0.5\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.67^{+0.33}_{-0.31} \quad (+0.0\sigma)$	$D_{2000}$	$231.3^{+4.5}_{-4.2} \quad (-0.0\sigma)$	$\sigma_8(0.38)$	$0.689^{+0.041}_{-0.034} \quad (-0.5\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.971^{+0.011}_{-0.011} \quad (-0.2\sigma)$	$f\sigma_8(0.51)$	$0.489^{+0.028}_{-0.024} \quad (-0.5\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24542^{+0.00017}_{-0.00016} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.645^{+0.038}_{-0.032} \quad (-0.5\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24675^{+0.00017}_{-0.00016} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.484^{+0.028}_{-0.024} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.52}_{-0.48} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.573^{+0.075}_{-0.077} \quad (-0.2\sigma)$	$\sigma_8(0.61)$	$0.614^{+0.037}_{-0.030} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.44}_{-0.46} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.779^{+0.058}_{-0.060} \quad (-0.0\sigma)$	$f\sigma_8(2.33)$	$0.310^{+0.019}_{-0.015} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.28}_{-0.26} \quad (-0.0\sigma)$	$z_*$	$1089.68^{+0.64}_{-0.67} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.320^{+0.020}_{-0.016} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.01^{+0.42}_{-0.41} \quad (-0.1\sigma)$	$r_*$	$144.83^{+0.65}_{-0.64} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$28^{+8}_{-8} \quad (-0.0\sigma)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0026} \quad (+0.0\sigma)$	$100\theta_*$	$1.04121^{+0.00076}_{-0.00077} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$105.5^{+5.2}_{-5.2} \quad (-0.0\sigma)$
$c_{217}$	$1.0009^{+0.0043}_{-0.0040} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.910^{+0.061}_{-0.060} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6} \quad (-0.0\sigma)$
$c_{TE}$	$0.994^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.98^{+0.91}_{-0.84} \quad (+0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.1 \quad (\nu: 0.9) \quad (-0.4\sigma)$
$c_{EE}$	$0.991^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.48^{+0.67}_{-0.65} \quad (-0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11511.5 \quad (\nu: 14.6) \quad (+834.3\sigma)$
$H_0$	$68.1^{+1.3}_{-1.3} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14051^{+0.00078}_{-0.00082} \quad (+0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.030 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$\Omega_{\Lambda}$	$0.695^{+0.016}_{-0.017} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16073^{+0.00051}_{-0.00051} \quad (-0.4\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.71 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.305^{+0.017}_{-0.016} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3362^{+61}_{-62} \quad (+0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.01 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1413^{+0.0026}_{-0.0026} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01026^{+0.00019}_{-0.00019} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.7 \quad (\nu: 5.7) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09621^{+0.00082}_{-0.00080} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.012}_{-0.012} \quad (-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.75 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$\sigma_8$	$0.839^{+0.048}_{-0.041} \quad (-0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4533^{+0.0062}_{-0.0059} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11535.6 \quad (\nu: 14.3) \quad (+847.1\sigma)$
$S_8$	$0.846^{+0.050}_{-0.045} \quad (-0.5\sigma)$	$H(0.15)$	$73.3^{+1.1}_{-1.1} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11549.09; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.53; R - 1 = 0.01512$$



### 2.233 base\_CamSpecHM\_TTTEEE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022266	$0.02227^{+0.00041}_{-0.00042}$ (+0.9 $\sigma$ )	$S_8$	0.8311	$0.831^{+0.044}_{-0.042}$ (−0.7 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4495	$0.4495^{+0.0079}_{-0.0078}$ (+0.7 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.12002	$0.1200^{+0.0037}_{-0.0036}$ (−0.7 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4552	$0.455^{+0.024}_{-0.023}$ (−0.7 $\sigma$ )	$H(0.15)$	72.56	$72.6^{+1.4}_{-1.4}$ (+0.8 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04083	$1.04084^{+0.00084}_{-0.00081}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6070	$0.607^{+0.022}_{-0.022}$ (−0.7 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	644.5	$644^{+14}_{-14}$ (−0.8 $\sigma$ )
$\tau$	0.0527	$0.053^{+0.021}_{-0.020}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9872	$0.987^{+0.031}_{-0.031}$ (−0.7 $\sigma$ )	$H(0.38)$	82.75	$82.8^{+1.0}_{-0.98}$ (+0.8 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0397	$3.040^{+0.042}_{-0.041}$ (−0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	98.96	$99.0^{+2.8}_{-2.8}$ (+0.7 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1536.0	$1536^{+28}_{-27}$ (−0.8 $\sigma$ )
$n_{\mathrm{s}}$	0.9640	$0.964^{+0.012}_{-0.012}$ (+0.7 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.443	$2.443^{+0.077}_{-0.073}$ (−0.7 $\sigma$ )	$H(0.51)$	89.52	$89.53^{+0.81}_{-0.77}$ (+0.8 $\sigma$ )
$y_{\mathrm{cal}}$	1.0004	$1.0005^{+0.0066}_{-0.0063}$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.54	$7.5^{+2.0}_{-2.2}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1989.0	$1989^{+33}_{-32}$ (−0.8 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	239	$242^{+60}_{-60}$ (−0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.090	$2.090^{+0.090}_{-0.085}$ (−0.1 $\sigma$ )	$H(0.61)$	95.17	$95.18^{+0.65}_{-0.62}$ (+0.8 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	43.9	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8808	$1.881^{+0.031}_{-0.030}$ (−0.4 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2313.8	$2314^{+35}_{-35}$ (−0.8 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	101.4	$102^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{40}$	1230.7	$1231^{+35}_{-34}$ (−0.5 $\sigma$ )	$H(2.33)$	236.46	$236.5^{+2.2}_{-2.2}$ (−0.6 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	43.3	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5723	$5724^{+100}_{-100}$ (+0.4 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5769.4	$5769^{+29}_{-30}$ (−0.8 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	5.45	< 8.83 (+0.1 $\sigma$ )	$D_{810}$	2535.1	$2535^{+37}_{-35}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4594	$0.459^{+0.022}_{-0.022}$ (−0.7 $\sigma$ )
$r_{143\times 217}^{\mathrm{PS}}$	0.637	$0.65^{+0.31}_{-0.33}$ (+0.1 $\sigma$ )	$D_{1420}$	815.0	$815^{+13}_{-12}$ (+0.4 $\sigma$ )	$\sigma_8(0.15)$	0.7475	$0.747^{+0.018}_{-0.017}$ (−0.5 $\sigma$ )
$r_{143\times 217}^{\mathrm{CIB}}$	0.78	—	$D_{2000}$	229.94	$229.9^{+4.3}_{-4.0}$ (+0.5 $\sigma$ )	$f\sigma_8(0.38)$	0.4766	$0.477^{+0.018}_{-0.018}$ (−0.7 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.39	—	$n_{\mathrm{s},0.002}$	0.9640	$0.964^{+0.012}_{-0.012}$ (+0.7 $\sigma$ )	$\sigma_8(0.38)$	0.6621	$0.662^{+0.015}_{-0.014}$ (−0.3 $\sigma$ )
$A^{\mathrm{kSZ}}$	1.9	—	$Y_{\mathrm{P}}$	0.245353	$0.24535^{+0.00016}_{-0.00019}$ (+0.9 $\sigma$ )	$f\sigma_8(0.51)$	0.4747	$0.475^{+0.016}_{-0.016}$ (−0.7 $\sigma$ )
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.49}_{-0.51}$ (+0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246680	$0.24668^{+0.00016}_{-0.00019}$ (+0.9 $\sigma$ )	$\sigma_8(0.51)$	0.6194	$0.619^{+0.014}_{-0.013}$ (−0.3 $\sigma$ )
$A_{143}^{\mathrm{dust}}$	0.977	$0.96^{+0.46}_{-0.45}$ (−0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.605	$2.606^{+0.080}_{-0.075}$ (−0.9 $\sigma$ )	$f\sigma_8(0.61)$	0.4693	$0.469^{+0.014}_{-0.014}$ (−0.7 $\sigma$ )
$A_{217}^{\mathrm{dust}}$	0.968	$0.97^{+0.27}_{-0.26}$ (+0.1 $\sigma$ )	Age/Gyr	13.811	$13.810^{+0.066}_{-0.066}$ (−0.8 $\sigma$ )	$\sigma_8(0.61)$	0.5892	$0.589^{+0.013}_{-0.012}$ (−0.2 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}}$	0.996	$1.03^{+0.41}_{-0.42}$ (−0.0 $\sigma$ )	$z_*$	1090.05	$1090.05^{+0.75}_{-0.72}$ (−0.9 $\sigma$ )	$f\sigma_8(2.33)$	0.2969	$0.2969^{+0.0065}_{-0.0063}$ (−0.1 $\sigma$ )
$c_{100}$	0.99769	$0.9976^{+0.0027}_{-0.0027}$ (+0.1 $\sigma$ )	$r_*$	144.51	$144.51^{+0.81}_{-0.81}$ (+0.5 $\sigma$ )	$\sigma_8(2.33)$	0.3059	$0.3059^{+0.0068}_{-0.0065}$ (+0.1 $\sigma$ )
$c_{217}$	1.00131	$1.0011^{+0.0040}_{-0.0041}$ (−0.1 $\sigma$ )	$100\theta_*$	1.04102	$1.04103^{+0.00082}_{-0.00079}$ (+0.2 $\sigma$ )	$f_{2000}^{143}$	30.7	$30^{+7}_{-7}$ (−0.4 $\sigma$ )
$c_{TE}$	0.9966	$0.997^{+0.013}_{-0.013}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.881	$13.881^{+0.075}_{-0.075}$ (+0.5 $\sigma$ )	$f_{2000}^{217}$	107.1	$107.2^{+5.0}_{-5.0}$ (−0.4 $\sigma$ )
$c_{EE}$	0.9925	$0.992^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	1059.70	$1059.70^{+0.85}_{-0.87}$ (+0.8 $\sigma$ )	$f_{2000}^{143\times 217}$	32.6	$33^{+5}_{-5}$ (−0.5 $\sigma$ )
$H_0$	67.23	$67.2^{+1.6}_{-1.6}$ (+0.8 $\sigma$ )	$r_{\mathrm{drag}}$	147.20	$147.21^{+0.82}_{-0.81}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{small}}^2$	395.86	$396.9$ ( $\nu$ : 1.4) (−0.0 $\sigma$ )
$\Omega_{\Lambda}$	0.6838	$0.684^{+0.021}_{-0.023}$ (+0.7 $\sigma$ )	$k_{\mathrm{D}}$	0.14067	$0.14067^{+0.00090}_{-0.00092}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{CamSpec}}^2$	11499.5	$11514.4$ ( $\nu$ : 15.7) (+840.5 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3162	$0.316^{+0.023}_{-0.021}$ (−0.7 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.160888	$0.16089^{+0.00051}_{-0.00048}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	2.1	$7.8$ ( $\nu$ : 5.9) (+0.0 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.14293	$0.1429^{+0.0034}_{-0.0034}$ (−0.7 $\sigma$ )	$z_{\mathrm{eq}}$	3400	$3400^{+82}_{-81}$ (−0.7 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	11895.4	$11911.3$ ( $\nu$ : 16.5) (+813.8 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	0.09609	$0.09609^{+0.00086}_{-0.00084}$ (+0.3 $\sigma$ )	$k_{\mathrm{eq}}$	0.010378	$0.01038^{+0.00025}_{-0.00025}$ (−0.7 $\sigma$ )			
$\sigma_8$	0.8094	$0.809^{+0.020}_{-0.020}$ (−0.5 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8133	$0.813^{+0.015}_{-0.015}$ (+0.7 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 11897.49$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4449.66$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 11919.09$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.60$ ;  $R - 1 = 0.00575$

$\chi_{\mathrm{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 ( $\Delta$  0.04) CamSpec like\_10.7HM\_1400\_unified: 11499.49



## 2.234 base\_WMAP

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02261	$0.0226^{+0.0013}_{-0.0012}$	$D_{40}$	1220	$1219^{+63}_{-59}$	$H(0.15)$	74.44	$74.6^{+4.9}_{-4.5}$
$\Omega_{\mathrm{c}}h^2$	0.1141	$0.114^{+0.012}_{-0.011}$	$D_{220}$	5752	$5748^{+90}_{-89}$	$D_{\mathrm{M}}(0.15)$	626.0	$625^{+45}_{-43}$
$100\theta_{\mathrm{MC}}$	1.0403	$1.0401^{+0.0057}_{-0.0056}$	$D_{810}$	2517	$2507^{+82}_{-83}$	$H(0.38)$	84.04	$84.2^{+3.8}_{-3.3}$
$\tau$	0.0878	$0.089^{+0.038}_{-0.033}$	$D_{1420}$	811.2	$808^{+39}_{-40}$	$D_{\mathrm{M}}(0.38)$	1499	$1496^{+90}_{-89}$
$\ln(10^{10}A_{\mathrm{s}})$	3.093	$3.092^{+0.083}_{-0.075}$	$D_{2000}$	229.4	$228^{+15}_{-15}$	$H(0.51)$	90.46	$90.6^{+3.3}_{-2.7}$
$n_{\mathrm{s}}$	0.9737	$0.973^{+0.034}_{-0.031}$	$n_{\mathrm{s},0.002}$	0.9737	$0.973^{+0.034}_{-0.031}$	$D_{\mathrm{M}}(0.51)$	1947	$1943^{+110}_{-110}$
$A_{\mathrm{tsz}}$	0.08	—	$Y_{\mathrm{P}}$	0.24548	$0.24550^{+0.00051}_{-0.00053}$	$H(0.61)$	95.85	$95.9^{+2.8}_{-2.3}$
$H_0$	69.5	$69.7^{+5.5}_{-5.2}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.24681	$0.24683^{+0.00052}_{-0.00053}$	$D_{\mathrm{M}}(0.61)$	2269	$2265^{+110}_{-120}$
$\Omega_{\Lambda}$	0.715	$0.717^{+0.057}_{-0.072}$	$10^5\mathrm{D}/\mathrm{H}$	2.543	$2.54^{+0.23}_{-0.22}$	$H(2.33)$	232.9	$232.5^{+7.7}_{-7.0}$
$\Omega_{\mathrm{m}}$	0.285	$0.283^{+0.072}_{-0.057}$	Age/Gyr	13.765	$13.76^{+0.27}_{-0.29}$	$D_{\mathrm{M}}(2.33)$	5746	$5744^{+120}_{-130}$
$\Omega_{\mathrm{m}}h^2$	0.1374	$0.137^{+0.012}_{-0.011}$	$z_{*}$	1089.11	$1089.0^{+2.1}_{-2.0}$	$f\sigma_8(0.15)$	0.440	$0.436^{+0.075}_{-0.066}$
$\Omega_{\mathrm{m}}h^3$	0.09543	$0.0953^{+0.0045}_{-0.0044}$	$r_{*}$	145.79	$145.9^{+2.9}_{-3.0}$	$\sigma_8(0.15)$	0.752	$0.749^{+0.051}_{-0.051}$
$\sigma_8$	0.811	$0.808^{+0.060}_{-0.059}$	$100\theta_{*}$	1.0405	$1.0403^{+0.0056}_{-0.0055}$	$f\sigma_8(0.38)$	0.464	$0.461^{+0.060}_{-0.057}$
$S_8$	0.790	$0.78^{+0.15}_{-0.12}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	14.012	$14.03^{+0.30}_{-0.30}$	$\sigma_8(0.38)$	0.6701	$0.668^{+0.042}_{-0.041}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.433	$0.430^{+0.081}_{-0.068}$	$z_{\mathrm{drag}}$	1060.05	$1060.1^{+2.7}_{-2.7}$	$f\sigma_8(0.51)$	0.466	$0.463^{+0.052}_{-0.051}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.593	$0.589^{+0.074}_{-0.067}$	$r_{\mathrm{drag}}$	148.40	$148.5^{+3.1}_{-3.1}$	$\sigma_8(0.51)$	0.6284	$0.626^{+0.038}_{-0.037}$
$\sigma_8/h^{0.5}$	0.974	$0.968^{+0.10}_{-0.093}$	$k_{\mathrm{D}}$	0.13967	$0.1396^{+0.0035}_{-0.0035}$	$f\sigma_8(0.61)$	0.4630	$0.460^{+0.047}_{-0.046}$
$r_{\mathrm{drag}}h$	103.1	$103.5^{+9.6}_{-9.3}$	$100\theta_{\mathrm{D}}$	0.16053	$0.1605^{+0.0013}_{-0.0012}$	$\sigma_8(0.61)$	0.5987	$0.597^{+0.035}_{-0.034}$
$\langle d^2 \rangle^{1/2}$	2.429	$2.42^{+0.20}_{-0.19}$	$z_{\mathrm{eq}}$	3268	$3256^{+280}_{-250}$	$f\sigma_8(2.33)$	0.3030	$0.302^{+0.017}_{-0.016}$
$z_{\mathrm{re}}$	10.61	$10.7^{+2.9}_{-2.9}$	$k_{\mathrm{eq}}$	0.00997	$0.00994^{+0.00086}_{-0.00077}$	$\sigma_8(2.33)$	0.3137	$0.313^{+0.018}_{-0.016}$
$10^9A_{\mathrm{s}}$	2.205	$2.20^{+0.19}_{-0.16}$	$100\theta_{\mathrm{eq}}$	0.838	$0.841^{+0.053}_{-0.053}$	$\chi^2_{\mathrm{WMAP}}$	7557.9	$7564.0 (\nu: 5.6)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	1.850	$1.843^{+0.081}_{-0.075}$	$100\theta_{\mathrm{s,eq}}$	0.4623	$0.464^{+0.027}_{-0.027}$			

Best-fit  $\chi^2_{\mathrm{eff}} = 7557.95$ ;  $\bar{\chi}^2_{\mathrm{eff}} = 7563.97$ ;  $R - 1 = 0.00844$

$\chi^2_{\mathrm{eff}}$ : CMB - WMAP: 7557.95



## 2.235 base\_WMAP\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02240	$0.0225^{+0.0011}_{-0.0011}$	$D_{220}$	5740	$5739^{+86}_{-86}$	$H(0.38)$	83.14	$83.2^{+1.6}_{-1.6}$
$\Omega_c h^2$	0.1164	$0.1167^{+0.0053}_{-0.0053}$	$D_{810}$	2518	$2516^{+77}_{-80}$	$D_M(0.38)$	1522.4	$1522^{+35}_{-34}$
$100\theta_{MC}$	1.0393	$1.0395^{+0.0051}_{-0.0056}$	$D_{1420}$	809.4	$809^{+40}_{-41}$	$H(0.51)$	89.72	$89.8^{+1.5}_{-1.5}$
$\tau$	0.0862	$0.086^{+0.036}_{-0.031}$	$D_{2000}$	228.7	$229^{+16}_{-16}$	$D_M(0.51)$	1973.9	$1973^{+42}_{-43}$
$\ln(10^{10} A_s)$	3.096	$3.095^{+0.080}_{-0.075}$	$n_{s,0.002}$	0.9678	$0.967^{+0.027}_{-0.027}$	$H(0.61)$	95.23	$95.3^{+1.5}_{-1.6}$
$n_s$	0.9678	$0.967^{+0.027}_{-0.027}$	$Y_P$	0.245409	$0.24543^{+0.00048}_{-0.00048}$	$D_M(0.61)$	2298.3	$2297^{+48}_{-47}$
$A_{tsz}$	0.03	—	$Y_P^{BBN}$	0.246735	$0.24675^{+0.00048}_{-0.00048}$	$H(2.33)$	234.09	$234.4^{+4.4}_{-4.5}$
$H_0$	68.11	$68.1^{+1.9}_{-1.8}$	$10^5 D/H$	2.579	$2.57^{+0.21}_{-0.20}$	$D_M(2.33)$	5774	$5769^{+93}_{-87}$
$\Omega_\Lambda$	0.6993	$0.699^{+0.021}_{-0.022}$	Age/Gyr	13.826	$13.82^{+0.22}_{-0.21}$	$f\sigma_8(0.15)$	0.4547	$0.455^{+0.036}_{-0.032}$
$\Omega_m$	0.3007	$0.301^{+0.022}_{-0.021}$	$z_*$	1089.57	$1089.5^{+1.3}_{-1.2}$	$\sigma_8(0.15)$	0.7580	$0.759^{+0.046}_{-0.041}$
$\Omega_m h^2$	0.1395	$0.1398^{+0.0057}_{-0.0057}$	$r_*$	145.33	$145.2^{+1.9}_{-1.8}$	$f\sigma_8(0.38)$	0.4757	$0.476^{+0.034}_{-0.030}$
$\Omega_m h^3$	0.09501	$0.0953^{+0.0044}_{-0.0044}$	$100\theta_*$	1.0395	$1.0397^{+0.0050}_{-0.0055}$	$\sigma_8(0.38)$	0.6732	$0.674^{+0.040}_{-0.036}$
$\sigma_8$	0.8192	$0.820^{+0.050}_{-0.045}$	$D_M(z_*)/\text{Gpc}$	13.981	$13.97^{+0.24}_{-0.22}$	$f\sigma_8(0.51)$	0.4756	$0.476^{+0.033}_{-0.029}$
$S_8$	0.820	$0.821^{+0.067}_{-0.061}$	$z_{\text{drag}}$	1059.74	$1059.9^{+2.7}_{-2.7}$	$\sigma_8(0.51)$	0.6305	$0.631^{+0.037}_{-0.033}$
$\sigma_8 \Omega_m^{0.5}$	0.4492	$0.450^{+0.037}_{-0.033}$	$r_{\text{drag}}$	148.00	$147.9^{+2.2}_{-2.1}$	$f\sigma_8(0.61)$	0.4714	$0.472^{+0.032}_{-0.028}$
$\sigma_8 \Omega_m^{0.25}$	0.6066	$0.607^{+0.043}_{-0.037}$	$k_D$	0.13993	$0.1401^{+0.0029}_{-0.0030}$	$\sigma_8(0.61)$	0.6002	$0.600^{+0.035}_{-0.032}$
$\sigma_8/h^{0.5}$	0.993	$0.993^{+0.061}_{-0.054}$	$100\theta_D$	0.16058	$0.1605^{+0.0013}_{-0.0013}$	$f\sigma_8(2.33)$	0.3031	$0.303^{+0.018}_{-0.016}$
$r_{\text{drag}} h$	100.81	$100.8^{+2.9}_{-2.8}$	$z_{\text{eq}}$	3318	$3326^{+140}_{-140}$	$\sigma_8(2.33)$	0.3130	$0.313^{+0.018}_{-0.016}$
$\langle d^2 \rangle^{1/2}$	2.472	$2.47^{+0.11}_{-0.10}$	$k_{\text{eq}}$	0.010127	$0.01015^{+0.00042}_{-0.00042}$	$\chi^2_{\text{WMAP}}$	7558.3	$7563.6 (\nu: 5.2)$
$z_{\text{re}}$	10.59	$10.5^{+2.8}_{-2.8}$	$100\theta_{\text{eq}}$	0.8275	$0.826^{+0.022}_{-0.021}$	$\chi^2_{6\text{DF}}$	0.004	$0.055 (\nu: 0.0)$
$10^9 A_s$	2.210	$2.21^{+0.18}_{-0.16}$	$100\theta_{s,\text{eq}}$	0.4567	$0.456^{+0.012}_{-0.011}$	$\chi^2_{\text{MGS}}$	1.89	$1.94 (\nu: 0.2)$
$10^9 A_s e^{-2\tau}$	1.860	$1.859^{+0.056}_{-0.058}$	$H(0.15)$	73.26	$73.3^{+1.7}_{-1.7}$	$\chi^2_{\text{DR12BAO}}$	3.47	$4.3 (\nu: 0.7)$
$D_{40}$	1231.4	$1233^{+48}_{-44}$	$D_M(0.15)$	637.3	$637^{+16}_{-16}$	$\chi^2_{\text{BAO}}$	5.37	$6.3 (\nu: 0.9)$

Best-fit  $\chi^2_{\text{eff}} = 7563.66$ ;  $\bar{\chi}^2_{\text{eff}} = 7569.93$ ;  $R - 1 = 0.00961$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.00 MGS: 1.89 DR12BAO: 3.47 CMB - WMAP: 7558.29



## 2.236 base\_DES\_lenspriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.0222^{+0.0013}_{-0.0013}$	$\Omega_m h^2$	0.1256	$0.130^{+0.041}_{-0.025}$	$k_D$	0.1356	$0.137^{+0.012}_{-0.0081}$
$\Omega_c h^2$	0.1028	$0.107^{+0.040}_{-0.024}$	$\Omega_m h^3$	0.089	$0.095^{+0.069}_{-0.038}$	$100\theta_D$	0.1602	$0.161^{+0.015}_{-0.013}$
$100\theta_{MC}$	1.032	$1.04^{+0.11}_{-0.089}$	$\sigma_8$	0.872	$0.87^{+0.24}_{-0.22}$	$z_{eq}$	2987	$3097^{+1000}_{-600}$
$\ln(10^{10} A_s)$	3.375	$3.30^{+0.39}_{-0.41}$	$S_8$	0.799	$0.790^{+0.069}_{-0.066}$	$k_{eq}$	0.00912	$0.0095^{+0.0030}_{-0.0018}$
$n_s$	0.962	$0.960^{+0.051}_{-0.051}$	$\sigma_8 \Omega_m^{0.5}$	0.4374	$0.433^{+0.038}_{-0.036}$	$100\theta_{eq}$	0.888	$0.875^{+0.085}_{-0.098}$
$b_{DES}^1$	1.339	$1.36^{+0.50}_{-0.37}$	$\sigma_8 \Omega_m^{0.25}$	0.618	$0.612^{+0.11}_{-0.098}$	$100\theta_{s,eq}$	0.4883	$0.481^{+0.042}_{-0.050}$
$b_{DES}^2$	1.534	$1.56^{+0.52}_{-0.38}$	$\sigma_8/h^{0.5}$	1.038	$1.02^{+0.14}_{-0.14}$	$H(0.15)$	75.2	$77^{+30}_{-20}$
$b_{DES}^3$	1.521	$1.55^{+0.51}_{-0.36}$	$r_{drag} h$	107.5	$109^{+30}_{-30}$	$D_M(0.15)$	617	$611^{+200}_{-200}$
$b_{DES}^4$	1.83	$1.87^{+0.59}_{-0.43}$	$\langle d^2 \rangle^{1/2}$	2.717	$2.65^{+0.40}_{-0.40}$	$H(0.38)$	83.9	$86^{+20}_{-20}$
$b_{DES}^5$	1.89	$1.93^{+0.61}_{-0.47}$	$z_{re}$	7.49	$7.58^{+0.89}_{-0.62}$	$D_M(0.38)$	1487	$1470^{+500}_{-400}$
$m_{DES}^1$	0.013	$0.012^{+0.058}_{-0.059}$	$10^9 A_s$	2.92	$2.74^{+1.3}_{-0.95}$	$H(0.51)$	89.8	$92^{+20}_{-20}$
$m_{DES}^2$	0.015	$0.014^{+0.058}_{-0.058}$	$10^9 A_s e^{-2\tau}$	2.62	$2.45^{+1.1}_{-0.85}$	$D_M(0.51)$	1936	$1913^{+600}_{-500}$
$m_{DES}^3$	0.006	$0.009^{+0.055}_{-0.054}$	$D_{40}$	1795	$1680^{+800}_{-600}$	$H(0.61)$	94.8	$97^{+20}_{-20}$
$m_{DES}^4$	0.009	$0.011^{+0.055}_{-0.055}$	$D_{220}$	8615	$7948^{+4000}_{-3000}$	$D_M(0.61)$	2261	$2233^{+600}_{-500}$
$A_{IA,DES}$	0.51	$0.49^{+0.56}_{-0.48}$	$D_{810}$	3566	$3256^{+2000}_{-1000}$	$H(2.33)$	224.0	$228^{+40}_{-30}$
$\alpha_{IA,DES}$	-1.2	—	$D_{1420}$	1125	$1013^{+500}_{-500}$	$D_M(2.33)$	5835	$5754^{+1000}_{-1000}$
$\Delta z_{l,DES}^1$	0.0041	$0.004^{+0.020}_{-0.019}$	$D_{2000}$	319	$297^{+200}_{-100}$	$f\sigma_8(0.15)$	0.4467	$0.442^{+0.042}_{-0.043}$
$\Delta z_{l,DES}^2$	0.0017	$0.002^{+0.018}_{-0.018}$	$n_{s,0.002}$	0.962	$0.960^{+0.051}_{-0.051}$	$\sigma_8(0.15)$	0.813	$0.81^{+0.24}_{-0.21}$
$\Delta z_{l,DES}^3$	0.0044	$0.004^{+0.017}_{-0.017}$	$Y_P$	0.24533	$0.24531^{+0.00054}_{-0.00059}$	$f\sigma_8(0.38)$	0.481	$0.475^{+0.067}_{-0.071}$
$\Delta z_{l,DES}^4$	0.0029	$0.002^{+0.024}_{-0.024}$	$Y_P^{BBN}$	0.24665	$0.24664^{+0.00055}_{-0.00059}$	$\sigma_8(0.38)$	0.728	$0.72^{+0.23}_{-0.20}$
$\Delta z_{l,DES}^5$	0.0012	$0.001^{+0.026}_{-0.025}$	$10^5 D/H$	2.618	$2.62^{+0.27}_{-0.23}$	$f\sigma_8(0.51)$	0.487	$0.482^{+0.081}_{-0.086}$
$\Delta z_{s,DES}^1$	-0.0011	$-0.003^{+0.036}_{-0.036}$	Age/Gyr	14.00	$13.8^{+2.8}_{-2.6}$	$\sigma_8(0.51)$	0.685	$0.68^{+0.22}_{-0.20}$
$\Delta z_{s,DES}^2$	-0.0288	$-0.030^{+0.027}_{-0.029}$	$z_*$	1088.58	$1089.0^{+3.8}_{-2.7}$	$f\sigma_8(0.61)$	0.487	$0.482^{+0.091}_{-0.095}$
$\Delta z_{s,DES}^3$	0.0059	$0.007^{+0.025}_{-0.025}$	$r_*$	149.3	$148.1^{+7.6}_{-10}$	$\sigma_8(0.61)$	0.654	$0.65^{+0.22}_{-0.19}$
$\Delta z_{s,DES}^4$	-0.0266	$-0.024^{+0.049}_{-0.048}$	$100\theta_*$	1.032	$1.04^{+0.11}_{-0.089}$	$f\sigma_8(2.33)$	0.333	$0.33^{+0.12}_{-0.10}$
$H_0$	70.7	$> 55.4$	$D_M(z_*)/\text{Gpc}$	14.46	$14.3^{+2.0}_{-2.2}$	$\sigma_8(2.33)$	0.347	$0.35^{+0.13}_{-0.11}$
$\Omega_\Lambda$	0.749	$0.745^{+0.086}_{-0.14}$	$z_{drag}$	1058.25	$1058.6^{+4.0}_{-3.9}$	$\chi_{DES}^2$	500.5	$512.8 (\nu: 13.4)$
$\Omega_m$	0.251	$0.255^{+0.14}_{-0.086}$	$r_{drag}$	152.1	$150.9^{+7.9}_{-11}$	$\chi_{prior}^2$	1.3	$14.3 (\nu: 14.0)$

Best-fit  $\chi_{\text{eff}}^2 = 501.82$ ;  $\bar{\chi}_{\text{eff}}^2 = 527.14$ ;  $R - 1 = 0.00444$   
 $\chi_{\text{eff}}^2$ : WL - DES\_1YR\_final: 500.49



## 2.237 base\_DESlens\_lenspriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02216	$0.0222^{+0.0013}_{-0.0013}$	$r_{\mathrm{drag}}h$	110.1	$112^{+30}_{-40}$	$100\theta_{\mathrm{eq}}$	0.830	$0.80^{+0.20}_{-0.20}$
$\Omega_{\mathrm{c}}h^2$	0.120	$0.137^{+0.096}_{-0.065}$	$\langle d^2 \rangle^{1/2}$	2.54	$2.39^{+0.91}_{-0.86}$	$100\theta_{\mathrm{s,eq}}$	0.459	$0.44^{+0.10}_{-0.11}$
$100\theta_{\mathrm{MC}}$	1.064	$1.08^{+0.11}_{-0.15}$	$z_{\mathrm{re}}$	7.85	$8.1^{+1.6}_{-1.3}$	$H(0.15)$	79.7	$84^{+20}_{-30}$
$\ln(10^{10}A_{\mathrm{s}})$	3.15	—	$10^9A_{\mathrm{s}}$	2.34	$2.1^{+2.6}_{-1.7}$	$D_{\mathrm{M}}(0.15)$	583	$570^{+300}_{-100}$
$n_{\mathrm{s}}$	0.960	$0.960^{+0.053}_{-0.051}$	$10^9A_{\mathrm{s}}e^{-2\tau}$	2.10	$1.9^{+2.4}_{-1.5}$	$H(0.38)$	89.1	$94^{+20}_{-30}$
$m_{\mathrm{DES}}^1$	0.015	$0.014^{+0.061}_{-0.060}$	$D_{40}$	1407	$1288^{+2000}_{-1000}$	$D_{\mathrm{M}}(0.38)$	1403	$1365^{+700}_{-300}$
$m_{\mathrm{DES}}^2$	0.014	$0.013^{+0.057}_{-0.058}$	$D_{220}$	6383	$5754^{+9000}_{-5000}$	$H(0.51)$	95.4	$100^{+20}_{-30}$
$m_{\mathrm{DES}}^3$	0.002	$0.005^{+0.056}_{-0.055}$	$D_{810}$	2800	$2357^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.51)$	1826	$1774^{+800}_{-400}$
$m_{\mathrm{DES}}^4$	0.016	$0.017^{+0.056}_{-0.055}$	$D_{1420}$	883	$704^{+1000}_{-600}$	$H(0.61)$	100.7	$106^{+30}_{-30}$
$A_{\mathrm{IA,DES}}$	1.34	$0.7^{+2.0}_{-5.2}$	$D_{2000}$	252	$208^{+300}_{-200}$	$D_{\mathrm{M}}(0.61)$	2132	$2068^{+900}_{-500}$
$\alpha_{\mathrm{IA,DES}}$	3.4	—	$n_{\mathrm{s},0.002}$	0.960	$0.960^{+0.053}_{-0.051}$	$H(2.33)$	239	$252^{+70}_{-50}$
$\Delta z_{\mathrm{s,DES}}^1$	0.0029	$0.002^{+0.038}_{-0.039}$	$Y_{\mathrm{P}}$	0.24531	$0.24531^{+0.00056}_{-0.00056}$	$D_{\mathrm{M}}(2.33)$	5488	$5288^{+2000}_{-1000}$
$\Delta z_{\mathrm{s,DES}}^2$	-0.0192	$-0.020^{+0.031}_{-0.031}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.24664	$0.24664^{+0.00056}_{-0.00056}$	$f\sigma_8(0.15)$	0.453	$0.440^{+0.053}_{-0.089}$
$\Delta z_{\mathrm{s,DES}}^3$	0.0080	$0.009^{+0.028}_{-0.028}$	$10^5D/H$	2.625	$2.62^{+0.26}_{-0.24}$	$\sigma_8(0.15)$	0.818	$0.80^{+0.32}_{-0.38}$
$\Delta z_{\mathrm{s,DES}}^4$	-0.016	$-0.016^{+0.054}_{-0.053}$	Age/Gyr	13.16	$12.7^{+4.1}_{-2.8}$	$f\sigma_8(0.38)$	0.486	$0.470^{+0.086}_{-0.15}$
$H_0$	74.8	$> 48.5$	$z_*$	1090.2	$1091.5^{+7.7}_{-5.5}$	$\sigma_8(0.38)$	0.732	$0.72^{+0.31}_{-0.36}$
$\Omega_{\Lambda}$	0.744	$0.72^{+0.16}_{-0.34}$	$r_*$	144.5	$141^{+20}_{-20}$	$f\sigma_8(0.51)$	0.492	$0.48^{+0.10}_{-0.17}$
$\Omega_{\mathrm{m}}$	0.256	$0.28^{+0.34}_{-0.16}$	$100\theta_*$	1.064	$1.08^{+0.11}_{-0.15}$	$\sigma_8(0.51)$	0.688	$0.67^{+0.30}_{-0.34}$
$\Omega_{\mathrm{m}}h^2$	0.143	$0.160^{+0.10}_{-0.061}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.58	$13.1^{+3.5}_{-2.8}$	$f\sigma_8(0.61)$	0.492	$0.48^{+0.12}_{-0.19}$
$\Omega_{\mathrm{m}}h^3$	0.107	$0.127^{+0.11}_{-0.075}$	$z_{\mathrm{drag}}$	1059.5	$1060.6^{+6.8}_{-5.8}$	$\sigma_8(0.61)$	0.657	$0.64^{+0.30}_{-0.33}$
$\sigma_8$	0.878	$0.86^{+0.33}_{-0.39}$	$r_{\mathrm{drag}}$	147.2	$144^{+20}_{-20}$	$f\sigma_8(2.33)$	0.334	$0.33^{+0.16}_{-0.18}$
$S_8$	0.811	$0.791^{+0.084}_{-0.15}$	$k_{\mathrm{D}}$	0.1406	$0.145^{+0.024}_{-0.018}$	$\sigma_8(2.33)$	0.347	$0.34^{+0.19}_{-0.19}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.444	$0.433^{+0.046}_{-0.082}$	$100\theta_{\mathrm{D}}$	0.1646	$0.167^{+0.016}_{-0.021}$	$\chi_{\mathrm{DES}}^2$	228.7	$233.7 (\nu: 4.0)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.625	$0.61^{+0.14}_{-0.18}$	$z_{\mathrm{eq}}$	3408	$3814^{+2000}_{-1000}$	$\chi_{\mathrm{prior}}^2$	0.3	$9.4 (\nu: 9.3)$
$\sigma_8/h^{0.5}$	1.015	$0.97^{+0.25}_{-0.31}$	$k_{\mathrm{eq}}$	0.0104	$0.0116^{+0.0073}_{-0.0044}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 229.04$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 243.17$ ;  $R - 1 = 0.00629$   
 $\chi_{\mathrm{eff}}^2$ : WL - DES\_1YR\_final: 228.72



## 2.238 base\_DES\_lenspriors\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$\Omega_{\mathrm{m}}h^3$	$0.092^{+0.036}_{-0.024}$	$z_{\mathrm{eq}}$	$3119^{+600}_{-400}$
$\Omega_{\mathrm{c}}h^2$	$0.108^{+0.024}_{-0.018}$	$\sigma_8$	$0.816^{+0.090}_{-0.080}$	$k_{\mathrm{eq}}$	$0.0095^{+0.0018}_{-0.0014}$
$100\theta_{\mathrm{MC}}$	$1.034^{+0.061}_{-0.053}$	$S_8$	$0.776^{+0.039}_{-0.038}$	$100\theta_{\mathrm{eq}}$	$0.864^{+0.062}_{-0.064}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.18^{+0.18}_{-0.18}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.425^{+0.021}_{-0.021}$	$100\theta_{\mathrm{s,eq}}$	$0.476^{+0.031}_{-0.032}$
$n_{\mathrm{s}}$	$0.961^{+0.050}_{-0.051}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.589^{+0.036}_{-0.034}$	$H(0.15)$	$74^{+10}_{-10}$
$b_{\mathrm{DES}}^1$	$1.44^{+0.25}_{-0.24}$	$\sigma_8/h^{0.5}$	$0.979^{+0.044}_{-0.043}$	$D_{\mathrm{M}}(0.15)$	$629^{+100}_{-100}$
$b_{\mathrm{DES}}^2$	$1.65^{+0.22}_{-0.21}$	$r_{\mathrm{drag}}h$	$105^{+20}_{-10}$	$H(0.38)$	$84^{+10}_{-10}$
$b_{\mathrm{DES}}^3$	$1.64^{+0.20}_{-0.19}$	$\langle d^2 \rangle^{1/2}$	$2.52^{+0.11}_{-0.12}$	$D_{\mathrm{M}}(0.38)$	$1508^{+200}_{-200}$
$b_{\mathrm{DES}}^4$	$1.98^{+0.23}_{-0.22}$	$z_{\mathrm{re}}$	$7.58^{+0.55}_{-0.47}$	$H(0.51)$	$90^{+10}_{-10}$
$b_{\mathrm{DES}}^5$	$2.06^{+0.26}_{-0.25}$	$10^9A_{\mathrm{s}}$	$2.41^{+0.47}_{-0.41}$	$D_{\mathrm{M}}(0.51)$	$1960^{+300}_{-300}$
$m_{\mathrm{DES}}^1$	$0.012^{+0.059}_{-0.059}$	$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.16^{+0.42}_{-0.37}$	$H(0.61)$	$95^{+10}_{-10}$
$m_{\mathrm{DES}}^2$	$0.015^{+0.058}_{-0.058}$	$D_{40}$	$1462^{+200}_{-200}$	$D_{\mathrm{M}}(0.61)$	$2286^{+300}_{-300}$
$m_{\mathrm{DES}}^3$	$0.012^{+0.053}_{-0.053}$	$D_{220}$	$6949^{+2000}_{-2000}$	$H(2.33)$	$228^{+22}_{-18}$
$m_{\mathrm{DES}}^4$	$0.013^{+0.055}_{-0.055}$	$D_{810}$	$2906^{+600}_{-600}$	$D_{\mathrm{M}}(2.33)$	$5827^{+700}_{-700}$
$A_{\mathrm{IA,DES}}$	$0.46^{+0.53}_{-0.46}$	$D_{1420}$	$916^{+200}_{-200}$	$f\sigma_8(0.15)$	$0.432^{+0.020}_{-0.020}$
$\alpha_{\mathrm{IA,DES}}$	—	$D_{2000}$	$264^{+90}_{-70}$	$\sigma_8(0.15)$	$0.758^{+0.090}_{-0.081}$
$\Delta z_{\mathrm{l,DES}}^1$	$0.004^{+0.020}_{-0.020}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.050}_{-0.051}$	$f\sigma_8(0.38)$	$0.460^{+0.025}_{-0.025}$
$\Delta z_{\mathrm{l,DES}}^2$	$0.002^{+0.017}_{-0.017}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00055}_{-0.00054}$	$\sigma_8(0.38)$	$0.677^{+0.087}_{-0.078}$
$\Delta z_{\mathrm{l,DES}}^3$	$0.004^{+0.017}_{-0.017}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00055}_{-0.00054}$	$f\sigma_8(0.51)$	$0.463^{+0.029}_{-0.029}$
$\Delta z_{\mathrm{l,DES}}^4$	$0.002^{+0.023}_{-0.023}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.23}$	$\sigma_8(0.51)$	$0.635^{+0.086}_{-0.076}$
$\Delta z_{\mathrm{l,DES}}^5$	$0.000^{+0.025}_{-0.026}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.0^{+1.6}_{-1.6}$	$f\sigma_8(0.61)$	$0.462^{+0.033}_{-0.033}$
$\Delta z_{\mathrm{s,DES}}^1$	$-0.004^{+0.036}_{-0.036}$	$z_{*}$	$1089.1^{+2.5}_{-2.1}$	$\sigma_8(0.61)$	$0.606^{+0.084}_{-0.074}$
$\Delta z_{\mathrm{s,DES}}^2$	$-0.029^{+0.028}_{-0.028}$	$r_{*}$	$147.7^{+5.7}_{-6.5}$	$f\sigma_8(2.33)$	$0.307^{+0.045}_{-0.040}$
$\Delta z_{\mathrm{s,DES}}^3$	$0.008^{+0.025}_{-0.025}$	$100\theta_{*}$	$1.034^{+0.061}_{-0.053}$	$\sigma_8(2.33)$	$0.319^{+0.052}_{-0.044}$
$\Delta z_{\mathrm{s,DES}}^4$	$-0.021^{+0.048}_{-0.047}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.3^{+1.3}_{-1.4}$	$\chi_{\mathrm{lensing}}^2$	$9.0 (\nu: 1.1)$
$H_0$	$70^{+10}_{-10}$	$z_{\mathrm{drag}}$	$1058.7^{+3.5}_{-3.6}$	$\chi_{\mathrm{DES}}^2$	$512.9 (\nu: 10.2)$
$\Omega_{\Lambda}$	$0.727^{+0.056}_{-0.067}$	$r_{\mathrm{drag}}$	$150.5^{+6.0}_{-6.7}$	$\chi_{\mathrm{prior}}^2$	$14.1 (\nu: 13.3)$
$\Omega_{\mathrm{m}}$	$0.273^{+0.067}_{-0.056}$	$k_{\mathrm{D}}$	$0.1372^{+0.0074}_{-0.0063}$		
$\Omega_{\mathrm{m}}h^2$	$0.131^{+0.025}_{-0.019}$	$100\theta_{\mathrm{D}}$	$0.1604^{+0.0088}_{-0.0076}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 535.95; R - 1 = 0.00951$$



## 2.239 base\_DESlens\_lenspriors\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02221	$0.0222^{+0.0013}_{-0.0013}$	$r_{\mathrm{drag}} h$	102.8	$108^{+30}_{-20}$	$100\theta_{\mathrm{eq}}$	0.842	$0.845^{+0.088}_{-0.082}$
$\Omega_{\mathrm{c}} h^2$	0.1132	$0.115^{+0.033}_{-0.026}$	$\langle d^2 \rangle^{1/2}$	2.496	$2.49^{+0.13}_{-0.14}$	$100\theta_{\mathrm{s,eq}}$	0.4645	$0.466^{+0.045}_{-0.041}$
$100\theta_{\mathrm{MC}}$	1.039	$1.051^{+0.083}_{-0.078}$	$z_{\mathrm{re}}$	7.67	$7.73^{+0.72}_{-0.64}$	$H(0.15)$	73.9	$78^{+20}_{-20}$
$\ln(10^{10} A_{\mathrm{s}})$	3.126	$3.13^{+0.24}_{-0.23}$	$10^9 A_{\mathrm{s}}$	2.28	$2.31^{+0.61}_{-0.48}$	$D_{\mathrm{M}}(0.15)$	630	$605^{+200}_{-200}$
$n_{\mathrm{s}}$	0.960	$0.960^{+0.052}_{-0.052}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	2.041	$2.07^{+0.55}_{-0.43}$	$H(0.38)$	83.5	$87^{+20}_{-20}$
$m_{\mathrm{DES}}^1$	0.014	$0.013^{+0.058}_{-0.059}$	$D_{40}$	1371	$1390^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	1510	$1452^{+300}_{-300}$
$m_{\mathrm{DES}}^2$	0.014	$0.013^{+0.058}_{-0.057}$	$D_{220}$	6416	$6444^{+2000}_{-2000}$	$H(0.51)$	89.9	$93^{+20}_{-20}$
$m_{\mathrm{DES}}^3$	0.003	$0.005^{+0.055}_{-0.055}$	$D_{810}$	2764	$2727^{+800}_{-900}$	$D_{\mathrm{M}}(0.51)$	1959	$1888^{+400}_{-400}$
$m_{\mathrm{DES}}^4$	0.018	$0.018^{+0.054}_{-0.055}$	$D_{1420}$	881	$850^{+300}_{-400}$	$H(0.61)$	95.3	$99^{+20}_{-20}$
$A_{\mathrm{IA,DES}}$	1.27	$< 2.27$	$D_{2000}$	248	$246^{+100}_{-100}$	$D_{\mathrm{M}}(0.61)$	2283	$2203^{+500}_{-500}$
$\alpha_{\mathrm{IA,DES}}$	3.3	—	$n_{\mathrm{s},0.002}$	0.960	$0.960^{+0.052}_{-0.052}$	$H(2.33)$	231.7	$234^{+30}_{-30}$
$\Delta z_{\mathrm{s,DES}}^1$	0.0026	$0.001^{+0.038}_{-0.039}$	$Y_{\mathrm{P}}$	0.24533	$0.24532^{+0.00054}_{-0.00056}$	$D_{\mathrm{M}}(2.33)$	5780	$5638^{+1000}_{-900}$
$\Delta z_{\mathrm{s,DES}}^2$	-0.0191	$-0.020^{+0.030}_{-0.031}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.24666	$0.24664^{+0.00054}_{-0.00056}$	$f\sigma_8(0.15)$	0.4438	$0.436^{+0.030}_{-0.062}$
$\Delta z_{\mathrm{s,DES}}^3$	0.0082	$0.009^{+0.028}_{-0.028}$	$10^5 D/H$	2.615	$2.62^{+0.26}_{-0.23}$	$\sigma_8(0.15)$	0.758	$0.78^{+0.14}_{-0.11}$
$\Delta z_{\mathrm{s,DES}}^4$	-0.017	$-0.016^{+0.052}_{-0.053}$	Age/Gyr	13.85	$13.5^{+2.3}_{-2.1}$	$f\sigma_8(0.38)$	0.4680	$0.466^{+0.033}_{-0.040}$
$H_0$	69.0	$73^{+20}_{-20}$	$z_*$	1089.52	$1089.7^{+3.2}_{-2.8}$	$\sigma_8(0.38)$	0.675	$0.70^{+0.14}_{-0.11}$
$\Omega_{\Lambda}$	0.714	$0.73^{+0.11}_{-0.10}$	$r_*$	146.3	$145.9^{+7.6}_{-8.0}$	$f\sigma_8(0.51)$	0.4697	$0.470^{+0.039}_{-0.038}$
$\Omega_{\mathrm{m}}$	0.286	$0.27^{+0.10}_{-0.11}$	$100\theta_*$	1.039	$1.052^{+0.083}_{-0.078}$	$\sigma_8(0.51)$	0.633	$0.65^{+0.14}_{-0.11}$
$\Omega_{\mathrm{m}} h^2$	0.1361	$0.138^{+0.032}_{-0.026}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	14.08	$13.9^{+1.8}_{-1.6}$	$f\sigma_8(0.61)$	0.4668	$0.470^{+0.043}_{-0.043}$
$\Omega_{\mathrm{m}} h^3$	0.0939	$0.101^{+0.052}_{-0.037}$	$z_{\mathrm{drag}}$	1059.09	$1059.2^{+3.8}_{-3.8}$	$\sigma_8(0.61)$	0.603	$0.62^{+0.14}_{-0.11}$
$\sigma_8$	0.817	$0.84^{+0.13}_{-0.11}$	$r_{\mathrm{drag}}$	149.1	$148.6^{+7.9}_{-8.3}$	$f\sigma_8(2.33)$	0.305	$0.317^{+0.078}_{-0.057}$
$S_8$	0.798	$0.783^{+0.059}_{-0.12}$	$k_{\mathrm{D}}$	0.1387	$0.1392^{+0.0092}_{-0.0083}$	$\sigma_8(2.33)$	0.316	$0.330^{+0.095}_{-0.064}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4372	$0.429^{+0.032}_{-0.066}$	$100\theta_{\mathrm{D}}$	0.1609	$0.163^{+0.012}_{-0.011}$	$\chi_{\mathrm{lensing}}^2$	7.71	9.6 ( $\nu$ : 2.0)
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.5978	$0.599^{+0.047}_{-0.046}$	$z_{\mathrm{eq}}$	3236	$3289^{+800}_{-600}$	$\chi_{\mathrm{DES}}^2$	229.0	232.8 ( $\nu$ : 3.2)
$\sigma_8/h^{0.5}$	0.9843	$0.982^{+0.047}_{-0.050}$	$k_{\mathrm{eq}}$	0.00988	$0.0100^{+0.0024}_{-0.0019}$	$\chi_{\mathrm{prior}}^2$	0.3	9.3 ( $\nu$ : 8.8)

Best-fit  $\chi_{\mathrm{eff}}^2 = 236.98$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 251.72$ ;  $R - 1 = 0.00394$

$\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.71 WL - DES\_1YR\_final: 228.96



## 2.240 base\_DES\_lenspriors\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02223	$0.0222^{+0.0013}_{-0.0013}$	$\sigma_8$	0.817	$0.803^{+0.079}_{-0.074}$	$100\theta_{\text{eq}}$	0.882	$0.873^{+0.076}_{-0.074}$
$\Omega_c h^2$	0.1020	$0.105^{+0.021}_{-0.017}$	$S_8$	0.790	$0.780^{+0.057}_{-0.054}$	$100\theta_{\text{s,eq}}$	0.4844	$0.480^{+0.039}_{-0.038}$
$100\theta_{\text{MC}}$	1.0188	$1.023^{+0.030}_{-0.028}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4326	$0.427^{+0.031}_{-0.030}$	$H(0.15)$	71.45	$71.8^{+3.3}_{-2.9}$
$\ln(10^{10} A_{\text{s}})$	3.279	$3.21^{+0.38}_{-0.39}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5946	$0.586^{+0.049}_{-0.045}$	$D_{\text{M}}(0.15)$	651.9	$649^{+26}_{-28}$
$n_{\text{s}}$	0.958	$0.958^{+0.052}_{-0.050}$	$\sigma_8/h^{0.5}$	1.000	$0.981^{+0.10}_{-0.095}$	$H(0.38)$	80.55	$81.0^{+4.1}_{-3.7}$
$b_{\text{DES}}^1$	1.443	$1.47^{+0.25}_{-0.23}$	$r_{\text{drag}} h$	101.63	$101.6^{+2.9}_{-2.8}$	$D_{\text{M}}(0.38)$	1563	$1555^{+67}_{-70}$
$b_{\text{DES}}^2$	1.646	$1.68^{+0.23}_{-0.20}$	$\langle d^2 \rangle^{1/2}$	2.626	$2.56^{+0.36}_{-0.33}$	$H(0.51)$	86.64	$87.2^{+4.7}_{-4.3}$
$b_{\text{DES}}^3$	1.629	$1.66^{+0.22}_{-0.20}$	$z_{\text{re}}$	7.439	$7.49^{+0.46}_{-0.42}$	$D_{\text{M}}(0.51)$	2029	$2019^{+89}_{-92}$
$b_{\text{DES}}^4$	1.966	$2.01^{+0.28}_{-0.24}$	$10^9 A_{\text{s}}$	2.65	$2.51^{+1.1}_{-0.83}$	$H(0.61)$	91.75	$92.4^{+5.2}_{-4.7}$
$b_{\text{DES}}^5$	2.034	$2.08^{+0.33}_{-0.30}$	$10^9 A_{\text{s}} e^{-2\tau}$	2.38	$2.25^{+1.0}_{-0.74}$	$D_{\text{M}}(0.61)$	2366	$2353^{+110}_{-110}$
$m_{\text{DES}}^1$	0.013	$0.012^{+0.059}_{-0.057}$	$D_{40}$	1634	$1539^{+700}_{-500}$	$H(2.33)$	222.2	$224^{+17}_{-15}$
$m_{\text{DES}}^2$	0.015	$0.014^{+0.056}_{-0.057}$	$D_{220}$	7889	$7399^{+4000}_{-3000}$	$D_{\text{M}}(2.33)$	6006	$5964^{+330}_{-340}$
$m_{\text{DES}}^3$	0.005	$0.009^{+0.055}_{-0.053}$	$D_{810}$	3202	$3022^{+1000}_{-1000}$	$f\sigma_8(0.15)$	0.4397	$0.434^{+0.032}_{-0.031}$
$m_{\text{DES}}^4$	0.008	$0.011^{+0.056}_{-0.054}$	$D_{1420}$	1002	$949^{+400}_{-300}$	$\sigma_8(0.15)$	0.758	$0.745^{+0.076}_{-0.071}$
$A_{\text{IA,DES}}$	0.464	$0.45^{+0.51}_{-0.45}$	$D_{2000}$	290	$275^{+200}_{-90}$	$f\sigma_8(0.38)$	0.4652	$0.458^{+0.037}_{-0.035}$
$\alpha_{\text{IA,DES}}$	-1.6	—	$n_{\text{s},0.002}$	0.958	$0.958^{+0.052}_{-0.050}$	$\sigma_8(0.38)$	0.676	$0.664^{+0.070}_{-0.065}$
$\Delta z_{\text{l,DES}}^1$	0.0039	$0.004^{+0.019}_{-0.019}$	$Y_{\text{P}}$	0.24534	$0.24532^{+0.00055}_{-0.00057}$	$f\sigma_8(0.51)$	0.4675	$0.460^{+0.039}_{-0.036}$
$\Delta z_{\text{l,DES}}^2$	0.0015	$0.002^{+0.017}_{-0.017}$	$Y_{\text{P}}^{\text{BBN}}$	0.24667	$0.24665^{+0.00055}_{-0.00057}$	$\sigma_8(0.51)$	0.634	$0.622^{+0.067}_{-0.062}$
$\Delta z_{\text{l,DES}}^3$	0.0040	$0.004^{+0.017}_{-0.017}$	$10^5 D/\text{H}$	2.612	$2.62^{+0.27}_{-0.23}$	$f\sigma_8(0.61)$	0.4651	$0.458^{+0.040}_{-0.038}$
$\Delta z_{\text{l,DES}}^4$	0.0019	$0.002^{+0.023}_{-0.023}$	Age/Gyr	14.39	$14.29^{+0.79}_{-0.81}$	$\sigma_8(0.61)$	0.604	$0.593^{+0.064}_{-0.060}$
$\Delta z_{\text{l,DES}}^5$	0.0001	$0.000^{+0.025}_{-0.025}$	$z_*$	1088.46	$1088.7^{+2.3}_{-2.1}$	$f\sigma_8(2.33)$	0.3061	$0.300^{+0.034}_{-0.032}$
$\Delta z_{\text{s,DES}}^1$	-0.0014	$-0.004^{+0.036}_{-0.037}$	$r_*$	149.5	$148.8^{+5.5}_{-5.8}$	$\sigma_8(2.33)$	0.3171	$0.311^{+0.036}_{-0.034}$
$\Delta z_{\text{s,DES}}^2$	-0.0290	$-0.029^{+0.028}_{-0.028}$	$100\theta_*$	1.0190	$1.023^{+0.030}_{-0.028}$	$\chi_{6\text{DF}}^2$	0.039	$0.09 (\nu: 0.0)$
$\Delta z_{\text{s,DES}}^3$	0.0059	$0.007^{+0.025}_{-0.026}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.67	$14.55^{+0.96}_{-0.95}$	$\chi_{\text{MGS}}^2$	2.27	$2.34 (\nu: 0.3)$
$\Delta z_{\text{s,DES}}^4$	-0.0249	$-0.023^{+0.049}_{-0.047}$	$z_{\text{drag}}$	1058.29	$1058.4^{+3.5}_{-3.7}$	$\chi_{\text{DR12BAO}}^2$	4.64	$5.3 (\nu: 1.2)$
$H_0$	66.74	$67.0^{+2.9}_{-2.6}$	$r_{\text{drag}}$	152.3	$151.6^{+5.9}_{-6.1}$	$\chi_{\text{DES}}^2$	501.4	$512.8 (\nu: 12.0)$
$\Omega_{\Lambda}$	0.7197	$0.716^{+0.029}_{-0.033}$	$k_{\text{D}}$	0.1354	$0.1361^{+0.0067}_{-0.0061}$	$\chi_{\text{prior}}^2$	1.2	$14.2 (\nu: 13.3)$
$\Omega_{\text{m}}$	0.2803	$0.284^{+0.033}_{-0.029}$	$100\theta_{\text{D}}$	0.15816	$0.1587^{+0.0042}_{-0.0038}$	$\chi_{\text{BAO}}^2$	6.95	$7.7 (\nu: 1.5)$
$\Omega_{\text{m}} h^2$	0.1249	$0.127^{+0.021}_{-0.018}$	$z_{\text{eq}}$	2968	$3031^{+500}_{-400}$			
$\Omega_{\text{m}} h^3$	0.0833	$0.086^{+0.017}_{-0.014}$	$k_{\text{eq}}$	0.00906	$0.0093^{+0.0015}_{-0.0013}$			

Best-fit  $\chi_{\text{eff}}^2 = 509.62$ ;  $\bar{\chi}_{\text{eff}}^2 = 534.74$ ;  $R - 1 = 0.00577$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.04 MGS: 2.27 DR12BAO: 4.64 WL - DES\_1YR\_final: 501.43



## 2.241 base\_DESlens\_lenspriors\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02217	$0.0222^{+0.0013}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	2.10	$2.05^{+0.79}_{-0.54}$	$H(0.15)$	76.2	$77^{+9}_{-8}$
$\Omega_c h^2$	0.146	$0.153^{+0.091}_{-0.064}$	$z_{\text{re}}$	8.26	$8.4^{+1.3}_{-1.1}$	$D_{\text{M}}(0.15)$	616	$611^{+58}_{-61}$
$100\theta_{\text{MC}}$	1.074	$1.078^{+0.073}_{-0.082}$	$10^9 A_{\text{s}}$	1.37	$1.36^{+1.8}_{-0.96}$	$H(0.38)$	87.6	$89^{+10}_{-10}$
$\ln(10^{10} A_{\text{s}})$	2.62	$< 3.46$	$10^9 A_{\text{s}} e^{-2\tau}$	1.23	$1.21^{+1.6}_{-0.86}$	$D_{\text{M}}(0.38)$	1461	$1449^{+160}_{-160}$
$n_{\text{s}}$	0.958	$0.959^{+0.052}_{-0.051}$	$D_{40}$	784	$782^{+1000}_{-600}$	$H(0.51)$	95.1	$96^{+20}_{-10}$
$m_{\text{DES}}^1$	0.015	$0.013^{+0.058}_{-0.058}$	$D_{220}$	3383	$3439^{+8000}_{-3000}$	$D_{\text{M}}(0.51)$	1888	$1872^{+200}_{-200}$
$m_{\text{DES}}^2$	0.013	$0.012^{+0.057}_{-0.058}$	$D_{810}$	1575	$1546^{+2000}_{-1000}$	$H(0.61)$	101.4	$103^{+20}_{-10}$
$m_{\text{DES}}^3$	0.001	$0.002^{+0.055}_{-0.055}$	$D_{1420}$	499	$482^{+700}_{-400}$	$D_{\text{M}}(0.61)$	2194	$2175^{+300}_{-300}$
$m_{\text{DES}}^4$	0.019	$0.019^{+0.056}_{-0.057}$	$D_{2000}$	144	$139^{+200}_{-100}$	$H(2.33)$	256	$260^{+60}_{-50}$
$A_{\text{IA,DES}}$	1.37	$1.0^{+1.5}_{-2.6}$	$n_{\text{s},0.002}$	0.958	$0.959^{+0.052}_{-0.051}$	$D_{\text{M}}(2.33)$	5408	$5355^{+900}_{-800}$
$\alpha_{\text{IA,DES}}$	2.7	—	$Y_{\text{P}}$	0.24531	$0.24531^{+0.00054}_{-0.00057}$	$f\sigma_8(0.15)$	0.4367	$0.429^{+0.039}_{-0.050}$
$\Delta z_{\text{s,DES}}^1$	0.0041	$0.003^{+0.037}_{-0.039}$	$Y_{\text{P}}^{\text{BBN}}$	0.24664	$0.24664^{+0.00054}_{-0.00057}$	$\sigma_8(0.15)$	0.685	$0.67^{+0.13}_{-0.12}$
$\Delta z_{\text{s,DES}}^2$	-0.0206	$-0.021^{+0.030}_{-0.031}$	$10^5 \text{D}/\text{H}$	2.623	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.38)$	0.447	$0.438^{+0.052}_{-0.059}$
$\Delta z_{\text{s,DES}}^3$	0.0075	$0.008^{+0.028}_{-0.027}$	Age/Gyr	12.94	$12.8^{+2.2}_{-2.0}$	$\sigma_8(0.38)$	0.604	$0.59^{+0.13}_{-0.11}$
$\Delta z_{\text{s,DES}}^4$	-0.017	$-0.016^{+0.053}_{-0.054}$	$z_*$	1092.3	$1092.8^{+6.6}_{-5.5}$	$f\sigma_8(0.51)$	0.443	$0.433^{+0.059}_{-0.063}$
$H_0$	70.2	$70.8^{+7.1}_{-5.7}$	$r_*$	138.5	$137^{+20}_{-20}$	$\sigma_8(0.51)$	0.564	$0.55^{+0.12}_{-0.10}$
$\Omega_{\Lambda}$	0.658	$0.652^{+0.089}_{-0.10}$	$100\theta_*$	1.074	$1.078^{+0.073}_{-0.081}$	$f\sigma_8(0.61)$	0.436	$0.426^{+0.063}_{-0.065}$
$\Omega_{\text{m}}$	0.342	$0.348^{+0.10}_{-0.089}$	$D_{\text{M}}(z_*)/\text{Gpc}$	12.89	$12.8^{+2.6}_{-2.2}$	$\sigma_8(0.61)$	0.536	$0.52^{+0.12}_{-0.10}$
$\Omega_{\text{m}} h^2$	0.168	$0.176^{+0.091}_{-0.064}$	$z_{\text{drag}}$	1061.2	$1061.7^{+6.4}_{-5.8}$	$f\sigma_8(2.33)$	0.269	$0.263^{+0.064}_{-0.052}$
$\Omega_{\text{m}} h^3$	0.118	$0.125^{+0.081}_{-0.052}$	$r_{\text{drag}}$	141.0	$140^{+20}_{-20}$	$\sigma_8(2.33)$	0.276	$0.270^{+0.069}_{-0.056}$
$\sigma_8$	0.744	$0.73^{+0.14}_{-0.12}$	$k_{\text{D}}$	0.1473	$0.149^{+0.021}_{-0.018}$	$\chi_{6\text{DF}}^2$	0.06	$0.17 (\nu: 0.0)$
$S_8$	0.794	$0.781^{+0.067}_{-0.091}$	$100\theta_{\text{D}}$	0.1654	$0.166^{+0.010}_{-0.010}$	$\chi_{\text{MGS}}^2$	1.10	$1.20 (\nu: 0.3)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4350	$0.428^{+0.037}_{-0.050}$	$z_{\text{eq}}$	4008	$4189^{+2000}_{-2000}$	$\chi_{\text{DR12BAO}}^2$	2.31	$3.5 (\nu: 1.2)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.569	$0.558^{+0.069}_{-0.074}$	$k_{\text{eq}}$	0.0122	$0.0128^{+0.0066}_{-0.0047}$	$\chi_{\text{DES}}^2$	229.5	$233.6 (\nu: 4.1)$
$\sigma_8/h^{0.5}$	0.888	$0.87^{+0.20}_{-0.17}$	$100\theta_{\text{eq}}$	0.743	$0.73^{+0.21}_{-0.16}$	$\chi_{\text{prior}}^2$	0.5	$9.6 (\nu: 9.1)$
$r_{\text{drag}} h$	99.00	$98.9^{+4.7}_{-4.5}$	$100\theta_{\text{s,eq}}$	0.413	$0.409^{+0.11}_{-0.085}$	$\chi_{\text{BAO}}^2$	3.46	$4.9 (\nu: 1.7)$

Best-fit  $\chi_{\text{eff}}^2 = 233.41$ ;  $\bar{\chi}_{\text{eff}}^2 = 248.10$ ;  $R - 1 = 0.01028$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.06 MGS: 1.10 DR12BAO: 2.31 WL - DES\_1YR\_final: 229.45



## 2.242 base\_DES\_lenspriors\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02222	$0.0222^{+0.0013}_{-0.0012}$	$\sigma_8$	0.8009	$0.799^{+0.034}_{-0.033}$	$100\theta_{\text{eq}}$	0.865	$0.866^{+0.053}_{-0.052}$
$\Omega_c h^2$	0.1063	$0.106^{+0.015}_{-0.013}$	$S_8$	0.7833	$0.780^{+0.038}_{-0.039}$	$100\theta_{\text{s,eq}}$	0.4758	$0.476^{+0.027}_{-0.027}$
$100\theta_{\text{MC}}$	1.0251	$1.025^{+0.022}_{-0.021}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4290	$0.427^{+0.021}_{-0.022}$	$H(0.15)$	71.92	$72.0^{+2.8}_{-2.7}$
$\ln(10^{10} A_{\text{s}})$	3.180	$3.18^{+0.17}_{-0.17}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5862	$0.584^{+0.025}_{-0.025}$	$D_{\text{M}}(0.15)$	648.1	$648^{+25}_{-24}$
$n_{\text{s}}$	0.959	$0.959^{+0.051}_{-0.051}$	$\sigma_8/h^{0.5}$	0.9778	$0.975^{+0.040}_{-0.040}$	$H(0.38)$	81.26	$81.3^{+3.3}_{-3.1}$
$b_{\text{DES}}^1$	1.484	$1.48^{+0.19}_{-0.20}$	$r_{\text{drag}} h$	101.33	$101.5^{+2.6}_{-2.6}$	$D_{\text{M}}(0.38)$	1552	$1551^{+60}_{-59}$
$b_{\text{DES}}^2$	1.686	$1.69^{+0.14}_{-0.14}$	$\langle d^2 \rangle^{1/2}$	2.528	$2.52^{+0.11}_{-0.10}$	$H(0.51)$	87.50	$87.5^{+3.7}_{-3.5}$
$b_{\text{DES}}^3$	1.672	$1.67^{+0.12}_{-0.12}$	$z_{\text{re}}$	7.527	$7.53^{+0.38}_{-0.34}$	$D_{\text{M}}(0.51)$	2014	$2013^{+79}_{-77}$
$b_{\text{DES}}^4$	2.021	$2.02^{+0.14}_{-0.14}$	$10^9 A_{\text{s}}$	2.405	$2.41^{+0.44}_{-0.38}$	$H(0.61)$	92.74	$92.7^{+4.0}_{-3.7}$
$b_{\text{DES}}^5$	2.102	$2.10^{+0.20}_{-0.21}$	$10^9 A_{\text{s}} e^{-2\tau}$	2.155	$2.16^{+0.40}_{-0.34}$	$D_{\text{M}}(0.61)$	2347	$2346^{+92}_{-91}$
$m_{\text{DES}}^1$	0.013	$0.012^{+0.057}_{-0.058}$	$D_{40}$	1464	$1464^{+200}_{-200}$	$H(2.33)$	225.7	$226^{+12}_{-11}$
$m_{\text{DES}}^2$	0.017	$0.014^{+0.058}_{-0.057}$	$D_{220}$	6995	$7009^{+2000}_{-1000}$	$D_{\text{M}}(2.33)$	5937	$5939^{+260}_{-260}$
$m_{\text{DES}}^3$	0.008	$0.009^{+0.052}_{-0.052}$	$D_{810}$	2913	$2910^{+500}_{-500}$	$f\sigma_8(0.15)$	0.4355	$0.434^{+0.020}_{-0.021}$
$m_{\text{DES}}^4$	0.0098	$0.011^{+0.053}_{-0.055}$	$D_{1420}$	919	$917^{+200}_{-200}$	$\sigma_8(0.15)$	0.7425	$0.741^{+0.033}_{-0.032}$
$A_{\text{IA,DES}}$	0.458	$0.45^{+0.49}_{-0.43}$	$D_{2000}$	261	$262^{+70}_{-50}$	$f\sigma_8(0.38)$	0.4590	$0.458^{+0.019}_{-0.020}$
$\alpha_{\text{IA,DES}}$	-1.5	—	$n_{\text{s},0.002}$	0.959	$0.959^{+0.051}_{-0.051}$	$\sigma_8(0.38)$	0.6609	$0.660^{+0.030}_{-0.029}$
$\Delta z_{\text{l,DES}}^1$	0.0045	$0.004^{+0.019}_{-0.019}$	$Y_{\text{P}}$	0.24533	$0.24531^{+0.00053}_{-0.00054}$	$f\sigma_8(0.51)$	0.4605	$0.459^{+0.019}_{-0.019}$
$\Delta z_{\text{l,DES}}^2$	0.0013	$0.002^{+0.017}_{-0.017}$	$Y_{\text{P}}^{\text{BBN}}$	0.24666	$0.24664^{+0.00054}_{-0.00054}$	$\sigma_8(0.51)$	0.6197	$0.619^{+0.029}_{-0.028}$
$\Delta z_{\text{l,DES}}^3$	0.0037	$0.004^{+0.017}_{-0.017}$	$10^5 D/\text{H}$	2.615	$2.62^{+0.25}_{-0.22}$	$f\sigma_8(0.61)$	0.4576	$0.456^{+0.019}_{-0.019}$
$\Delta z_{\text{l,DES}}^4$	0.0015	$0.002^{+0.024}_{-0.023}$	Age/Gyr	14.22	$14.23^{+0.62}_{-0.62}$	$\sigma_8(0.61)$	0.5904	$0.589^{+0.028}_{-0.027}$
$\Delta z_{\text{l,DES}}^5$	0.0000	$0.000^{+0.025}_{-0.025}$	$z_*$	1088.88	$1088.9^{+2.0}_{-1.7}$	$f\sigma_8(2.33)$	0.2988	$0.298^{+0.015}_{-0.014}$
$\Delta z_{\text{s,DES}}^1$	-0.0020	$-0.004^{+0.036}_{-0.038}$	$r_*$	148.25	$148.3^{+4.1}_{-4.3}$	$\sigma_8(2.33)$	0.3091	$0.309^{+0.016}_{-0.015}$
$\Delta z_{\text{s,DES}}^2$	-0.0286	$-0.029^{+0.028}_{-0.028}$	$100\theta_*$	1.0253	$1.025^{+0.022}_{-0.021}$	$\chi_{\text{lensing}}^2$	7.73	8.8 ( $\nu$ : 0.9)
$\Delta z_{\text{s,DES}}^3$	0.0064	$0.007^{+0.025}_{-0.025}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.46	$14.47^{+0.70}_{-0.70}$	$\chi_{6\text{DF}}^2$	0.021	0.075 ( $\nu$ : 0.0)
$\Delta z_{\text{s,DES}}^4$	-0.0238	$-0.023^{+0.048}_{-0.047}$	$z_{\text{drag}}$	1058.56	$1058.5^{+3.3}_{-3.3}$	$\chi_{\text{MGS}}^2$	2.12	2.27 ( $\nu$ : 0.2)
$H_0$	67.08	$67.1^{+2.6}_{-2.5}$	$r_{\text{drag}}$	151.05	$151.1^{+4.4}_{-4.5}$	$\chi_{\text{DR12BAO}}^2$	4.25	5.1 ( $\nu$ : 1.0)
$\Omega_{\Lambda}$	0.7130	$0.714^{+0.021}_{-0.023}$	$k_{\text{D}}$	0.1367	$0.1366^{+0.0052}_{-0.0048}$	$\chi_{\text{DES}}^2$	502.6	512.5 ( $\nu$ : 9.8)
$\Omega_{\text{m}}$	0.2870	$0.286^{+0.023}_{-0.021}$	$100\theta_{\text{D}}$	0.15900	$0.1590^{+0.0032}_{-0.0031}$	$\chi_{\text{prior}}^2$	1.1	13.9 ( $\nu$ : 13.1)
$\Omega_{\text{m}} h^2$	0.1291	$0.129^{+0.015}_{-0.013}$	$z_{\text{eq}}$	3071	$3067^{+400}_{-300}$	$\chi_{\text{BAO}}^2$	6.39	7.4 ( $\nu$ : 1.1)
$\Omega_{\text{m}} h^3$	0.0866	$0.087^{+0.013}_{-0.011}$	$k_{\text{eq}}$	0.00937	$0.00936^{+0.0011}_{-0.00095}$			

Best-fit  $\chi_{\text{eff}}^2 = 517.88$ ;  $\bar{\chi}_{\text{eff}}^2 = 542.64$ ;  $R - 1 = 0.00500$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 2.12 DR12BAO: 4.25 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.73 WL - DES\_1YR\_final: 502.63



### 2.243 base\_DESlens\_lenspriors\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02219	$0.0222^{+0.0013}_{-0.0013}$	$z_{\text{re}}$	7.671	$7.65^{+0.44}_{-0.42}$	$H(0.38)$	82.42	$82.3^{+4.0}_{-3.6}$
$\Omega_c h^2$	0.1133	$0.112^{+0.020}_{-0.017}$	$10^9 A_s$	2.242	$2.27^{+0.49}_{-0.41}$	$D_M(0.38)$	1534	$1537^{+65}_{-66}$
$100\theta_{\text{MC}}$	1.0350	$1.033^{+0.027}_{-0.026}$	$10^9 A_s e^{-2\tau}$	2.009	$2.04^{+0.44}_{-0.37}$	$H(0.51)$	88.90	$88.7^{+4.5}_{-4.1}$
$\ln(10^{10} A_s)$	3.110	$3.12^{+0.20}_{-0.20}$	$D_{40}$	1353	$1371^{+300}_{-200}$	$D_M(0.51)$	1990	$1993^{+85}_{-88}$
$n_s$	0.957	$0.958^{+0.050}_{-0.050}$	$D_{220}$	6328	$6454^{+2000}_{-1000}$	$H(0.61)$	94.33	$94.1^{+5.0}_{-4.5}$
$m_{\text{DES}}^1$	0.015	$0.014^{+0.057}_{-0.059}$	$D_{810}$	2715	$2747^{+600}_{-600}$	$D_M(0.61)$	2317	$2321^{+100}_{-100}$
$m_{\text{DES}}^2$	0.014	$0.013^{+0.058}_{-0.058}$	$D_{1420}$	864	$872^{+200}_{-200}$	$H(2.33)$	231.4	$230^{+16}_{-14}$
$m_{\text{DES}}^3$	0.000	$0.000^{+0.053}_{-0.054}$	$D_{2000}$	243	$247^{+70}_{-50}$	$D_M(2.33)$	5831	$5849^{+300}_{-310}$
$m_{\text{DES}}^4$	0.016	$0.015^{+0.053}_{-0.054}$	$n_{s,0.002}$	0.957	$0.958^{+0.050}_{-0.050}$	$f\sigma_8(0.15)$	0.4461	$0.443^{+0.025}_{-0.027}$
$A_{\text{IA,DES}}$	1.30	$1.0^{+1.4}_{-1.5}$	$Y_{\text{P}}$	0.24532	$0.24531^{+0.00055}_{-0.00054}$	$\sigma_8(0.15)$	0.7475	$0.746^{+0.035}_{-0.034}$
$\alpha_{\text{IA,DES}}$	2.8	—	$Y_{\text{P}}^{\text{BBN}}$	0.24665	$0.24664^{+0.00055}_{-0.00054}$	$f\sigma_8(0.38)$	0.4675	$0.465^{+0.023}_{-0.025}$
$\Delta z_{s,\text{DES}}^1$	0.0030	$0.003^{+0.037}_{-0.038}$	$10^5 D/H$	2.620	$2.62^{+0.25}_{-0.23}$	$\sigma_8(0.38)$	0.6641	$0.663^{+0.031}_{-0.030}$
$\Delta z_{s,\text{DES}}^2$	-0.0192	$-0.020^{+0.030}_{-0.029}$	Age/Gyr	13.96	$14.01^{+0.72}_{-0.74}$	$f\sigma_8(0.51)$	0.4677	$0.466^{+0.022}_{-0.023}$
$\Delta z_{s,\text{DES}}^3$	0.0068	$0.007^{+0.026}_{-0.027}$	$z_*$	1089.55	$1089.4^{+2.2}_{-2.0}$	$\sigma_8(0.51)$	0.6222	$0.621^{+0.029}_{-0.029}$
$\Delta z_{s,\text{DES}}^4$	-0.019	$-0.018^{+0.052}_{-0.051}$	$r_*$	146.3	$146.7^{+5.0}_{-5.3}$	$f\sigma_8(0.61)$	0.4639	$0.462^{+0.022}_{-0.022}$
$H_0$	67.64	$67.6^{+2.9}_{-2.6}$	$100\theta_*$	1.0352	$1.033^{+0.027}_{-0.026}$	$\sigma_8(0.61)$	0.5924	$0.592^{+0.028}_{-0.028}$
$\Omega_\Lambda$	0.7025	$0.705^{+0.026}_{-0.029}$	$D_M(z_*)/\text{Gpc}$	14.14	$14.20^{+0.84}_{-0.86}$	$f\sigma_8(2.33)$	0.2993	$0.299^{+0.015}_{-0.014}$
$\Omega_{\text{m}}$	0.2975	$0.295^{+0.029}_{-0.026}$	$z_{\text{drag}}$	1059.02	$1058.9^{+3.2}_{-3.4}$	$\sigma_8(2.33)$	0.3092	$0.309^{+0.016}_{-0.015}$
$\Omega_{\text{m}} h^2$	0.1361	$0.135^{+0.020}_{-0.017}$	$r_{\text{drag}}$	149.1	$149.5^{+5.3}_{-5.5}$	$\chi_{\text{lensing}}^2$	7.72	8.9 ( $\nu: 1.1$ )
$\Omega_{\text{m}} h^3$	0.0921	$0.091^{+0.017}_{-0.014}$	$k_{\text{D}}$	0.1386	$0.1383^{+0.0062}_{-0.0058}$	$\chi_{6\text{DF}}^2$	0.004	0.057 ( $\nu: 0.0$ )
$\sigma_8$	0.8074	$0.805^{+0.037}_{-0.036}$	$100\theta_{\text{D}}$	0.16031	$0.1601^{+0.0038}_{-0.0037}$	$\chi_{\text{MGS}}^2$	1.89	2.06 ( $\nu: 0.2$ )
$S_8$	0.804	$0.799^{+0.049}_{-0.052}$	$z_{\text{eq}}$	3238	$3210^{+500}_{-400}$	$\chi_{\text{DR12BAO}}^2$	3.71	4.7 ( $\nu: 1.1$ )
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4404	$0.437^{+0.027}_{-0.028}$	$k_{\text{eq}}$	0.00988	$0.0098^{+0.0015}_{-0.0012}$	$\chi_{\text{DES}}^2$	228.9	232.1 ( $\nu: 2.6$ )
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5963	$0.594^{+0.029}_{-0.031}$	$100\theta_{\text{eq}}$	0.839	$0.844^{+0.065}_{-0.065}$	$\chi_{\text{prior}}^2$	0.5	9.3 ( $\nu: 8.3$ )
$\sigma_8/h^{0.5}$	0.9817	$0.979^{+0.042}_{-0.042}$	$100\theta_{s,\text{eq}}$	0.4626	$0.465^{+0.033}_{-0.033}$	$\chi_{\text{BAO}}^2$	5.60	6.8 ( $\nu: 1.2$ )
$r_{\text{drag}} h$	100.86	$101.0^{+2.9}_{-2.7}$	$H(0.15)$	72.70	$72.6^{+3.2}_{-2.9}$			
$\langle d^2 \rangle^{1/2}$	2.493	$2.49^{+0.12}_{-0.12}$	$D_M(0.15)$	641.9	$643^{+26}_{-27}$			

Best-fit  $\chi_{\text{eff}}^2 = 242.74$ ;  $\bar{\chi}_{\text{eff}}^2 = 257.11$ ;  $R - 1 = 0.00702$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.89 DR12BAO: 3.71 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.71 WL - DES\_1YR\_final: 228.94

### 2.244 base\_DES\_DESpriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.238	$0.256^{+0.089}_{-0.062}$	$m_{\text{DES}}^3$	0.008	$0.008^{+0.055}_{-0.054}$	$\Delta z_{s,\text{DES}}^4$	-0.0268	$-0.025^{+0.049}_{-0.048}$
$\Omega_b$	0.0660	—	$m_{\text{DES}}^4$	0.0098	$0.010^{+0.055}_{-0.053}$	$\Omega_b h^2$	0.0543	$0.029^{+0.025}_{-0.020}$
$H_0$	90.8	—	$A_{\text{IA,DES}}$	0.53	$0.49^{+0.56}_{-0.47}$	$\Omega_c h^2$	0.1409	$0.112^{+0.053}_{-0.046}$
$10^9 A_s$	2.72	$2.9^{+1.8}_{-1.2}$	$\alpha_{\text{IA,DES}}$	-1.1	—	$\Omega_\Lambda$	0.762	$0.744^{+0.062}_{-0.089}$
$n_s$	1.026	—	$\Delta z_{1,\text{DES}}^1$	0.0041	$0.005^{+0.020}_{-0.019}$	$\ln(10^{10} A_s)$	3.30	$3.33^{+0.51}_{-0.52}$
$b_{\text{DES}}^1$	1.307	$1.37^{+0.37}_{-0.29}$	$\Delta z_{1,\text{DES}}^2$	0.0020	$0.002^{+0.017}_{-0.017}$	$\sigma_8$	0.908	$0.86^{+0.17}_{-0.16}$
$b_{\text{DES}}^2$	1.504	$1.57^{+0.37}_{-0.28}$	$\Delta z_{1,\text{DES}}^3$	0.0045	$0.004^{+0.017}_{-0.017}$	$S_8$	0.808	$0.793^{+0.062}_{-0.064}$
$b_{\text{DES}}^3$	1.493	$1.55^{+0.36}_{-0.27}$	$\Delta z_{1,\text{DES}}^4$	0.0032	$0.003^{+0.023}_{-0.023}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4426	$0.434^{+0.034}_{-0.035}$
$b_{\text{DES}}^4$	1.805	$1.88^{+0.44}_{-0.33}$	$\Delta z_{1,\text{DES}}^5$	0.0007	$0.001^{+0.025}_{-0.025}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.634	$0.612^{+0.076}_{-0.080}$
$b_{\text{DES}}^5$	1.867	$1.94^{+0.48}_{-0.37}$	$\Delta z_{s,\text{DES}}^1$	-0.0012	$-0.004^{+0.036}_{-0.036}$	$\chi_{\text{DES}}^2$	498.6	511.6 ( $\nu: 12.6$ )
$m_{\text{DES}}^1$	0.014	$0.012^{+0.060}_{-0.059}$	$\Delta z_{s,\text{DES}}^2$	-0.0290	$-0.030^{+0.027}_{-0.028}$	$\chi_{\text{prior}}^2$	1.3	12.4 ( $\nu: 11.8$ )
$m_{\text{DES}}^2$	0.015	$0.015^{+0.058}_{-0.057}$	$\Delta z_{s,\text{DES}}^3$	0.0064	$0.007^{+0.025}_{-0.025}$			



Best-fit  $\chi^2_{\text{eff}} = 499.92$ ;  $\bar{\chi}^2_{\text{eff}} = 523.99$ ;  $R - 1 = 0.00668$   
 $\chi^2_{\text{eff}}$ : WL - DES\_1YR\_final: 498.64

## 2.245 base\_DESlens\_DESpriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.256	$0.28^{+0.20}_{-0.12}$	$A_{\text{IA,DES}}$	1.33	$0.7^{+1.7}_{-4.8}$	$\ln(10^{10} A_{\text{s}})$	3.18	$3.13^{+0.82}_{-1.2}$
$\Omega_b$	0.0380	—	$\alpha_{\text{IA,DES}}$	3.3	—	$\sigma_8$	0.878	$0.84^{+0.25}_{-0.26}$
$H_0$	72.8	—	$\Delta z_{\text{s,DES}}^1$	0.0027	$0.002^{+0.038}_{-0.039}$	$S_8$	0.811	$0.790^{+0.075}_{-0.14}$
$10^9 A_{\text{s}}$	2.41	—	$\Delta z_{\text{s,DES}}^2$	-0.0193	$-0.020^{+0.031}_{-0.031}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.444	$0.433^{+0.041}_{-0.076}$
$n_{\text{s}}$	0.975	—	$\Delta z_{\text{s,DES}}^3$	0.0080	$0.008^{+0.028}_{-0.028}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.625	$0.60^{+0.11}_{-0.13}$
$m_{\text{DES}}^1$	0.015	$0.013^{+0.059}_{-0.059}$	$\Delta z_{\text{s,DES}}^4$	-0.016	$-0.016^{+0.053}_{-0.053}$	$\chi_{\text{DES}}^2$	228.7	$233.3 (\nu: 3.7)$
$m_{\text{DES}}^2$	0.013	$0.013^{+0.057}_{-0.057}$	$\Omega_{\text{b}} h^2$	0.0201	$0.027^{+0.026}_{-0.017}$	$\chi_{\text{prior}}^2$	0.3	$7.4 (\nu: 6.9)$
$m_{\text{DES}}^3$	0.003	$0.003^{+0.055}_{-0.054}$	$\Omega_{\text{c}} h^2$	0.115	$0.122^{+0.10}_{-0.060}$			
$m_{\text{DES}}^4$	0.017	$0.017^{+0.056}_{-0.055}$	$\Omega_{\Lambda}$	0.744	$0.72^{+0.12}_{-0.20}$			

Best-fit  $\chi^2_{\text{eff}} = 229.04$ ;  $\bar{\chi}^2_{\text{eff}} = 240.73$ ;  $R - 1 = 0.00678$   
 $\chi^2_{\text{eff}}$ : WL - DES\_1YR\_final: 228.74

## 2.246 base\_DESwt\_DESpriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.274	$0.275^{+0.091}_{-0.076}$	$m_{\text{DES}}^3$	0.019	$0.022^{+0.057}_{-0.056}$	$\Delta z_{\text{s,DES}}^4$	-0.0264	$-0.024^{+0.050}_{-0.049}$
$\Omega_b$	0.0599	—	$m_{\text{DES}}^4$	0.005	$0.007^{+0.057}_{-0.056}$	$\Omega_{\text{b}} h^2$	0.0406	$0.026^{+0.028}_{-0.017}$
$H_0$	82.3	—	$A_{\text{IA,DES}}$	0.381	$0.43^{+0.53}_{-0.45}$	$\Omega_{\text{c}} h^2$	0.1445	$0.107^{+0.057}_{-0.041}$
$10^9 A_{\text{s}}$	2.20	$2.8^{+1.9}_{-1.2}$	$\alpha_{\text{IA,DES}}$	-2.8	—	$\Omega_{\Lambda}$	0.726	$0.725^{+0.076}_{-0.091}$
$n_{\text{s}}$	0.877	—	$\Delta z_{\text{l,DES}}^1$	0.0028	$0.004^{+0.020}_{-0.020}$	$\ln(10^{10} A_{\text{s}})$	3.09	$3.29^{+0.56}_{-0.53}$
$b_{\text{DES}}^1$	1.372	$1.40^{+0.41}_{-0.33}$	$\Delta z_{\text{l,DES}}^2$	0.0018	$0.002^{+0.017}_{-0.018}$	$\sigma_8$	0.829	$0.82^{+0.20}_{-0.17}$
$b_{\text{DES}}^2$	1.600	$1.63^{+0.43}_{-0.34}$	$\Delta z_{\text{l,DES}}^3$	0.0051	$0.005^{+0.018}_{-0.017}$	$S_8$	0.792	$0.785^{+0.092}_{-0.091}$
$b_{\text{DES}}^3$	1.587	$1.62^{+0.41}_{-0.33}$	$\Delta z_{\text{l,DES}}^4$	0.0035	$0.003^{+0.023}_{-0.023}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.434	$0.430^{+0.050}_{-0.050}$
$b_{\text{DES}}^4$	1.914	$1.95^{+0.49}_{-0.40}$	$\Delta z_{\text{l,DES}}^5$	0.0009	$0.000^{+0.025}_{-0.025}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.599	$0.595^{+0.098}_{-0.091}$
$b_{\text{DES}}^5$	1.973	$2.01^{+0.53}_{-0.43}$	$\Delta z_{\text{s,DES}}^1$	0.0003	$-0.004^{+0.039}_{-0.037}$	$\chi_{\text{DES}}^2$	249.6	$261.2 (\nu: 11.7)$
$m_{\text{DES}}^1$	0.013	$0.011^{+0.059}_{-0.058}$	$\Delta z_{\text{s,DES}}^2$	-0.0303	$-0.031^{+0.028}_{-0.029}$	$\chi_{\text{prior}}^2$	1.6	$13.1 (\nu: 12.9)$
$m_{\text{DES}}^2$	0.0099	$0.009^{+0.058}_{-0.057}$	$\Delta z_{\text{s,DES}}^3$	0.0067	$0.008^{+0.026}_{-0.025}$			

Best-fit  $\chi^2_{\text{eff}} = 251.17$ ;  $\bar{\chi}^2_{\text{eff}} = 274.25$ ;  $R - 1 = 0.00686$   
 $\chi^2_{\text{eff}}$ : WL - DES\_1YR\_final: 249.62

## 2.247 base\_DES\_DESpriors\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.261	$0.269^{+0.059}_{-0.048}$	$m_{\text{DES}}^3$	0.014	$0.013^{+0.055}_{-0.052}$	$\Delta z_{\text{s,DES}}^4$	-0.0228	$-0.021^{+0.048}_{-0.047}$
$\Omega_b$	0.0634	—	$m_{\text{DES}}^4$	0.014	$0.014^{+0.054}_{-0.055}$	$\Omega_{\text{b}} h^2$	0.0408	$0.029^{+0.025}_{-0.020}$
$H_0$	80.2	—	$A_{\text{IA,DES}}$	0.49	$0.46^{+0.53}_{-0.47}$	$\Omega_{\text{c}} h^2$	0.1262	$0.114^{+0.053}_{-0.045}$
$10^9 A_{\text{s}}$	2.44	$2.51^{+1.1}_{-0.80}$	$\alpha_{\text{IA,DES}}$	-0.9	—	$\Omega_{\Lambda}$	0.739	$0.731^{+0.048}_{-0.059}$
$n_{\text{s}}$	1.021	—	$\Delta z_{\text{l,DES}}^1$	0.0039	$0.004^{+0.019}_{-0.020}$	$\ln(10^{10} A_{\text{s}})$	3.195	$3.21^{+0.38}_{-0.34}$
$b_{\text{DES}}^1$	1.416	$1.44^{+0.23}_{-0.22}$	$\Delta z_{\text{l,DES}}^2$	0.0018	$0.002^{+0.017}_{-0.017}$	$\sigma_8$	0.840	$0.822^{+0.082}_{-0.080}$
$b_{\text{DES}}^2$	1.628	$1.65^{+0.20}_{-0.19}$	$\Delta z_{\text{l,DES}}^3$	0.0042	$0.004^{+0.017}_{-0.017}$	$S_8$	0.7831	$0.778^{+0.039}_{-0.039}$
$b_{\text{DES}}^3$	1.618	$1.64^{+0.18}_{-0.17}$	$\Delta z_{\text{l,DES}}^4$	0.0019	$0.002^{+0.023}_{-0.024}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4289	$0.426^{+0.021}_{-0.022}$
$b_{\text{DES}}^4$	1.960	$1.98^{+0.21}_{-0.19}$	$\Delta z_{\text{l,DES}}^5$	0.0002	$0.000^{+0.025}_{-0.025}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6003	$0.592^{+0.037}_{-0.037}$
$b_{\text{DES}}^5$	2.038	$2.05^{+0.25}_{-0.24}$	$\Delta z_{\text{s,DES}}^1$	-0.0020	$-0.004^{+0.037}_{-0.038}$	$\chi_{\text{lensing}}^2$	7.76	$9.0 (\nu: 1.2)$
$m_{\text{DES}}^1$	0.013	$0.012^{+0.059}_{-0.059}$	$\Delta z_{\text{s,DES}}^2$	-0.0284	$-0.029^{+0.028}_{-0.029}$	$\chi_{\text{DES}}^2$	501.3	$512.3 (\nu: 10.1)$
$m_{\text{DES}}^2$	0.016	$0.015^{+0.057}_{-0.057}$	$\Delta z_{\text{s,DES}}^3$	0.0079	$0.008^{+0.024}_{-0.024}$	$\chi_{\text{prior}}^2$	0.99	$12.1 (\nu: 11.3)$



Best-fit  $\chi^2_{\text{eff}} = 510.00$ ;  $\bar{\chi}^2_{\text{eff}} = 533.39$ ;  $R - 1 = 0.00725$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.76 WL - DES\_1YR\_final: 501.25

## 2.248 base\_DESlens\_DESpriors\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.284	$0.277^{+0.084}_{-0.087}$	$A_{\text{IA,DES}}$	1.33	$0.8^{+1.7}_{-3.6}$	$\ln(10^{10} A_{\text{s}})$	3.406	$3.17^{+0.43}_{-0.35}$
$\Omega_b$	0.0564	—	$\alpha_{\text{IA,DES}}$	3.3	—	$\sigma_8$	0.827	$0.826^{+0.11}_{-0.093}$
$H_0$	63.5	—	$\Delta z_{\text{s,DES}}^1$	0.0027	$0.002^{+0.038}_{-0.038}$	$S_8$	0.805	$0.790^{+0.053}_{-0.084}$
$10^9 A_{\text{s}}$	3.01	$2.41^{+1.1}_{-0.82}$	$\Delta z_{\text{s,DES}}^2$	-0.0192	$-0.020^{+0.030}_{-0.031}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4407	$0.433^{+0.029}_{-0.046}$
$n_{\text{s}}$	1.070	—	$\Delta z_{\text{s,DES}}^3$	0.0081	$0.008^{+0.027}_{-0.027}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6036	$0.598^{+0.044}_{-0.043}$
$m_{\text{DES}}^1$	0.015	$0.013^{+0.058}_{-0.058}$	$\Delta z_{\text{s,DES}}^4$	-0.016	$-0.016^{+0.052}_{-0.051}$	$\chi^2_{\text{lensing}}$	7.37	$9.3 (\nu: 1.4)$
$m_{\text{DES}}^2$	0.014	$0.013^{+0.058}_{-0.055}$	$\Omega_{\text{b}} h^2$	0.0228	$0.027^{+0.027}_{-0.018}$	$\chi^2_{\text{DES}}$	228.9	$232.6 (\nu: 2.9)$
$m_{\text{DES}}^3$	0.002	$0.004^{+0.055}_{-0.055}$	$\Omega_{\text{c}} h^2$	0.091	$0.116^{+0.060}_{-0.043}$	$\chi^2_{\text{prior}}$	0.4	$7.3 (\nu: 6.8)$
$m_{\text{DES}}^4$	0.018	$0.018^{+0.055}_{-0.053}$	$\Omega_{\Lambda}$	0.716	$0.723^{+0.087}_{-0.084}$			

Best-fit  $\chi^2_{\text{eff}} = 236.62$ ;  $\bar{\chi}^2_{\text{eff}} = 249.24$ ;  $R - 1 = 0.00861$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.37 WL - DES\_1YR\_final: 228.89

## 2.249 base\_DESwt\_DESpriors\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.273	$0.277^{+0.087}_{-0.058}$	$m_{\text{DES}}^3$	0.022	$0.023^{+0.055}_{-0.054}$	$\Delta z_{\text{s,DES}}^4$	-0.0229	$-0.022^{+0.048}_{-0.048}$
$\Omega_b$	0.0606	—	$m_{\text{DES}}^4$	0.009	$0.009^{+0.056}_{-0.054}$	$\Omega_{\text{b}} h^2$	0.0392	$0.027^{+0.027}_{-0.019}$
$H_0$	80.5	—	$A_{\text{IA,DES}}$	0.399	$0.43^{+0.53}_{-0.44}$	$\Omega_{\text{c}} h^2$	0.137	$0.112^{+0.057}_{-0.044}$
$10^9 A_{\text{s}}$	2.12	$2.46^{+1.1}_{-0.77}$	$\alpha_{\text{IA,DES}}$	-2.4	—	$\Omega_{\Lambda}$	0.727	$0.723^{+0.058}_{-0.087}$
$n_{\text{s}}$	0.941	—	$\Delta z_{\text{l,DES}}^1$	0.0028	$0.003^{+0.019}_{-0.019}$	$\ln(10^{10} A_{\text{s}})$	3.056	$3.19^{+0.40}_{-0.32}$
$b_{\text{DES}}^1$	1.424	$1.43^{+0.26}_{-0.24}$	$\Delta z_{\text{l,DES}}^2$	0.0013	$0.002^{+0.017}_{-0.017}$	$\sigma_8$	0.810	$0.806^{+0.090}_{-0.092}$
$b_{\text{DES}}^2$	1.661	$1.67^{+0.23}_{-0.20}$	$\Delta z_{\text{l,DES}}^3$	0.0043	$0.004^{+0.017}_{-0.017}$	$S_8$	0.773	$0.772^{+0.052}_{-0.050}$
$b_{\text{DES}}^3$	1.653	$1.66^{+0.22}_{-0.18}$	$\Delta z_{\text{l,DES}}^4$	0.0027	$0.003^{+0.024}_{-0.024}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4231	$0.423^{+0.028}_{-0.027}$
$b_{\text{DES}}^4$	1.999	$2.01^{+0.24}_{-0.21}$	$\Delta z_{\text{l,DES}}^5$	-0.0001	$0.000^{+0.025}_{-0.025}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5854	$0.584^{+0.040}_{-0.038}$
$b_{\text{DES}}^5$	2.071	$2.08^{+0.28}_{-0.26}$	$\Delta z_{\text{s,DES}}^1$	-0.0007	$-0.004^{+0.038}_{-0.038}$	$\chi^2_{\text{lensing}}$	7.87	$9.3 (\nu: 1.3)$
$m_{\text{DES}}^1$	0.012	$0.011^{+0.059}_{-0.059}$	$\Delta z_{\text{s,DES}}^2$	-0.0300	$-0.030^{+0.027}_{-0.029}$	$\chi^2_{\text{DES}}$	251.2	$261.4 (\nu: 10.2)$
$m_{\text{DES}}^2$	0.009	$0.009^{+0.059}_{-0.059}$	$\Delta z_{\text{s,DES}}^3$	0.0083	$0.009^{+0.025}_{-0.025}$	$\chi^2_{\text{prior}}$	1.3	$12.7 (\nu: 12.2)$

Best-fit  $\chi^2_{\text{eff}} = 260.41$ ;  $\bar{\chi}^2_{\text{eff}} = 283.37$ ;  $R - 1 = 0.00571$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.87 WL - DES\_1YR\_final: 251.25



## 2.250 base\_DES\_DESpriors\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.2934	$0.283^{+0.045}_{-0.039}$	$m_{\text{DES}}^4$	0.009	$0.011^{+0.054}_{-0.053}$	$\Omega_c h^2$	0.1110	$0.104^{+0.029}_{-0.023}$
$\Omega_b$	0.04868	$0.0497^{+0.0047}_{-0.0047}$	$A_{\text{IA,DES}}$	0.443	$0.45^{+0.52}_{-0.45}$	$\Omega_{\Lambda}$	0.7066	$0.717^{+0.039}_{-0.045}$
$H_0$	67.54	$66.9^{+3.3}_{-3.0}$	$\alpha_{\text{IA,DES}}$	-1.8	—	$\ln(10^{10} A_{\text{s}})$	3.144	$3.23^{+0.50}_{-0.49}$
$10^9 A_{\text{s}}$	2.32	$2.6^{+1.6}_{-1.0}$	$\Delta z_{\text{l,DES}}^1$	0.0036	$0.004^{+0.019}_{-0.019}$	$\sigma_8$	0.794	$0.806^{+0.098}_{-0.096}$
$n_{\text{s}}$	0.901	—	$\Delta z_{\text{l,DES}}^2$	0.0011	$0.002^{+0.017}_{-0.017}$	$S_8$	0.785	$0.782^{+0.059}_{-0.061}$
$b_{\text{DES}}^1$	1.477	$1.46^{+0.27}_{-0.24}$	$\Delta z_{\text{l,DES}}^3$	0.0039	$0.004^{+0.017}_{-0.017}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4299	$0.428^{+0.033}_{-0.033}$
$b_{\text{DES}}^2$	1.682	$1.67^{+0.25}_{-0.22}$	$\Delta z_{\text{l,DES}}^4$	0.0020	$0.002^{+0.023}_{-0.023}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.584	$0.588^{+0.055}_{-0.056}$
$b_{\text{DES}}^3$	1.663	$1.66^{+0.25}_{-0.21}$	$\Delta z_{\text{l,DES}}^5$	0.0002	$0.000^{+0.025}_{-0.025}$	$\chi_{6\text{DF}}^2$	0.014	$0.09 (\nu: 0.0)$
$b_{\text{DES}}^4$	2.006	$2.00^{+0.33}_{-0.26}$	$\Delta z_{\text{s,DES}}^1$	-0.0009	$-0.004^{+0.036}_{-0.036}$	$\chi_{\text{MGS}}^2$	2.04	$2.31 (\nu: 0.3)$
$b_{\text{DES}}^5$	2.072	$2.07^{+0.37}_{-0.31}$	$\Delta z_{\text{s,DES}}^2$	-0.0286	$-0.030^{+0.027}_{-0.029}$	$\chi_{\text{DR12BAO}}^2$	3.83	$5.5 (\nu: 1.6)$
$m_{\text{DES}}^1$	0.013	$0.012^{+0.060}_{-0.059}$	$\Delta z_{\text{s,DES}}^3$	0.0059	$0.007^{+0.025}_{-0.025}$	$\chi_{\text{DES}}^2$	502.4	$512.7 (\nu: 12.2)$
$m_{\text{DES}}^2$	0.015	$0.014^{+0.058}_{-0.056}$	$\Delta z_{\text{s,DES}}^4$	-0.0249	$-0.023^{+0.050}_{-0.048}$	$\chi_{\text{prior}}^2$	1.2	$13.2 (\nu: 12.6)$
$m_{\text{DES}}^3$	0.005	$0.008^{+0.054}_{-0.054}$	$\Omega_{\text{b}} h^2$	0.02221	$0.0222^{+0.0013}_{-0.0013}$	$\chi_{\text{BAO}}^2$	5.9	$7.9 (\nu: 2.0)$

Best-fit  $\chi_{\text{eff}}^2 = 509.50$ ;  $\bar{\chi}_{\text{eff}}^2 = 533.77$ ;  $R - 1 = 0.00944$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.01 MGS: 2.04 DR12BAO: 3.83 WL - DES\_1YR\_final: 502.44

## 2.251 base\_DESlens\_DESpriors\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.345	$0.330^{+0.10}_{-0.083}$	$\alpha_{\text{IA,DES}}$	2.7	—	$S_8$	0.791	$0.785^{+0.067}_{-0.089}$
$\Omega_b$	0.0445	$0.0460^{+0.0077}_{-0.0081}$	$\Delta z_{\text{s,DES}}^1$	0.0038	$0.003^{+0.037}_{-0.038}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4331	$0.430^{+0.036}_{-0.049}$
$H_0$	70.6	$69.6^{+7.1}_{-5.4}$	$\Delta z_{\text{s,DES}}^2$	-0.0204	$-0.021^{+0.031}_{-0.030}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.565	$0.569^{+0.070}_{-0.074}$
$10^9 A_{\text{s}}$	1.34	$< 3.82$	$\Delta z_{\text{s,DES}}^3$	0.0077	$0.008^{+0.027}_{-0.027}$	$\chi_{6\text{DF}}^2$	0.061	$0.13 (\nu: 0.0)$
$n_{\text{s}}$	0.922	—	$\Delta z_{\text{s,DES}}^4$	-0.016	$-0.016^{+0.054}_{-0.052}$	$\chi_{\text{MGS}}^2$	1.10	$1.43 (\nu: 0.3)$
$m_{\text{DES}}^1$	0.015	$0.014^{+0.059}_{-0.058}$	$\Omega_{\text{b}} h^2$	0.02219	$0.0222^{+0.0012}_{-0.0013}$	$\chi_{\text{DR12BAO}}^2$	2.20	$3.9 (\nu: 1.5)$
$m_{\text{DES}}^2$	0.013	$0.012^{+0.057}_{-0.057}$	$\Omega_c h^2$	0.149	$0.139^{+0.091}_{-0.057}$	$\chi_{\text{DES}}^2$	229.4	$233.2 (\nu: 3.7)$
$m_{\text{DES}}^3$	0.001	$0.002^{+0.055}_{-0.055}$	$\Omega_{\Lambda}$	0.655	$0.670^{+0.083}_{-0.10}$	$\chi_{\text{prior}}^2$	0.4	$8.5 (\nu: 8.0)$
$m_{\text{DES}}^4$	0.019	$0.018^{+0.056}_{-0.054}$	$\ln(10^{10} A_{\text{s}})$	2.59	$2.73^{+1.0}_{-0.95}$	$\chi_{\text{BAO}}^2$	3.36	$5.4 (\nu: 2.1)$
$A_{\text{IA,DES}}$	1.33	$0.99^{+1.5}_{-2.3}$	$\sigma_8$	0.737	$0.75^{+0.14}_{-0.13}$			

Best-fit  $\chi_{\text{eff}}^2 = 233.21$ ;  $\bar{\chi}_{\text{eff}}^2 = 247.19$ ;  $R - 1 = 0.00929$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.06 MGS: 1.10 DR12BAO: 2.20 WL - DES\_1YR\_final: 229.41



### 2.252 base\_DESwt\_DESpriors\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.2999	$0.287^{+0.040}_{-0.041}$	$m_{\text{DES}}^4$	0.006	$0.007^{+0.056}_{-0.058}$	$\Omega_{\text{c}} h^2$	0.1148	$0.106^{+0.026}_{-0.024}$
$\Omega_b$	0.04840	$0.0495^{+0.0048}_{-0.0043}$	$A_{\text{IA,DES}}$	0.354	$0.41^{+0.51}_{-0.43}$	$\Omega_{\Lambda}$	0.7001	$0.713^{+0.041}_{-0.040}$
$H_0$	67.76	$67.0^{+3.1}_{-3.0}$	$\alpha_{\text{IA,DES}}$	-3.1	—	$\ln(10^{10} A_{\text{s}})$	3.09	$3.19^{+0.52}_{-0.51}$
$10^9 A_{\text{s}}$	2.19	$2.5^{+1.6}_{-1.0}$	$\Delta z_{\text{l,DES}}^1$	0.0026	$0.003^{+0.020}_{-0.019}$	$\sigma_8$	0.780	$0.80^{+0.12}_{-0.11}$
$n_{\text{s}}$	0.870	—	$\Delta z_{\text{l,DES}}^2$	0.0015	$0.002^{+0.017}_{-0.017}$	$S_8$	0.780	$0.779^{+0.089}_{-0.090}$
$b_{\text{DES}}^1$	1.456	$1.44^{+0.31}_{-0.26}$	$\Delta z_{\text{l,DES}}^3$	0.0049	$0.005^{+0.017}_{-0.017}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4272	$0.426^{+0.049}_{-0.049}$
$b_{\text{DES}}^2$	1.693	$1.68^{+0.31}_{-0.25}$	$\Delta z_{\text{l,DES}}^4$	0.0031	$0.003^{+0.023}_{-0.023}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.577	$0.583^{+0.074}_{-0.073}$
$b_{\text{DES}}^3$	1.681	$1.67^{+0.30}_{-0.24}$	$\Delta z_{\text{l,DES}}^5$	0.0005	$0.000^{+0.025}_{-0.025}$	$\chi_{\text{6DF}}^2$	0.002	$0.08 (\nu: 0.0)$
$b_{\text{DES}}^4$	2.028	$2.01^{+0.37}_{-0.29}$	$\Delta z_{\text{s,DES}}^1$	0.0000	$-0.004^{+0.038}_{-0.038}$	$\chi_{\text{MGS}}^2$	1.82	$2.16 (\nu: 0.3)$
$b_{\text{DES}}^5$	2.090	$2.08^{+0.41}_{-0.34}$	$\Delta z_{\text{s,DES}}^2$	-0.0300	$-0.031^{+0.028}_{-0.029}$	$\chi_{\text{DR12BAO}}^2$	3.63	$5.3 (\nu: 1.5)$
$m_{\text{DES}}^1$	0.012	$0.011^{+0.059}_{-0.058}$	$\Delta z_{\text{s,DES}}^3$	0.0070	$0.008^{+0.026}_{-0.025}$	$\chi_{\text{DES}}^2$	250.4	$261.1 (\nu: 12.3)$
$m_{\text{DES}}^2$	0.010	$0.009^{+0.058}_{-0.059}$	$\Delta z_{\text{s,DES}}^4$	-0.0247	$-0.024^{+0.050}_{-0.048}$	$\chi_{\text{prior}}^2$	1.4	$14.1 (\nu: 13.7)$
$m_{\text{DES}}^3$	0.019	$0.021^{+0.055}_{-0.056}$	$\Omega_{\text{b}} h^2$	0.02222	$0.0222^{+0.0013}_{-0.0013}$	$\chi_{\text{BAO}}^2$	5.45	$7.5 (\nu: 1.8)$

Best-fit  $\chi_{\text{eff}}^2 = 257.28$ ;  $\bar{\chi}_{\text{eff}}^2 = 282.67$ ;  $R - 1 = 0.00957$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 3.63 WL - DES\_1YR\_final: 250.45

### 2.253 base\_DES\_DESpriors\_lensing\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.2919	$0.285^{+0.034}_{-0.032}$	$A_{\text{IA,DES}}$	0.455	$0.45^{+0.51}_{-0.43}$	$\ln(10^{10} A_{\text{s}})$	3.130	$3.20^{+0.30}_{-0.27}$
$\Omega_b$	0.04891	$0.0495^{+0.0044}_{-0.0042}$	$\alpha_{\text{IA,DES}}$	-1.5	—	$\sigma_8$	0.792	$0.802^{+0.056}_{-0.052}$
$H_0$	67.42	$67.0^{+3.0}_{-2.9}$	$\Delta z_{\text{l,DES}}^1$	0.0041	$0.004^{+0.019}_{-0.020}$	$S_8$	0.7809	$0.780^{+0.040}_{-0.039}$
$10^9 A_{\text{s}}$	2.29	$2.47^{+0.81}_{-0.63}$	$\Delta z_{\text{l,DES}}^2$	0.0011	$0.002^{+0.017}_{-0.017}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4277	$0.427^{+0.022}_{-0.021}$
$n_{\text{s}}$	0.935	—	$\Delta z_{\text{l,DES}}^3$	0.0036	$0.004^{+0.017}_{-0.017}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5819	$0.585^{+0.032}_{-0.031}$
$b_{\text{DES}}^1$	1.494	$1.47^{+0.20}_{-0.21}$	$\Delta z_{\text{l,DES}}^4$	0.0015	$0.002^{+0.023}_{-0.023}$	$\chi_{\text{lensing}}^2$	7.91	$8.9 (\nu: 1.1)$
$b_{\text{DES}}^2$	1.701	$1.69^{+0.16}_{-0.16}$	$\Delta z_{\text{l,DES}}^5$	-0.0001	$0.000^{+0.025}_{-0.025}$	$\chi_{\text{6DF}}^2$	0.014	$0.08 (\nu: 0.0)$
$b_{\text{DES}}^3$	1.685	$1.67^{+0.15}_{-0.14}$	$\Delta z_{\text{s,DES}}^1$	-0.0012	$-0.004^{+0.035}_{-0.036}$	$\chi_{\text{MGS}}^2$	2.04	$2.27 (\nu: 0.3)$
$b_{\text{DES}}^4$	2.035	$2.02^{+0.17}_{-0.16}$	$\Delta z_{\text{s,DES}}^2$	-0.0287	$-0.029^{+0.027}_{-0.028}$	$\chi_{\text{DR12BAO}}^2$	3.94	$5.3 (\nu: 1.4)$
$b_{\text{DES}}^5$	2.112	$2.09^{+0.22}_{-0.22}$	$\Delta z_{\text{s,DES}}^3$	0.0066	$0.007^{+0.025}_{-0.025}$	$\chi_{\text{DES}}^2$	502.9	$512.4 (\nu: 9.8)$
$m_{\text{DES}}^1$	0.014	$0.012^{+0.058}_{-0.059}$	$\Delta z_{\text{s,DES}}^4$	-0.0236	$-0.023^{+0.049}_{-0.047}$	$\chi_{\text{prior}}^2$	1.1	$13.0 (\nu: 12.2)$
$m_{\text{DES}}^2$	0.015	$0.015^{+0.059}_{-0.057}$	$\Omega_{\text{b}} h^2$	0.02223	$0.0222^{+0.0013}_{-0.0012}$	$\chi_{\text{BAO}}^2$	6.00	$7.7 (\nu: 1.6)$
$m_{\text{DES}}^3$	0.008	$0.009^{+0.053}_{-0.053}$	$\Omega_{\text{c}} h^2$	0.1098	$0.105^{+0.022}_{-0.019}$			
$m_{\text{DES}}^4$	0.010	$0.011^{+0.053}_{-0.053}$	$\Omega_{\Lambda}$	0.7081	$0.715^{+0.032}_{-0.034}$			

Best-fit  $\chi_{\text{eff}}^2 = 517.86$ ;  $\bar{\chi}_{\text{eff}}^2 = 541.96$ ;  $R - 1 = 0.00592$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.01 MGS: 2.04 DR12BAO: 3.94 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.91 WL - DES\_1YR\_final: 502.90



## 2.254 base\_DESlens\_DESpriors\_lensing\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.3106	$0.295^{+0.041}_{-0.039}$	$\alpha_{\text{IA,DES}}$	2.8	—	$S_8$	0.801	$0.798^{+0.051}_{-0.053}$
$\Omega_b$	0.04731	$0.0487^{+0.0048}_{-0.0046}$	$\Delta z_{\text{s,DES}}^1$	0.0034	$0.003^{+0.038}_{-0.038}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4387	$0.437^{+0.028}_{-0.029}$
$H_0$	68.49	$67.6^{+3.4}_{-3.1}$	$\Delta z_{\text{s,DES}}^2$	-0.0195	$-0.020^{+0.030}_{-0.030}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5876	$0.593^{+0.036}_{-0.035}$
$10^9 A_{\text{s}}$	1.99	$2.30^{+0.89}_{-0.60}$	$\Delta z_{\text{s,DES}}^3$	0.0067	$0.007^{+0.026}_{-0.027}$	$\chi_{\text{lensing}}^2$	7.79	$9.0 (\nu: 1.1)$
$n_{\text{s}}$	0.902	—	$\Delta z_{\text{s,DES}}^4$	-0.019	$-0.018^{+0.053}_{-0.053}$	$\chi_{6\text{DF}}^2$	0.000	$0.066 (\nu: 0.0)$
$m_{\text{DES}}^1$	0.014	$0.013^{+0.058}_{-0.058}$	$\Omega_{\text{b}} h^2$	0.02219	$0.0222^{+0.0013}_{-0.0013}$	$\chi_{\text{MGS}}^2$	1.68	$2.05 (\nu: 0.3)$
$m_{\text{DES}}^2$	0.014	$0.013^{+0.057}_{-0.058}$	$\Omega_{\text{c}} h^2$	0.1229	$0.112^{+0.028}_{-0.025}$	$\chi_{\text{DR12BAO}}^2$	3.08	$4.8 (\nu: 1.3)$
$m_{\text{DES}}^3$	-0.002	$0.000^{+0.052}_{-0.053}$	$\Omega_{\Lambda}$	0.6894	$0.705^{+0.039}_{-0.041}$	$\chi_{\text{DES}}^2$	229.3	$232.2 (\nu: 2.7)$
$m_{\text{DES}}^4$	0.016	$0.015^{+0.054}_{-0.053}$	$\ln(10^{10} A_{\text{s}})$	2.992	$3.13^{+0.34}_{-0.29}$	$\chi_{\text{prior}}^2$	0.5	$8.4 (\nu: 7.9)$
$A_{\text{IA,DES}}$	1.30	$1.0^{+1.5}_{-1.5}$	$\sigma_8$	0.787	$0.806^{+0.059}_{-0.052}$	$\chi_{\text{BAO}}^2$	4.76	$6.9 (\nu: 1.6)$

Best-fit  $\chi_{\text{eff}}^2 = 242.34$ ;  $\bar{\chi}_{\text{eff}}^2 = 256.54$ ;  $R - 1 = 0.00700$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.08 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.79 WL - DES\_1YR\_final: 229.27

## 2.255 base\_DESwt\_DESpriors\_lensing\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.3056	$0.289^{+0.034}_{-0.036}$	$A_{\text{IA,DES}}$	0.350	$0.42^{+0.50}_{-0.43}$	$\ln(10^{10} A_{\text{s}})$	3.000	$3.15^{+0.33}_{-0.24}$
$\Omega_b$	0.04763	$0.0492^{+0.0044}_{-0.0041}$	$\alpha_{\text{IA,DES}}$	-3.1	—	$\sigma_8$	0.769	$0.791^{+0.061}_{-0.047}$
$H_0$	68.30	$67.2^{+2.8}_{-2.8}$	$\Delta z_{\text{l,DES}}^1$	0.0026	$0.003^{+0.020}_{-0.020}$	$S_8$	0.7757	$0.776^{+0.047}_{-0.047}$
$10^9 A_{\text{s}}$	2.01	$2.36^{+0.89}_{-0.52}$	$\Delta z_{\text{l,DES}}^2$	0.0013	$0.002^{+0.018}_{-0.018}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4249	$0.425^{+0.026}_{-0.026}$
$n_{\text{s}}$	0.872	—	$\Delta z_{\text{l,DES}}^3$	0.0046	$0.005^{+0.017}_{-0.017}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5714	$0.580^{+0.035}_{-0.032}$
$b_{\text{DES}}^1$	1.487	$1.45^{+0.21}_{-0.22}$	$\Delta z_{\text{l,DES}}^4$	0.0030	$0.003^{+0.024}_{-0.023}$	$\chi_{\text{lensing}}^2$	8.54	$9.2 (\nu: 1.3)$
$b_{\text{DES}}^2$	1.729	$1.69^{+0.16}_{-0.16}$	$\Delta z_{\text{l,DES}}^5$	0.0002	$0.000^{+0.025}_{-0.026}$	$\chi_{6\text{DF}}^2$	0.001	$0.070 (\nu: 0.0)$
$b_{\text{DES}}^3$	1.716	$1.68^{+0.14}_{-0.14}$	$\Delta z_{\text{s,DES}}^1$	0.0003	$-0.004^{+0.037}_{-0.038}$	$\chi_{\text{MGS}}^2$	1.82	$2.14 (\nu: 0.3)$
$b_{\text{DES}}^4$	2.075	$2.04^{+0.16}_{-0.16}$	$\Delta z_{\text{s,DES}}^2$	-0.0302	$-0.031^{+0.028}_{-0.028}$	$\chi_{\text{DR12BAO}}^2$	3.23	$5.1 (\nu: 1.2)$
$b_{\text{DES}}^5$	2.147	$2.11^{+0.21}_{-0.22}$	$\Delta z_{\text{s,DES}}^3$	0.0075	$0.008^{+0.026}_{-0.025}$	$\chi_{\text{DES}}^2$	251.4	$260.8 (\nu: 10.2)$
$m_{\text{DES}}^1$	0.013	$0.011^{+0.059}_{-0.058}$	$\Delta z_{\text{s,DES}}^4$	-0.0241	$-0.023^{+0.050}_{-0.046}$	$\chi_{\text{prior}}^2$	1.4	$13.7 (\nu: 13.3)$
$m_{\text{DES}}^2$	0.0097	$0.009^{+0.059}_{-0.058}$	$\Omega_{\text{b}} h^2$	0.02222	$0.0222^{+0.0013}_{-0.0013}$	$\chi_{\text{BAO}}^2$	5.05	$7.3 (\nu: 1.5)$
$m_{\text{DES}}^3$	0.020	$0.022^{+0.055}_{-0.054}$	$\Omega_{\text{c}} h^2$	0.1197	$0.108^{+0.021}_{-0.022}$			
$m_{\text{DES}}^4$	0.006	$0.007^{+0.056}_{-0.054}$	$\Omega_{\Lambda}$	0.6944	$0.711^{+0.036}_{-0.034}$			

Best-fit  $\chi_{\text{eff}}^2 = 266.38$ ;  $\bar{\chi}_{\text{eff}}^2 = 291.02$ ;  $R - 1 = 0.00577$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 3.23 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 8.54 WL - DES\_1YR\_final: 251.43



## 2.256 base\_plikHM\_TTTEEE\_lowl\_lowE\_DES

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022524	$0.02252^{+0.00036}_{-0.00036}$	$\Delta z_{\text{l,DES}}^1$	0.0030	$0.004^{+0.019}_{-0.019}$	$z_{\text{drag}}$	1060.16	$1060.12^{+0.76}_{-0.76}$
$\Omega_c h^2$	0.11811	$0.1179^{+0.0028}_{-0.0027}$	$\Delta z_{\text{l,DES}}^2$	0.0007	$0.001^{+0.017}_{-0.017}$	$r_{\text{drag}}$	147.42	$147.49^{+0.65}_{-0.64}$
$100\theta_{\text{MC}}$	1.04112	$1.04112^{+0.00078}_{-0.00076}$	$\Delta z_{\text{l,DES}}^3$	0.0035	$0.003^{+0.017}_{-0.017}$	$k_{\text{D}}$	0.14064	$0.14056^{+0.00075}_{-0.00075}$
$\tau$	0.0552	$0.055^{+0.022}_{-0.022}$	$\Delta z_{\text{l,DES}}^4$	0.0007	$0.001^{+0.023}_{-0.023}$	$100\theta_{\text{D}}$	0.160639	$0.16066^{+0.00045}_{-0.00044}$
$\ln(10^{10} A_{\text{s}})$	3.0416	$3.039^{+0.043}_{-0.043}$	$\Delta z_{\text{l,DES}}^5$	-0.0004	$-0.001^{+0.025}_{-0.025}$	$z_{\text{eq}}$	3361	$3355^{+62}_{-62}$
$n_{\text{s}}$	0.9700	$0.9696^{+0.0099}_{-0.010}$	$\Delta z_{\text{s,DES}}^1$	0.0007	$-0.003^{+0.036}_{-0.036}$	$k_{\text{eq}}$	0.010257	$0.01024^{+0.00019}_{-0.00019}$
$y_{\text{cal}}$	1.0004	$1.0005^{+0.0064}_{-0.0064}$	$\Delta z_{\text{s,DES}}^2$	-0.0301	$-0.031^{+0.028}_{-0.028}$	$100\theta_{\text{eq}}$	0.8214	$0.822^{+0.012}_{-0.012}$
$A_{217}^{\text{CIB}}$	47.6	$47^{+20}_{-20}$	$\Delta z_{\text{s,DES}}^3$	0.0029	$0.004^{+0.025}_{-0.024}$	$100\theta_{\text{s,eq}}$	0.4535	$0.4540^{+0.0062}_{-0.0060}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.44	—	$\Delta z_{\text{s,DES}}^4$	-0.0301	$-0.030^{+0.046}_{-0.046}$	$H(0.15)$	73.42	$73.5^{+1.1}_{-1.1}$
$A_{143}^{\text{tSZ}}$	7.25	$> 0.907$	$H_0$	68.21	$68.3^{+1.3}_{-1.2}$	$D_{\text{M}}(0.15)$	636.1	$635^{+11}_{-10}$
$A_{100}^{\text{PS}}$	249	$259^{+70}_{-70}$	$\Omega_{\Lambda}$	0.6964	$0.698^{+0.016}_{-0.017}$	$H(0.38)$	83.40	$83.44^{+0.81}_{-0.78}$
$A_{143}^{\text{PS}}$	46.7	$45^{+20}_{-20}$	$\Omega_{\text{m}}$	0.3036	$0.302^{+0.017}_{-0.016}$	$D_{\text{M}}(0.38)$	1518.9	$1518^{+21}_{-21}$
$A_{143 \times 217}^{\text{PS}}$	46.9	$41^{+20}_{-20}$	$\Omega_{\text{m}} h^2$	0.14128	$0.1410^{+0.0026}_{-0.0026}$	$H(0.51)$	90.04	$90.07^{+0.66}_{-0.63}$
$A_{217}^{\text{PS}}$	118.5	$114^{+30}_{-30}$	$\Omega_{\text{m}} h^3$	0.09638	$0.09632^{+0.00075}_{-0.00075}$	$D_{\text{M}}(0.51)$	1968.9	$1967^{+25}_{-25}$
$A^{\text{kSZ}}$	0.0	—	$\sigma_8$	0.8048	$0.803^{+0.018}_{-0.018}$	$H(0.61)$	95.60	$95.62^{+0.54}_{-0.52}$
$A_{100}^{\text{dustTT}}$	8.78	$8.9^{+4.7}_{-4.6}$	$S_8$	0.8097	$0.806^{+0.032}_{-0.031}$	$D_{\text{M}}(0.61)$	2292.1	$2291^{+27}_{-27}$
$A_{143}^{\text{dustTT}}$	11.04	$11.0^{+4.6}_{-4.6}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4435	$0.442^{+0.018}_{-0.017}$	$H(2.33)$	235.49	$235.3^{+1.7}_{-1.7}$
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.7^{+8.5}_{-8.5}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5974	$0.595^{+0.018}_{-0.017}$	$D_{\text{M}}(2.33)$	5750.0	$5750^{+24}_{-25}$
$A_{217}^{\text{dustTT}}$	94.7	$94^{+20}_{-20}$	$\sigma_8/h^{0.5}$	0.9745	$0.972^{+0.026}_{-0.025}$	$f\sigma_8(0.15)$	0.4487	$0.447^{+0.017}_{-0.016}$
$A_{100}^{\text{dustTE}}$	0.115	$0.114^{+0.10}_{-0.094}$	$r_{\text{drag}} h$	100.56	$100.7^{+2.2}_{-2.1}$	$\sigma_8(0.15)$	0.7445	$0.743^{+0.016}_{-0.016}$
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.076}_{-0.074}$	$\langle d^2 \rangle^{1/2}$	2.412	$2.408^{+0.063}_{-0.059}$	$f\sigma_8(0.38)$	0.4686	$0.467^{+0.014}_{-0.014}$
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.21}$	$z_{\text{re}}$	7.71	$7.6^{+2.0}_{-2.3}$	$\sigma_8(0.38)$	0.6608	$0.660^{+0.014}_{-0.014}$
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$10^9 A_{\text{s}}$	2.094	$2.090^{+0.092}_{-0.089}$	$f\sigma_8(0.51)$	0.4682	$0.467^{+0.013}_{-0.012}$
$A_{143 \times 217}^{\text{dustTE}}$	0.665	$0.66^{+0.20}_{-0.21}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8750	$1.873^{+0.029}_{-0.028}$	$\sigma_8(0.51)$	0.6187	$0.618^{+0.014}_{-0.013}$
$A_{217}^{\text{dustTE}}$	2.07	$2.06^{+0.69}_{-0.69}$	$D_{40}$	1220.3	$1221^{+31}_{-30}$	$f\sigma_8(0.61)$	0.4639	$0.463^{+0.012}_{-0.012}$
$c_{100}$	0.99970	$0.9997^{+0.0016}_{-0.0016}$	$D_{220}$	5741	$5744^{+100}_{-100}$	$\sigma_8(0.61)$	0.5890	$0.588^{+0.013}_{-0.013}$
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$	$D_{810}$	2538.6	$2537^{+35}_{-35}$	$f\sigma_8(2.33)$	0.2973	$0.2968^{+0.0066}_{-0.0064}$
$b_{\text{DES}}^1$	1.506	$1.51^{+0.18}_{-0.19}$	$D_{1420}$	818.9	$818^{+13}_{-13}$	$\sigma_8(2.33)$	0.3068	$0.3064^{+0.0070}_{-0.0068}$
$b_{\text{DES}}^2$	1.710	$1.71^{+0.13}_{-0.13}$	$D_{2000}$	231.56	$231.2^{+4.1}_{-4.1}$	$f_{2000}^{143}$	28.5	$29^{+7}_{-7}$
$b_{\text{DES}}^3$	1.697	$1.70^{+0.11}_{-0.11}$	$n_{\text{s},0.002}$	0.9700	$0.9696^{+0.0099}_{-0.010}$	$f_{2000}^{143 \times 217}$	31.72	$32^{+5}_{-5}$
$b_{\text{DES}}^4$	2.058	$2.06^{+0.13}_{-0.13}$	$Y_{\text{P}}$	0.245453	$0.24545^{+0.00014}_{-0.00014}$	$f_{2000}^{217}$	106.29	$106.7^{+4.7}_{-4.6}$
$b_{\text{DES}}^5$	2.161	$2.16^{+0.19}_{-0.20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246780	$0.24678^{+0.00014}_{-0.00014}$	$\chi_{\text{simall}}^2$	396.08	$397.0 (\nu: 1.6)$
$m_{\text{DES}}^1$	0.013	$0.012^{+0.058}_{-0.059}$	$10^5 \text{D}/\text{H}$	2.558	$2.559^{+0.067}_{-0.064}$	$\chi_{\text{lowl}}^2$	22.49	$22.59 (\nu: 0.3)$
$m_{\text{DES}}^2$	0.014	$0.012^{+0.058}_{-0.058}$	$\text{Age}/\text{Gyr}$	13.768	$13.767^{+0.055}_{-0.055}$	$\chi_{\text{plik}}^2$	2348.0	$2363.4 (\nu: 20.7)$
$m_{\text{DES}}^3$	-0.003	$-0.002^{+0.052}_{-0.050}$	$z_*$	1089.56	$1089.55^{+0.60}_{-0.58}$	$\chi_{\text{DES}}^2$	509.2	$518.0 (\nu: 11.8)$
$m_{\text{DES}}^4$	0.002	$0.003^{+0.053}_{-0.053}$	$r_*$	144.80	$144.87^{+0.65}_{-0.63}$	$\chi_{\text{prior}}^2$	4.0	$25 (\nu: 23.0)$
$A_{\text{IA,DES}}$	0.434	$0.47^{+0.47}_{-0.39}$	$100\theta_*$	1.04129	$1.04129^{+0.00077}_{-0.00076}$	$\chi_{\text{CMB}}^2$	2766.6	$2783.0 (\nu: 20.0)$
$\alpha_{\text{IA,DES}}$	-2.5	—	$D_{\text{M}}(z_*)/\text{Gpc}$	13.906	$13.912^{+0.061}_{-0.060}$			

Best-fit  $\chi_{\text{eff}}^2 = 3279.69$ ;  $\bar{\chi}_{\text{eff}}^2 = 3325.69$ ;  $R - 1 = 0.00524$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.08 commander\_dx12\_v3.2\_29: 22.49 plik\_rd12\_HM\_v22b\_TTTEEE: 2347.99 WL - DES\_1YR\_final: 509.16



## 2.257 base\_plikHM\_TTTEEE\_lowl\_lowE\_DES\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022502	$0.02251^{+0.00035}_{-0.00035}$	$\Delta z_{\text{l,DES}}^2$	0.0005	$0.001^{+0.017}_{-0.017}$	$k_D$	0.14059	$0.14057^{+0.00073}_{-0.00073}$
$\Omega_c h^2$	0.11810	$0.1180^{+0.0023}_{-0.0023}$	$\Delta z_{\text{l,DES}}^3$	0.0034	$0.003^{+0.017}_{-0.017}$	$100\theta_D$	0.160668	$0.16066^{+0.00045}_{-0.00044}$
$100\theta_{\text{MC}}$	1.04112	$1.04111^{+0.00074}_{-0.00074}$	$\Delta z_{\text{l,DES}}^4$	0.0008	$0.000^{+0.023}_{-0.023}$	$z_{\text{eq}}$	3360	$3358^{+52}_{-52}$
$\tau$	0.0552	$0.054^{+0.021}_{-0.021}$	$\Delta z_{\text{l,DES}}^5$	-0.0003	$0.000^{+0.026}_{-0.024}$	$k_{\text{eq}}$	0.010255	$0.01025^{+0.00016}_{-0.00016}$
$\ln(10^{10} A_s)$	3.0412	$3.039^{+0.043}_{-0.044}$	$\Delta z_{\text{s,DES}}^1$	0.0007	$-0.003^{+0.037}_{-0.037}$	$100\theta_{\text{eq}}$	0.8214	$0.822^{+0.010}_{-0.0096}$
$n_s$	0.9699	$0.9693^{+0.0093}_{-0.0095}$	$\Delta z_{\text{s,DES}}^2$	-0.0301	$-0.031^{+0.028}_{-0.028}$	$100\theta_{\text{s,eq}}$	0.4535	$0.4537^{+0.0051}_{-0.0050}$
$y_{\text{cal}}$	1.0003	$1.0004^{+0.0063}_{-0.0063}$	$\Delta z_{\text{s,DES}}^3$	0.0033	$0.004^{+0.025}_{-0.024}$	$H(0.15)$	73.40	$73.43^{+0.91}_{-0.85}$
$A_{217}^{\text{CIB}}$	48.1	$47^{+20}_{-20}$	$\Delta z_{\text{s,DES}}^4$	-0.0300	$-0.030^{+0.047}_{-0.049}$	$D_{\text{M}}(0.15)$	636.2	$635.9^{+8.4}_{-8.8}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.34	—	$H_0$	68.20	$68.2^{+1.1}_{-0.99}$	$H(0.38)$	83.38	$83.40^{+0.68}_{-0.63}$
$A_{143}^{\text{tSZ}}$	7.33	$> 0.877$	$\Omega_{\Lambda}$	0.6963	$0.697^{+0.013}_{-0.013}$	$D_{\text{M}}(0.38)$	1519.2	$1519^{+17}_{-18}$
$A_{100}^{\text{PS}}$	251	$258^{+70}_{-70}$	$\Omega_{\text{m}}$	0.3037	$0.303^{+0.013}_{-0.013}$	$H(0.51)$	90.02	$90.04^{+0.56}_{-0.52}$
$A_{143}^{\text{PS}}$	45.5	$45^{+20}_{-20}$	$\Omega_{\text{m}} h^2$	0.14125	$0.1412^{+0.0022}_{-0.0022}$	$D_{\text{M}}(0.51)$	1969.3	$1969^{+20}_{-21}$
$A_{143 \times 217}^{\text{PS}}$	44.5	$41^{+20}_{-20}$	$\Omega_{\text{m}} h^3$	0.09633	$0.09632^{+0.00074}_{-0.00075}$	$H(0.61)$	95.582	$95.59^{+0.47}_{-0.45}$
$A_{217}^{\text{PS}}$	117.7	$114^{+30}_{-30}$	$\sigma_8$	0.8046	$0.803^{+0.018}_{-0.018}$	$D_{\text{M}}(0.61)$	2292.5	$2292^{+22}_{-23}$
$A^{\text{kSZ}}$	0.0	—	$S_8$	0.8095	$0.808^{+0.028}_{-0.027}$	$H(2.33)$	235.46	$235.4^{+1.4}_{-1.4}$
$A_{100}^{\text{dustTT}}$	8.86	$8.9^{+4.7}_{-4.6}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4434	$0.442^{+0.015}_{-0.015}$	$D_{\text{M}}(2.33)$	5750.9	$5751^{+22}_{-22}$
$A_{143}^{\text{dustTT}}$	11.12	$10.9^{+4.6}_{-4.7}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5973	$0.596^{+0.016}_{-0.016}$	$f\sigma_8(0.15)$	0.4486	$0.448^{+0.015}_{-0.014}$
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.7^{+8.4}_{-8.6}$	$\sigma_8/h^{0.5}$	0.9743	$0.972^{+0.024}_{-0.024}$	$\sigma_8(0.15)$	0.7443	$0.743^{+0.016}_{-0.016}$
$A_{217}^{\text{dustTT}}$	94.9	$94^{+20}_{-20}$	$r_{\text{drag}} h$	100.56	$100.6^{+1.8}_{-1.7}$	$f\sigma_8(0.38)$	0.4685	$0.468^{+0.013}_{-0.013}$
$A_{100}^{\text{dustTE}}$	0.113	$0.115^{+0.099}_{-0.092}$	$\langle d^2 \rangle^{1/2}$	2.412	$2.410^{+0.057}_{-0.058}$	$\sigma_8(0.38)$	0.6606	$0.660^{+0.014}_{-0.015}$
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.075}_{-0.075}$	$z_{\text{re}}$	7.71	$7.6^{+2.0}_{-2.3}$	$f\sigma_8(0.51)$	0.4681	$0.467^{+0.012}_{-0.012}$
$A_{100 \times 217}^{\text{dustTE}}$	0.481	$0.48^{+0.22}_{-0.21}$	$10^9 A_s$	2.093	$2.089^{+0.092}_{-0.091}$	$\sigma_8(0.51)$	0.6186	$0.618^{+0.013}_{-0.014}$
$A_{143}^{\text{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$10^9 A_s e^{-2\tau}$	1.8741	$1.874^{+0.028}_{-0.027}$	$f\sigma_8(0.61)$	0.4638	$0.463^{+0.011}_{-0.011}$
$A_{143 \times 217}^{\text{dustTE}}$	0.660	$0.66^{+0.21}_{-0.21}$	$D_{40}$	1219.9	$1222^{+30}_{-29}$	$\sigma_8(0.61)$	0.5888	$0.588^{+0.013}_{-0.013}$
$A_{217}^{\text{dustTE}}$	2.06	$2.07^{+0.68}_{-0.69}$	$D_{220}$	5738	$5743^{+99}_{-100}$	$f\sigma_8(2.33)$	0.2972	$0.2968^{+0.0065}_{-0.0066}$
$c_{100}$	0.99969	$0.9997^{+0.0016}_{-0.0016}$	$D_{810}$	2537.2	$2537^{+36}_{-35}$	$\sigma_8(2.33)$	0.3067	$0.3063^{+0.0069}_{-0.0069}$
$c_{217}$	0.99821	$0.9982^{+0.0017}_{-0.0016}$	$D_{1420}$	818.3	$818^{+12}_{-12}$	$f_{2000}^{143}$	28.7	$29^{+7}_{-7}$
$b_{\text{DES}}^1$	1.508	$1.51^{+0.18}_{-0.20}$	$D_{2000}$	231.33	$231.1^{+4.1}_{-4.1}$	$f_{2000}^{143 \times 217}$	31.86	$32^{+5}_{-5}$
$b_{\text{DES}}^2$	1.709	$1.71^{+0.14}_{-0.13}$	$n_{\text{s},0.002}$	0.9699	$0.9693^{+0.0093}_{-0.0095}$	$f_{2000}^{217}$	106.48	$106.8^{+4.7}_{-4.5}$
$b_{\text{DES}}^3$	1.697	$1.70^{+0.11}_{-0.12}$	$Y_{\text{P}}$	0.245445	$0.24545^{+0.00013}_{-0.00014}$	$\chi_{\text{simall}}^2$	396.08	$397.0 (\nu: 1.5)$
$b_{\text{DES}}^4$	2.058	$2.06^{+0.14}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	0.246772	$0.24677^{+0.00013}_{-0.00014}$	$\chi_{\text{lowl}}^2$	22.50	$22.63 (\nu: 0.3)$
$b_{\text{DES}}^5$	2.162	$2.16^{+0.20}_{-0.20}$	$10^5 \text{D}/\text{H}$	2.562	$2.561^{+0.066}_{-0.062}$	$\chi_{\text{plik}}^2$	2347.8	$2362.9 (\nu: 19.2)$
$m_{\text{DES}}^1$	0.013	$0.011^{+0.058}_{-0.059}$	$\text{Age}/\text{Gyr}$	13.770	$13.769^{+0.050}_{-0.050}$	$\chi_{6\text{DF}}^2$	0.000	$0.021 (\nu: 0.0)$
$m_{\text{DES}}^2$	0.014	$0.012^{+0.059}_{-0.057}$	$z_*$	1089.59	$1089.57^{+0.54}_{-0.52}$	$\chi_{\text{MGS}}^2$	1.75	$1.84 (\nu: 0.1)$
$m_{\text{DES}}^3$	-0.0024	$-0.003^{+0.050}_{-0.049}$	$r_*$	144.82	$144.84^{+0.56}_{-0.55}$	$\chi_{\text{DR12BAO}}^2$	3.46	$3.74 (\nu: 0.1)$
$m_{\text{DES}}^4$	0.003	$0.003^{+0.053}_{-0.053}$	$100\theta_*$	1.04129	$1.04128^{+0.00074}_{-0.00073}$	$\chi_{\text{DES}}^2$	509.3	$518.2 (\nu: 11.7)$
$A_{\text{IA,DES}}$	0.444	$0.47^{+0.47}_{-0.38}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.908	$13.910^{+0.054}_{-0.054}$	$\chi_{\text{prior}}^2$	4.0	$25 (\nu: 22.7)$
$\alpha_{\text{IA,DES}}$	-2.4	—	$z_{\text{drag}}$	1060.09	$1060.11^{+0.74}_{-0.75}$	$\chi_{\text{BAO}}^2$	5.21	$5.60 (\nu: 0.1)$
$\Delta z_{\text{l,DES}}^1$	0.0029	$0.004^{+0.019}_{-0.019}$	$r_{\text{drag}}$	147.45	$147.47^{+0.59}_{-0.60}$	$\chi_{\text{CMB}}^2$	2766.4	$2782.5 (\nu: 18.8)$

Best-fit  $\chi_{\text{eff}}^2 = 3284.92$ ;  $\bar{\chi}_{\text{eff}}^2 = 3331.02$ ;  $R - 1 = 0.00830$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.46 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.08 commander\_dx12\_v3\_2\_29: 22.50 plik\_rd12\_HM\_v22b\_TTTEEE: 2347.84 WL - DES\_1YR\_final: 509.26



## 2.258 base\_plikHM\_TTTEEE\_lowl\_lowE\_DES\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022522	$0.02251^{+0.00036}_{-0.00036}$	$\alpha_{\text{IA,DES}}$	-2.6	—	$100\theta_*$	1.04124	$1.04127^{+0.00076}_{-0.00075}$
$\Omega_c h^2$	0.11831	$0.1181^{+0.0026}_{-0.0026}$	$\Delta z_{\text{l,DES}}^1$	0.0029	$0.004^{+0.019}_{-0.019}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.902	$13.907^{+0.057}_{-0.059}$
$100\theta_{\text{MC}}$	1.04107	$1.04109^{+0.00075}_{-0.00076}$	$\Delta z_{\text{l,DES}}^2$	0.0005	$0.001^{+0.017}_{-0.017}$	$z_{\text{drag}}$	1060.16	$1060.13^{+0.76}_{-0.77}$
$\tau$	0.0560	$0.057^{+0.020}_{-0.020}$	$\Delta z_{\text{l,DES}}^3$	0.0035	$0.003^{+0.017}_{-0.017}$	$r_{\text{drag}}$	147.37	$147.43^{+0.63}_{-0.62}$
$\ln(10^{10} A_{\text{s}})$	3.0441	$3.046^{+0.039}_{-0.038}$	$\Delta z_{\text{l,DES}}^4$	0.0008	$0.000^{+0.023}_{-0.023}$	$k_{\text{D}}$	0.14069	$0.14062^{+0.00072}_{-0.00074}$
$n_{\text{s}}$	0.9691	$0.9688^{+0.0099}_{-0.010}$	$\Delta z_{\text{l,DES}}^5$	-0.0009	$-0.001^{+0.025}_{-0.024}$	$100\theta_{\text{D}}$	0.160626	$0.16065^{+0.00046}_{-0.00045}$
$y_{\text{cal}}$	1.0006	$1.0007^{+0.0063}_{-0.0063}$	$\Delta z_{\text{s,DES}}^1$	0.0007	$-0.003^{+0.037}_{-0.038}$	$z_{\text{eq}}$	3365	$3361^{+59}_{-59}$
$A_{217}^{\text{CIB}}$	47.3	$47^{+20}_{-20}$	$\Delta z_{\text{s,DES}}^2$	-0.0303	$-0.031^{+0.028}_{-0.028}$	$k_{\text{eq}}$	0.010272	$0.01026^{+0.00018}_{-0.00018}$
$\xi^{\text{tSZ}} \times \text{CIB}$	0.40	—	$\Delta z_{\text{s,DES}}^3$	0.0030	$0.003^{+0.025}_{-0.024}$	$100\theta_{\text{eq}}$	0.8205	$0.821^{+0.011}_{-0.011}$
$A_{143}^{\text{tSZ}}$	7.26	$> 0.883$	$\Delta z_{\text{s,DES}}^4$	-0.0310	$-0.031^{+0.047}_{-0.049}$	$100\theta_{\text{s,eq}}$	0.4530	$0.4534^{+0.0059}_{-0.0056}$
$A_{100}^{\text{PS}}$	250	$258^{+70}_{-70}$	$H_0$	68.13	$68.2^{+1.2}_{-1.1}$	$H(0.15)$	73.34	$73.4^{+1.0}_{-0.98}$
$A_{143}^{\text{PS}}$	46.2	$45^{+20}_{-20}$	$\Omega_{\Lambda}$	0.6952	$0.696^{+0.015}_{-0.015}$	$D_{\text{M}}(0.15)$	636.8	$636.3^{+9.7}_{-10}$
$A_{143 \times 217}^{\text{PS}}$	46.0	$42^{+20}_{-20}$	$\Omega_{\text{m}}$	0.3048	$0.304^{+0.015}_{-0.015}$	$H(0.38)$	83.34	$83.38^{+0.77}_{-0.72}$
$A_{217}^{\text{PS}}$	118.9	$115^{+30}_{-30}$	$\Omega_{\text{m}} h^2$	0.14148	$0.1413^{+0.0025}_{-0.0025}$	$D_{\text{M}}(0.38)$	1520.4	$1519^{+19}_{-20}$
$A^{\text{kSZ}}$	0.0	—	$\Omega_{\text{m}} h^3$	0.09638	$0.09634^{+0.00073}_{-0.00075}$	$H(0.51)$	90.00	$90.02^{+0.62}_{-0.58}$
$A_{100}^{\text{dustTT}}$	8.85	$8.9^{+4.7}_{-4.6}$	$\sigma_8$	0.8062	$0.806^{+0.015}_{-0.015}$	$D_{\text{M}}(0.51)$	1970.6	$1969^{+23}_{-24}$
$A_{143}^{\text{dustTT}}$	11.06	$10.9^{+4.6}_{-4.7}$	$S_8$	0.8126	$0.811^{+0.027}_{-0.027}$	$H(0.61)$	95.568	$95.58^{+0.52}_{-0.47}$
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.6^{+8.5}_{-8.4}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4451	$0.444^{+0.015}_{-0.015}$	$D_{\text{M}}(0.61)$	2293.9	$2293^{+25}_{-26}$
$A_{217}^{\text{dustTT}}$	95.0	$94^{+20}_{-20}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5990	$0.599^{+0.015}_{-0.014}$	$H(2.33)$	235.61	$235.5^{+1.6}_{-1.6}$
$A_{100}^{\text{dustTE}}$	0.113	$0.115^{+0.098}_{-0.092}$	$\sigma_8/h^{0.5}$	0.9767	$0.976^{+0.021}_{-0.021}$	$D_{\text{M}}(2.33)$	5751.2	$5751^{+23}_{-24}$
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.075}_{-0.075}$	$r_{\text{drag}} h$	100.40	$100.5^{+2.1}_{-2.0}$	$f\sigma_8(0.15)$	0.4502	$0.450^{+0.014}_{-0.014}$
$A_{100 \times 217}^{\text{dustTE}}$	0.484	$0.48^{+0.21}_{-0.22}$	$\langle d^2 \rangle^{1/2}$	2.419	$2.420^{+0.051}_{-0.050}$	$\sigma_8(0.15)$	0.7456	$0.746^{+0.014}_{-0.013}$
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$z_{\text{re}}$	7.79	$7.9^{+1.9}_{-2.0}$	$f\sigma_8(0.38)$	0.4699	$0.470^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\text{dustTE}}$	0.663	$0.66^{+0.21}_{-0.21}$	$10^9 A_{\text{s}}$	2.099	$2.102^{+0.083}_{-0.079}$	$\sigma_8(0.38)$	0.6617	$0.662^{+0.013}_{-0.012}$
$A_{217}^{\text{dustTE}}$	2.07	$2.07^{+0.69}_{-0.69}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8768	$1.876^{+0.028}_{-0.027}$	$f\sigma_8(0.51)$	0.4693	$0.469^{+0.011}_{-0.010}$
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$	$D_{40}$	1223.3	$1225^{+29}_{-28}$	$\sigma_8(0.51)$	0.6195	$0.620^{+0.012}_{-0.011}$
$c_{217}$	0.99818	$0.9982^{+0.0017}_{-0.0017}$	$D_{220}$	5747	$5749^{+99}_{-99}$	$f\sigma_8(0.61)$	0.4649	$0.465^{+0.010}_{-0.0097}$
$b_{\text{DES}}^1$	1.508	$1.50^{+0.18}_{-0.20}$	$D_{810}$	2539.5	$2539^{+35}_{-34}$	$\sigma_8(0.61)$	0.5897	$0.590^{+0.012}_{-0.011}$
$b_{\text{DES}}^2$	1.706	$1.70^{+0.14}_{-0.13}$	$D_{1420}$	818.9	$818^{+12}_{-12}$	$f\sigma_8(2.33)$	0.2976	$0.2977^{+0.0060}_{-0.0057}$
$b_{\text{DES}}^3$	1.694	$1.69^{+0.11}_{-0.12}$	$D_{2000}$	231.55	$231.3^{+4.0}_{-4.1}$	$\sigma_8(2.33)$	0.3071	$0.3073^{+0.0064}_{-0.0062}$
$b_{\text{DES}}^4$	2.055	$2.05^{+0.14}_{-0.13}$	$n_{\text{s},0.002}$	0.9691	$0.9688^{+0.0099}_{-0.010}$	$\chi_{\text{lensing}}^2$	9.04	$9.44 (\nu: 0.5)$
$b_{\text{DES}}^5$	2.159	$2.15^{+0.19}_{-0.20}$	$Y_{\text{P}}$	0.245452	$0.24545^{+0.00014}_{-0.00014}$	$\chi_{\text{small}}^2$	396.23	$397.3 (\nu: 2.0)$
$m_{\text{DES}}^1$	0.014	$0.012^{+0.057}_{-0.060}$	$Y_{\text{P}}^{\text{BBN}}$	0.246779	$0.24677^{+0.00014}_{-0.00014}$	$\chi_{\text{lowl}}^2$	22.70	$22.82 (\nu: 0.3)$
$m_{\text{DES}}^2$	0.014	$0.012^{+0.059}_{-0.056}$	$10^5 \text{D}/\text{H}$	2.558	$2.560^{+0.067}_{-0.065}$	$\chi_{\text{plik}}^2$	2347.2	$2361.9 (\nu: 18.1)$
$m_{\text{DES}}^3$	-0.004	$-0.004^{+0.051}_{-0.049}$	$\text{Age}/\text{Gyr}$	13.770	$13.770^{+0.052}_{-0.054}$	$\chi_{\text{DES}}^2$	509.5	$518.5 (\nu: 12.5)$
$m_{\text{DES}}^4$	0.002	$0.001^{+0.053}_{-0.053}$	$z_*$	1089.58	$1089.58^{+0.57}_{-0.59}$	$\chi_{\text{prior}}^2$	4.2	$25 (\nu: 22.7)$
$A_{\text{IA,DES}}$	0.439	$0.47^{+0.46}_{-0.38}$	$r_*$	144.75	$144.81^{+0.61}_{-0.60}$	$\chi_{\text{CMB}}^2$	2775.1	$2791.5 (\nu: 20.0)$

Best-fit  $\chi_{\text{eff}}^2 = 3288.86$ ;  $\bar{\chi}_{\text{eff}}^2 = 3334.91$ ;  $R - 1 = 0.01020$

$\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.04 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.23 commander\_dx12\_v3.2\_29: 22.70 plik\_rd12\_HM\_v22b\_TTTEEE: 2347.17 WL - DES\_1YR\_final: 509.51



## 2.259 base\_plikHM\_TTTEEE\_lowl\_lowE\_DES\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022513	$0.02251^{+0.00035}_{-0.00035}$	$\Delta z_{\text{l,DES}}^2$	0.0005	$0.001^{+0.017}_{-0.017}$	$k_D$	0.14065	$0.14062^{+0.00070}_{-0.00072}$
$\Omega_c h^2$	0.11824	$0.1182^{+0.0022}_{-0.0021}$	$\Delta z_{\text{l,DES}}^3$	0.0034	$0.003^{+0.017}_{-0.017}$	$100\theta_D$	0.160643	$0.16066^{+0.00045}_{-0.00044}$
$100\theta_{\text{MC}}$	1.04108	$1.04109^{+0.00074}_{-0.00074}$	$\Delta z_{\text{l,DES}}^4$	0.0005	$0.000^{+0.023}_{-0.023}$	$z_{\text{eq}}$	3363.5	$3362^{+50}_{-49}$
$\tau$	0.0561	$0.057^{+0.020}_{-0.019}$	$\Delta z_{\text{l,DES}}^5$	-0.0005	$-0.001^{+0.025}_{-0.024}$	$k_{\text{eq}}$	0.010266	$0.01026^{+0.00015}_{-0.00015}$
$\ln(10^{10} A_s)$	3.0444	$3.045^{+0.039}_{-0.037}$	$\Delta z_{\text{s,DES}}^1$	0.00099	$-0.003^{+0.037}_{-0.038}$	$100\theta_{\text{eq}}$	0.8208	$0.8211^{+0.0094}_{-0.0092}$
$n_s$	0.9694	$0.9687^{+0.0093}_{-0.0095}$	$\Delta z_{\text{s,DES}}^2$	-0.0301	$-0.031^{+0.028}_{-0.028}$	$100\theta_{\text{s,eq}}$	0.45320	$0.4534^{+0.0048}_{-0.0047}$
$y_{\text{cal}}$	1.0007	$1.0007^{+0.0063}_{-0.0063}$	$\Delta z_{\text{s,DES}}^3$	0.0029	$0.003^{+0.025}_{-0.024}$	$H(0.15)$	73.36	$73.37^{+0.88}_{-0.81}$
$A_{217}^{\text{CIB}}$	47.5	$47^{+20}_{-20}$	$\Delta z_{\text{s,DES}}^4$	-0.0310	$-0.031^{+0.046}_{-0.049}$	$D_{\text{M}}(0.15)$	636.6	$636.5^{+8.0}_{-8.4}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.39	—	$H_0$	68.15	$68.2^{+1.0}_{-0.95}$	$H(0.38)$	83.35	$83.36^{+0.66}_{-0.61}$
$A_{143}^{\text{tSZ}}$	7.28	$> 0.894$	$\Omega_{\Lambda}$	0.6955	$0.696^{+0.013}_{-0.013}$	$D_{\text{M}}(0.38)$	1520.1	$1520^{+16}_{-17}$
$A_{100}^{\text{PS}}$	251	$258^{+70}_{-70}$	$\Omega_{\text{m}}$	0.3045	$0.304^{+0.013}_{-0.013}$	$H(0.51)$	90.00	$90.01^{+0.54}_{-0.50}$
$A_{143}^{\text{PS}}$	46.4	$45^{+20}_{-20}$	$\Omega_{\text{m}} h^2$	0.14140	$0.1413^{+0.0021}_{-0.0020}$	$D_{\text{M}}(0.51)$	1970.2	$1970^{+19}_{-20}$
$A_{143 \times 217}^{\text{PS}}$	46.1	$42^{+20}_{-20}$	$\Omega_{\text{m}} h^3$	0.09636	$0.09634^{+0.00073}_{-0.00075}$	$H(0.61)$	95.570	$95.57^{+0.46}_{-0.43}$
$A_{217}^{\text{PS}}$	118.9	$115^{+30}_{-30}$	$\sigma_8$	0.8062	$0.806^{+0.015}_{-0.015}$	$D_{\text{M}}(0.61)$	2293.5	$2293^{+21}_{-22}$
$A^{\text{kSZ}}$	0.0	—	$S_8$	0.8121	$0.812^{+0.024}_{-0.024}$	$H(2.33)$	235.56	$235.5^{+1.4}_{-1.3}$
$A_{100}^{\text{dustTT}}$	8.88	$8.9^{+4.7}_{-4.6}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4448	$0.445^{+0.013}_{-0.013}$	$D_{\text{M}}(2.33)$	5751.2	$5751^{+21}_{-22}$
$A_{143}^{\text{dustTT}}$	11.06	$10.9^{+4.6}_{-4.7}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5988	$0.599^{+0.014}_{-0.013}$	$f\sigma_8(0.15)$	0.4500	$0.450^{+0.013}_{-0.012}$
$A_{143 \times 217}^{\text{dustTT}}$	19.7	$18.6^{+8.4}_{-8.4}$	$\sigma_8/h^{0.5}$	0.9766	$0.976^{+0.021}_{-0.020}$	$\sigma_8(0.15)$	0.7456	$0.746^{+0.014}_{-0.013}$
$A_{217}^{\text{dustTT}}$	94.9	$94^{+20}_{-20}$	$r_{\text{drag}} h$	100.45	$100.5^{+1.7}_{-1.7}$	$f\sigma_8(0.38)$	0.4698	$0.470^{+0.011}_{-0.011}$
$A_{100}^{\text{dustTE}}$	0.114	$0.115^{+0.098}_{-0.092}$	$\langle d^2 \rangle^{1/2}$	2.4181	$2.420^{+0.049}_{-0.048}$	$\sigma_8(0.38)$	0.6617	$0.662^{+0.013}_{-0.012}$
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.134^{+0.075}_{-0.075}$	$z_{\text{re}}$	7.80	$7.9^{+1.9}_{-2.0}$	$f\sigma_8(0.51)$	0.4692	$0.469^{+0.010}_{-0.0098}$
$A_{100 \times 217}^{\text{dustTE}}$	0.481	$0.48^{+0.21}_{-0.22}$	$10^9 A_s$	2.100	$2.102^{+0.083}_{-0.077}$	$\sigma_8(0.51)$	0.6196	$0.620^{+0.012}_{-0.011}$
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$10^9 A_s e^{-2\tau}$	1.8768	$1.876^{+0.027}_{-0.027}$	$f\sigma_8(0.61)$	0.4648	$0.4647^{+0.0096}_{-0.0092}$
$A_{143 \times 217}^{\text{dustTE}}$	0.660	$0.66^{+0.21}_{-0.21}$	$D_{40}$	1222.9	$1225^{+29}_{-28}$	$\sigma_8(0.61)$	0.5898	$0.590^{+0.012}_{-0.011}$
$A_{217}^{\text{dustTE}}$	2.07	$2.07^{+0.68}_{-0.68}$	$D_{220}$	5746	$5749^{+98}_{-99}$	$f\sigma_8(2.33)$	0.2976	$0.2977^{+0.0060}_{-0.0057}$
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$	$D_{810}$	2539.8	$2539^{+35}_{-34}$	$\sigma_8(2.33)$	0.3072	$0.3072^{+0.0064}_{-0.0060}$
$c_{217}$	0.99817	$0.9982^{+0.0017}_{-0.0017}$	$D_{1420}$	819.0	$818^{+12}_{-12}$	$\chi^2_{\text{lensing}}$	9.08	$9.40 (\nu: 0.4)$
$b_{\text{DES}}^1$	1.507	$1.50^{+0.18}_{-0.20}$	$D_{2000}$	231.57	$231.3^{+4.0}_{-4.1}$	$\chi^2_{\text{small}}$	396.28	$397.3 (\nu: 1.9)$
$b_{\text{DES}}^2$	1.704	$1.70^{+0.14}_{-0.13}$	$n_{\text{s},0.002}$	0.9694	$0.9687^{+0.0093}_{-0.0095}$	$\chi^2_{\text{lowl}}$	22.65	$22.83 (\nu: 0.3)$
$b_{\text{DES}}^3$	1.695	$1.69^{+0.11}_{-0.11}$	$Y_{\text{P}}$	0.245449	$0.24545^{+0.00013}_{-0.00014}$	$\chi^2_{\text{plik}}$	2347.3	$2361.7 (\nu: 17.5)$
$b_{\text{DES}}^4$	2.055	$2.05^{+0.14}_{-0.13}$	$Y_{\text{P}}^{\text{BBN}}$	0.246776	$0.24677^{+0.00013}_{-0.00014}$	$\chi^2_{6\text{DF}}$	0.000	$0.018 (\nu: 0.0)$
$b_{\text{DES}}^5$	2.158	$2.15^{+0.19}_{-0.19}$	$10^5 \text{D}/\text{H}$	2.560	$2.561^{+0.066}_{-0.062}$	$\chi^2_{\text{MGS}}$	1.68	$1.76 (\nu: 0.1)$
$m_{\text{DES}}^1$	0.014	$0.012^{+0.057}_{-0.060}$	$\text{Age}/\text{Gyr}$	13.7707	$13.771^{+0.049}_{-0.050}$	$\chi^2_{\text{DR12BAO}}$	3.52	$3.78 (\nu: 0.1)$
$m_{\text{DES}}^2$	0.014	$0.012^{+0.060}_{-0.056}$	$z_*$	1089.59	$1089.59^{+0.53}_{-0.52}$	$\chi^2_{\text{DES}}$	509.4	$518.5 (\nu: 12.2)$
$m_{\text{DES}}^3$	-0.0044	$-0.004^{+0.050}_{-0.048}$	$r_*$	144.78	$144.80^{+0.53}_{-0.53}$	$\chi^2_{\text{prior}}$	4.2	$25 (\nu: 22.8)$
$m_{\text{DES}}^4$	0.001	$0.001^{+0.053}_{-0.053}$	$100\theta_*$	1.04125	$1.04126^{+0.00073}_{-0.00073}$	$\chi^2_{\text{CMB}}$	2775.3	$2791.2 (\nu: 18.9)$
$A_{\text{IA,DES}}$	0.437	$0.47^{+0.46}_{-0.38}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.904	$13.906^{+0.051}_{-0.053}$	$\chi^2_{\text{BAO}}$	5.20	$5.55 (\nu: 0.1)$
$\alpha_{\text{IA,DES}}$	-2.6	—	$z_{\text{drag}}$	1060.12	$1060.12^{+0.76}_{-0.76}$			
$\Delta z_{\text{l,DES}}^1$	0.0031	$0.004^{+0.019}_{-0.019}$	$r_{\text{drag}}$	147.40	$147.42^{+0.56}_{-0.57}$			

Best-fit  $\chi^2_{\text{eff}} = 3294.09$ ;  $\bar{\chi}^2_{\text{eff}} = 3340.17$ ;  $R - 1 = 0.01031$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.52 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.08 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.28 commander\_dx12\_v3\_2\_29: 22.65 plik\_rd12\_HM\_v22b\_TTTEEE: 2347.27 WL - DES\_1YR\_final: 509.38



## 2.260 base\_plikHM\_TTTEEE\_lowl\_lowE\_DES\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02252^{+0.00036}_{-0.00036}$	$\Delta z_{1,\text{DES}}^1$	$0.004^{+0.019}_{-0.019}$	$z_{\text{drag}}$	$1060.13^{+0.76}_{-0.77}$
$\Omega_c h^2$	$0.1178^{+0.0027}_{-0.0027}$	$\Delta z_{1,\text{DES}}^2$	$0.001^{+0.017}_{-0.017}$	$r_{\text{drag}}$	$147.50^{+0.65}_{-0.64}$
$100\theta_{\text{MC}}$	$1.04112^{+0.00077}_{-0.00077}$	$\Delta z_{1,\text{DES}}^3$	$0.003^{+0.017}_{-0.017}$	$k_{\text{D}}$	$0.14055^{+0.00076}_{-0.00075}$
$\tau$	$0.056^{+0.019}_{-0.013}$	$\Delta z_{1,\text{DES}}^4$	$0.001^{+0.023}_{-0.023}$	$100\theta_{\text{D}}$	$0.16065^{+0.00045}_{-0.00044}$
$\ln(10^{10} A_{\text{s}})$	$3.042^{+0.042}_{-0.030}$	$\Delta z_{1,\text{DES}}^5$	$-0.001^{+0.025}_{-0.025}$	$z_{\text{eq}}$	$3354^{+61}_{-62}$
$n_{\text{s}}$	$0.9697^{+0.0098}_{-0.010}$	$\Delta z_{\text{s,DES}}^1$	$-0.003^{+0.037}_{-0.036}$	$k_{\text{eq}}$	$0.01024^{+0.00019}_{-0.00019}$
$y_{\text{cal}}$	$1.0005^{+0.0064}_{-0.0064}$	$\Delta z_{\text{s,DES}}^2$	$-0.031^{+0.028}_{-0.028}$	$100\theta_{\text{eq}}$	$0.823^{+0.012}_{-0.012}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$\Delta z_{\text{s,DES}}^3$	$0.004^{+0.025}_{-0.024}$	$100\theta_{\text{s,eq}}$	$0.4541^{+0.0061}_{-0.0059}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$\Delta z_{\text{s,DES}}^4$	$-0.030^{+0.047}_{-0.046}$	$H(0.15)$	$73.5^{+1.1}_{-1.0}$
$A_{143}^{\text{tSZ}}$	$> 0.900$	$H_0$	$68.3^{+1.2}_{-1.2}$	$D_{\text{M}}(0.15)$	$635^{+10}_{-10}$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70}$	$\Omega_{\Lambda}$	$0.698^{+0.016}_{-0.016}$	$H(0.38)$	$83.45^{+0.81}_{-0.77}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$\Omega_{\text{m}}$	$0.302^{+0.016}_{-0.016}$	$D_{\text{M}}(0.38)$	$1517^{+21}_{-21}$
$A_{143 \times 217}^{\text{PS}}$	$41^{+20}_{-20}$	$\Omega_{\text{m}} h^2$	$0.1410^{+0.0026}_{-0.0026}$	$H(0.51)$	$90.08^{+0.65}_{-0.62}$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30}$	$\Omega_{\text{m}} h^3$	$0.09632^{+0.00075}_{-0.00075}$	$D_{\text{M}}(0.51)$	$1967^{+24}_{-25}$
$A^{\text{kSZ}}$	—	$\sigma_8$	$0.804^{+0.017}_{-0.015}$	$H(0.61)$	$95.63^{+0.54}_{-0.51}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.8}_{-4.6}$	$S_8$	$0.807^{+0.032}_{-0.031}$	$D_{\text{M}}(0.61)$	$2290^{+26}_{-27}$
$A_{143}^{\text{dustTT}}$	$11.0^{+4.6}_{-4.6}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.442^{+0.017}_{-0.017}$	$H(2.33)$	$235.3^{+1.6}_{-1.7}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.7^{+8.6}_{-8.5}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.596^{+0.017}_{-0.016}$	$D_{\text{M}}(2.33)$	$5749^{+24}_{-25}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$\sigma_8/h^{0.5}$	$0.973^{+0.025}_{-0.023}$	$f\sigma_8(0.15)$	$0.447^{+0.016}_{-0.016}$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.094}$	$r_{\text{drag}} h$	$100.8^{+2.1}_{-2.1}$	$\sigma_8(0.15)$	$0.744^{+0.016}_{-0.013}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.075}_{-0.074}$	$\langle d^2 \rangle^{1/2}$	$2.410^{+0.061}_{-0.056}$	$f\sigma_8(0.38)$	$0.467^{+0.014}_{-0.013}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$z_{\text{re}}$	$< 9.49$	$\sigma_8(0.38)$	$0.660^{+0.014}_{-0.011}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$10^9 A_{\text{s}}$	$2.095^{+0.089}_{-0.062}$	$f\sigma_8(0.51)$	$0.467^{+0.013}_{-0.012}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.873^{+0.029}_{-0.028}$	$\sigma_8(0.51)$	$0.618^{+0.013}_{-0.0099}$
$A_{217}^{\text{dustTE}}$	$2.06^{+0.70}_{-0.69}$	$D_{40}$	$1221^{+31}_{-30}$	$f\sigma_8(0.61)$	$0.463^{+0.012}_{-0.011}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$D_{220}$	$5744^{+100}_{-100}$	$\sigma_8(0.61)$	$0.589^{+0.012}_{-0.0093}$
$c_{217}$	$0.9982^{+0.0017}_{-0.0016}$	$D_{810}$	$2536^{+35}_{-35}$	$f\sigma_8(2.33)$	$0.2972^{+0.0063}_{-0.0046}$
$b_{\text{DES}}^1$	$1.51^{+0.19}_{-0.19}$	$D_{1420}$	$818^{+13}_{-12}$	$\sigma_8(2.33)$	$0.3068^{+0.0067}_{-0.0047}$
$b_{\text{DES}}^2$	$1.71^{+0.13}_{-0.13}$	$D_{2000}$	$231.2^{+4.1}_{-4.1}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$b_{\text{DES}}^3$	$1.70^{+0.11}_{-0.11}$	$n_{\text{s},0.002}$	$0.9697^{+0.0098}_{-0.010}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$b_{\text{DES}}^4$	$2.06^{+0.13}_{-0.13}$	$Y_{\text{P}}$	$0.24545^{+0.00014}_{-0.00014}$	$f_{2000}^{217}$	$106.7^{+4.7}_{-4.6}$
$b_{\text{DES}}^5$	$2.16^{+0.19}_{-0.20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24678^{+0.00014}_{-0.00014}$	$\chi_{\text{simall}}^2$	$397.0 (\nu: 1.6)$
$m_{\text{DES}}^1$	$0.012^{+0.059}_{-0.059}$	$10^5 \text{D/H}$	$2.558^{+0.067}_{-0.064}$	$\chi_{\text{lowl}}^2$	$22.59 (\nu: 0.3)$
$m_{\text{DES}}^2$	$0.012^{+0.058}_{-0.058}$	Age/Gyr	$13.767^{+0.055}_{-0.055}$	$\chi_{\text{plik}}^2$	$2363.2 (\nu: 20.6)$
$m_{\text{DES}}^3$	$-0.003^{+0.052}_{-0.050}$	$z_*$	$1089.54^{+0.59}_{-0.57}$	$\chi_{\text{DES}}^2$	$518.0 (\nu: 11.8)$
$m_{\text{DES}}^4$	$0.003^{+0.053}_{-0.053}$	$r_*$	$144.88^{+0.64}_{-0.62}$	$\chi_{\text{prior}}^2$	$25 (\nu: 23.0)$
$A_{\text{IA,DES}}$	$0.47^{+0.47}_{-0.39}$	$100\theta_*$	$1.04130^{+0.00076}_{-0.00076}$	$\chi_{\text{CMB}}^2$	$2782.8 (\nu: 19.7)$
$\alpha_{\text{IA,DES}}$	—	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.913^{+0.061}_{-0.060}$		

$$\bar{\chi}_{\text{eff}}^2 = 3325.44; R - 1 = 0.00547$$



## 2.261 base\_plikHM\_TTTEEE\_lowl\_lowE\_DES\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02251^{+0.00035}_{-0.00036}$	$\Delta z_{\text{l,DES}}^2$	$0.001^{+0.017}_{-0.017}$	$k_{\text{D}}$	$0.14057^{+0.00073}_{-0.00073}$
$\Omega_c h^2$	$0.1180^{+0.0022}_{-0.0023}$	$\Delta z_{\text{l,DES}}^3$	$0.003^{+0.017}_{-0.017}$	$100\theta_{\text{D}}$	$0.16066^{+0.00045}_{-0.00044}$
$100\theta_{\text{MC}}$	$1.04111^{+0.00074}_{-0.00075}$	$\Delta z_{\text{l,DES}}^4$	$0.000^{+0.023}_{-0.023}$	$z_{\text{eq}}$	$3357^{+51}_{-52}$
$\tau$	$0.056^{+0.018}_{-0.013}$	$\Delta z_{\text{l,DES}}^5$	$0.000^{+0.025}_{-0.024}$	$k_{\text{eq}}$	$0.01025^{+0.00016}_{-0.00016}$
$\ln(10^{10} A_{\text{s}})$	$3.042^{+0.041}_{-0.030}$	$\Delta z_{\text{s,DES}}^1$	$-0.003^{+0.037}_{-0.037}$	$100\theta_{\text{eq}}$	$0.822^{+0.010}_{-0.0096}$
$n_{\text{s}}$	$0.9694^{+0.0092}_{-0.0095}$	$\Delta z_{\text{s,DES}}^2$	$-0.031^{+0.028}_{-0.028}$	$100\theta_{\text{s,eq}}$	$0.4538^{+0.0051}_{-0.0049}$
$y_{\text{cal}}$	$1.0004^{+0.0063}_{-0.0063}$	$\Delta z_{\text{s,DES}}^3$	$0.004^{+0.025}_{-0.024}$	$H(0.15)$	$73.44^{+0.91}_{-0.85}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$\Delta z_{\text{s,DES}}^4$	$-0.030^{+0.047}_{-0.048}$	$D_{\text{M}}(0.15)$	$635.8^{+8.3}_{-8.7}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$H_0$	$68.3^{+1.0}_{-0.98}$	$H(0.38)$	$83.41^{+0.68}_{-0.63}$
$A_{143}^{\text{tSZ}}$	$> 0.889$	$\Omega_{\Lambda}$	$0.697^{+0.013}_{-0.013}$	$D_{\text{M}}(0.38)$	$1518^{+17}_{-18}$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70}$	$\Omega_{\text{m}}$	$0.303^{+0.013}_{-0.013}$	$H(0.51)$	$90.04^{+0.56}_{-0.52}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$\Omega_{\text{m}} h^2$	$0.1411^{+0.0021}_{-0.0022}$	$D_{\text{M}}(0.51)$	$1968^{+20}_{-21}$
$A_{143 \times 217}^{\text{PS}}$	$41^{+20}_{-20}$	$\Omega_{\text{m}} h^3$	$0.09632^{+0.00075}_{-0.00076}$	$H(0.61)$	$95.60^{+0.47}_{-0.44}$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30}$	$\sigma_8$	$0.804^{+0.017}_{-0.014}$	$D_{\text{M}}(0.61)$	$2291^{+21}_{-22}$
$A^{\text{kSZ}}$	—	$S_8$	$0.808^{+0.028}_{-0.026}$	$H(2.33)$	$235.4^{+1.4}_{-1.4}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.6}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.443^{+0.015}_{-0.014}$	$D_{\text{M}}(2.33)$	$5750^{+22}_{-22}$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.7}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.597^{+0.016}_{-0.014}$	$f\sigma_8(0.15)$	$0.448^{+0.014}_{-0.014}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.7^{+8.5}_{-8.4}$	$\sigma_8/h^{0.5}$	$0.973^{+0.024}_{-0.021}$	$\sigma_8(0.15)$	$0.744^{+0.016}_{-0.012}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$r_{\text{drag}} h$	$100.7^{+1.8}_{-1.7}$	$f\sigma_8(0.38)$	$0.468^{+0.013}_{-0.012}$
$A_{100}^{\text{dustTE}}$	$0.115^{+0.098}_{-0.092}$	$\langle d^2 \rangle^{1/2}$	$2.412^{+0.056}_{-0.052}$	$\sigma_8(0.38)$	$0.660^{+0.014}_{-0.010}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.075}_{-0.075}$	$z_{\text{re}}$	$< 9.43$	$f\sigma_8(0.51)$	$0.468^{+0.012}_{-0.011}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$10^9 A_{\text{s}}$	$2.094^{+0.087}_{-0.061}$	$\sigma_8(0.51)$	$0.618^{+0.013}_{-0.0096}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.874^{+0.028}_{-0.027}$	$f\sigma_8(0.61)$	$0.463^{+0.011}_{-0.0096}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$D_{40}$	$1222^{+30}_{-29}$	$\sigma_8(0.61)$	$0.589^{+0.012}_{-0.0091}$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.69}_{-0.69}$	$D_{220}$	$5743^{+100}_{-100}$	$f\sigma_8(2.33)$	$0.2971^{+0.0062}_{-0.0045}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$D_{810}$	$2537^{+36}_{-35}$	$\sigma_8(2.33)$	$0.3067^{+0.0066}_{-0.0046}$
$c_{217}$	$0.9982^{+0.0017}_{-0.0016}$	$D_{1420}$	$818^{+12}_{-12}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$b_{\text{DES}}^1$	$1.51^{+0.18}_{-0.20}$	$D_{2000}$	$231.1^{+4.0}_{-4.0}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$b_{\text{DES}}^2$	$1.71^{+0.14}_{-0.13}$	$n_{\text{s},0.002}$	$0.9694^{+0.0092}_{-0.0095}$	$f_{2000}^{217}$	$106.7^{+4.7}_{-4.5}$
$b_{\text{DES}}^3$	$1.70^{+0.11}_{-0.12}$	$Y_{\text{P}}$	$0.24545^{+0.00013}_{-0.00014}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.5)$
$b_{\text{DES}}^4$	$2.06^{+0.14}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00013}_{-0.00014}$	$\chi_{\text{lowl}}^2$	$22.64 (\nu: 0.3)$
$b_{\text{DES}}^5$	$2.16^{+0.19}_{-0.19}$	$10^5 \text{D/H}$	$2.560^{+0.066}_{-0.062}$	$\chi_{\text{plik}}^2$	$2362.7 (\nu: 19.1)$
$m_{\text{DES}}^1$	$0.012^{+0.058}_{-0.060}$	$\text{Age/Gyr}$	$13.769^{+0.049}_{-0.050}$	$\chi_{6\text{DF}}^2$	$0.021 (\nu: 0.0)$
$m_{\text{DES}}^2$	$0.012^{+0.059}_{-0.057}$	$z_*$	$1089.57^{+0.54}_{-0.52}$	$\chi_{\text{MGS}}^2$	$1.85 (\nu: 0.1)$
$m_{\text{DES}}^3$	$-0.003^{+0.050}_{-0.049}$	$r_*$	$144.85^{+0.56}_{-0.56}$	$\chi_{\text{DR12BAO}}^2$	$3.73 (\nu: 0.1)$
$m_{\text{DES}}^4$	$0.002^{+0.054}_{-0.053}$	$100\theta_*$	$1.04128^{+0.00073}_{-0.00074}$	$\chi_{\text{DES}}^2$	$518.2 (\nu: 11.8)$
$A_{\text{IA,DES}}$	$0.47^{+0.47}_{-0.38}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.911^{+0.054}_{-0.054}$	$\chi_{\text{prior}}^2$	$25 (\nu: 22.8)$
$\alpha_{\text{IA,DES}}$	—	$z_{\text{drag}}$	$1060.11^{+0.77}_{-0.75}$	$\chi_{\text{BAO}}^2$	$5.60 (\nu: 0.1)$
$\Delta z_{\text{l,DES}}^1$	$0.004^{+0.019}_{-0.019}$	$r_{\text{drag}}$	$147.47^{+0.59}_{-0.60}$	$\chi_{\text{CMB}}^2$	$2782.2 (\nu: 18.4)$

$$\bar{\chi}_{\text{eff}}^2 = 3330.75; R - 1 = 0.00777$$



## 2.262 base\_plikHM\_TTTEEE\_lowl\_lowE\_DES\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02251^{+0.00036}_{-0.00036}$	$\Delta z_{\text{l,DES}}^1$	$0.004^{+0.019}_{-0.019}$	$z_{\text{drag}}$	$1060.13^{+0.79}_{-0.77}$
$\Omega_c h^2$	$0.1181^{+0.0025}_{-0.0026}$	$\Delta z_{\text{l,DES}}^2$	$0.001^{+0.017}_{-0.017}$	$r_{\text{drag}}$	$147.43^{+0.63}_{-0.62}$
$100\theta_{\text{MC}}$	$1.04110^{+0.00076}_{-0.00076}$	$\Delta z_{\text{l,DES}}^3$	$0.003^{+0.017}_{-0.017}$	$k_{\text{D}}$	$0.14061^{+0.00072}_{-0.00074}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$\Delta z_{\text{l,DES}}^4$	$0.000^{+0.023}_{-0.023}$	$100\theta_{\text{D}}$	$0.16065^{+0.00046}_{-0.00044}$
$\ln(10^{10} A_{\text{s}})$	$3.047^{+0.038}_{-0.030}$	$\Delta z_{\text{l,DES}}^5$	$-0.001^{+0.025}_{-0.024}$	$z_{\text{eq}}$	$3360^{+56}_{-58}$
$n_{\text{s}}$	$0.9689^{+0.0098}_{-0.0099}$	$\Delta z_{\text{s,DES}}^1$	$-0.003^{+0.037}_{-0.038}$	$k_{\text{eq}}$	$0.01026^{+0.00017}_{-0.00018}$
$y_{\text{cal}}$	$1.0007^{+0.0063}_{-0.0063}$	$\Delta z_{\text{s,DES}}^2$	$-0.031^{+0.028}_{-0.028}$	$100\theta_{\text{eq}}$	$0.821^{+0.011}_{-0.011}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$\Delta z_{\text{s,DES}}^3$	$0.003^{+0.025}_{-0.024}$	$100\theta_{\text{s,eq}}$	$0.4535^{+0.0058}_{-0.0054}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$\Delta z_{\text{s,DES}}^4$	$-0.031^{+0.046}_{-0.049}$	$H(0.15)$	$73.4^{+1.0}_{-0.96}$
$A_{143}^{\text{tSZ}}$	$> 0.889$	$H_0$	$68.2^{+1.2}_{-1.1}$	$D_{\text{M}}(0.15)$	$636.2^{+9.5}_{-9.9}$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70}$	$\Omega_{\Lambda}$	$0.696^{+0.015}_{-0.015}$	$H(0.38)$	$83.38^{+0.77}_{-0.71}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$\Omega_{\text{m}}$	$0.304^{+0.015}_{-0.015}$	$D_{\text{M}}(0.38)$	$1519^{+19}_{-20}$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20}$	$\Omega_{\text{m}} h^2$	$0.1413^{+0.0024}_{-0.0024}$	$H(0.51)$	$90.03^{+0.62}_{-0.57}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$\Omega_{\text{m}} h^3$	$0.09634^{+0.00073}_{-0.00076}$	$D_{\text{M}}(0.51)$	$1969^{+22}_{-24}$
$A^{\text{kSZ}}$	—	$\sigma_8$	$0.806^{+0.015}_{-0.013}$	$H(0.61)$	$95.59^{+0.51}_{-0.47}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.6}$	$S_8$	$0.811^{+0.027}_{-0.027}$	$D_{\text{M}}(0.61)$	$2292^{+24}_{-26}$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.7}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.444^{+0.015}_{-0.015}$	$H(2.33)$	$235.5^{+1.5}_{-1.5}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.5}_{-8.3}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.599^{+0.014}_{-0.014}$	$D_{\text{M}}(2.33)$	$5751^{+23}_{-24}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$\sigma_8/h^{0.5}$	$0.977^{+0.021}_{-0.020}$	$f\sigma_8(0.15)$	$0.450^{+0.014}_{-0.014}$
$A_{100}^{\text{dustTE}}$	$0.115^{+0.098}_{-0.092}$	$r_{\text{drag}} h$	$100.6^{+2.1}_{-1.9}$	$\sigma_8(0.15)$	$0.746^{+0.014}_{-0.012}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.075}_{-0.074}$	$\langle d^2 \rangle^{1/2}$	$2.420^{+0.051}_{-0.049}$	$f\sigma_8(0.38)$	$0.470^{+0.012}_{-0.011}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$z_{\text{re}}$	$< 9.60$	$\sigma_8(0.38)$	$0.662^{+0.012}_{-0.010}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$10^9 A_{\text{s}}$	$2.105^{+0.081}_{-0.062}$	$f\sigma_8(0.51)$	$0.469^{+0.011}_{-0.010}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.876^{+0.027}_{-0.027}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0095}$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.69}_{-0.69}$	$D_{40}$	$1224^{+29}_{-28}$	$f\sigma_8(0.61)$	$0.465^{+0.010}_{-0.0092}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$D_{220}$	$5749^{+100}_{-99}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0091}$
$c_{217}$	$0.9982^{+0.0017}_{-0.0017}$	$D_{810}$	$2539^{+35}_{-34}$	$f\sigma_8(2.33)$	$0.2979^{+0.0059}_{-0.0047}$
$b_{\text{DES}}^1$	$1.50^{+0.19}_{-0.20}$	$D_{1420}$	$818^{+12}_{-12}$	$\sigma_8(2.33)$	$0.3075^{+0.0063}_{-0.0049}$
$b_{\text{DES}}^2$	$1.70^{+0.14}_{-0.13}$	$D_{2000}$	$231.3^{+4.0}_{-4.1}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$b_{\text{DES}}^3$	$1.69^{+0.11}_{-0.11}$	$n_{\text{s},0.002}$	$0.9689^{+0.0098}_{-0.0099}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$b_{\text{DES}}^4$	$2.05^{+0.13}_{-0.13}$	$Y_{\text{P}}$	$0.24545^{+0.00014}_{-0.00014}$	$f_{2000}^{217}$	$106.7^{+4.6}_{-4.5}$
$b_{\text{DES}}^5$	$2.15^{+0.19}_{-0.19}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24678^{+0.00014}_{-0.00014}$	$\chi_{\text{lensing}}^2$	$9.39 (\nu: 0.4)$
$m_{\text{DES}}^1$	$0.012^{+0.057}_{-0.061}$	$10^5 \text{D/H}$	$2.560^{+0.068}_{-0.064}$	$\chi_{\text{simall}}^2$	$397.3 (\nu: 2.1)$
$m_{\text{DES}}^2$	$0.012^{+0.060}_{-0.056}$	$\text{Age/Gyr}$	$13.770^{+0.052}_{-0.053}$	$\chi_{\text{lowl}}^2$	$22.82 (\nu: 0.3)$
$m_{\text{DES}}^3$	$-0.004^{+0.051}_{-0.049}$	$z_*$	$1089.58^{+0.57}_{-0.59}$	$\chi_{\text{plik}}^2$	$2361.8 (\nu: 18.1)$
$m_{\text{DES}}^4$	$0.002^{+0.053}_{-0.054}$	$r_*$	$144.81^{+0.61}_{-0.60}$	$\chi_{\text{DES}}^2$	$518.4 (\nu: 12.5)$
$A_{\text{IA,DES}}$	$0.47^{+0.46}_{-0.38}$	$100\theta_*$	$1.04127^{+0.00075}_{-0.00075}$	$\chi_{\text{prior}}^2$	$25 (\nu: 22.8)$
$\alpha_{\text{IA,DES}}$	—	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.907^{+0.057}_{-0.057}$	$\chi_{\text{CMB}}^2$	$2791.4 (\nu: 19.9)$

$$\bar{\chi}_{\text{eff}}^2 = 3334.75; R - 1 = 0.01067$$



# 2.263 base\_plikHM\_TTTEEE\_lowl\_lowE\_DES\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02251^{+0.00035}_{-0.00036}$	$\Delta z_{\text{l,DES}}^3$	$0.003^{+0.017}_{-0.017}$	$z_{\text{eq}}$	$3361^{+49}_{-48}$
$\Omega_c h^2$	$0.1182^{+0.0021}_{-0.0021}$	$\Delta z_{\text{l,DES}}^4$	$0.000^{+0.023}_{-0.023}$	$k_{\text{eq}}$	$0.01026^{+0.00015}_{-0.00015}$
$100\theta_{\text{MC}}$	$1.04109^{+0.00073}_{-0.00074}$	$\Delta z_{\text{l,DES}}^5$	$-0.001^{+0.025}_{-0.024}$	$100\theta_{\text{eq}}$	$0.8212^{+0.0093}_{-0.0091}$
$\tau$	$0.057^{+0.018}_{-0.014}$	$\Delta z_{\text{s,DES}}^1$	$-0.003^{+0.037}_{-0.038}$	$100\theta_{\text{s,eq}}$	$0.4534^{+0.0048}_{-0.0047}$
$\ln(10^{10} A_s)$	$3.046^{+0.038}_{-0.029}$	$\Delta z_{\text{s,DES}}^2$	$-0.031^{+0.028}_{-0.028}$	$H(0.15)$	$73.38^{+0.87}_{-0.81}$
$n_s$	$0.9688^{+0.0093}_{-0.0094}$	$\Delta z_{\text{s,DES}}^3$	$0.003^{+0.025}_{-0.024}$	$D_{\text{M}}(0.15)$	$636.4^{+7.9}_{-8.4}$
$y_{\text{cal}}$	$1.0007^{+0.0063}_{-0.0063}$	$\Delta z_{\text{s,DES}}^4$	$-0.031^{+0.046}_{-0.049}$	$H(0.38)$	$83.37^{+0.66}_{-0.61}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$H_0$	$68.2^{+1.0}_{-0.93}$	$D_{\text{M}}(0.38)$	$1520^{+16}_{-17}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$\Omega_{\Lambda}$	$0.696^{+0.013}_{-0.013}$	$H(0.51)$	$90.01^{+0.54}_{-0.50}$
$A_{143}^{\text{tSZ}}$	$> 0.924$	$\Omega_{\text{m}}$	$0.304^{+0.013}_{-0.013}$	$D_{\text{M}}(0.51)$	$1970^{+19}_{-20}$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70}$	$\Omega_{\text{m}} h^2$	$0.1413^{+0.0020}_{-0.0020}$	$H(0.61)$	$95.58^{+0.46}_{-0.43}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$\Omega_{\text{m}} h^3$	$0.09634^{+0.00073}_{-0.00075}$	$D_{\text{M}}(0.61)$	$2293^{+21}_{-22}$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20}$	$\sigma_8$	$0.806^{+0.015}_{-0.013}$	$H(2.33)$	$235.5^{+1.3}_{-1.3}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$S_8$	$0.812^{+0.024}_{-0.024}$	$D_{\text{M}}(2.33)$	$5751^{+21}_{-22}$
$A^{\text{kSZ}}$	—	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.445^{+0.013}_{-0.013}$	$f\sigma_8(0.15)$	$0.450^{+0.012}_{-0.012}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.8}_{-4.6}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.599^{+0.013}_{-0.013}$	$\sigma_8(0.15)$	$0.746^{+0.014}_{-0.012}$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.7}$	$\sigma_8/h^{0.5}$	$0.977^{+0.020}_{-0.019}$	$f\sigma_8(0.38)$	$0.470^{+0.011}_{-0.010}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.4}_{-8.3}$	$r_{\text{drag}} h$	$100.5^{+1.7}_{-1.6}$	$\sigma_8(0.38)$	$0.662^{+0.012}_{-0.010}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$\langle d^2 \rangle^{1/2}$	$2.421^{+0.048}_{-0.045}$	$f\sigma_8(0.51)$	$0.469^{+0.010}_{-0.0094}$
$A_{100}^{\text{dustTE}}$	$0.115^{+0.098}_{-0.092}$	$z_{\text{re}}$	$< 9.56$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0094}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.075}_{-0.075}$	$10^9 A_s$	$2.104^{+0.081}_{-0.061}$	$f\sigma_8(0.61)$	$0.4649^{+0.0095}_{-0.0087}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.21}$	$10^9 A_s e^{-2\tau}$	$1.876^{+0.027}_{-0.027}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0091}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{40}$	$1225^{+29}_{-28}$	$f\sigma_8(2.33)$	$0.2978^{+0.0059}_{-0.0046}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$D_{220}$	$5749^{+98}_{-98}$	$\sigma_8(2.33)$	$0.3074^{+0.0062}_{-0.0048}$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.68}_{-0.68}$	$D_{810}$	$2539^{+35}_{-34}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$D_{1420}$	$818^{+12}_{-12}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$c_{217}$	$0.9982^{+0.0017}_{-0.0017}$	$D_{2000}$	$231.3^{+3.9}_{-4.1}$	$f_{2000}^{217}$	$106.7^{+4.7}_{-4.5}$
$b_{\text{DES}}^1$	$1.50^{+0.18}_{-0.20}$	$n_{\text{s},0.002}$	$0.9688^{+0.0093}_{-0.0094}$	$\chi_{\text{lensing}}^2$	$9.35 (\nu: 0.4)$
$b_{\text{DES}}^2$	$1.70^{+0.14}_{-0.13}$	$Y_{\text{P}}$	$0.24545^{+0.00013}_{-0.00014}$	$\chi_{\text{simall}}^2$	$397.3 (\nu: 1.9)$
$b_{\text{DES}}^3$	$1.69^{+0.11}_{-0.11}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00013}_{-0.00014}$	$\chi_{\text{lowl}}^2$	$22.83 (\nu: 0.3)$
$b_{\text{DES}}^4$	$2.05^{+0.14}_{-0.13}$	$10^5 \text{D/H}$	$2.561^{+0.066}_{-0.062}$	$\chi_{\text{plik}}^2$	$2361.6 (\nu: 17.5)$
$b_{\text{DES}}^5$	$2.15^{+0.19}_{-0.19}$	$\text{Age/Gyr}$	$13.770^{+0.049}_{-0.050}$	$\chi_{6\text{DF}}^2$	$0.018 (\nu: 0.0)$
$m_{\text{DES}}^1$	$0.012^{+0.057}_{-0.061}$	$z_*$	$1089.59^{+0.53}_{-0.52}$	$\chi_{\text{MGS}}^2$	$1.77 (\nu: 0.1)$
$m_{\text{DES}}^2$	$0.012^{+0.060}_{-0.056}$	$r_*$	$144.80^{+0.52}_{-0.52}$	$\chi_{\text{DR12BAO}}^2$	$3.77 (\nu: 0.1)$
$m_{\text{DES}}^3$	$-0.004^{+0.050}_{-0.048}$	$100\theta_*$	$1.04126^{+0.00073}_{-0.00073}$	$\chi_{\text{DES}}^2$	$518.5 (\nu: 12.2)$
$m_{\text{DES}}^4$	$0.001^{+0.053}_{-0.053}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.906^{+0.051}_{-0.053}$	$\chi_{\text{prior}}^2$	$25 (\nu: 22.8)$
$A_{\text{IA,DES}}$	$0.47^{+0.46}_{-0.38}$	$z_{\text{drag}}$	$1060.12^{+0.76}_{-0.76}$	$\chi_{\text{CMB}}^2$	$2791.1 (\nu: 18.6)$
$\alpha_{\text{IA,DES}}$	—	$r_{\text{drag}}$	$147.43^{+0.56}_{-0.57}$	$\chi_{\text{BAO}}^2$	$5.55 (\nu: 0.1)$
$\Delta z_{\text{l,DES}}^1$	$0.004^{+0.019}_{-0.019}$	$k_{\text{D}}$	$0.14062^{+0.00070}_{-0.00072}$		
$\Delta z_{\text{l,DES}}^2$	$0.001^{+0.017}_{-0.017}$	$100\theta_{\text{D}}$	$0.16065^{+0.00046}_{-0.00044}$		

$\bar{\chi}_{\text{eff}}^2 = 3340.03$ ;  $R - 1 = 0.01092$



## 2.264 base\_plikHM\_TTTEEE\_lowl\_lowE\_DESlens

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022441	$0.02244^{+0.00035}_{-0.00036}$	$\Delta z_{s,\text{DES}}^3$	0.0048	$0.004^{+0.026}_{-0.027}$	$z_{\text{eq}}$	3384	$3380^{+64}_{-66}$
$\Omega_c h^2$	0.11918	$0.1190^{+0.0028}_{-0.0029}$	$\Delta z_{s,\text{DES}}^4$	-0.022	$-0.022^{+0.052}_{-0.052}$	$k_{\text{eq}}$	0.010329	$0.01032^{+0.00020}_{-0.00020}$
$100\theta_{\text{MC}}$	1.04099	$1.04103^{+0.00076}_{-0.00076}$	$H_0$	67.72	$67.8^{+1.3}_{-1.3}$	$100\theta_{\text{eq}}$	0.8168	$0.818^{+0.013}_{-0.012}$
$\tau$	0.0533	$0.053^{+0.021}_{-0.020}$	$\Omega_{\Lambda}$	0.6898	$0.691^{+0.017}_{-0.017}$	$100\theta_{s,\text{eq}}$	0.4511	$0.4516^{+0.0065}_{-0.0062}$
$\ln(10^{10} A_s)$	3.0403	$3.040^{+0.043}_{-0.040}$	$\Omega_m$	0.3102	$0.309^{+0.017}_{-0.017}$	$H(0.15)$	72.99	$73.1^{+1.2}_{-1.1}$
$n_s$	0.9678	$0.967^{+0.010}_{-0.010}$	$\Omega_m h^2$	0.14226	$0.1421^{+0.0027}_{-0.0028}$	$D_M(0.15)$	640.2	$640^{+11}_{-11}$
$y_{\text{cal}}$	1.0005	$1.0005^{+0.0063}_{-0.0062}$	$\Omega_m h^3$	0.09635	$0.09633^{+0.00074}_{-0.00075}$	$H(0.38)$	83.09	$83.13^{+0.86}_{-0.79}$
$A_{217}^{\text{CIB}}$	47.0	$47^{+20}_{-20}$	$\sigma_8$	0.8075	$0.807^{+0.017}_{-0.017}$	$D_M(0.38)$	1527.2	$1526^{+22}_{-23}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.44	—	$S_8$	0.8211	$0.819^{+0.032}_{-0.033}$	$H(0.51)$	89.80	$89.83^{+0.69}_{-0.63}$
$A_{143}^{\text{tSZ}}$	7.23	$5.5^{+4.5}_{-4.6}$	$\sigma_8 \Omega_m^{0.5}$	0.4497	$0.449^{+0.018}_{-0.018}$	$D_M(0.51)$	1978.6	$1977^{+26}_{-27}$
$A_{100}^{\text{PS}}$	250	$259^{+70}_{-70}$	$\sigma_8 \Omega_m^{0.25}$	0.6026	$0.601^{+0.017}_{-0.017}$	$H(0.61)$	95.41	$95.44^{+0.56}_{-0.53}$
$A_{143}^{\text{PS}}$	47.3	$45^{+20}_{-20}$	$\sigma_8/h^{0.5}$	0.9812	$0.980^{+0.025}_{-0.025}$	$D_M(0.61)$	2302.5	$2301^{+27}_{-29}$
$A_{143 \times 217}^{\text{PS}}$	47.5	$42^{+20}_{-20}$	$r_{\text{drag}} h$	99.71	$99.9^{+2.3}_{-2.2}$	$H(2.33)$	236.09	$236.0^{+1.7}_{-1.8}$
$A_{217}^{\text{PS}}$	119.8	$115^{+30}_{-30}$	$\langle d^2 \rangle^{1/2}$	2.426	$2.425^{+0.062}_{-0.061}$	$D_M(2.33)$	5757.8	$5757^{+25}_{-26}$
$A^{\text{kSZ}}$	0.0	—	$z_{\text{re}}$	7.55	$7.5^{+2.0}_{-2.2}$	$f\sigma_8(0.15)$	0.4544	$0.453^{+0.017}_{-0.017}$
$A_{100}^{\text{dustTT}}$	8.81	$8.9^{+4.6}_{-4.7}$	$10^9 A_s$	2.091	$2.091^{+0.091}_{-0.082}$	$\sigma_8(0.15)$	0.7463	$0.746^{+0.016}_{-0.015}$
$A_{143}^{\text{dustTT}}$	11.08	$10.9^{+4.6}_{-4.6}$	$10^9 A_s e^{-2\tau}$	1.8797	$1.879^{+0.028}_{-0.026}$	$f\sigma_8(0.38)$	0.4730	$0.472^{+0.014}_{-0.014}$
$A_{143 \times 217}^{\text{dustTT}}$	19.9	$18.6^{+8.3}_{-8.6}$	$D_{40}$	1224.4	$1226^{+31}_{-29}$	$\sigma_8(0.38)$	0.6617	$0.661^{+0.014}_{-0.013}$
$A_{217}^{\text{dustTT}}$	95.2	$94^{+20}_{-20}$	$D_{220}$	5734	$5737^{+100}_{-94}$	$f\sigma_8(0.51)$	0.4717	$0.471^{+0.012}_{-0.012}$
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.099}_{-0.098}$	$D_{810}$	2539.7	$2538^{+34}_{-33}$	$\sigma_8(0.51)$	0.6193	$0.619^{+0.013}_{-0.012}$
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.079}_{-0.075}$	$D_{1420}$	818.5	$818^{+12}_{-12}$	$f\sigma_8(0.61)$	0.4669	$0.466^{+0.012}_{-0.011}$
$A_{100 \times 217}^{\text{dustTE}}$	0.483	$0.48^{+0.22}_{-0.21}$	$D_{2000}$	231.35	$231.0^{+4.1}_{-3.9}$	$\sigma_8(0.61)$	0.5893	$0.589^{+0.013}_{-0.012}$
$A_{143}^{\text{dustTE}}$	0.225	$0.22^{+0.14}_{-0.14}$	$n_{s,0.002}$	0.9678	$0.967^{+0.010}_{-0.010}$	$f\sigma_8(2.33)$	0.2972	$0.2970^{+0.0067}_{-0.0060}$
$A_{143 \times 217}^{\text{dustTE}}$	0.664	$0.66^{+0.21}_{-0.21}$	$Y_{\text{P}}$	0.245423	$0.24542^{+0.00013}_{-0.00014}$	$\sigma_8(2.33)$	0.3064	$0.3063^{+0.0071}_{-0.0064}$
$A_{217}^{\text{dustTE}}$	2.07	$2.08^{+0.68}_{-0.70}$	$Y_{\text{P}}^{\text{BBN}}$	0.246749	$0.24675^{+0.00013}_{-0.00014}$	$f_{2000}^{143}$	28.7	$29^{+7}_{-7}$
$c_{100}$	0.99972	$0.9997^{+0.0015}_{-0.0016}$	$10^5 \text{D/H}$	2.572	$2.574^{+0.067}_{-0.063}$	$f_{2000}^{143 \times 217}$	31.88	$32^{+5}_{-5}$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$	$\text{Age/Gyr}$	13.785	$13.783^{+0.055}_{-0.057}$	$f_{2000}^{217}$	106.55	$106.9^{+4.5}_{-4.6}$
$m_{\text{DES}}^1$	0.015	$0.014^{+0.060}_{-0.058}$	$z_*$	1089.76	$1089.75^{+0.60}_{-0.62}$	$\chi_{\text{small}}^2$	395.86	$396.9 (\nu: 1.4)$
$m_{\text{DES}}^2$	0.012	$0.012^{+0.057}_{-0.057}$	$r_*$	144.59	$144.64^{+0.66}_{-0.65}$	$\chi_{\text{lowl}}^2$	22.84	$22.99 (\nu: 0.3)$
$m_{\text{DES}}^3$	-0.007	$-0.008^{+0.052}_{-0.051}$	$100\theta_*$	1.04117	$1.04121^{+0.00076}_{-0.00075}$	$\chi_{\text{plik}}^2$	2346.0	$2360.9 (\nu: 17.6)$
$m_{\text{DES}}^4$	0.013	$0.011^{+0.054}_{-0.054}$	$D_M(z_*)/\text{Gpc}$	13.887	$13.891^{+0.063}_{-0.062}$	$\chi_{\text{DES}}^2$	229.2	$232.0 (\nu: 3.2)$
$A_{\text{IA,DES}}$	1.44	$1.2^{+1.2}_{-1.1}$	$z_{\text{drag}}$	1060.05	$1060.02^{+0.75}_{-0.77}$	$\chi_{\text{prior}}^2$	2.8	$19.5 (\nu: 18.0)$
$\alpha_{\text{IA,DES}}$	2.49	$> -3.98$	$r_{\text{drag}}$	147.23	$147.28^{+0.69}_{-0.66}$	$\chi_{\text{CMB}}^2$	2764.7	$2780.7 (\nu: 17.3)$
$\Delta z_{s,\text{DES}}^1$	0.0046	$0.005^{+0.037}_{-0.037}$	$k_{\text{D}}$	0.14077	$0.14072^{+0.00075}_{-0.00080}$			
$\Delta z_{s,\text{DES}}^2$	-0.0203	$-0.021^{+0.029}_{-0.030}$	$100\theta_{\text{D}}$	0.160699	$0.16072^{+0.00044}_{-0.00042}$			

Best-fit  $\chi_{\text{eff}}^2 = 2996.67$ ;  $\bar{\chi}_{\text{eff}}^2 = 3032.33$ ;  $R - 1 = 0.00975$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3.2\_29: 22.84 plik\_rd12\_HM\_v22b\_TTTEEE: 2346.01 WL - DES\_1YR\_final: 229.20



## 2.265 base\_plikHM\_TTTEEE\_lowl\_lowE\_DESlens\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022468	$0.02245^{+0.00034}_{-0.00034}$	$\Delta z_{s,DES}^4$	-0.021	$-0.022^{+0.053}_{-0.052}$	$100\theta_{eq}$	0.8182	$0.819^{+0.010}_{-0.0098}$
$\Omega_c h^2$	0.11885	$0.1187^{+0.0023}_{-0.0023}$	$H_0$	67.89	$67.9^{+1.1}_{-1.0}$	$100\theta_{s,eq}$	0.4519	$0.4521^{+0.0052}_{-0.0050}$
$100\theta_{MC}$	1.04107	$1.04107^{+0.00075}_{-0.00073}$	$\Omega_\Lambda$	0.6920	$0.692^{+0.014}_{-0.014}$	$H(0.15)$	73.14	$73.16^{+0.92}_{-0.89}$
$\tau$	0.0548	$0.054^{+0.021}_{-0.020}$	$\Omega_m$	0.3080	$0.308^{+0.014}_{-0.014}$	$D_M(0.15)$	638.8	$638.6^{+8.8}_{-8.9}$
$\ln(10^{10} A_s)$	3.0430	$3.041^{+0.043}_{-0.039}$	$\Omega_m h^2$	0.14197	$0.1418^{+0.0022}_{-0.0022}$	$H(0.38)$	83.20	$83.21^{+0.69}_{-0.65}$
$n_s$	0.9690	$0.9680^{+0.0094}_{-0.0093}$	$\Omega_m h^3$	0.09638	$0.09633^{+0.00074}_{-0.00074}$	$D_M(0.38)$	1524.4	$1524^{+18}_{-18}$
$y_{cal}$	1.0006	$1.0006^{+0.0063}_{-0.0060}$	$\sigma_8$	0.8078	$0.806^{+0.017}_{-0.016}$	$H(0.51)$	89.88	$89.89^{+0.57}_{-0.53}$
$A_{217}^{CIB}$	46.7	$47^{+20}_{-20}$	$S_8$	0.8185	$0.816^{+0.028}_{-0.028}$	$D_M(0.51)$	1975.3	$1975^{+21}_{-21}$
$\xi^{tSZ \times CIB}$	0.56	—	$\sigma_8 \Omega_m^{0.5}$	0.4483	$0.447^{+0.015}_{-0.015}$	$H(0.61)$	95.479	$95.48^{+0.48}_{-0.44}$
$A_{143}^{tSZ}$	7.23	$> 0.879$	$\sigma_8 \Omega_m^{0.25}$	0.6018	$0.600^{+0.016}_{-0.015}$	$D_M(0.61)$	2299.0	$2299^{+22}_{-23}$
$A_{100}^{PS}$	248	$259^{+70}_{-70}$	$\sigma_8/h^{0.5}$	0.9804	$0.978^{+0.024}_{-0.022}$	$H(2.33)$	235.92	$235.8^{+1.4}_{-1.4}$
$A_{143}^{PS}$	48.6	$45^{+20}_{-20}$	$r_{drag} h$	99.99	$100.1^{+1.8}_{-1.8}$	$D_M(2.33)$	5754.8	$5755^{+22}_{-22}$
$A_{143 \times 217}^{PS}$	50.4	$42^{+20}_{-20}$	$\langle d^2 \rangle^{1/2}$	2.424	$2.422^{+0.058}_{-0.055}$	$f\sigma_8(0.15)$	0.4532	$0.452^{+0.015}_{-0.014}$
$A_{217}^{PS}$	120.2	$114^{+30}_{-30}$	$z_{re}$	7.70	$7.6^{+2.0}_{-2.1}$	$\sigma_8(0.15)$	0.7468	$0.745^{+0.016}_{-0.014}$
$A^{kSZ}$	0.0	—	$10^9 A_s$	2.097	$2.092^{+0.092}_{-0.079}$	$f\sigma_8(0.38)$	0.4722	$0.471^{+0.013}_{-0.012}$
$A_{100}^{dustTT}$	8.84	$8.9^{+4.6}_{-4.9}$	$10^9 A_s e^{-2\tau}$	1.8790	$1.878^{+0.028}_{-0.026}$	$\sigma_8(0.38)$	0.6623	$0.661^{+0.014}_{-0.013}$
$A_{143}^{dustTT}$	11.04	$10.9^{+4.6}_{-4.7}$	$D_{40}$	1222.6	$1225^{+31}_{-28}$	$f\sigma_8(0.51)$	0.4712	$0.470^{+0.012}_{-0.011}$
$A_{143 \times 217}^{dustTT}$	20.1	$18.6^{+8.2}_{-8.5}$	$D_{220}$	5736	$5739^{+100}_{-95}$	$\sigma_8(0.51)$	0.6200	$0.619^{+0.014}_{-0.012}$
$A_{217}^{dustTT}$	95.2	$94^{+20}_{-20}$	$D_{810}$	2540.5	$2538^{+35}_{-32}$	$f\sigma_8(0.61)$	0.4666	$0.466^{+0.011}_{-0.011}$
$A_{100}^{dustTE}$	0.114	$0.114^{+0.099}_{-0.099}$	$D_{1420}$	819.2	$818^{+12}_{-12}$	$\sigma_8(0.61)$	0.5900	$0.589^{+0.013}_{-0.011}$
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.080}_{-0.078}$	$D_{2000}$	231.64	$231.1^{+4.1}_{-3.8}$	$f\sigma_8(2.33)$	0.2976	$0.2972^{+0.0067}_{-0.0058}$
$A_{100 \times 217}^{dustTE}$	0.479	$0.48^{+0.21}_{-0.21}$	$n_{s,0.002}$	0.9690	$0.9680^{+0.0094}_{-0.0093}$	$\sigma_8(2.33)$	0.3070	$0.3065^{+0.0070}_{-0.0063}$
$A_{143}^{dustTE}$	0.224	$0.22^{+0.14}_{-0.14}$	$Y_P$	0.245433	$0.24543^{+0.00013}_{-0.00013}$	$f_{2000}^{143}$	28.4	$29^{+7}_{-7}$
$A_{143 \times 217}^{dustTE}$	0.660	$0.66^{+0.21}_{-0.21}$	$Y_P^{BBN}$	0.246760	$0.24675^{+0.00013}_{-0.00014}$	$f_{2000}^{143 \times 217}$	31.74	$32^{+5}_{-5}$
$A_{217}^{dustTE}$	2.07	$2.07^{+0.69}_{-0.69}$	$10^5 D/H$	2.568	$2.571^{+0.063}_{-0.060}$	$f_{2000}^{217}$	106.29	$106.8^{+4.5}_{-4.3}$
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$	Age/Gyr	13.778	$13.779^{+0.050}_{-0.050}$	$\chi_{small}^2$	396.05	$396.9 (\nu: 1.5)$
$c_{217}$	0.99818	$0.9982^{+0.0015}_{-0.0015}$	$z_*$	1089.70	$1089.71^{+0.55}_{-0.53}$	$\chi_{lowl}^2$	22.68	$22.87 (\nu: 0.3)$
$m_{DES}^1$	0.014	$0.014^{+0.059}_{-0.058}$	$r_*$	144.65	$144.69^{+0.57}_{-0.54}$	$\chi_{plik}^2$	2346.4	$2361.0 (\nu: 17.4)$
$m_{DES}^2$	0.013	$0.012^{+0.057}_{-0.059}$	$100\theta_*$	1.04125	$1.04124^{+0.00074}_{-0.00073}$	$\chi_{6DF}^2$	0.010	$0.028 (\nu: 0.0)$
$m_{DES}^3$	-0.006	$-0.007^{+0.053}_{-0.051}$	$D_M(z_*)/\text{Gpc}$	13.892	$13.896^{+0.056}_{-0.052}$	$\chi_{MGS}^2$	1.41	$1.50 (\nu: 0.1)$
$m_{DES}^4$	0.013	$0.012^{+0.053}_{-0.053}$	$z_{drag}$	1060.09	$1060.04^{+0.73}_{-0.75}$	$\chi_{DR12BAO}^2$	3.94	$4.18 (\nu: 0.4)$
$A_{IA,DES}$	1.42	$1.2^{+1.3}_{-1.1}$	$r_{drag}$	147.29	$147.33^{+0.60}_{-0.57}$	$\chi_{DES}^2$	229.1	$231.9 (\nu: 2.9)$
$\alpha_{IA,DES}$	2.58	$> -3.86$	$k_D$	0.14074	$0.14068^{+0.00072}_{-0.00076}$	$\chi_{prior}^2$	2.6	$19.4 (\nu: 18.0)$
$\Delta z_{s,DES}^1$	0.0046	$0.004^{+0.038}_{-0.036}$	$100\theta_D$	0.160683	$0.16071^{+0.00043}_{-0.00041}$	$\chi_{BAO}^2$	5.35	$5.71 (\nu: 0.2)$
$\Delta z_{s,DES}^2$	-0.0207	$-0.021^{+0.030}_{-0.030}$	$z_{eq}$	3377	$3374^{+53}_{-53}$	$\chi_{CMB}^2$	2765.1	$2780.8 (\nu: 17.0)$
$\Delta z_{s,DES}^3$	0.0053	$0.005^{+0.026}_{-0.027}$	$k_{eq}$	0.010307	$0.01030^{+0.00016}_{-0.00016}$			

Best-fit  $\chi_{eff}^2 = 3002.12$ ;  $\bar{\chi}_{eff}^2 = 3037.77$ ;  $R - 1 = 0.01621$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.94 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.05 commander\_dx12\_v3\_2\_29: 22.68 plik\_rd12\_HM\_v22b\_TTTEEE: 2346.36 WL - DES\_1YR\_final: 229.06



## 2.266 base\_plikHM\_TTTEEE\_lowl\_lowE\_DESlens\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022454	$0.02244^{+0.00035}_{-0.00035}$	$\Delta z_{s,\text{DES}}^3$	0.0047	$0.004^{+0.025}_{-0.027}$	$z_{\text{eq}}$	3384	$3383^{+61}_{-61}$
$\Omega_c h^2$	0.11916	$0.1191^{+0.0027}_{-0.0027}$	$\Delta z_{s,\text{DES}}^4$	-0.022	$-0.023^{+0.053}_{-0.052}$	$k_{\text{eq}}$	0.010328	$0.01033^{+0.00019}_{-0.00018}$
$100\theta_{\text{MC}}$	1.04100	$1.04102^{+0.00078}_{-0.00076}$	$H_0$	67.75	$67.8^{+1.3}_{-1.2}$	$100\theta_{\text{eq}}$	0.8168	$0.817^{+0.012}_{-0.011}$
$\tau$	0.0554	$0.055^{+0.020}_{-0.019}$	$\Omega_{\Lambda}$	0.6900	$0.690^{+0.016}_{-0.016}$	$100\theta_{s,\text{eq}}$	0.4512	$0.4513^{+0.0060}_{-0.0059}$
$\ln(10^{10} A_s)$	3.0447	$3.043^{+0.039}_{-0.038}$	$\Omega_m$	0.3100	$0.310^{+0.016}_{-0.016}$	$H(0.15)$	73.01	$73.0^{+1.1}_{-1.0}$
$n_s$	0.9683	$0.967^{+0.010}_{-0.010}$	$\Omega_m h^2$	0.14225	$0.1422^{+0.0026}_{-0.0025}$	$D_M(0.15)$	640.0	$640^{+10}_{-11}$
$y_{\text{cal}}$	1.0004	$1.0007^{+0.0063}_{-0.0061}$	$\Omega_m h^3$	0.09637	$0.09634^{+0.00073}_{-0.00074}$	$H(0.38)$	83.11	$83.11^{+0.81}_{-0.74}$
$A_{217}^{\text{CIB}}$	46.0	$47^{+20}_{-20}$	$\sigma_8$	0.8093	$0.808^{+0.015}_{-0.014}$	$D_M(0.38)$	1526.8	$1527^{+20}_{-21}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.62	—	$S_8$	0.8226	$0.821^{+0.028}_{-0.028}$	$H(0.51)$	89.81	$89.81^{+0.67}_{-0.60}$
$A_{143}^{\text{tSZ}}$	7.17	$> 0.902$	$\sigma_8 \Omega_m^{0.5}$	0.4505	$0.450^{+0.015}_{-0.015}$	$D_M(0.51)$	1978.1	$1978^{+24}_{-25}$
$A_{100}^{\text{PS}}$	247	$259^{+70}_{-70}$	$\sigma_8 \Omega_m^{0.25}$	0.6038	$0.603^{+0.014}_{-0.014}$	$H(0.61)$	95.43	$95.42^{+0.55}_{-0.49}$
$A_{143}^{\text{PS}}$	49.3	$45^{+20}_{-20}$	$\sigma_8/h^{0.5}$	0.9832	$0.982^{+0.021}_{-0.021}$	$D_M(0.61)$	2302.0	$2302^{+25}_{-27}$
$A_{143 \times 217}^{\text{PS}}$	52.0	$42^{+20}_{-20}$	$r_{\text{drag}} h$	99.74	$99.8^{+2.2}_{-2.1}$	$H(2.33)$	236.09	$236.1^{+1.6}_{-1.6}$
$A_{217}^{\text{PS}}$	121.4	$115^{+30}_{-30}$	$\langle d^2 \rangle^{1/2}$	2.430	$2.431^{+0.051}_{-0.050}$	$D_M(2.33)$	5757.1	$5757^{+24}_{-25}$
$A^{\text{kSZ}}$	0.0	—	$z_{\text{re}}$	7.76	$7.7^{+1.9}_{-2.0}$	$f\sigma_8(0.15)$	0.4553	$0.455^{+0.014}_{-0.014}$
$A_{100}^{\text{dustTT}}$	8.78	$8.9^{+4.7}_{-4.9}$	$10^9 A_s$	2.100	$2.097^{+0.083}_{-0.078}$	$\sigma_8(0.15)$	0.7480	$0.747^{+0.014}_{-0.013}$
$A_{143}^{\text{dustTT}}$	11.01	$10.9^{+4.7}_{-4.7}$	$10^9 A_s e^{-2\tau}$	1.8802	$1.880^{+0.027}_{-0.025}$	$f\sigma_8(0.38)$	0.4739	$0.473^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\text{dustTT}}$	20.1	$18.6^{+8.2}_{-8.4}$	$D_{40}$	1224.4	$1228^{+30}_{-29}$	$\sigma_8(0.38)$	0.6632	$0.662^{+0.013}_{-0.012}$
$A_{217}^{\text{dustTT}}$	95.4	$94^{+20}_{-20}$	$D_{220}$	5735	$5741^{+99}_{-97}$	$f\sigma_8(0.51)$	0.4727	$0.472^{+0.010}_{-0.010}$
$A_{100}^{\text{dustTE}}$	0.114	$0.113^{+0.098}_{-0.099}$	$D_{810}$	2540.5	$2539^{+35}_{-32}$	$\sigma_8(0.51)$	0.6207	$0.620^{+0.012}_{-0.011}$
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.080}_{-0.078}$	$D_{1420}$	819.0	$818^{+13}_{-12}$	$f\sigma_8(0.61)$	0.4679	$0.4672^{+0.0098}_{-0.0096}$
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.21}_{-0.21}$	$D_{2000}$	231.57	$231.1^{+4.3}_{-3.9}$	$\sigma_8(0.61)$	0.5906	$0.590^{+0.012}_{-0.011}$
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$n_{s,0.002}$	0.9683	$0.967^{+0.010}_{-0.010}$	$f\sigma_8(2.33)$	0.2979	$0.2975^{+0.0061}_{-0.0056}$
$A_{143 \times 217}^{\text{dustTE}}$	0.662	$0.66^{+0.21}_{-0.20}$	$Y_{\text{P}}$	0.245428	$0.24542^{+0.00013}_{-0.00014}$	$\sigma_8(2.33)$	0.3072	$0.3068^{+0.0067}_{-0.0060}$
$A_{217}^{\text{dustTE}}$	2.08	$2.07^{+0.69}_{-0.68}$	$Y_{\text{P}}^{\text{BBN}}$	0.246754	$0.24675^{+0.00013}_{-0.00014}$	$f_{2000}^{143}$	28.2	$29^{+7}_{-7}$
$c_{100}$	0.99975	$0.9997^{+0.0015}_{-0.0016}$	$10^5 \text{D}/\text{H}$	2.570	$2.574^{+0.066}_{-0.063}$	$f_{2000}^{143 \times 217}$	31.68	$32^{+5}_{-5}$
$c_{217}$	0.99817	$0.9982^{+0.0015}_{-0.0015}$	$\text{Age}/\text{Gyr}$	13.783	$13.784^{+0.054}_{-0.056}$	$f_{2000}^{217}$	106.24	$106.9^{+4.5}_{-4.4}$
$m_{\text{DES}}^1$	0.014	$0.014^{+0.059}_{-0.058}$	$z_*$	1089.74	$1089.76^{+0.59}_{-0.60}$	$\chi_{\text{lensing}}^2$	8.77	$9.16 (\nu: 0.2)$
$m_{\text{DES}}^2$	0.012	$0.012^{+0.061}_{-0.056}$	$r_*$	144.59	$144.61^{+0.63}_{-0.62}$	$\chi_{\text{small}}^2$	396.20	$397.0 (\nu: 1.5)$
$m_{\text{DES}}^3$	-0.007	$-0.009^{+0.053}_{-0.052}$	$100\theta_*$	1.04118	$1.04120^{+0.00078}_{-0.00074}$	$\chi_{\text{lowl}}^2$	22.85	$23.12 (\nu: 0.3)$
$m_{\text{DES}}^4$	0.012	$0.010^{+0.053}_{-0.053}$	$D_M(z_*)/\text{Gpc}$	13.887	$13.889^{+0.060}_{-0.059}$	$\chi_{\text{plik}}^2$	2345.8	$2360.1 (\nu: 16.3)$
$A_{\text{IA,DES}}$	1.45	$1.3^{+1.3}_{-1.1}$	$z_{\text{drag}}$	1060.09	$1060.03^{+0.75}_{-0.74}$	$\chi_{\text{DES}}^2$	229.3	$232.1 (\nu: 3.3)$
$\alpha_{\text{IA,DES}}$	2.50	$> -3.86$	$r_{\text{drag}}$	147.22	$147.25^{+0.64}_{-0.63}$	$\chi_{\text{prior}}^2$	2.6	$19.7 (\nu: 18.2)$
$\Delta z_{s,\text{DES}}^1$	0.0045	$0.005^{+0.037}_{-0.037}$	$k_{\text{D}}$	0.14079	$0.14075^{+0.00070}_{-0.00076}$	$\chi_{\text{CMB}}^2$	2773.6	$2789.4 (\nu: 17.2)$
$\Delta z_{s,\text{DES}}^2$	-0.0204	$-0.021^{+0.029}_{-0.030}$	$100\theta_{\text{D}}$	0.160683	$0.16071^{+0.00044}_{-0.00042}$			

Best-fit  $\chi_{\text{eff}}^2 = 3005.49$ ;  $\bar{\chi}_{\text{eff}}^2 = 3041.15$ ;  $R - 1 = 0.01376$

$\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.77 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.20 commander\_dx12\_v3.2\_29: 22.85 plik\_rd12\_HM\_v22b.TTTEEE: 2345.76 WL - DES\_1YR\_final: 229.30



## 2.267 base\_plikHM\_TTTEEE\_lowl\_lowE\_DESlens\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022468	$0.02246^{+0.00033}_{-0.00034}$	$\Delta z_{s,DES}^4$	-0.021	$-0.022^{+0.052}_{-0.052}$	$100\theta_{eq}$	0.8183	$0.8182^{+0.0094}_{-0.0094}$
$\Omega_c h^2$	0.11882	$0.1188^{+0.0022}_{-0.0022}$	$H_0$	67.89	$67.9^{+1.0}_{-0.99}$	$100\theta_{s,eq}$	0.45193	$0.4519^{+0.0049}_{-0.0048}$
$100\theta_{MC}$	1.04103	$1.04106^{+0.00075}_{-0.00074}$	$\Omega_\Lambda$	0.6921	$0.692^{+0.013}_{-0.013}$	$H(0.15)$	73.14	$73.13^{+0.90}_{-0.85}$
$\tau$	0.0555	$0.056^{+0.019}_{-0.018}$	$\Omega_m$	0.3079	$0.308^{+0.013}_{-0.013}$	$D_M(0.15)$	638.8	$638.9^{+8.5}_{-8.8}$
$\ln(10^{10} A_s)$	3.0444	$3.044^{+0.040}_{-0.036}$	$\Omega_m h^2$	0.14193	$0.1419^{+0.0021}_{-0.0021}$	$H(0.38)$	83.19	$83.19^{+0.68}_{-0.63}$
$n_s$	0.9688	$0.9676^{+0.0095}_{-0.0093}$	$\Omega_m h^3$	0.09635	$0.09635^{+0.00073}_{-0.00073}$	$D_M(0.38)$	1524.4	$1525^{+17}_{-18}$
$y_{cal}$	1.0006	$1.0008^{+0.0062}_{-0.0061}$	$\sigma_8$	0.8081	$0.808^{+0.015}_{-0.014}$	$H(0.51)$	89.88	$89.87^{+0.55}_{-0.52}$
$A_{217}^{CIB}$	46.6	$47^{+20}_{-20}$	$S_8$	0.8187	$0.819^{+0.024}_{-0.024}$	$D_M(0.51)$	1975.3	$1976^{+20}_{-21}$
$\xi^{tSZ \times CIB}$	0.49	—	$\sigma_8 \Omega_m^{0.5}$	0.4484	$0.448^{+0.013}_{-0.013}$	$H(0.61)$	95.473	$95.47^{+0.47}_{-0.44}$
$A_{143}^{tSZ}$	7.30	$> 0.890$	$\sigma_8 \Omega_m^{0.25}$	0.6020	$0.602^{+0.014}_{-0.013}$	$D_M(0.61)$	2299.0	$2299^{+21}_{-23}$
$A_{100}^{PS}$	248	$259^{+70}_{-70}$	$\sigma_8/h^{0.5}$	0.9808	$0.981^{+0.020}_{-0.019}$	$H(2.33)$	235.89	$235.9^{+1.3}_{-1.4}$
$A_{143}^{PS}$	47.4	$45^{+20}_{-20}$	$r_{drag} h$	99.997	$99.99^{+1.7}_{-1.7}$	$D_M(2.33)$	5755.2	$5755^{+22}_{-22}$
$A_{143 \times 217}^{PS}$	48.7	$42^{+20}_{-20}$	$\langle d^2 \rangle^{1/2}$	2.4254	$2.428^{+0.050}_{-0.048}$	$f\sigma_8(0.15)$	0.4533	$0.453^{+0.013}_{-0.013}$
$A_{217}^{PS}$	120.2	$115^{+30}_{-30}$	$z_{re}$	7.77	$7.8^{+1.8}_{-1.9}$	$\sigma_8(0.15)$	0.7471	$0.747^{+0.014}_{-0.013}$
$A^{kSZ}$	0.0	—	$10^9 A_s$	2.100	$2.100^{+0.084}_{-0.075}$	$f\sigma_8(0.38)$	0.4724	$0.472^{+0.011}_{-0.011}$
$A_{100}^{dustTT}$	8.86	$8.9^{+4.6}_{-4.9}$	$10^9 A_s e^{-2\tau}$	1.8789	$1.879^{+0.027}_{-0.025}$	$\sigma_8(0.38)$	0.6626	$0.662^{+0.013}_{-0.012}$
$A_{143}^{dustTT}$	11.04	$10.9^{+4.7}_{-4.7}$	$D_{40}$	1223.4	$1227^{+29}_{-28}$	$f\sigma_8(0.51)$	0.4714	$0.471^{+0.010}_{-0.0097}$
$A_{143 \times 217}^{dustTT}$	20.0	$18.6^{+8.3}_{-8.4}$	$D_{220}$	5738	$5743^{+98}_{-96}$	$\sigma_8(0.51)$	0.6203	$0.620^{+0.012}_{-0.011}$
$A_{217}^{dustTT}$	95.3	$94^{+20}_{-20}$	$D_{810}$	2540.4	$2540^{+34}_{-32}$	$f\sigma_8(0.61)$	0.4667	$0.4667^{+0.0093}_{-0.0091}$
$A_{100}^{dustTE}$	0.114	$0.113^{+0.098}_{-0.10}$	$D_{1420}$	819.1	$818^{+12}_{-12}$	$\sigma_8(0.61)$	0.5903	$0.590^{+0.012}_{-0.011}$
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.080}_{-0.078}$	$D_{2000}$	231.59	$231.2^{+4.2}_{-3.8}$	$f\sigma_8(2.33)$	0.2978	$0.2977^{+0.0062}_{-0.0055}$
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.21}_{-0.21}$	$n_{s,0.002}$	0.9688	$0.9676^{+0.0095}_{-0.0093}$	$\sigma_8(2.33)$	0.3071	$0.3071^{+0.0066}_{-0.0059}$
$A_{143}^{dustTE}$	0.224	$0.22^{+0.14}_{-0.14}$	$Y_P$	0.245433	$0.24543^{+0.00012}_{-0.00014}$	$f_{2000}^{143}$	28.4	$29^{+7}_{-7}$
$A_{143 \times 217}^{dustTE}$	0.664	$0.66^{+0.21}_{-0.21}$	$Y_P^{BBN}$	0.246760	$0.24675^{+0.00013}_{-0.00014}$	$f_{2000}^{143 \times 217}$	31.70	$32^{+5}_{-5}$
$A_{217}^{dustTE}$	2.08	$2.07^{+0.68}_{-0.68}$	$10^5 D/H$	2.568	$2.570^{+0.063}_{-0.060}$	$f_{2000}^{217}$	106.38	$106.8^{+4.6}_{-4.3}$
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$	Age/Gyr	13.779	$13.780^{+0.050}_{-0.050}$	$\chi^2_{lensing}$	8.85	$9.17 (\nu: 0.2)$
$c_{217}$	0.99818	$0.9982^{+0.0015}_{-0.0015}$	$z_*$	1089.69	$1089.71^{+0.54}_{-0.53}$	$\chi^2_{small}$	396.20	$397.1 (\nu: 1.6)$
$m_{DES}^1$	0.014	$0.014^{+0.059}_{-0.058}$	$r_*$	144.66	$144.66^{+0.55}_{-0.52}$	$\chi^2_{lowl}$	22.73	$23.01 (\nu: 0.3)$
$m_{DES}^2$	0.012	$0.012^{+0.059}_{-0.058}$	$100\theta_*$	1.04121	$1.04124^{+0.00075}_{-0.00073}$	$\chi^2_{plik}$	2346.1	$2360.3 (\nu: 16.3)$
$m_{DES}^3$	-0.006	$-0.008^{+0.052}_{-0.051}$	$D_M(z_*)/\text{Gpc}$	13.894	$13.894^{+0.053}_{-0.050}$	$\chi^2_{6DF}$	0.010	$0.030 (\nu: 0.0)$
$m_{DES}^4$	0.013	$0.011^{+0.053}_{-0.053}$	$z_{drag}$	1060.09	$1060.05^{+0.72}_{-0.73}$	$\chi^2_{MGS}$	1.41	$1.45 (\nu: 0.1)$
$A_{IA,DES}$	1.42	$1.2^{+1.3}_{-1.1}$	$r_{drag}$	147.29	$147.30^{+0.58}_{-0.54}$	$\chi^2_{DR12BAO}$	3.93	$4.24 (\nu: 0.4)$
$\alpha_{IA,DES}$	2.57	$> -3.88$	$k_D$	0.14073	$0.14071^{+0.00070}_{-0.00076}$	$\chi^2_{DES}$	229.1	$231.9 (\nu: 3.0)$
$\Delta z_{s,DES}^1$	0.0049	$0.005^{+0.038}_{-0.036}$	$100\theta_D$	0.160678	$0.16070^{+0.00044}_{-0.00041}$	$\chi^2_{prior}$	2.7	$19.5 (\nu: 18.1)$
$\Delta z_{s,DES}^2$	-0.0205	$-0.021^{+0.029}_{-0.030}$	$z_{eq}$	3376	$3377^{+50}_{-51}$	$\chi^2_{CMB}$	2773.9	$2789.5 (\nu: 17.1)$
$\Delta z_{s,DES}^3$	0.0055	$0.005^{+0.025}_{-0.028}$	$k_{eq}$	0.010305	$0.01031^{+0.00015}_{-0.00015}$	$\chi^2_{BAO}$	5.35	$5.73 (\nu: 0.2)$

Best-fit  $\chi^2_{eff} = 3011.01$ ;  $\bar{\chi}^2_{eff} = 3046.67$ ;  $R - 1 = 0.01525$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.93 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.85 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.20 commander\_dx12.v3.2.29: 22.73 plik\_rd12\_HM\_v22b\_TTTEEE: 2346.15 WL - DES.1YR.final: 229.07



## 2.268 base\_plikHM\_TTTEEE\_lowl\_lowE\_DESlens\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02244^{+0.00036}_{-0.00035}$	$\Delta z_{\text{s,DES}}^3$	$0.004^{+0.027}_{-0.027}$	$z_{\text{eq}}$	$3379^{+64}_{-66}$
$\Omega_c h^2$	$0.1190^{+0.0028}_{-0.0029}$	$\Delta z_{\text{s,DES}}^4$	$-0.023^{+0.052}_{-0.052}$	$k_{\text{eq}}$	$0.01031^{+0.00019}_{-0.00020}$
$100\theta_{\text{MC}}$	$1.04104^{+0.00076}_{-0.00077}$	$H_0$	$67.8^{+1.3}_{-1.2}$	$100\theta_{\text{eq}}$	$0.818^{+0.012}_{-0.012}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$\Omega_{\Lambda}$	$0.691^{+0.017}_{-0.017}$	$100\theta_{\text{s,eq}}$	$0.4517^{+0.0065}_{-0.0061}$
$\ln(10^{10} A_{\text{s}})$	$3.042^{+0.041}_{-0.028}$	$\Omega_{\text{m}}$	$0.309^{+0.017}_{-0.017}$	$H(0.15)$	$73.1^{+1.1}_{-1.0}$
$n_{\text{s}}$	$0.968^{+0.010}_{-0.010}$	$\Omega_{\text{m}} h^2$	$0.1420^{+0.0027}_{-0.0028}$	$D_{\text{M}}(0.15)$	$639^{+10}_{-11}$
$y_{\text{cal}}$	$1.0005^{+0.0063}_{-0.0062}$	$\Omega_{\text{m}} h^3$	$0.09633^{+0.00074}_{-0.00074}$	$H(0.38)$	$83.15^{+0.85}_{-0.77}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$\sigma_8$	$0.807^{+0.017}_{-0.014}$	$D_{\text{M}}(0.38)$	$1526^{+21}_{-23}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$S_8$	$0.819^{+0.032}_{-0.033}$	$H(0.51)$	$89.84^{+0.68}_{-0.62}$
$A_{143}^{\text{tSZ}}$	$5.5^{+4.5}_{-4.6}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.449^{+0.018}_{-0.018}$	$D_{\text{M}}(0.51)$	$1977^{+25}_{-27}$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.602^{+0.017}_{-0.017}$	$H(0.61)$	$95.45^{+0.56}_{-0.51}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$\sigma_8/h^{0.5}$	$0.981^{+0.024}_{-0.024}$	$D_{\text{M}}(0.61)$	$2301^{+27}_{-29}$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20}$	$r_{\text{drag}} h$	$99.9^{+2.3}_{-2.1}$	$H(2.33)$	$236.0^{+1.7}_{-1.8}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$\langle d^2 \rangle^{1/2}$	$2.427^{+0.060}_{-0.056}$	$D_{\text{M}}(2.33)$	$5757^{+24}_{-25}$
$A^{\text{kSZ}}$	—	$z_{\text{re}}$	$< 9.39$	$f\sigma_8(0.15)$	$0.454^{+0.016}_{-0.017}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.6}_{-4.7}$	$10^9 A_{\text{s}}$	$2.096^{+0.087}_{-0.058}$	$\sigma_8(0.15)$	$0.746^{+0.016}_{-0.012}$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.6}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.878^{+0.028}_{-0.026}$	$f\sigma_8(0.38)$	$0.472^{+0.014}_{-0.014}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.3}_{-8.6}$	$D_{40}$	$1226^{+31}_{-29}$	$\sigma_8(0.38)$	$0.662^{+0.014}_{-0.010}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$D_{220}$	$5737^{+100}_{-94}$	$f\sigma_8(0.51)$	$0.471^{+0.012}_{-0.012}$
$A_{100}^{\text{dustTE}}$	$0.113^{+0.099}_{-0.098}$	$D_{810}$	$2538^{+34}_{-33}$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.0092}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.080}_{-0.075}$	$D_{1420}$	$818^{+12}_{-12}$	$f\sigma_8(0.61)$	$0.467^{+0.011}_{-0.011}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$D_{2000}$	$231.1^{+4.1}_{-3.9}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.0087}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$n_{\text{s},0.002}$	$0.968^{+0.010}_{-0.010}$	$f\sigma_8(2.33)$	$0.2974^{+0.0064}_{-0.0043}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$Y_{\text{P}}$	$0.24542^{+0.00013}_{-0.00014}$	$\sigma_8(2.33)$	$0.3067^{+0.0068}_{-0.0045}$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.68}_{-0.70}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24675^{+0.00013}_{-0.00014}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$10^5 \text{D/H}$	$2.573^{+0.066}_{-0.063}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$\text{Age/Gyr}$	$13.782^{+0.055}_{-0.057}$	$f_{2000}^{217}$	$106.8^{+4.5}_{-4.6}$
$m_{\text{DES}}^1$	$0.014^{+0.059}_{-0.058}$	$z_*$	$1089.74^{+0.59}_{-0.61}$	$\chi_{\text{simall}}^2$	$396.8 (\nu: 1.4)$
$m_{\text{DES}}^2$	$0.012^{+0.057}_{-0.057}$	$r_*$	$144.65^{+0.66}_{-0.65}$	$\chi_{\text{lowl}}^2$	$22.99 (\nu: 0.3)$
$m_{\text{DES}}^3$	$-0.008^{+0.053}_{-0.051}$	$100\theta_*$	$1.04122^{+0.00076}_{-0.00076}$	$\chi_{\text{plik}}^2$	$2360.7 (\nu: 17.4)$
$m_{\text{DES}}^4$	$0.011^{+0.054}_{-0.054}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.892^{+0.063}_{-0.062}$	$\chi_{\text{DES}}^2$	$232.1 (\nu: 3.2)$
$A_{\text{IA,DES}}$	$1.2^{+1.2}_{-1.2}$	$z_{\text{drag}}$	$1060.02^{+0.75}_{-0.74}$	$\chi_{\text{prior}}^2$	$19.5 (\nu: 18.1)$
$\alpha_{\text{IA,DES}}$	$> -4.00$	$r_{\text{drag}}$	$147.29^{+0.69}_{-0.66}$	$\chi_{\text{CMB}}^2$	$2780.5 (\nu: 16.9)$
$\Delta z_{\text{s,DES}}^1$	$0.005^{+0.038}_{-0.037}$	$k_{\text{D}}$	$0.14071^{+0.00075}_{-0.00080}$		
$\Delta z_{\text{s,DES}}^2$	$-0.021^{+0.030}_{-0.030}$	$100\theta_{\text{D}}$	$0.16071^{+0.00044}_{-0.00042}$		

$$\bar{\chi}_{\text{eff}}^2 = 3032.07; R - 1 = 0.00937$$



## 2.269 base\_plikHM\_TTTEEE\_lowl\_lowE\_DESlens\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02246^{+0.00033}_{-0.00034}$	$\Delta z_{s,\text{DES}}^4$	$-0.022^{+0.053}_{-0.053}$	$100\theta_{\text{eq}}$	$0.819^{+0.010}_{-0.0098}$
$\Omega_c h^2$	$0.1187^{+0.0023}_{-0.0023}$	$H_0$	$67.9^{+1.1}_{-1.0}$	$100\theta_{s,\text{eq}}$	$0.4522^{+0.0052}_{-0.0050}$
$100\theta_{\text{MC}}$	$1.04107^{+0.00075}_{-0.00074}$	$\Omega_\Lambda$	$0.693^{+0.014}_{-0.014}$	$H(0.15)$	$73.17^{+0.92}_{-0.87}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$\Omega_m$	$0.307^{+0.014}_{-0.014}$	$D_{\text{M}}(0.15)$	$638.5^{+8.7}_{-8.8}$
$\ln(10^{10} A_s)$	$3.043^{+0.042}_{-0.029}$	$\Omega_m h^2$	$0.1418^{+0.0022}_{-0.0022}$	$H(0.38)$	$83.21^{+0.69}_{-0.64}$
$n_s$	$0.9681^{+0.0093}_{-0.0092}$	$\Omega_m h^3$	$0.09633^{+0.00074}_{-0.00073}$	$D_{\text{M}}(0.38)$	$1524^{+17}_{-18}$
$y_{\text{cal}}$	$1.0006^{+0.0063}_{-0.0060}$	$\sigma_8$	$0.807^{+0.017}_{-0.014}$	$H(0.51)$	$89.89^{+0.57}_{-0.53}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$S_8$	$0.817^{+0.028}_{-0.027}$	$D_{\text{M}}(0.51)$	$1975^{+20}_{-21}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$\sigma_8 \Omega_m^{0.5}$	$0.447^{+0.015}_{-0.015}$	$H(0.61)$	$95.48^{+0.48}_{-0.44}$
$A_{143}^{\text{tSZ}}$	$> 0.881$	$\sigma_8 \Omega_m^{0.25}$	$0.601^{+0.015}_{-0.015}$	$D_{\text{M}}(0.61)$	$2298^{+22}_{-23}$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70}$	$\sigma_8/h^{0.5}$	$0.979^{+0.023}_{-0.022}$	$H(2.33)$	$235.8^{+1.4}_{-1.4}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$r_{\text{drag}} h$	$100.1^{+1.8}_{-1.8}$	$D_{\text{M}}(2.33)$	$5755^{+22}_{-22}$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20}$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.057}_{-0.052}$	$f\sigma_8(0.15)$	$0.452^{+0.015}_{-0.014}$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30}$	$z_{\text{re}}$	$< 9.42$	$\sigma_8(0.15)$	$0.746^{+0.015}_{-0.012}$
$A^{\text{kSZ}}$	—	$10^9 A_s$	$2.097^{+0.090}_{-0.059}$	$f\sigma_8(0.38)$	$0.471^{+0.012}_{-0.012}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.6}_{-4.9}$	$10^9 A_s e^{-2\tau}$	$1.877^{+0.027}_{-0.025}$	$\sigma_8(0.38)$	$0.662^{+0.014}_{-0.010}$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.7}$	$D_{40}$	$1225^{+31}_{-27}$	$f\sigma_8(0.51)$	$0.471^{+0.012}_{-0.011}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.2}_{-8.3}$	$D_{220}$	$5739^{+99}_{-95}$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.0094}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$D_{810}$	$2538^{+34}_{-32}$	$f\sigma_8(0.61)$	$0.466^{+0.011}_{-0.010}$
$A_{100}^{\text{dustTE}}$	$0.113^{+0.098}_{-0.10}$	$D_{1420}$	$818^{+12}_{-12}$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.0089}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.080}_{-0.078}$	$D_{2000}$	$231.2^{+4.0}_{-3.8}$	$f\sigma_8(2.33)$	$0.2975^{+0.0064}_{-0.0044}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.21}$	$n_{s,0.002}$	$0.9681^{+0.0093}_{-0.0092}$	$\sigma_8(2.33)$	$0.3069^{+0.0068}_{-0.0046}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$Y_{\text{P}}$	$0.24543^{+0.00013}_{-0.00014}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24675^{+0.00013}_{-0.00014}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.68}_{-0.69}$	$10^5 \text{D}/\text{H}$	$2.570^{+0.063}_{-0.060}$	$f_{2000}^{217}$	$106.8^{+4.5}_{-4.3}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	Age/Gyr	$13.779^{+0.050}_{-0.050}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.5)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0015}$	$z_*$	$1089.70^{+0.54}_{-0.53}$	$\chi_{\text{lowl}}^2$	$22.88 (\nu: 0.3)$
$m_{\text{DES}}^1$	$0.014^{+0.059}_{-0.058}$	$r_*$	$144.70^{+0.57}_{-0.54}$	$\chi_{\text{plik}}^2$	$2360.8 (\nu: 17.1)$
$m_{\text{DES}}^2$	$0.012^{+0.057}_{-0.059}$	$100\theta_*$	$1.04125^{+0.00074}_{-0.00074}$	$\chi_{6\text{DF}}^2$	$0.027 (\nu: 0.0)$
$m_{\text{DES}}^3$	$-0.007^{+0.053}_{-0.051}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.897^{+0.055}_{-0.052}$	$\chi_{\text{MGS}}^2$	$1.51 (\nu: 0.1)$
$m_{\text{DES}}^4$	$0.011^{+0.053}_{-0.053}$	$z_{\text{drag}}$	$1060.04^{+0.73}_{-0.76}$	$\chi_{\text{DR12BAO}}^2$	$4.15 (\nu: 0.4)$
$A_{\text{IA,DES}}$	$1.2^{+1.3}_{-1.1}$	$r_{\text{drag}}$	$147.34^{+0.60}_{-0.57}$	$\chi_{\text{DES}}^2$	$231.9 (\nu: 2.9)$
$\alpha_{\text{IA,DES}}$	$> -3.89$	$k_{\text{D}}$	$0.14067^{+0.00072}_{-0.00076}$	$\chi_{\text{prior}}^2$	$19.4 (\nu: 18.0)$
$\Delta z_{s,\text{DES}}^1$	$0.004^{+0.038}_{-0.036}$	$100\theta_{\text{D}}$	$0.16071^{+0.00044}_{-0.00041}$	$\chi_{\text{BAO}}^2$	$5.69 (\nu: 0.2)$
$\Delta z_{s,\text{DES}}^2$	$-0.021^{+0.030}_{-0.030}$	$z_{\text{eq}}$	$3374^{+52}_{-53}$	$\chi_{\text{CMB}}^2$	$2780.5 (\nu: 16.5)$
$\Delta z_{s,\text{DES}}^3$	$0.005^{+0.026}_{-0.028}$	$k_{\text{eq}}$	$0.01030^{+0.00016}_{-0.00016}$		

$$\bar{\chi}_{\text{eff}}^2 = 3037.53; R - 1 = 0.01574$$



2.270 base\_plikHM\_TTTEEE\_lowl\_lowE\_DESlens\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02244^{+0.00036}_{-0.00035}$	$\Delta z_{\text{s,DES}}^3$	$0.004^{+0.025}_{-0.027}$	$z_{\text{eq}}$	$3382^{+60}_{-60}$
$\Omega_c h^2$	$0.1191^{+0.0026}_{-0.0027}$	$\Delta z_{\text{s,DES}}^4$	$-0.023^{+0.053}_{-0.052}$	$k_{\text{eq}}$	$0.01032^{+0.00018}_{-0.00018}$
$100\theta_{\text{MC}}$	$1.04103^{+0.00078}_{-0.00076}$	$H_0$	$67.8^{+1.2}_{-1.2}$	$100\theta_{\text{eq}}$	$0.817^{+0.012}_{-0.011}$
$\tau$	$0.055^{+0.018}_{-0.014}$	$\Omega_{\Lambda}$	$0.690^{+0.016}_{-0.016}$	$100\theta_{\text{s,eq}}$	$0.4514^{+0.0059}_{-0.0057}$
$\ln(10^{10} A_{\text{s}})$	$3.045^{+0.039}_{-0.028}$	$\Omega_{\text{m}}$	$0.310^{+0.016}_{-0.016}$	$H(0.15)$	$73.0^{+1.1}_{-0.99}$
$n_{\text{s}}$	$0.967^{+0.010}_{-0.0097}$	$\Omega_{\text{m}} h^2$	$0.1422^{+0.0025}_{-0.0025}$	$D_{\text{M}}(0.15)$	$640^{+10}_{-10}$
$y_{\text{cal}}$	$1.0006^{+0.0063}_{-0.0061}$	$\Omega_{\text{m}} h^3$	$0.09634^{+0.00074}_{-0.00074}$	$H(0.38)$	$83.12^{+0.80}_{-0.72}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$\sigma_8$	$0.809^{+0.015}_{-0.013}$	$D_{\text{M}}(0.38)$	$1526^{+20}_{-21}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$S_8$	$0.821^{+0.028}_{-0.028}$	$H(0.51)$	$89.82^{+0.66}_{-0.59}$
$A_{143}^{\text{tSZ}}$	$> 0.909$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.450^{+0.015}_{-0.015}$	$D_{\text{M}}(0.51)$	$1978^{+23}_{-25}$
$A_{100}^{\text{PS}}$	$259^{+70}_{-70}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.603^{+0.014}_{-0.014}$	$H(0.61)$	$95.43^{+0.55}_{-0.49}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$\sigma_8/h^{0.5}$	$0.982^{+0.021}_{-0.020}$	$D_{\text{M}}(0.61)$	$2302^{+25}_{-27}$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20}$	$r_{\text{drag}} h$	$99.8^{+2.1}_{-2.0}$	$H(2.33)$	$236.0^{+1.6}_{-1.6}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.051}_{-0.048}$	$D_{\text{M}}(2.33)$	$5757^{+24}_{-25}$
$A^{\text{kSZ}}$	—	$z_{\text{re}}$	$< 9.42$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.014}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.8}$	$10^9 A_{\text{s}}$	$2.100^{+0.083}_{-0.058}$	$\sigma_8(0.15)$	$0.747^{+0.014}_{-0.011}$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.7}_{-4.7}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.880^{+0.027}_{-0.025}$	$f\sigma_8(0.38)$	$0.473^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.2}_{-8.4}$	$D_{40}$	$1228^{+30}_{-28}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.0096}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$D_{220}$	$5741^{+98}_{-96}$	$f\sigma_8(0.51)$	$0.472^{+0.010}_{-0.010}$
$A_{100}^{\text{dustTE}}$	$0.113^{+0.098}_{-0.10}$	$D_{810}$	$2539^{+34}_{-32}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0089}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.080}_{-0.078}$	$D_{1420}$	$818^{+12}_{-12}$	$f\sigma_8(0.61)$	$0.4674^{+0.0097}_{-0.0093}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.21}$	$D_{2000}$	$231.1^{+4.2}_{-3.9}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.0084}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$n_{\text{s},0.002}$	$0.967^{+0.010}_{-0.0097}$	$f\sigma_8(2.33)$	$0.2977^{+0.0061}_{-0.0043}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$Y_{\text{P}}$	$0.24542^{+0.00013}_{-0.00014}$	$\sigma_8(2.33)$	$0.3070^{+0.0065}_{-0.0046}$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.68}_{-0.68}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24675^{+0.00013}_{-0.00014}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016}$	$10^5 \text{D/H}$	$2.573^{+0.066}_{-0.064}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$c_{217}$	$0.9982^{+0.0015}_{-0.0015}$	Age/Gyr	$13.783^{+0.054}_{-0.055}$	$f_{2000}^{217}$	$106.9^{+4.5}_{-4.4}$
$m_{\text{DES}}^1$	$0.014^{+0.059}_{-0.059}$	$z_*$	$1089.75^{+0.58}_{-0.61}$	$\chi_{\text{lensing}}^2$	$9.12 (\nu: 0.2)$
$m_{\text{DES}}^2$	$0.012^{+0.059}_{-0.057}$	$r_*$	$144.62^{+0.62}_{-0.61}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.5)$
$m_{\text{DES}}^3$	$-0.009^{+0.053}_{-0.052}$	$100\theta_*$	$1.04120^{+0.00078}_{-0.00075}$	$\chi_{\text{lowl}}^2$	$23.12 (\nu: 0.3)$
$m_{\text{DES}}^4$	$0.010^{+0.053}_{-0.053}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.890^{+0.059}_{-0.060}$	$\chi_{\text{plik}}^2$	$2360.0 (\nu: 16.1)$
$A_{\text{IA,DES}}$	$1.3^{+1.2}_{-1.1}$	$z_{\text{drag}}$	$1060.03^{+0.74}_{-0.75}$	$\chi_{\text{DES}}^2$	$232.1 (\nu: 3.2)$
$\alpha_{\text{IA,DES}}$	$> -3.88$	$r_{\text{drag}}$	$147.26^{+0.63}_{-0.62}$	$\chi_{\text{prior}}^2$	$19.6 (\nu: 18.4)$
$\Delta z_{\text{s,DES}}^1$	$0.005^{+0.038}_{-0.037}$	$k_{\text{D}}$	$0.14074^{+0.00071}_{-0.00075}$	$\chi_{\text{CMB}}^2$	$2789.2 (\nu: 16.7)$
$\Delta z_{\text{s,DES}}^2$	$-0.021^{+0.029}_{-0.030}$	$100\theta_{\text{D}}$	$0.16071^{+0.00044}_{-0.00042}$		

$$\bar{\chi}_{\text{eff}}^2 = 3040.94; R - 1 = 0.01565$$



2.271 base\_plikHM\_TTTEEE\_lowl\_lowE\_DESlens\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02246^{+0.00033}_{-0.00034}$	$\Delta z_{s,\text{DES}}^4$	$-0.022^{+0.052}_{-0.053}$	$100\theta_{\text{eq}}$	$0.8184^{+0.0094}_{-0.0093}$
$\Omega_c h^2$	$0.1188^{+0.0022}_{-0.0022}$	$H_0$	$67.9^{+1.0}_{-0.97}$	$100\theta_{s,\text{eq}}$	$0.4520^{+0.0048}_{-0.0047}$
$100\theta_{\text{MC}}$	$1.04106^{+0.00075}_{-0.00074}$	$\Omega_\Lambda$	$0.692^{+0.013}_{-0.013}$	$H(0.15)$	$73.14^{+0.90}_{-0.83}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$\Omega_{\text{m}}$	$0.308^{+0.013}_{-0.013}$	$D_{\text{M}}(0.15)$	$638.8^{+8.3}_{-8.7}$
$\ln(10^{10} A_{\text{s}})$	$3.046^{+0.039}_{-0.029}$	$\Omega_{\text{m}} h^2$	$0.1419^{+0.0021}_{-0.0021}$	$H(0.38)$	$83.19^{+0.68}_{-0.62}$
$n_{\text{s}}$	$0.9677^{+0.0095}_{-0.0092}$	$\Omega_{\text{m}} h^3$	$0.09635^{+0.00074}_{-0.00074}$	$D_{\text{M}}(0.38)$	$1524^{+17}_{-18}$
$y_{\text{cal}}$	$1.0007^{+0.0062}_{-0.0061}$	$\sigma_8$	$0.808^{+0.015}_{-0.013}$	$H(0.51)$	$89.88^{+0.56}_{-0.51}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$S_8$	$0.819^{+0.024}_{-0.024}$	$D_{\text{M}}(0.51)$	$1975^{+20}_{-21}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.449^{+0.013}_{-0.013}$	$H(0.61)$	$95.47^{+0.46}_{-0.43}$
$A_{143}^{\text{tSZ}}$	$> 0.902$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.602^{+0.013}_{-0.013}$	$D_{\text{M}}(0.61)$	$2299^{+21}_{-23}$
$A_{100}^{\text{PS}}$	$259^{+70}_{-70}$	$\sigma_8/h^{0.5}$	$0.981^{+0.020}_{-0.019}$	$H(2.33)$	$235.9^{+1.3}_{-1.4}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$r_{\text{drag}} h$	$100.0^{+1.7}_{-1.7}$	$D_{\text{M}}(2.33)$	$5755^{+22}_{-22}$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20}$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.049}_{-0.046}$	$f\sigma_8(0.15)$	$0.453^{+0.013}_{-0.013}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$z_{\text{re}}$	$< 9.44$	$\sigma_8(0.15)$	$0.747^{+0.014}_{-0.011}$
$A^{\text{kSZ}}$	—	$10^9 A_{\text{s}}$	$2.102^{+0.083}_{-0.059}$	$f\sigma_8(0.38)$	$0.473^{+0.011}_{-0.011}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.6}_{-4.9}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.879^{+0.026}_{-0.024}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.0098}$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.7}_{-4.7}$	$D_{40}$	$1227^{+30}_{-28}$	$f\sigma_8(0.51)$	$0.4715^{+0.0099}_{-0.0094}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.5^{+8.3}_{-8.4}$	$D_{220}$	$5743^{+97}_{-95}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0091}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$D_{810}$	$2539^{+34}_{-32}$	$f\sigma_8(0.61)$	$0.4669^{+0.0093}_{-0.0087}$
$A_{100}^{\text{dustTE}}$	$0.113^{+0.098}_{-0.10}$	$D_{1420}$	$818^{+12}_{-12}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.0086}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.080}_{-0.078}$	$D_{2000}$	$231.2^{+4.2}_{-3.8}$	$f\sigma_8(2.33)$	$0.2979^{+0.0060}_{-0.0044}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.21}$	$n_{\text{s},0.002}$	$0.9677^{+0.0095}_{-0.0092}$	$\sigma_8(2.33)$	$0.3072^{+0.0064}_{-0.0047}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$Y_{\text{P}}$	$0.24543^{+0.00012}_{-0.00014}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24675^{+0.00013}_{-0.00014}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.68}_{-0.68}$	$10^5 \text{D}/\text{H}$	$2.570^{+0.064}_{-0.059}$	$f_{2000}^{217}$	$106.8^{+4.6}_{-4.3}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	Age/Gyr	$13.779^{+0.049}_{-0.050}$	$\chi_{\text{lensing}}^2$	$9.13 (\nu: 0.2)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0015}$	$z_*$	$1089.71^{+0.53}_{-0.53}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 1.7)$
$m_{\text{DES}}^1$	$0.014^{+0.059}_{-0.058}$	$r_*$	$144.67^{+0.55}_{-0.51}$	$\chi_{\text{lowl}}^2$	$23.01 (\nu: 0.3)$
$m_{\text{DES}}^2$	$0.012^{+0.058}_{-0.058}$	$100\theta_*$	$1.04124^{+0.00075}_{-0.00073}$	$\chi_{\text{plik}}^2$	$2360.2 (\nu: 16.2)$
$m_{\text{DES}}^3$	$-0.008^{+0.052}_{-0.051}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.894^{+0.053}_{-0.049}$	$\chi_{6\text{DF}}^2$	$0.028 (\nu: 0.0)$
$m_{\text{DES}}^4$	$0.011^{+0.053}_{-0.053}$	$z_{\text{drag}}$	$1060.05^{+0.72}_{-0.73}$	$\chi_{\text{MGS}}^2$	$1.46 (\nu: 0.1)$
$A_{\text{IA,DES}}$	$1.2^{+1.3}_{-1.1}$	$r_{\text{drag}}$	$147.31^{+0.58}_{-0.54}$	$\chi_{\text{DR12BAO}}^2$	$4.21 (\nu: 0.4)$
$\alpha_{\text{IA,DES}}$	$> -3.89$	$k_{\text{D}}$	$0.14071^{+0.00069}_{-0.00075}$	$\chi_{\text{DES}}^2$	$231.9 (\nu: 3.0)$
$\Delta z_{s,\text{DES}}^1$	$0.005^{+0.038}_{-0.036}$	$100\theta_{\text{D}}$	$0.16070^{+0.00044}_{-0.00041}$	$\chi_{\text{prior}}^2$	$19.5 (\nu: 18.1)$
$\Delta z_{s,\text{DES}}^2$	$-0.021^{+0.029}_{-0.030}$	$z_{\text{eq}}$	$3376^{+49}_{-50}$	$\chi_{\text{CMB}}^2$	$2789.4 (\nu: 16.8)$
$\Delta z_{s,\text{DES}}^3$	$0.005^{+0.025}_{-0.028}$	$k_{\text{eq}}$	$0.01030^{+0.00015}_{-0.00015}$	$\chi_{\text{BAO}}^2$	$5.71 (\nu: 0.2)$

$$\bar{\chi}_{\text{eff}}^2 = 3046.49; R - 1 = 0.01631$$



## 2.272 base\_BAO\_Cooke17

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02210	$0.0222^{+0.0014}_{-0.0012}$	$r_*$	137.0	$130^{+20}_{-20}$	$D_{\text{M}}(0.38)$	1447	$1378^{+200}_{-200}$
$\Omega_{\text{c}}h^2$	0.153	$0.194^{+0.15}_{-0.095}$	$100\theta_*$	1.081	$1.112^{+0.088}_{-0.098}$	$H(0.51)$	96.4	$103^{+20}_{-20}$
$100\theta_{\text{MC}}$	1.081	$1.112^{+0.088}_{-0.099}$	$D_{\text{M}}(z_*)/\text{Gpc}$	12.67	$11.7^{+3.2}_{-2.6}$	$D_{\text{M}}(0.51)$	1869	$1774^{+300}_{-300}$
$H_0$	70.7	$74^{+10}_{-8}$	$z_{\text{drag}}$	1061.5	$1064.2^{+8.2}_{-7.2}$	$H(0.61)$	102.8	$111^{+30}_{-20}$
$\Omega_{\Lambda}$	0.649	$0.61^{+0.12}_{-0.13}$	$r_{\text{drag}}$	139.5	$132^{+20}_{-20}$	$D_{\text{M}}(0.61)$	2171	$2057^{+300}_{-300}$
$\Omega_{\text{m}}$	0.351	$0.39^{+0.13}_{-0.12}$	$k_{\text{D}}$	0.1489	$0.158^{+0.030}_{-0.024}$	$H(2.33)$	261	$287^{+90}_{-70}$
$\Omega_{\text{m}}h^2$	0.175	$0.217^{+0.15}_{-0.095}$	$100\theta_{\text{D}}$	0.1665	$0.171^{+0.013}_{-0.013}$	$D_{\text{M}}(2.33)$	5329	$4980^{+1000}_{-1000}$
$\Omega_{\text{m}}h^3$	0.124	$0.161^{+0.13}_{-0.089}$	$z_{\text{eq}}$	4177	$5159^{+4000}_{-2000}$	$\chi^2_{\text{Cooke17}}$	0.05	$1.0 (\nu: 1.0)$
$r_{\text{drag}}h$	98.6	$97.2^{+5.3}_{-5.0}$	$k_{\text{eq}}$	0.0127	$0.0157^{+0.011}_{-0.0069}$	$\chi^2_{6\text{DF}}$	0.09	$0.42 (\nu: 0.1)$
$Y_{\text{P}}$	0.24528	$0.24533^{+0.00059}_{-0.00053}$	$100\theta_{\text{eq}}$	0.726	$0.66^{+0.24}_{-0.18}$	$\chi^2_{\text{MGS}}$	0.98	$0.70 (\nu: 0.2)$
$Y_{\text{P}}^{\text{BBN}}$	0.24661	$0.24666^{+0.00060}_{-0.00053}$	$100\theta_{\text{s,eq}}$	0.404	$0.369^{+0.12}_{-0.096}$	$\chi^2_{\text{DR12BAO}}$	2.18	$3.8 (\nu: 1.5)$
$10^5\text{D}/\text{H}$	2.638	$2.61^{+0.24}_{-0.25}$	$H(0.15)$	76.9	$81^{+10}_{-10}$	$\chi^2_{\text{BAO}}$	3.26	$5.0 (\nu: 1.8)$
Age/Gyr	12.75	$11.9^{+2.7}_{-2.3}$	$D_{\text{M}}(0.15)$	611	$584^{+70}_{-80}$			
$z_*$	1093.0	$1095.7^{+9.4}_{-7.6}$	$H(0.38)$	88.6	$94^{+20}_{-10}$			

Best-fit  $\chi^2_{\text{eff}} = 3.30$ ;  $\bar{\chi}^2_{\text{eff}} = 5.96$ ;  $R - 1 = 0.00985$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017: 0.04 BAO - 6DF: 0.09 MGS: 0.98 DR12BAO: 2.18

## 2.273 base\_BAO\_Cooke17\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02222	$0.0222^{+0.0013}_{-0.0012}$	$r_*$	143.3	$143.0^{+9.9}_{-9.2}$	$D_{\text{M}}(0.38)$	1504	$1501^{+100}_{-100}$
$\Omega_{\text{c}}h^2$	0.1250	$0.127^{+0.040}_{-0.035}$	$100\theta_*$	1.0507	$1.052^{+0.045}_{-0.051}$	$H(0.51)$	91.3	$91.6^{+8.2}_{-7.6}$
$100\theta_{\text{MC}}$	1.0505	$1.052^{+0.045}_{-0.051}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.64	$13.6^{+1.7}_{-1.4}$	$D_{\text{M}}(0.51)$	1948	$1944^{+140}_{-140}$
$H_0$	68.74	$68.9^{+4.2}_{-4.0}$	$z_{\text{drag}}$	1059.93	$1060.0^{+4.4}_{-4.3}$	$H(0.61)$	97.1	$97.4^{+9.1}_{-8.6}$
$\Omega_{\Lambda}$	0.6870	$0.686^{+0.050}_{-0.046}$	$r_{\text{drag}}$	146.0	$146^{+10}_{-9.6}$	$D_{\text{M}}(0.61)$	2266	$2262^{+170}_{-160}$
$\Omega_{\text{m}}$	0.3130	$0.314^{+0.046}_{-0.050}$	$k_{\text{D}}$	0.1420	$0.142^{+0.011}_{-0.011}$	$H(2.33)$	240.6	$242^{+30}_{-30}$
$\Omega_{\text{m}}h^2$	0.1479	$0.150^{+0.040}_{-0.036}$	$100\theta_{\text{D}}$	0.1623	$0.1625^{+0.0063}_{-0.0067}$	$D_{\text{M}}(2.33)$	5659	$5648^{+570}_{-510}$
$\Omega_{\text{m}}h^3$	0.1016	$0.103^{+0.035}_{-0.029}$	$z_{\text{eq}}$	3518	$3559^{+1000}_{-900}$	$\chi^2_{\text{Cooke17}}$	0.00	$1.0 (\nu: 1.0)$
$r_{\text{drag}}h$	100.33	$100.3^{+3.0}_{-2.9}$	$k_{\text{eq}}$	0.01074	$0.0109^{+0.0029}_{-0.0026}$	$\chi^2_{\text{JLA}}$	1035.14	$1036.0 (\nu: 1.1)$
$Y_{\text{P}}$	0.24533	$0.24532^{+0.00054}_{-0.00051}$	$100\theta_{\text{eq}}$	0.800	$0.80^{+0.13}_{-0.10}$	$\chi^2_{6\text{DF}}$	0.000	$0.051 (\nu: 0.0)$
$Y_{\text{P}}^{\text{BBN}}$	0.24666	$0.24665^{+0.00054}_{-0.00051}$	$100\theta_{\text{s,eq}}$	0.443	$0.442^{+0.066}_{-0.054}$	$\chi^2_{\text{MGS}}$	1.68	$1.75 (\nu: 0.2)$
$10^5\text{D}/\text{H}$	2.614	$2.62^{+0.24}_{-0.23}$	$H(0.15)$	74.13	$74.3^{+5.1}_{-4.8}$	$\chi^2_{\text{DR12BAO}}$	2.95	$4.0 (\nu: 1.2)$
Age/Gyr	13.55	$13.5^{+1.4}_{-1.2}$	$D_{\text{M}}(0.15)$	630.6	$630^{+40}_{-39}$	$\chi^2_{\text{BAO}}$	4.63	$5.8 (\nu: 1.6)$
$z_*$	1090.55	$1090.7^{+3.5}_{-3.4}$	$H(0.38)$	84.5	$84.7^{+7.0}_{-6.5}$			

Best-fit  $\chi^2_{\text{eff}} = 1039.76$ ;  $\bar{\chi}^2_{\text{eff}} = 1042.72$ ;  $R - 1 = 0.00647$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 2.95 SN - JLA Pantheon18: 1035.14



## 2.274 base\_BAO\_Cooke17\_JLA

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02217	$0.0223^{+0.0013}_{-0.0012}$	$z_*$	1091.08	$1091.4^{+4.8}_{-4.1}$	$D_{\text{M}}(0.38)$	1493	$1481^{+120}_{-130}$
$\Omega_{\text{c}}h^2$	0.131	$0.136^{+0.059}_{-0.043}$	$r_*$	141.9	$141^{+11}_{-12}$	$H(0.51)$	92.3	$93^{+10}_{-9}$
$100\theta_{\text{MC}}$	1.057	$1.062^{+0.059}_{-0.057}$	$100\theta_*$	1.057	$1.062^{+0.059}_{-0.057}$	$D_{\text{M}}(0.51)$	1932	$1916^{+160}_{-170}$
$\alpha_{\text{JLA}}$	0.1411	$0.141^{+0.017}_{-0.017}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.43	$13.3^{+1.9}_{-1.8}$	$H(0.61)$	98.2	$99^{+10}_{-10}$
$\beta_{\text{JLA}}$	3.096	$3.10^{+0.21}_{-0.21}$	$z_{\text{drag}}$	1060.24	$1060.8^{+4.9}_{-4.7}$	$D_{\text{M}}(0.61)$	2247	$2228^{+190}_{-210}$
$H_0$	69.08	$69.6^{+5.3}_{-4.2}$	$r_{\text{drag}}$	144.6	$143^{+12}_{-12}$	$H(2.33)$	244.8	$249^{+40}_{-30}$
$\Omega_{\Lambda}$	0.679	$0.673^{+0.062}_{-0.070}$	$k_{\text{D}}$	0.1434	$0.145^{+0.015}_{-0.012}$	$D_{\text{M}}(2.33)$	5590	$5535^{+600}_{-600}$
$\Omega_{\text{m}}$	0.321	$0.327^{+0.070}_{-0.062}$	$100\theta_{\text{D}}$	0.1632	$0.1638^{+0.0083}_{-0.0076}$	$\chi^2_{\text{Cooke17}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\text{m}}h^2$	0.153	$0.159^{+0.058}_{-0.043}$	$z_{\text{eq}}$	3650	$3784^{+1000}_{-1000}$	$\chi^2_{\text{JLA}}$	695.7	$698.5 (\nu: 3.6)$
$\Omega_{\text{m}}h^3$	0.1060	$0.111^{+0.049}_{-0.038}$	$k_{\text{eq}}$	0.01114	$0.0115^{+0.0043}_{-0.0031}$	$\chi^2_{6\text{DF}}$	0.008	$0.08 (\nu: 0.0)$
$r_{\text{drag}}h$	99.89	$99.8^{+3.8}_{-3.4}$	$100\theta_{\text{eq}}$	0.783	$0.77^{+0.15}_{-0.13}$	$\chi^2_{\text{MGS}}$	1.47	$1.54 (\nu: 0.3)$
$Y_{\text{P}}$	0.24531	$0.24534^{+0.00056}_{-0.00053}$	$100\theta_{\text{s,eq}}$	0.434	$0.429^{+0.075}_{-0.068}$	$\chi^2_{\text{DR12BAO}}$	2.73	$3.7 (\nu: 1.1)$
$Y_{\text{P}}^{\text{BBN}}$	0.24664	$0.24667^{+0.00056}_{-0.00054}$	$H(0.15)$	74.6	$75.3^{+6.9}_{-5.3}$	$\chi^2_{\text{BAO}}$	4.21	$5.3 (\nu: 1.6)$
$10^5\text{D}/\text{H}$	2.623	$2.61^{+0.25}_{-0.23}$	$D_{\text{M}}(0.15)$	626.9	$622^{+43}_{-49}$			
Age/Gyr	13.38	$13.2^{+1.5}_{-1.5}$	$H(0.38)$	85.3	$86.2^{+9.4}_{-7.4}$			

Best-fit  $\chi^2_{\text{eff}} = 699.89$ ;  $\bar{\chi}^2_{\text{eff}} = 704.85$ ;  $R - 1 = 0.01324$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017: 0.00 BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 2.73 SN - JLA December\_2013: 695.68

## 2.275 base\_BAO\_Cooke17\_Pantheon18\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02219	$0.0222^{+0.0013}_{-0.0011}$	$r_*$	145.15	$145.1^{+1.6}_{-1.5}$	$D_{\text{M}}(0.38)$	1523.6	$1523^{+28}_{-27}$
$\Omega_{\text{c}}h^2$	0.11776	$0.1178^{+0.0042}_{-0.0043}$	$100\theta_*$	1.04111	$1.0411^{+0.0017}_{-0.0016}$	$H(0.51)$	89.78	$89.8^{+1.1}_{-0.98}$
$100\theta_{\text{MC}}$	1.04091	$1.0409^{+0.0016}_{-0.0016}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.942	$13.94^{+0.16}_{-0.15}$	$D_{\text{M}}(0.51)$	1974.9	$1975^{+33}_{-33}$
$H_0$	68.00	$68.0^{+1.5}_{-1.6}$	$z_{\text{drag}}$	1059.36	$1059.4^{+3.0}_{-2.8}$	$H(0.61)$	95.33	$95.3^{+1.0}_{-0.96}$
$\Omega_{\Lambda}$	0.6959	$0.696^{+0.020}_{-0.023}$	$r_{\text{drag}}$	147.89	$147.8^{+1.9}_{-1.9}$	$D_{\text{M}}(0.61)$	2299.0	$2299^{+36}_{-36}$
$\Omega_{\text{m}}$	0.3041	$0.304^{+0.023}_{-0.020}$	$k_{\text{D}}$	0.13989	$0.1400^{+0.0029}_{-0.0028}$	$H(2.33)$	234.90	$235.0^{+3.3}_{-3.5}$
$\Omega_{\text{m}}h^2$	0.14059	$0.1407^{+0.0046}_{-0.0048}$	$100\theta_{\text{D}}$	0.16108	$0.1611^{+0.0017}_{-0.0018}$	$D_{\text{M}}(2.33)$	5766	$5765^{+54}_{-56}$
$\Omega_{\text{m}}h^3$	0.09560	$0.0957^{+0.0028}_{-0.0027}$	$z_{\text{eq}}$	3344	$3347^{+110}_{-110}$	$\chi^2_{\text{Cooke17}}$	0.00	$0.99 (\nu: 0.9)$
$r_{\text{drag}}h$	100.56	$100.5^{+2.7}_{-2.8}$	$k_{\text{eq}}$	0.010207	$0.01021^{+0.00033}_{-0.00035}$	$\chi^2_{\text{JLA}}$	1034.79	$1034.94 (\nu: 0.0)$
$Y_{\text{P}}$	0.24532	$0.24532^{+0.00056}_{-0.00050}$	$100\theta_{\text{eq}}$	0.8233	$0.823^{+0.020}_{-0.018}$	$\chi^2_{6\text{DF}}$	0.000	$0.051 (\nu: 0.0)$
$Y_{\text{P}}^{\text{BBN}}$	0.24665	$0.24665^{+0.00056}_{-0.00050}$	$100\theta_{\text{s,eq}}$	0.4547	$0.455^{+0.011}_{-0.0098}$	$\chi^2_{\text{MGS}}$	1.75	$1.81 (\nu: 0.2)$
$10^5\text{D}/\text{H}$	2.620	$2.62^{+0.23}_{-0.23}$	$H(0.15)$	73.19	$73.2^{+1.4}_{-1.4}$	$\chi^2_{\text{DR12BAO}}$	3.42	$4.2 (\nu: 0.8)$
Age/Gyr	13.806	$13.80^{+0.13}_{-0.13}$	$D_{\text{M}}(0.15)$	638.1	$638^{+14}_{-13}$	$\chi^2_{\text{prior}}$	0.00	$1.1 (\nu: 1.3)$
$z_*$	1089.95	$1089.9^{+1.5}_{-1.6}$	$H(0.38)$	83.15	$83.2^{+1.1}_{-1.1}$	$\chi^2_{\text{BAO}}$	5.17	$6.1 (\nu: 0.8)$

Best-fit  $\chi^2_{\text{eff}} = 1039.96$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.12$ ;  $R - 1 = 0.00669$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.42 SN - JLA Pantheon18: 1034.79



## 2.276 base\_BAO\_Cooke17\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02216	$0.0222^{+0.0014}_{-0.0012}$	$r_*$	145.14	$145.0^{+1.6}_{-1.7}$	$D_{\mathrm{M}}(0.38)$	1525.0	$1524^{+30}_{-31}$
$\Omega_{\mathrm{c}}h^2$	0.11790	$0.1180^{+0.0046}_{-0.0044}$	$100\theta_*$	1.04110	$1.0411^{+0.0015}_{-0.0016}$	$H(0.51)$	89.73	$89.8^{+1.2}_{-1.0}$
$100\theta_{\mathrm{MC}}$	1.04088	$1.0409^{+0.0015}_{-0.0015}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.941	$13.93^{+0.16}_{-0.16}$	$D_{\mathrm{M}}(0.51)$	1976.5	$1976^{+35}_{-37}$
$H_0$	67.92	$67.9^{+1.8}_{-1.7}$	$z_{\mathrm{drag}}$	1059.32	$1059.5^{+3.3}_{-2.8}$	$H(0.61)$	95.29	$95.3^{+1.1}_{-0.93}$
$\Omega_{\Lambda}$	0.6950	$0.695^{+0.022}_{-0.024}$	$r_{\mathrm{drag}}$	147.88	$147.8^{+1.9}_{-2.0}$	$D_{\mathrm{M}}(0.61)$	2300.8	$2300^{+39}_{-41}$
$\Omega_{\mathrm{m}}$	0.3050	$0.305^{+0.024}_{-0.022}$	$k_{\mathrm{D}}$	0.13988	$0.1401^{+0.0031}_{-0.0027}$	$H(2.33)$	234.96	$235.1^{+3.4}_{-3.3}$
$\Omega_{\mathrm{m}}h^2$	0.14071	$0.1409^{+0.0048}_{-0.0046}$	$100\theta_{\mathrm{D}}$	0.16111	$0.1610^{+0.0017}_{-0.0019}$	$D_{\mathrm{M}}(2.33)$	5768	$5764^{+52}_{-62}$
$\Omega_{\mathrm{m}}h^3$	0.09556	$0.0957^{+0.0030}_{-0.0025}$	$z_{\mathrm{eq}}$	3347	$3352^{+120}_{-110}$	$\chi^2_{\mathrm{Cooke17}}$	0.01	$1.0 (\nu: 1.1)$
$r_{\mathrm{drag}}h$	100.44	$100.4^{+3.0}_{-3.0}$	$k_{\mathrm{eq}}$	0.010216	$0.01023^{+0.00035}_{-0.00034}$	$\chi^2_{6\mathrm{DF}}$	0.000	$0.057 (\nu: 0.0)$
$Y_{\mathrm{P}}$	0.24531	$0.24533^{+0.00061}_{-0.00051}$	$100\theta_{\mathrm{eq}}$	0.8227	$0.822^{+0.019}_{-0.020}$	$\chi^2_{\mathrm{MGS}}$	1.68	$1.74 (\nu: 0.2)$
$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.24664	$0.24666^{+0.00061}_{-0.00051}$	$100\theta_{\mathrm{s,eq}}$	0.4544	$0.454^{+0.010}_{-0.010}$	$\chi^2_{\mathrm{DR12BAO}}$	3.48	$4.4 (\nu: 1.1)$
$10^5\mathrm{D}/\mathrm{H}$	2.625	$2.61^{+0.23}_{-0.25}$	$H(0.15)$	73.12	$73.2^{+1.6}_{-1.5}$	$\chi^2_{\mathrm{prior}}$	0.00	$0.97 (\nu: 0.9)$
Age/Gyr	13.810	$13.80^{+0.12}_{-0.15}$	$D_{\mathrm{M}}(0.15)$	638.8	$639^{+15}_{-14}$	$\chi^2_{\mathrm{BAO}}$	5.16	$6.2 (\nu: 1.0)$
$z_*$	1090.00	$1089.9^{+1.6}_{-1.7}$	$H(0.38)$	83.10	$83.1^{+1.3}_{-1.2}$			

Best-fit  $\chi^2_{\mathrm{eff}} = 5.17$ ;  $\bar{\chi}^2_{\mathrm{eff}} = 8.20$ ;  $R - 1 = 0.00680$

$\chi^2_{\mathrm{eff}}$ : Abund - D.Cooke2017: 0.01 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.48



### 3 Alens

#### 3.1 base\_Alens\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02270	$0.02260^{+0.00075}_{-0.00073}$	$\sigma_8 \Omega_m^{0.5}$	0.4291	$0.432^{+0.041}_{-0.040}$	$100\theta_{s,eq}$	0.4579	$0.457^{+0.015}_{-0.014}$
$\Omega_c h^2$	0.1161	$0.1166^{+0.0063}_{-0.0064}$	$\sigma_8 \Omega_m^{0.25}$	0.5840	$0.586^{+0.037}_{-0.038}$	$H(0.15)$	74.25	$74.0^{+2.7}_{-2.5}$
$100\theta_{MC}$	1.04143	$1.0414^{+0.0014}_{-0.0013}$	$\sigma_8/h^{0.5}$	0.956	$0.958^{+0.052}_{-0.053}$	$D_M(0.15)$	628.1	$630^{+25}_{-25}$
$\tau$	0.0519	$0.050^{+0.022}_{-0.027}$	$r_{drag}h$	102.2	$101.8^{+5.4}_{-5.0}$	$H(0.38)$	84.01	$83.8^{+2.1}_{-1.8}$
$A_L$	1.263	$1.24^{+0.26}_{-0.24}$	$\langle d^2 \rangle^{1/2}$	2.656	$2.64^{+0.19}_{-0.21}$	$D_M(0.38)$	1503	$1507^{+50}_{-52}$
$\ln(10^{10} A_s)$	3.030	$3.027^{+0.045}_{-0.058}$	$z_{re}$	7.30	$7.1^{+2.1}_{-3.1}$	$H(0.51)$	90.52	$90.4^{+1.7}_{-1.5}$
$n_s$	0.9769	$0.974^{+0.019}_{-0.018}$	$10^9 A_s$	2.070	$2.064^{+0.094}_{-0.12}$	$D_M(0.51)$	1950	$1955^{+59}_{-61}$
$y_{cal}$	0.9999	$1.0000^{+0.0064}_{-0.0063}$	$10^9 A_s e^{-2\tau}$	1.8656	$1.867^{+0.038}_{-0.037}$	$H(0.61)$	95.99	$95.9^{+1.4}_{-1.2}$
$A_{217}^{CIB}$	42.5	$45^{+20}_{-20}$	$D_{40}$	1203.3	$1209^{+44}_{-44}$	$D_M(0.61)$	2272	$2277^{+63}_{-66}$
$\xi^{tSZ \times CIB}$	0.999	—	$D_{220}$	5737	$5736^{+110}_{-100}$	$H(2.33)$	234.39	$234.6^{+3.7}_{-3.6}$
$A_{143}^{tSZ}$	6.83	$5.6^{+4.4}_{-4.6}$	$D_{810}$	2527.7	$2527^{+36}_{-36}$	$D_M(2.33)$	5733	$5739^{+54}_{-60}$
$A_{100}^{PS}$	238	$250^{+70}_{-70}$	$D_{1420}$	815.8	$814^{+13}_{-13}$	$f\sigma_8(0.15)$	0.4351	$0.437^{+0.038}_{-0.038}$
$A_{143}^{PS}$	48.5	$42^{+20}_{-20}$	$D_{2000}$	233.1	$232.3^{+5.3}_{-5.2}$	$\sigma_8(0.15)$	0.7364	$0.736^{+0.023}_{-0.025}$
$A_{143 \times 217}^{PS}$	56.6	$41^{+20}_{-20}$	$n_{s,0.002}$	0.9769	$0.974^{+0.019}_{-0.018}$	$f\sigma_8(0.38)$	0.4575	$0.459^{+0.031}_{-0.032}$
$A_{217}^{PS}$	123.0	$115^{+20}_{-30}$	$Y_P$	0.245516	$0.24549^{+0.00033}_{-0.00031}$	$\sigma_8(0.38)$	0.6550	$0.654^{+0.018}_{-0.021}$
$A^{kSZ}$	0.00	$< 8.99$	$Y_P^{BBN}$	0.246843	$0.24681^{+0.00033}_{-0.00031}$	$f\sigma_8(0.51)$	0.4584	$0.459^{+0.026}_{-0.028}$
$A_{100}^{dustTT}$	8.91	$8.9^{+4.8}_{-4.7}$	$10^5 D/H$	2.527	$2.54^{+0.14}_{-0.13}$	$\sigma_8(0.51)$	0.6139	$0.613^{+0.016}_{-0.019}$
$A_{143}^{dustTT}$	10.60	$10.5^{+4.6}_{-4.6}$	Age/Gyr	13.732	$13.74^{+0.12}_{-0.13}$	$f\sigma_8(0.61)$	0.4552	$0.456^{+0.024}_{-0.025}$
$A_{143 \times 217}^{dustTT}$	19.6	$17.9^{+8.3}_{-8.6}$	$z_*$	1089.18	$1089.3^{+1.4}_{-1.3}$	$\sigma_8(0.61)$	0.5847	$0.584^{+0.015}_{-0.018}$
$A_{217}^{dustTT}$	95.6	$94^{+20}_{-20}$	$r_*$	145.19	$145.1^{+1.4}_{-1.3}$	$f\sigma_8(2.33)$	0.2956	$0.2951^{+0.0069}_{-0.0087}$
$c_{100}$	0.99973	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04157	$1.0416^{+0.0014}_{-0.0013}$	$\sigma_8(2.33)$	0.3057	$0.3050^{+0.0071}_{-0.0088}$
$c_{217}$	0.99813	$0.9982^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.939	$13.93^{+0.12}_{-0.12}$	$f_{2000}^{143}$	25.1	$27^{+9}_{-9}$
$H_0$	69.18	$68.9^{+3.1}_{-2.9}$	$z_{drag}$	1060.43	$1060.2^{+1.5}_{-1.4}$	$f_{2000}^{143 \times 217}$	29.2	$30^{+6}_{-6}$
$\Omega_\Lambda$	0.7085	$0.705^{+0.037}_{-0.039}$	$r_{drag}$	147.75	$147.7^{+1.3}_{-1.3}$	$f_{2000}^{217}$	103.9	$105.0^{+5.8}_{-5.7}$
$\Omega_m$	0.2915	$0.295^{+0.039}_{-0.037}$	$k_D$	0.14041	$0.1404^{+0.0014}_{-0.0013}$	$\chi_{simall}^2$	395.66	$396.8 (\nu: 1.3)$
$\Omega_m h^2$	0.1395	$0.1399^{+0.0058}_{-0.0058}$	$100\theta_D$	0.16051	$0.16063^{+0.00081}_{-0.00077}$	$\chi_{lowl}^2$	21.34	$21.8 (\nu: 0.6)$
$\Omega_m h^3$	0.09648	$0.0964^{+0.0013}_{-0.0013}$	$z_{eq}$	3318	$3328^{+140}_{-140}$	$\chi_{plik}^2$	752.9	$767.3 (\nu: 15.4)$
$\sigma_8$	0.7948	$0.795^{+0.028}_{-0.030}$	$k_{eq}$	0.010126	$0.01016^{+0.00043}_{-0.00043}$	$\chi_{prior}^2$	0.97	$7.1 (\nu: 6.2)$
$S_8$	0.783	$0.788^{+0.075}_{-0.074}$	$100\theta_{eq}$	0.8301	$0.828^{+0.029}_{-0.027}$	$\chi_{CMB}^2$	1169.9	$1186.0 (\nu: 16.6)$

Best-fit  $\chi_{eff}^2 = 1170.89$ ;  $\bar{\chi}_{eff}^2 = 1193.04$ ;  $R - 1 = 0.00760$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.66 commander\_dx12\_v3.2\_29: 21.34 plik\_rd12\_HM\_v22\_TT: 752.92



### 3.2 base\_Alens\_plikHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02257	$0.02249^{+0.00058}_{-0.00056}$	$\sigma_8/h^{0.5}$	0.9675	$0.967^{+0.033}_{-0.035}$	$D_M(0.38)$	1515.3	$1517^{+26}_{-26}$
$\Omega_c h^2$	0.11772	$0.1179^{+0.0033}_{-0.0033}$	$r_{\text{drag}} h$	100.91	$100.8^{+2.6}_{-2.6}$	$H(0.51)$	90.15	$90.08^{+0.88}_{-0.84}$
$100\theta_{\text{MC}}$	1.04123	$1.0412^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.652	$2.63^{+0.19}_{-0.20}$	$D_M(0.51)$	1964.6	$1967^{+31}_{-31}$
$\tau$	0.0507	$0.049^{+0.022}_{-0.027}$	$z_{\text{re}}$	7.24	$7.1^{+2.1}_{-3.1}$	$H(0.61)$	95.69	$95.62^{+0.76}_{-0.72}$
$A_L$	1.231	$1.21^{+0.21}_{-0.20}$	$10^9 A_s$	2.073	$2.066^{+0.092}_{-0.12}$	$D_M(0.61)$	2287.5	$2290^{+34}_{-34}$
$\ln(10^{10} A_s)$	3.032	$3.028^{+0.044}_{-0.060}$	$10^9 A_s e^{-2\tau}$	1.8731	$1.872^{+0.029}_{-0.029}$	$H(2.33)$	235.28	$235.3^{+2.1}_{-2.0}$
$n_s$	0.9730	$0.971^{+0.012}_{-0.012}$	$D_{40}$	1211.7	$1215^{+33}_{-32}$	$D_M(2.33)$	5745.9	$5749^{+36}_{-37}$
$y_{\text{cal}}$	1.0000	$0.99998^{+0.0064}_{-0.0063}$	$D_{220}$	5731	$5730^{+110}_{-100}$	$f\sigma_8(0.15)$	0.4444	$0.445^{+0.022}_{-0.022}$
$A_{217}^{\text{CIB}}$	42.8	$45^{+20}_{-20}$	$D_{810}$	2530.5	$2528^{+35}_{-35}$	$\sigma_8(0.15)$	0.7405	$0.739^{+0.019}_{-0.023}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.999	—	$D_{1420}$	815.5	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4648	$0.465^{+0.019}_{-0.019}$
$A_{143}^{\text{tSZ}}$	6.67	$5.6^{+4.4}_{-4.6}$	$D_{2000}$	232.70	$231.7^{+4.7}_{-4.5}$	$\sigma_8(0.38)$	0.6576	$0.656^{+0.016}_{-0.020}$
$A_{100}^{\text{PS}}$	240	$251^{+70}_{-70}$	$n_{s,0.002}$	0.9730	$0.971^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	0.4647	$0.464^{+0.017}_{-0.018}$
$A_{143}^{\text{PS}}$	50.3	$43^{+20}_{-20}$	$Y_P$	0.245468	$0.24544^{+0.00025}_{-0.00023}$	$\sigma_8(0.51)$	0.6159	$0.615^{+0.015}_{-0.018}$
$A_{143 \times 217}^{\text{PS}}$	57.4	$42^{+20}_{-20}$	$Y_P^{\text{BBN}}$	0.246795	$0.24677^{+0.00025}_{-0.00024}$	$f\sigma_8(0.61)$	0.4606	$0.460^{+0.015}_{-0.017}$
$A_{217}^{\text{PS}}$	123.5	$115^{+20}_{-30}$	$10^5 \text{D/H}$	2.550	$2.56^{+0.11}_{-0.10}$	$\sigma_8(0.61)$	0.5863	$0.585^{+0.014}_{-0.018}$
$A^{\text{kSZ}}$	0.00	$< 9.15$	Age/Gyr	13.759	$13.767^{+0.082}_{-0.084}$	$f\sigma_8(2.33)$	0.2960	$0.2954^{+0.0069}_{-0.0089}$
$A_{100}^{\text{dustTT}}$	8.85	$8.9^{+4.9}_{-4.8}$	$z_*$	1089.48	$1089.58^{+0.86}_{-0.84}$	$\sigma_8(2.33)$	0.3057	$0.3049^{+0.0069}_{-0.0091}$
$A_{143}^{\text{dustTT}}$	10.67	$10.5^{+4.4}_{-4.5}$	$r_*$	144.87	$144.89^{+0.83}_{-0.84}$	$f_{2000}^{143}$	25.9	$27^{+8}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	19.7	$18.0^{+8.2}_{-8.6}$	$100\theta_*$	1.04139	$1.0414^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	29.8	$31^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	95.9	$94^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.911	$13.913^{+0.082}_{-0.081}$	$f_{2000}^{217}$	104.4	$105.5^{+5.3}_{-5.3}$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1060.24	$1060.1^{+1.2}_{-1.3}$	$\chi_{\text{small}}^2$	395.68	$396.8 (\nu: 1.3)$
$c_{217}$	0.99814	$0.9982^{+0.0017}_{-0.0016}$	$r_{\text{drag}}$	147.48	$147.52^{+0.92}_{-0.91}$	$\chi_{\text{lowl}}^2$	21.89	$22.23 (\nu: 0.3)$
$H_0$	68.43	$68.3^{+1.6}_{-1.5}$	$k_D$	0.14061	$0.1405^{+0.0012}_{-0.0012}$	$\chi_{\text{plik}}^2$	752.7	$766.3 (\nu: 14.2)$
$\Omega_\Lambda$	0.6990	$0.698^{+0.019}_{-0.020}$	$100\theta_D$	0.16061	$0.16071^{+0.00073}_{-0.00071}$	$\chi_{6\text{DF}}^2$	0.008	$0.046 (\nu: 0.0)$
$\Omega_m$	0.3010	$0.302^{+0.020}_{-0.019}$	$z_{\text{eq}}$	3352	$3354^{+75}_{-75}$	$\chi_{\text{MGS}}^2$	1.97	$1.95 (\nu: 0.2)$
$\Omega_m h^2$	0.14093	$0.1410^{+0.0031}_{-0.0031}$	$k_{\text{eq}}$	0.010232	$0.01024^{+0.00023}_{-0.00023}$	$\chi_{\text{DR12BAO}}^2$	3.38	$4.05 (\nu: 0.5)$
$\Omega_m h^3$	0.09643	$0.0963^{+0.0013}_{-0.0013}$	$100\theta_{\text{eq}}$	0.8231	$0.823^{+0.015}_{-0.014}$	$\chi_{\text{prior}}^2$	1.0	$7.1 (\nu: 6.3)$
$\sigma_8$	0.8003	$0.799^{+0.021}_{-0.026}$	$100\theta_{s,\text{eq}}$	0.4544	$0.4541^{+0.0074}_{-0.0072}$	$\chi_{\text{BAO}}^2$	5.35	$6.0 (\nu: 0.7)$
$S_8$	0.8016	$0.802^{+0.043}_{-0.042}$	$H(0.15)$	73.60	$73.5^{+1.4}_{-1.3}$	$\chi_{\text{CMB}}^2$	1170.2	$1185.3 (\nu: 15.6)$
$\sigma_8 \Omega_m^{0.5}$	0.4391	$0.439^{+0.024}_{-0.023}$	$D_M(0.15)$	634.3	$635^{+13}_{-13}$			
$\sigma_8 \Omega_m^{0.25}$	0.5928	$0.592^{+0.023}_{-0.023}$	$H(0.38)$	83.53	$83.5^{+1.0}_{-1.0}$			

Best-fit  $\chi_{\text{eff}}^2 = 1176.61$ ;  $\bar{\chi}_{\text{eff}}^2 = 1198.50$ ;  $R - 1 = 0.01593$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.01 MGS: 1.97 DR12BAO: 3.38 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.68 commander\_dx12\_v3.2.29: 21.89 plik\_rd12\_HM\_v22.TT: 752.66



### 3.3 base\_Alens\_plikHM\_TT\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02301	$0.02292^{+0.00076}_{-0.00067}$	$\sigma_8 \Omega_m^{0.25}$	0.5656	$0.568^{+0.032}_{-0.033}$	$D_M(0.15)$	615.3	$617^{+21}_{-24}$
$\Omega_c h^2$	0.1130	$0.1135^{+0.0053}_{-0.0059}$	$\sigma_8/h^{0.5}$	0.9302	$0.933^{+0.045}_{-0.046}$	$H(0.38)$	85.05	$84.9^{+2.1}_{-1.7}$
$100\theta_{MC}$	1.04193	$1.0419^{+0.0014}_{-0.0013}$	$r_{drag}h$	104.90	$104.5^{+5.2}_{-4.4}$	$D_M(0.38)$	1476.7	$1481^{+42}_{-50}$
$\tau$	0.0520	$0.052^{+0.023}_{-0.028}$	$\langle d^2 \rangle^{1/2}$	2.680	$2.67^{+0.19}_{-0.19}$	$H(0.51)$	91.37	$91.2^{+1.7}_{-1.4}$
$A_L$	1.351	$1.33^{+0.25}_{-0.23}$	$z_{re}$	7.21	$7.2^{+2.3}_{-3.1}$	$D_M(0.51)$	1919	$1924^{+50}_{-60}$
$\ln(10^{10} A_s)$	3.024	$3.024^{+0.046}_{-0.055}$	$10^9 A_s$	2.057	$2.058^{+0.096}_{-0.11}$	$H(0.61)$	96.68	$96.6^{+1.4}_{-1.1}$
$n_s$	0.9852	$0.983^{+0.016}_{-0.016}$	$10^9 A_s e^{-2\tau}$	1.8537	$1.854^{+0.034}_{-0.033}$	$D_M(0.61)$	2238	$2243^{+54}_{-65}$
$y_{cal}$	0.99995	$1.0000^{+0.0072}_{-0.0063}$	$D_{40}$	1187.1	$1192^{+40}_{-36}$	$H(2.33)$	232.71	$232.9^{+3.1}_{-3.2}$
$A_{217}^{CIB}$	41.8	$44^{+20}_{-20}$	$D_{220}$	5758	$5755^{+110}_{-100}$	$D_M(2.33)$	5705	$5710^{+50}_{-55}$
$\xi^{tSZ \times CIB}$	0.999	—	$D_{810}$	2525.0	$2523^{+37}_{-35}$	$f\sigma_8(0.15)$	0.4159	$0.419^{+0.032}_{-0.033}$
$A_{143}^{tSZ}$	6.87	$> 1.36$	$D_{1420}$	817.4	$816^{+14}_{-13}$	$\sigma_8(0.15)$	0.7269	$0.728^{+0.022}_{-0.023}$
$A_{100}^{PS}$	234	$245^{+80}_{-80}$	$D_{2000}$	234.6	$233.7^{+5.4}_{-5.1}$	$f\sigma_8(0.38)$	0.4419	$0.444^{+0.027}_{-0.027}$
$A_{143}^{PS}$	44.0	$38^{+20}_{-20}$	$n_{s,0.002}$	0.9852	$0.983^{+0.016}_{-0.016}$	$\sigma_8(0.38)$	0.6486	$0.649^{+0.017}_{-0.019}$
$A_{143 \times 217}^{PS}$	53.2	$39^{+20}_{-20}$	$Y_P$	0.245654	$0.24562^{+0.00032}_{-0.00027}$	$f\sigma_8(0.51)$	0.4450	$0.447^{+0.023}_{-0.025}$
$A_{217}^{PS}$	121.0	$114^{+20}_{-30}$	$Y_P^{BBN}$	0.246982	$0.24694^{+0.00032}_{-0.00027}$	$\sigma_8(0.51)$	0.6088	$0.609^{+0.016}_{-0.017}$
$A^{kSZ}$	0.00	$< 8.54$	$10^5 D/H$	2.471	$2.49^{+0.12}_{-0.13}$	$f\sigma_8(0.61)$	0.4433	$0.445^{+0.021}_{-0.022}$
$A_{100}^{dustTT}$	8.96	$8.9^{+4.7}_{-4.9}$	Age/Gyr	13.671	$13.68^{+0.11}_{-0.12}$	$\sigma_8(0.61)$	0.5805	$0.581^{+0.015}_{-0.016}$
$A_{143}^{dustTT}$	10.61	$10.4^{+4.6}_{-4.4}$	$z_*$	1088.54	$1088.7^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	0.2943	$0.2943^{+0.0072}_{-0.0086}$
$A_{143 \times 217}^{dustTT}$	19.3	$17.8^{+8.5}_{-8.6}$	$r_*$	145.77	$145.7^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	0.3053	$0.3051^{+0.0074}_{-0.0089}$
$A_{217}^{dustTT}$	95.4	$94^{+20}_{-20}$	$100\theta_*$	1.04205	$1.0420^{+0.0013}_{-0.0012}$	$f_{2000}^{143}$	23.1	$25^{+8}_{-8}$
$c_{100}$	0.99973	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.989	$13.98^{+0.12}_{-0.11}$	$f_{2000}^{143 \times 217}$	27.6	$28^{+6}_{-6}$
$c_{217}$	0.99813	$0.9981^{+0.0015}_{-0.0017}$	$z_{drag}$	1060.89	$1060.7^{+1.4}_{-1.4}$	$f_{2000}^{217}$	102.5	$103.7^{+5.6}_{-5.4}$
$H_0$	70.76	$70.5^{+3.1}_{-2.5}$	$r_{drag}$	148.25	$148.2^{+1.2}_{-1.1}$	$\chi_{simall}^2$	395.66	$396.8 (\nu: 1.3)$
$\Omega_\Lambda$	0.7270	$0.724^{+0.032}_{-0.031}$	$k_D$	0.14010	$0.1401^{+0.0013}_{-0.0013}$	$\chi_{lowl}^2$	20.46	$20.80 (\nu: 0.2)$
$\Omega_m$	0.2730	$0.276^{+0.031}_{-0.032}$	$100\theta_D$	0.16030	$0.16040^{+0.00074}_{-0.00078}$	$\chi_{plik}^2$	755.6	$769.6 (\nu: 17.8)$
$\Omega_m h^2$	0.1367	$0.1370^{+0.0049}_{-0.0051}$	$z_{eq}$	3251	$3259^{+120}_{-120}$	$\chi_{H073p45}^2$	2.6	$3.5 (\nu: 2.4)$
$\Omega_m h^3$	0.09671	$0.0966^{+0.0012}_{-0.0013}$	$k_{eq}$	0.009922	$0.00995^{+0.00036}_{-0.00038}$	$\chi_{prior}^2$	1.0	$7.1 (\nu: 6.1)$
$\sigma_8$	0.7825	$0.784^{+0.026}_{-0.027}$	$100\theta_{eq}$	0.8441	$0.842^{+0.027}_{-0.024}$	$\chi_{CMB}^2$	1171.7	$1187.2 (\nu: 18.1)$
$S_8$	0.746	$0.752^{+0.062}_{-0.063}$	$100\theta_{s,eq}$	0.4650	$0.464^{+0.014}_{-0.012}$			
$\sigma_8 \Omega_m^{0.5}$	0.4088	$0.412^{+0.034}_{-0.035}$	$H(0.15)$	75.63	$75.4^{+2.7}_{-2.2}$			

Best-fit  $\chi_{\text{eff}}^2 = 1175.32$ ;  $\bar{\chi}_{\text{eff}}^2 = 1197.77$ ;  $R - 1 = 0.01750$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.66 commander\_dx12\_v3.2\_29: 20.46 plik\_rd12\_HM\_v22\_TT: 755.56 Hubble - H073p45: 2.63



### 3.4 base\_Alens\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02261^{+0.00075}_{-0.00072}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.433^{+0.041}_{-0.041}$	$100\theta_{\text{s,eq}}$	$0.457^{+0.015}_{-0.014}$
$\Omega_{\text{c}}h^2$	$0.1166^{+0.0063}_{-0.0063}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.587^{+0.037}_{-0.038}$	$H(0.15)$	$74.1^{+2.7}_{-2.5}$
$100\theta_{\text{MC}}$	$1.0414^{+0.0014}_{-0.0013}$	$\sigma_8/h^{0.5}$	$0.960^{+0.051}_{-0.052}$	$D_{\text{M}}(0.15)$	$630^{+25}_{-25}$
$\tau$	$0.053^{+0.018}_{-0.011}$	$r_{\text{drag}}h$	$101.9^{+5.4}_{-5.0}$	$H(0.38)$	$83.9^{+2.1}_{-1.9}$
$A_{\text{L}}$	$1.24^{+0.26}_{-0.24}$	$\langle d^2 \rangle^{1/2}$	$2.64^{+0.19}_{-0.21}$	$D_{\text{M}}(0.38)$	$1507^{+51}_{-51}$
$\ln(10^{10}A_{\text{s}})$	$3.033^{+0.039}_{-0.028}$	$z_{\text{re}}$	$< 9.08$	$H(0.51)$	$90.4^{+1.7}_{-1.5}$
$n_{\text{s}}$	$0.974^{+0.019}_{-0.018}$	$10^9 A_{\text{s}}$	$2.077^{+0.083}_{-0.058}$	$D_{\text{M}}(0.51)$	$1955^{+59}_{-61}$
$y_{\text{cal}}$	$1.0000^{+0.0065}_{-0.0063}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.867^{+0.038}_{-0.037}$	$H(0.61)$	$95.9^{+1.4}_{-1.2}$
$A_{217}^{\text{CIB}}$	$45^{+20}_{-20}$	$D_{40}$	$1209^{+45}_{-45}$	$D_{\text{M}}(0.61)$	$2277^{+64}_{-66}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{220}$	$5736^{+110}_{-110}$	$H(2.33)$	$234.6^{+3.7}_{-3.6}$
$A_{143}^{\text{tSZ}}$	$> 1.04$	$D_{810}$	$2527^{+36}_{-36}$	$D_{\text{M}}(2.33)$	$5738^{+55}_{-60}$
$A_{100}^{\text{PS}}$	$250^{+70}_{-70}$	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.15)$	$0.438^{+0.038}_{-0.039}$
$A_{143}^{\text{PS}}$	$42^{+20}_{-20}$	$D_{2000}$	$232.3^{+5.3}_{-5.1}$	$\sigma_8(0.15)$	$0.738^{+0.022}_{-0.022}$
$A_{143 \times 217}^{\text{PS}}$	$41^{+20}_{-20}$	$n_{\text{s},0.002}$	$0.974^{+0.019}_{-0.018}$	$f\sigma_8(0.38)$	$0.460^{+0.030}_{-0.032}$
$A_{217}^{\text{PS}}$	$115^{+20}_{-30}$	$Y_{\text{P}}$	$0.24549^{+0.00033}_{-0.00031}$	$\sigma_8(0.38)$	$0.656^{+0.016}_{-0.016}$
$A^{\text{kSZ}}$	$< 8.96$	$Y_{\text{P}}^{\text{BBN}}$	$0.24681^{+0.00033}_{-0.00031}$	$f\sigma_8(0.51)$	$0.461^{+0.026}_{-0.028}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.8}_{-4.7}$	$10^5 \text{D}/\text{H}$	$2.54^{+0.14}_{-0.13}$	$\sigma_8(0.51)$	$0.615^{+0.014}_{-0.013}$
$A_{143}^{\text{dustTT}}$	$10.5^{+4.6}_{-4.6}$	$\text{Age}/\text{Gyr}$	$13.74^{+0.12}_{-0.13}$	$f\sigma_8(0.61)$	$0.457^{+0.023}_{-0.025}$
$A_{143 \times 217}^{\text{dustTT}}$	$17.9^{+8.4}_{-8.5}$	$z_*$	$1089.3^{+1.4}_{-1.3}$	$\sigma_8(0.61)$	$0.586^{+0.013}_{-0.012}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$r_*$	$145.1^{+1.4}_{-1.3}$	$f\sigma_8(2.33)$	$0.2960^{+0.0062}_{-0.0049}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0416^{+0.0014}_{-0.0013}$	$\sigma_8(2.33)$	$0.3060^{+0.0063}_{-0.0044}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.94^{+0.12}_{-0.12}$	$f_{2000}^{143}$	$27^{+9}_{-9}$
$H_0$	$69.0^{+3.1}_{-3.0}$	$z_{\text{drag}}$	$1060.2^{+1.4}_{-1.4}$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6}$
$\Omega_{\Lambda}$	$0.705^{+0.037}_{-0.039}$	$r_{\text{drag}}$	$147.7^{+1.3}_{-1.3}$	$f_{2000}^{217}$	$105.0^{+5.8}_{-5.7}$
$\Omega_{\text{m}}$	$0.295^{+0.039}_{-0.037}$	$k_{\text{D}}$	$0.1404^{+0.0013}_{-0.0013}$	$\chi_{\text{simall}}^2$	$396.4 (\nu: 0.6)$
$\Omega_{\text{m}}h^2$	$0.1398^{+0.0059}_{-0.0058}$	$100\theta_{\text{D}}$	$0.16063^{+0.00081}_{-0.00077}$	$\chi_{\text{lowl}}^2$	$21.9 (\nu: 0.6)$
$\Omega_{\text{m}}h^3$	$0.0964^{+0.0013}_{-0.0013}$	$z_{\text{eq}}$	$3326^{+140}_{-140}$	$\chi_{\text{plik}}^2$	$767.3 (\nu: 15.5)$
$\sigma_8$	$0.797^{+0.026}_{-0.028}$	$k_{\text{eq}}$	$0.01015^{+0.00043}_{-0.00042}$	$\chi_{\text{prior}}^2$	$7.1 (\nu: 6.2)$
$S_8$	$0.790^{+0.075}_{-0.075}$	$100\theta_{\text{eq}}$	$0.828^{+0.029}_{-0.027}$	$\chi_{\text{CMB}}^2$	$1185.5 (\nu: 16.1)$

$$\bar{\chi}_{\text{eff}}^2 = 1192.62; R - 1 = 0.00588$$



### 3.5 base\_Alens\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02249^{+0.00057}_{-0.00056}$	$\sigma_8/h^{0.5}$	$0.970^{+0.032}_{-0.028}$	$D_{\mathrm{M}}(0.38)$	$1517^{+27}_{-27}$
$\Omega_{\mathrm{c}}h^2$	$0.1179^{+0.0033}_{-0.0033}$	$r_{\mathrm{drag}}h$	$100.8^{+2.6}_{-2.6}$	$H(0.51)$	$90.08^{+0.88}_{-0.85}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0011}_{-0.0010}$	$\langle d^2 \rangle^{1/2}$	$2.63^{+0.19}_{-0.20}$	$D_{\mathrm{M}}(0.51)$	$1967^{+31}_{-31}$
$\tau$	$0.053^{+0.017}_{-0.011}$	$z_{\mathrm{re}}$	$< 9.01$	$H(0.61)$	$95.63^{+0.77}_{-0.72}$
$A_{\mathrm{L}}$	$1.20^{+0.20}_{-0.20}$	$10^9 A_{\mathrm{s}}$	$2.080^{+0.081}_{-0.055}$	$D_{\mathrm{M}}(0.61)$	$2290^{+34}_{-34}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.035^{+0.038}_{-0.027}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.029}_{-0.029}$	$H(2.33)$	$235.3^{+2.1}_{-2.0}$
$n_{\mathrm{s}}$	$0.971^{+0.012}_{-0.012}$	$D_{40}$	$1216^{+33}_{-31}$	$D_{\mathrm{M}}(2.33)$	$5749^{+35}_{-37}$
$y_{\mathrm{cal}}$	$0.99999^{+0.0065}_{-0.0062}$	$D_{220}$	$5729^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.446^{+0.022}_{-0.020}$
$A_{217}^{\mathrm{CIB}}$	$45^{+20}_{-20}$	$D_{810}$	$2528^{+33}_{-35}$	$\sigma_8(0.15)$	$0.742^{+0.017}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.466^{+0.018}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	$5.6^{+4.4}_{-4.6}$	$D_{2000}$	$231.8^{+4.8}_{-4.5}$	$\sigma_8(0.38)$	$0.659^{+0.014}_{-0.011}$
$A_{100}^{\mathrm{PS}}$	$251^{+80}_{-70}$	$n_{\mathrm{s},0.002}$	$0.971^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	$0.466^{+0.016}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24544^{+0.00024}_{-0.00023}$	$\sigma_8(0.51)$	$0.617^{+0.013}_{-0.0098}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24677^{+0.00024}_{-0.00023}$	$f\sigma_8(0.61)$	$0.462^{+0.014}_{-0.013}$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.56^{+0.11}_{-0.10}$	$\sigma_8(0.61)$	$0.587^{+0.012}_{-0.0090}$
$A^{\mathrm{kSZ}}$	$< 9.17$	$\mathrm{Age}/\mathrm{Gyr}$	$13.767^{+0.080}_{-0.084}$	$f\sigma_8(2.33)$	$0.2964^{+0.0060}_{-0.0043}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+5.0}_{-4.8}$	$z_*$	$1089.58^{+0.86}_{-0.86}$	$\sigma_8(2.33)$	$0.3060^{+0.0061}_{-0.0044}$
$A_{143}^{\mathrm{dustTT}}$	$10.5^{+4.5}_{-4.6}$	$r_*$	$144.89^{+0.83}_{-0.81}$	$f_{2000}^{143}$	$27^{+8}_{-8}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.0^{+8.2}_{-8.5}$	$100\theta_*$	$1.0414^{+0.0011}_{-0.0010}$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6}$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.913^{+0.082}_{-0.080}$	$f_{2000}^{217}$	$105.4^{+5.3}_{-5.3}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$z_{\mathrm{drag}}$	$1060.1^{+1.2}_{-1.3}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.6)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.52^{+0.91}_{-0.87}$	$\chi_{\mathrm{lowl}}^2$	$22.29 (\nu: 0.3)$
$H_0$	$68.3^{+1.6}_{-1.5}$	$k_{\mathrm{D}}$	$0.1405^{+0.0011}_{-0.0012}$	$\chi_{\mathrm{plik}}^2$	$766.2 (\nu: 14.3)$
$\Omega_{\Lambda}$	$0.698^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16071^{+0.00073}_{-0.00069}$	$\chi_{6\mathrm{DF}}^2$	$0.046 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.302^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3354^{+75}_{-75}$	$\chi_{\mathrm{MGS}}^2$	$1.96 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1410^{+0.0031}_{-0.0031}$	$k_{\mathrm{eq}}$	$0.01024^{+0.00023}_{-0.00023}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.04 (\nu: 0.5)$
$\Omega_{\mathrm{m}}h^3$	$0.0963^{+0.0013}_{-0.0012}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.015}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.3)$
$\sigma_8$	$0.802^{+0.019}_{-0.016}$	$100\theta_{\mathrm{s,eq}}$	$0.4542^{+0.0075}_{-0.0072}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.7)$
$S_8$	$0.805^{+0.042}_{-0.039}$	$H(0.15)$	$73.5^{+1.4}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$1184.9 (\nu: 15.0)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.441^{+0.023}_{-0.021}$	$D_{\mathrm{M}}(0.15)$	$635^{+13}_{-13}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.594^{+0.022}_{-0.020}$	$H(0.38)$	$83.5^{+1.1}_{-1.0}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1198.08; R - 1 = 0.01471$



### 3.6 base\_Alens\_plikHM\_TT\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02292^{+0.00077}_{-0.00067}$	$\sigma_8 \Omega_m^{0.25}$	$0.569^{+0.032}_{-0.031}$	$D_M(0.15)$	$617^{+21}_{-24}$
$\Omega_c h^2$	$0.1134^{+0.0053}_{-0.0059}$	$\sigma_8/h^{0.5}$	$0.936^{+0.044}_{-0.042}$	$H(0.38)$	$84.9^{+2.1}_{-1.7}$
$100\theta_{MC}$	$1.0419^{+0.0014}_{-0.0013}$	$r_{drag}h$	$104.6^{+5.1}_{-4.4}$	$D_M(0.38)$	$1480^{+42}_{-49}$
$\tau$	$0.055^{+0.019}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.67^{+0.19}_{-0.19}$	$H(0.51)$	$91.2^{+1.7}_{-1.4}$
$A_L$	$1.32^{+0.25}_{-0.23}$	$z_{re}$	$< 9.23$	$D_M(0.51)$	$1923^{+50}_{-59}$
$\ln(10^{10} A_s)$	$3.030^{+0.040}_{-0.030}$	$10^9 A_s$	$2.069^{+0.084}_{-0.062}$	$H(0.61)$	$96.6^{+1.4}_{-1.1}$
$n_s$	$0.983^{+0.018}_{-0.016}$	$10^9 A_s e^{-2\tau}$	$1.854^{+0.034}_{-0.033}$	$D_M(0.61)$	$2243^{+54}_{-64}$
$y_{cal}$	$1.0001^{+0.0073}_{-0.0064}$	$D_{40}$	$1192^{+40}_{-36}$	$H(2.33)$	$232.9^{+3.1}_{-3.5}$
$A_{217}^{CIB}$	$44^{+20}_{-20}$	$D_{220}$	$5755^{+110}_{-100}$	$D_M(2.33)$	$5710^{+50}_{-55}$
$\xi^{tSZ \times CIB}$	—	$D_{810}$	$2523^{+38}_{-34}$	$f\sigma_8(0.15)$	$0.419^{+0.032}_{-0.033}$
$A_{143}^{tSZ}$	$> 1.45$	$D_{1420}$	$816^{+15}_{-13}$	$\sigma_8(0.15)$	$0.730^{+0.021}_{-0.018}$
$A_{100}^{PS}$	$245^{+70}_{-80}$	$D_{2000}$	$233.7^{+5.5}_{-5.0}$	$f\sigma_8(0.38)$	$0.445^{+0.026}_{-0.027}$
$A_{143}^{PS}$	$38^{+20}_{-20}$	$n_{s,0.002}$	$0.983^{+0.018}_{-0.016}$	$\sigma_8(0.38)$	$0.651^{+0.016}_{-0.014}$
$A_{143 \times 217}^{PS}$	$39^{+20}_{-20}$	$Y_P$	$0.24562^{+0.00033}_{-0.00027}$	$f\sigma_8(0.51)$	$0.448^{+0.023}_{-0.023}$
$A_{217}^{PS}$	$114^{+30}_{-30}$	$Y_P^{BBN}$	$0.24694^{+0.00033}_{-0.00027}$	$\sigma_8(0.51)$	$0.611^{+0.014}_{-0.012}$
$A^{kSZ}$	$< 8.32$	$10^5 D/H$	$2.49^{+0.12}_{-0.13}$	$f\sigma_8(0.61)$	$0.446^{+0.021}_{-0.020}$
$A_{100}^{dustTT}$	$9.0^{+4.7}_{-4.8}$	Age/Gyr	$13.68^{+0.11}_{-0.12}$	$\sigma_8(0.61)$	$0.582^{+0.013}_{-0.011}$
$A_{143}^{dustTT}$	$10.4^{+4.5}_{-4.5}$	$z_*$	$1088.7^{+1.2}_{-1.1}$	$f\sigma_8(2.33)$	$0.2951^{+0.0064}_{-0.0048}$
$A_{143 \times 217}^{dustTT}$	$17.8^{+8.5}_{-8.6}$	$r_*$	$145.7^{+1.3}_{-1.2}$	$\sigma_8(2.33)$	$0.3060^{+0.0066}_{-0.0046}$
$A_{217}^{dustTT}$	$94^{+20}_{-20}$	$100\theta_*$	$1.0420^{+0.0013}_{-0.0012}$	$f_{2000}^{143}$	$25^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	$13.99^{+0.12}_{-0.11}$	$f_{2000}^{143 \times 217}$	$28^{+6}_{-6}$
$c_{217}$	$0.9981^{+0.0015}_{-0.0018}$	$z_{drag}$	$1060.7^{+1.5}_{-1.4}$	$f_{2000}^{217}$	$103.6^{+5.6}_{-5.4}$
$H_0$	$70.5^{+3.1}_{-2.6}$	$r_{drag}$	$148.3^{+1.2}_{-1.1}$	$\chi_{simall}^2$	$396.4 (\nu: 0.7)$
$\Omega_\Lambda$	$0.724^{+0.032}_{-0.031}$	$k_D$	$0.1400^{+0.0013}_{-0.0012}$	$\chi_{lowl}^2$	$20.81 (\nu: 0.2)$
$\Omega_m$	$0.276^{+0.031}_{-0.032}$	$100\theta_D$	$0.16040^{+0.00075}_{-0.00078}$	$\chi_{plik}^2$	$769.7 (\nu: 17.8)$
$\Omega_m h^2$	$0.1370^{+0.0049}_{-0.0055}$	$z_{eq}$	$3258^{+120}_{-130}$	$\chi_{H073p45}^2$	$3.4 (\nu: 2.4)$
$\Omega_m h^3$	$0.0966^{+0.0013}_{-0.0012}$	$k_{eq}$	$0.00994^{+0.00036}_{-0.00040}$	$\chi_{prior}^2$	$7.1 (\nu: 6.2)$
$\sigma_8$	$0.786^{+0.024}_{-0.022}$	$100\theta_{eq}$	$0.843^{+0.028}_{-0.024}$	$\chi_{CMB}^2$	$1186.9 (\nu: 17.7)$
$S_8$	$0.753^{+0.062}_{-0.064}$	$100\theta_{s,eq}$	$0.464^{+0.014}_{-0.012}$		
$\sigma_8 \Omega_m^{0.5}$	$0.412^{+0.034}_{-0.035}$	$H(0.15)$	$75.4^{+2.7}_{-2.2}$		

$$\bar{\chi}_{\text{eff}}^2 = 1197.44; R - 1 = 0.01845$$



### 3.7 base\_Alens\_plikHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022631	$0.02259^{+0.00045}_{-0.00044} \quad (-0.1\sigma)$	$\Omega_m h^2$	0.14113	$0.1413^{+0.0038}_{-0.0036} \quad (+0.6\sigma)$	$k_{\text{eq}}$	0.010247	$0.01026^{+0.00028}_{-0.00026} \quad (+0.6\sigma)$
$\Omega_c h^2$	0.11786	$0.1181^{+0.0041}_{-0.0038} \quad (+0.6\sigma)$	$\Omega_m h^3$	0.09656	$0.09650^{+0.00076}_{-0.00075} \quad (+0.2\sigma)$	$100\theta_{\text{eq}}$	0.8224	$0.821^{+0.017}_{-0.017} \quad (-0.6\sigma)$
$100\theta_{\text{MC}}$	1.04118	$1.04114^{+0.00088}_{-0.00082} \quad (-0.5\sigma)$	$\sigma_8$	0.8010	$0.800^{+0.023}_{-0.026} \quad (+0.4\sigma)$	$100\theta_{\text{s,eq}}$	0.4539	$0.4534^{+0.0085}_{-0.0089} \quad (-0.6\sigma)$
$\tau$	0.0511	$0.049^{+0.021}_{-0.029} \quad (-0.1\sigma)$	$S_8$	0.8030	$0.804^{+0.050}_{-0.048} \quad (+0.6\sigma)$	$H(0.15)$	73.60	$73.5^{+1.6}_{-1.6} \quad (-0.5\sigma)$
$A_L$	1.191	$1.18^{+0.17}_{-0.16} \quad (-0.7\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4398	$0.440^{+0.028}_{-0.026} \quad (+0.6\sigma)$	$D_M(0.15)$	634.4	$636^{+15}_{-15} \quad (+0.5\sigma)$
$\ln(10^{10} A_s)$	3.033	$3.029^{+0.044}_{-0.058} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.5935	$0.593^{+0.026}_{-0.026} \quad (+0.5\sigma)$	$H(0.38)$	83.54	$83.5^{+1.2}_{-1.1} \quad (-0.5\sigma)$
$n_s$	0.9729	$0.971^{+0.012}_{-0.013} \quad (-0.5\sigma)$	$\sigma_8/h^{0.5}$	0.9683	$0.968^{+0.037}_{-0.039} \quad (+0.5\sigma)$	$D_M(0.38)$	1515.3	$1518^{+31}_{-30} \quad (+0.5\sigma)$
$y_{\text{cal}}$	0.99999	$1.0000^{+0.0063}_{-0.0061} \quad (+0.0\sigma)$	$r_{\text{drag}} h$	100.82	$100.6^{+3.1}_{-3.1} \quad (-0.6\sigma)$	$H(0.51)$	90.17	$90.10^{+0.93}_{-0.90} \quad (-0.5\sigma)$
$A_{217}^{\text{CIB}}$	42.2	$45^{+20}_{-20} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	2.612	$2.60^{+0.15}_{-0.16} \quad (-0.5\sigma)$	$D_M(0.51)$	1964.6	$1967^{+37}_{-35} \quad (+0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.999	—	$z_{\text{re}}$	7.27	$7.1^{+2.0}_{-3.4} \quad (-0.1\sigma)$	$H(0.61)$	95.72	$95.66^{+0.76}_{-0.71} \quad (-0.4\sigma)$
$A_{143}^{\text{tSZ}}$	6.93	$> 1.29 \quad (+0.1\sigma)$	$10^9 A_s$	2.076	$2.068^{+0.092}_{-0.12} \quad (+0.1\sigma)$	$D_M(0.61)$	2287.3	$2290^{+39}_{-38} \quad (+0.5\sigma)$
$A_{100}^{\text{PS}}$	237	$249^{+70}_{-70} \quad (-0.0\sigma)$	$10^9 A_s e^{-2\tau}$	1.8743	$1.874^{+0.033}_{-0.030} \quad (+0.5\sigma)$	$H(2.33)$	235.43	$235.6^{+2.4}_{-2.2} \quad (+0.6\sigma)$
$A_{143}^{\text{PS}}$	49.1	$42^{+20}_{-20} \quad (+0.0\sigma)$	$D_{40}$	1212.9	$1217^{+35}_{-34} \quad (+0.5\sigma)$	$D_M(2.33)$	5744.0	$5747^{+32}_{-33} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\text{PS}}$	57.2	$42^{+20}_{-20} \quad (+0.1\sigma)$	$D_{220}$	5737	$5739^{+98}_{-96} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	0.4451	$0.446^{+0.026}_{-0.025} \quad (+0.5\sigma)$
$A_{217}^{\text{PS}}$	124.1	$116^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	2533.2	$2531^{+35}_{-34} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	0.7411	$0.740^{+0.019}_{-0.023} \quad (+0.4\sigma)$
$A^{\text{kSZ}}$	0.00	$< 8.71 \quad (-0.1\sigma)$	$D_{1420}$	817.0	$816^{+12}_{-12} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	0.4655	$0.465^{+0.021}_{-0.022} \quad (+0.5\sigma)$
$A_{100}^{\text{dustTT}}$	8.72	$8.8^{+4.9}_{-4.7} \quad (-0.1\sigma)$	$D_{2000}$	232.94	$232.2^{+4.1}_{-4.1} \quad (-0.0\sigma)$	$\sigma_8(0.38)$	0.6580	$0.657^{+0.016}_{-0.020} \quad (+0.3\sigma)$
$A_{143}^{\text{dustTT}}$	10.68	$10.6^{+4.6}_{-4.6} \quad (+0.0\sigma)$	$n_{\text{s},0.002}$	0.9729	$0.971^{+0.012}_{-0.013} \quad (-0.5\sigma)$	$f\sigma_8(0.51)$	0.4652	$0.465^{+0.019}_{-0.019} \quad (+0.5\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.1^{+8.4}_{-8.3} \quad (+0.1\sigma)$	$Y_{\text{P}}$	0.245491	$0.24548^{+0.00019}_{-0.00017} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	0.6163	$0.615^{+0.014}_{-0.018} \quad (+0.3\sigma)$
$A_{217}^{\text{dustTT}}$	95.7	$94^{+20}_{-20} \quad (+0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	0.246818	$0.24680^{+0.00019}_{-0.00017} \quad (-0.1\sigma)$	$f\sigma_8(0.61)$	0.4611	$0.461^{+0.017}_{-0.018} \quad (+0.5\sigma)$
$A_{100}^{\text{dustTE}}$	0.112	$0.114^{+0.10}_{-0.095}$	$10^5 \text{D/H}$	2.539	$2.546^{+0.081}_{-0.080} \quad (+0.0\sigma)$	$\sigma_8(0.61)$	0.5867	$0.585^{+0.014}_{-0.018} \quad (+0.2\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.134^{+0.076}_{-0.077}$	Age/Gyr	13.754	$13.761^{+0.072}_{-0.073} \quad (+0.3\sigma)$	$f\sigma_8(2.33)$	0.2962	$0.2954^{+0.0067}_{-0.0086} \quad (+0.1\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	0.480	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.41	$1089.48^{+0.82}_{-0.78} \quad (+0.3\sigma)$	$\sigma_8(2.33)$	0.3058	$0.3050^{+0.0068}_{-0.0088} \quad (-0.0\sigma)$
$A_{143}^{\text{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$r_*$	144.79	$144.76^{+0.83}_{-0.86} \quad (-0.7\sigma)$	$f_{2000}^{143}$	25.4	$27^{+7}_{-7} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	0.659	$0.66^{+0.20}_{-0.21}$	$100\theta_*$	1.04134	$1.04130^{+0.00086}_{-0.00081} \quad (-0.5\sigma)$	$f_{2000}^{143 \times 217}$	29.5	$30^{+5}_{-5} \quad (-0.0\sigma)$
$A_{217}^{\text{dustTE}}$	2.05	$2.05^{+0.70}_{-0.68}$	$D_M(z_*)/\text{Gpc}$	13.904	$13.902^{+0.078}_{-0.079} \quad (-0.7\sigma)$	$f_{2000}^{217}$	104.23	$105.0^{+4.9}_{-4.8} \quad (+0.0\sigma)$
$c_{100}$	0.99976	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{drag}}$	1060.39	$1060.30^{+0.85}_{-0.87} \quad (+0.1\sigma)$	$\chi_{\text{small}}^2$	395.7	$396.9 \quad (\nu: 1.4) \quad (+0.0\sigma)$
$c_{217}$	0.99810	$0.9981^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\text{drag}}$	147.37	$147.35^{+0.81}_{-0.82} \quad (-0.7\sigma)$	$\chi_{\text{lowl}}^2$	21.96	$22.32 \quad (\nu: 0.4) \quad (+0.5\sigma)$
$H_0$	68.42	$68.3^{+1.8}_{-1.8} \quad (-0.5\sigma)$	$k_{\text{D}}$	0.14077	$0.14076^{+0.00085}_{-0.00082} \quad (+0.7\sigma)$	$\chi_{\text{plik}}^2$	2337.1	$2353.8 \quad (\nu: 16.5) \quad (+285.8\sigma)$
$\Omega_\Lambda$	0.6985	$0.697^{+0.023}_{-0.025} \quad (-0.6\sigma)$	$100\theta_{\text{D}}$	0.160510	$0.16056^{+0.00049}_{-0.00047} \quad (-0.2\sigma)$	$\chi_{\text{prior}}^2$	1.4	$11.3 \quad (\nu: 9.5) \quad (+1.2\sigma)$
$\Omega_{\text{m}}$	0.3015	$0.303^{+0.025}_{-0.023} \quad (+0.6\sigma)$	$z_{\text{eq}}$	3357	$3362^{+91}_{-85} \quad (+0.6\sigma)$	$\chi_{\text{CMB}}^2$	2754.7	$2773.0 \quad (\nu: 17.8) \quad (+275.5\sigma)$

Best-fit  $\chi_{\text{eff}}^2 = 2756.11$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.23$ ;  $\bar{\chi}_{\text{eff}}^2 = 2784.27$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.23$ ;  $R - 1 = 0.01070$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.67 ( $\Delta$  0.01) commander\_dx12\_v3.2.29: 21.96 ( $\Delta$  0.61) plik\_rd12\_HM\_v22b\_TTTEEE: 2337.11



### 3.8 base\_Alens\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022617	$0.02258^{+0.00038}_{-0.00037}$ (+0.4 $\sigma$ )	$\sigma_8$	0.8011	$0.800^{+0.020}_{-0.024}$ (+0.1 $\sigma$ )	$D_M(0.15)$	635.1	$636^{+11}_{-11}$ (+0.1 $\sigma$ )
$\Omega_c h^2$	0.11802	$0.1182^{+0.0028}_{-0.0028}$ (+0.3 $\sigma$ )	$S_8$	0.8046	$0.805^{+0.036}_{-0.038}$ (+0.2 $\sigma$ )	$H(0.38)$	83.49	$83.43^{+0.84}_{-0.80}$ (-0.1 $\sigma$ )
$100\theta_{MC}$	1.04115	$1.04113^{+0.00078}_{-0.00075}$ (-0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4407	$0.441^{+0.020}_{-0.021}$ (+0.2 $\sigma$ )	$D_M(0.38)$	1516.7	$1518^{+22}_{-22}$ (+0.1 $\sigma$ )
$\tau$	0.0507	$0.049^{+0.021}_{-0.029}$ (-0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.5942	$0.594^{+0.020}_{-0.022}$ (+0.2 $\sigma$ )	$H(0.51)$	90.13	$90.07^{+0.69}_{-0.64}$ (-0.0 $\sigma$ )
$A_L$	1.185	$1.18^{+0.16}_{-0.15}$ (-0.4 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9691	$0.969^{+0.029}_{-0.033}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1966.2	$1968^{+25}_{-26}$ (+0.1 $\sigma$ )
$\ln(10^{10} A_s)$	3.033	$3.029^{+0.046}_{-0.058}$ (+0.1 $\sigma$ )	$r_{drag} h$	100.68	$100.5^{+2.2}_{-2.1}$ (-0.2 $\sigma$ )	$H(0.61)$	95.68	$95.64^{+0.58}_{-0.53}$ (+0.0 $\sigma$ )
$n_s$	0.9722	$0.9705^{+0.0099}_{-0.010}$ (-0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.607	$2.60^{+0.15}_{-0.16}$ (-0.4 $\sigma$ )	$D_M(0.61)$	2289.1	$2291^{+27}_{-28}$ (+0.1 $\sigma$ )
$y_{cal}$	0.9999	$1.0000^{+0.0063}_{-0.0062}$ (+0.0 $\sigma$ )	$z_{re}$	7.23	$7.0^{+2.1}_{-3.3}$ (-0.0 $\sigma$ )	$H(2.33)$	235.52	$235.6^{+1.7}_{-1.7}$ (+0.4 $\sigma$ )
$A_{217}^{CIB}$	42.4	$45^{+20}_{-20}$ (-0.1 $\sigma$ )	$10^9 A_s$	2.075	$2.068^{+0.096}_{-0.12}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5745.5	$5748^{+25}_{-26}$ (-0.1 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.997	—	$10^9 A_s e^{-2\tau}$	1.8747	$1.875^{+0.029}_{-0.027}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4459	$0.446^{+0.019}_{-0.020}$ (+0.2 $\sigma$ )
$A_{143}^{tSZ}$	6.86	$> 1.31$ (+0.1 $\sigma$ )	$D_{40}$	1214.3	$1217^{+31}_{-30}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7412	$0.740^{+0.018}_{-0.023}$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	238	$249^{+70}_{-70}$ (-0.1 $\sigma$ )	$D_{220}$	5737	$5738^{+97}_{-99}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4660	$0.466^{+0.016}_{-0.018}$ (+0.2 $\sigma$ )
$A_{143}^{PS}$	49.8	$42^{+20}_{-20}$ (-0.1 $\sigma$ )	$D_{810}$	2533.0	$2531^{+34}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6580	$0.657^{+0.015}_{-0.020}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	57.6	$42^{+20}_{-20}$ (+0.0 $\sigma$ )	$D_{1420}$	816.8	$816^{+12}_{-11}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4657	$0.465^{+0.015}_{-0.016}$ (+0.2 $\sigma$ )
$A_{217}^{PS}$	124.3	$116^{+20}_{-30}$ (+0.1 $\sigma$ )	$D_{2000}$	232.76	$232.2^{+3.9}_{-3.9}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6161	$0.615^{+0.014}_{-0.019}$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.00	$< 8.67$ (-0.1 $\sigma$ )	$n_{s,0.002}$	0.9722	$0.9705^{+0.0099}_{-0.010}$ (-0.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4615	$0.461^{+0.014}_{-0.015}$ (+0.2 $\sigma$ )
$A_{100}^{dustTT}$	8.76	$8.8^{+4.9}_{-4.6}$ (-0.1 $\sigma$ )	$Y_P$	0.245486	$0.24547^{+0.00016}_{-0.00014}$ (+0.4 $\sigma$ )	$\sigma_8(0.61)$	0.5865	$0.585^{+0.014}_{-0.018}$ (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	10.62	$10.6^{+4.5}_{-4.6}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246813	$0.24680^{+0.00016}_{-0.00014}$ (+0.4 $\sigma$ )	$f\sigma_8(2.33)$	0.2961	$0.2955^{+0.0066}_{-0.0086}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.7	$18.1^{+8.4}_{-8.4}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.541	$2.548^{+0.068}_{-0.068}$ (-0.4 $\sigma$ )	$\sigma_8(2.33)$	0.3056	$0.3050^{+0.0068}_{-0.0089}$ (+0.0 $\sigma$ )
$A_{217}^{dustTT}$	95.4	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.757	$13.763^{+0.056}_{-0.058}$ (-0.1 $\sigma$ )	$f_{2000}^{143}$	25.8	$27^{+7}_{-7}$ (-0.2 $\sigma$ )
$A_{100}^{dustTE}$	0.115	$0.114^{+0.10}_{-0.095}$	$z_*$	1089.44	$1089.50^{+0.63}_{-0.63}$ (-0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	29.7	$30^{+5}_{-5}$ (-0.2 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.072}_{-0.077}$	$r_*$	144.75	$144.74^{+0.63}_{-0.64}$ (-0.5 $\sigma$ )	$f_{2000}^{217}$	104.44	$105.1^{+4.9}_{-4.6}$ (-0.2 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.23}_{-0.22}$	$100\theta_*$	1.04130	$1.04129^{+0.00077}_{-0.00075}$ (-0.2 $\sigma$ )	$\chi_{small}^2$	395.67	$396.9 (\nu: 1.4)$ (+0.0 $\sigma$ )
$A_{143}^{dustTE}$	0.220	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.901	$13.900^{+0.060}_{-0.062}$ (-0.4 $\sigma$ )	$\chi_{lowl}^2$	22.06	$22.34 (\nu: 0.3)$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.659	$0.66^{+0.20}_{-0.21}$	$z_{drag}$	1060.35	$1060.29^{+0.79}_{-0.78}$ (+0.5 $\sigma$ )	$\chi_{plik}^2$	2337.1	$2353.2 (\nu: 15.5)$ (+297.5 $\sigma$ )
$A_{217}^{dustTE}$	2.05	$2.06^{+0.69}_{-0.68}$	$r_{drag}$	147.34	$147.34^{+0.64}_{-0.66}$ (-0.5 $\sigma$ )	$\chi_{6DF}^2$	0.002	$0.030 (\nu: 0.0)$ (-0.2 $\sigma$ )
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0015}$ (+0.1 $\sigma$ )	$k_D$	0.14079	$0.14076^{+0.00077}_{-0.00075}$ (+0.6 $\sigma$ )	$\chi_{MGS}^2$	1.82	$1.79 (\nu: 0.1)$ (-0.3 $\sigma$ )
$c_{217}$	0.99814	$0.9981^{+0.0016}_{-0.0017}$ (-0.1 $\sigma$ )	$100\theta_D$	0.160519	$0.16056^{+0.00047}_{-0.00046}$ (-0.5 $\sigma$ )	$\chi_{DR12BAO}^2$	3.43	$3.95 (\nu: 0.3)$ (-0.1 $\sigma$ )
$H_0$	68.33	$68.2^{+1.3}_{-1.2}$ (-0.1 $\sigma$ )	$z_{eq}$	3361	$3364^{+63}_{-63}$ (+0.3 $\sigma$ )	$\chi_{prior}^2$	1.3	$11.3 (\nu: 9.7)$ (+1.2 $\sigma$ )
$\Omega_\Lambda$	0.6974	$0.696^{+0.017}_{-0.017}$ (-0.2 $\sigma$ )	$k_{eq}$	0.010258	$0.01027^{+0.00019}_{-0.00019}$ (+0.3 $\sigma$ )	$\chi_{BAO}^2$	5.25	$5.77 (\nu: 0.3)$ (-0.2 $\sigma$ )
$\Omega_m$	0.3026	$0.304^{+0.017}_{-0.017}$ (+0.2 $\sigma$ )	$100\theta_{eq}$	0.8216	$0.821^{+0.012}_{-0.012}$ (-0.3 $\sigma$ )	$\chi_{CMB}^2$	2754.9	$2772.4 (\nu: 17.0)$ (+284.0 $\sigma$ )
$\Omega_m h^2$	0.14128	$0.1414^{+0.0026}_{-0.0026}$ (+0.3 $\sigma$ )	$100\theta_{s,eq}$	0.4535	$0.4532^{+0.0063}_{-0.0061}$ (-0.3 $\sigma$ )			
$\Omega_m h^3$	0.09654	$0.09649^{+0.00076}_{-0.00074}$ (+0.4 $\sigma$ )	$H(0.15)$	73.52	$73.4^{+1.1}_{-1.1}$ (-0.1 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 2761.40$ ;  $\Delta\chi_{eff}^2 = 1584.79$ ;  $\bar{\chi}_{eff}^2 = 2789.54$ ;  $\Delta\bar{\chi}_{eff}^2 = 1591.04$ ;  $R - 1 = 0.01310$

$\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  -0.01) MGS: 1.82 ( $\Delta$  -0.15) DR12BAO: 3.43 ( $\Delta$  0.05) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.67 ( $\Delta$  -0.01) commander\_dx12\_v3\_2\_29: 22.06 ( $\Delta$  0.17) plik\_rd12\_HM\_v22b\_TTTEEE: 2337.12



### 3.9 base\_Alens\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022780	$0.02274^{+0.00042}_{-0.00042} \quad (-0.7\sigma)$	$\Omega_m h^3$	0.09663	$0.09658^{+0.00075}_{-0.00076} \quad (-0.0\sigma)$	$100\theta_{s,eq}$	0.4574	$0.4571^{+0.0084}_{-0.0081} \quad (-1.5\sigma)$
$\Omega_c h^2$	0.11629	$0.1164^{+0.0037}_{-0.0037} \quad (+1.4\sigma)$	$\sigma_8$	0.7953	$0.794^{+0.022}_{-0.026} \quad (+1.0\sigma)$	$H(0.15)$	74.24	$74.2^{+1.7}_{-1.5} \quad (-1.4\sigma)$
$100\theta_{MC}$	1.04135	$1.04135^{+0.00080}_{-0.00082} \quad (-1.1\sigma)$	$S_8$	0.7848	$0.785^{+0.045}_{-0.046} \quad (+1.4\sigma)$	$D_M(0.15)$	628.2	$629^{+14}_{-15} \quad (+1.4\sigma)$
$\tau$	0.0519	$0.050^{+0.020}_{-0.030} \quad (-0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4298	$0.430^{+0.025}_{-0.025} \quad (+1.4\sigma)$	$H(0.38)$	84.02	$84.0^{+1.3}_{-1.1} \quad (-1.3\sigma)$
$A_L$	1.229	$1.22^{+0.15}_{-0.16} \quad (-1.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.5847	$0.584^{+0.024}_{-0.026} \quad (+1.3\sigma)$	$D_M(0.38)$	1502.8	$1504^{+29}_{-31} \quad (+1.4\sigma)$
$\ln(10^{10} A_s)$	3.031	$3.027^{+0.043}_{-0.059} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	0.9564	$0.955^{+0.034}_{-0.037} \quad (+1.2\sigma)$	$H(0.51)$	90.55	$90.5^{+1.0}_{-0.85} \quad (-1.3\sigma)$
$n_s$	0.9769	$0.975^{+0.010}_{-0.012} \quad (-1.2\sigma)$	$r_{drag} h$	102.10	$102.0^{+3.2}_{-2.9} \quad (-1.5\sigma)$	$D_M(0.51)$	1949.8	$1951^{+34}_{-37} \quad (+1.4\sigma)$
$y_{cal}$	0.9999	$0.99996^{+0.0064}_{-0.0059} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	2.622	$2.61^{+0.13}_{-0.15} \quad (-0.7\sigma)$	$H(0.61)$	96.02	$95.98^{+0.83}_{-0.69} \quad (-1.2\sigma)$
$A_{217}^{CIB}$	41.8	$44^{+20}_{-20} \quad (+0.0\sigma)$	$z_{re}$	7.29	$7.1^{+1.9}_{-3.4} \quad (-0.1\sigma)$	$D_M(0.61)$	2271.4	$2273^{+36}_{-40} \quad (+1.4\sigma)$
$\xi^{tSZ \times CIB}$	1.00	—	$10^9 A_s$	2.072	$2.064^{+0.090}_{-0.12} \quad (+0.2\sigma)$	$H(2.33)$	234.57	$234.6^{+2.1}_{-2.0} \quad (+1.4\sigma)$
$A_{143}^{tSZ}$	7.03	$> 1.56 \quad (+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	1.8675	$1.867^{+0.030}_{-0.031} \quad (+0.9\sigma)$	$D_M(2.33)$	5731.3	$5733^{+31}_{-34} \quad (+1.1\sigma)$
$A_{100}^{PS}$	234	$246^{+70}_{-70} \quad (+0.0\sigma)$	$D_{40}$	1204.5	$1208^{+33}_{-31} \quad (+1.0\sigma)$	$f\sigma_8(0.15)$	0.4358	$0.436^{+0.023}_{-0.024} \quad (+1.4\sigma)$
$A_{143}^{PS}$	46.5	$40^{+20}_{-20} \quad (+0.2\sigma)$	$D_{220}$	5745	$5748^{+98}_{-100} \quad (-0.2\sigma)$	$\sigma_8(0.15)$	0.7369	$0.735^{+0.019}_{-0.023} \quad (+0.9\sigma)$
$A_{143 \times 217}^{PS}$	55.7	$41^{+20}_{-20} \quad (+0.2\sigma)$	$D_{810}$	2530.9	$2529^{+35}_{-33} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	0.4581	$0.458^{+0.019}_{-0.020} \quad (+1.3\sigma)$
$A_{217}^{PS}$	123.3	$116^{+20}_{-30} \quad (+0.2\sigma)$	$D_{1420}$	817.5	$816^{+11}_{-12} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	0.6553	$0.654^{+0.016}_{-0.019} \quad (+0.7\sigma)$
$A^{kSZ}$	0.00	$< 8.54 \quad (-0.0\sigma)$	$D_{2000}$	233.55	$232.8^{+4.1}_{-3.9} \quad (-0.4\sigma)$	$f\sigma_8(0.51)$	0.4590	$0.458^{+0.017}_{-0.019} \quad (+1.3\sigma)$
$A_{100}^{dustTT}$	8.60	$8.9^{+4.9}_{-4.6} \quad (-0.0\sigma)$	$n_{s,0.002}$	0.9769	$0.975^{+0.010}_{-0.012} \quad (-1.2\sigma)$	$\sigma_8(0.51)$	0.6142	$0.613^{+0.014}_{-0.019} \quad (+0.6\sigma)$
$A_{143}^{dustTT}$	10.61	$10.5^{+4.6}_{-4.5} \quad (+0.1\sigma)$	$Y_P$	0.245548	$0.24554^{+0.00019}_{-0.00016} \quad (-0.7\sigma)$	$f\sigma_8(0.61)$	0.4557	$0.455^{+0.016}_{-0.017} \quad (+1.2\sigma)$
$A_{143 \times 217}^{dustTT}$	19.6	$18.0^{+7.8}_{-8.3} \quad (+0.1\sigma)$	$Y_P^{BBN}$	0.246875	$0.24686^{+0.00019}_{-0.00016} \quad (-0.7\sigma)$	$\sigma_8(0.61)$	0.5850	$0.584^{+0.014}_{-0.018} \quad (+0.5\sigma)$
$A_{217}^{dustTT}$	95.3	$94^{+20}_{-20} \quad (-0.0\sigma)$	$10^5 D/H$	2.512	$2.519^{+0.076}_{-0.073} \quad (+0.7\sigma)$	$f\sigma_8(2.33)$	0.2957	$0.2950^{+0.0066}_{-0.0088} \quad (+0.3\sigma)$
$A_{100}^{dustTE}$	0.113	$0.11^{+0.11}_{-0.10}$	Age/Gyr	13.727	$13.731^{+0.068}_{-0.075} \quad (+1.1\sigma)$	$\sigma_8(2.33)$	0.3058	$0.3050^{+0.0066}_{-0.0089} \quad (-0.0\sigma)$
$A_{100 \times 143}^{dustTE}$	0.133	$0.136^{+0.076}_{-0.074}$	$z_*$	1089.09	$1089.15^{+0.76}_{-0.71} \quad (+1.0\sigma)$	$f_{2000}^{143}$	24.3	$26^{+7}_{-7} \quad (+0.3\sigma)$
$A_{100 \times 217}^{dustTE}$	0.484	$0.48^{+0.23}_{-0.22}$	$r_*$	145.08	$145.08^{+0.71}_{-0.79} \quad (-1.4\sigma)$	$f_{2000}^{143 \times 217}$	28.6	$29^{+5}_{-5} \quad (+0.3\sigma)$
$A_{143}^{dustTE}$	0.215	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04150	$1.04150^{+0.00077}_{-0.00080} \quad (-1.1\sigma)$	$f_{2000}^{217}$	103.54	$104.3^{+4.7}_{-4.9} \quad (+0.3\sigma)$
$A_{143 \times 217}^{dustTE}$	0.657	$0.66^{+0.20}_{-0.21}$	$D_M(z_*)/\text{Gpc}$	13.930	$13.930^{+0.061}_{-0.073} \quad (-1.3\sigma)$	$\chi_{small}^2$	395.65	$396.8 \quad (\nu: 1.3) \quad (+0.0\sigma)$
$A_{217}^{dustTE}$	2.03	$2.04^{+0.66}_{-0.75}$	$z_{drag}$	1060.62	$1060.53^{+0.85}_{-0.83} \quad (-0.3\sigma)$	$\chi_{lowl}^2$	21.38	$21.66 \quad (\nu: 0.3) \quad (+1.3\sigma)$
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0017} \quad (+0.1\sigma)$	$r_{drag}$	147.62	$147.63^{+0.67}_{-0.76} \quad (-1.3\sigma)$	$\chi_{plik}^2$	2338.7	$2355.3 \quad (\nu: 18.6) \quad (+265.7\sigma)$
$c_{217}$	0.99809	$0.9981^{+0.0017}_{-0.0015} \quad (-0.1\sigma)$	$k_D$	0.14061	$0.14057^{+0.00082}_{-0.00074} \quad (+1.0\sigma)$	$\chi_{H073p45}^2$	6.7	$7.1 \quad (\nu: 2.1) \quad (+1.6\sigma)$
$H_0$	69.16	$69.1^{+1.9}_{-1.7} \quad (-1.4\sigma)$	$100\theta_D$	0.160391	$0.16044^{+0.00047}_{-0.00046} \quad (+0.1\sigma)$	$\chi_{prior}^2$	1.4	$11.3 \quad (\nu: 9.5) \quad (+1.2\sigma)$
$\Omega_\Lambda$	0.7079	$0.707^{+0.022}_{-0.022} \quad (-1.5\sigma)$	$z_{eq}$	3323	$3326^{+82}_{-79} \quad (+1.5\sigma)$	$\chi_{CMB}^2$	2755.8	$2773.8 \quad (\nu: 18.8) \quad (+263.6\sigma)$
$\Omega_m$	0.2921	$0.293^{+0.022}_{-0.022} \quad (+1.5\sigma)$	$k_{eq}$	0.010143	$0.01015^{+0.00025}_{-0.00024} \quad (+1.5\sigma)$			
$\Omega_m h^2$	0.13972	$0.1398^{+0.0034}_{-0.0033} \quad (+1.5\sigma)$	$100\theta_{eq}$	0.8292	$0.829^{+0.017}_{-0.016} \quad (-1.4\sigma)$			

Best-fit  $\chi_{eff}^2 = 2763.88$ ;  $\Delta\chi_{eff}^2 = 1588.57$ ;  $\bar{\chi}_{eff}^2 = 2792.09$ ;  $\Delta\bar{\chi}_{eff}^2 = 1594.32$ ;  $R - 1 = 0.02684$   
 $\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck.B: 395.65 ( $\Delta$  -0.01) commander\_dx12\_v3.2.29: 21.38 ( $\Delta$  0.92) plik\_rd12\_HM\_v22b\_TTTEEE: 2338.75 Hubble - H073p45: 6.67 ( $\Delta$  4.04)



### 3.10 base\_Alens\_plikHM\_TTTEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02259^{+0.00045}_{-0.00045} \quad (-0.1\sigma)$	$\Omega_{\text{m}}h^2$	$0.1413^{+0.0039}_{-0.0035} \quad (+0.6\sigma)$	$k_{\text{eq}}$	$0.01026^{+0.00028}_{-0.00026} \quad (+0.6\sigma)$
$\Omega_{\text{c}}h^2$	$0.1181^{+0.0042}_{-0.0038} \quad (+0.6\sigma)$	$\Omega_{\text{m}}h^3$	$0.09650^{+0.00076}_{-0.00075} \quad (+0.2\sigma)$	$100\theta_{\text{eq}}$	$0.822^{+0.017}_{-0.018} \quad (-0.6\sigma)$
$100\theta_{\text{MC}}$	$1.04114^{+0.00090}_{-0.00082} \quad (-0.5\sigma)$	$\sigma_8$	$0.802^{+0.021}_{-0.018} \quad (+0.5\sigma)$	$100\theta_{\text{s,eq}}$	$0.4535^{+0.0084}_{-0.0090} \quad (-0.6\sigma)$
$\tau$	$0.053^{+0.016}_{-0.010} \quad (-0.1\sigma)$	$S_8$	$0.806^{+0.050}_{-0.045} \quad (+0.6\sigma)$	$H(0.15)$	$73.5^{+1.5}_{-1.6} \quad (-0.5\sigma)$
$A_{\text{L}}$	$1.17^{+0.17}_{-0.16} \quad (-0.7\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.442^{+0.027}_{-0.025} \quad (+0.6\sigma)$	$D_{\text{M}}(0.15)$	$635^{+16}_{-15} \quad (+0.5\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.036^{+0.039}_{-0.026} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.595^{+0.025}_{-0.023} \quad (+0.6\sigma)$	$H(0.38)$	$83.5^{+1.2}_{-1.2} \quad (-0.5\sigma)$
$n_{\text{s}}$	$0.971^{+0.012}_{-0.012} \quad (-0.5\sigma)$	$\sigma_8/h^{0.5}$	$0.971^{+0.035}_{-0.033} \quad (+0.5\sigma)$	$D_{\text{M}}(0.38)$	$1518^{+32}_{-30} \quad (+0.5\sigma)$
$y_{\text{cal}}$	$1.0000^{+0.0064}_{-0.0061} \quad (-0.0\sigma)$	$r_{\text{drag}}h$	$100.6^{+3.1}_{-3.2} \quad (-0.6\sigma)$	$H(0.51)$	$90.10^{+0.93}_{-0.91} \quad (-0.5\sigma)$
$A_{217}^{\text{CIB}}$	$45^{+20}_{-20} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.60^{+0.15}_{-0.15} \quad (-0.5\sigma)$	$D_{\text{M}}(0.51)$	$1967^{+37}_{-35} \quad (+0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 8.98 \quad (-0.1\sigma)$	$H(0.61)$	$95.66^{+0.75}_{-0.74} \quad (-0.4\sigma)$
$A_{143}^{\text{tSZ}}$	$> 1.34 \quad (+0.1\sigma)$	$10^9 A_{\text{s}}$	$2.082^{+0.082}_{-0.054} \quad (+0.2\sigma)$	$D_{\text{M}}(0.61)$	$2290^{+40}_{-38} \quad (+0.5\sigma)$
$A_{100}^{\text{PS}}$	$249^{+70}_{-70} \quad (-0.0\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.874^{+0.033}_{-0.030} \quad (+0.5\sigma)$	$H(2.33)$	$235.5^{+2.4}_{-2.2} \quad (+0.7\sigma)$
$A_{143}^{\text{PS}}$	$42^{+20}_{-20} \quad (+0.0\sigma)$	$D_{40}$	$1217^{+35}_{-34} \quad (+0.5\sigma)$	$D_{\text{M}}(2.33)$	$5747^{+33}_{-33} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (+0.1\sigma)$	$D_{220}$	$5739^{+96}_{-97} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.447^{+0.025}_{-0.023} \quad (+0.6\sigma)$
$A_{217}^{\text{PS}}$	$116^{+20}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2531^{+36}_{-34} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.742^{+0.018}_{-0.015} \quad (+0.5\sigma)$
$A^{\text{kSZ}}$	$< 8.71 \quad (-0.1\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.467^{+0.020}_{-0.019} \quad (+0.6\sigma)$
$A_{100}^{\text{dustTT}}$	$8.8^{+4.9}_{-4.7} \quad (-0.1\sigma)$	$D_{2000}$	$232.2^{+3.9}_{-4.1} \quad (-0.1\sigma)$	$\sigma_8(0.38)$	$0.659^{+0.014}_{-0.012} \quad (+0.4\sigma)$
$A_{143}^{\text{dustTT}}$	$10.6^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$n_{\text{s},0.002}$	$0.971^{+0.012}_{-0.012} \quad (-0.5\sigma)$	$f\sigma_8(0.51)$	$0.466^{+0.017}_{-0.017} \quad (+0.6\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.1^{+8.4}_{-8.4} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.24548^{+0.00019}_{-0.00018} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.617^{+0.013}_{-0.010} \quad (+0.4\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24680^{+0.00019}_{-0.00018} \quad (-0.1\sigma)$	$f\sigma_8(0.61)$	$0.462^{+0.016}_{-0.015} \quad (+0.6\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.099}_{-0.094}$	$10^5 \text{D}/\text{H}$	$2.546^{+0.083}_{-0.080} \quad (+0.1\sigma)$	$\sigma_8(0.61)$	$0.587^{+0.012}_{-0.0093} \quad (+0.3\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.076}_{-0.077}$	$\text{Age}/\text{Gyr}$	$13.760^{+0.073}_{-0.073} \quad (+0.3\sigma)$	$f\sigma_8(2.33)$	$0.2965^{+0.0059}_{-0.0042} \quad (+0.2\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.48^{+0.84}_{-0.79} \quad (+0.3\sigma)$	$\sigma_8(2.33)$	$0.3060^{+0.0059}_{-0.0040} \quad (+0.0\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$r_*$	$144.76^{+0.83}_{-0.87} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$27^{+7}_{-8} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$100\theta_*$	$1.04130^{+0.00087}_{-0.00080} \quad (-0.5\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+5}_{-5} \quad (-0.0\sigma)$
$A_{217}^{\text{dustTE}}$	$2.05^{+0.70}_{-0.67}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.902^{+0.077}_{-0.079} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$105.0^{+4.9}_{-4.8} \quad (+0.0\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0015} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1060.30^{+0.85}_{-0.87} \quad (+0.1\sigma)$	$\chi_{\text{small}}^2$	$396.4 \quad (\nu: 0.6) \quad (-0.0\sigma)$
$c_{217}$	$0.9981^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\text{drag}}$	$147.36^{+0.81}_{-0.83} \quad (-0.8\sigma)$	$\chi_{\text{lowl}}^2$	$22.38 \quad (\nu: 0.4) \quad (+0.5\sigma)$
$H_0$	$68.3^{+1.8}_{-1.9} \quad (-0.6\sigma)$	$k_{\text{D}}$	$0.14075^{+0.00087}_{-0.00081} \quad (+0.8\sigma)$	$\chi_{\text{plik}}^2$	$2353.8 \quad (\nu: 16.4) \quad (+285.0\sigma)$
$\Omega_{\Lambda}$	$0.697^{+0.022}_{-0.025} \quad (-0.6\sigma)$	$100\theta_{\text{D}}$	$0.16056^{+0.00050}_{-0.00047} \quad (-0.2\sigma)$	$\chi_{\text{prior}}^2$	$11.3 \quad (\nu: 9.5) \quad (+1.2\sigma)$
$\Omega_{\text{m}}$	$0.303^{+0.025}_{-0.022} \quad (+0.6\sigma)$	$z_{\text{eq}}$	$3361^{+93}_{-84} \quad (+0.6\sigma)$	$\chi_{\text{CMB}}^2$	$2772.6 \quad (\nu: 17.1) \quad (+279.8\sigma)$

$\bar{\chi}_{\text{eff}}^2 = 2783.87$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.25$ ;  $R - 1 = 0.01066$



### 3.11 base\_Alens\_plikHM\_TTTEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02258^{+0.00038}_{-0.00037} \quad (+0.4\sigma)$	$\sigma_8$	$0.803^{+0.018}_{-0.015} \quad (+0.2\sigma)$	$D_M(0.15)$	$636^{+11}_{-11} \quad (+0.1\sigma)$
$\Omega_c h^2$	$0.1182^{+0.0028}_{-0.0028} \quad (+0.3\sigma)$	$S_8$	$0.808^{+0.035}_{-0.034} \quad (+0.2\sigma)$	$H(0.38)$	$83.43^{+0.85}_{-0.81} \quad (-0.1\sigma)$
$100\theta_{MC}$	$1.04113^{+0.00079}_{-0.00073} \quad (-0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.442^{+0.019}_{-0.019} \quad (+0.2\sigma)$	$D_M(0.38)$	$1518^{+22}_{-22} \quad (+0.1\sigma)$
$\tau$	$0.053^{+0.016}_{-0.010} \quad (+0.0\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.596^{+0.019}_{-0.018} \quad (+0.2\sigma)$	$H(0.51)$	$90.07^{+0.69}_{-0.65} \quad (-0.0\sigma)$
$A_L$	$1.17^{+0.15}_{-0.15} \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.972^{+0.027}_{-0.025} \quad (+0.2\sigma)$	$D_M(0.51)$	$1968^{+26}_{-26} \quad (+0.1\sigma)$
$\ln(10^{10} A_s)$	$3.036^{+0.036}_{-0.027} \quad (+0.1\sigma)$	$r_{drag} h$	$100.5^{+2.2}_{-2.2} \quad (-0.2\sigma)$	$H(0.61)$	$95.64^{+0.58}_{-0.53} \quad (+0.0\sigma)$
$n_s$	$0.971^{+0.010}_{-0.0099} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.60^{+0.15}_{-0.15} \quad (-0.4\sigma)$	$D_M(0.61)$	$2291^{+28}_{-28} \quad (+0.1\sigma)$
$y_{cal}$	$1.0000^{+0.0063}_{-0.0061} \quad (+0.0\sigma)$	$z_{re}$	$< 9.00 \quad (-0.0\sigma)$	$H(2.33)$	$235.6^{+1.7}_{-1.7} \quad (+0.4\sigma)$
$A_{217}^{CIB}$	$44^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_s$	$2.083^{+0.076}_{-0.057} \quad (+0.1\sigma)$	$D_M(2.33)$	$5748^{+25}_{-26} \quad (-0.1\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s e^{-2\tau}$	$1.874^{+0.029}_{-0.027} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.448^{+0.018}_{-0.018} \quad (+0.2\sigma)$
$A_{143}^{tSZ}$	$> 1.28 \quad (+0.1\sigma)$	$D_{40}$	$1218^{+31}_{-31} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.743^{+0.016}_{-0.013} \quad (+0.1\sigma)$
$A_{100}^{PS}$	$250^{+70}_{-70} \quad (-0.0\sigma)$	$D_{220}$	$5738^{+97}_{-99} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.467^{+0.015}_{-0.015} \quad (+0.2\sigma)$
$A_{143}^{PS}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2531^{+34}_{-34} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.659^{+0.014}_{-0.010} \quad (+0.1\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (+0.0\sigma)$	$D_{1420}$	$816^{+12}_{-11} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.467^{+0.014}_{-0.013} \quad (+0.2\sigma)$
$A_{217}^{PS}$	$116^{+20}_{-30} \quad (+0.1\sigma)$	$D_{2000}$	$232.2^{+3.9}_{-3.9} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.617^{+0.013}_{-0.0091} \quad (+0.1\sigma)$
$A^{kSZ}$	$< 8.57 \quad (-0.1\sigma)$	$n_{s,0.002}$	$0.971^{+0.010}_{-0.0099} \quad (-0.1\sigma)$	$f\sigma_8(0.61)$	$0.463^{+0.012}_{-0.012} \quad (+0.2\sigma)$
$A_{100}^{dustTT}$	$8.8^{+4.9}_{-4.5} \quad (-0.0\sigma)$	$Y_P$	$0.24547^{+0.00015}_{-0.00014} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.587^{+0.012}_{-0.0083} \quad (+0.1\sigma)$
$A_{143}^{dustTT}$	$10.6^{+4.5}_{-4.6} \quad (+0.1\sigma)$	$Y_P^{BBN}$	$0.24680^{+0.00016}_{-0.00015} \quad (+0.4\sigma)$	$f\sigma_8(2.33)$	$0.2965^{+0.0058}_{-0.0040} \quad (+0.1\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.2^{+8.5}_{-8.6} \quad (+0.1\sigma)$	$10^5 D/H$	$2.548^{+0.069}_{-0.067} \quad (-0.4\sigma)$	$\sigma_8(2.33)$	$0.3060^{+0.0056}_{-0.0043} \quad (+0.0\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	Age/Gyr	$13.762^{+0.057}_{-0.058} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$27^{+7}_{-7} \quad (-0.2\sigma)$
$A_{100}^{dustTE}$	$0.114^{+0.10}_{-0.091}$	$z_*$	$1089.50^{+0.64}_{-0.62} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+5}_{-5} \quad (-0.2\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.072}_{-0.079}$	$r_*$	$144.74^{+0.63}_{-0.63} \quad (-0.5\sigma)$	$f_{2000}^{217}$	$105.1^{+4.8}_{-4.5} \quad (-0.2\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.23}_{-0.21}$	$100\theta_*$	$1.04129^{+0.00077}_{-0.00072} \quad (-0.2\sigma)$	$\chi_{small}^2$	$396.4 \quad (\nu: 0.6) \quad (+0.0\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.13}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$13.900^{+0.061}_{-0.062} \quad (-0.4\sigma)$	$\chi_{lowl}^2$	$22.40 \quad (\nu: 0.3) \quad (+0.1\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.20}_{-0.21}$	$z_{drag}$	$1060.29^{+0.79}_{-0.78} \quad (+0.5\sigma)$	$\chi_{plik}^2$	$2353.2 \quad (\nu: 15.4) \quad (+297.0\sigma)$
$A_{217}^{dustTE}$	$2.06^{+0.65}_{-0.68}$	$r_{drag}$	$147.34^{+0.64}_{-0.64} \quad (-0.5\sigma)$	$\chi_{6DF}^2$	$0.030 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$k_D$	$0.14076^{+0.00073}_{-0.00074} \quad (+0.6\sigma)$	$\chi_{MGS}^2$	$1.79 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$c_{217}$	$0.9981^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_D$	$0.16056^{+0.00047}_{-0.00046} \quad (-0.5\sigma)$	$\chi_{DR12BAO}^2$	$3.95 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$H_0$	$68.2^{+1.3}_{-1.3} \quad (-0.1\sigma)$	$z_{eq}$	$3364^{+62}_{-64} \quad (+0.3\sigma)$	$\chi_{prior}^2$	$11.3 \quad (\nu: 9.7) \quad (+1.2\sigma)$
$\Omega_\Lambda$	$0.696^{+0.017}_{-0.017} \quad (-0.2\sigma)$	$k_{eq}$	$0.01027^{+0.00019}_{-0.00019} \quad (+0.3\sigma)$	$\chi_{BAO}^2$	$5.78 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$\Omega_m$	$0.304^{+0.017}_{-0.017} \quad (+0.2\sigma)$	$100\theta_{eq}$	$0.821^{+0.012}_{-0.012} \quad (-0.3\sigma)$	$\chi_{CMB}^2$	$2772.0 \quad (\nu: 16.2) \quad (+290.2\sigma)$
$\Omega_m h^2$	$0.1414^{+0.0026}_{-0.0027} \quad (+0.3\sigma)$	$100\theta_{s,eq}$	$0.4532^{+0.0063}_{-0.0061} \quad (-0.3\sigma)$		
$\Omega_m h^3$	$0.09649^{+0.00075}_{-0.00074} \quad (+0.4\sigma)$	$H(0.15)$	$73.4^{+1.1}_{-1.1} \quad (-0.1\sigma)$		

$$\bar{\chi}_{eff}^2 = 2789.13; \Delta \bar{\chi}_{eff}^2 = 1591.05; R - 1 = 0.01550$$



### 3.12 base\_Alens\_plikHM\_TTTEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02274^{+0.00042}_{-0.00042} \quad (-0.7\sigma)$	$\Omega_m h^3$	$0.09658^{+0.00075}_{-0.00074} \quad (-0.0\sigma)$	$100\theta_{s,eq}$	$0.4572^{+0.0083}_{-0.0081} \quad (-1.5\sigma)$
$\Omega_c h^2$	$0.1164^{+0.0037}_{-0.0036} \quad (+1.5\sigma)$	$\sigma_8$	$0.796^{+0.020}_{-0.020} \quad (+1.1\sigma)$	$H(0.15)$	$74.2^{+1.6}_{-1.5} \quad (-1.4\sigma)$
$100\theta_{MC}$	$1.04136^{+0.00080}_{-0.00081} \quad (-1.1\sigma)$	$S_8$	$0.787^{+0.045}_{-0.048} \quad (+1.4\sigma)$	$D_M(0.15)$	$629^{+14}_{-15} \quad (+1.4\sigma)$
$\tau$	$0.053^{+0.016}_{-0.011} \quad (-0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.431^{+0.020}_{-0.026} \quad (+1.4\sigma)$	$H(0.38)$	$84.0^{+1.2}_{-1.1} \quad (-1.4\sigma)$
$A_L$	$1.21^{+0.16}_{-0.16} \quad (-1.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.586^{+0.023}_{-0.025} \quad (+1.3\sigma)$	$D_M(0.38)$	$1504^{+29}_{-31} \quad (+1.4\sigma)$
$\ln(10^{10} A_s)$	$3.033^{+0.039}_{-0.028} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.958^{+0.032}_{-0.035} \quad (+1.3\sigma)$	$H(0.51)$	$90.5^{+1.0}_{-0.86} \quad (-1.3\sigma)$
$n_s$	$0.975^{+0.010}_{-0.012} \quad (-1.2\sigma)$	$r_{drag} h$	$102.0^{+3.2}_{-2.9} \quad (-1.5\sigma)$	$D_M(0.51)$	$1951^{+34}_{-37} \quad (+1.4\sigma)$
$y_{cal}$	$0.9999^{+0.0064}_{-0.0060} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.61^{+0.13}_{-0.15} \quad (-0.7\sigma)$	$H(0.61)$	$95.99^{+0.82}_{-0.70} \quad (-1.3\sigma)$
$A_{217}^{CIB}$	$44^{+20}_{-20} \quad (+0.0\sigma)$	$z_{re}$	$< 8.95 \quad (-0.1\sigma)$	$D_M(0.61)$	$2273^{+36}_{-40} \quad (+1.4\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s$	$2.077^{+0.082}_{-0.057} \quad (+0.3\sigma)$	$H(2.33)$	$234.6^{+2.1}_{-2.0} \quad (+1.5\sigma)$
$A_{143}^{tSZ}$	$> 1.56 \quad (+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	$1.867^{+0.031}_{-0.031} \quad (+0.9\sigma)$	$D_M(2.33)$	$5733^{+31}_{-34} \quad (+1.2\sigma)$
$A_{100}^{PS}$	$246^{+70}_{-70} \quad (+0.1\sigma)$	$D_{40}$	$1208^{+32}_{-30} \quad (+1.0\sigma)$	$f\sigma_8(0.15)$	$0.437^{+0.023}_{-0.025} \quad (+1.4\sigma)$
$A_{143}^{PS}$	$40^{+20}_{-20} \quad (+0.2\sigma)$	$D_{220}$	$5747^{+97}_{-100} \quad (-0.2\sigma)$	$\sigma_8(0.15)$	$0.738^{+0.018}_{-0.016} \quad (+1.0\sigma)$
$A_{143 \times 217}^{PS}$	$41^{+20}_{-20} \quad (+0.2\sigma)$	$D_{810}$	$2528^{+35}_{-32} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.459^{+0.019}_{-0.021} \quad (+1.4\sigma)$
$A_{217}^{PS}$	$116^{+20}_{-30} \quad (+0.2\sigma)$	$D_{1420}$	$816^{+11}_{-12} \quad (+0.0\sigma)$	$\sigma_8(0.38)$	$0.656^{+0.014}_{-0.012} \quad (+0.8\sigma)$
$A^{kSZ}$	$< 8.54 \quad (-0.0\sigma)$	$D_{2000}$	$232.8^{+3.8}_{-3.8} \quad (-0.5\sigma)$	$f\sigma_8(0.51)$	$0.460^{+0.017}_{-0.018} \quad (+1.3\sigma)$
$A_{100}^{dustTT}$	$8.8^{+5.1}_{-4.5} \quad (-0.1\sigma)$	$n_{s,0.002}$	$0.975^{+0.010}_{-0.012} \quad (-1.2\sigma)$	$\sigma_8(0.51)$	$0.615^{+0.013}_{-0.011} \quad (+0.7\sigma)$
$A_{143}^{dustTT}$	$10.6^{+4.8}_{-4.5} \quad (+0.1\sigma)$	$Y_P$	$0.24554^{+0.00019}_{-0.00016} \quad (-0.7\sigma)$	$f\sigma_8(0.61)$	$0.456^{+0.015}_{-0.016} \quad (+1.3\sigma)$
$A_{143 \times 217}^{dustTT}$	$17.9^{+7.9}_{-8.5} \quad (+0.0\sigma)$	$Y_P^{BBN}$	$0.24686^{+0.00019}_{-0.00016} \quad (-0.7\sigma)$	$\sigma_8(0.61)$	$0.585^{+0.012}_{-0.0096} \quad (+0.6\sigma)$
$A_{217}^{dustTT}$	$93^{+20}_{-20} \quad (-0.1\sigma)$	$10^5 D/H$	$2.519^{+0.075}_{-0.073} \quad (+0.7\sigma)$	$f\sigma_8(2.33)$	$0.2959^{+0.0060}_{-0.0046} \quad (+0.4\sigma)$
$A_{100}^{dustTE}$	$0.12^{+0.11}_{-0.10}$	Age/Gyr	$13.731^{+0.068}_{-0.075} \quad (+1.1\sigma)$	$\sigma_8(2.33)$	$0.3060^{+0.0056}_{-0.0044} \quad (-0.0\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.076}_{-0.075}$	$z_*$	$1089.15^{+0.75}_{-0.70} \quad (+1.1\sigma)$	$f_{2000}^{143}$	$26^{+7}_{-7} \quad (+0.3\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.23}_{-0.22}$	$r_*$	$145.09^{+0.70}_{-0.79} \quad (-1.4\sigma)$	$f_{2000}^{143 \times 217}$	$29^{+5}_{-5} \quad (+0.3\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.04151^{+0.00076}_{-0.00080} \quad (-1.1\sigma)$	$f_{2000}^{217}$	$104.3^{+4.6}_{-4.9} \quad (+0.3\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.21}_{-0.20}$	$D_M(z_*)/\text{Gpc}$	$13.930^{+0.066}_{-0.071} \quad (-1.3\sigma)$	$\chi_{small}^2$	$396.3 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$A_{217}^{dustTE}$	$2.04^{+0.65}_{-0.73}$	$z_{drag}$	$1060.53^{+0.85}_{-0.79} \quad (-0.4\sigma)$	$\chi_{lowl}^2$	$21.71 \quad (\nu: 0.3) \quad (+1.3\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0017} \quad (+0.1\sigma)$	$r_{drag}$	$147.64^{+0.64}_{-0.77} \quad (-1.3\sigma)$	$\chi_{plik}^2$	$2355.4 \quad (\nu: 18.7) \quad (+265.6\sigma)$
$c_{217}$	$0.9981^{+0.0016}_{-0.0015} \quad (-0.1\sigma)$	$k_D$	$0.14056^{+0.00082}_{-0.00072} \quad (+1.0\sigma)$	$\chi_{H073p45}^2$	$7.0 \quad (\nu: 2.1) \quad (+1.6\sigma)$
$H_0$	$69.1^{+1.9}_{-1.7} \quad (-1.4\sigma)$	$100\theta_D$	$0.16044^{+0.00046}_{-0.00046} \quad (+0.1\sigma)$	$\chi_{prior}^2$	$11.3 \quad (\nu: 9.5) \quad (+1.2\sigma)$
$\Omega_\Lambda$	$0.707^{+0.022}_{-0.022} \quad (-1.5\sigma)$	$z_{eq}$	$3325^{+82}_{-78} \quad (+1.5\sigma)$	$\chi_{CMB}^2$	$2773.4 \quad (\nu: 18.3) \quad (+266.6\sigma)$
$\Omega_m$	$0.293^{+0.022}_{-0.022} \quad (+1.5\sigma)$	$k_{eq}$	$0.01015^{+0.00025}_{-0.00024} \quad (+1.5\sigma)$		
$\Omega_m h^2$	$0.1398^{+0.0034}_{-0.0033} \quad (+1.5\sigma)$	$100\theta_{eq}$	$0.829^{+0.017}_{-0.016} \quad (-1.5\sigma)$		

$$\bar{\chi}_{eff}^2 = 2791.77; \Delta \bar{\chi}_{eff}^2 = 1594.32; R - 1 = 0.03556$$



### 3.13 base\_Alens\_CamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02270	$0.02263^{+0.00075}_{-0.00073}$	$\sigma_8 \Omega_m^{0.5}$	0.4286	$0.430^{+0.042}_{-0.039}$	$H(0.15)$	74.25	$74.1^{+2.7}_{-2.7}$
$\Omega_c h^2$	0.1162	$0.1164^{+0.0065}_{-0.0062}$	$\sigma_8 \Omega_m^{0.25}$	0.5833	$0.584^{+0.038}_{-0.037}$	$D_M(0.15)$	628.1	$629^{+26}_{-25}$
$100\theta_{MC}$	1.04149	$1.0414^{+0.0014}_{-0.0014}$	$\sigma_8/h^{0.5}$	0.954	$0.956^{+0.053}_{-0.052}$	$H(0.38)$	84.02	$83.9^{+2.0}_{-2.0}$
$\tau$	0.0502	$0.050^{+0.021}_{-0.027}$	$r_{drag} h$	102.2	$102.0^{+5.3}_{-5.3}$	$D_M(0.38)$	1503	$1505^{+53}_{-50}$
$A_L$	1.270	$1.25^{+0.27}_{-0.24}$	$\langle d^2 \rangle^{1/2}$	2.656	$2.64^{+0.19}_{-0.21}$	$H(0.51)$	90.53	$90.5^{+1.7}_{-1.6}$
$\ln(10^{10} A_s)$	3.0260	$3.026^{+0.044}_{-0.053}$	$z_{re}$	7.14	$7.1^{+2.0}_{-3.1}$	$D_M(0.51)$	1950	$1953^{+62}_{-59}$
$n_s$	0.9776	$0.976^{+0.018}_{-0.019}$	$10^9 A_s$	2.061	$2.062^{+0.092}_{-0.11}$	$H(0.61)$	96.00	$95.9^{+1.4}_{-1.3}$
$y_{cal}$	0.9999	$1.0001^{+0.0067}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	1.8643	$1.864^{+0.038}_{-0.037}$	$D_M(0.61)$	2271	$2275^{+67}_{-65}$
$A_{100}^{PS}$	217	$229^{+60}_{-70}$	$D_{40}$	1200.1	$1204^{+45}_{-43}$	$H(2.33)$	234.44	$234.5^{+3.7}_{-3.5}$
$A_{143}^{PS}$	44.2	$33^{+20}_{-20}$	$D_{220}$	5727	$5728^{+110}_{-110}$	$D_M(2.33)$	5733	$5737^{+57}_{-59}$
$A_{217}^{PS}$	109.9	$104^{+30}_{-30}$	$D_{810}$	2526.2	$2525^{+37}_{-36}$	$f\sigma_8(0.15)$	0.4346	$0.436^{+0.039}_{-0.037}$
$A_{217}^{CIB}$	36.7	$37^{+20}_{-20}$	$D_{1420}$	815.6	$814^{+13}_{-13}$	$\sigma_8(0.15)$	0.7354	$0.735^{+0.023}_{-0.024}$
$A_{143}^{tSZ}$	6.24	$< 8.89$	$D_{2000}$	233.2	$232.3^{+5.3}_{-5.6}$	$f\sigma_8(0.38)$	0.4569	$0.458^{+0.032}_{-0.031}$
$r_{143 \times 217}^{PS}$	0.796	$> 0.352$	$n_{s,0.002}$	0.9776	$0.976^{+0.018}_{-0.019}$	$\sigma_8(0.38)$	0.6541	$0.654^{+0.018}_{-0.019}$
$r_{143 \times 217}^{CIB}$	0.74	—	$Y_P$	0.245516	$0.24549^{+0.00032}_{-0.00031}$	$f\sigma_8(0.51)$	0.4579	$0.458^{+0.027}_{-0.027}$
$\xi^{tSZ \times CIB}$	0.996	—	$Y_P^{BBN}$	0.246843	$0.24682^{+0.00032}_{-0.00031}$	$\sigma_8(0.51)$	0.6130	$0.613^{+0.016}_{-0.017}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.527	$2.54^{+0.14}_{-0.13}$	$f\sigma_8(0.61)$	0.4546	$0.455^{+0.024}_{-0.024}$
$A_{100}^{dust}$	1.010	$1.01^{+0.49}_{-0.49}$	Age/Gyr	13.730	$13.74^{+0.13}_{-0.13}$	$\sigma_8(0.61)$	0.5839	$0.584^{+0.014}_{-0.016}$
$A_{143}^{dust}$	0.948	$0.95^{+0.44}_{-0.45}$	$z_*$	1089.18	$1089.3^{+1.4}_{-1.3}$	$f\sigma_8(2.33)$	0.2952	$0.2950^{+0.0068}_{-0.0077}$
$A_{217}^{dust}$	0.990	$0.98^{+0.27}_{-0.26}$	$r_*$	145.17	$145.2^{+1.3}_{-1.3}$	$\sigma_8(2.33)$	0.3053	$0.3050^{+0.0068}_{-0.0083}$
$A_{143 \times 217}^{dust}$	1.016	$1.02^{+0.41}_{-0.42}$	$100\theta_*$	1.04165	$1.0416^{+0.0014}_{-0.0014}$	$f_{2000}^{143}$	25.2	$26^{+9}_{-8}$
$c_{100}$	0.99788	$0.9975^{+0.0027}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	13.936	$13.94^{+0.12}_{-0.12}$	$f_{2000}^{217}$	103.3	$104.3^{+6.1}_{-6.1}$
$c_{217}$	1.00076	$1.0008^{+0.0042}_{-0.0040}$	$z_{drag}$	1060.43	$1060.3^{+1.4}_{-1.4}$	$f_{2000}^{143 \times 217}$	28.5	$29^{+7}_{-7}$
$H_0$	69.18	$69.0^{+3.1}_{-3.1}$	$r_{drag}$	147.74	$147.8^{+1.3}_{-1.3}$	$\chi_{small}^2$	395.71	$396.8 (\nu: 1.2)$
$\Omega_\Lambda$	0.7084	$0.707^{+0.035}_{-0.041}$	$k_D$	0.14043	$0.1403^{+0.0013}_{-0.0013}$	$\chi_{lowl}^2$	21.18	$21.6 (\nu: 0.5)$
$\Omega_m$	0.2916	$0.293^{+0.041}_{-0.035}$	$100\theta_D$	0.16052	$0.16061^{+0.00080}_{-0.00073}$	$\chi_{CamSpec}^2$	7046.0	$7059.9 (\nu: 14.2)$
$\Omega_m h^2$	0.1395	$0.1397^{+0.0060}_{-0.0057}$	$z_{eq}$	3319	$3322^{+140}_{-140}$	$\chi_{prior}^2$	1.4	$7.2 (\nu: 5.4)$
$\Omega_m h^3$	0.09654	$0.0964^{+0.0013}_{-0.0014}$	$k_{eq}$	0.010131	$0.01014^{+0.00044}_{-0.00042}$	$\chi_{CMB}^2$	7462.8	$7478.3 (\nu: 15.1)$
$\sigma_8$	0.7937	$0.794^{+0.028}_{-0.029}$	$100\theta_{eq}$	0.8298	$0.829^{+0.028}_{-0.028}$			
$S_8$	0.783	$0.785^{+0.077}_{-0.072}$	$100\theta_{s,eq}$	0.4578	$0.457^{+0.014}_{-0.014}$			

Best-fit  $\chi_{eff}^2 = 7464.21$ ;  $\bar{\chi}_{eff}^2 = 7485.53$ ;  $R - 1 = 0.00653$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.71 commander\_dx12\_v3.2\_29: 21.18 CamSpec like\_10.7HM: 7045.95



### 3.14 base\_Alens\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02250^{+0.00057}_{-0.00057}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.592^{+0.022}_{-0.024}$	$H(0.38)$	$83.5^{+1.0}_{-1.0}$
$\Omega_{\text{c}} h^2$	$0.1178^{+0.0034}_{-0.0033}$	$\sigma_8 / h^{0.5}$	$0.966^{+0.032}_{-0.036}$	$D_{\text{M}}(0.38)$	$1517^{+28}_{-26}$
$100\theta_{\text{MC}}$	$1.0412^{+0.0011}_{-0.0012}$	$r_{\text{drag}} h$	$100.8^{+2.6}_{-2.6}$	$H(0.51)$	$90.10^{+0.87}_{-0.87}$
$\tau$	$0.050^{+0.021}_{-0.026}$	$\langle d^2 \rangle^{1/2}$	$2.62^{+0.18}_{-0.20}$	$D_{\text{M}}(0.51)$	$1966^{+32}_{-31}$
$A_{\text{L}}$	$1.21^{+0.21}_{-0.20}$	$z_{\text{re}}$	$7.1^{+2.1}_{-3.0}$	$H(0.61)$	$95.64^{+0.76}_{-0.75}$
$\ln(10^{10} A_{\text{s}})$	$3.028^{+0.043}_{-0.053}$	$10^9 A_{\text{s}}$	$2.065^{+0.091}_{-0.11}$	$D_{\text{M}}(0.61)$	$2289^{+35}_{-34}$
$n_{\text{s}}$	$0.972^{+0.012}_{-0.012}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.870^{+0.032}_{-0.029}$	$H(2.33)$	$235.3^{+2.0}_{-2.0}$
$y_{\text{cal}}$	$1.0001^{+0.0069}_{-0.0067}$	$D_{40}$	$1212^{+33}_{-34}$	$D_{\text{M}}(2.33)$	$5749^{+37}_{-37}$
$A_{100}^{\text{PS}}$	$230^{+70}_{-70}$	$D_{220}$	$5720^{+110}_{-110}$	$f\sigma_8(0.15)$	$0.444^{+0.022}_{-0.022}$
$A_{143}^{\text{PS}}$	$35^{+20}_{-20}$	$D_{810}$	$2526^{+37}_{-36}$	$\sigma_8(0.15)$	$0.739^{+0.018}_{-0.022}$
$A_{217}^{\text{PS}}$	$104^{+30}_{-30}$	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.464^{+0.018}_{-0.019}$
$A_{217}^{\text{CIB}}$	$37^{+20}_{-20}$	$D_{2000}$	$231.8^{+5.0}_{-4.9}$	$\sigma_8(0.38)$	$0.656^{+0.015}_{-0.019}$
$A_{143}^{\text{tSZ}}$	$< 8.75$	$n_{\text{s},0.002}$	$0.972^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	$0.464^{+0.016}_{-0.018}$
$r_{143 \times 217}^{\text{PS}}$	$> 0.371$	$Y_{\text{P}}$	$0.24544^{+0.00024}_{-0.00024}$	$\sigma_8(0.51)$	$0.615^{+0.014}_{-0.017}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00024}_{-0.00024}$	$f\sigma_8(0.61)$	$0.460^{+0.015}_{-0.017}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^5 \text{D/H}$	$2.56^{+0.11}_{-0.10}$	$\sigma_8(0.61)$	$0.585^{+0.013}_{-0.016}$
$A^{\text{kSZ}}$	—	$\text{Age/Gyr}$	$13.765^{+0.085}_{-0.083}$	$f\sigma_8(2.33)$	$0.2954^{+0.0067}_{-0.0079}$
$A_{100}^{\text{dust}}$	$1.01^{+0.48}_{-0.48}$	$z_*$	$1089.57^{+0.87}_{-0.83}$	$\sigma_8(2.33)$	$0.3050^{+0.0068}_{-0.0083}$
$A_{143}^{\text{dust}}$	$0.96^{+0.45}_{-0.47}$	$r_*$	$144.90^{+0.81}_{-0.79}$	$f_{2000}^{143}$	$27^{+8}_{-8}$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.26}$	$100\theta_*$	$1.0414^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$104.8^{+5.4}_{-5.7}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.41}_{-0.42}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.914^{+0.081}_{-0.076}$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0026}$	$z_{\text{drag}}$	$1060.1^{+1.2}_{-1.3}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.3)$
$c_{217}$	$1.0008^{+0.0042}_{-0.0039}$	$r_{\text{drag}}$	$147.53^{+0.90}_{-0.84}$	$\chi_{\text{lowl}}^2$	$22.00 (\nu: 0.3)$
$H_0$	$68.4^{+1.6}_{-1.6}$	$k_{\text{D}}$	$0.1405^{+0.0011}_{-0.0012}$	$\chi_{\text{CamSpec}}^2$	$7058.9 (\nu: 13.4)$
$\Omega_{\Lambda}$	$0.698^{+0.019}_{-0.021}$	$100\theta_{\text{D}}$	$0.16070^{+0.00070}_{-0.00066}$	$\chi_{6\text{DF}}^2$	$0.049 (\nu: 0.0)$
$\Omega_{\text{m}}$	$0.302^{+0.021}_{-0.019}$	$z_{\text{eq}}$	$3353^{+76}_{-75}$	$\chi_{\text{MGS}}^2$	$1.99 (\nu: 0.2)$
$\Omega_{\text{m}} h^2$	$0.1409^{+0.0032}_{-0.0031}$	$k_{\text{eq}}$	$0.01023^{+0.00023}_{-0.00023}$	$\chi_{\text{DR12BAO}}^2$	$4.06 (\nu: 0.5)$
$\Omega_{\text{m}} h^3$	$0.0963^{+0.0012}_{-0.0014}$	$100\theta_{\text{eq}}$	$0.823^{+0.015}_{-0.014}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 5.6)$
$\sigma_8$	$0.799^{+0.020}_{-0.024}$	$100\theta_{\text{s,eq}}$	$0.4543^{+0.0074}_{-0.0074}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.8)$
$S_8$	$0.801^{+0.042}_{-0.042}$	$H(0.15)$	$73.5^{+1.4}_{-1.4}$	$\chi_{\text{CMB}}^2$	$7477.8 (\nu: 14.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.439^{+0.023}_{-0.023}$	$D_{\text{M}}(0.15)$	$635^{+14}_{-13}$		

$$\bar{\chi}_{\text{eff}}^2 = 7491.23; R - 1 = 0.01433$$



### 3.15 base\_Alens\_CamSpecHM\_TT\_lowl\_lowE\_post\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02293^{+0.00060}_{-0.00066}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.411^{+0.034}_{-0.028}$	$H(0.15)$	$75.5^{+2.0}_{-2.2}$
$\Omega_{\text{c}}h^2$	$0.1133^{+0.0052}_{-0.0048}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.567^{+0.032}_{-0.026}$	$D_{\text{M}}(0.15)$	$617^{+21}_{-17}$
$100\theta_{\text{MC}}$	$1.0419^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.932^{+0.045}_{-0.037}$	$H(0.38)$	$84.9^{+1.5}_{-1.7}$
$\tau$	$0.052^{+0.024}_{-0.025}$	$r_{\text{drag}}h$	$104.7^{+4.2}_{-4.3}$	$D_{\text{M}}(0.38)$	$1480^{+42}_{-36}$
$A_{\text{L}}$	$1.33^{+0.26}_{-0.24}$	$\langle d^2 \rangle^{1/2}$	$2.67^{+0.19}_{-0.20}$	$H(0.51)$	$91.3^{+1.3}_{-1.3}$
$\ln(10^{10}A_{\text{s}})$	$3.023^{+0.048}_{-0.047}$	$z_{\text{re}}$	$7.2^{+2.3}_{-2.6}$	$D_{\text{M}}(0.51)$	$1922^{+50}_{-43}$
$n_{\text{s}}$	$0.984^{+0.014}_{-0.016}$	$10^9 A_{\text{s}}$	$2.06^{+0.10}_{-0.094}$	$H(0.61)$	$96.6^{+1.0}_{-1.1}$
$y_{\text{cal}}$	$1.0001^{+0.0061}_{-0.0069}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.852^{+0.034}_{-0.032}$	$D_{\text{M}}(0.61)$	$2242^{+54}_{-47}$
$A_{100}^{\text{PS}}$	$225^{+60}_{-70}$	$D_{40}$	$1188^{+39}_{-37}$	$H(2.33)$	$232.8^{+3.0}_{-2.9}$
$A_{143}^{\text{PS}}$	$30^{+20}_{-20}$	$D_{220}$	$5746^{+100}_{-120}$	$D_{\text{M}}(2.33)$	$5709^{+50}_{-43}$
$A_{217}^{\text{PS}}$	$105^{+30}_{-40}$	$D_{810}$	$2521^{+36}_{-35}$	$f\sigma_8(0.15)$	$0.418^{+0.032}_{-0.027}$
$A_{217}^{\text{CIB}}$	$35^{+20}_{-20}$	$D_{1420}$	$816^{+12}_{-12}$	$\sigma_8(0.15)$	$0.727^{+0.022}_{-0.022}$
$A_{143}^{\text{tSZ}}$	$< 8.89$	$D_{2000}$	$233.8^{+4.7}_{-5.1}$	$f\sigma_8(0.38)$	$0.443^{+0.026}_{-0.022}$
$r_{143 \times 217}^{\text{PS}}$	$> 0.353$	$n_{\text{s},0.002}$	$0.984^{+0.014}_{-0.016}$	$\sigma_8(0.38)$	$0.649^{+0.017}_{-0.017}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.24562^{+0.00026}_{-0.00027}$	$f\sigma_8(0.51)$	$0.446^{+0.023}_{-0.020}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24695^{+0.00026}_{-0.00027}$	$\sigma_8(0.51)$	$0.609^{+0.016}_{-0.015}$
$A^{\text{kSZ}}$	—	$10^5\text{D}/\text{H}$	$2.49^{+0.12}_{-0.10}$	$f\sigma_8(0.61)$	$0.444^{+0.021}_{-0.018}$
$A_{100}^{\text{dust}}$	$1.01^{+0.49}_{-0.48}$	$\text{Age}/\text{Gyr}$	$13.68^{+0.11}_{-0.092}$	$\sigma_8(0.61)$	$0.581^{+0.015}_{-0.014}$
$A_{143}^{\text{dust}}$	$0.95^{+0.42}_{-0.45}$	$z_*$	$1088.7^{+1.1}_{-0.99}$	$f\sigma_8(2.33)$	$0.2943^{+0.0071}_{-0.0070}$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.27}$	$r_*$	$145.8^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	$0.3052^{+0.0077}_{-0.0076}$
$A_{143 \times 217}^{\text{dust}}$	$1.01^{+0.42}_{-0.42}$	$100\theta_*$	$1.0421^{+0.0011}_{-0.0012}$	$f_{2000}^{143}$	$24^{+9}_{-8}$
$c_{100}$	$0.9976^{+0.0028}_{-0.0026}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.99^{+0.11}_{-0.11}$	$f_{2000}^{217}$	$102.9^{+5.8}_{-5.4}$
$c_{217}$	$1.0006^{+0.0041}_{-0.0043}$	$z_{\text{drag}}$	$1060.7^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$28^{+6}_{-6}$
$H_0$	$70.6^{+2.2}_{-2.5}$	$r_{\text{drag}}$	$148.3^{+1.2}_{-1.1}$	$\chi_{\text{simall}}^2$	$396.8 (\nu: 1.2)$
$\Omega_{\Lambda}$	$0.725^{+0.026}_{-0.031}$	$k_{\text{D}}$	$0.1400^{+0.0012}_{-0.0013}$	$\chi_{\text{lowl}}^2$	$20.64 (\nu: 0.2)$
$\Omega_{\text{m}}$	$0.275^{+0.031}_{-0.026}$	$100\theta_{\text{D}}$	$0.16039^{+0.00072}_{-0.00066}$	$\chi_{\text{CamSpec}}^2$	$7062.5 (\nu: 16.4)$
$\Omega_{\text{m}}h^2$	$0.1369^{+0.0048}_{-0.0045}$	$z_{\text{eq}}$	$3256^{+120}_{-110}$	$\chi_{\text{H073p45}}^2$	$3.3 (\nu: 2.2)$
$\Omega_{\text{m}}h^3$	$0.0966^{+0.0012}_{-0.0012}$	$k_{\text{eq}}$	$0.00994^{+0.00035}_{-0.00033}$	$\chi_{\text{prior}}^2$	$6.9 (\nu: 4.7)$
$\sigma_8$	$0.783^{+0.025}_{-0.024}$	$100\theta_{\text{eq}}$	$0.843^{+0.023}_{-0.023}$	$\chi_{\text{CMB}}^2$	$7479.9 (\nu: 16.9)$
$S_8$	$0.750^{+0.062}_{-0.051}$	$100\theta_{\text{s,eq}}$	$0.464^{+0.012}_{-0.012}$		

$\bar{\chi}_{\text{eff}}^2 = 7490.17$ ;  $R - 1 = 0.03353$



### 3.16 base\_Alens\_CamSpecHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02263^{+0.00075}_{-0.00072}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.431^{+0.042}_{-0.039}$	$H(0.15)$	$74.1^{+2.7}_{-2.7}$
$\Omega_{\mathrm{c}} h^2$	$0.1164^{+0.0065}_{-0.0062}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.586^{+0.038}_{-0.036}$	$D_{\mathrm{M}}(0.15)$	$629^{+27}_{-24}$
$100\theta_{\mathrm{MC}}$	$1.0414^{+0.0014}_{-0.0014}$	$\sigma_8/h^{0.5}$	$0.958^{+0.052}_{-0.050}$	$H(0.38)$	$83.9^{+2.0}_{-2.0}$
$\tau$	$0.053^{+0.017}_{-0.011}$	$r_{\mathrm{drag}} h$	$102.1^{+5.3}_{-5.4}$	$D_{\mathrm{M}}(0.38)$	$1505^{+54}_{-50}$
$A_{\mathrm{L}}$	$1.24^{+0.27}_{-0.24}$	$\langle d^2 \rangle^{1/2}$	$2.64^{+0.19}_{-0.21}$	$H(0.51)$	$90.5^{+1.7}_{-1.6}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.032^{+0.039}_{-0.028}$	$z_{\mathrm{re}}$	$< 9.05$	$D_{\mathrm{M}}(0.51)$	$1953^{+63}_{-60}$
$n_{\mathrm{s}}$	$0.976^{+0.018}_{-0.019}$	$10^9 A_{\mathrm{s}}$	$2.075^{+0.083}_{-0.057}$	$H(0.61)$	$95.9^{+1.4}_{-1.3}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0067}_{-0.0065}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.864^{+0.038}_{-0.037}$	$D_{\mathrm{M}}(0.61)$	$2274^{+69}_{-65}$
$A_{100}^{\mathrm{PS}}$	$228^{+60}_{-70}$	$D_{40}$	$1205^{+45}_{-43}$	$H(2.33)$	$234.5^{+3.7}_{-3.5}$
$A_{143}^{\mathrm{PS}}$	$33^{+20}_{-20}$	$D_{220}$	$5727^{+110}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5736^{+57}_{-59}$
$A_{217}^{\mathrm{PS}}$	$104^{+30}_{-30}$	$D_{810}$	$2525^{+37}_{-37}$	$f\sigma_8(0.15)$	$0.437^{+0.039}_{-0.037}$
$A_{217}^{\mathrm{CIB}}$	$37^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-14}$	$\sigma_8(0.15)$	$0.738^{+0.021}_{-0.021}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.89$	$D_{2000}$	$232.4^{+5.3}_{-5.6}$	$f\sigma_8(0.38)$	$0.459^{+0.031}_{-0.030}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.348$	$n_{\mathrm{s},0.002}$	$0.976^{+0.018}_{-0.019}$	$\sigma_8(0.38)$	$0.656^{+0.016}_{-0.016}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24549^{+0.00032}_{-0.00030}$	$f\sigma_8(0.51)$	$0.460^{+0.026}_{-0.026}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24682^{+0.00033}_{-0.00030}$	$\sigma_8(0.51)$	$0.615^{+0.014}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.54^{+0.14}_{-0.13}$	$f\sigma_8(0.61)$	$0.456^{+0.023}_{-0.024}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.49}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.74^{+0.13}_{-0.13}$	$\sigma_8(0.61)$	$0.585^{+0.013}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.44}_{-0.45}$	$z_*$	$1089.3^{+1.4}_{-1.3}$	$f\sigma_8(2.33)$	$0.2959^{+0.0062}_{-0.0048}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26}$	$r_*$	$145.2^{+1.3}_{-1.3}$	$\sigma_8(2.33)$	$0.3060^{+0.0061}_{-0.0045}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.42}$	$100\theta_*$	$1.0416^{+0.0014}_{-0.0014}$	$f_{2000}^{143}$	$26^{+9}_{-9}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.12}_{-0.12}$	$f_{2000}^{217}$	$104.3^{+6.1}_{-6.0}$
$c_{217}$	$1.0008^{+0.0041}_{-0.0040}$	$z_{\mathrm{drag}}$	$1060.3^{+1.4}_{-1.4}$	$f_{2000}^{143 \times 217}$	$29^{+7}_{-7}$
$H_0$	$69.1^{+3.1}_{-3.2}$	$r_{\mathrm{drag}}$	$147.8^{+1.3}_{-1.3}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.6)$
$\Omega_{\Lambda}$	$0.707^{+0.036}_{-0.042}$	$k_{\mathrm{D}}$	$0.1403^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{lowl}}^2$	$21.6 (\nu: 0.6)$
$\Omega_{\mathrm{m}}$	$0.293^{+0.042}_{-0.036}$	$100\theta_{\mathrm{D}}$	$0.16061^{+0.00081}_{-0.00073}$	$\chi_{\mathrm{CamSpec}}^2$	$7059.9 (\nu: 14.3)$
$\Omega_{\mathrm{m}} h^2$	$0.1396^{+0.0060}_{-0.0057}$	$z_{\mathrm{eq}}$	$3321^{+140}_{-140}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 5.4)$
$\Omega_{\mathrm{m}} h^3$	$0.0964^{+0.0012}_{-0.0014}$	$k_{\mathrm{eq}}$	$0.01014^{+0.00044}_{-0.00042}$	$\chi_{\mathrm{CMB}}^2$	$7477.9 (\nu: 14.6)$
$\sigma_8$	$0.796^{+0.026}_{-0.026}$	$100\theta_{\mathrm{eq}}$	$0.829^{+0.028}_{-0.028}$		
$S_8$	$0.787^{+0.077}_{-0.072}$	$100\theta_{\mathrm{s,eq}}$	$0.458^{+0.014}_{-0.014}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7485.10$ ;  $R - 1 = 0.00928$



### 3.17 base\_Alens\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02250^{+0.00055}_{-0.00058}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.594^{+0.021}_{-0.020}$	$H(0.38)$	$83.5^{+1.0}_{-1.0}$
$\Omega_{\text{c}} h^2$	$0.1178^{+0.0034}_{-0.0033}$	$\sigma_8 / h^{0.5}$	$0.969^{+0.030}_{-0.028}$	$D_{\text{M}}(0.38)$	$1517^{+28}_{-26}$
$100\theta_{\text{MC}}$	$1.0412^{+0.0011}_{-0.0012}$	$r_{\text{drag}} h$	$100.8^{+2.6}_{-2.7}$	$H(0.51)$	$90.10^{+0.87}_{-0.85}$
$\tau$	$0.053^{+0.017}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	$2.62^{+0.18}_{-0.21}$	$D_{\text{M}}(0.51)$	$1966^{+33}_{-31}$
$A_{\text{L}}$	$1.20^{+0.20}_{-0.19}$	$z_{\text{re}}$	$< 9.08$	$H(0.61)$	$95.64^{+0.76}_{-0.72}$
$\ln(10^{10} A_{\text{s}})$	$3.034^{+0.038}_{-0.027}$	$10^9 A_{\text{s}}$	$2.078^{+0.080}_{-0.056}$	$D_{\text{M}}(0.61)$	$2289^{+35}_{-34}$
$n_{\text{s}}$	$0.972^{+0.012}_{-0.011}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.870^{+0.032}_{-0.029}$	$H(2.33)$	$235.3^{+2.0}_{-2.0}$
$y_{\text{cal}}$	$1.0001^{+0.0071}_{-0.0068}$	$D_{40}$	$1212^{+33}_{-34}$	$D_{\text{M}}(2.33)$	$5749^{+37}_{-37}$
$A_{100}^{\text{PS}}$	$230^{+60}_{-70}$	$D_{220}$	$5719^{+110}_{-110}$	$f\sigma_8(0.15)$	$0.446^{+0.021}_{-0.020}$
$A_{143}^{\text{PS}}$	$35^{+20}_{-20}$	$D_{810}$	$2526^{+39}_{-37}$	$\sigma_8(0.15)$	$0.742^{+0.016}_{-0.014}$
$A_{217}^{\text{PS}}$	$104^{+30}_{-30}$	$D_{1420}$	$814^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.466^{+0.017}_{-0.017}$
$A_{217}^{\text{CIB}}$	$37^{+20}_{-20}$	$D_{2000}$	$231.8^{+5.1}_{-5.0}$	$\sigma_8(0.38)$	$0.658^{+0.013}_{-0.011}$
$A_{143}^{\text{tSZ}}$	$< 8.75$	$n_{\text{s},0.002}$	$0.972^{+0.012}_{-0.011}$	$f\sigma_8(0.51)$	$0.466^{+0.015}_{-0.015}$
$r_{143 \times 217}^{\text{PS}}$	$> 0.371$	$Y_{\text{P}}$	$0.24544^{+0.00023}_{-0.00024}$	$\sigma_8(0.51)$	$0.617^{+0.012}_{-0.010}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00023}_{-0.00024}$	$f\sigma_8(0.61)$	$0.461^{+0.014}_{-0.013}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^5 \text{D}/\text{H}$	$2.56^{+0.11}_{-0.099}$	$\sigma_8(0.61)$	$0.587^{+0.012}_{-0.0094}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.765^{+0.082}_{-0.083}$	$f\sigma_8(2.33)$	$0.2964^{+0.0058}_{-0.0046}$
$A_{100}^{\text{dust}}$	$1.01^{+0.47}_{-0.49}$	$z_*$	$1089.57^{+0.86}_{-0.83}$	$\sigma_8(2.33)$	$0.3060^{+0.0061}_{-0.0047}$
$A_{143}^{\text{dust}}$	$0.96^{+0.44}_{-0.47}$	$r_*$	$144.91^{+0.81}_{-0.79}$	$f_{2000}^{143}$	$27^{+8}_{-8}$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.26}$	$100\theta_*$	$1.0414^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$104.8^{+5.4}_{-5.8}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.41}_{-0.41}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.915^{+0.080}_{-0.073}$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0026}$	$z_{\text{drag}}$	$1060.1^{+1.2}_{-1.2}$	$\chi_{\text{simall}}^2$	$396.4 (\nu: 0.6)$
$c_{217}$	$1.0008^{+0.0042}_{-0.0040}$	$r_{\text{drag}}$	$147.54^{+0.90}_{-0.80}$	$\chi_{\text{lowl}}^2$	$22.05 (\nu: 0.3)$
$H_0$	$68.4^{+1.6}_{-1.6}$	$k_{\text{D}}$	$0.1405^{+0.0010}_{-0.0012}$	$\chi_{\text{CamSpec}}^2$	$7058.9 (\nu: 13.3)$
$\Omega_{\Lambda}$	$0.698^{+0.019}_{-0.021}$	$100\theta_{\text{D}}$	$0.16071^{+0.00071}_{-0.00065}$	$\chi_{6\text{DF}}^2$	$0.049 (\nu: 0.0)$
$\Omega_{\text{m}}$	$0.302^{+0.021}_{-0.019}$	$z_{\text{eq}}$	$3352^{+76}_{-74}$	$\chi_{\text{MGS}}^2$	$2.00 (\nu: 0.2)$
$\Omega_{\text{m}} h^2$	$0.1409^{+0.0032}_{-0.0031}$	$k_{\text{eq}}$	$0.01023^{+0.00023}_{-0.00023}$	$\chi_{\text{DR12BAO}}^2$	$4.06 (\nu: 0.5)$
$\Omega_{\text{m}} h^3$	$0.0963^{+0.0012}_{-0.0013}$	$100\theta_{\text{eq}}$	$0.823^{+0.014}_{-0.014}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 5.7)$
$\sigma_8$	$0.801^{+0.018}_{-0.017}$	$100\theta_{\text{s,eq}}$	$0.4543^{+0.0074}_{-0.0074}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.8)$
$S_8$	$0.804^{+0.041}_{-0.039}$	$H(0.15)$	$73.5^{+1.4}_{-1.4}$	$\chi_{\text{CMB}}^2$	$7477.4 (\nu: 13.9)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.440^{+0.022}_{-0.022}$	$D_{\text{M}}(0.15)$	$635^{+14}_{-13}$		

$\bar{\chi}_{\text{eff}}^2 = 7490.78; R - 1 = 0.01851$



### 3.18 base\_Alens\_CamSpecHM\_TT\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02293^{+0.00060}_{-0.00066}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.412^{+0.034}_{-0.028}$	$H(0.15)$	$75.5^{+1.9}_{-2.2}$
$\Omega_{\text{c}} h^2$	$0.1133^{+0.0052}_{-0.0045}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.569^{+0.031}_{-0.028}$	$D_{\text{M}}(0.15)$	$617^{+21}_{-17}$
$100\theta_{\text{MC}}$	$1.0419^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.935^{+0.044}_{-0.038}$	$H(0.38)$	$84.9^{+1.5}_{-1.7}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$r_{\text{drag}} h$	$104.7^{+3.8}_{-4.3}$	$D_{\text{M}}(0.38)$	$1479^{+42}_{-35}$
$A_{\text{L}}$	$1.33^{+0.25}_{-0.23}$	$\langle d^2 \rangle^{1/2}$	$2.67^{+0.18}_{-0.20}$	$H(0.51)$	$91.3^{+1.2}_{-1.4}$
$\ln(10^{10} A_{\text{s}})$	$3.029^{+0.041}_{-0.031}$	$z_{\text{re}}$	$< 9.25$	$D_{\text{M}}(0.51)$	$1922^{+50}_{-42}$
$n_{\text{s}}$	$0.984^{+0.013}_{-0.016}$	$10^9 A_{\text{s}}$	$2.068^{+0.085}_{-0.064}$	$H(0.61)$	$96.6^{+1.0}_{-1.1}$
$y_{\text{cal}}$	$1.0000^{+0.0064}_{-0.0070}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.851^{+0.034}_{-0.031}$	$D_{\text{M}}(0.61)$	$2242^{+54}_{-46}$
$A_{100}^{\text{PS}}$	$225^{+70}_{-70}$	$D_{40}$	$1188^{+39}_{-35}$	$H(2.33)$	$232.8^{+3.0}_{-2.8}$
$A_{143}^{\text{PS}}$	$30^{+20}_{-20}$	$D_{220}$	$5744^{+110}_{-110}$	$D_{\text{M}}(2.33)$	$5709^{+50}_{-43}$
$A_{217}^{\text{PS}}$	$105^{+30}_{-40}$	$D_{810}$	$2520^{+38}_{-35}$	$f\sigma_8(0.15)$	$0.419^{+0.032}_{-0.027}$
$A_{217}^{\text{CIB}}$	$35^{+20}_{-20}$	$D_{1420}$	$815^{+12}_{-12}$	$\sigma_8(0.15)$	$0.729^{+0.020}_{-0.018}$
$A_{143}^{\text{tSZ}}$	$< 9.05$	$D_{2000}$	$233.7^{+4.8}_{-5.2}$	$f\sigma_8(0.38)$	$0.444^{+0.026}_{-0.023}$
$r_{143 \times 217}^{\text{PS}}$	$> 0.347$	$n_{\text{s},0.002}$	$0.984^{+0.013}_{-0.016}$	$\sigma_8(0.38)$	$0.651^{+0.016}_{-0.013}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.24562^{+0.00026}_{-0.00027}$	$f\sigma_8(0.51)$	$0.447^{+0.023}_{-0.021}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24695^{+0.00026}_{-0.00027}$	$\sigma_8(0.51)$	$0.611^{+0.015}_{-0.012}$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.49^{+0.12}_{-0.10}$	$f\sigma_8(0.61)$	$0.445^{+0.020}_{-0.019}$
$A_{100}^{\text{dust}}$	$1.01^{+0.47}_{-0.47}$	$\text{Age}/\text{Gyr}$	$13.68^{+0.11}_{-0.092}$	$\sigma_8(0.61)$	$0.582^{+0.014}_{-0.011}$
$A_{143}^{\text{dust}}$	$0.95^{+0.41}_{-0.47}$	$z_*$	$1088.7^{+1.1}_{-0.99}$	$f\sigma_8(2.33)$	$0.2951^{+0.0067}_{-0.0048}$
$A_{217}^{\text{dust}}$	$0.98^{+0.28}_{-0.29}$	$r_*$	$145.8^{+1.1}_{-1.2}$	$\sigma_8(2.33)$	$0.3060^{+0.0072}_{-0.0046}$
$A_{143 \times 217}^{\text{dust}}$	$1.00^{+0.42}_{-0.44}$	$100\theta_*$	$1.0421^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	$24^{+9}_{-8}$
$c_{100}$	$0.9976^{+0.0029}_{-0.0027}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.99^{+0.11}_{-0.11}$	$f_{2000}^{217}$	$102.9^{+5.8}_{-5.5}$
$c_{217}$	$1.0005^{+0.0041}_{-0.0043}$	$z_{\text{drag}}$	$1060.7^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$28^{+6}_{-6}$
$H_0$	$70.6^{+2.2}_{-2.5}$	$r_{\text{drag}}$	$148.3^{+1.2}_{-1.1}$	$\chi_{\text{simall}}^2$	$396.5 (\nu: 0.8)$
$\Omega_{\Lambda}$	$0.725^{+0.024}_{-0.030}$	$k_{\text{D}}$	$0.1400^{+0.0012}_{-0.0013}$	$\chi_{\text{lowl}}^2$	$20.65 (\nu: 0.2)$
$\Omega_{\text{m}}$	$0.275^{+0.030}_{-0.024}$	$100\theta_{\text{D}}$	$0.16039^{+0.00074}_{-0.00067}$	$\chi_{\text{CamSpec}}^2$	$7062.6 (\nu: 16.9)$
$\Omega_{\text{m}} h^2$	$0.1369^{+0.0048}_{-0.0044}$	$z_{\text{eq}}$	$3255^{+120}_{-110}$	$\chi_{\text{H073p45}}^2$	$3.3 (\nu: 2.2)$
$\Omega_{\text{m}} h^3$	$0.0966^{+0.0012}_{-0.0012}$	$k_{\text{eq}}$	$0.00993^{+0.00035}_{-0.00032}$	$\chi_{\text{prior}}^2$	$6.9 (\nu: 4.8)$
$\sigma_8$	$0.785^{+0.024}_{-0.021}$	$100\theta_{\text{eq}}$	$0.843^{+0.022}_{-0.023}$	$\chi_{\text{CMB}}^2$	$7479.7 (\nu: 17.3)$
$S_8$	$0.752^{+0.061}_{-0.052}$	$100\theta_{\text{s,eq}}$	$0.465^{+0.011}_{-0.012}$		

$$\bar{\chi}_{\text{eff}}^2 = 7489.90; R - 1 = 0.05184$$



### 3.19 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02254	$0.02251^{+0.00050}_{-0.00051} \quad (-0.4\sigma)$	$\sigma_8$	0.8000	$0.799^{+0.022}_{-0.023} \quad (+0.4\sigma)$	$100\theta_{\text{eq}}$	0.8228	$0.822^{+0.017}_{-0.017} \quad (-0.6\sigma)$
$\Omega_c h^2$	0.11776	$0.1179^{+0.0040}_{-0.0039} \quad (+0.6\sigma)$	$S_8$	0.8023	$0.802^{+0.049}_{-0.047} \quad (+0.6\sigma)$	$100\theta_{\text{s,eq}}$	0.4542	$0.4540^{+0.0089}_{-0.0087} \quad (-0.6\sigma)$
$100\theta_{\text{MC}}$	1.04109	$1.04108^{+0.00087}_{-0.00084} \quad (-0.7\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4394	$0.439^{+0.027}_{-0.026} \quad (+0.6\sigma)$	$H(0.15)$	73.53	$73.5^{+1.6}_{-1.6} \quad (-0.6\sigma)$
$\tau$	0.0508	$0.050^{+0.021}_{-0.024} \quad (-0.1\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5929	$0.592^{+0.025}_{-0.025} \quad (+0.6\sigma)$	$D_{\text{M}}(0.15)$	635.0	$636^{+16}_{-16} \quad (+0.6\sigma)$
$A_{\text{L}}$	1.155	$1.15^{+0.19}_{-0.18} \quad (-1.0\sigma)$	$\sigma_8/h^{0.5}$	0.9676	$0.967^{+0.036}_{-0.036} \quad (+0.5\sigma)$	$H(0.38)$	83.47	$83.4^{+1.2}_{-1.2} \quad (-0.6\sigma)$
$\ln(10^{10} A_{\text{s}})$	3.0309	$3.028^{+0.043}_{-0.049} \quad (+0.1\sigma)$	$r_{\text{drag}} h$	100.81	$100.7^{+3.2}_{-3.2} \quad (-0.6\sigma)$	$D_{\text{M}}(0.38)$	1516.8	$1518^{+32}_{-31} \quad (+0.6\sigma)$
$n_{\text{s}}$	0.9725	$0.971^{+0.013}_{-0.013} \quad (-0.6\sigma)$	$\langle d^2 \rangle^{1/2}$	2.570	$2.56^{+0.17}_{-0.18} \quad (-0.9\sigma)$	$H(0.51)$	90.09	$90.05^{+0.99}_{-0.95} \quad (-0.6\sigma)$
$y_{\text{cal}}$	1.0001	$1.0000^{+0.0065}_{-0.0065} \quad (-0.0\sigma)$	$z_{\text{re}}$	7.25	$7.1^{+2.0}_{-2.7} \quad (-0.0\sigma)$	$D_{\text{M}}(0.51)$	1966.4	$1968^{+38}_{-37} \quad (+0.6\sigma)$
$A_{100}^{\text{PS}}$	223	$232^{+60}_{-60} \quad (+0.1\sigma)$	$10^9 A_{\text{s}}$	2.072	$2.065^{+0.091}_{-0.098} \quad (+0.1\sigma)$	$H(0.61)$	95.64	$95.60^{+0.82}_{-0.78} \quad (-0.6\sigma)$
$A_{143}^{\text{PS}}$	46.5	$36^{+20}_{-20} \quad (+0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8715	$1.870^{+0.031}_{-0.030} \quad (+0.4\sigma)$	$D_{\text{M}}(0.61)$	2289.4	$2291^{+41}_{-40} \quad (+0.6\sigma)$
$A_{217}^{\text{PS}}$	109.5	$105^{+30}_{-30} \quad (+0.0\sigma)$	$D_{40}$	1211.5	$1213^{+36}_{-34} \quad (+0.5\sigma)$	$H(2.33)$	235.27	$235.3^{+2.3}_{-2.3} \quad (+0.6\sigma)$
$A_{217}^{\text{CIB}}$	37.8	$37^{+20}_{-20} \quad (+0.1\sigma)$	$D_{220}$	5726	$5723^{+100}_{-99} \quad (-0.1\sigma)$	$D_{\text{M}}(2.33)$	5748.6	$5750^{+36}_{-36} \quad (+0.6\sigma)$
$A_{143}^{\text{tSZ}}$	6.07	$< 8.83 \quad (-0.0\sigma)$	$D_{810}$	2531.0	$2528^{+35}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	0.4447	$0.445^{+0.025}_{-0.024} \quad (+0.6\sigma)$
$r_{143 \times 217}^{\text{PS}}$	0.792	$> 0.365 \quad (-0.0\sigma)$	$D_{1420}$	816.1	$815^{+12}_{-12} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	0.7402	$0.739^{+0.019}_{-0.020} \quad (+0.4\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	0.70	—	$D_{2000}$	232.14	$231.5^{+4.2}_{-4.7} \quad (-0.4\sigma)$	$f\sigma_8(0.38)$	0.4650	$0.465^{+0.021}_{-0.020} \quad (+0.6\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.94	—	$n_{\text{s},0.002}$	0.9725	$0.971^{+0.013}_{-0.013} \quad (-0.6\sigma)$	$\sigma_8(0.38)$	0.6572	$0.656^{+0.015}_{-0.017} \quad (+0.3\sigma)$
$A^{\text{kSZ}}$	0.2	—	$Y_{\text{P}}$	0.245459	$0.24545^{+0.00021}_{-0.00021} \quad (-0.4\sigma)$	$f\sigma_8(0.51)$	0.4647	$0.464^{+0.018}_{-0.018} \quad (+0.5\sigma)$
$A_{100}^{\text{dust}}$	1.02	$1.01^{+0.51}_{-0.51} \quad (-0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	0.246786	$0.24677^{+0.00021}_{-0.00021} \quad (-0.4\sigma)$	$\sigma_8(0.51)$	0.6155	$0.614^{+0.014}_{-0.016} \quad (+0.2\sigma)$
$A_{143}^{\text{dust}}$	0.946	$0.95^{+0.45}_{-0.45} \quad (-0.0\sigma)$	$10^5 \text{D/H}$	2.555	$2.561^{+0.095}_{-0.089} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	0.4606	$0.460^{+0.016}_{-0.017} \quad (+0.5\sigma)$
$A_{217}^{\text{dust}}$	0.993	$0.98^{+0.27}_{-0.26} \quad (+0.0\sigma)$	Age/Gyr	13.765	$13.769^{+0.080}_{-0.080} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	0.5859	$0.585^{+0.013}_{-0.015} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\text{dust}}$	1.050	$1.02^{+0.42}_{-0.41} \quad (+0.0\sigma)$	$z_*$	1089.51	$1089.56^{+0.91}_{-0.86} \quad (+0.5\sigma)$	$f\sigma_8(2.33)$	0.2958	$0.2952^{+0.0065}_{-0.0073} \quad (+0.1\sigma)$
$c_{100}$	0.99794	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$r_*$	144.88	$144.88^{+0.86}_{-0.84} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	0.3054	$0.3048^{+0.0067}_{-0.0074} \quad (-0.1\sigma)$
$c_{217}$	1.00093	$1.0009^{+0.0041}_{-0.0040} \quad (+0.1\sigma)$	$100\theta_*$	1.04127	$1.04125^{+0.00085}_{-0.00081} \quad (-0.7\sigma)$	$f_{2000}^{143}$	26.7	$27^{+8}_{-7} \quad (+0.3\sigma)$
$c_{TE}$	0.9917	$0.992^{+0.014}_{-0.014}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.914	$13.914^{+0.079}_{-0.078} \quad (-0.5\sigma)$	$f_{2000}^{217}$	104.4	$105.1^{+5.4}_{-5.3} \quad (+0.3\sigma)$
$c_{EE}$	0.9902	$0.990^{+0.013}_{-0.013}$	$z_{\text{drag}}$	1060.16	$1060.1^{+1.0}_{-1.0} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	29.8	$30^{+6}_{-6} \quad (+0.3\sigma)$
$H_0$	68.35	$68.3^{+1.9}_{-1.9} \quad (-0.6\sigma)$	$r_{\text{drag}}$	147.50	$147.50^{+0.83}_{-0.83} \quad (-0.5\sigma)$	$\chi_{\text{simall}}^2$	395.68	$396.8 \quad (\nu: 1.1) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	0.6983	$0.697^{+0.023}_{-0.025} \quad (-0.6\sigma)$	$k_{\text{D}}$	0.14057	$0.14054^{+0.00090}_{-0.00088} \quad (+0.4\sigma)$	$\chi_{\text{lowl}}^2$	21.90	$22.12 \quad (\nu: 0.4) \quad (+0.5\sigma)$
$\Omega_{\text{m}}$	0.3017	$0.303^{+0.025}_{-0.023} \quad (+0.6\sigma)$	$100\theta_{\text{D}}$	0.16062	$0.16066^{+0.00058}_{-0.00055} \quad (+0.2\sigma)$	$\chi_{\text{CamSpec}}^2$	11496.5	$11512.3 \quad (\nu: 16.0) \quad (+836.1\sigma)$
$\Omega_{\text{m}} h^2$	0.14095	$0.1410^{+0.0037}_{-0.0036} \quad (+0.6\sigma)$	$z_{\text{eq}}$	3353	$3355^{+89}_{-87} \quad (+0.6\sigma)$	$\chi_{\text{prior}}^2$	1.9	$7.7 \quad (\nu: 5.6) \quad (+0.2\sigma)$
$\Omega_{\text{m}} h^3$	0.09633	$0.09629^{+0.00089}_{-0.00086} \quad (-0.2\sigma)$	$k_{\text{eq}}$	0.010233	$0.01024^{+0.00027}_{-0.00027} \quad (+0.6\sigma)$	$\chi_{\text{CMB}}^2$	11914.1	$11931.2 \quad (\nu: 16.9) \quad (+810.7\sigma)$

Best-fit  $\chi_{\text{eff}}^2 = 11915.94$ ;  $\Delta\chi_{\text{eff}}^2 = 4451.73$ ;  $\bar{\chi}_{\text{eff}}^2 = 11938.97$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 4453.44$ ;  $R - 1 = 0.01096$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.68 ( $\Delta$  -0.03) commander\_dx12.v3.2.29: 21.90 ( $\Delta$  0.72) CamSpec like\_10.7HM\_1400\_unified: 11496.51



### 3.20 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02249^{+0.00044}_{-0.00044} \quad (-0.0\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.441^{+0.020}_{-0.019} \quad (+0.2\sigma)$	$H(0.38)$	$83.37^{+0.87}_{-0.82} \quad (-0.3\sigma)$
$\Omega_{\text{c}} h^2$	$0.1181^{+0.0027}_{-0.0028} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.593^{+0.020}_{-0.020} \quad (+0.1\sigma)$	$D_{\text{M}}(0.38)$	$1519^{+22}_{-22} \quad (+0.3\sigma)$
$100\theta_{\text{MC}}$	$1.04106^{+0.00078}_{-0.00076} \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.968^{+0.029}_{-0.030} \quad (+0.1\sigma)$	$H(0.51)$	$90.01^{+0.71}_{-0.67} \quad (-0.3\sigma)$
$\tau$	$0.049^{+0.021}_{-0.026} \quad (-0.0\sigma)$	$r_{\text{drag}} h$	$100.6^{+2.2}_{-2.2} \quad (-0.3\sigma)$	$D_{\text{M}}(0.51)$	$1970^{+26}_{-26} \quad (+0.3\sigma)$
$A_{\text{L}}$	$1.14^{+0.17}_{-0.16} \quad (-0.8\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.56^{+0.16}_{-0.17} \quad (-0.8\sigma)$	$H(0.61)$	$95.57^{+0.60}_{-0.56} \quad (-0.2\sigma)$
$\ln(10^{10} A_{\text{s}})$	$3.028^{+0.044}_{-0.048} \quad (+0.0\sigma)$	$z_{\text{re}}$	$7.1^{+2.1}_{-2.9} \quad (-0.0\sigma)$	$D_{\text{M}}(0.61)$	$2293^{+28}_{-29} \quad (+0.3\sigma)$
$n_{\text{s}}$	$0.971^{+0.011}_{-0.011} \quad (-0.2\sigma)$	$10^9 A_{\text{s}}$	$2.065^{+0.092}_{-0.098} \quad (+0.0\sigma)$	$H(2.33)$	$235.4^{+1.6}_{-1.7} \quad (+0.2\sigma)$
$y_{\text{cal}}$	$1.0000^{+0.0065}_{-0.0065} \quad (-0.0\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.871^{+0.028}_{-0.027} \quad (+0.1\sigma)$	$D_{\text{M}}(2.33)$	$5752^{+27}_{-28} \quad (+0.2\sigma)$
$A_{100}^{\text{PS}}$	$232^{+70}_{-70} \quad (+0.1\sigma)$	$D_{40}$	$1214^{+33}_{-31} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.446^{+0.019}_{-0.018} \quad (+0.2\sigma)$
$A_{143}^{\text{PS}}$	$36^{+20}_{-20} \quad (+0.1\sigma)$	$D_{220}$	$5722^{+100}_{-97} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.739^{+0.018}_{-0.019} \quad (+0.0\sigma)$
$A_{217}^{\text{PS}}$	$105^{+30}_{-40} \quad (+0.0\sigma)$	$D_{810}$	$2528^{+34}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.465^{+0.016}_{-0.016} \quad (+0.2\sigma)$
$A_{217}^{\text{CIB}}$	$37^{+20}_{-20} \quad (-0.0\sigma)$	$D_{1420}$	$815^{+12}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.656^{+0.015}_{-0.017} \quad (+0.0\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.80 \quad (-0.0\sigma)$	$D_{2000}$	$231.4^{+4.2}_{-4.4} \quad (-0.2\sigma)$	$f\sigma_8(0.51)$	$0.465^{+0.015}_{-0.015} \quad (+0.1\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$> 0.354 \quad (-0.0\sigma)$	$n_{\text{s},0.002}$	$0.971^{+0.011}_{-0.011} \quad (-0.2\sigma)$	$\sigma_8(0.51)$	$0.615^{+0.014}_{-0.016} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.24544^{+0.00018}_{-0.00017} \quad (-0.0\sigma)$	$f\sigma_8(0.61)$	$0.461^{+0.014}_{-0.014} \quad (+0.1\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00018}_{-0.00018} \quad (-0.0\sigma)$	$\sigma_8(0.61)$	$0.585^{+0.013}_{-0.015} \quad (-0.0\sigma)$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.563^{+0.081}_{-0.079} \quad (+0.0\sigma)$	$f\sigma_8(2.33)$	$0.2953^{+0.0066}_{-0.0075} \quad (-0.1\sigma)$
$A_{100}^{\text{dust}}$	$1.00^{+0.53}_{-0.51} \quad (-0.0\sigma)$	$\text{Age}/\text{Gyr}$	$13.772^{+0.060}_{-0.063} \quad (+0.2\sigma)$	$\sigma_8(2.33)$	$0.3047^{+0.0068}_{-0.0076} \quad (-0.1\sigma)$
$A_{143}^{\text{dust}}$	$0.95^{+0.46}_{-0.45} \quad (-0.1\sigma)$	$z_*$	$1089.60^{+0.68}_{-0.69} \quad (+0.1\sigma)$	$f_{2000}^{143}$	$27^{+8}_{-7} \quad (+0.1\sigma)$
$A_{217}^{\text{dust}}$	$0.98^{+0.28}_{-0.26} \quad (+0.0\sigma)$	$r_*$	$144.84^{+0.65}_{-0.62} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$105.1^{+5.2}_{-5.1} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.42}_{-0.41} \quad (+0.0\sigma)$	$100\theta_*$	$1.04123^{+0.00077}_{-0.00074} \quad (-0.4\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+5}_{-5} \quad (+0.1\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.910^{+0.061}_{-0.059} \quad (-0.1\sigma)$	$\chi_{\text{small}}^2$	$396.8 \quad (\nu: 1.2) \quad (-0.0\sigma)$
$c_{217}$	$1.0009^{+0.0042}_{-0.0041} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1060.08^{+0.96}_{-0.95} \quad (+0.0\sigma)$	$\chi_{\text{lowl}}^2$	$22.17 \quad (\nu: 0.3) \quad (+0.2\sigma)$
$c_{TE}$	$0.993^{+0.013}_{-0.014}$	$r_{\text{drag}}$	$147.47^{+0.67}_{-0.65} \quad (-0.2\sigma)$	$\chi_{\text{CamSpec}}^2$	$11511.8 \quad (\nu: 15.2) \quad (+860.5\sigma)$
$c_{EE}$	$0.990^{+0.013}_{-0.013}$	$k_{\text{D}}$	$0.14056^{+0.00085}_{-0.00083} \quad (+0.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.030 \quad (\nu: 0.0) \quad (-0.3\sigma)$
$H_0$	$68.2^{+1.3}_{-1.3} \quad (-0.3\sigma)$	$100\theta_{\text{D}}$	$0.16067^{+0.00055}_{-0.00053} \quad (-0.1\sigma)$	$\chi_{\text{MGS}}^2$	$1.81 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$\Omega_{\Lambda}$	$0.696^{+0.017}_{-0.017} \quad (-0.2\sigma)$	$z_{\text{eq}}$	$3359^{+61}_{-62} \quad (+0.2\sigma)$	$\chi_{\text{DR12BAO}}^2$	$3.93 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$\Omega_{\text{m}}$	$0.304^{+0.017}_{-0.017} \quad (+0.2\sigma)$	$k_{\text{eq}}$	$0.01025^{+0.00019}_{-0.00019} \quad (+0.2\sigma)$	$\chi_{\text{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\Omega_{\text{m}} h^2$	$0.1412^{+0.0026}_{-0.0026} \quad (+0.2\sigma)$	$100\theta_{\text{eq}}$	$0.822^{+0.012}_{-0.012} \quad (-0.2\sigma)$	$\chi_{\text{BAO}}^2$	$5.77 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$\Omega_{\text{m}} h^3$	$0.09628^{+0.00090}_{-0.00086} \quad (-0.1\sigma)$	$100\theta_{\text{s,eq}}$	$0.4536^{+0.0062}_{-0.0060} \quad (-0.2\sigma)$	$\chi_{\text{CMB}}^2$	$11930.7 \quad (\nu: 16.4) \quad (+819.7\sigma)$
$\sigma_8$	$0.799^{+0.019}_{-0.022} \quad (+0.1\sigma)$	$H(0.15)$	$73.4^{+1.2}_{-1.1} \quad (-0.3\sigma)$		
$S_8$	$0.804^{+0.036}_{-0.035} \quad (+0.2\sigma)$	$D_{\text{M}}(0.15)$	$636^{+11}_{-11} \quad (+0.3\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 11944.29; \Delta\bar{\chi}_{\text{eff}}^2 = 4453.06; R - 1 = 0.01598$$



### 3.21 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02268^{+0.00048}_{-0.00047} \quad (-1.0\sigma)$	$S_8$	$0.783^{+0.045}_{-0.046} \quad (+1.4\sigma)$	$H(0.15)$	$74.2^{+1.5}_{-1.5} \quad (-1.5\sigma)$
$\Omega_c h^2$	$0.1161^{+0.0037}_{-0.0037} \quad (+1.4\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.429^{+0.025}_{-0.025} \quad (+1.4\sigma)$	$D_M(0.15)$	$629^{+14}_{-14} \quad (+1.5\sigma)$
$100\theta_{MC}$	$1.04132^{+0.00096}_{-0.00083} \quad (-1.3\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.583^{+0.024}_{-0.025} \quad (+1.3\sigma)$	$H(0.38)$	$84.0^{+1.2}_{-1.1} \quad (-1.5\sigma)$
$\tau$	$0.051^{+0.022}_{-0.024} \quad (-0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.954^{+0.034}_{-0.035} \quad (+1.3\sigma)$	$D_M(0.38)$	$1504^{+29}_{-29} \quad (+1.5\sigma)$
$A_L$	$1.19^{+0.24}_{-0.18} \quad (-1.4\sigma)$	$r_{\text{drag}} h$	$102.1^{+3.0}_{-3.0} \quad (-1.5\sigma)$	$H(0.51)$	$90.49^{+0.96}_{-0.89} \quad (-1.5\sigma)$
$\ln(10^{10} A_s)$	$3.026^{+0.044}_{-0.047} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.58^{+0.19}_{-0.17} \quad (-1.1\sigma)$	$D_M(0.51)$	$1951^{+34}_{-35} \quad (+1.5\sigma)$
$n_s$	$0.976^{+0.013}_{-0.013} \quad (-1.3\sigma)$	$z_{\text{re}}$	$7.2^{+2.1}_{-2.7} \quad (-0.1\sigma)$	$H(0.61)$	$95.95^{+0.79}_{-0.73} \quad (-1.5\sigma)$
$y_{\text{cal}}$	$1.0000^{+0.0061}_{-0.0062} \quad (-0.0\sigma)$	$10^9 A_s$	$2.063^{+0.092}_{-0.095} \quad (+0.2\sigma)$	$D_M(0.61)$	$2273^{+37}_{-38} \quad (+1.5\sigma)$
$A_{100}^{\text{PS}}$	$228^{+60}_{-60} \quad (+0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.863^{+0.030}_{-0.029} \quad (+0.9\sigma)$	$H(2.33)$	$234.4^{+2.2}_{-2.2} \quad (+1.4\sigma)$
$A_{143}^{\text{PS}}$	$33^{+20}_{-20} \quad (+0.4\sigma)$	$D_{40}$	$1204^{+35}_{-37} \quad (+1.0\sigma)$	$D_M(2.33)$	$5735^{+33}_{-34} \quad (+1.4\sigma)$
$A_{217}^{\text{PS}}$	$105^{+30}_{-40} \quad (+0.0\sigma)$	$D_{220}$	$5733^{+100}_{-100} \quad (-0.3\sigma)$	$f\sigma_8(0.15)$	$0.435^{+0.023}_{-0.024} \quad (+1.4\sigma)$
$A_{217}^{\text{CIB}}$	$36^{+20}_{-20} \quad (+0.2\sigma)$	$D_{810}$	$2526^{+33}_{-35} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.735^{+0.019}_{-0.018} \quad (+0.9\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.79 \quad (-0.1\sigma)$	$D_{1420}$	$815^{+11}_{-12} \quad (-0.0\sigma)$	$f\sigma_8(0.38)$	$0.457^{+0.019}_{-0.021} \quad (+1.4\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$> 0.362 \quad (-0.1\sigma)$	$D_{2000}$	$232.4^{+3.8}_{-4.4} \quad (-0.7\sigma)$	$\sigma_8(0.38)$	$0.654^{+0.016}_{-0.016} \quad (+0.7\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{s,0.002}$	$0.976^{+0.013}_{-0.013} \quad (-1.3\sigma)$	$f\sigma_8(0.51)$	$0.458^{+0.017}_{-0.018} \quad (+1.3\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P$	$0.24551^{+0.00022}_{-0.00018} \quad (-1.0\sigma)$	$\sigma_8(0.51)$	$0.612^{+0.015}_{-0.014} \quad (+0.6\sigma)$
$A^{\text{kSZ}}$	—	$Y_P^{\text{BBN}}$	$0.24684^{+0.00022}_{-0.00018} \quad (-1.0\sigma)$	$f\sigma_8(0.61)$	$0.454^{+0.016}_{-0.016} \quad (+1.3\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.55} \quad (-0.0\sigma)$	$10^5 \text{D/H}$	$2.530^{+0.086}_{-0.085} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.583^{+0.014}_{-0.014} \quad (+0.5\sigma)$
$A_{143}^{\text{dust}}$	$0.94^{+0.47}_{-0.49} \quad (-0.1\sigma)$	$\text{Age/Gyr}$	$13.737^{+0.074}_{-0.073} \quad (+1.4\sigma)$	$f\sigma_8(2.33)$	$0.2949^{+0.0067}_{-0.0070} \quad (+0.2\sigma)$
$A_{217}^{\text{dust}}$	$0.99^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$z_*$	$1089.20^{+0.82}_{-0.73} \quad (+1.3\sigma)$	$\sigma_8(2.33)$	$0.3050^{+0.0068}_{-0.0073} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.01^{+0.40}_{-0.41} \quad (+0.0\sigma)$	$r_*$	$145.20^{+0.74}_{-0.80} \quad (-1.3\sigma)$	$f_{2000}^{143}$	$26^{+8}_{-7} \quad (+0.5\sigma)$
$c_{100}$	$0.9976^{+0.0028}_{-0.0026} \quad (-0.0\sigma)$	$100\theta_*$	$1.04147^{+0.00094}_{-0.00082} \quad (-1.3\sigma)$	$f_{2000}^{217}$	$104.2^{+5.3}_{-4.8} \quad (+0.6\sigma)$
$c_{217}$	$1.0009^{+0.0040}_{-0.0040} \quad (+0.2\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.941^{+0.065}_{-0.074} \quad (-1.1\sigma)$	$f_{2000}^{143 \times 217}$	$29^{+5}_{-5} \quad (+0.6\sigma)$
$c_{TE}$	$0.991^{+0.013}_{-0.013}$	$z_{\text{drag}}$	$1060.38^{+0.93}_{-0.94} \quad (-0.7\sigma)$	$\chi_{\text{small}}^2$	$396.7 \quad (\nu: 1.1) \quad (-0.1\sigma)$
$c_{EE}$	$0.990^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$147.77^{+0.75}_{-0.80} \quad (-1.1\sigma)$	$\chi_{\text{lowl}}^2$	$21.45 \quad (\nu: 0.3) \quad (+1.4\sigma)$
$H_0$	$69.1^{+1.8}_{-1.7} \quad (-1.5\sigma)$	$k_D$	$0.14038^{+0.00087}_{-0.00086} \quad (+0.7\sigma)$	$\chi_{\text{CamSpec}}^2$	$11514.4 \quad (\nu: 19.8) \quad (+776.2\sigma)$
$\Omega_\Lambda$	$0.708^{+0.021}_{-0.022} \quad (-1.5\sigma)$	$100\theta_D$	$0.16053^{+0.00054}_{-0.00049} \quad (+0.5\sigma)$	$\chi_{\text{H073p45}}^2$	$7.0 \quad (\nu: 2.3) \quad (+1.7\sigma)$
$\Omega_m$	$0.292^{+0.022}_{-0.021} \quad (+1.5\sigma)$	$z_{\text{eq}}$	$3318^{+82}_{-85} \quad (+1.4\sigma)$	$\chi_{\text{prior}}^2$	$7.8 \quad (\nu: 5.6) \quad (+0.3\sigma)$
$\Omega_m h^2$	$0.1395^{+0.0034}_{-0.0036} \quad (+1.4\sigma)$	$k_{\text{eq}}$	$0.01013^{+0.00025}_{-0.00026} \quad (+1.4\sigma)$	$\chi_{\text{CMB}}^2$	$11932.6 \quad (\nu: 20.0) \quad (+766.7\sigma)$
$\Omega_m h^3$	$0.09640^{+0.00090}_{-0.00086} \quad (-0.5\sigma)$	$100\theta_{\text{eq}}$	$0.830^{+0.017}_{-0.016} \quad (-1.4\sigma)$		
$\sigma_8$	$0.793^{+0.022}_{-0.022} \quad (+1.0\sigma)$	$100\theta_{s,\text{eq}}$	$0.4579^{+0.0086}_{-0.0082} \quad (-1.4\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 11947.36; \Delta\bar{\chi}_{\text{eff}}^2 = 4457.19; R - 1 = 0.04484$$



### 3.22 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02251^{+0.00049}_{-0.00051} \quad (-0.4\sigma)$	$\sigma_8$	$0.801^{+0.020}_{-0.018} \quad (+0.5\sigma)$	$100\theta_{\text{eq}}$	$0.823^{+0.017}_{-0.018} \quad (-0.6\sigma)$
$\Omega_c h^2$	$0.1178^{+0.0041}_{-0.0039} \quad (+0.6\sigma)$	$S_8$	$0.804^{+0.049}_{-0.046} \quad (+0.6\sigma)$	$100\theta_{\text{s,eq}}$	$0.4541^{+0.0089}_{-0.0088} \quad (-0.6\sigma)$
$100\theta_{\text{MC}}$	$1.04108^{+0.00087}_{-0.00084} \quad (-0.7\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.441^{+0.027}_{-0.025} \quad (+0.6\sigma)$	$H(0.15)$	$73.5^{+1.6}_{-1.6} \quad (-0.6\sigma)$
$\tau$	$0.053^{+0.017}_{-0.010} \quad (-0.1\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.594^{+0.025}_{-0.024} \quad (+0.6\sigma)$	$D_{\text{M}}(0.15)$	$636^{+16}_{-15} \quad (+0.6\sigma)$
$A_{\text{L}}$	$1.14^{+0.18}_{-0.18} \quad (-1.0\sigma)$	$\sigma_8/h^{0.5}$	$0.970^{+0.035}_{-0.033} \quad (+0.6\sigma)$	$H(0.38)$	$83.4^{+1.2}_{-1.2} \quad (-0.6\sigma)$
$\ln(10^{10} A_{\text{s}})$	$3.034^{+0.038}_{-0.027} \quad (+0.1\sigma)$	$r_{\text{drag}} h$	$100.7^{+3.2}_{-3.3} \quad (-0.6\sigma)$	$D_{\text{M}}(0.38)$	$1518^{+33}_{-31} \quad (+0.6\sigma)$
$n_{\text{s}}$	$0.971^{+0.013}_{-0.014} \quad (-0.6\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.56^{+0.17}_{-0.17} \quad (-0.9\sigma)$	$H(0.51)$	$90.06^{+0.98}_{-0.97} \quad (-0.6\sigma)$
$y_{\text{cal}}$	$1.0000^{+0.0065}_{-0.0066} \quad (-0.0\sigma)$	$z_{\text{re}}$	$< 9.01 \quad (-0.1\sigma)$	$D_{\text{M}}(0.51)$	$1968^{+39}_{-37} \quad (+0.6\sigma)$
$A_{100}^{\text{PS}}$	$231^{+60}_{-60} \quad (+0.1\sigma)$	$10^9 A_{\text{s}}$	$2.078^{+0.081}_{-0.055} \quad (+0.1\sigma)$	$H(0.61)$	$95.61^{+0.82}_{-0.79} \quad (-0.6\sigma)$
$A_{143}^{\text{PS}}$	$35^{+20}_{-20} \quad (+0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.870^{+0.031}_{-0.030} \quad (+0.4\sigma)$	$D_{\text{M}}(0.61)$	$2291^{+42}_{-40} \quad (+0.6\sigma)$
$A_{217}^{\text{PS}}$	$105^{+30}_{-30} \quad (+0.0\sigma)$	$D_{40}$	$1213^{+36}_{-35} \quad (+0.5\sigma)$	$H(2.33)$	$235.3^{+2.3}_{-2.2} \quad (+0.6\sigma)$
$A_{217}^{\text{CIB}}$	$37^{+20}_{-20} \quad (+0.1\sigma)$	$D_{220}$	$5723^{+100}_{-99} \quad (-0.1\sigma)$	$D_{\text{M}}(2.33)$	$5750^{+36}_{-36} \quad (+0.6\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.79 \quad (-0.1\sigma)$	$D_{810}$	$2528^{+36}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.446^{+0.025}_{-0.024} \quad (+0.6\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$> 0.367 \quad (-0.0\sigma)$	$D_{1420}$	$815^{+12}_{-13} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.741^{+0.017}_{-0.015} \quad (+0.4\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$D_{2000}$	$231.5^{+4.3}_{-4.8} \quad (-0.4\sigma)$	$f\sigma_8(0.38)$	$0.466^{+0.020}_{-0.020} \quad (+0.6\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$n_{\text{s},0.002}$	$0.971^{+0.013}_{-0.014} \quad (-0.6\sigma)$	$\sigma_8(0.38)$	$0.658^{+0.014}_{-0.012} \quad (+0.3\sigma)$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}$	$0.24545^{+0.00020}_{-0.00021} \quad (-0.4\sigma)$	$f\sigma_8(0.51)$	$0.466^{+0.018}_{-0.017} \quad (+0.6\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.50} \quad (-0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00020}_{-0.00021} \quad (-0.4\sigma)$	$\sigma_8(0.51)$	$0.616^{+0.013}_{-0.010} \quad (+0.3\sigma)$
$A_{143}^{\text{dust}}$	$0.95^{+0.45}_{-0.45} \quad (-0.0\sigma)$	$10^5 \text{D}/\text{H}$	$2.561^{+0.096}_{-0.088} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.461^{+0.016}_{-0.015} \quad (+0.6\sigma)$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.26} \quad (-0.0\sigma)$	$\text{Age}/\text{Gyr}$	$13.769^{+0.081}_{-0.079} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.587^{+0.012}_{-0.0093} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.42}_{-0.41} \quad (+0.0\sigma)$	$z_*$	$1089.56^{+0.93}_{-0.85} \quad (+0.5\sigma)$	$f\sigma_8(2.33)$	$0.2961^{+0.0058}_{-0.0042} \quad (+0.1\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$r_*$	$144.89^{+0.85}_{-0.85} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.3057^{+0.0060}_{-0.0042} \quad (-0.1\sigma)$
$c_{217}$	$1.0009^{+0.0040}_{-0.0040} \quad (+0.1\sigma)$	$100\theta_*$	$1.04125^{+0.00085}_{-0.00082} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$27^{+8}_{-7} \quad (+0.3\sigma)$
$c_{TE}$	$0.992^{+0.014}_{-0.013}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.914^{+0.079}_{-0.078} \quad (-0.5\sigma)$	$f_{2000}^{217}$	$105.0^{+5.5}_{-5.3} \quad (+0.3\sigma)$
$c_{EE}$	$0.990^{+0.013}_{-0.012}$	$z_{\text{drag}}$	$1060.10^{+0.97}_{-1.0} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6} \quad (+0.3\sigma)$
$H_0$	$68.3^{+1.9}_{-1.9} \quad (-0.6\sigma)$	$r_{\text{drag}}$	$147.51^{+0.82}_{-0.82} \quad (-0.5\sigma)$	$\chi_{\text{small}}^2$	$396.4 \quad (\nu: 0.6) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.698^{+0.023}_{-0.026} \quad (-0.6\sigma)$	$k_{\text{D}}$	$0.14053^{+0.00089}_{-0.00088} \quad (+0.4\sigma)$	$\chi_{\text{lowl}}^2$	$22.16 \quad (\nu: 0.4) \quad (+0.5\sigma)$
$\Omega_{\text{m}}$	$0.302^{+0.026}_{-0.023} \quad (+0.6\sigma)$	$100\theta_{\text{D}}$	$0.16066^{+0.00059}_{-0.00055} \quad (+0.2\sigma)$	$\chi_{\text{CamSpec}}^2$	$11512.3 \quad (\nu: 16.0) \quad (+832.5\sigma)$
$\Omega_{\text{m}} h^2$	$0.1410^{+0.0037}_{-0.0036} \quad (+0.6\sigma)$	$z_{\text{eq}}$	$3354^{+90}_{-87} \quad (+0.6\sigma)$	$\chi_{\text{prior}}^2$	$7.7 \quad (\nu: 5.7) \quad (+0.2\sigma)$
$\Omega_{\text{m}} h^3$	$0.09628^{+0.00089}_{-0.00086} \quad (-0.2\sigma)$	$k_{\text{eq}}$	$0.01024^{+0.00027}_{-0.00026} \quad (+0.6\sigma)$	$\chi_{\text{CMB}}^2$	$11930.9 \quad (\nu: 16.5) \quad (+823.9\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 11938.62; \Delta\bar{\chi}_{\text{eff}}^2 = 4453.51; R - 1 = 0.01153$$



### 3.23 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02249^{+0.00044}_{-0.00044} \quad (-0.0\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.442^{+0.019}_{-0.019} \quad (+0.2\sigma)$	$H(0.38)$	$83.37^{+0.88}_{-0.83} \quad (-0.3\sigma)$
$\Omega_c h^2$	$0.1180^{+0.0028}_{-0.0028} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.595^{+0.019}_{-0.018} \quad (+0.2\sigma)$	$D_M(0.38)$	$1519^{+22}_{-22} \quad (+0.2\sigma)$
$100\theta_{MC}$	$1.04106^{+0.00076}_{-0.00076} \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.971^{+0.027}_{-0.026} \quad (+0.1\sigma)$	$H(0.51)$	$90.01^{+0.72}_{-0.68} \quad (-0.2\sigma)$
$\tau$	$0.053^{+0.017}_{-0.010} \quad (-0.0\sigma)$	$r_{drag} h$	$100.6^{+2.2}_{-2.2} \quad (-0.3\sigma)$	$D_M(0.51)$	$1969^{+26}_{-27} \quad (+0.3\sigma)$
$A_L$	$1.14^{+0.17}_{-0.16} \quad (-0.8\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.56^{+0.17}_{-0.17} \quad (-0.8\sigma)$	$H(0.61)$	$95.57^{+0.60}_{-0.56} \quad (-0.2\sigma)$
$\ln(10^{10} A_s)$	$3.034^{+0.039}_{-0.026} \quad (+0.0\sigma)$	$z_{re}$	$< 9.01 \quad (-0.0\sigma)$	$D_M(0.61)$	$2293^{+28}_{-29} \quad (+0.3\sigma)$
$n_s$	$0.971^{+0.011}_{-0.011} \quad (-0.2\sigma)$	$10^9 A_s$	$2.078^{+0.082}_{-0.053} \quad (+0.0\sigma)$	$H(2.33)$	$235.4^{+1.7}_{-1.7} \quad (+0.2\sigma)$
$y_{cal}$	$1.0000^{+0.0066}_{-0.0067} \quad (-0.0\sigma)$	$10^9 A_s e^{-2\tau}$	$1.871^{+0.028}_{-0.027} \quad (+0.1\sigma)$	$D_M(2.33)$	$5752^{+27}_{-29} \quad (+0.2\sigma)$
$A_{100}^{PS}$	$232^{+60}_{-60} \quad (+0.1\sigma)$	$D_{40}$	$1214^{+33}_{-32} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.447^{+0.018}_{-0.018} \quad (+0.2\sigma)$
$A_{143}^{PS}$	$36^{+20}_{-20} \quad (+0.1\sigma)$	$D_{220}$	$5722^{+99}_{-97} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.742^{+0.016}_{-0.013} \quad (+0.0\sigma)$
$A_{217}^{PS}$	$105^{+30}_{-30} \quad (+0.0\sigma)$	$D_{810}$	$2528^{+34}_{-36} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.467^{+0.015}_{-0.015} \quad (+0.2\sigma)$
$A_{217}^{CIB}$	$37^{+20}_{-20} \quad (-0.0\sigma)$	$D_{1420}$	$815^{+12}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.658^{+0.014}_{-0.010} \quad (-0.0\sigma)$
$A_{143}^{tSZ}$	$< 8.79 \quad (-0.0\sigma)$	$D_{2000}$	$231.5^{+4.3}_{-4.3} \quad (-0.2\sigma)$	$f\sigma_8(0.51)$	$0.466^{+0.014}_{-0.013} \quad (+0.1\sigma)$
$r_{143 \times 217}^{PS}$	$> 0.366 \quad (-0.0\sigma)$	$n_{s,0.002}$	$0.971^{+0.011}_{-0.011} \quad (-0.2\sigma)$	$\sigma_8(0.51)$	$0.616^{+0.013}_{-0.0090} \quad (-0.0\sigma)$
$r_{143 \times 217}^{CIB}$	—	$Y_P$	$0.24544^{+0.00018}_{-0.00018} \quad (-0.0\sigma)$	$f\sigma_8(0.61)$	$0.462^{+0.013}_{-0.012} \quad (+0.1\sigma)$
$\xi^{tSZ \times CIB}$	—	$Y_P^{BBN}$	$0.24677^{+0.00018}_{-0.00018} \quad (-0.0\sigma)$	$\sigma_8(0.61)$	$0.587^{+0.012}_{-0.0084} \quad (-0.0\sigma)$
$A^{kSZ}$	—	$10^5 D/H$	$2.564^{+0.082}_{-0.079} \quad (+0.0\sigma)$	$f\sigma_8(2.33)$	$0.2962^{+0.0058}_{-0.0040} \quad (-0.1\sigma)$
$A_{100}^{dust}$	$1.01^{+0.53}_{-0.50} \quad (-0.0\sigma)$	$Age/Gyr$	$13.772^{+0.061}_{-0.064} \quad (+0.2\sigma)$	$\sigma_8(2.33)$	$0.3057^{+0.0061}_{-0.0041} \quad (-0.1\sigma)$
$A_{143}^{dust}$	$0.95^{+0.46}_{-0.45} \quad (-0.1\sigma)$	$z_*$	$1089.60^{+0.69}_{-0.69} \quad (+0.1\sigma)$	$f_{2000}^{143}$	$27^{+8}_{-7} \quad (+0.1\sigma)$
$A_{217}^{dust}$	$0.98^{+0.29}_{-0.27} \quad (+0.0\sigma)$	$r_*$	$144.85^{+0.64}_{-0.63} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$105.1^{+5.1}_{-5.1} \quad (+0.1\sigma)$
$A_{143 \times 217}^{dust}$	$1.02^{+0.42}_{-0.40} \quad (-0.0\sigma)$	$100\theta_*$	$1.04124^{+0.00075}_{-0.00075} \quad (-0.4\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+5}_{-5} \quad (+0.1\sigma)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0026} \quad (+0.0\sigma)$	$D_M(z_*)/Gpc$	$13.911^{+0.061}_{-0.060} \quad (-0.1\sigma)$	$\chi_{small}^2$	$396.4 \quad (\nu: 0.6) \quad (-0.0\sigma)$
$c_{217}$	$1.0009^{+0.0040}_{-0.0041} \quad (+0.1\sigma)$	$z_{drag}$	$1060.08^{+0.92}_{-0.95} \quad (+0.0\sigma)$	$\chi_{lowl}^2$	$22.22 \quad (\nu: 0.3) \quad (+0.2\sigma)$
$c_{TE}$	$0.992^{+0.013}_{-0.013}$	$r_{drag}$	$147.48^{+0.67}_{-0.66} \quad (-0.2\sigma)$	$\chi_{CamSpec}^2$	$11511.7 \quad (\nu: 15.1) \quad (+863.4\sigma)$
$c_{EE}$	$0.990^{+0.013}_{-0.012}$	$k_D$	$0.14055^{+0.00085}_{-0.00083} \quad (+0.1\sigma)$	$\chi_{6DF}^2$	$0.031 \quad (\nu: 0.0) \quad (-0.3\sigma)$
$H_0$	$68.2^{+1.3}_{-1.3} \quad (-0.3\sigma)$	$100\theta_D$	$0.16068^{+0.00055}_{-0.00053} \quad (-0.1\sigma)$	$\chi_{MGS}^2$	$1.82 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$\Omega_\Lambda$	$0.696^{+0.016}_{-0.017} \quad (-0.2\sigma)$	$z_{eq}$	$3358^{+62}_{-62} \quad (+0.2\sigma)$	$\chi_{DR12BAO}^2$	$3.93 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$\Omega_m$	$0.304^{+0.017}_{-0.016} \quad (+0.2\sigma)$	$k_{eq}$	$0.01025^{+0.00019}_{-0.00019} \quad (+0.2\sigma)$	$\chi_{prior}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\Omega_m h^2$	$0.1412^{+0.0026}_{-0.0026} \quad (+0.2\sigma)$	$100\theta_{eq}$	$0.822^{+0.012}_{-0.012} \quad (-0.2\sigma)$	$\chi_{BAO}^2$	$5.78 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$\Omega_m h^3$	$0.09628^{+0.00088}_{-0.00087} \quad (-0.1\sigma)$	$100\theta_{s,eq}$	$0.4537^{+0.0062}_{-0.0060} \quad (-0.2\sigma)$	$\chi_{CMB}^2$	$11930.3 \quad (\nu: 15.8) \quad (+843.8\sigma)$
$\sigma_8$	$0.802^{+0.018}_{-0.015} \quad (+0.1\sigma)$	$H(0.15)$	$73.4^{+1.1}_{-1.1} \quad (-0.3\sigma)$		
$S_8$	$0.807^{+0.035}_{-0.034} \quad (+0.2\sigma)$	$D_M(0.15)$	$636^{+11}_{-11} \quad (+0.2\sigma)$		

$$\bar{\chi}_{eff}^2 = 11943.89; \Delta\bar{\chi}_{eff}^2 = 4453.11; R - 1 = 0.01823$$



### 3.24 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02268^{+0.00042}_{-0.00047} \quad (-1.0\sigma)$	$S_8$	$0.785^{+0.044}_{-0.040} \quad (+1.5\sigma)$	$H(0.15)$	$74.2^{+1.5}_{-1.5} \quad (-1.5\sigma)$
$\Omega_c h^2$	$0.1161^{+0.0037}_{-0.0035} \quad (+1.5\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.430^{+0.024}_{-0.022} \quad (+1.5\sigma)$	$D_M(0.15)$	$629^{+14}_{-14} \quad (+1.6\sigma)$
$100\theta_{MC}$	$1.04132^{+0.00083}_{-0.00083} \quad (-1.3\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.585^{+0.023}_{-0.021} \quad (+1.4\sigma)$	$H(0.38)$	$84.0^{+1.1}_{-1.1} \quad (-1.5\sigma)$
$\tau$	$0.054^{+0.018}_{-0.011} \quad (-0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.957^{+0.032}_{-0.030} \quad (+1.4\sigma)$	$D_M(0.38)$	$1504^{+29}_{-28} \quad (+1.5\sigma)$
$A_L$	$1.19^{+0.22}_{-0.18} \quad (-1.4\sigma)$	$r_{drag} h$	$102.2^{+2.9}_{-3.0} \quad (-1.5\sigma)$	$H(0.51)$	$90.49^{+0.87}_{-0.89} \quad (-1.5\sigma)$
$\ln(10^{10} A_s)$	$3.032^{+0.039}_{-0.027} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.58^{+0.17}_{-0.17} \quad (-1.1\sigma)$	$D_M(0.51)$	$1951^{+34}_{-33} \quad (+1.5\sigma)$
$n_s$	$0.976^{+0.012}_{-0.013} \quad (-1.3\sigma)$	$z_{re}$	$< 9.16 \quad (-0.1\sigma)$	$H(0.61)$	$95.95^{+0.70}_{-0.73} \quad (-1.5\sigma)$
$y_{cal}$	$1.0000^{+0.0061}_{-0.0064} \quad (+0.0\sigma)$	$10^9 A_s$	$2.074^{+0.082}_{-0.056} \quad (+0.2\sigma)$	$D_M(0.61)$	$2273^{+37}_{-35} \quad (+1.5\sigma)$
$A_{100}^{PS}$	$228^{+60}_{-60} \quad (+0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.863^{+0.031}_{-0.029} \quad (+0.9\sigma)$	$H(2.33)$	$234.4^{+2.2}_{-1.9} \quad (+1.4\sigma)$
$A_{143}^{PS}$	$33^{+20}_{-20} \quad (+0.4\sigma)$	$D_{40}$	$1204^{+35}_{-37} \quad (+1.1\sigma)$	$D_M(2.33)$	$5736^{+33}_{-31} \quad (+1.4\sigma)$
$A_{217}^{PS}$	$105^{+30}_{-40} \quad (-0.0\sigma)$	$D_{220}$	$5733^{+100}_{-99} \quad (-0.3\sigma)$	$f\sigma_8(0.15)$	$0.436^{+0.023}_{-0.021} \quad (+1.5\sigma)$
$A_{217}^{CIB}$	$36^{+20}_{-20} \quad (+0.2\sigma)$	$D_{810}$	$2526^{+34}_{-36} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.737^{+0.017}_{-0.014} \quad (+1.0\sigma)$
$A_{143}^{tSZ}$	$< 8.77 \quad (-0.1\sigma)$	$D_{1420}$	$816^{+12}_{-13} \quad (+0.0\sigma)$	$f\sigma_8(0.38)$	$0.458^{+0.019}_{-0.017} \quad (+1.4\sigma)$
$r_{143 \times 217}^{PS}$	$> 0.362 \quad (-0.1\sigma)$	$D_{2000}$	$232.4^{+3.7}_{-4.4} \quad (-0.7\sigma)$	$\sigma_8(0.38)$	$0.655^{+0.014}_{-0.011} \quad (+0.8\sigma)$
$r_{143 \times 217}^{CIB}$	—	$n_{s,0.002}$	$0.976^{+0.012}_{-0.013} \quad (-1.3\sigma)$	$f\sigma_8(0.51)$	$0.459^{+0.017}_{-0.015} \quad (+1.4\sigma)$
$\xi^{tSZ \times CIB}$	—	$Y_P$	$0.24551^{+0.00019}_{-0.00018} \quad (-1.0\sigma)$	$\sigma_8(0.51)$	$0.614^{+0.014}_{-0.010} \quad (+0.7\sigma)$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.24684^{+0.00019}_{-0.00018} \quad (-1.0\sigma)$	$f\sigma_8(0.61)$	$0.456^{+0.015}_{-0.014} \quad (+1.3\sigma)$
$A_{100}^{dust}$	$1.01^{+0.50}_{-0.54} \quad (-0.0\sigma)$	$10^5 D/H$	$2.530^{+0.086}_{-0.075} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.585^{+0.013}_{-0.0093} \quad (+0.6\sigma)$
$A_{143}^{dust}$	$0.94^{+0.47}_{-0.49} \quad (-0.1\sigma)$	$Age/Gyr$	$13.737^{+0.074}_{-0.066} \quad (+1.4\sigma)$	$f\sigma_8(2.33)$	$0.2958^{+0.0061}_{-0.0045} \quad (+0.3\sigma)$
$A_{217}^{dust}$	$0.98^{+0.26}_{-0.26} \quad (-0.0\sigma)$	$z_*$	$1089.20^{+0.82}_{-0.69} \quad (+1.3\sigma)$	$\sigma_8(2.33)$	$0.3058^{+0.0061}_{-0.0045} \quad (-0.1\sigma)$
$A_{143 \times 217}^{dust}$	$1.01^{+0.41}_{-0.42} \quad (+0.0\sigma)$	$r_*$	$145.20^{+0.71}_{-0.80} \quad (-1.3\sigma)$	$f_{2000}^{143}$	$26^{+8}_{-7} \quad (+0.5\sigma)$
$c_{100}$	$0.9976^{+0.0028}_{-0.0026} \quad (-0.1\sigma)$	$100\theta_*$	$1.04147^{+0.00080}_{-0.00082} \quad (-1.2\sigma)$	$f_{2000}^{217}$	$104.2^{+5.3}_{-4.8} \quad (+0.6\sigma)$
$c_{217}$	$1.0008^{+0.0039}_{-0.0040} \quad (+0.2\sigma)$	$D_M(z_*)/Gpc$	$13.942^{+0.065}_{-0.073} \quad (-1.1\sigma)$	$f_{2000}^{143 \times 217}$	$29^{+5}_{-5} \quad (+0.6\sigma)$
$c_{TE}$	$0.991^{+0.013}_{-0.013}$	$z_{drag}$	$1060.37^{+0.90}_{-0.93} \quad (-0.7\sigma)$	$\chi_{small}^2$	$396.4 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$c_{EE}$	$0.990^{+0.012}_{-0.013}$	$r_{drag}$	$147.78^{+0.74}_{-0.79} \quad (-1.1\sigma)$	$\chi_{lowl}^2$	$21.48 \quad (\nu: 0.3) \quad (+1.4\sigma)$
$H_0$	$69.1^{+1.7}_{-1.7} \quad (-1.5\sigma)$	$k_D$	$0.14037^{+0.00086}_{-0.00085} \quad (+0.7\sigma)$	$\chi_{CamSpec}^2$	$11514.2 \quad (\nu: 17.4) \quad (+764.7\sigma)$
$\Omega_\Lambda$	$0.708^{+0.020}_{-0.022} \quad (-1.6\sigma)$	$100\theta_D$	$0.16053^{+0.00054}_{-0.00047} \quad (+0.5\sigma)$	$\chi_{H073p45}^2$	$6.9 \quad (\nu: 2.2) \quad (+1.8\sigma)$
$\Omega_m$	$0.292^{+0.022}_{-0.020} \quad (+1.6\sigma)$	$z_{eq}$	$3317^{+82}_{-76} \quad (+1.4\sigma)$	$\chi_{prior}^2$	$7.8 \quad (\nu: 5.7) \quad (+0.3\sigma)$
$\Omega_m h^2$	$0.1395^{+0.0034}_{-0.0032} \quad (+1.4\sigma)$	$k_{eq}$	$0.01012^{+0.00025}_{-0.00023} \quad (+1.4\sigma)$	$\chi_{CMB}^2$	$11932.1 \quad (\nu: 17.5) \quad (+757.6\sigma)$
$\Omega_m h^3$	$0.09640^{+0.00087}_{-0.00086} \quad (-0.4\sigma)$	$100\theta_{eq}$	$0.830^{+0.016}_{-0.016} \quad (-1.5\sigma)$		
$\sigma_8$	$0.795^{+0.020}_{-0.017} \quad (+1.1\sigma)$	$100\theta_{s,eq}$	$0.4579^{+0.0080}_{-0.0082} \quad (-1.5\sigma)$		

$\bar{\chi}_{eff}^2 = 11946.84$ ;  $\Delta\bar{\chi}_{eff}^2 = 4456.94$ ;  $R - 1 = 0.04629$



### 3.25 base\_Alens\_plikHM\_TE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02215	$0.02219^{+0.00097}_{-0.00093}$	$r_{\text{drag}} h$	99.6	$99.7^{+5.4}_{-5.3}$	$100\theta_{\text{s,eq}}$	0.4514	$0.451^{+0.014}_{-0.014}$
$\Omega_c h^2$	0.1193	$0.1193^{+0.0069}_{-0.0066}$	$\langle d^2 \rangle^{1/2}$	2.09	$2.09^{+0.63}_{-0.89}$	$H(0.15)$	72.78	$72.8^{+2.8}_{-2.7}$
$100\theta_{\text{MC}}$	1.04120	$1.0412^{+0.0014}_{-0.0013}$	$z_{\text{re}}$	7.14	$7.0^{+2.1}_{-3.4}$	$D_{\text{M}}(0.15)$	642.3	$642^{+28}_{-26}$
$\tau$	0.0487	$0.048^{+0.022}_{-0.028}$	$10^9 A_{\text{s}}$	2.022	$2.02^{+0.12}_{-0.13}$	$H(0.38)$	82.89	$83.0^{+2.1}_{-2.0}$
$A_{\text{L}}$	0.74	$0.76^{+0.60}_{-0.53}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.834	$1.835^{+0.062}_{-0.058}$	$D_{\text{M}}(0.38)$	1532	$1530^{+56}_{-54}$
$\ln(10^{10} A_{\text{s}})$	3.007	$3.006^{+0.058}_{-0.064}$	$D_{40}$	1245	$1242^{+100}_{-93}$	$H(0.51)$	89.61	$89.7^{+1.7}_{-1.6}$
$n_{\text{s}}$	0.947	$0.949^{+0.052}_{-0.051}$	$D_{220}$	5679	$5677^{+160}_{-150}$	$D_{\text{M}}(0.51)$	1984	$1983^{+65}_{-64}$
$A_{100}^{\text{dustTE}}$	0.111	$0.115^{+0.098}_{-0.095}$	$D_{810}$	2473	$2475^{+100}_{-93}$	$H(0.61)$	95.23	$95.3^{+1.4}_{-1.3}$
$A_{100 \times 143}^{\text{dustTE}}$	0.137	$0.137^{+0.075}_{-0.076}$	$D_{1420}$	789.8	$791^{+50}_{-45}$	$D_{\text{M}}(0.61)$	2309	$2307^{+70}_{-69}$
$A_{100 \times 217}^{\text{dustTE}}$	0.474	$0.48^{+0.22}_{-0.22}$	$D_{2000}$	218.8	$220^{+23}_{-21}$	$H(2.33)$	235.92	$236.0^{+3.9}_{-3.7}$
$A_{143}^{\text{dustTE}}$	0.228	$0.22^{+0.14}_{-0.14}$	$n_{\text{s},0.002}$	0.947	$0.949^{+0.052}_{-0.051}$	$D_{\text{M}}(2.33)$	5768	$5765^{+59}_{-65}$
$A_{143 \times 217}^{\text{dustTE}}$	0.654	$0.66^{+0.20}_{-0.21}$	$Y_{\text{P}}$	0.245303	$0.24531^{+0.00042}_{-0.00041}$	$f\sigma_8(0.15)$	0.4455	$0.445^{+0.036}_{-0.034}$
$A_{217}^{\text{dustTE}}$	2.03	$2.03^{+0.70}_{-0.69}$	$Y_{\text{P}}^{\text{BBN}}$	0.246630	$0.24664^{+0.00042}_{-0.00041}$	$\sigma_8(0.15)$	0.7297	$0.730^{+0.027}_{-0.027}$
$c_{100}$	1.00015	$1.0002^{+0.0018}_{-0.0018}$	$10^5 \text{D}/\text{H}$	2.628	$2.62^{+0.18}_{-0.18}$	$f\sigma_8(0.38)$	0.4633	$0.463^{+0.028}_{-0.027}$
$c_{217}$	0.99802	$0.9980^{+0.0017}_{-0.0017}$	Age/Gyr	13.809	$13.80^{+0.13}_{-0.14}$	$\sigma_8(0.38)$	0.6468	$0.647^{+0.024}_{-0.024}$
$y_{\text{cal}}$	1.0002	$1.0001^{+0.0065}_{-0.0064}$	$z_*$	1090.15	$1090.1^{+1.7}_{-1.6}$	$f\sigma_8(0.51)$	0.4619	$0.462^{+0.024}_{-0.024}$
$H_0$	67.50	$67.6^{+3.2}_{-3.2}$	$r_*$	144.78	$144.8^{+1.4}_{-1.4}$	$\sigma_8(0.51)$	0.6052	$0.605^{+0.023}_{-0.022}$
$\Omega_{\Lambda}$	0.6881	$0.688^{+0.039}_{-0.045}$	$100\theta_*$	1.04140	$1.0414^{+0.0014}_{-0.0013}$	$f\sigma_8(0.61)$	0.4570	$0.457^{+0.021}_{-0.021}$
$\Omega_{\text{m}}$	0.3119	$0.312^{+0.045}_{-0.039}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.902	$13.90^{+0.13}_{-0.13}$	$\sigma_8(0.61)$	0.5759	$0.576^{+0.023}_{-0.022}$
$\Omega_{\text{m}} h^2$	0.1421	$0.1421^{+0.0064}_{-0.0060}$	$z_{\text{drag}}$	1059.36	$1059.5^{+2.0}_{-1.9}$	$f\sigma_8(2.33)$	0.2903	$0.290^{+0.012}_{-0.011}$
$\Omega_{\text{m}} h^3$	0.09593	$0.0960^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	147.52	$147.5^{+1.3}_{-1.4}$	$\sigma_8(2.33)$	0.2993	$0.299^{+0.013}_{-0.012}$
$\sigma_8$	0.7897	$0.790^{+0.030}_{-0.030}$	$k_{\text{D}}$	0.14024	$0.1403^{+0.0015}_{-0.0015}$	$\chi_{\text{simall}}^2$	395.6	$396.9 (\nu: 1.4)$
$S_8$	0.805	$0.805^{+0.072}_{-0.067}$	$100\theta_{\text{D}}$	0.16114	$0.1611^{+0.0011}_{-0.0011}$	$\chi_{\text{plikTE}}^2$	851.4	$859.6 (\nu: 8.2)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4411	$0.441^{+0.039}_{-0.037}$	$z_{\text{eq}}$	3381	$3381^{+150}_{-140}$	$\chi_{\text{prior}}^2$	0.5	$7.4 (\nu: 6.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5902	$0.590^{+0.034}_{-0.033}$	$k_{\text{eq}}$	0.010318	$0.01032^{+0.00046}_{-0.00044}$	$\chi_{\text{CMB}}^2$	1247.1	$1256.5 (\nu: 9.5)$
$\sigma_8/h^{0.5}$	0.9612	$0.961^{+0.046}_{-0.045}$	$100\theta_{\text{eq}}$	0.8167	$0.817^{+0.029}_{-0.028}$			

Best-fit  $\chi_{\text{eff}}^2 = 1247.61$ ;  $\bar{\chi}_{\text{eff}}^2 = 1263.86$ ;  $R - 1 = 0.00958$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.64 plik\_rd12\_HM\_v22\_TE: 851.43



### 3.26 base\_Alens\_plikHM\_TE\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02224	$0.02226^{+0.00076}_{-0.00073}$	$\langle d^2 \rangle^{1/2}$	2.14	$2.13^{+0.57}_{-0.75}$	$D_M(0.15)$	639.0	$639^{+14}_{-14}$
$\Omega_c h^2$	0.11854	$0.1186^{+0.0033}_{-0.0033}$	$z_{\text{re}}$	7.17	$7.1^{+2.1}_{-3.7}$	$H(0.38)$	83.14	$83.2^{+1.1}_{-1.1}$
$100\theta_{\text{MC}}$	1.04129	$1.0413^{+0.0012}_{-0.0012}$	$10^9 A_s$	2.026	$2.02^{+0.12}_{-0.12}$	$D_M(0.38)$	1525.0	$1525^{+28}_{-28}$
$\tau$	0.0493	$< 0.0671$	$10^9 A_s e^{-2\tau}$	1.836	$1.836^{+0.060}_{-0.057}$	$H(0.51)$	89.81	$89.83^{+0.95}_{-0.90}$
$A_L$	0.787	$0.79^{+0.48}_{-0.47}$	$D_{40}$	1236	$1234^{+79}_{-76}$	$D_M(0.51)$	1976.2	$1976^{+33}_{-33}$
$\ln(10^{10} A_s)$	3.009	$3.007^{+0.057}_{-0.063}$	$D_{220}$	5684	$5681^{+150}_{-150}$	$H(0.61)$	95.39	$95.41^{+0.83}_{-0.79}$
$n_s$	0.9524	$0.953^{+0.040}_{-0.039}$	$D_{810}$	2481	$2480^{+90}_{-86}$	$D_M(0.61)$	2300.2	$2300^{+36}_{-36}$
$y_{\text{cal}}$	1.0003	$1.0001^{+0.0064}_{-0.0065}$	$D_{1420}$	794.0	$794^{+44}_{-40}$	$H(2.33)$	235.50	$235.5^{+2.1}_{-2.0}$
$A_{100}^{\text{dustTE}}$	0.115	$0.115^{+0.099}_{-0.095}$	$D_{2000}$	220.8	$221^{+19}_{-17}$	$D_M(2.33)$	5761.0	$5760^{+40}_{-41}$
$A_{100 \times 143}^{\text{dustTE}}$	0.136	$0.137^{+0.075}_{-0.078}$	$n_{s,0.002}$	0.9524	$0.953^{+0.040}_{-0.039}$	$f\sigma_8(0.15)$	0.4421	$0.442^{+0.021}_{-0.022}$
$A_{100 \times 217}^{\text{dustTE}}$	0.476	$0.48^{+0.22}_{-0.22}$	$Y_P$	0.245343	$0.24534^{+0.00032}_{-0.00033}$	$\sigma_8(0.15)$	0.7298	$0.729^{+0.027}_{-0.027}$
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.13}_{-0.14}$	$Y_P^{\text{BBN}}$	0.246670	$0.24667^{+0.00032}_{-0.00034}$	$f\sigma_8(0.38)$	0.4609	$0.461^{+0.019}_{-0.021}$
$A_{143 \times 217}^{\text{dustTE}}$	0.651	$0.66^{+0.20}_{-0.21}$	$10^5 \text{D/H}$	2.610	$2.61^{+0.14}_{-0.14}$	$\sigma_8(0.38)$	0.6474	$0.647^{+0.024}_{-0.023}$
$A_{217}^{\text{dustTE}}$	2.02	$2.03^{+0.72}_{-0.67}$	Age/Gyr	13.793	$13.790^{+0.091}_{-0.093}$	$f\sigma_8(0.51)$	0.4601	$0.460^{+0.018}_{-0.019}$
$c_{100}$	1.00015	$1.0002^{+0.0018}_{-0.0018}$	$z_*$	1089.95	$1089.9^{+1.1}_{-1.1}$	$\sigma_8(0.51)$	0.6060	$0.606^{+0.023}_{-0.022}$
$c_{217}$	0.99802	$0.9980^{+0.0017}_{-0.0016}$	$r_*$	144.91	$144.89^{+0.84}_{-0.86}$	$f\sigma_8(0.61)$	0.4556	$0.455^{+0.018}_{-0.018}$
$H_0$	67.88	$67.9^{+1.6}_{-1.6}$	$100\theta_*$	1.04148	$1.0415^{+0.0012}_{-0.0012}$	$\sigma_8(0.61)$	0.5768	$0.576^{+0.022}_{-0.020}$
$\Omega_\Lambda$	0.6931	$0.693^{+0.020}_{-0.021}$	$D_M(z_*)/\text{Gpc}$	13.914	$13.911^{+0.081}_{-0.086}$	$f\sigma_8(2.33)$	0.2910	$0.291^{+0.011}_{-0.010}$
$\Omega_m$	0.3069	$0.307^{+0.021}_{-0.020}$	$z_{\text{drag}}$	1059.55	$1059.6^{+1.7}_{-1.6}$	$\sigma_8(2.33)$	0.3002	$0.300^{+0.012}_{-0.011}$
$\Omega_m h^2$	0.14143	$0.1415^{+0.0031}_{-0.0031}$	$r_{\text{drag}}$	147.62	$147.60^{+0.96}_{-1.0}$	$\chi_{\text{small}}^2$	395.6	$396.8 (\nu: 1.4)$
$\Omega_m h^3$	0.09601	$0.0961^{+0.0015}_{-0.0014}$	$k_D$	0.14021	$0.1402^{+0.0014}_{-0.0014}$	$\chi_{\text{plikTE}}^2$	851.6	$858.9 (\nu: 7.1)$
$\sigma_8$	0.7893	$0.789^{+0.029}_{-0.030}$	$100\theta_D$	0.16104	$0.16103^{+0.00099}_{-0.00099}$	$\chi_{6\text{DF}}^2$	0.003	$0.046 (\nu: 0.0)$
$S_8$	0.7983	$0.798^{+0.041}_{-0.043}$	$z_{\text{eq}}$	3364	$3365^{+75}_{-75}$	$\chi_{\text{MGS}}^2$	1.54	$1.62 (\nu: 0.2)$
$\sigma_8 \Omega_m^{0.5}$	0.4372	$0.437^{+0.022}_{-0.023}$	$k_{\text{eq}}$	0.010268	$0.01027^{+0.00023}_{-0.00023}$	$\chi_{\text{DR12BAO}}^2$	3.63	$4.3 (\nu: 0.8)$
$\sigma_8 \Omega_m^{0.25}$	0.5874	$0.587^{+0.024}_{-0.026}$	$100\theta_{\text{eq}}$	0.8201	$0.820^{+0.014}_{-0.014}$	$\chi_{\text{prior}}^2$	0.5	$7.4 (\nu: 6.7)$
$\sigma_8/h^{0.5}$	0.9579	$0.957^{+0.036}_{-0.038}$	$100\theta_{s,\text{eq}}$	0.4530	$0.4530^{+0.0073}_{-0.0071}$	$\chi_{\text{BAO}}^2$	5.18	$6.0 (\nu: 0.6)$
$r_{\text{drag}} h$	100.21	$100.2^{+2.6}_{-2.6}$	$H(0.15)$	73.11	$73.1^{+1.4}_{-1.4}$	$\chi_{\text{CMB}}^2$	1247.3	$1255.8 (\nu: 8.6)$

Best-fit  $\chi_{\text{eff}}^2 = 1252.89$ ;  $\bar{\chi}_{\text{eff}}^2 = 1269.15$ ;  $R - 1 = 0.01278$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.54 DR12BAO: 3.63 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.63 plik\_rd12\_HM\_v22\_TE: 851.63



### 3.27 base\_Alens\_plikHM\_TE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02220^{+0.00098}_{-0.00092}$	$r_{\mathrm{drag}}h$	$99.7^{+5.4}_{-5.3}$	$100\theta_{\mathrm{s,eq}}$	$0.452^{+0.015}_{-0.014}$
$\Omega_{\mathrm{c}}h^2$	$0.1192^{+0.0069}_{-0.0065}$	$\langle d^2 \rangle^{1/2}$	$2.10^{+0.64}_{-0.88}$	$H(0.15)$	$72.9^{+2.8}_{-2.7}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0014}_{-0.0013}$	$z_{\mathrm{re}}$	$< 9.03$	$D_{\mathrm{M}}(0.15)$	$641^{+28}_{-26}$
$\tau$	$0.052^{+0.017}_{-0.011}$	$10^9 A_{\mathrm{s}}$	$2.04^{+0.11}_{-0.086}$	$H(0.38)$	$83.0^{+2.1}_{-2.0}$
$A_{\mathrm{L}}$	$0.76^{+0.60}_{-0.53}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.836^{+0.062}_{-0.058}$	$D_{\mathrm{M}}(0.38)$	$1530^{+56}_{-54}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.014^{+0.054}_{-0.043}$	$D_{40}$	$1241^{+100}_{-92}$	$H(0.51)$	$89.7^{+1.7}_{-1.6}$
$n_{\mathrm{s}}$	$0.950^{+0.052}_{-0.051}$	$D_{220}$	$5677^{+160}_{-150}$	$D_{\mathrm{M}}(0.51)$	$1981^{+65}_{-64}$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.097}_{-0.095}$	$D_{810}$	$2477^{+100}_{-94}$	$H(0.61)$	$95.3^{+1.4}_{-1.3}$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.137^{+0.075}_{-0.077}$	$D_{1420}$	$792^{+49}_{-45}$	$D_{\mathrm{M}}(0.61)$	$2306^{+70}_{-70}$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$D_{2000}$	$220^{+23}_{-20}$	$H(2.33)$	$235.9^{+3.9}_{-3.7}$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$n_{\mathrm{s},0.002}$	$0.950^{+0.052}_{-0.051}$	$D_{\mathrm{M}}(2.33)$	$5764^{+59}_{-65}$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.22}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00042}_{-0.00041}$	$f\sigma_8(0.15)$	$0.446^{+0.035}_{-0.034}$
$A_{217}^{\mathrm{dustTE}}$	$2.03^{+0.70}_{-0.68}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00042}_{-0.00041}$	$\sigma_8(0.15)$	$0.732^{+0.026}_{-0.022}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0018}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.18}_{-0.18}$	$f\sigma_8(0.38)$	$0.464^{+0.027}_{-0.027}$
$c_{217}$	$0.9980^{+0.0017}_{-0.0017}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.80^{+0.13}_{-0.14}$	$\sigma_8(0.38)$	$0.649^{+0.023}_{-0.020}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0065}_{-0.0064}$	$z_*$	$1090.1^{+1.7}_{-1.6}$	$f\sigma_8(0.51)$	$0.463^{+0.023}_{-0.023}$
$H_0$	$67.6^{+3.2}_{-3.2}$	$r_*$	$144.8^{+1.4}_{-1.4}$	$\sigma_8(0.51)$	$0.608^{+0.022}_{-0.019}$
$\Omega_{\Lambda}$	$0.689^{+0.039}_{-0.046}$	$100\theta_*$	$1.0415^{+0.0014}_{-0.0013}$	$f\sigma_8(0.61)$	$0.458^{+0.020}_{-0.020}$
$\Omega_{\mathrm{m}}$	$0.311^{+0.046}_{-0.039}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.90^{+0.13}_{-0.13}$	$\sigma_8(0.61)$	$0.578^{+0.021}_{-0.018}$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0064}_{-0.0060}$	$z_{\mathrm{drag}}$	$1059.5^{+2.0}_{-1.9}$	$f\sigma_8(2.33)$	$0.292^{+0.011}_{-0.0093}$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0016}_{-0.0014}$	$r_{\mathrm{drag}}$	$147.5^{+1.3}_{-1.4}$	$\sigma_8(2.33)$	$0.301^{+0.013}_{-0.010}$
$\sigma_8$	$0.793^{+0.028}_{-0.026}$	$k_{\mathrm{D}}$	$0.1403^{+0.0015}_{-0.0015}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.8)$
$S_8$	$0.807^{+0.071}_{-0.066}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{plikTE}}^2$	$859.6 (\nu: 8.3)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.442^{+0.039}_{-0.036}$	$z_{\mathrm{eq}}$	$3379^{+150}_{-140}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 6.7)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.592^{+0.033}_{-0.032}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00046}_{-0.00044}$	$\chi_{\mathrm{CMB}}^2$	$1256.1 (\nu: 9.1)$
$\sigma_8/h^{0.5}$	$0.964^{+0.045}_{-0.044}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.029}_{-0.028}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1263.45$ ;  $R - 1 = 0.01017$



### 3.28 base\_Alens\_plikHM\_TE\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02226^{+0.00077}_{-0.00072}$	$\langle d^2 \rangle^{1/2}$	$2.13^{+0.57}_{-0.76}$	$D_M(0.15)$	$639^{+14}_{-14}$
$\Omega_c h^2$	$0.1186^{+0.0033}_{-0.0033}$	$z_{\text{re}}$	$< 9.01$	$H(0.38)$	$83.2^{+1.1}_{-1.1}$
$100\theta_{\text{MC}}$	$1.0413^{+0.0012}_{-0.0012}$	$10^9 A_s$	$2.04^{+0.11}_{-0.082}$	$D_M(0.38)$	$1524^{+28}_{-28}$
$\tau$	$0.052^{+0.017}_{-0.011}$	$10^9 A_s e^{-2\tau}$	$1.836^{+0.061}_{-0.058}$	$H(0.51)$	$89.83^{+0.94}_{-0.90}$
$A_L$	$0.79^{+0.49}_{-0.47}$	$D_{40}$	$1235^{+78}_{-76}$	$D_M(0.51)$	$1976^{+33}_{-34}$
$\ln(10^{10} A_s)$	$3.014^{+0.051}_{-0.041}$	$D_{220}$	$5680^{+150}_{-150}$	$H(0.61)$	$95.41^{+0.82}_{-0.79}$
$n_s$	$0.953^{+0.040}_{-0.039}$	$D_{810}$	$2481^{+91}_{-87}$	$D_M(0.61)$	$2299^{+36}_{-36}$
$y_{\text{cal}}$	$1.0001^{+0.0064}_{-0.0065}$	$D_{1420}$	$794^{+45}_{-40}$	$H(2.33)$	$235.5^{+2.1}_{-2.1}$
$A_{100}^{\text{dustTE}}$	$0.115^{+0.098}_{-0.095}$	$D_{2000}$	$221^{+19}_{-18}$	$D_M(2.33)$	$5760^{+40}_{-41}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.137^{+0.075}_{-0.081}$	$n_{s,0.002}$	$0.953^{+0.040}_{-0.039}$	$f\sigma_8(0.15)$	$0.443^{+0.021}_{-0.020}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$Y_P$	$0.24534^{+0.00032}_{-0.00033}$	$\sigma_8(0.15)$	$0.732^{+0.025}_{-0.021}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.13}_{-0.15}$	$Y_P^{\text{BBN}}$	$0.24667^{+0.00032}_{-0.00033}$	$f\sigma_8(0.38)$	$0.462^{+0.019}_{-0.017}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$10^5 D/H$	$2.61^{+0.14}_{-0.14}$	$\sigma_8(0.38)$	$0.649^{+0.022}_{-0.019}$
$A_{217}^{\text{dustTE}}$	$2.03^{+0.71}_{-0.68}$	Age/Gyr	$13.790^{+0.091}_{-0.093}$	$f\sigma_8(0.51)$	$0.461^{+0.017}_{-0.016}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0019}$	$z_*$	$1089.9^{+1.1}_{-1.1}$	$\sigma_8(0.51)$	$0.608^{+0.021}_{-0.018}$
$c_{217}$	$0.9980^{+0.0017}_{-0.0016}$	$r_*$	$144.89^{+0.85}_{-0.86}$	$f\sigma_8(0.61)$	$0.457^{+0.017}_{-0.015}$
$H_0$	$67.9^{+1.6}_{-1.6}$	$100\theta_*$	$1.0415^{+0.0011}_{-0.0012}$	$\sigma_8(0.61)$	$0.579^{+0.020}_{-0.017}$
$\Omega_\Lambda$	$0.693^{+0.020}_{-0.021}$	$D_M(z_*)/\text{Gpc}$	$13.911^{+0.082}_{-0.087}$	$f\sigma_8(2.33)$	$0.292^{+0.010}_{-0.0086}$
$\Omega_m$	$0.307^{+0.021}_{-0.020}$	$z_{\text{drag}}$	$1059.6^{+1.7}_{-1.6}$	$\sigma_8(2.33)$	$0.301^{+0.011}_{-0.0095}$
$\Omega_m h^2$	$0.1415^{+0.0032}_{-0.0032}$	$r_{\text{drag}}$	$147.60^{+0.99}_{-0.99}$	$\chi_{\text{simall}}^2$	$396.4 (\nu: 0.7)$
$\Omega_m h^3$	$0.0961^{+0.0015}_{-0.0014}$	$k_D$	$0.1402^{+0.0014}_{-0.0014}$	$\chi_{\text{plikTE}}^2$	$859.0 (\nu: 7.1)$
$\sigma_8$	$0.792^{+0.027}_{-0.023}$	$100\theta_D$	$0.16103^{+0.00098}_{-0.0010}$	$\chi_{6\text{DF}}^2$	$0.045 (\nu: 0.0)$
$S_8$	$0.800^{+0.040}_{-0.038}$	$z_{\text{eq}}$	$3365^{+76}_{-76}$	$\chi_{\text{MGS}}^2$	$1.63 (\nu: 0.2)$
$\sigma_8 \Omega_m^{0.5}$	$0.438^{+0.022}_{-0.021}$	$k_{\text{eq}}$	$0.01027^{+0.00023}_{-0.00023}$	$\chi_{\text{DR12BAO}}^2$	$4.3 (\nu: 0.8)$
$\sigma_8 \Omega_m^{0.25}$	$0.589^{+0.023}_{-0.021}$	$100\theta_{\text{eq}}$	$0.820^{+0.015}_{-0.014}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.3)$
$\sigma_8/h^{0.5}$	$0.961^{+0.034}_{-0.031}$	$100\theta_{s,\text{eq}}$	$0.4530^{+0.0075}_{-0.0072}$	$\chi_{\text{BAO}}^2$	$6.0 (\nu: 0.6)$
$r_{\text{drag}} h$	$100.2^{+2.7}_{-2.6}$	$H(0.15)$	$73.1^{+1.4}_{-1.4}$	$\chi_{\text{CMB}}^2$	$1255.4 (\nu: 7.9)$

$\bar{\chi}_{\text{eff}}^2 = 1268.67$ ;  $R - 1 = 0.01556$



### 3.29 base\_Alens\_plikHM\_EE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02434	$0.0245^{+0.0034}_{-0.0032}$	$D_{40}$	1225	$1222^{+82}_{-79}$	$D_M(0.15)$	614	$612^{+65}_{-55}$
$\Omega_c h^2$	0.1140	$0.114^{+0.014}_{-0.012}$	$D_{220}$	6006	$6026^{+510}_{-510}$	$H(0.38)$	85.4	$85.7^{+5.6}_{-5.2}$
$100\theta_{MC}$	1.04001	$1.0401^{+0.0023}_{-0.0023}$	$D_{810}$	2590	$2595^{+97}_{-100}$	$D_M(0.38)$	1473	$1467^{+130}_{-120}$
$\tau$	0.0541	$0.053^{+0.024}_{-0.027}$	$D_{1420}$	844.3	$847^{+47}_{-48}$	$H(0.51)$	91.75	$92.1^{+4.9}_{-4.3}$
$A_L$	1.31	$1.32^{+0.72}_{-0.63}$	$D_{2000}$	244.7	$246^{+20}_{-20}$	$D_M(0.51)$	1913	$1907^{+160}_{-140}$
$\ln(10^{10} A_s)$	3.055	$3.054^{+0.060}_{-0.063}$	$n_{s,0.002}$	0.9858	$0.989^{+0.042}_{-0.040}$	$H(0.61)$	97.13	$97.4^{+4.4}_{-3.7}$
$n_s$	0.9858	$0.989^{+0.042}_{-0.040}$	$Y_P$	0.24615	$0.2462^{+0.0013}_{-0.0013}$	$D_M(0.61)$	2231	$2223^{+170}_{-160}$
$y_{cal}$	0.9998	$0.9999^{+0.0064}_{-0.0064}$	$Y_P^{BBN}$	0.24748	$0.2476^{+0.0013}_{-0.0013}$	$H(2.33)$	234.5	$234.4^{+6.1}_{-4.8}$
$H_0$	70.9	$71.3^{+7.4}_{-7.6}$	$10^5 D/H$	2.26	$2.24^{+0.56}_{-0.45}$	$D_M(2.33)$	5676	$5664^{+180}_{-190}$
$\Omega_\Lambda$	0.723	$0.725^{+0.065}_{-0.093}$	Age/Gyr	13.599	$13.58^{+0.40}_{-0.42}$	$f\sigma_8(0.15)$	0.423	$0.420^{+0.083}_{-0.071}$
$\Omega_m$	0.277	$0.275^{+0.093}_{-0.065}$	$z_*$	1087.14	$1087.0^{+4.9}_{-3.9}$	$\sigma_8(0.15)$	0.7346	$0.732^{+0.037}_{-0.042}$
$\Omega_m h^2$	0.1390	$0.139^{+0.011}_{-0.0088}$	$r_*$	144.49	$144.5^{+1.7}_{-1.7}$	$f\sigma_8(0.38)$	0.449	$0.446^{+0.064}_{-0.061}$
$\Omega_m h^3$	0.09847	$0.0988^{+0.0051}_{-0.0045}$	$100\theta_*$	1.03999	$1.0400^{+0.0022}_{-0.0022}$	$\sigma_8(0.38)$	0.6551	$0.653^{+0.027}_{-0.031}$
$\sigma_8$	0.7912	$0.788^{+0.048}_{-0.051}$	$D_M(z_*)/\text{Gpc}$	13.893	$13.89^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	0.451	$0.448^{+0.053}_{-0.054}$
$S_8$	0.760	$0.75^{+0.17}_{-0.13}$	$z_{drag}$	1063.9	$1064.3^{+6.5}_{-6.5}$	$\sigma_8(0.51)$	0.6147	$0.613^{+0.023}_{-0.026}$
$\sigma_8 \Omega_m^{0.5}$	0.416	$0.413^{+0.091}_{-0.074}$	$r_{drag}$	146.53	$146.5^{+1.9}_{-1.8}$	$f\sigma_8(0.61)$	0.4493	$0.447^{+0.046}_{-0.048}$
$\sigma_8 \Omega_m^{0.25}$	0.574	$0.571^{+0.078}_{-0.070}$	$k_D$	0.14280	$0.1429^{+0.0033}_{-0.0034}$	$\sigma_8(0.61)$	0.5859	$0.584^{+0.021}_{-0.023}$
$\sigma_8/h^{0.5}$	0.940	$0.93^{+0.11}_{-0.10}$	$100\theta_D$	0.15836	$0.1583^{+0.0037}_{-0.0029}$	$f\sigma_8(2.33)$	0.2969	$0.2963^{+0.0095}_{-0.0099}$
$r_{drag} h$	103.8	$104^{+11}_{-11}$	$z_{eq}$	3305	$3300^{+260}_{-210}$	$\sigma_8(2.33)$	0.3078	$0.3074^{+0.0098}_{-0.0099}$
$\langle d^2 \rangle^{1/2}$	2.68	$2.67^{+0.57}_{-0.68}$	$k_{eq}$	0.01009	$0.01007^{+0.00079}_{-0.00064}$	$\chi_{simall}^2$	395.57	$396.7 (\nu: 1.2)$
$z_{re}$	7.16	$7.0^{+2.0}_{-2.8}$	$100\theta_{eq}$	0.836	$0.838^{+0.051}_{-0.055}$	$\chi_{plikEE}^2$	737.6	$743.5 (\nu: 5.9)$
$10^9 A_s$	2.123	$2.12^{+0.13}_{-0.13}$	$100\theta_{s,eq}$	0.4596	$0.461^{+0.024}_{-0.026}$	$\chi_{prior}^2$	0.00	$0.99 (\nu: 1.0)$
$10^9 A_s e^{-2\tau}$	1.905	$1.907^{+0.064}_{-0.063}$	$H(0.15)$	75.8	$76.2^{+6.8}_{-6.7}$	$\chi_{CMB}^2$	1133.1	$1140.3 (\nu: 7.1)$

Best-fit  $\chi_{eff}^2 = 1133.14$ ;  $\bar{\chi}_{eff}^2 = 1141.29$ ;  $R - 1 = 0.00947$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.57 plik\_rd12\_HM\_v22\_EE: 737.57



### 3.30 base\_Alens\_plikHM\_EE\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02352	$0.0235^{+0.0016}_{-0.0018}$	$D_{810}$	2577	$2577^{+84}_{-85}$	$D_M(0.51)$	1954.5	$1954^{+48}_{-47}$
$\Omega_c h^2$	0.11747	$0.1174^{+0.0039}_{-0.0038}$	$D_{1420}$	836.5	$836^{+37}_{-37}$	$H(0.61)$	96.10	$96.1^{+1.5}_{-1.4}$
$100\theta_{MC}$	1.03980	$1.0398^{+0.0021}_{-0.0021}$	$D_{2000}$	240.9	$241^{+15}_{-14}$	$D_M(0.61)$	2276	$2275^{+53}_{-52}$
$\tau$	0.0521	$0.051^{+0.021}_{-0.026}$	$n_{s,0.002}$	0.9786	$0.978^{+0.028}_{-0.025}$	$H(2.33)$	235.93	$235.9^{+2.4}_{-2.6}$
$A_L$	1.23	$1.24^{+0.61}_{-0.56}$	$Y_P$	0.24587	$0.24587^{+0.00066}_{-0.00076}$	$D_M(2.33)$	5723	$5722^{+75}_{-76}$
$\ln(10^{10} A_s)$	3.051	$3.049^{+0.053}_{-0.059}$	$Y_P^{BBN}$	0.24720	$0.24720^{+0.00066}_{-0.00077}$	$f\sigma_8(0.15)$	0.4449	$0.444^{+0.026}_{-0.026}$
$n_s$	0.9786	$0.978^{+0.028}_{-0.025}$	$10^5 D/H$	2.386	$2.38^{+0.32}_{-0.25}$	$\sigma_8(0.15)$	0.7438	$0.743^{+0.025}_{-0.024}$
$y_{cal}$	0.9998	$0.9999^{+0.0068}_{-0.0066}$	Age/Gyr	13.704	$13.70^{+0.17}_{-0.17}$	$f\sigma_8(0.38)$	0.4659	$0.465^{+0.022}_{-0.022}$
$H_0$	68.83	$68.9^{+2.2}_{-2.2}$	$z_*$	1088.33	$1088.3^{+2.3}_{-2.0}$	$\sigma_8(0.38)$	0.6607	$0.660^{+0.022}_{-0.021}$
$\Omega_\Lambda$	0.7011	$0.701^{+0.022}_{-0.024}$	$r_*$	144.21	$144.2^{+1.3}_{-1.3}$	$f\sigma_8(0.51)$	0.4660	$0.465^{+0.020}_{-0.020}$
$\Omega_m$	0.2989	$0.299^{+0.024}_{-0.022}$	$100\theta_*$	1.03988	$1.0398^{+0.0022}_{-0.0021}$	$\sigma_8(0.51)$	0.6189	$0.618^{+0.021}_{-0.020}$
$\Omega_m h^2$	0.14163	$0.1416^{+0.0036}_{-0.0036}$	$D_M(z_*)/\text{Gpc}$	13.868	$13.87^{+0.13}_{-0.13}$	$f\sigma_8(0.61)$	0.4620	$0.461^{+0.020}_{-0.018}$
$\Omega_m h^3$	0.09748	$0.0975^{+0.0031}_{-0.0029}$	$z_{drag}$	1062.37	$1062.4^{+3.5}_{-4.0}$	$\sigma_8(0.61)$	0.5893	$0.588^{+0.019}_{-0.018}$
$\sigma_8$	0.8036	$0.802^{+0.029}_{-0.027}$	$r_{drag}$	146.50	$146.5^{+1.8}_{-1.7}$	$f\sigma_8(2.33)$	0.2976	$0.2972^{+0.0095}_{-0.0093}$
$S_8$	0.8022	$0.801^{+0.050}_{-0.048}$	$k_D$	0.14232	$0.1423^{+0.0028}_{-0.0031}$	$\sigma_8(2.33)$	0.3074	$0.3070^{+0.0094}_{-0.0098}$
$\sigma_8 \Omega_m^{0.5}$	0.4394	$0.439^{+0.028}_{-0.027}$	$100\theta_D$	0.15917	$0.1592^{+0.0023}_{-0.0019}$	$\chi_{small}^2$	395.62	$396.8 (\nu: 1.2)$
$\sigma_8 \Omega_m^{0.25}$	0.5942	$0.593^{+0.028}_{-0.027}$	$z_{eq}$	3369	$3368^{+86}_{-87}$	$\chi_{plikEE}^2$	738.1	$743.1 (\nu: 5.8)$
$\sigma_8/h^{0.5}$	0.9686	$0.967^{+0.042}_{-0.040}$	$k_{eq}$	0.010283	$0.01028^{+0.00026}_{-0.00027}$	$\chi_{6DF}^2$	0.004	$0.060 (\nu: 0.0)$
$r_{drag} h$	100.83	$100.9^{+3.0}_{-2.9}$	$100\theta_{eq}$	0.8216	$0.822^{+0.016}_{-0.015}$	$\chi_{MGS}^2$	1.89	$2.00 (\nu: 0.3)$
$\langle d^2 \rangle^{1/2}$	2.66	$2.66^{+0.58}_{-0.68}$	$100\theta_{s,eq}$	0.4528	$0.4529^{+0.0081}_{-0.0078}$	$\chi_{DR12BAO}^2$	3.60	$4.4 (\nu: 0.7)$
$z_{re}$	7.18	$7.0^{+2.0}_{-2.8}$	$H(0.15)$	74.00	$74.0^{+2.0}_{-2.0}$	$\chi_{prior}^2$	0.01	$1.0 (\nu: 1.0)$
$10^9 A_s$	2.114	$2.11^{+0.12}_{-0.12}$	$D_M(0.15)$	630.7	$631^{+19}_{-18}$	$\chi_{BAO}^2$	5.50	$6.5 (\nu: 1.0)$
$10^9 A_s e^{-2\tau}$	1.905	$1.906^{+0.059}_{-0.062}$	$H(0.38)$	83.93	$84.0^{+1.7}_{-1.7}$	$\chi_{CMB}^2$	1133.7	$1139.9 (\nu: 6.9)$
$D_{40}$	1225	$1227^{+80}_{-86}$	$D_M(0.38)$	1507.3	$1507^{+39}_{-39}$			
$D_{220}$	5885	$5895^{+360}_{-350}$	$H(0.51)$	90.55	$90.6^{+1.6}_{-1.5}$			

Best-fit  $\chi_{eff}^2 = 1139.18$ ;  $\bar{\chi}_{eff}^2 = 1147.38$ ;  $R - 1 = 0.01879$

$\chi_{eff}^2$ : BAO - 6DF: 0.00 MGS: 1.89 DR12BAO: 3.60 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.62 plik\_rd12\_HM\_v22\_EE: 738.06



### 3.31 base\_Alens\_plikHM\_EE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0245^{+0.0034}_{-0.0032}$	$D_{40}$	$1221^{+81}_{-79}$	$D_{\mathrm{M}}(0.15)$	$612^{+64}_{-55}$
$\Omega_{\mathrm{c}}h^2$	$0.114^{+0.013}_{-0.012}$	$D_{220}$	$6020^{+520}_{-500}$	$H(0.38)$	$85.7^{+5.5}_{-5.1}$
$100\theta_{\mathrm{MC}}$	$1.0401^{+0.0023}_{-0.0023}$	$D_{810}$	$2594^{+97}_{-99}$	$D_{\mathrm{M}}(0.38)$	$1468^{+130}_{-120}$
$\tau$	$0.057^{+0.019}_{-0.014}$	$D_{1420}$	$847^{+47}_{-48}$	$H(0.51)$	$92.0^{+4.9}_{-4.3}$
$A_{\mathrm{L}}$	$1.31^{+0.71}_{-0.61}$	$D_{2000}$	$246^{+20}_{-20}$	$D_{\mathrm{M}}(0.51)$	$1907^{+150}_{-140}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.062^{+0.055}_{-0.047}$	$n_{\mathrm{s},0.002}$	$0.989^{+0.041}_{-0.039}$	$H(0.61)$	$97.4^{+4.4}_{-3.7}$
$n_{\mathrm{s}}$	$0.989^{+0.041}_{-0.039}$	$Y_{\mathrm{P}}$	$0.2462^{+0.0013}_{-0.0013}$	$D_{\mathrm{M}}(0.61)$	$2224^{+170}_{-160}$
$y_{\mathrm{cal}}$	$0.9999^{+0.0063}_{-0.0064}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2476^{+0.0013}_{-0.0013}$	$H(2.33)$	$234.4^{+5.9}_{-4.8}$
$H_0$	$71.2^{+7.4}_{-7.4}$	$10^5\mathrm{D}/\mathrm{H}$	$2.24^{+0.55}_{-0.45}$	$D_{\mathrm{M}}(2.33)$	$5665^{+180}_{-190}$
$\Omega_{\Lambda}$	$0.725^{+0.065}_{-0.091}$	Age/Gyr	$13.58^{+0.40}_{-0.42}$	$f\sigma_8(0.15)$	$0.422^{+0.082}_{-0.071}$
$\Omega_{\mathrm{m}}$	$0.275^{+0.091}_{-0.065}$	$z_*$	$1087.0^{+4.8}_{-4.0}$	$\sigma_8(0.15)$	$0.735^{+0.036}_{-0.039}$
$\Omega_{\mathrm{m}}h^2$	$0.139^{+0.011}_{-0.0087}$	$r_*$	$144.5^{+1.6}_{-1.7}$	$f\sigma_8(0.38)$	$0.447^{+0.063}_{-0.060}$
$\Omega_{\mathrm{m}}h^3$	$0.0987^{+0.0051}_{-0.0045}$	$100\theta_*$	$1.0400^{+0.0022}_{-0.0022}$	$\sigma_8(0.38)$	$0.656^{+0.025}_{-0.028}$
$\sigma_8$	$0.791^{+0.046}_{-0.050}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.89^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	$0.450^{+0.053}_{-0.053}$
$S_8$	$0.76^{+0.16}_{-0.13}$	$z_{\mathrm{drag}}$	$1064.2^{+6.5}_{-6.4}$	$\sigma_8(0.51)$	$0.615^{+0.022}_{-0.023}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.415^{+0.089}_{-0.073}$	$r_{\mathrm{drag}}$	$146.5^{+1.9}_{-1.9}$	$f\sigma_8(0.61)$	$0.448^{+0.045}_{-0.048}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.573^{+0.076}_{-0.069}$	$k_{\mathrm{D}}$	$0.1429^{+0.0033}_{-0.0034}$	$\sigma_8(0.61)$	$0.587^{+0.019}_{-0.020}$
$\sigma_8/h^{0.5}$	$0.94^{+0.11}_{-0.10}$	$100\theta_{\mathrm{D}}$	$0.1583^{+0.0037}_{-0.0029}$	$f\sigma_8(2.33)$	$0.2974^{+0.0089}_{-0.0082}$
$r_{\mathrm{drag}}h$	$104^{+11}_{-11}$	$z_{\mathrm{eq}}$	$3299^{+250}_{-210}$	$\sigma_8(2.33)$	$0.3086^{+0.0092}_{-0.0080}$
$\langle d^2 \rangle^{1/2}$	$2.67^{+0.57}_{-0.67}$	$k_{\mathrm{eq}}$	$0.01007^{+0.00077}_{-0.00063}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.8)$
$z_{\mathrm{re}}$	$< 8.92$	$100\theta_{\mathrm{eq}}$	$0.838^{+0.051}_{-0.054}$	$\chi_{\mathrm{plikEE}}^2$	$743.5 (\nu: 5.9)$
$10^9 A_{\mathrm{s}}$	$2.14^{+0.12}_{-0.099}$	$100\theta_{\mathrm{s,eq}}$	$0.461^{+0.024}_{-0.026}$	$\chi_{\mathrm{prior}}^2$	$0.99 (\nu: 1.0)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.906^{+0.064}_{-0.063}$	$H(0.15)$	$76.2^{+6.7}_{-6.5}$	$\chi_{\mathrm{CMB}}^2$	$1139.9 (\nu: 6.6)$

$\bar{\chi}_{\mathrm{eff}}^2 = 1140.89$ ;  $R - 1 = 0.00557$



### 3.32 base\_Alens\_plikHM\_EE\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0235^{+0.0016}_{-0.0017}$	$D_{810}$	$2577^{+86}_{-83}$	$D_{\mathrm{M}}(0.51)$	$1954^{+47}_{-47}$
$\Omega_{\mathrm{c}}h^2$	$0.1174^{+0.0039}_{-0.0038}$	$D_{1420}$	$836^{+37}_{-35}$	$H(0.61)$	$96.1^{+1.5}_{-1.4}$
$100\theta_{\mathrm{MC}}$	$1.0397^{+0.0021}_{-0.0021}$	$D_{2000}$	$241^{+15}_{-14}$	$D_{\mathrm{M}}(0.61)$	$2275^{+52}_{-52}$
$\tau$	$0.055^{+0.017}_{-0.012}$	$n_{\mathrm{s},0.002}$	$0.978^{+0.027}_{-0.025}$	$H(2.33)$	$235.9^{+2.4}_{-2.6}$
$A_{\mathrm{L}}$	$1.23^{+0.60}_{-0.55}$	$Y_{\mathrm{P}}$	$0.24587^{+0.00064}_{-0.00070}$	$D_{\mathrm{M}}(2.33)$	$5722^{+74}_{-76}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.056^{+0.048}_{-0.044}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24719^{+0.00064}_{-0.00070}$	$f\sigma_8(0.15)$	$0.446^{+0.025}_{-0.023}$
$n_{\mathrm{s}}$	$0.978^{+0.027}_{-0.025}$	$10^5\mathrm{D}/\mathrm{H}$	$2.39^{+0.30}_{-0.25}$	$\sigma_8(0.15)$	$0.745^{+0.025}_{-0.020}$
$y_{\mathrm{cal}}$	$0.9999^{+0.0072}_{-0.0067}$	Age/Gyr	$13.70^{+0.17}_{-0.17}$	$f\sigma_8(0.38)$	$0.467^{+0.021}_{-0.020}$
$H_0$	$68.9^{+2.2}_{-2.2}$	$z_*$	$1088.3^{+2.1}_{-1.9}$	$\sigma_8(0.38)$	$0.662^{+0.021}_{-0.017}$
$\Omega_{\Lambda}$	$0.701^{+0.022}_{-0.024}$	$r_*$	$144.2^{+1.4}_{-1.3}$	$f\sigma_8(0.51)$	$0.467^{+0.020}_{-0.018}$
$\Omega_{\mathrm{m}}$	$0.299^{+0.024}_{-0.022}$	$100\theta_*$	$1.0398^{+0.0021}_{-0.0021}$	$\sigma_8(0.51)$	$0.620^{+0.019}_{-0.016}$
$\Omega_{\mathrm{m}}h^2$	$0.1416^{+0.0037}_{-0.0037}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.87^{+0.13}_{-0.12}$	$f\sigma_8(0.61)$	$0.463^{+0.018}_{-0.016}$
$\Omega_{\mathrm{m}}h^3$	$0.0975^{+0.0030}_{-0.0030}$	$z_{\mathrm{drag}}$	$1062.4^{+3.5}_{-3.8}$	$\sigma_8(0.61)$	$0.590^{+0.018}_{-0.015}$
$\sigma_8$	$0.805^{+0.028}_{-0.023}$	$r_{\mathrm{drag}}$	$146.5^{+1.8}_{-1.7}$	$f\sigma_8(2.33)$	$0.2982^{+0.0092}_{-0.0074}$
$S_8$	$0.803^{+0.049}_{-0.045}$	$k_{\mathrm{D}}$	$0.1423^{+0.0028}_{-0.0031}$	$\sigma_8(2.33)$	$0.3081^{+0.0090}_{-0.0076}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.440^{+0.027}_{-0.024}$	$100\theta_{\mathrm{D}}$	$0.1592^{+0.0023}_{-0.0019}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.595^{+0.026}_{-0.024}$	$z_{\mathrm{eq}}$	$3368^{+88}_{-87}$	$\chi_{\mathrm{plikEE}}^2$	$743.1 (\nu: 5.7)$
$\sigma_8/h^{0.5}$	$0.970^{+0.039}_{-0.034}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00027}_{-0.00027}$	$\chi_{6\mathrm{DF}}^2$	$0.060 (\nu: 0.0)$
$r_{\mathrm{drag}}h$	$100.9^{+2.9}_{-3.0}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.016}_{-0.016}$	$\chi_{\mathrm{MGS}}^2$	$2.00 (\nu: 0.3)$
$\langle d^2 \rangle^{1/2}$	$2.66^{+0.58}_{-0.67}$	$100\theta_{\mathrm{s,eq}}$	$0.4530^{+0.0081}_{-0.0079}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 0.7)$
$z_{\mathrm{re}}$	$< 8.96$	$H(0.15)$	$74.0^{+2.0}_{-1.9}$	$\chi_{\mathrm{prior}}^2$	$1.0 (\nu: 1.1)$
$10^9 A_{\mathrm{s}}$	$2.13^{+0.10}_{-0.092}$	$D_{\mathrm{M}}(0.15)$	$631^{+19}_{-18}$	$\chi_{\mathrm{BAO}}^2$	$6.5 (\nu: 0.9)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.905^{+0.059}_{-0.062}$	$H(0.38)$	$84.0^{+1.7}_{-1.6}$	$\chi_{\mathrm{CMB}}^2$	$1139.5 (\nu: 6.5)$
$D_{40}$	$1227^{+73}_{-83}$	$D_{\mathrm{M}}(0.38)$	$1507^{+39}_{-39}$		
$D_{220}$	$5892^{+330}_{-340}$	$H(0.51)$	$90.6^{+1.6}_{-1.4}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1146.99$ ;  $R - 1 = 0.01334$



### 3.33 base\_Alens\_CamSpecHM\_TE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02233	$0.0224^{+0.0011}_{-0.00098}$	$D_{40}$	1216	$1209^{+100}_{-96}$	$D_M(0.15)$	635.9	$634^{+27}_{-26}$
$\Omega_c h^2$	0.1177	$0.1174^{+0.0067}_{-0.0064}$	$D_{220}$	5715	$5710^{+160}_{-160}$	$H(0.38)$	83.37	$83.5^{+2.2}_{-2.0}$
$100\theta_{MC}$	1.04130	$1.0414^{+0.0014}_{-0.0014}$	$D_{810}$	2532	$2536^{+100}_{-100}$	$D_M(0.38)$	1519	$1516^{+54}_{-54}$
$\tau$	0.0504	$0.050^{+0.023}_{-0.029}$	$D_{1420}$	816	$819^{+52}_{-49}$	$H(0.51)$	89.99	$90.1^{+1.8}_{-1.6}$
$A_L$	0.89	$0.93^{+0.62}_{-0.54}$	$D_{2000}$	229.3	$231^{+24}_{-22}$	$D_M(0.51)$	1969	$1965^{+64}_{-64}$
$\ln(10^{10} A_s)$	3.028	$3.027^{+0.061}_{-0.062}$	$n_{s,0.002}$	0.969	$0.973^{+0.055}_{-0.052}$	$H(0.61)$	95.53	$95.6^{+1.5}_{-1.3}$
$n_s$	0.969	$0.973^{+0.055}_{-0.052}$	$Y_P$	0.245379	$0.24539^{+0.00045}_{-0.00044}$	$D_M(0.61)$	2292	$2288^{+69}_{-70}$
$y_{cal}$	1.0001	$0.99997^{+0.0066}_{-0.0065}$	$Y_P^{BBN}$	0.246705	$0.24672^{+0.00045}_{-0.00044}$	$H(2.33)$	235.07	$234.9^{+3.7}_{-3.6}$
$H_0$	68.25	$68.4^{+3.3}_{-3.1}$	$10^5 D/H$	2.593	$2.59^{+0.19}_{-0.19}$	$D_M(2.33)$	5755	$5751^{+63}_{-68}$
$\Omega_\Lambda$	0.6979	$0.700^{+0.038}_{-0.043}$	Age/Gyr	13.780	$13.77^{+0.14}_{-0.15}$	$f\sigma_8(0.15)$	0.4442	$0.443^{+0.035}_{-0.036}$
$\Omega_m$	0.3021	$0.300^{+0.043}_{-0.038}$	$z_*$	1089.77	$1089.7^{+1.7}_{-1.7}$	$\sigma_8(0.15)$	0.7388	$0.739^{+0.028}_{-0.028}$
$\Omega_m h^2$	0.1407	$0.1404^{+0.0060}_{-0.0057}$	$r_*$	145.05	$145.1^{+1.3}_{-1.3}$	$f\sigma_8(0.38)$	0.4643	$0.463^{+0.028}_{-0.030}$
$\Omega_m h^3$	0.09604	$0.0961^{+0.0017}_{-0.0016}$	$100\theta_*$	1.04150	$1.0416^{+0.0013}_{-0.0013}$	$\sigma_8(0.38)$	0.6560	$0.656^{+0.025}_{-0.025}$
$\sigma_8$	0.7986	$0.798^{+0.031}_{-0.032}$	$D_M(z_*)/\text{Gpc}$	13.927	$13.93^{+0.13}_{-0.12}$	$f\sigma_8(0.51)$	0.4640	$0.463^{+0.024}_{-0.026}$
$S_8$	0.801	$0.798^{+0.070}_{-0.068}$	$z_{drag}$	1059.67	$1059.8^{+2.1}_{-2.0}$	$\sigma_8(0.51)$	0.6143	$0.614^{+0.024}_{-0.023}$
$\sigma_8 \Omega_m^{0.5}$	0.4389	$0.437^{+0.038}_{-0.037}$	$r_{drag}$	147.74	$147.8^{+1.4}_{-1.3}$	$f\sigma_8(0.61)$	0.4599	$0.459^{+0.022}_{-0.024}$
$\sigma_8 \Omega_m^{0.25}$	0.5920	$0.591^{+0.034}_{-0.036}$	$k_D$	0.14016	$0.1402^{+0.0015}_{-0.0015}$	$\sigma_8(0.61)$	0.5848	$0.585^{+0.023}_{-0.022}$
$\sigma_8/h^{0.5}$	0.9666	$0.965^{+0.047}_{-0.050}$	$100\theta_D$	0.16095	$0.1609^{+0.0012}_{-0.0012}$	$f\sigma_8(2.33)$	0.2952	$0.295^{+0.012}_{-0.011}$
$r_{drag} h$	100.8	$101.1^{+5.5}_{-5.2}$	$z_{eq}$	3347	$3341^{+140}_{-140}$	$\sigma_8(2.33)$	0.3048	$0.305^{+0.013}_{-0.012}$
$\langle d^2 \rangle^{1/2}$	2.26	$2.28^{+0.56}_{-0.74}$	$k_{eq}$	0.010216	$0.01020^{+0.00044}_{-0.00042}$	$\chi_{simall}^2$	395.7	$396.9 (\nu: 1.5)$
$z_{re}$	7.25	$7.2^{+2.3}_{-3.4}$	$100\theta_{eq}$	0.8234	$0.825^{+0.029}_{-0.028}$	$\chi_{CamSpec}^2$	2575.8	$2581.9 (\nu: 6.2)$
$10^9 A_s$	2.065	$2.06^{+0.13}_{-0.12}$	$100\theta_{s,eq}$	0.4547	$0.455^{+0.014}_{-0.014}$	$\chi_{prior}^2$	10.03	$11.0 (\nu: 1.0)$
$10^9 A_s e^{-2\tau}$	1.867	$1.867^{+0.062}_{-0.064}$	$H(0.15)$	73.43	$73.6^{+2.9}_{-2.7}$	$\chi_{CMB}^2$	2971.5	$2978.8 (\nu: 7.6)$

Best-fit  $\chi_{eff}^2 = 2981.49$ ;  $\bar{\chi}_{eff}^2 = 2989.81$ ;  $R - 1 = 0.00461$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.66 CamSpec like\_10.7HM\_1400\_unified: 2575.80



### 3.34 base\_Alens\_CamSpecHM\_TE\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02230^{+0.00078}_{-0.00076}$	$D_{810}$	$2530^{+97}_{-95}$	$D_{\mathrm{M}}(0.51)$	$1972^{+33}_{-34}$
$\Omega_{\mathrm{c}}h^2$	$0.1181^{+0.0034}_{-0.0034}$	$D_{1420}$	$816^{+46}_{-43}$	$H(0.61)$	$95.48^{+0.86}_{-0.82}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0012}_{-0.0012}$	$D_{2000}$	$229^{+21}_{-19}$	$D_{\mathrm{M}}(0.61)$	$2295^{+36}_{-37}$
$\tau$	$0.050^{+0.023}_{-0.027}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.041}_{-0.041}$	$H(2.33)$	$235.3^{+2.1}_{-2.1}$
$A_{\mathrm{L}}$	$0.89^{+0.48}_{-0.49}$	$Y_{\mathrm{P}}$	$0.24536^{+0.00033}_{-0.00035}$	$D_{\mathrm{M}}(2.33)$	$5757^{+42}_{-43}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.026^{+0.061}_{-0.059}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00033}_{-0.00035}$	$f\sigma_8(0.15)$	$0.446^{+0.022}_{-0.022}$
$n_{\mathrm{s}}$	$0.968^{+0.041}_{-0.041}$	$10^5\mathrm{D}/\mathrm{H}$	$2.60^{+0.15}_{-0.14}$	$\sigma_8(0.15)$	$0.739^{+0.029}_{-0.026}$
$y_{\mathrm{cal}}$	$1.0000^{+0.0066}_{-0.0066}$	Age/Gyr	$13.785^{+0.097}_{-0.099}$	$f\sigma_8(0.38)$	$0.465^{+0.021}_{-0.020}$
$H_0$	$68.1^{+1.7}_{-1.6}$	$z_*$	$1089.8^{+1.1}_{-1.1}$	$\sigma_8(0.38)$	$0.656^{+0.025}_{-0.023}$
$\Omega_{\Lambda}$	$0.696^{+0.020}_{-0.021}$	$r_*$	$144.99^{+0.89}_{-0.89}$	$f\sigma_8(0.51)$	$0.465^{+0.019}_{-0.019}$
$\Omega_{\mathrm{m}}$	$0.304^{+0.021}_{-0.020}$	$100\theta_*$	$1.0415^{+0.0012}_{-0.0012}$	$\sigma_8(0.51)$	$0.614^{+0.024}_{-0.022}$
$\Omega_{\mathrm{m}}h^2$	$0.1410^{+0.0032}_{-0.0032}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.921^{+0.087}_{-0.085}$	$f\sigma_8(0.61)$	$0.460^{+0.019}_{-0.018}$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.6^{+1.7}_{-1.8}$	$\sigma_8(0.61)$	$0.585^{+0.023}_{-0.021}$
$\sigma_8$	$0.799^{+0.031}_{-0.029}$	$r_{\mathrm{drag}}$	$147.7^{+1.0}_{-0.99}$	$f\sigma_8(2.33)$	$0.295^{+0.012}_{-0.011}$
$S_8$	$0.804^{+0.042}_{-0.041}$	$k_{\mathrm{D}}$	$0.1402^{+0.0015}_{-0.0015}$	$\sigma_8(2.33)$	$0.304^{+0.012}_{-0.011}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.441^{+0.023}_{-0.023}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0011}_{-0.0010}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.4)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.593^{+0.026}_{-0.025}$	$z_{\mathrm{eq}}$	$3354^{+76}_{-76}$	$\chi_{\mathrm{CamSpec}}^2$	$2581.1 (\nu: 5.4)$
$\sigma_8/h^{0.5}$	$0.968^{+0.038}_{-0.038}$	$k_{\mathrm{eq}}$	$0.01024^{+0.00023}_{-0.00023}$	$\chi_{6\mathrm{DF}}^2$	$0.044 (\nu: 0.0)$
$r_{\mathrm{drag}}h$	$100.6^{+2.7}_{-2.6}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.015}_{-0.014}$	$\chi_{\mathrm{MGS}}^2$	$1.84 (\nu: 0.2)$
$\langle d^2 \rangle^{1/2}$	$2.24^{+0.51}_{-0.70}$	$100\theta_{\mathrm{s,eq}}$	$0.4540^{+0.0075}_{-0.0072}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.1 (\nu: 0.5)$
$z_{\mathrm{re}}$	$7.2^{+2.3}_{-3.1}$	$H(0.15)$	$73.3^{+1.5}_{-1.4}$	$\chi_{\mathrm{prior}}^2$	$11.0 (\nu: 1.0)$
$10^9 A_{\mathrm{s}}$	$2.06^{+0.13}_{-0.12}$	$D_{\mathrm{M}}(0.15)$	$637^{+14}_{-14}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.6)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.866^{+0.063}_{-0.066}$	$H(0.38)$	$83.3^{+1.1}_{-1.1}$	$\chi_{\mathrm{CMB}}^2$	$2978.0 (\nu: 6.7)$
$D_{40}$	$1217^{+81}_{-78}$	$D_{\mathrm{M}}(0.38)$	$1521^{+28}_{-29}$		
$D_{220}$	$5707^{+160}_{-160}$	$H(0.51)$	$89.92^{+0.98}_{-0.92}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 2995.04$ ;  $R - 1 = 0.00758$



### 3.35 base\_Alens\_CamSpecHM\_TE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0224^{+0.0011}_{-0.00099}$	$D_{40}$	$1209^{+100}_{-96}$	$D_{\mathrm{M}}(0.15)$	$634^{+27}_{-26}$
$\Omega_{\mathrm{c}}h^2$	$0.1173^{+0.0067}_{-0.0064}$	$D_{220}$	$5709^{+160}_{-170}$	$H(0.38)$	$83.5^{+2.2}_{-2.0}$
$100\theta_{\mathrm{MC}}$	$1.0414^{+0.0014}_{-0.0014}$	$D_{810}$	$2536^{+100}_{-100}$	$D_{\mathrm{M}}(0.38)$	$1515^{+55}_{-54}$
$\tau$	$0.053^{+0.019}_{-0.012}$	$D_{1420}$	$819^{+52}_{-49}$	$H(0.51)$	$90.1^{+1.8}_{-1.6}$
$A_{\mathrm{L}}$	$0.93^{+0.61}_{-0.54}$	$D_{2000}$	$231^{+24}_{-22}$	$D_{\mathrm{M}}(0.51)$	$1965^{+64}_{-64}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.034^{+0.056}_{-0.046}$	$n_{\mathrm{s},0.002}$	$0.973^{+0.055}_{-0.052}$	$H(0.61)$	$95.6^{+1.5}_{-1.3}$
$n_{\mathrm{s}}$	$0.973^{+0.055}_{-0.052}$	$Y_{\mathrm{P}}$	$0.24539^{+0.00045}_{-0.00044}$	$D_{\mathrm{M}}(0.61)$	$2288^{+69}_{-70}$
$y_{\mathrm{cal}}$	$0.99995^{+0.0065}_{-0.0065}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00045}_{-0.00044}$	$H(2.33)$	$234.9^{+3.7}_{-3.5}$
$H_0$	$68.5^{+3.3}_{-3.2}$	$10^5\mathrm{D}/\mathrm{H}$	$2.58^{+0.19}_{-0.19}$	$D_{\mathrm{M}}(2.33)$	$5750^{+63}_{-68}$
$\Omega_{\Lambda}$	$0.700^{+0.038}_{-0.043}$	Age/Gyr	$13.77^{+0.14}_{-0.15}$	$f\sigma_8(0.15)$	$0.444^{+0.035}_{-0.034}$
$\Omega_{\mathrm{m}}$	$0.300^{+0.043}_{-0.038}$	$z_*$	$1089.7^{+1.8}_{-1.7}$	$\sigma_8(0.15)$	$0.741^{+0.027}_{-0.025}$
$\Omega_{\mathrm{m}}h^2$	$0.1404^{+0.0060}_{-0.0057}$	$r_*$	$145.1^{+1.3}_{-1.3}$	$f\sigma_8(0.38)$	$0.464^{+0.027}_{-0.028}$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0017}_{-0.0016}$	$100\theta_*$	$1.0416^{+0.0013}_{-0.0013}$	$\sigma_8(0.38)$	$0.658^{+0.024}_{-0.021}$
$\sigma_8$	$0.801^{+0.029}_{-0.028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.93^{+0.12}_{-0.12}$	$f\sigma_8(0.51)$	$0.464^{+0.023}_{-0.024}$
$S_8$	$0.800^{+0.069}_{-0.066}$	$z_{\mathrm{drag}}$	$1059.8^{+2.1}_{-2.0}$	$\sigma_8(0.51)$	$0.616^{+0.022}_{-0.020}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.438^{+0.038}_{-0.036}$	$r_{\mathrm{drag}}$	$147.8^{+1.4}_{-1.3}$	$f\sigma_8(0.61)$	$0.460^{+0.021}_{-0.022}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.592^{+0.033}_{-0.033}$	$k_{\mathrm{D}}$	$0.1401^{+0.0015}_{-0.0015}$	$\sigma_8(0.61)$	$0.587^{+0.022}_{-0.019}$
$\sigma_8/h^{0.5}$	$0.968^{+0.045}_{-0.046}$	$100\theta_{\mathrm{D}}$	$0.1609^{+0.0012}_{-0.0012}$	$f\sigma_8(2.33)$	$0.296^{+0.011}_{-0.0099}$
$r_{\mathrm{drag}}h$	$101.2^{+5.5}_{-5.3}$	$z_{\mathrm{eq}}$	$3339^{+140}_{-140}$	$\sigma_8(2.33)$	$0.306^{+0.012}_{-0.011}$
$\langle d^2 \rangle^{1/2}$	$2.28^{+0.56}_{-0.75}$	$k_{\mathrm{eq}}$	$0.01019^{+0.00044}_{-0.00042}$	$\chi_{\mathrm{simall}}^2$	$396.5 (\nu: 0.9)$
$z_{\mathrm{re}}$	$< 9.29$	$100\theta_{\mathrm{eq}}$	$0.825^{+0.028}_{-0.028}$	$\chi_{\mathrm{CamSpec}}^2$	$2581.9 (\nu: 6.2)$
$10^9 A_{\mathrm{s}}$	$2.08^{+0.12}_{-0.094}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.014}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$11.0 (\nu: 1.0)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.868^{+0.063}_{-0.063}$	$H(0.15)$	$73.6^{+2.8}_{-2.7}$	$\chi_{\mathrm{CMB}}^2$	$2978.4 (\nu: 7.1)$

$\bar{\chi}_{\mathrm{eff}}^2 = 2989.43$ ;  $R - 1 = 0.00501$



### 3.36 base\_Alens\_CamSpecHM\_TE\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02230^{+0.00077}_{-0.00076}$	$D_{810}$	$2531^{+96}_{-98}$	$D_{\mathrm{M}}(0.51)$	$1972^{+33}_{-34}$
$\Omega_{\mathrm{c}}h^2$	$0.1180^{+0.0034}_{-0.0034}$	$D_{1420}$	$816^{+45}_{-46}$	$H(0.61)$	$95.48^{+0.87}_{-0.81}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0012}_{-0.0012}$	$D_{2000}$	$229^{+21}_{-20}$	$D_{\mathrm{M}}(0.61)$	$2295^{+36}_{-37}$
$\tau$	$0.053^{+0.018}_{-0.012}$	$n_{\mathrm{s},0.002}$	$0.969^{+0.040}_{-0.042}$	$H(2.33)$	$235.2^{+2.1}_{-2.1}$
$A_{\mathrm{L}}$	$0.88^{+0.48}_{-0.49}$	$Y_{\mathrm{P}}$	$0.24536^{+0.00032}_{-0.00035}$	$D_{\mathrm{M}}(2.33)$	$5757^{+42}_{-43}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.032^{+0.057}_{-0.045}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00032}_{-0.00035}$	$f\sigma_8(0.15)$	$0.447^{+0.021}_{-0.021}$
$n_{\mathrm{s}}$	$0.969^{+0.040}_{-0.042}$	$10^5\mathrm{D}/\mathrm{H}$	$2.60^{+0.15}_{-0.14}$	$\sigma_8(0.15)$	$0.741^{+0.027}_{-0.023}$
$y_{\mathrm{cal}}$	$1.0000^{+0.0066}_{-0.0067}$	Age/Gyr	$13.785^{+0.096}_{-0.10}$	$f\sigma_8(0.38)$	$0.467^{+0.020}_{-0.018}$
$H_0$	$68.1^{+1.7}_{-1.6}$	$z_*$	$1089.8^{+1.1}_{-1.1}$	$\sigma_8(0.38)$	$0.658^{+0.024}_{-0.021}$
$\Omega_{\Lambda}$	$0.696^{+0.020}_{-0.021}$	$r_*$	$144.99^{+0.88}_{-0.90}$	$f\sigma_8(0.51)$	$0.466^{+0.019}_{-0.017}$
$\Omega_{\mathrm{m}}$	$0.304^{+0.021}_{-0.020}$	$100\theta_*$	$1.0415^{+0.0012}_{-0.0012}$	$\sigma_8(0.51)$	$0.616^{+0.022}_{-0.019}$
$\Omega_{\mathrm{m}}h^2$	$0.1410^{+0.0032}_{-0.0032}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.922^{+0.086}_{-0.085}$	$f\sigma_8(0.61)$	$0.462^{+0.018}_{-0.016}$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.6^{+1.7}_{-1.8}$	$\sigma_8(0.61)$	$0.586^{+0.021}_{-0.018}$
$\sigma_8$	$0.802^{+0.029}_{-0.025}$	$r_{\mathrm{drag}}$	$147.7^{+1.1}_{-1.0}$	$f\sigma_8(2.33)$	$0.296^{+0.011}_{-0.0095}$
$S_8$	$0.807^{+0.041}_{-0.040}$	$k_{\mathrm{D}}$	$0.1402^{+0.0015}_{-0.0015}$	$\sigma_8(2.33)$	$0.306^{+0.011}_{-0.010}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.442^{+0.022}_{-0.022}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0011}_{-0.00099}$	$\chi_{\mathrm{simall}}^2$	$396.5 (\nu: 1.0)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.595^{+0.025}_{-0.023}$	$z_{\mathrm{eq}}$	$3354^{+76}_{-76}$	$\chi_{\mathrm{CamSpec}}^2$	$2581.2 (\nu: 5.4)$
$\sigma_8/h^{0.5}$	$0.971^{+0.038}_{-0.034}$	$k_{\mathrm{eq}}$	$0.01024^{+0.00023}_{-0.00023}$	$\chi_{6\mathrm{DF}}^2$	$0.044 (\nu: 0.0)$
$r_{\mathrm{drag}}h$	$100.6^{+2.6}_{-2.6}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.015}_{-0.014}$	$\chi_{\mathrm{MGS}}^2$	$1.85 (\nu: 0.2)$
$\langle d^2 \rangle^{1/2}$	$2.24^{+0.51}_{-0.74}$	$100\theta_{\mathrm{s,eq}}$	$0.4541^{+0.0075}_{-0.0072}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.1 (\nu: 0.5)$
$z_{\mathrm{re}}$	$< 9.26$	$H(0.15)$	$73.3^{+1.5}_{-1.4}$	$\chi_{\mathrm{prior}}^2$	$11.0 (\nu: 1.1)$
$10^9 A_{\mathrm{s}}$	$2.07^{+0.12}_{-0.092}$	$D_{\mathrm{M}}(0.15)$	$637^{+14}_{-14}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.6)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.866^{+0.063}_{-0.066}$	$H(0.38)$	$83.3^{+1.2}_{-1.1}$	$\chi_{\mathrm{CMB}}^2$	$2977.7 (\nu: 6.3)$
$D_{40}$	$1217^{+81}_{-77}$	$D_{\mathrm{M}}(0.38)$	$1521^{+28}_{-29}$		
$D_{220}$	$5707^{+160}_{-160}$	$H(0.51)$	$89.92^{+0.99}_{-0.92}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 2994.70$ ;  $R - 1 = 0.00997$



### 3.37 base\_Alens\_CamSpecHM\_EE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02349	$0.0236^{+0.0033}_{-0.0031}$	$D_{40}$	1258	$1257^{+82}_{-78}$	$D_M(0.15)$	634	$632^{+66}_{-58}$
$\Omega_c h^2$	0.1180	$0.118^{+0.014}_{-0.012}$	$D_{220}$	5982	$5998^{+520}_{-530}$	$H(0.38)$	83.7	$83.9^{+5.4}_{-4.8}$
$100\theta_{MC}$	1.03926	$1.0393^{+0.0023}_{-0.0023}$	$D_{810}$	2600	$2601^{+99}_{-100}$	$D_M(0.38)$	1514	$1510^{+130}_{-120}$
$\tau$	0.0509	$0.051^{+0.023}_{-0.026}$	$D_{1420}$	841.1	$842^{+47}_{-50}$	$H(0.51)$	90.32	$90.6^{+4.6}_{-4.0}$
$A_L$	1.14	$1.16^{+0.65}_{-0.57}$	$D_{2000}$	240.9	$242^{+19}_{-21}$	$D_M(0.51)$	1962	$1957^{+160}_{-150}$
$\ln(10^{10} A_s)$	3.059	$3.059^{+0.055}_{-0.060}$	$n_{s,0.002}$	0.9702	$0.972^{+0.038}_{-0.037}$	$H(0.61)$	95.90	$96.1^{+4.1}_{-3.3}$
$n_s$	0.9702	$0.972^{+0.038}_{-0.037}$	$Y_P$	0.24586	$0.2459^{+0.0012}_{-0.0013}$	$D_M(0.61)$	2285	$2279^{+170}_{-160}$
$y_{cal}$	1.0000	$0.9999^{+0.0064}_{-0.0063}$	$Y_P^{BBN}$	0.24719	$0.2472^{+0.0012}_{-0.0013}$	$H(2.33)$	236.2	$236.2^{+6.5}_{-5.3}$
$H_0$	68.4	$68.7^{+7.5}_{-7.3}$	$10^5 D/H$	2.39	$2.38^{+0.59}_{-0.47}$	$D_M(2.33)$	5732	$5723^{+170}_{-180}$
$\Omega_\Lambda$	0.697	$0.697^{+0.074}_{-0.10}$	Age/Gyr	13.725	$13.71^{+0.38}_{-0.41}$	$f\sigma_8(0.15)$	0.449	$0.447^{+0.086}_{-0.077}$
$\Omega_m$	0.303	$0.303^{+0.10}_{-0.074}$	$z_*$	1088.40	$1088.3^{+5.1}_{-4.2}$	$\sigma_8(0.15)$	0.7453	$0.743^{+0.036}_{-0.040}$
$\Omega_m h^2$	0.1421	$0.142^{+0.011}_{-0.0096}$	$r_*$	144.10	$144.1^{+1.7}_{-1.7}$	$f\sigma_8(0.38)$	0.469	$0.467^{+0.064}_{-0.063}$
$\Omega_m h^3$	0.09726	$0.0975^{+0.0049}_{-0.0043}$	$100\theta_*$	1.03933	$1.0394^{+0.0022}_{-0.0022}$	$\sigma_8(0.38)$	0.6616	$0.660^{+0.025}_{-0.029}$
$\sigma_8$	0.8057	$0.804^{+0.046}_{-0.051}$	$D_M(z_*)/\text{Gpc}$	13.865	$13.86^{+0.16}_{-0.16}$	$f\sigma_8(0.51)$	0.469	$0.466^{+0.052}_{-0.055}$
$S_8$	0.810	$0.81^{+0.18}_{-0.15}$	$z_{drag}$	1062.3	$1062.6^{+6.4}_{-6.4}$	$\sigma_8(0.51)$	0.6195	$0.618^{+0.022}_{-0.025}$
$\sigma_8 \Omega_m^{0.5}$	0.444	$0.442^{+0.096}_{-0.081}$	$r_{drag}$	146.40	$146.3^{+1.8}_{-1.9}$	$f\sigma_8(0.61)$	0.4643	$0.462^{+0.044}_{-0.048}$
$\sigma_8 \Omega_m^{0.25}$	0.598	$0.596^{+0.079}_{-0.074}$	$k_D$	0.14241	$0.1425^{+0.0034}_{-0.0034}$	$\sigma_8(0.61)$	0.5897	$0.589^{+0.020}_{-0.022}$
$\sigma_8/h^{0.5}$	0.974	$0.97^{+0.11}_{-0.11}$	$100\theta_D$	0.15911	$0.1590^{+0.0040}_{-0.0031}$	$f\sigma_8(2.33)$	0.2977	$0.2972^{+0.0091}_{-0.0095}$
$r_{drag} h$	100.2	$101^{+11}_{-11}$	$z_{eq}$	3380	$3377^{+260}_{-230}$	$\sigma_8(2.33)$	0.3072	$0.3070^{+0.0095}_{-0.0099}$
$\langle d^2 \rangle^{1/2}$	2.59	$2.60^{+0.59}_{-0.69}$	$k_{eq}$	0.01032	$0.01031^{+0.00081}_{-0.00070}$	$\chi_{simall}^2$	395.60	$396.8 (\nu: 1.3)$
$z_{re}$	7.07	$7.0^{+2.2}_{-2.9}$	$100\theta_{eq}$	0.819	$0.821^{+0.052}_{-0.053}$	$\chi_{CamSpec}^2$	1886.1	$1892.2 (\nu: 6.2)$
$10^9 A_s$	2.132	$2.13^{+0.12}_{-0.12}$	$100\theta_{s,eq}$	0.4515	$0.452^{+0.025}_{-0.026}$	$\chi_{prior}^2$	10.03	$11.0 (\nu: 1.0)$
$10^9 A_s e^{-2\tau}$	1.925	$1.927^{+0.065}_{-0.063}$	$H(0.15)$	73.7	$73.9^{+6.7}_{-6.3}$	$\chi_{CMB}^2$	2281.7	$2289.0 (\nu: 7.4)$

Best-fit  $\chi_{\text{eff}}^2 = 2291.75$ ;  $\bar{\chi}_{\text{eff}}^2 = 2300.05$ ;  $R - 1 = 0.00814$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.60 CamSpec like\_10.7HM\_1400\_unified: 1886.12



### 3.38 base\_Alens\_CamSpecHM\_EE\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0236^{+0.0017}_{-0.0016}$	$D_{810}$	$2601^{+87}_{-87}$	$D_{\mathrm{M}}(0.51)$	$1956^{+47}_{-48}$
$\Omega_{\mathrm{c}}h^2$	$0.1175^{+0.0039}_{-0.0037}$	$D_{1420}$	$842^{+37}_{-36}$	$H(0.61)$	$96.1^{+1.5}_{-1.3}$
$100\theta_{\mathrm{MC}}$	$1.0394^{+0.0019}_{-0.0021}$	$D_{2000}$	$242^{+15}_{-14}$	$D_{\mathrm{M}}(0.61)$	$2278^{+52}_{-53}$
$\tau$	$0.051^{+0.023}_{-0.026}$	$n_{\mathrm{s},0.002}$	$0.972^{+0.025}_{-0.027}$	$H(2.33)$	$236.0^{+2.8}_{-2.5}$
$A_{\mathrm{L}}$	$1.16^{+0.59}_{-0.52}$	$Y_{\mathrm{P}}$	$0.24589^{+0.00069}_{-0.00067}$	$D_{\mathrm{M}}(2.33)$	$5725^{+71}_{-78}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.059^{+0.056}_{-0.059}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24722^{+0.00069}_{-0.00067}$	$f\sigma_8(0.15)$	$0.446^{+0.025}_{-0.025}$
$n_{\mathrm{s}}$	$0.972^{+0.025}_{-0.027}$	$10^5\mathrm{D}/\mathrm{H}$	$2.37^{+0.29}_{-0.26}$	$\sigma_8(0.15)$	$0.744^{+0.025}_{-0.025}$
$y_{\mathrm{cal}}$	$0.99996^{+0.0065}_{-0.0065}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.71^{+0.17}_{-0.18}$	$f\sigma_8(0.38)$	$0.466^{+0.022}_{-0.022}$
$H_0$	$68.8^{+2.3}_{-2.1}$	$z_*$	$1088.3^{+2.1}_{-2.0}$	$\sigma_8(0.38)$	$0.661^{+0.021}_{-0.021}$
$\Omega_{\Lambda}$	$0.700^{+0.023}_{-0.024}$	$r_*$	$144.1^{+1.3}_{-1.5}$	$f\sigma_8(0.51)$	$0.466^{+0.020}_{-0.020}$
$\Omega_{\mathrm{m}}$	$0.300^{+0.024}_{-0.023}$	$100\theta_*$	$1.0394^{+0.0019}_{-0.0021}$	$\sigma_8(0.51)$	$0.619^{+0.019}_{-0.019}$
$\Omega_{\mathrm{m}}h^2$	$0.1417^{+0.0039}_{-0.0035}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.87^{+0.13}_{-0.15}$	$f\sigma_8(0.61)$	$0.462^{+0.018}_{-0.019}$
$\Omega_{\mathrm{m}}h^3$	$0.0974^{+0.0032}_{-0.0029}$	$z_{\mathrm{drag}}$	$1062.5^{+3.7}_{-3.7}$	$\sigma_8(0.61)$	$0.589^{+0.018}_{-0.018}$
$\sigma_8$	$0.804^{+0.027}_{-0.028}$	$r_{\mathrm{drag}}$	$146.4^{+1.8}_{-1.9}$	$f\sigma_8(2.33)$	$0.2975^{+0.0092}_{-0.0091}$
$S_8$	$0.804^{+0.049}_{-0.048}$	$k_{\mathrm{D}}$	$0.1425^{+0.0030}_{-0.0030}$	$\sigma_8(2.33)$	$0.3073^{+0.0095}_{-0.0095}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.440^{+0.027}_{-0.027}$	$100\theta_{\mathrm{D}}$	$0.1590^{+0.0022}_{-0.0020}$	$\chi_{\mathrm{simall}}^2$	$396.8\ (\nu: 1.4)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.595^{+0.027}_{-0.027}$	$z_{\mathrm{eq}}$	$3371^{+92}_{-84}$	$\chi_{\mathrm{CamSpec}}^2$	$1891.3\ (\nu: 5.1)$
$\sigma_8/h^{0.5}$	$0.970^{+0.039}_{-0.041}$	$k_{\mathrm{eq}}$	$0.01029^{+0.00028}_{-0.00025}$	$\chi_{6\mathrm{DF}}^2$	$0.057\ (\nu: 0.0)$
$r_{\mathrm{drag}}h$	$100.7^{+3.0}_{-2.9}$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.015}_{-0.016}$	$\chi_{\mathrm{MGS}}^2$	$1.85\ (\nu: 0.3)$
$\langle d^2 \rangle^{1/2}$	$2.59^{+0.59}_{-0.67}$	$100\theta_{\mathrm{s,eq}}$	$0.4525^{+0.0079}_{-0.0082}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6\ (\nu: 0.9)$
$z_{\mathrm{re}}$	$7.0^{+2.1}_{-2.9}$	$H(0.15)$	$73.9^{+2.1}_{-1.9}$	$\chi_{\mathrm{prior}}^2$	$11.0\ (\nu: 1.0)$
$10^9A_{\mathrm{s}}$	$2.13^{+0.12}_{-0.12}$	$D_{\mathrm{M}}(0.15)$	$631^{+19}_{-19}$	$\chi_{\mathrm{BAO}}^2$	$6.5\ (\nu: 0.9)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.925^{+0.065}_{-0.063}$	$H(0.38)$	$83.9^{+1.7}_{-1.6}$	$\chi_{\mathrm{CMB}}^2$	$2288.1\ (\nu: 6.5)$
$D_{40}$	$1256^{+85}_{-80}$	$D_{\mathrm{M}}(0.38)$	$1509^{+39}_{-40}$		
$D_{220}$	$5995^{+340}_{-350}$	$H(0.51)$	$90.5^{+1.6}_{-1.4}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 2305.61$ ;  $R - 1 = 0.01338$



### 3.39 base\_Alens\_CamSpecHM\_EE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0236^{+0.0033}_{-0.0032}$	$D_{40}$	$1256^{+82}_{-80}$	$D_{\mathrm{M}}(0.15)$	$633^{+68}_{-58}$
$\Omega_{\mathrm{c}}h^2$	$0.118^{+0.014}_{-0.012}$	$D_{220}$	$5990^{+510}_{-530}$	$H(0.38)$	$83.9^{+5.3}_{-4.9}$
$100\theta_{\mathrm{MC}}$	$1.0393^{+0.0023}_{-0.0023}$	$D_{810}$	$2600^{+97}_{-100}$	$D_{\mathrm{M}}(0.38)$	$1511^{+140}_{-120}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$D_{1420}$	$842^{+46}_{-50}$	$H(0.51)$	$90.5^{+4.6}_{-4.0}$
$A_{\mathrm{L}}$	$1.16^{+0.64}_{-0.56}$	$D_{2000}$	$241^{+19}_{-21}$	$D_{\mathrm{M}}(0.51)$	$1958^{+160}_{-150}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.066^{+0.050}_{-0.045}$	$n_{\mathrm{s},0.002}$	$0.972^{+0.038}_{-0.038}$	$H(0.61)$	$96.1^{+4.0}_{-3.3}$
$n_{\mathrm{s}}$	$0.972^{+0.038}_{-0.038}$	$Y_{\mathrm{P}}$	$0.2459^{+0.0012}_{-0.0013}$	$D_{\mathrm{M}}(0.61)$	$2280^{+170}_{-160}$
$y_{\mathrm{cal}}$	$0.99996^{+0.0064}_{-0.0063}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2472^{+0.0012}_{-0.0013}$	$H(2.33)$	$236.2^{+6.5}_{-5.3}$
$H_0$	$68.7^{+7.5}_{-7.4}$	$10^5\mathrm{D}/\mathrm{H}$	$2.38^{+0.60}_{-0.47}$	$D_{\mathrm{M}}(2.33)$	$5725^{+170}_{-180}$
$\Omega_{\Lambda}$	$0.697^{+0.074}_{-0.10}$	Age/Gyr	$13.71^{+0.39}_{-0.40}$	$f\sigma_8(0.15)$	$0.449^{+0.087}_{-0.077}$
$\Omega_{\mathrm{m}}$	$0.303^{+0.10}_{-0.074}$	$z_*$	$1088.3^{+5.1}_{-4.1}$	$\sigma_8(0.15)$	$0.746^{+0.034}_{-0.039}$
$\Omega_{\mathrm{m}}h^2$	$0.142^{+0.011}_{-0.0094}$	$r_*$	$144.1^{+1.7}_{-1.8}$	$f\sigma_8(0.38)$	$0.469^{+0.064}_{-0.063}$
$\Omega_{\mathrm{m}}h^3$	$0.0974^{+0.0048}_{-0.0044}$	$100\theta_*$	$1.0394^{+0.0022}_{-0.0021}$	$\sigma_8(0.38)$	$0.663^{+0.024}_{-0.027}$
$\sigma_8$	$0.807^{+0.045}_{-0.049}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.86^{+0.16}_{-0.17}$	$f\sigma_8(0.51)$	$0.468^{+0.052}_{-0.054}$
$S_8$	$0.81^{+0.18}_{-0.15}$	$z_{\mathrm{drag}}$	$1062.5^{+6.3}_{-6.5}$	$\sigma_8(0.51)$	$0.621^{+0.020}_{-0.022}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.097}_{-0.081}$	$r_{\mathrm{drag}}$	$146.4^{+1.8}_{-1.9}$	$f\sigma_8(0.61)$	$0.464^{+0.044}_{-0.048}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.598^{+0.080}_{-0.073}$	$k_{\mathrm{D}}$	$0.1425^{+0.0033}_{-0.0035}$	$\sigma_8(0.61)$	$0.591^{+0.018}_{-0.019}$
$\sigma_8/h^{0.5}$	$0.97^{+0.11}_{-0.10}$	$100\theta_{\mathrm{D}}$	$0.1591^{+0.0040}_{-0.0031}$	$f\sigma_8(2.33)$	$0.2983^{+0.0084}_{-0.0080}$
$r_{\mathrm{drag}}h$	$101^{+11}_{-11}$	$z_{\mathrm{eq}}$	$3377^{+270}_{-220}$	$\sigma_8(2.33)$	$0.3081^{+0.0089}_{-0.0081}$
$\langle d^2 \rangle^{1/2}$	$2.60^{+0.58}_{-0.69}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00082}_{-0.00068}$	$\chi_{\mathrm{simall}}^2$	$396.5 (\nu: 1.0)$
$z_{\mathrm{re}}$	$< 9.03$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.051}_{-0.054}$	$\chi_{\mathrm{CamSpec}}^2$	$1892.2 (\nu: 6.3)$
$10^9 A_{\mathrm{s}}$	$2.15^{+0.11}_{-0.094}$	$100\theta_{\mathrm{s,eq}}$	$0.452^{+0.024}_{-0.026}$	$\chi_{\mathrm{prior}}^2$	$11.0 (\nu: 1.0)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.926^{+0.065}_{-0.064}$	$H(0.15)$	$73.9^{+6.7}_{-6.5}$	$\chi_{\mathrm{CMB}}^2$	$2288.7 (\nu: 7.1)$

$\bar{\chi}_{\mathrm{eff}}^2 = 2299.69$ ;  $R - 1 = 0.00845$



### 3.40 base\_Alens\_CamSpecHM\_EE\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.0236^{+0.0017}_{-0.0016}$	$D_{810}$	$2601^{+88}_{-86}$	$D_M(0.51)$	$1957^{+47}_{-48}$
$\Omega_c h^2$	$0.1175^{+0.0039}_{-0.0037}$	$D_{1420}$	$842^{+38}_{-35}$	$H(0.61)$	$96.0^{+1.5}_{-1.3}$
$100\theta_{MC}$	$1.0393^{+0.0019}_{-0.0020}$	$D_{2000}$	$242^{+15}_{-14}$	$D_M(0.61)$	$2279^{+52}_{-53}$
$\tau$	$0.054^{+0.019}_{-0.011}$	$n_{s,0.002}$	$0.972^{+0.025}_{-0.026}$	$H(2.33)$	$235.9^{+2.8}_{-2.5}$
$A_L$	$1.15^{+0.59}_{-0.53}$	$Y_P$	$0.24588^{+0.00068}_{-0.00068}$	$D_M(2.33)$	$5726^{+70}_{-77}$
$\ln(10^{10} A_s)$	$3.066^{+0.050}_{-0.044}$	$Y_P^{BBN}$	$0.24721^{+0.00068}_{-0.00068}$	$f\sigma_8(0.15)$	$0.447^{+0.025}_{-0.024}$
$n_s$	$0.972^{+0.025}_{-0.026}$	$10^5 D/H$	$2.38^{+0.29}_{-0.26}$	$\sigma_8(0.15)$	$0.747^{+0.024}_{-0.019}$
$y_{cal}$	$0.99997^{+0.0065}_{-0.0065}$	Age/Gyr	$13.71^{+0.17}_{-0.18}$	$f\sigma_8(0.38)$	$0.468^{+0.021}_{-0.020}$
$H_0$	$68.7^{+2.2}_{-2.1}$	$z_*$	$1088.3^{+2.1}_{-2.0}$	$\sigma_8(0.38)$	$0.663^{+0.020}_{-0.015}$
$\Omega_\Lambda$	$0.700^{+0.023}_{-0.024}$	$r_*$	$144.2^{+1.3}_{-1.4}$	$f\sigma_8(0.51)$	$0.468^{+0.019}_{-0.018}$
$\Omega_m$	$0.300^{+0.024}_{-0.023}$	$100\theta_*$	$1.0394^{+0.0019}_{-0.0021}$	$\sigma_8(0.51)$	$0.621^{+0.019}_{-0.014}$
$\Omega_m h^2$	$0.1417^{+0.0038}_{-0.0034}$	$D_M(z_*)/\text{Gpc}$	$13.87^{+0.13}_{-0.14}$	$f\sigma_8(0.61)$	$0.464^{+0.017}_{-0.016}$
$\Omega_m h^3$	$0.0974^{+0.0032}_{-0.0030}$	$z_{drag}$	$1062.5^{+3.7}_{-3.6}$	$\sigma_8(0.61)$	$0.591^{+0.017}_{-0.013}$
$\sigma_8$	$0.807^{+0.027}_{-0.022}$	$r_{drag}$	$146.4^{+1.8}_{-1.9}$	$f\sigma_8(2.33)$	$0.2986^{+0.0082}_{-0.0065}$
$S_8$	$0.807^{+0.048}_{-0.046}$	$k_D$	$0.1424^{+0.0030}_{-0.0029}$	$\sigma_8(2.33)$	$0.3084^{+0.0086}_{-0.0069}$
$\sigma_8 \Omega_m^{0.5}$	$0.442^{+0.026}_{-0.025}$	$100\theta_D$	$0.1591^{+0.0022}_{-0.0020}$	$\chi_{simall}^2$	$396.5 (\nu: 1.0)$
$\sigma_8 \Omega_m^{0.25}$	$0.597^{+0.025}_{-0.024}$	$z_{eq}$	$3370^{+91}_{-82}$	$\chi_{CamSpec}^2$	$1891.3 (\nu: 5.1)$
$\sigma_8/h^{0.5}$	$0.973^{+0.037}_{-0.034}$	$k_{eq}$	$0.01029^{+0.00028}_{-0.00025}$	$\chi_{6DF}^2$	$0.055 (\nu: 0.0)$
$r_{drag} h$	$100.6^{+3.0}_{-2.9}$	$100\theta_{eq}$	$0.821^{+0.015}_{-0.016}$	$\chi_{MGS}^2$	$1.85 (\nu: 0.2)$
$\langle d^2 \rangle^{1/2}$	$2.59^{+0.60}_{-0.67}$	$100\theta_{s,eq}$	$0.4526^{+0.0079}_{-0.0081}$	$\chi_{DR12BAO}^2$	$4.6 (\nu: 0.9)$
$z_{re}$	$< 9.08$	$H(0.15)$	$73.9^{+2.0}_{-1.9}$	$\chi_{prior}^2$	$11.0 (\nu: 1.0)$
$10^9 A_s$	$2.15^{+0.11}_{-0.093}$	$D_M(0.15)$	$632^{+19}_{-19}$	$\chi_{BAO}^2$	$6.5 (\nu: 0.9)$
$10^9 A_s e^{-2\tau}$	$1.924^{+0.065}_{-0.063}$	$H(0.38)$	$83.9^{+1.7}_{-1.6}$	$\chi_{CMB}^2$	$2287.7 (\nu: 6.1)$
$D_{40}$	$1255^{+79}_{-80}$	$D_M(0.38)$	$1509^{+39}_{-39}$		
$D_{220}$	$5988^{+340}_{-350}$	$H(0.51)$	$90.5^{+1.6}_{-1.4}$		

$\bar{\chi}_{eff}^2 = 2305.22; R - 1 = 0.01446$



### 3.41 base\_Alens\_plikHM\_TT\_lowl\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02241	$0.02239^{+0.00072}_{-0.00065}$	$S_8$	0.766	$0.799^{+0.094}_{-0.081}$	$k_{\text{eq}}$	0.010192	$0.01017^{+0.00042}_{-0.00041}$
$\Omega_c h^2$	0.1173	$0.1171^{+0.0062}_{-0.0061}$	$\sigma_8 \Omega_m^{0.5}$	0.4198	$0.438^{+0.051}_{-0.044}$	$100\theta_{\text{eq}}$	0.8250	$0.826^{+0.028}_{-0.027}$
$100\theta_{\text{MC}}$	1.04120	$1.0412^{+0.0013}_{-0.0013}$	$\sigma_8 \Omega_m^{0.25}$	0.567	$0.592^{+0.060}_{-0.048}$	$100\theta_{\text{s,eq}}$	0.4555	$0.456^{+0.014}_{-0.014}$
$\tau$	0.010	$< 0.146$	$\sigma_8/h^{0.5}$	0.927	$0.967^{+0.095}_{-0.071}$	$H(0.15)$	73.58	$73.7^{+2.6}_{-2.4}$
$A_L$	1.168	$1.07^{+0.19}_{-0.20}$	$r_{\text{drag}} h$	101.1	$101.3^{+5.1}_{-4.9}$	$D_M(0.15)$	634.4	$634^{+24}_{-24}$
$\ln(10^{10} A_s)$	2.948	$3.04^{+0.18}_{-0.11}$	$\langle d^2 \rangle^{1/2}$	2.477	$2.478^{+0.080}_{-0.083}$	$H(0.38)$	83.48	$83.5^{+2.0}_{-1.8}$
$n_s$	0.9716	$0.972^{+0.019}_{-0.018}$	$z_{\text{re}}$	2.1	$7.4^{+8.0}_{-5.7}$	$D_M(0.38)$	1515.8	$1514^{+49}_{-50}$
$y_{\text{cal}}$	1.0000	$1.0000^{+0.0065}_{-0.0067}$	$10^9 A_s$	1.908	$2.09^{+0.40}_{-0.22}$	$H(0.51)$	90.07	$90.1^{+1.6}_{-1.4}$
$A_{217}^{\text{CIB}}$	47.3	$47^{+20}_{-20}$	$10^9 A_s e^{-2\tau}$	1.8694	$1.867^{+0.037}_{-0.037}$	$D_M(0.51)$	1965	$1964^{+57}_{-59}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.48	—	$D_{40}$	1206.1	$1216^{+53}_{-45}$	$H(0.61)$	95.60	$95.6^{+1.3}_{-1.1}$
$A_{143}^{\text{tSZ}}$	7.0	—	$D_{220}$	5724	$5722^{+110}_{-110}$	$D_M(0.61)$	2289	$2287^{+61}_{-64}$
$A_{100}^{\text{PS}}$	250	$259^{+70}_{-70}$	$D_{810}$	2531.8	$2529^{+36}_{-38}$	$H(2.33)$	234.86	$234.7^{+3.6}_{-3.5}$
$A_{143}^{\text{PS}}$	48.8	$46^{+20}_{-20}$	$D_{1420}$	815.8	$815^{+13}_{-13}$	$D_M(2.33)$	5752	$5751^{+50}_{-56}$
$A_{143 \times 217}^{\text{PS}}$	48.9	$42^{+20}_{-20}$	$D_{2000}$	230.95	$230.6^{+4.9}_{-4.9}$	$f\sigma_8(0.15)$	0.4250	$0.443^{+0.050}_{-0.043}$
$A_{217}^{\text{PS}}$	119.5	$114^{+30}_{-30}$	$n_{\text{s},0.002}$	0.9716	$0.972^{+0.019}_{-0.018}$	$\sigma_8(0.15)$	0.710	$0.741^{+0.069}_{-0.045}$
$A^{\text{kSZ}}$	0.0	—	$Y_{\text{P}}$	0.245410	$0.24540^{+0.00030}_{-0.00029}$	$f\sigma_8(0.38)$	0.4448	$0.464^{+0.048}_{-0.039}$
$A_{100}^{\text{dustTT}}$	8.92	$9.0^{+4.7}_{-4.7}$	$Y_{\text{P}}^{\text{BBN}}$	0.246736	$0.24673^{+0.00031}_{-0.00029}$	$\sigma_8(0.38)$	0.6301	$0.658^{+0.061}_{-0.038}$
$A_{143}^{\text{dustTT}}$	10.82	$10.7^{+4.7}_{-4.6}$	$10^5 \text{D}/\text{H}$	2.579	$2.58^{+0.12}_{-0.13}$	$f\sigma_8(0.51)$	0.4448	$0.464^{+0.046}_{-0.036}$
$A_{143 \times 217}^{\text{dustTT}}$	19.5	$18.3^{+8.5}_{-8.8}$	$\text{Age}/\text{Gyr}$	13.774	$13.77^{+0.11}_{-0.12}$	$\sigma_8(0.51)$	0.5902	$0.617^{+0.058}_{-0.035}$
$A_{217}^{\text{dustTT}}$	94.8	$94^{+20}_{-20}$	$z_*$	1089.64	$1089.6^{+1.3}_{-1.3}$	$f\sigma_8(0.61)$	0.4410	$0.460^{+0.045}_{-0.033}$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$r_*$	145.10	$145.2^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	0.5619	$0.587^{+0.055}_{-0.033}$
$c_{217}$	0.99822	$0.9982^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04138	$1.0414^{+0.0013}_{-0.0013}$	$f\sigma_8(2.33)$	0.2838	$0.297^{+0.028}_{-0.016}$
$H_0$	68.42	$68.5^{+3.0}_{-2.8}$	$D_M(z_*)/\text{Gpc}$	13.933	$13.94^{+0.12}_{-0.12}$	$\sigma_8(2.33)$	0.2931	$0.306^{+0.030}_{-0.016}$
$\Omega_\Lambda$	0.7002	$0.701^{+0.035}_{-0.039}$	$z_{\text{drag}}$	1059.82	$1059.8^{+1.4}_{-1.3}$	$\chi_{\text{lensing}}^2$	9.3	$10.1 (\nu: 2.0)$
$\Omega_m$	0.2998	$0.299^{+0.039}_{-0.035}$	$r_{\text{drag}}$	147.76	$147.8^{+1.3}_{-1.3}$	$\chi_{\text{lowl}}^2$	21.32	$22.5 (\nu: 1.1)$
$\Omega_m h^2$	0.1404	$0.1401^{+0.0057}_{-0.0057}$	$k_{\text{D}}$	0.14019	$0.1401^{+0.0014}_{-0.0013}$	$\chi_{\text{plik}}^2$	757.8	$770.6 (\nu: 15.9)$
$\Omega_m h^3$	0.09605	$0.0960^{+0.0013}_{-0.0012}$	$100\theta_{\text{D}}$	0.16084	$0.16087^{+0.00073}_{-0.00075}$	$\chi_{\text{prior}}^2$	1.3	$7.3 (\nu: 6.8)$
$\sigma_8$	0.767	$0.801^{+0.079}_{-0.048}$	$z_{\text{eq}}$	3339	$3333^{+140}_{-140}$	$\chi_{\text{CMB}}^2$	788.4	$803.1 (\nu: 16.0)$

Best-fit  $\chi_{\text{eff}}^2 = 789.69$ ;  $\bar{\chi}_{\text{eff}}^2 = 810.42$ ;  $R - 1 = 0.00995$

$\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.30 commander\_dx12\_v3\_2\_29: 21.32 plik\_rd12\_HM\_v22\_TT: 757.80



### 3.42 base\_Alens\_plikHM\_TT\_lowl\_lensing\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02233^{+0.00054}_{-0.00054}$	$\sigma_8/h^{0.5}$	$0.970^{+0.088}_{-0.057}$	$D_{\mathrm{M}}(0.38)$	$1521^{+26}_{-26}$
$\Omega_{\mathrm{c}}h^2$	$0.1179^{+0.0032}_{-0.0033}$	$r_{\mathrm{drag}}h$	$100.6^{+2.6}_{-2.5}$	$H(0.51)$	$89.92^{+0.85}_{-0.81}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.476^{+0.080}_{-0.081}$	$D_{\mathrm{M}}(0.51)$	$1971^{+31}_{-31}$
$\tau$	$< 0.135$	$z_{\mathrm{re}}$	$7.0^{+7.7}_{-5.4}$	$H(0.61)$	$95.47^{+0.73}_{-0.69}$
$A_{\mathrm{L}}$	$1.07^{+0.15}_{-0.20}$	$10^9 A_{\mathrm{s}}$	$2.08^{+0.38}_{-0.20}$	$D_{\mathrm{M}}(0.61)$	$2295^{+33}_{-34}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.03^{+0.17}_{-0.097}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.871^{+0.030}_{-0.032}$	$H(2.33)$	$235.1^{+2.0}_{-2.0}$
$n_{\mathrm{s}}$	$0.970^{+0.012}_{-0.012}$	$D_{40}$	$1219^{+48}_{-37}$	$D_{\mathrm{M}}(2.33)$	$5758^{+34}_{-35}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0065}_{-0.0068}$	$D_{220}$	$5719^{+110}_{-110}$	$f\sigma_8(0.15)$	$0.446^{+0.044}_{-0.030}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{810}$	$2530^{+35}_{-37}$	$\sigma_8(0.15)$	$0.741^{+0.066}_{-0.039}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$814^{+13}_{-12}$	$f\sigma_8(0.38)$	$0.466^{+0.044}_{-0.028}$
$A_{143}^{\mathrm{tSZ}}$	$5.3^{+4.3}_{-4.7}$	$D_{2000}$	$230.4^{+4.4}_{-4.5}$	$\sigma_8(0.38)$	$0.658^{+0.058}_{-0.033}$
$A_{100}^{\mathrm{PS}}$	$260^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.970^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	$0.466^{+0.044}_{-0.026}$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24538^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	$0.616^{+0.055}_{-0.031}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	$0.461^{+0.042}_{-0.027}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.59^{+0.10}_{-0.098}$	$\sigma_8(0.61)$	$0.586^{+0.052}_{-0.029}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.787^{+0.078}_{-0.078}$	$f\sigma_8(2.33)$	$0.296^{+0.026}_{-0.015}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.7}$	$z_*$	$1089.79^{+0.82}_{-0.81}$	$\sigma_8(2.33)$	$0.305^{+0.027}_{-0.015}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.5}_{-4.6}$	$r_*$	$145.02^{+0.82}_{-0.80}$	$f_{2000}^{143}$	$30^{+7}_{-7}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.4^{+8.4}_{-9.0}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.927^{+0.079}_{-0.077}$	$f_{2000}^{217}$	$107.1^{+4.9}_{-4.8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0015}$	$z_{\mathrm{drag}}$	$1059.7^{+1.2}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$10.1 (\nu: 1.9)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.71^{+0.87}_{-0.87}$	$\chi_{\mathrm{lowl}}^2$	$22.6 (\nu: 0.8)$
$H_0$	$68.1^{+1.6}_{-1.5}$	$k_{\mathrm{D}}$	$0.1402^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{plik}}^2$	$769.7 (\nu: 13.8)$
$\Omega_{\Lambda}$	$0.697^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16092^{+0.00071}_{-0.00068}$	$\chi_{6\mathrm{DF}}^2$	$0.043 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.303^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3350^{+74}_{-75}$	$\chi_{\mathrm{MGS}}^2$	$1.87 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1408^{+0.0031}_{-0.0031}$	$k_{\mathrm{eq}}$	$0.01023^{+0.00023}_{-0.00023}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.06 (\nu: 0.5)$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0012}_{-0.0011}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.015}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$\sigma_8$	$0.801^{+0.071}_{-0.043}$	$100\theta_{\mathrm{s,eq}}$	$0.4544^{+0.0074}_{-0.0071}$	$\chi_{\mathrm{CMB}}^2$	$802.4 (\nu: 14.5)$
$S_8$	$0.805^{+0.081}_{-0.056}$	$H(0.15)$	$73.3^{+1.4}_{-1.3}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.441^{+0.044}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$637^{+13}_{-13}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.594^{+0.056}_{-0.035}$	$H(0.38)$	$83.3^{+1.0}_{-0.98}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 815.62$ ;  $R - 1 = 0.01089$



### 3.43 base\_Alens\_plikHM\_TT\_lowl\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02241^{+0.00073}_{-0.00066}$	$\sigma_8 \Omega_m^{0.5}$	$0.445^{+0.048}_{-0.044}$	$100\theta_{s,eq}$	$0.457^{+0.014}_{-0.014}$
$\Omega_c h^2$	$0.1167^{+0.0062}_{-0.0060}$	$\sigma_8 \Omega_m^{0.25}$	$0.603^{+0.054}_{-0.044}$	$H(0.15)$	$73.8^{+2.6}_{-2.4}$
$100\theta_{MC}$	$1.0412^{+0.0013}_{-0.0013}$	$\sigma_8/h^{0.5}$	$0.987^{+0.085}_{-0.064}$	$D_M(0.15)$	$632^{+24}_{-24}$
$\tau$	$0.078^{+0.079}_{-0.038}$	$r_{drag}h$	$101.6^{+5.0}_{-4.9}$	$H(0.38)$	$83.6^{+1.9}_{-1.8}$
$A_L$	$1.03^{+0.17}_{-0.17}$	$\langle d^2 \rangle^{1/2}$	$2.477^{+0.079}_{-0.084}$	$D_M(0.38)$	$1512^{+48}_{-49}$
$\ln(10^{10} A_s)$	$3.08^{+0.15}_{-0.083}$	$z_{re}$	$< 16.0$	$H(0.51)$	$90.2^{+1.6}_{-1.4}$
$n_s$	$0.973^{+0.019}_{-0.018}$	$10^9 A_s$	$2.18^{+0.36}_{-0.18}$	$D_M(0.51)$	$1961^{+57}_{-57}$
$y_{cal}$	$1.0000^{+0.0064}_{-0.0067}$	$10^9 A_s e^{-2\tau}$	$1.865^{+0.037}_{-0.036}$	$H(0.61)$	$95.7^{+1.3}_{-1.1}$
$A_{217}^{CIB}$	$47^{+20}_{-20}$	$D_{40}$	$1220^{+54}_{-46}$	$D_M(0.61)$	$2284^{+61}_{-62}$
$\xi^{tSZ \times CIB}$	—	$D_{220}$	$5720^{+110}_{-110}$	$H(2.33)$	$234.5^{+3.6}_{-3.4}$
$A_{143}^{tSZ}$	$5.3^{+4.3}_{-4.8}$	$D_{810}$	$2528^{+36}_{-37}$	$D_M(2.33)$	$5749^{+50}_{-57}$
$A_{100}^{PS}$	$258^{+70}_{-70}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	$0.451^{+0.047}_{-0.042}$
$A_{143}^{PS}$	$45^{+20}_{-20}$	$D_{2000}$	$230.8^{+4.9}_{-4.9}$	$\sigma_8(0.15)$	$0.757^{+0.059}_{-0.038}$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20}$	$n_{s,0.002}$	$0.973^{+0.019}_{-0.018}$	$f\sigma_8(0.38)$	$0.473^{+0.044}_{-0.036}$
$A_{217}^{PS}$	$114^{+30}_{-30}$	$Y_P$	$0.24541^{+0.00031}_{-0.00030}$	$\sigma_8(0.38)$	$0.673^{+0.053}_{-0.032}$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.24673^{+0.00031}_{-0.00030}$	$f\sigma_8(0.51)$	$0.473^{+0.042}_{-0.033}$
$A_{100}^{dustTT}$	$9.0^{+4.7}_{-4.6}$	$10^5 D/H$	$2.58^{+0.13}_{-0.13}$	$\sigma_8(0.51)$	$0.630^{+0.050}_{-0.029}$
$A_{143}^{dustTT}$	$10.8^{+4.8}_{-4.5}$	Age/Gyr	$13.77^{+0.11}_{-0.12}$	$f\sigma_8(0.61)$	$0.469^{+0.040}_{-0.030}$
$A_{143 \times 217}^{dustTT}$	$18.3^{+8.4}_{-8.5}$	$z_*$	$1089.6^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	$0.600^{+0.048}_{-0.027}$
$A_{217}^{dustTT}$	$94^{+20}_{-20}$	$r_*$	$145.3^{+1.3}_{-1.3}$	$f\sigma_8(2.33)$	$0.303^{+0.024}_{-0.013}$
$c_{100}$	$0.9996^{+0.0017}_{-0.0016}$	$100\theta_*$	$1.0414^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	$0.313^{+0.026}_{-0.013}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017}$	$D_M(z_*)/\text{Gpc}$	$13.95^{+0.12}_{-0.12}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$H_0$	$68.7^{+2.9}_{-2.8}$	$z_{drag}$	$1059.8^{+1.4}_{-1.3}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$\Omega_\Lambda$	$0.703^{+0.035}_{-0.038}$	$r_{drag}$	$147.9^{+1.2}_{-1.3}$	$f_{2000}^{217}$	$106.6^{+5.4}_{-5.4}$
$\Omega_m$	$0.297^{+0.038}_{-0.035}$	$k_D$	$0.1400^{+0.0014}_{-0.0013}$	$\chi_{lensing}^2$	$10.0 (\nu: 2.0)$
$\Omega_m h^2$	$0.1398^{+0.0058}_{-0.0055}$	$100\theta_D$	$0.16086^{+0.00076}_{-0.00075}$	$\chi_{lowl}^2$	$22.9 (\nu: 1.3)$
$\Omega_m h^3$	$0.0960^{+0.0013}_{-0.0011}$	$z_{eq}$	$3325^{+140}_{-130}$	$\chi_{plik}^2$	$770.8 (\nu: 16.4)$
$\sigma_8$	$0.818^{+0.068}_{-0.041}$	$k_{eq}$	$0.01015^{+0.00042}_{-0.00040}$	$\chi_{prior}^2$	$7.3 (\nu: 6.8)$
$S_8$	$0.813^{+0.087}_{-0.080}$	$100\theta_{eq}$	$0.828^{+0.027}_{-0.027}$	$\chi_{CMB}^2$	$803.8 (\nu: 16.3)$

$$\bar{\chi}_{eff}^2 = 811.07; R - 1 = 0.01320$$



### 3.44 base\_Alens\_plikHM\_TT\_lowl\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02233^{+0.00056}_{-0.00056}$	$\sigma_8/h^{0.5}$	$0.992^{+0.073}_{-0.049}$	$D_M(0.38)$	$1520^{+27}_{-26}$
$\Omega_c h^2$	$0.1177^{+0.0033}_{-0.0033}$	$r_{\text{drag}} h$	$100.7^{+2.6}_{-2.6}$	$H(0.51)$	$89.94^{+0.85}_{-0.83}$
$100\theta_{\text{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.475^{+0.078}_{-0.090}$	$D_M(0.51)$	$1970^{+32}_{-31}$
$\tau$	$0.074^{+0.069}_{-0.035}$	$z_{\text{re}}$	$< 15.1$	$H(0.61)$	$95.49^{+0.72}_{-0.70}$
$A_L$	$1.02^{+0.13}_{-0.16}$	$10^9 A_s$	$2.17^{+0.32}_{-0.16}$	$D_M(0.61)$	$2294^{+35}_{-33}$
$\ln(10^{10} A_s)$	$3.08^{+0.14}_{-0.076}$	$10^9 A_s e^{-2\tau}$	$1.870^{+0.031}_{-0.031}$	$H(2.33)$	$235.0^{+2.0}_{-2.0}$
$n_s$	$0.970^{+0.012}_{-0.012}$	$D_{40}$	$1224^{+50}_{-39}$	$D_M(2.33)$	$5757^{+34}_{-35}$
$y_{\text{cal}}$	$1.0001^{+0.0065}_{-0.0068}$	$D_{220}$	$5716^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.456^{+0.039}_{-0.027}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$D_{810}$	$2530^{+35}_{-37}$	$\sigma_8(0.15)$	$0.758^{+0.054}_{-0.032}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$815^{+12}_{-13}$	$f\sigma_8(0.38)$	$0.476^{+0.039}_{-0.024}$
$A_{143}^{\text{tSZ}}$	$5.3^{+4.4}_{-4.7}$	$D_{2000}$	$230.4^{+4.4}_{-4.6}$	$\sigma_8(0.38)$	$0.673^{+0.048}_{-0.027}$
$A_{100}^{\text{PS}}$	$259^{+80}_{-70}$	$n_{s,0.002}$	$0.970^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	$0.476^{+0.035}_{-0.024}$
$A_{143}^{\text{PS}}$	$46^{+20}_{-20}$	$Y_P$	$0.24538^{+0.00022}_{-0.00025}$	$\sigma_8(0.51)$	$0.630^{+0.045}_{-0.025}$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20}$	$Y_P^{\text{BBN}}$	$0.24670^{+0.00022}_{-0.00026}$	$f\sigma_8(0.61)$	$0.472^{+0.035}_{-0.023}$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30}$	$10^5 \text{D/H}$	$2.59^{+0.11}_{-0.10}$	$\sigma_8(0.61)$	$0.600^{+0.043}_{-0.024}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.786^{+0.079}_{-0.080}$	$f\sigma_8(2.33)$	$0.303^{+0.022}_{-0.012}$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.9}_{-4.5}$	$z_*$	$1089.77^{+0.84}_{-0.81}$	$\sigma_8(2.33)$	$0.312^{+0.023}_{-0.012}$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.5}_{-4.4}$	$r_*$	$145.05^{+0.83}_{-0.82}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.4^{+8.2}_{-8.2}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.930^{+0.081}_{-0.080}$	$f_{2000}^{217}$	$107.0^{+5.2}_{-4.8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0015}$	$z_{\text{drag}}$	$1059.7^{+1.2}_{-1.2}$	$\chi_{\text{lensing}}^2$	$10.1 (\nu: 1.9)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017}$	$r_{\text{drag}}$	$147.74^{+0.90}_{-0.89}$	$\chi_{\text{lowl}}^2$	$23.2 (\nu: 1.0)$
$H_0$	$68.2^{+1.5}_{-1.6}$	$k_D$	$0.1402^{+0.0012}_{-0.0011}$	$\chi_{\text{plik}}^2$	$769.8 (\nu: 14.5)$
$\Omega_\Lambda$	$0.697^{+0.019}_{-0.021}$	$100\theta_D$	$0.16092^{+0.00079}_{-0.00068}$	$\chi_{6\text{DF}}^2$	$0.046 (\nu: 0.0)$
$\Omega_m$	$0.303^{+0.021}_{-0.019}$	$z_{\text{eq}}$	$3347^{+76}_{-74}$	$\chi_{\text{MGS}}^2$	$1.93 (\nu: 0.2)$
$\Omega_m h^2$	$0.1407^{+0.0032}_{-0.0031}$	$k_{\text{eq}}$	$0.01022^{+0.00023}_{-0.00023}$	$\chi_{\text{DR12BAO}}^2$	$4.05 (\nu: 0.5)$
$\Omega_m h^3$	$0.0959^{+0.0012}_{-0.0012}$	$100\theta_{\text{eq}}$	$0.823^{+0.014}_{-0.014}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 7.1)$
$\sigma_8$	$0.819^{+0.059}_{-0.035}$	$100\theta_{s,\text{eq}}$	$0.4546^{+0.0074}_{-0.0073}$	$\chi_{\text{CMB}}^2$	$803.1 (\nu: 15.0)$
$S_8$	$0.823^{+0.072}_{-0.050}$	$H(0.15)$	$73.4^{+1.3}_{-1.4}$	$\chi_{\text{BAO}}^2$	$6.0 (\nu: 0.7)$
$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.039}_{-0.027}$	$D_M(0.15)$	$636^{+13}_{-13}$		
$\sigma_8 \Omega_m^{0.25}$	$0.607^{+0.046}_{-0.032}$	$H(0.38)$	$83.3^{+1.0}_{-1.0}$		

$\bar{\chi}_{\text{eff}}^2 = 816.39; R - 1 = 0.01678$



### 3.45 base\_Alens\_plikHM\_TTTEEE\_lowl\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022527	$0.02251^{+0.00043}_{-0.00042}$ (+0.4 $\sigma$ )	$\Omega_m$	0.3046	$0.305^{+0.025}_{-0.023}$ (+0.4 $\sigma$ )	$100\theta_D$	0.160625	$0.16065^{+0.00047}_{-0.00046}$ (−0.8 $\sigma$ )
$\Omega_c h^2$	0.11828	$0.1183^{+0.0040}_{-0.0039}$ (+0.5 $\sigma$ )	$\Omega_m h^2$	0.14146	$0.1414^{+0.0038}_{-0.0037}$ (+0.6 $\sigma$ )	$z_{\text{eq}}$	3365	$3365^{+92}_{-87}$ (+0.6 $\sigma$ )
$100\theta_{\text{MC}}$	1.04109	$1.04109^{+0.00078}_{-0.00082}$ (−0.2 $\sigma$ )	$\Omega_m h^3$	0.09640	$0.09636^{+0.00076}_{-0.00082}$ (+0.8 $\sigma$ )	$k_{\text{eq}}$	0.010270	$0.01027^{+0.00028}_{-0.00027}$ (+0.6 $\sigma$ )
$\tau$	0.010	< 0.137 (−0.1 $\sigma$ )	$\sigma_8$	0.770	$0.803^{+0.072}_{-0.045}$ (+0.1 $\sigma$ )	$100\theta_{\text{eq}}$	0.8206	$0.821^{+0.017}_{-0.017}$ (−0.5 $\sigma$ )
$A_L$	1.159	$1.07^{+0.16}_{-0.20}$ (−0.1 $\sigma$ )	$S_8$	0.776	$0.809^{+0.087}_{-0.061}$ (+0.3 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4531	$0.4531^{+0.0088}_{-0.0088}$ (−0.6 $\sigma$ )
$\ln(10^{10} A_s)$	2.951	$3.03^{+0.17}_{-0.10}$ (−0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4249	$0.443^{+0.048}_{-0.033}$ (+0.3 $\sigma$ )	$H(0.15)$	73.36	$73.3^{+1.6}_{-1.5}$ (−0.3 $\sigma$ )
$n_s$	0.9703	$0.970^{+0.014}_{-0.013}$ (−0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.5719	$0.596^{+0.060}_{-0.037}$ (+0.2 $\sigma$ )	$D_M(0.15)$	636.7	$637^{+15}_{-15}$ (+0.3 $\sigma$ )
$y_{\text{cal}}$	0.9999	$0.99995^{+0.0063}_{-0.0064}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.932	$0.973^{+0.090}_{-0.062}$ (+0.2 $\sigma$ )	$H(0.38)$	83.36	$83.3^{+1.2}_{-1.1}$ (−0.3 $\sigma$ )
$A_{217}^{\text{CIB}}$	45.6	$46^{+20}_{-20}$ (−0.1 $\sigma$ )	$r_{\text{drag}} h$	100.43	$100.4^{+3.2}_{-3.1}$ (−0.4 $\sigma$ )	$D_M(0.38)$	1520.1	$1520^{+30}_{-30}$ (+0.3 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.65	—	$\langle d^2 \rangle^{1/2}$	2.482	$2.483^{+0.080}_{-0.080}$ (+0.2 $\sigma$ )	$H(0.51)$	90.01	$90.00^{+0.93}_{-0.86}$ (−0.2 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.18	> 0.862 (+0.2 $\sigma$ )	$z_{\text{re}}$	2.1	$7.1^{+7.8}_{-5.5}$ (−0.1 $\sigma$ )	$D_M(0.51)$	1970.2	$1971^{+35}_{-36}$ (+0.3 $\sigma$ )
$A_{100}^{\text{PS}}$	246	$255^{+70}_{-70}$ (−0.1 $\sigma$ )	$10^9 A_s$	1.912	$2.08^{+0.38}_{-0.20}$ (−0.0 $\sigma$ )	$H(0.61)$	95.58	$95.57^{+0.76}_{-0.68}$ (−0.1 $\sigma$ )
$A_{143}^{\text{PS}}$	48.6	$44^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8740	$1.873^{+0.032}_{-0.031}$ (+0.4 $\sigma$ )	$D_M(0.61)$	2293.5	$2294^{+38}_{-39}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	51.7	$41^{+20}_{-20}$ (−0.0 $\sigma$ )	$D_{40}$	1210.1	$1221^{+47}_{-37}$ (+0.3 $\sigma$ )	$H(2.33)$	235.60	$235.6^{+2.4}_{-2.3}$ (+0.6 $\sigma$ )
$A_{217}^{\text{PS}}$	121.1	$115^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{220}$	5731	$5731^{+100}_{-98}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5750.7	$5751^{+31}_{-33}$ (−0.0 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{810}$	2534.3	$2532^{+34}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4297	$0.448^{+0.047}_{-0.033}$ (+0.3 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.87	$8.9^{+4.7}_{-4.8}$ (−0.0 $\sigma$ )	$D_{1420}$	817.2	$816^{+12}_{-12}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.712	$0.742^{+0.066}_{-0.041}$ (+0.1 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.02	$10.9^{+4.6}_{-4.5}$ (+0.1 $\sigma$ )	$D_{2000}$	231.62	$231.3^{+3.9}_{-3.8}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4486	$0.468^{+0.048}_{-0.030}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.0	$18.5^{+8.2}_{-8.4}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9703	$0.970^{+0.014}_{-0.013}$ (−0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6318	$0.659^{+0.059}_{-0.035}$ (+0.0 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.3	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\text{P}}$	0.245454	$0.24545^{+0.00017}_{-0.00017}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4481	$0.467^{+0.044}_{-0.031}$ (+0.2 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.113	$0.114^{+0.099}_{-0.094}$	$Y_{\text{P}}^{\text{BBN}}$	0.246781	$0.24677^{+0.00017}_{-0.00017}$ (+0.4 $\sigma$ )	$\sigma_8(0.51)$	0.5916	$0.617^{+0.055}_{-0.032}$ (+0.0 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.134^{+0.075}_{-0.077}$	$10^5 \text{D/H}$	2.557	$2.561^{+0.078}_{-0.077}$ (−0.4 $\sigma$ )	$f\sigma_8(0.61)$	0.4439	$0.463^{+0.043}_{-0.029}$ (+0.2 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.483	$0.48^{+0.22}_{-0.21}$	Age/Gyr	13.769	$13.771^{+0.068}_{-0.071}$ (−0.1 $\sigma$ )	$\sigma_8(0.61)$	0.5631	$0.587^{+0.052}_{-0.030}$ (−0.0 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.15}$	$z_*$	1089.57	$1089.60^{+0.81}_{-0.79}$ (−0.1 $\sigma$ )	$f\sigma_8(2.33)$	0.2842	$0.296^{+0.027}_{-0.015}$ (−0.0 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.660	$0.66^{+0.21}_{-0.20}$	$r_*$	144.76	$144.77^{+0.83}_{-0.89}$ (−0.8 $\sigma$ )	$\sigma_8(2.33)$	0.2933	$0.306^{+0.028}_{-0.015}$ (−0.1 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.06	$2.07^{+0.69}_{-0.69}$	$100\theta_*$	1.04126	$1.04126^{+0.00077}_{-0.00081}$ (−0.2 $\sigma$ )	$\chi^2_{\text{lensing}}$	9.96	10.6 ( $\nu$ : 2.7) (+0.3 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0015}$ (+0.1 $\sigma$ )	$D_M(z_*)/\text{Gpc}$	13.902	$13.904^{+0.077}_{-0.082}$ (−0.8 $\sigma$ )	$\chi^2_{\text{lowl}}$	21.55	22.8 ( $\nu$ : 0.9) (+0.2 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{\text{drag}}$	1060.16	$1060.13^{+0.84}_{-0.81}$ (+0.7 $\sigma$ )	$\chi^2_{\text{plik}}$	2341.8	2357.0 ( $\nu$ : 17.6) (+281.5 $\sigma$ )
$H_0$	68.15	$68.1^{+1.8}_{-1.8}$ (−0.3 $\sigma$ )	$r_{\text{drag}}$	147.37	$147.40^{+0.81}_{-0.86}$ (−0.9 $\sigma$ )	$\chi^2_{\text{prior}}$	1.7	11.5 ( $\nu$ : 9.8) (+1.1 $\sigma$ )
$\Omega_\Lambda$	0.6954	$0.695^{+0.023}_{-0.025}$ (−0.4 $\sigma$ )	$k_D$	0.14069	$0.14065^{+0.00087}_{-0.00083}$ (+1.1 $\sigma$ )	$\chi^2_{\text{CMB}}$	2373.3	2390.4 ( $\nu$ : 17.6) (+280.4 $\sigma$ )

Best-fit  $\chi^2_{\text{eff}} = 2375.01$ ;  $\Delta\chi^2_{\text{eff}} = 1585.32$ ;  $\bar{\chi}^2_{\text{eff}} = 2401.86$ ;  $\Delta\bar{\chi}^2_{\text{eff}} = 1591.44$ ;  $R - 1 = 0.02631$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 9.96 ( $\Delta$  0.66) commander\_dx12\_v3.2.29: 21.55 ( $\Delta$  0.23) plik\_rd12\_HM\_v22b.TTTEEE: 2341.84



### 3.46 base\_Alens\_plikHM\_TTTEE\_lowl\_lensing\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02251^{+0.00037}_{-0.00035} \quad (+0.9\sigma)$	$\sigma_8$	$0.802^{+0.071}_{-0.042} \quad (+0.1\sigma)$	$D_M(0.15)$	$637^{+11}_{-11} \quad (-0.0\sigma)$
$\Omega_c h^2$	$0.1183^{+0.0028}_{-0.0028} \quad (+0.3\sigma)$	$S_8$	$0.809^{+0.080}_{-0.053} \quad (+0.1\sigma)$	$H(0.38)$	$83.34^{+0.83}_{-0.79} \quad (+0.1\sigma)$
$100\theta_{MC}$	$1.04109^{+0.00076}_{-0.00081} \quad (-0.0\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.443^{+0.044}_{-0.029} \quad (+0.1\sigma)$	$D_M(0.38)$	$1520^{+21}_{-22} \quad (-0.0\sigma)$
$\tau$	$< 0.137 \quad (+0.0\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.596^{+0.054}_{-0.036} \quad (+0.1\sigma)$	$H(0.51)$	$90.00^{+0.67}_{-0.63} \quad (+0.2\sigma)$
$A_L$	$1.07^{+0.15}_{-0.19} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.972^{+0.088}_{-0.056} \quad (+0.1\sigma)$	$D_M(0.51)$	$1971^{+25}_{-25} \quad (-0.1\sigma)$
$\ln(10^{10} A_s)$	$3.03^{+0.17}_{-0.099} \quad (+0.0\sigma)$	$r_{drag} h$	$100.4^{+2.2}_{-2.1} \quad (-0.2\sigma)$	$H(0.61)$	$95.57^{+0.54}_{-0.52} \quad (+0.3\sigma)$
$n_s$	$0.970^{+0.011}_{-0.0098} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.483^{+0.083}_{-0.080} \quad (+0.2\sigma)$	$D_M(0.61)$	$2294^{+27}_{-27} \quad (-0.1\sigma)$
$y_{cal}$	$0.99996^{+0.0063}_{-0.0063} \quad (-0.0\sigma)$	$z_{re}$	$7.1^{+7.7}_{-5.6} \quad (+0.0\sigma)$	$H(2.33)$	$235.6^{+1.7}_{-1.7} \quad (+0.6\sigma)$
$A_{217}^{CIB}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s$	$2.08^{+0.38}_{-0.20} \quad (+0.0\sigma)$	$D_M(2.33)$	$5751^{+24}_{-24} \quad (-0.5\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s e^{-2\tau}$	$1.873^{+0.027}_{-0.028} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.448^{+0.044}_{-0.028} \quad (+0.1\sigma)$
$A_{143}^{tSZ}$	$> 0.862 \quad (+0.2\sigma)$	$D_{40}$	$1221^{+46}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.742^{+0.065}_{-0.038} \quad (+0.1\sigma)$
$A_{100}^{PS}$	$256^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5731^{+100}_{-96} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.468^{+0.043}_{-0.029} \quad (+0.1\sigma)$
$A_{143}^{PS}$	$44^{+20}_{-20} \quad (-0.3\sigma)$	$D_{810}$	$2532^{+32}_{-33} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.659^{+0.058}_{-0.033} \quad (+0.0\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+11}_{-11} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.467^{+0.042}_{-0.028} \quad (+0.1\sigma)$
$A_{217}^{PS}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.3^{+3.7}_{-3.7} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.617^{+0.054}_{-0.031} \quad (+0.0\sigma)$
$A^{kSZ}$	—	$n_{s,0.002}$	$0.970^{+0.011}_{-0.0098} \quad (+0.0\sigma)$	$f\sigma_8(0.61)$	$0.463^{+0.041}_{-0.027} \quad (+0.1\sigma)$
$A_{100}^{dustTT}$	$9.0^{+4.8}_{-5.0} \quad (+0.0\sigma)$	$Y_P$	$0.24545^{+0.00014}_{-0.00014} \quad (+0.8\sigma)$	$\sigma_8(0.61)$	$0.587^{+0.052}_{-0.029} \quad (+0.0\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.6}_{-4.3} \quad (+0.1\sigma)$	$Y_P^{BBN}$	$0.24677^{+0.00014}_{-0.00014} \quad (+0.8\sigma)$	$f\sigma_8(2.33)$	$0.296^{+0.026}_{-0.015} \quad (+0.0\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.6^{+8.5}_{-8.9} \quad (+0.1\sigma)$	$10^5 D/H$	$2.561^{+0.066}_{-0.066} \quad (-0.9\sigma)$	$\sigma_8(2.33)$	$0.306^{+0.027}_{-0.015} \quad (+0.0\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	Age/Gyr	$13.771^{+0.055}_{-0.054} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$28^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100}^{dustTE}$	$0.113^{+0.10}_{-0.094}$	$z_*$	$1089.60^{+0.61}_{-0.61} \quad (-0.6\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.072}_{-0.083}$	$r_*$	$144.77^{+0.63}_{-0.63} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.1^{+4.7}_{-4.7} \quad (-0.5\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	$1.04126^{+0.00075}_{-0.00080} \quad (-0.1\sigma)$	$\chi_{lensing}^2$	$10.6 \quad (\nu: 2.7) \quad (+0.3\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$13.904^{+0.060}_{-0.060} \quad (-0.8\sigma)$	$\chi_{lowl}^2$	$22.7 \quad (\nu: 0.8) \quad (+0.1\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.20}_{-0.20}$	$z_{drag}$	$1060.13^{+0.80}_{-0.76} \quad (+1.0\sigma)$	$\chi_{plik}^2$	$2356.4 \quad (\nu: 16.6) \quad (+302.5\sigma)$
$A_{217}^{dustTE}$	$2.06^{+0.72}_{-0.68}$	$r_{drag}$	$147.40^{+0.64}_{-0.65} \quad (-0.9\sigma)$	$\chi_{6DF}^2$	$0.030 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_D$	$0.14065^{+0.00074}_{-0.00074} \quad (+1.1\sigma)$	$\chi_{MGS}^2$	$1.72 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_D$	$0.16066^{+0.00043}_{-0.00044} \quad (-1.0\sigma)$	$\chi_{DR12BAO}^2$	$4.00 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$H_0$	$68.1^{+1.3}_{-1.2} \quad (-0.0\sigma)$	$z_{eq}$	$3364^{+62}_{-62} \quad (+0.5\sigma)$	$\chi_{prior}^2$	$11.5 \quad (\nu: 9.6) \quad (+1.1\sigma)$
$\Omega_\Lambda$	$0.695^{+0.016}_{-0.017} \quad (-0.2\sigma)$	$k_{eq}$	$0.01027^{+0.00019}_{-0.00019} \quad (+0.5\sigma)$	$\chi_{CMB}^2$	$2389.8 \quad (\nu: 16.3) \quad (+295.2\sigma)$
$\Omega_m$	$0.305^{+0.017}_{-0.016} \quad (+0.2\sigma)$	$100\theta_{eq}$	$0.821^{+0.012}_{-0.012} \quad (-0.4\sigma)$	$\chi_{BAO}^2$	$5.75 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$\Omega_m h^2$	$0.1414^{+0.0026}_{-0.0026} \quad (+0.5\sigma)$	$100\theta_{s,eq}$	$0.4531^{+0.0062}_{-0.0060} \quad (-0.4\sigma)$		
$\Omega_m h^3$	$0.09636^{+0.00075}_{-0.00083} \quad (+0.9\sigma)$	$H(0.15)$	$73.3^{+1.1}_{-1.1} \quad (+0.0\sigma)$		

$$\bar{\chi}_{eff}^2 = 2406.97; \Delta \bar{\chi}_{eff}^2 = 1591.35; R - 1 = 0.02917$$



### 3.47 base\_Alens\_plikHM\_TTTEE\_lowl\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02251^{+0.00044}_{-0.00041} \quad (+0.4\sigma)$	$\Omega_{\text{m}}h^2$	$0.1413^{+0.0037}_{-0.0037} \quad (+0.7\sigma)$	$k_{\text{eq}}$	$0.01026^{+0.00027}_{-0.00027} \quad (+0.7\sigma)$
$\Omega_{\text{c}}h^2$	$0.1181^{+0.0039}_{-0.0040} \quad (+0.6\sigma)$	$\Omega_{\text{m}}h^3$	$0.09634^{+0.00075}_{-0.00080} \quad (+0.8\sigma)$	$100\theta_{\text{eq}}$	$0.821^{+0.018}_{-0.016} \quad (-0.6\sigma)$
$100\theta_{\text{MC}}$	$1.04110^{+0.00076}_{-0.00082} \quad (-0.3\sigma)$	$\sigma_8$	$0.821^{+0.063}_{-0.039} \quad (+0.1\sigma)$	$100\theta_{\text{s,eq}}$	$0.4535^{+0.0090}_{-0.0084} \quad (-0.6\sigma)$
$\tau$	$0.075^{+0.071}_{-0.036} \quad (-0.1\sigma)$	$S_8$	$0.826^{+0.080}_{-0.062} \quad (+0.4\sigma)$	$H(0.15)$	$73.4^{+1.6}_{-1.4} \quad (-0.4\sigma)$
$A_{\text{L}}$	$1.02^{+0.14}_{-0.17} \quad (-0.2\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.452^{+0.044}_{-0.034} \quad (+0.4\sigma)$	$D_{\text{M}}(0.15)$	$636^{+14}_{-15} \quad (+0.4\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.08^{+0.14}_{-0.078} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.609^{+0.054}_{-0.035} \quad (+0.3\sigma)$	$H(0.38)$	$83.4^{+1.2}_{-1.0} \quad (-0.3\sigma)$
$n_{\text{s}}$	$0.970^{+0.014}_{-0.013} \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.994^{+0.086}_{-0.053} \quad (+0.2\sigma)$	$D_{\text{M}}(0.38)$	$1519^{+29}_{-31} \quad (+0.4\sigma)$
$y_{\text{cal}}$	$0.99996^{+0.0063}_{-0.0065} \quad (-0.0\sigma)$	$r_{\text{drag}}h$	$100.5^{+3.2}_{-3.0} \quad (-0.5\sigma)$	$H(0.51)$	$90.02^{+0.94}_{-0.82} \quad (-0.3\sigma)$
$A_{217}^{\text{CIB}}$	$46^{+20}_{-20} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.482^{+0.080}_{-0.078} \quad (+0.2\sigma)$	$D_{\text{M}}(0.51)$	$1969^{+34}_{-36} \quad (+0.4\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 15.3 \quad (-0.1\sigma)$	$H(0.61)$	$95.59^{+0.75}_{-0.66} \quad (-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	$> 0.865 \quad (+0.2\sigma)$	$10^9 A_{\text{s}}$	$2.18^{+0.33}_{-0.17} \quad (-0.0\sigma)$	$D_{\text{M}}(0.61)$	$2293^{+36}_{-39} \quad (+0.4\sigma)$
$A_{100}^{\text{PS}}$	$255^{+70}_{-70} \quad (-0.1\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.872^{+0.034}_{-0.032} \quad (+0.5\sigma)$	$H(2.33)$	$235.5^{+2.4}_{-2.3} \quad (+0.7\sigma)$
$A_{143}^{\text{PS}}$	$44^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1226^{+45}_{-39} \quad (+0.3\sigma)$	$D_{\text{M}}(2.33)$	$5751^{+30}_{-33} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$41^{+20}_{-20} \quad (-0.0\sigma)$	$D_{220}$	$5729^{+100}_{-100} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.043}_{-0.032} \quad (+0.4\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2532^{+35}_{-35} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.759^{+0.057}_{-0.035} \quad (+0.1\sigma)$
$A^{\text{kSZ}}$	—	$D_{1420}$	$816^{+12}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.043}_{-0.028} \quad (+0.3\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$D_{2000}$	$231.4^{+3.9}_{-3.8} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.674^{+0.051}_{-0.029} \quad (+0.1\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.4} \quad (+0.1\sigma)$	$n_{\text{s},0.002}$	$0.970^{+0.014}_{-0.013} \quad (-0.4\sigma)$	$f\sigma_8(0.51)$	$0.477^{+0.042}_{-0.026} \quad (+0.3\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.5^{+8.3}_{-8.5} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.24545^{+0.00018}_{-0.00016} \quad (+0.4\sigma)$	$\sigma_8(0.51)$	$0.631^{+0.047}_{-0.027} \quad (+0.0\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00018}_{-0.00016} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.473^{+0.041}_{-0.025} \quad (+0.3\sigma)$
$A_{100}^{\text{dustTE}}$	$0.113^{+0.098}_{-0.095}$	$10^5 \text{D}/\text{H}$	$2.560^{+0.077}_{-0.079} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.601^{+0.045}_{-0.025} \quad (+0.0\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.074}_{-0.077}$	$\text{Age}/\text{Gyr}$	$13.770^{+0.068}_{-0.071} \quad (+0.0\sigma)$	$f\sigma_8(2.33)$	$0.303^{+0.023}_{-0.012} \quad (-0.0\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$z_*$	$1089.58^{+0.76}_{-0.81} \quad (-0.0\sigma)$	$\sigma_8(2.33)$	$0.313^{+0.024}_{-0.012} \quad (-0.1\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.15}$	$r_*$	$144.81^{+0.85}_{-0.88} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$28^{+7}_{-7} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.20}$	$100\theta_*$	$1.04127^{+0.00075}_{-0.00080} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.4\sigma)$
$A_{217}^{\text{dustTE}}$	$2.06^{+0.69}_{-0.69}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.907^{+0.077}_{-0.082} \quad (-0.9\sigma)$	$f_{2000}^{217}$	$106.0^{+4.9}_{-4.9} \quad (-0.3\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1060.13^{+0.84}_{-0.81} \quad (+0.6\sigma)$	$\chi_{\text{lensing}}^2$	$10.6 \quad (\nu: 2.6) \quad (+0.3\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015} \quad (-0.1\sigma)$	$r_{\text{drag}}$	$147.43^{+0.81}_{-0.86} \quad (-1.0\sigma)$	$\chi_{\text{lowl}}^2$	$23.3 \quad (\nu: 1.1) \quad (+0.2\sigma)$
$H_0$	$68.2^{+1.8}_{-1.7} \quad (-0.4\sigma)$	$k_{\text{D}}$	$0.14062^{+0.00087}_{-0.00083} \quad (+1.2\sigma)$	$\chi_{\text{plik}}^2$	$2356.9 \quad (\nu: 18.0) \quad (+276.9\sigma)$
$\Omega_{\Lambda}$	$0.696^{+0.024}_{-0.024} \quad (-0.5\sigma)$	$100\theta_{\text{D}}$	$0.16065^{+0.00047}_{-0.00047} \quad (-0.7\sigma)$	$\chi_{\text{prior}}^2$	$11.5 \quad (\nu: 9.9) \quad (+1.1\sigma)$
$\Omega_{\text{m}}$	$0.304^{+0.024}_{-0.024} \quad (+0.5\sigma)$	$z_{\text{eq}}$	$3361^{+88}_{-88} \quad (+0.7\sigma)$	$\chi_{\text{CMB}}^2$	$2390.9 \quad (\nu: 17.5) \quad (+277.9\sigma)$

$\bar{\chi}_{\text{eff}}^2 = 2402.39$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.32$ ;  $R - 1 = 0.02911$



### 3.48 base\_Alens\_plikHM\_TTTEE\_lowl\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02251^{+0.00037}_{-0.00036}$ (+0.8 $\sigma$ )	$\sigma_8$	$0.820^{+0.060}_{-0.035}$ (+0.1 $\sigma$ )	$D_M(0.15)$	$637^{+11}_{-11}$ (+0.0 $\sigma$ )
$\Omega_c h^2$	$0.1182^{+0.0028}_{-0.0028}$ (+0.4 $\sigma$ )	$S_8$	$0.826^{+0.070}_{-0.049}$ (+0.1 $\sigma$ )	$H(0.38)$	$83.36^{+0.83}_{-0.81}$ (+0.1 $\sigma$ )
$100\theta_{MC}$	$1.04110^{+0.00075}_{-0.00081}$ (−0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	$0.453^{+0.038}_{-0.027}$ (+0.1 $\sigma$ )	$D_M(0.38)$	$1520^{+22}_{-21}$ (−0.0 $\sigma$ )
$\tau$	$0.074^{+0.070}_{-0.035}$ (−0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	$0.609^{+0.051}_{-0.029}$ (+0.1 $\sigma$ )	$H(0.51)$	$90.01^{+0.66}_{-0.64}$ (+0.2 $\sigma$ )
$A_L$	$1.02^{+0.13}_{-0.17}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.994^{+0.075}_{-0.048}$ (+0.1 $\sigma$ )	$D_M(0.51)$	$1970^{+25}_{-25}$ (−0.0 $\sigma$ )
$\ln(10^{10} A_s)$	$3.08^{+0.14}_{-0.077}$ (+0.0 $\sigma$ )	$r_{drag} h$	$100.5^{+2.2}_{-2.1}$ (−0.3 $\sigma$ )	$H(0.61)$	$95.57^{+0.55}_{-0.52}$ (+0.3 $\sigma$ )
$n_s$	$0.970^{+0.010}_{-0.010}$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.482^{+0.081}_{-0.076}$ (+0.2 $\sigma$ )	$D_M(0.61)$	$2293^{+27}_{-28}$ (−0.1 $\sigma$ )
$y_{cal}$	$0.99997^{+0.0064}_{-0.0065}$ (−0.0 $\sigma$ )	$z_{re}$	$< 15.1$ (−0.0 $\sigma$ )	$H(2.33)$	$235.5^{+1.7}_{-1.7}$ (+0.6 $\sigma$ )
$A_{217}^{CIB}$	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	$2.17^{+0.32}_{-0.17}$ (+0.0 $\sigma$ )	$D_M(2.33)$	$5751^{+24}_{-25}$ (−0.5 $\sigma$ )
$\xi^{tSZ \times CIB}$	—	$10^9 A_s e^{-2\tau}$	$1.872^{+0.027}_{-0.029}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	$0.458^{+0.038}_{-0.026}$ (+0.1 $\sigma$ )
$A_{143}^{tSZ}$	$> 0.830$ (+0.2 $\sigma$ )	$D_{40}$	$1226^{+43}_{-38}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	$0.759^{+0.055}_{-0.032}$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	$255^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{220}$	$5729^{+100}_{-100}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	$0.478^{+0.040}_{-0.024}$ (+0.1 $\sigma$ )
$A_{143}^{PS}$	$44^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{810}$	$2532^{+32}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	$0.673^{+0.049}_{-0.027}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	$816^{+11}_{-11}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	$0.477^{+0.040}_{-0.022}$ (+0.1 $\sigma$ )
$A_{217}^{PS}$	$115^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{2000}$	$231.4^{+3.6}_{-3.6}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	$0.631^{+0.045}_{-0.025}$ (+0.0 $\sigma$ )
$A^{kSZ}$	—	$n_{s,0.002}$	$0.970^{+0.010}_{-0.010}$ (−0.0 $\sigma$ )	$f\sigma_8(0.61)$	$0.473^{+0.035}_{-0.023}$ (+0.1 $\sigma$ )
$A_{100}^{dustTT}$	$8.9^{+4.5}_{-5.0}$ (−0.0 $\sigma$ )	$Y_P$	$0.24545^{+0.00015}_{-0.00014}$ (+0.8 $\sigma$ )	$\sigma_8(0.61)$	$0.600^{+0.043}_{-0.024}$ (+0.0 $\sigma$ )
$A_{143}^{dustTT}$	$10.9^{+4.6}_{-4.2}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	$0.24677^{+0.00015}_{-0.00014}$ (+0.8 $\sigma$ )	$f\sigma_8(2.33)$	$0.303^{+0.022}_{-0.012}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	$18.6^{+9.3}_{-8.9}$ (+0.0 $\sigma$ )	$10^5 D/H$	$2.561^{+0.067}_{-0.067}$ (−0.8 $\sigma$ )	$\sigma_8(2.33)$	$0.313^{+0.023}_{-0.012}$ (+0.0 $\sigma$ )
$A_{217}^{dustTT}$	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	$13.771^{+0.055}_{-0.056}$ (−0.5 $\sigma$ )	$f_{2000}^{143}$	$28^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	$0.112^{+0.098}_{-0.092}$	$z_*$	$1089.59^{+0.61}_{-0.61}$ (−0.6 $\sigma$ )	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.072}_{-0.086}$	$r_*$	$144.79^{+0.63}_{-0.64}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	$106.0^{+4.8}_{-4.3}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	$1.04127^{+0.00074}_{-0.00080}$ (−0.1 $\sigma$ )	$\chi_{lensing}^2$	$10.6$ ( $\nu$ : 2.7) (+0.3 $\sigma$ )
$A_{143}^{dustTE}$	$0.22^{+0.13}_{-0.15}$	$D_M(z_*)/\text{Gpc}$	$13.905^{+0.060}_{-0.061}$ (−0.8 $\sigma$ )	$\chi_{lowl}^2$	$23.3$ ( $\nu$ : 0.9) (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.20}_{-0.20}$	$z_{drag}$	$1060.12^{+0.80}_{-0.76}$ (+1.0 $\sigma$ )	$\chi_{plik}^2$	$2356.3$ ( $\nu$ : 16.3) (+294.9 $\sigma$ )
$A_{217}^{dustTE}$	$2.06^{+0.69}_{-0.67}$	$r_{drag}$	$147.42^{+0.63}_{-0.67}$ (−0.9 $\sigma$ )	$\chi_{6DF}^2$	$0.030$ ( $\nu$ : 0.0) (−0.2 $\sigma$ )
$c_{100}$	$0.9997^{+0.0016}_{-0.0017}$ (+0.1 $\sigma$ )	$k_D$	$0.14063^{+0.00075}_{-0.00072}$ (+1.1 $\sigma$ )	$\chi_{MGS}^2$	$1.76$ ( $\nu$ : 0.1) (−0.3 $\sigma$ )
$c_{217}$	$0.9982^{+0.0015}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	$0.16066^{+0.00043}_{-0.00045}$ (−1.0 $\sigma$ )	$\chi_{DR12BAO}^2$	$3.97$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$H_0$	$68.2^{+1.3}_{-1.3}$ (−0.0 $\sigma$ )	$z_{eq}$	$3363^{+63}_{-62}$ (+0.5 $\sigma$ )	$\chi_{prior}^2$	$11.5$ ( $\nu$ : 9.5) (+1.1 $\sigma$ )
$\Omega_\Lambda$	$0.696^{+0.016}_{-0.017}$ (−0.2 $\sigma$ )	$k_{eq}$	$0.01026^{+0.00019}_{-0.00019}$ (+0.5 $\sigma$ )	$\chi_{CMB}^2$	$2390.2$ ( $\nu$ : 16.1) (+290.2 $\sigma$ )
$\Omega_m$	$0.304^{+0.017}_{-0.016}$ (+0.2 $\sigma$ )	$100\theta_{eq}$	$0.821^{+0.012}_{-0.012}$ (−0.4 $\sigma$ )	$\chi_{BAO}^2$	$5.76$ ( $\nu$ : 0.3) (−0.2 $\sigma$ )
$\Omega_m h^2$	$0.1414^{+0.0026}_{-0.0026}$ (+0.5 $\sigma$ )	$100\theta_{s,eq}$	$0.4533^{+0.0062}_{-0.0061}$ (−0.5 $\sigma$ )		
$\Omega_m h^3$	$0.09635^{+0.00075}_{-0.00082}$ (+0.9 $\sigma$ )	$H(0.15)$	$73.4^{+1.1}_{-1.1}$ (−0.0 $\sigma$ )		

$$\bar{\chi}_{eff}^2 = 2407.51; \Delta \bar{\chi}_{eff}^2 = 1591.12; R - 1 = 0.04162$$



### 3.49 base\_Alens\_plikHM\_TT\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02243	$0.02239^{+0.00065}_{-0.00066}$	$\sigma_8 \Omega_m^{0.25}$	0.5884	$0.589^{+0.036}_{-0.035}$	$D_M(0.15)$	632.9	$634^{+24}_{-23}$
$\Omega_c h^2$	0.1169	$0.1172^{+0.0062}_{-0.0060}$	$\sigma_8/h^{0.5}$	0.9620	$0.963^{+0.049}_{-0.049}$	$H(0.38)$	83.59	$83.5^{+1.9}_{-1.7}$
$100\theta_{MC}$	1.04121	$1.0412^{+0.0013}_{-0.0013}$	$r_{drag}h$	101.43	$101.2^{+5.0}_{-4.8}$	$D_M(0.38)$	1512.8	$1515^{+48}_{-48}$
$\tau$	0.0509	$0.050^{+0.021}_{-0.026}$	$\langle d^2 \rangle^{1/2}$	2.477	$2.479^{+0.076}_{-0.080}$	$H(0.51)$	90.16	$90.1^{+1.5}_{-1.4}$
$A_L$	1.084	$1.08^{+0.14}_{-0.13}$	$z_{re}$	7.27	$7.1^{+2.0}_{-3.0}$	$D_M(0.51)$	1962	$1965^{+56}_{-56}$
$\ln(10^{10} A_s)$	3.0285	$3.027^{+0.044}_{-0.052}$	$10^9 A_s$	2.067	$2.063^{+0.093}_{-0.10}$	$H(0.61)$	95.66	$95.6^{+1.3}_{-1.1}$
$n_s$	0.9733	$0.971^{+0.017}_{-0.017}$	$10^9 A_s e^{-2\tau}$	1.8666	$1.868^{+0.038}_{-0.037}$	$D_M(0.61)$	2285	$2288^{+60}_{-61}$
$y_{cal}$	0.9998	$1.0001^{+0.0065}_{-0.0064}$	$D_{40}$	1208.2	$1214^{+45}_{-42}$	$H(2.33)$	234.60	$234.8^{+3.6}_{-3.5}$
$A_{217}^{CIB}$	46.7	$47^{+20}_{-20}$	$D_{220}$	5719	$5725^{+110}_{-110}$	$D_M(2.33)$	5750	$5752^{+50}_{-54}$
$\xi^{tSZ \times CIB}$	0.54	—	$D_{810}$	2530.3	$2530^{+37}_{-37}$	$f\sigma_8(0.15)$	0.4401	$0.441^{+0.037}_{-0.036}$
$A_{143}^{tSZ}$	7.0	—	$D_{1420}$	815.9	$815^{+13}_{-13}$	$\sigma_8(0.15)$	0.7377	$0.737^{+0.022}_{-0.023}$
$A_{100}^{PS}$	249	$260^{+70}_{-70}$	$D_{2000}$	231.12	$230.5^{+4.9}_{-4.8}$	$f\sigma_8(0.38)$	0.4613	$0.462^{+0.029}_{-0.029}$
$A_{143}^{PS}$	48.8	$46^{+20}_{-20}$	$n_{s,0.002}$	0.9733	$0.971^{+0.017}_{-0.017}$	$\sigma_8(0.38)$	0.6554	$0.655^{+0.017}_{-0.019}$
$A_{143 \times 217}^{PS}$	50.1	$42^{+20}_{-20}$	$Y_P$	0.245419	$0.24540^{+0.00027}_{-0.00030}$	$f\sigma_8(0.51)$	0.4615	$0.462^{+0.025}_{-0.026}$
$A_{217}^{PS}$	120.0	$114^{+30}_{-30}$	$Y_P^{BBN}$	0.246746	$0.24672^{+0.00027}_{-0.00030}$	$\sigma_8(0.51)$	0.6140	$0.613^{+0.015}_{-0.017}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.574	$2.58^{+0.13}_{-0.12}$	$f\sigma_8(0.61)$	0.4578	$0.458^{+0.023}_{-0.023}$
$A_{100}^{dustTT}$	8.94	$9.0^{+4.8}_{-4.7}$	Age/Gyr	13.769	$13.77^{+0.11}_{-0.12}$	$\sigma_8(0.61)$	0.5847	$0.584^{+0.014}_{-0.016}$
$A_{143}^{dustTT}$	10.81	$10.8^{+4.5}_{-4.5}$	$z_*$	1089.57	$1089.7^{+1.3}_{-1.2}$	$f\sigma_8(2.33)$	0.2954	$0.2949^{+0.0068}_{-0.0077}$
$A_{143 \times 217}^{dustTT}$	19.5	$18.3^{+8.4}_{-8.6}$	$r_*$	145.19	$145.1^{+1.3}_{-1.3}$	$\sigma_8(2.33)$	0.3051	$0.3046^{+0.0069}_{-0.0080}$
$A_{217}^{dustTT}$	94.9	$93^{+20}_{-20}$	$100\theta_*$	1.04140	$1.0414^{+0.0013}_{-0.0013}$	$f_{2000}^{143}$	28.4	$30^{+8}_{-8}$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.942	$13.94^{+0.12}_{-0.12}$	$f_{2000}^{143 \times 217}$	31.8	$32^{+5}_{-5}$
$c_{217}$	0.99823	$0.9982^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.86	$1059.8^{+1.3}_{-1.3}$	$f_{2000}^{217}$	106.2	$106.9^{+5.2}_{-5.1}$
$H_0$	68.61	$68.5^{+2.9}_{-2.8}$	$r_{drag}$	147.85	$147.8^{+1.3}_{-1.3}$	$\chi^2_{lensing}$	9.31	$10.1 (\nu: 2.0)$
$\Omega_\Lambda$	0.7026	$0.700^{+0.034}_{-0.038}$	$k_D$	0.14011	$0.1401^{+0.0013}_{-0.0013}$	$\chi^2_{small}$	395.67	$396.8 (\nu: 1.2)$
$\Omega_m$	0.2974	$0.300^{+0.038}_{-0.034}$	$100\theta_D$	0.16082	$0.16087^{+0.00074}_{-0.00068}$	$\chi^2_{lowl}$	21.74	$22.2 (\nu: 0.7)$
$\Omega_m h^2$	0.1400	$0.1402^{+0.0058}_{-0.0056}$	$z_{eq}$	3329	$3336^{+140}_{-130}$	$\chi^2_{plik}$	757.8	$770.4 (\nu: 15.4)$
$\Omega_m h^3$	0.09603	$0.0960^{+0.0011}_{-0.0012}$	$k_{eq}$	0.010162	$0.01018^{+0.00042}_{-0.00041}$	$\chi^2_{prior}$	1.3	$7.3 (\nu: 6.8)$
$\sigma_8$	0.7968	$0.796^{+0.027}_{-0.028}$	$100\theta_{eq}$	0.8269	$0.826^{+0.027}_{-0.026}$	$\chi^2_{CMB}$	1184.5	$1199.5 (\nu: 15.9)$
$S_8$	0.793	$0.796^{+0.073}_{-0.069}$	$100\theta_{s,eq}$	0.4565	$0.456^{+0.014}_{-0.013}$			
$\sigma_8 \Omega_m^{0.5}$	0.4345	$0.436^{+0.040}_{-0.038}$	$H(0.15)$	73.73	$73.6^{+2.5}_{-2.4}$			

Best-fit  $\chi^2_{eff} = 1185.80$ ;  $\bar{\chi}^2_{eff} = 1206.83$ ;  $R - 1 = 0.00595$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 9.31 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.67 commander\_dx12\_v3.2\_29: 21.74 plik\_rd12\_HM.v22\_TT: 757.79



### 3.50 base\_Alens\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02237	$0.02233^{+0.00052}_{-0.00055}$	$\sigma_8/h^{0.5}$	0.9689	$0.968^{+0.032}_{-0.032}$	$D_{\mathrm{M}}(0.38)$	1520.0	$1521^{+26}_{-26}$
$\Omega_{\mathrm{c}}h^2$	0.11787	$0.1179^{+0.0033}_{-0.0032}$	$r_{\mathrm{drag}}h$	100.67	$100.6^{+2.6}_{-2.6}$	$H(0.51)$	89.95	$89.92^{+0.83}_{-0.81}$
$100\theta_{\mathrm{MC}}$	1.04114	$1.0411^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.478	$2.478^{+0.075}_{-0.077}$	$D_{\mathrm{M}}(0.51)$	1970.3	$1971^{+31}_{-30}$
$\tau$	0.0504	$0.049^{+0.020}_{-0.027}$	$z_{\mathrm{re}}$	7.24	$7.1^{+2.1}_{-3.1}$	$H(0.61)$	95.50	$95.48^{+0.71}_{-0.69}$
$A_{\mathrm{L}}$	1.070	$1.07^{+0.11}_{-0.097}$	$10^9 A_{\mathrm{s}}$	2.069	$2.065^{+0.093}_{-0.11}$	$D_{\mathrm{M}}(0.61)$	2293.8	$2295^{+33}_{-33}$
$\ln(10^{10} A_{\mathrm{s}})$	3.030	$3.027^{+0.044}_{-0.056}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8709	$1.871^{+0.031}_{-0.030}$	$H(2.33)$	235.17	$235.1^{+2.1}_{-2.0}$
$n_{\mathrm{s}}$	0.9703	$0.969^{+0.011}_{-0.012}$	$D_{40}$	1214.8	$1217^{+36}_{-34}$	$D_{\mathrm{M}}(2.33)$	5755.9	$5758^{+34}_{-33}$
$y_{\mathrm{cal}}$	0.99995	$1.0001^{+0.0067}_{-0.0064}$	$D_{220}$	5719	$5722^{+100}_{-110}$	$f\sigma_8(0.15)$	0.4456	$0.445^{+0.021}_{-0.021}$
$A_{217}^{\mathrm{CIB}}$	48.4	$47^{+20}_{-20}$	$D_{810}$	2531.3	$2530^{+37}_{-37}$	$\sigma_8(0.15)$	0.7401	$0.739^{+0.019}_{-0.021}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.28	—	$D_{1420}$	815.3	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4656	$0.465^{+0.018}_{-0.018}$
$A_{143}^{\mathrm{tSZ}}$	7.1	—	$D_{2000}$	230.72	$230.3^{+4.5}_{-4.4}$	$\sigma_8(0.38)$	0.6569	$0.656^{+0.016}_{-0.018}$
$A_{100}^{\mathrm{PS}}$	252	$261^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	0.9703	$0.969^{+0.011}_{-0.012}$	$f\sigma_8(0.51)$	0.4652	$0.465^{+0.016}_{-0.017}$
$A_{143}^{\mathrm{PS}}$	46.0	$47^{+20}_{-20}$	$Y_{\mathrm{P}}$	0.245394	$0.24538^{+0.00020}_{-0.00025}$	$\sigma_8(0.51)$	0.6152	$0.614^{+0.014}_{-0.017}$
$A_{143 \times 217}^{\mathrm{PS}}$	43.9	$42^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246721	$0.24670^{+0.00020}_{-0.00025}$	$f\sigma_8(0.61)$	0.4609	$0.460^{+0.015}_{-0.015}$
$A_{217}^{\mathrm{PS}}$	117.6	$114^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	2.586	$2.59^{+0.10}_{-0.094}$	$\sigma_8(0.61)$	0.5856	$0.585^{+0.013}_{-0.016}$
$A^{\mathrm{kSZ}}$	0.0	—	Age/Gyr	13.782	$13.786^{+0.078}_{-0.076}$	$f\sigma_8(2.33)$	0.2956	$0.2951^{+0.0067}_{-0.0079}$
$A_{100}^{\mathrm{dustTT}}$	8.98	$9.0^{+4.8}_{-4.8}$	$z_*$	1089.74	$1089.78^{+0.83}_{-0.79}$	$\sigma_8(2.33)$	0.3051	$0.3046^{+0.0069}_{-0.0084}$
$A_{143}^{\mathrm{dustTT}}$	10.86	$10.8^{+4.6}_{-4.3}$	$r_*$	144.99	$145.01^{+0.83}_{-0.81}$	$f_{2000}^{143}$	29.1	$30^{+8}_{-7}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.3	$18.3^{+8.6}_{-8.5}$	$100\theta_*$	1.04132	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	32.2	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dustTT}}$	94.5	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.923	$13.926^{+0.080}_{-0.078}$	$f_{2000}^{217}$	106.71	$107.2^{+4.8}_{-5.0}$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	1059.78	$1059.7^{+1.1}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	9.42	$10.1 (\nu: 1.9)$
$c_{217}$	0.99825	$0.9982^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	147.66	$147.70^{+0.89}_{-0.87}$	$\chi_{\mathrm{small}}^2$	395.68	$396.8 (\nu: 1.2)$
$H_0$	68.18	$68.1^{+1.5}_{-1.5}$	$k_{\mathrm{D}}$	0.14026	$0.1402^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{lowl}}^2$	22.20	$22.43 (\nu: 0.4)$
$\Omega_{\Lambda}$	0.6969	$0.697^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	0.16086	$0.16091^{+0.00070}_{-0.00064}$	$\chi_{\mathrm{plik}}^2$	757.2	$769.6 (\nu: 14.3)$
$\Omega_{\mathrm{m}}$	0.3031	$0.303^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	3351	$3350^{+76}_{-74}$	$\chi_{6\mathrm{DF}}^2$	0.002	$0.044 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	0.14088	$0.1409^{+0.0032}_{-0.0031}$	$k_{\mathrm{eq}}$	0.010228	$0.01023^{+0.00023}_{-0.00023}$	$\chi_{\mathrm{MGS}}^2$	1.82	$1.87 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^3$	0.09605	$0.0960^{+0.0011}_{-0.0012}$	$100\theta_{\mathrm{eq}}$	0.8227	$0.823^{+0.014}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	3.39	$4.1 (\nu: 0.5)$
$\sigma_8$	0.8000	$0.799^{+0.021}_{-0.023}$	$100\theta_{\mathrm{s,eq}}$	0.4543	$0.4543^{+0.0074}_{-0.0072}$	$\chi_{\mathrm{prior}}^2$	1.5	$7.4 (\nu: 7.0)$
$S_8$	0.8041	$0.803^{+0.041}_{-0.040}$	$H(0.15)$	73.37	$73.3^{+1.3}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	1184.5	$1199.0 (\nu: 15.3)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4404	$0.440^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.15)$	636.5	$637^{+13}_{-13}$	$\chi_{\mathrm{BAO}}^2$	5.22	$6.0 (\nu: 0.6)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.5936	$0.593^{+0.022}_{-0.022}$	$H(0.38)$	83.33	$83.3^{+1.0}_{-0.97}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 1191.14$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 1212.35$ ;  $R - 1 = 0.01232$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 3.40 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.42 small\_100x143.offlike5\_EE\_Aplanck\_B: 395.68 comman-  
der\_dx12.v3.2.29: 22.20 plik\_rd12\_HM.v22\_TT: 757.15



### 3.51 base\_Alens\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00066}_{-0.00067}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.591^{+0.035}_{-0.035}$	$D_{\mathrm{M}}(0.15)$	$634^{+24}_{-23}$
$\Omega_{\mathrm{c}}h^2$	$0.1171^{+0.0062}_{-0.0060}$	$\sigma_8/h^{0.5}$	$0.965^{+0.049}_{-0.047}$	$H(0.38)$	$83.5^{+1.9}_{-1.7}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0013}_{-0.0013}$	$r_{\mathrm{drag}}h$	$101.3^{+5.0}_{-4.8}$	$D_{\mathrm{M}}(0.38)$	$1515^{+48}_{-48}$
$\tau$	$0.053^{+0.017}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	$2.479^{+0.077}_{-0.081}$	$H(0.51)$	$90.1^{+1.5}_{-1.4}$
$A_{\mathrm{L}}$	$1.08^{+0.13}_{-0.13}$	$z_{\mathrm{re}}$	$< 9.02$	$D_{\mathrm{M}}(0.51)$	$1964^{+56}_{-56}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.033^{+0.039}_{-0.029}$	$10^9 A_{\mathrm{s}}$	$2.076^{+0.083}_{-0.059}$	$H(0.61)$	$95.6^{+1.3}_{-1.1}$
$n_{\mathrm{s}}$	$0.971^{+0.018}_{-0.017}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.868^{+0.038}_{-0.037}$	$D_{\mathrm{M}}(0.61)$	$2287^{+60}_{-61}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0066}_{-0.0064}$	$D_{40}$	$1214^{+46}_{-42}$	$H(2.33)$	$234.7^{+3.7}_{-3.5}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{220}$	$5725^{+110}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5752^{+51}_{-55}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2529^{+37}_{-37}$	$f\sigma_8(0.15)$	$0.442^{+0.037}_{-0.035}$
$A_{143}^{\mathrm{tSZ}}$	$5.3^{+4.4}_{-4.8}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.739^{+0.021}_{-0.020}$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70}$	$D_{2000}$	$230.6^{+5.0}_{-4.7}$	$f\sigma_8(0.38)$	$0.463^{+0.029}_{-0.029}$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.971^{+0.018}_{-0.017}$	$\sigma_8(0.38)$	$0.657^{+0.016}_{-0.015}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24540^{+0.00027}_{-0.00030}$	$f\sigma_8(0.51)$	$0.463^{+0.025}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00028}_{-0.00030}$	$\sigma_8(0.51)$	$0.615^{+0.014}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.58^{+0.13}_{-0.12}$	$f\sigma_8(0.61)$	$0.459^{+0.022}_{-0.022}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.7}_{-4.7}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.77^{+0.11}_{-0.12}$	$\sigma_8(0.61)$	$0.586^{+0.013}_{-0.011}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.5}_{-4.5}$	$z_{*}$	$1089.6^{+1.3}_{-1.2}$	$f\sigma_8(2.33)$	$0.2958^{+0.0061}_{-0.0048}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.3}_{-8.5}$	$r_{*}$	$145.2^{+1.3}_{-1.3}$	$\sigma_8(2.33)$	$0.3056^{+0.0062}_{-0.0043}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$100\theta_{*}$	$1.0414^{+0.0013}_{-0.0013}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.94^{+0.12}_{-0.12}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-6}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.8^{+1.3}_{-1.3}$	$f_{2000}^{217}$	$106.9^{+5.3}_{-5.2}$
$H_0$	$68.5^{+2.9}_{-2.8}$	$r_{\mathrm{drag}}$	$147.8^{+1.3}_{-1.3}$	$\chi_{\mathrm{lensing}}^2$	$10.1 (\nu: 2.0)$
$\Omega_{\Lambda}$	$0.701^{+0.035}_{-0.038}$	$k_{\mathrm{D}}$	$0.1401^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.6)$
$\Omega_{\mathrm{m}}$	$0.299^{+0.038}_{-0.035}$	$100\theta_{\mathrm{D}}$	$0.16087^{+0.00074}_{-0.00069}$	$\chi_{\mathrm{lowl}}^2$	$22.3 (\nu: 0.7)$
$\Omega_{\mathrm{m}}h^2$	$0.1402^{+0.0057}_{-0.0056}$	$z_{\mathrm{eq}}$	$3334^{+140}_{-130}$	$\chi_{\mathrm{plik}}^2$	$770.4 (\nu: 15.6)$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0011}_{-0.0012}$	$k_{\mathrm{eq}}$	$0.01018^{+0.00042}_{-0.00041}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.8)$
$\sigma_8$	$0.799^{+0.025}_{-0.025}$	$100\theta_{\mathrm{eq}}$	$0.826^{+0.027}_{-0.026}$	$\chi_{\mathrm{CMB}}^2$	$1199.2 (\nu: 15.7)$
$S_8$	$0.798^{+0.072}_{-0.068}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.014}_{-0.013}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.437^{+0.039}_{-0.037}$	$H(0.15)$	$73.6^{+2.5}_{-2.4}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1206.48$ ;  $R - 1 = 0.00707$



### 3.52 base\_Alens\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02233^{+0.00052}_{-0.00054}$	$\sigma_8/h^{0.5}$	$0.971^{+0.030}_{-0.028}$	$D_{\mathrm{M}}(0.38)$	$1521^{+26}_{-26}$
$\Omega_{\mathrm{c}}h^2$	$0.1178^{+0.0033}_{-0.0032}$	$r_{\mathrm{drag}}h$	$100.7^{+2.6}_{-2.6}$	$H(0.51)$	$89.93^{+0.83}_{-0.81}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.477^{+0.078}_{-0.077}$	$D_{\mathrm{M}}(0.51)$	$1971^{+31}_{-31}$
$\tau$	$0.053^{+0.016}_{-0.011}$	$z_{\mathrm{re}}$	$< 9.01$	$H(0.61)$	$95.48^{+0.71}_{-0.70}$
$A_{\mathrm{L}}$	$1.063^{+0.095}_{-0.094}$	$10^9 A_{\mathrm{s}}$	$2.078^{+0.082}_{-0.055}$	$D_{\mathrm{M}}(0.61)$	$2295^{+33}_{-33}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.034^{+0.039}_{-0.027}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.871^{+0.030}_{-0.031}$	$H(2.33)$	$235.1^{+2.0}_{-2.0}$
$n_{\mathrm{s}}$	$0.969^{+0.011}_{-0.012}$	$D_{40}$	$1218^{+37}_{-33}$	$D_{\mathrm{M}}(2.33)$	$5758^{+34}_{-34}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0067}_{-0.0064}$	$D_{220}$	$5722^{+110}_{-110}$	$f\sigma_8(0.15)$	$0.447^{+0.021}_{-0.020}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{810}$	$2530^{+38}_{-37}$	$\sigma_8(0.15)$	$0.741^{+0.017}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$814^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.466^{+0.017}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$230.3^{+4.5}_{-4.4}$	$\sigma_8(0.38)$	$0.658^{+0.014}_{-0.011}$
$A_{100}^{\mathrm{PS}}$	$261^{+80}_{-70}$	$n_{\mathrm{s},0.002}$	$0.969^{+0.011}_{-0.012}$	$f\sigma_8(0.51)$	$0.466^{+0.015}_{-0.014}$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24538^{+0.00020}_{-0.00025}$	$\sigma_8(0.51)$	$0.616^{+0.013}_{-0.0098}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00020}_{-0.00025}$	$f\sigma_8(0.61)$	$0.462^{+0.014}_{-0.013}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.59^{+0.10}_{-0.094}$	$\sigma_8(0.61)$	$0.587^{+0.012}_{-0.0091}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.786^{+0.078}_{-0.076}$	$f\sigma_8(2.33)$	$0.2961^{+0.0059}_{-0.0042}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.9}_{-4.7}$	$z_*$	$1089.78^{+0.82}_{-0.79}$	$\sigma_8(2.33)$	$0.3056^{+0.0062}_{-0.0042}$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.5}_{-4.3}$	$r_*$	$145.02^{+0.82}_{-0.80}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.5}_{-8.6}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.927^{+0.080}_{-0.078}$	$f_{2000}^{217}$	$107.2^{+4.8}_{-5.0}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.7^{+1.1}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$10.1 (\nu: 2.0)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.71^{+0.88}_{-0.84}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.6)$
$H_0$	$68.1^{+1.5}_{-1.5}$	$k_{\mathrm{D}}$	$0.1402^{+0.0010}_{-0.0011}$	$\chi_{\mathrm{lowl}}^2$	$22.50 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.697^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16091^{+0.00069}_{-0.00063}$	$\chi_{\mathrm{plik}}^2$	$769.6 (\nu: 14.6)$
$\Omega_{\mathrm{m}}$	$0.303^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3350^{+75}_{-73}$	$\chi_{6\mathrm{DF}}^2$	$0.045 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1408^{+0.0031}_{-0.0031}$	$k_{\mathrm{eq}}$	$0.01022^{+0.00023}_{-0.00022}$	$\chi_{\mathrm{MGS}}^2$	$1.88 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0011}_{-0.0012}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.014}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.07 (\nu: 0.5)$
$\sigma_8$	$0.801^{+0.019}_{-0.016}$	$100\theta_{\mathrm{s,eq}}$	$0.4544^{+0.0073}_{-0.0072}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 7.1)$
$S_8$	$0.806^{+0.040}_{-0.039}$	$H(0.15)$	$73.3^{+1.3}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$1198.7 (\nu: 15.1)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.441^{+0.022}_{-0.021}$	$D_{\mathrm{M}}(0.15)$	$637^{+13}_{-13}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.595^{+0.021}_{-0.020}$	$H(0.38)$	$83.3^{+1.0}_{-0.98}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1212.01; R - 1 = 0.01863$$



### 3.53 base\_Alens\_plikHM\_TTTEEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022553	$0.02251^{+0.00044}_{-0.00043}$ ( $+0.5\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09641	$0.09637^{+0.00075}_{-0.00074}$ ( $+0.8\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4536	$0.4532^{+0.0086}_{-0.0083}$ ( $-0.5\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11803	$0.1182^{+0.0038}_{-0.0038}$ ( $+0.4\sigma$ )	$\sigma_8$	0.8008	$0.800^{+0.021}_{-0.024}$ ( $+0.3\sigma$ )	$H(0.15)$	73.46	$73.4^{+1.6}_{-1.5}$ ( $-0.3\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04111	$1.04110^{+0.00080}_{-0.00085}$ ( $-0.2\sigma$ )	$S_8$	0.8049	$0.806^{+0.047}_{-0.047}$ ( $+0.4\sigma$ )	$D_{\mathrm{M}}(0.15)$	635.7	$637^{+15}_{-15}$ ( $+0.3\sigma$ )
$\tau$	0.0506	$0.049^{+0.021}_{-0.026}$ ( $-0.1\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4409	$0.441^{+0.026}_{-0.026}$ ( $+0.4\sigma$ )	$H(0.38)$	83.43	$83.4^{+1.2}_{-1.1}$ ( $-0.2\sigma$ )
$A_{\mathrm{L}}$	1.075	$1.07^{+0.11}_{-0.098}$ ( $-0.2\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.5942	$0.594^{+0.024}_{-0.025}$ ( $+0.4\sigma$ )	$D_{\mathrm{M}}(0.38)$	1518.0	$1520^{+30}_{-30}$ ( $+0.2\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0314	$3.029^{+0.043}_{-0.051}$ ( $+0.1\sigma$ )	$\sigma_8/h^{0.5}$	0.9692	$0.969^{+0.034}_{-0.036}$ ( $+0.3\sigma$ )	$H(0.51)$	90.07	$90.01^{+0.93}_{-0.86}$ ( $-0.1\sigma$ )
$n_{\mathrm{s}}$	0.9718	$0.970^{+0.012}_{-0.012}$ ( $-0.2\sigma$ )	$r_{\mathrm{drag}}h$	100.63	$100.5^{+3.1}_{-3.0}$ ( $-0.4\sigma$ )	$D_{\mathrm{M}}(0.51)$	1967.8	$1970^{+35}_{-36}$ ( $+0.2\sigma$ )
$y_{\mathrm{cal}}$	0.99996	$1.0001^{+0.0063}_{-0.0065}$ ( $-0.0\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.483	$2.482^{+0.076}_{-0.077}$ ( $+0.1\sigma$ )	$H(0.61)$	95.63	$95.58^{+0.75}_{-0.69}$ ( $-0.1\sigma$ )
$A_{217}^{\mathrm{CIB}}$	44.2	$46^{+20}_{-20}$ ( $-0.1\sigma$ )	$z_{\mathrm{re}}$	7.23	$7.1^{+2.0}_{-2.9}$ ( $-0.1\sigma$ )	$D_{\mathrm{M}}(0.61)$	2290.9	$2293^{+38}_{-39}$ ( $+0.2\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.83	—	$10^9 A_{\mathrm{s}}$	2.073	$2.067^{+0.090}_{-0.10}$ ( $+0.1\sigma$ )	$H(2.33)$	235.46	$235.6^{+2.2}_{-2.2}$ ( $+0.6\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.00	$> 1.03$ ( $+0.2\sigma$ )	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8733	$1.874^{+0.030}_{-0.030}$ ( $+0.4\sigma$ )	$D_{\mathrm{M}}(2.33)$	5748.6	$5751^{+32}_{-33}$ ( $-0.1\sigma$ )
$A_{100}^{\mathrm{PS}}$	244	$255^{+70}_{-70}$ ( $-0.2\sigma$ )	$D_{40}$	1213.7	$1219^{+35}_{-35}$ ( $+0.3\sigma$ )	$f\sigma_8(0.15)$	0.4461	$0.446^{+0.024}_{-0.024}$ ( $+0.4\sigma$ )
$A_{143}^{\mathrm{PS}}$	50.3	$44^{+20}_{-20}$ ( $-0.3\sigma$ )	$D_{220}$	5730	$5735^{+100}_{-98}$ ( $+0.2\sigma$ )	$\sigma_8(0.15)$	0.7408	$0.740^{+0.019}_{-0.021}$ ( $+0.3\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	55.3	$42^{+20}_{-20}$ ( $-0.1\sigma$ )	$D_{810}$	2535.0	$2533^{+35}_{-35}$ ( $+0.3\sigma$ )	$f\sigma_8(0.38)$	0.4661	$0.466^{+0.020}_{-0.021}$ ( $+0.4\sigma$ )
$A_{217}^{\mathrm{PS}}$	122.8	$115^{+30}_{-30}$ ( $+0.1\sigma$ )	$D_{1420}$	818.0	$816^{+12}_{-13}$ ( $+0.4\sigma$ )	$\sigma_8(0.38)$	0.6576	$0.657^{+0.016}_{-0.018}$ ( $+0.3\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	232.01	$231.3^{+4.1}_{-4.3}$ ( $+0.4\sigma$ )	$f\sigma_8(0.51)$	0.4657	$0.465^{+0.017}_{-0.019}$ ( $+0.4\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.82	$8.9^{+4.9}_{-4.8}$ ( $-0.0\sigma$ )	$n_{\mathrm{s},0.002}$	0.9718	$0.970^{+0.012}_{-0.012}$ ( $-0.2\sigma$ )	$\sigma_8(0.51)$	0.6158	$0.615^{+0.014}_{-0.016}$ ( $+0.2\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.02	$10.9^{+4.7}_{-4.6}$ ( $+0.1\sigma$ )	$Y_{\mathrm{P}}$	0.245463	$0.24545^{+0.00018}_{-0.00017}$ ( $+0.5\sigma$ )	$f\sigma_8(0.61)$	0.4614	$0.461^{+0.016}_{-0.017}$ ( $+0.4\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.2	$18.5^{+8.4}_{-8.6}$ ( $+0.1\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246790	$0.24678^{+0.00018}_{-0.00017}$ ( $+0.5\sigma$ )	$\sigma_8(0.61)$	0.5862	$0.585^{+0.013}_{-0.015}$ ( $+0.2\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.7	$94^{+20}_{-20}$ ( $+0.0\sigma$ )	$10^5 \mathrm{D}/\mathrm{H}$	2.553	$2.560^{+0.080}_{-0.079}$ ( $-0.5\sigma$ )	$f\sigma_8(2.33)$	0.2959	$0.2953^{+0.0066}_{-0.0076}$ ( $+0.2\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.114^{+0.10}_{-0.095}$	Age/Gyr	13.765	$13.770^{+0.070}_{-0.072}$ ( $-0.1\sigma$ )	$\sigma_8(2.33)$	0.3054	$0.3048^{+0.0067}_{-0.0077}$ ( $+0.1\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.134	$0.135^{+0.074}_{-0.075}$	$z_*$	1089.52	$1089.59^{+0.80}_{-0.81}$ ( $-0.1\sigma$ )	$f_{2000}^{143}$	27.2	$28^{+7}_{-7}$ ( $-0.4\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.480	$0.48^{+0.21}_{-0.22}$	$r_*$	144.80	$144.78^{+0.81}_{-0.81}$ ( $-0.7\sigma$ )	$f_{2000}^{143 \times 217}$	30.80	$31^{+5}_{-5}$ ( $-0.5\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04128	$1.04128^{+0.00079}_{-0.00083}$ ( $-0.2\sigma$ )	$f_{2000}^{217}$	105.36	$106.2^{+4.9}_{-4.7}$ ( $-0.4\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.661	$0.66^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.906	$13.904^{+0.074}_{-0.075}$ ( $-0.7\sigma$ )	$\chi_{\mathrm{lensing}}^2$	10.2	$10.5 (\nu: 2.4)$ ( $+0.2\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.06	$2.06^{+0.68}_{-0.68}$	$z_{\mathrm{drag}}$	1060.20	$1060.14^{+0.86}_{-0.82}$ ( $+0.7\sigma$ )	$\chi_{\mathrm{small}}^2$	395.66	$396.8 (\nu: 1.2)$ ( $+0.0\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ ( $+0.1\sigma$ )	$r_{\mathrm{drag}}$	147.41	$147.40^{+0.76}_{-0.78}$ ( $-0.8\sigma$ )	$\chi_{\mathrm{lowl}}^2$	22.06	$22.46 (\nu: 0.4)$ ( $+0.2\sigma$ )
$c_{217}$	0.99815	$0.9982^{+0.0016}_{-0.0016}$ ( $-0.1\sigma$ )	$k_{\mathrm{D}}$	0.14067	$0.14065^{+0.00079}_{-0.00077}$ ( $+1.1\sigma$ )	$\chi_{\mathrm{plik}}^2$	2341.8	$2357.1 (\nu: 17.7)$ ( $+286.3\sigma$ )
$H_0$	68.27	$68.2^{+1.8}_{-1.7}$ ( $-0.3\sigma$ )	$100\theta_{\mathrm{D}}$	0.160601	$0.16065^{+0.00047}_{-0.00047}$ ( $-0.8\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.5	$11.5 (\nu: 10.2)$ ( $+1.2\sigma$ )
$\Omega_{\Lambda}$	0.6969	$0.695^{+0.023}_{-0.024}$ ( $-0.3\sigma$ )	$z_{\mathrm{eq}}$	3360	$3364^{+85}_{-84}$ ( $+0.5\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2769.7	$2786.9 (\nu: 17.8)$ ( $+281.2\sigma$ )
$\Omega_{\mathrm{m}}$	0.3031	$0.305^{+0.024}_{-0.023}$ ( $+0.3\sigma$ )	$k_{\mathrm{eq}}$	0.010254	$0.01027^{+0.00026}_{-0.00026}$ ( $+0.5\sigma$ )			
$\Omega_{\mathrm{m}}h^2$	0.14123	$0.1414^{+0.0035}_{-0.0035}$ ( $+0.5\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8217	$0.821^{+0.017}_{-0.016}$ ( $-0.5\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2771.20$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.40$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2798.40$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.57$ ;  $R - 1 = 0.01801$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp-p.teb.consext8: 10.18 ( $\Delta$  0.86) simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.66 ( $\Delta$  -0.00) commander\_dx12\_v3\_2\_29: 22.06 ( $\Delta$  0.31) plik\_rd12\_HM\_v22b\_TTTEEE: 2341.85



### 3.54 base\_Alens\_plikHM\_TTTEE\_lowl\_lowE\_lensing\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022543	$0.02251^{+0.00036}_{-0.00036}$ (+0.9 $\sigma$ )	$\sigma_8$	0.8002	$0.800^{+0.020}_{-0.022}$ (+0.1 $\sigma$ )	$D_M(0.15)$	636.5	$637^{+11}_{-11}$ (−0.0 $\sigma$ )
$\Omega_c h^2$	0.11826	$0.1183^{+0.0027}_{-0.0028}$ (+0.3 $\sigma$ )	$S_8$	0.8060	$0.806^{+0.036}_{-0.035}$ (+0.2 $\sigma$ )	$H(0.38)$	83.37	$83.36^{+0.85}_{-0.79}$ (+0.2 $\sigma$ )
$100\theta_{MC}$	1.04109	$1.04111^{+0.00074}_{-0.00077}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4415	$0.442^{+0.020}_{-0.019}$ (+0.2 $\sigma$ )	$D_M(0.38)$	1519.7	$1520^{+21}_{-22}$ (−0.1 $\sigma$ )
$\tau$	0.0492	$0.049^{+0.020}_{-0.025}$ (−0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.5943	$0.594^{+0.020}_{-0.020}$ (+0.2 $\sigma$ )	$H(0.51)$	90.02	$90.01^{+0.67}_{-0.63}$ (+0.3 $\sigma$ )
$A_L$	1.072	$1.071^{+0.094}_{-0.087}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9692	$0.969^{+0.029}_{-0.030}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1969.7	$1970^{+25}_{-26}$ (−0.1 $\sigma$ )
$\ln(10^{10} A_s)$	3.0288	$3.029^{+0.043}_{-0.052}$ (+0.1 $\sigma$ )	$r_{drag} h$	100.45	$100.4^{+2.2}_{-2.1}$ (−0.2 $\sigma$ )	$H(0.61)$	95.59	$95.57^{+0.56}_{-0.52}$ (+0.4 $\sigma$ )
$n_s$	0.9704	$0.969^{+0.010}_{-0.010}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.482	$2.482^{+0.076}_{-0.077}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2293.0	$2294^{+27}_{-28}$ (−0.1 $\sigma$ )
$y_{cal}$	0.9998	$1.0001^{+0.0066}_{-0.0066}$ (+0.0 $\sigma$ )	$z_{re}$	7.09	$7.1^{+2.0}_{-2.9}$ (−0.0 $\sigma$ )	$H(2.33)$	235.60	$235.6^{+1.6}_{-1.6}$ (+0.5 $\sigma$ )
$A_{217}^{CIB}$	45.8	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.067	$2.068^{+0.090}_{-0.10}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5750.0	$5751^{+24}_{-25}$ (−0.5 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.62	—	$10^9 A_s e^{-2\tau}$	1.8735	$1.874^{+0.027}_{-0.028}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4466	$0.447^{+0.019}_{-0.018}$ (+0.2 $\sigma$ )
$A_{143}^{tSZ}$	7.17	$> 0.956$ (+0.2 $\sigma$ )	$D_{40}$	1216.2	$1219^{+32}_{-31}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7401	$0.740^{+0.018}_{-0.020}$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	246	$255^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5732	$5735^{+97}_{-96}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4662	$0.466^{+0.016}_{-0.016}$ (+0.2 $\sigma$ )
$A_{143}^{PS}$	48.0	$44^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2533.8	$2534^{+34}_{-35}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6568	$0.657^{+0.015}_{-0.018}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	50.9	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	817.1	$817^{+12}_{-13}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4657	$0.466^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )
$A_{217}^{PS}$	120.4	$115^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{2000}$	231.65	$231.3^{+3.9}_{-4.2}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6150	$0.615^{+0.014}_{-0.016}$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9704	$0.969^{+0.010}_{-0.010}$ (+0.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4613	$0.461^{+0.013}_{-0.014}$ (+0.2 $\sigma$ )
$A_{100}^{dustTT}$	8.88	$8.9^{+5.0}_{-4.9}$ (−0.0 $\sigma$ )	$Y_P$	0.245460	$0.24545^{+0.00014}_{-0.00014}$ (+0.8 $\sigma$ )	$\sigma_8(0.61)$	0.5854	$0.585^{+0.013}_{-0.015}$ (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	11.03	$10.9^{+4.6}_{-4.8}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246786	$0.24677^{+0.00014}_{-0.00014}$ (+0.8 $\sigma$ )	$f\sigma_8(2.33)$	0.2954	$0.2954^{+0.0067}_{-0.0076}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.9	$18.5^{+8.4}_{-8.9}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.554	$2.560^{+0.066}_{-0.065}$ (−0.9 $\sigma$ )	$\sigma_8(2.33)$	0.3049	$0.3048^{+0.0068}_{-0.0078}$ (+0.1 $\sigma$ )
$A_{217}^{dustTT}$	95.2	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.768	$13.770^{+0.054}_{-0.057}$ (−0.5 $\sigma$ )	$f_{2000}^{143}$	27.7	$28^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.113^{+0.099}_{-0.096}$	$z_*$	1089.55	$1089.59^{+0.60}_{-0.61}$ (−0.6 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.14	$31^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.134^{+0.078}_{-0.080}$	$r_*$	144.75	$144.77^{+0.62}_{-0.61}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	105.65	$106.2^{+4.7}_{-4.6}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.479	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04126	$1.04128^{+0.00072}_{-0.00076}$ (−0.0 $\sigma$ )	$\chi^2_{lensing}$	9.99	$10.5$ ( $\nu$ : 2.4) (+0.2 $\sigma$ )
$A_{143}^{dustTE}$	0.222	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.902	$13.904^{+0.059}_{-0.058}$ (−0.7 $\sigma$ )	$\chi^2_{small}$	395.70	$396.8$ ( $\nu$ : 1.2) (−0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.662	$0.66^{+0.20}_{-0.21}$	$z_{drag}$	1060.20	$1060.14^{+0.75}_{-0.78}$ (+1.0 $\sigma$ )	$\chi^2_{lowl}$	22.25	$22.46$ ( $\nu$ : 0.3) (+0.0 $\sigma$ )
$A_{217}^{dustTE}$	2.07	$2.06^{+0.68}_{-0.67}$	$r_{drag}$	147.36	$147.40^{+0.63}_{-0.62}$ (−0.9 $\sigma$ )	$\chi^2_{plik}$	2341.7	$2356.5$ ( $\nu$ : 17.1) (+296.3 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14071	$0.14065^{+0.00071}_{-0.00073}$ (+1.1 $\sigma$ )	$\chi^2_{6DF}$	0.000	$0.029$ ( $\nu$ : 0.0) (−0.2 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160604	$0.16065^{+0.00043}_{-0.00043}$ (−1.0 $\sigma$ )	$\chi^2_{MGS}$	1.68	$1.74$ ( $\nu$ : 0.1) (−0.2 $\sigma$ )
$H_0$	68.17	$68.1^{+1.3}_{-1.2}$ (+0.0 $\sigma$ )	$z_{eq}$	3365	$3364^{+61}_{-62}$ (+0.5 $\sigma$ )	$\chi^2_{DR12BAO}$	3.53	$3.98$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$\Omega_\Lambda$	0.6956	$0.695^{+0.016}_{-0.017}$ (−0.1 $\sigma$ )	$k_{eq}$	0.010270	$0.01027^{+0.00019}_{-0.00019}$ (+0.5 $\sigma$ )	$\chi^2_{prior}$	1.6	$11.6$ ( $\nu$ : 10.1) (+1.1 $\sigma$ )
$\Omega_m$	0.3044	$0.305^{+0.017}_{-0.016}$ (+0.1 $\sigma$ )	$100\theta_{eq}$	0.8207	$0.821^{+0.012}_{-0.012}$ (−0.4 $\sigma$ )	$\chi^2_{CMB}$	2769.6	$2786.3$ ( $\nu$ : 17.1) (+286.8 $\sigma$ )
$\Omega_m h^2$	0.14145	$0.1414^{+0.0026}_{-0.0026}$ (+0.5 $\sigma$ )	$100\theta_{s,eq}$	0.4531	$0.4532^{+0.0061}_{-0.0059}$ (−0.4 $\sigma$ )	$\chi^2_{BAO}$	5.20	$5.75$ ( $\nu$ : 0.3) (−0.2 $\sigma$ )
$\Omega_m h^3$	0.09642	$0.09637^{+0.00076}_{-0.00070}$ (+0.9 $\sigma$ )	$H(0.15)$	73.38	$73.4^{+1.1}_{-1.1}$ (+0.1 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 2776.44$ ;  $\Delta\chi^2_{eff} = 1585.30$ ;  $\bar{\chi}^2_{eff} = 2803.67$ ;  $\Delta\bar{\chi}^2_{eff} = 1591.32$ ;  $R - 1 = 0.02408$

$\chi^2_{eff}$ : BAO - 6DF: 0.00 ( $\Delta$  -0.00) MGS: 1.68 ( $\Delta$  -0.14) DR12BAO: 3.53 ( $\Delta$  0.13) CMB - smicadx12.Dec5.ftl\_mv2.ndclpp\_p.teb.consext8: 9.99 ( $\Delta$  0.57) simall\_100x143\_offlike5\_EE\_Aplanck 395.70 ( $\Delta$  0.02) commander\_dx12.v3.2.29: 22.25 ( $\Delta$  0.05) plik\_rd12\_HM.v22b\_TTTEE: 2341.65



### 3.55 base\_Alens\_plikHM\_TTTEE\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02252^{+0.00044}_{-0.00043} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09637^{+0.00074}_{-0.00077} \quad (+0.8\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4533^{+0.0084}_{-0.0083} \quad (-0.5\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1182^{+0.0038}_{-0.0038} \quad (+0.4\sigma)$	$\sigma_8$	$0.802^{+0.020}_{-0.018} \quad (+0.4\sigma)$	$H(0.15)$	$73.4^{+1.6}_{-1.5} \quad (-0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04111^{+0.00080}_{-0.00086} \quad (-0.2\sigma)$	$S_8$	$0.808^{+0.047}_{-0.046} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$636^{+15}_{-15} \quad (+0.3\sigma)$
$\tau$	$0.053^{+0.016}_{-0.010} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.443^{+0.026}_{-0.025} \quad (+0.4\sigma)$	$H(0.38)$	$83.4^{+1.2}_{-1.1} \quad (-0.2\sigma)$
$A_{\mathrm{L}}$	$1.06^{+0.10}_{-0.096} \quad (-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.596^{+0.023}_{-0.023} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1520^{+30}_{-30} \quad (+0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.035^{+0.037}_{-0.027} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.972^{+0.033}_{-0.032} \quad (+0.3\sigma)$	$H(0.51)$	$90.02^{+0.92}_{-0.86} \quad (-0.1\sigma)$
$n_{\mathrm{s}}$	$0.970^{+0.012}_{-0.012} \quad (-0.2\sigma)$	$r_{\mathrm{drag}}h$	$100.5^{+3.1}_{-3.0} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1970^{+35}_{-36} \quad (+0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0001^{+0.0064}_{-0.0064} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.482^{+0.078}_{-0.076} \quad (+0.1\sigma)$	$H(0.61)$	$95.59^{+0.74}_{-0.70} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$< 8.98 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2293^{+37}_{-38} \quad (+0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.081^{+0.079}_{-0.056} \quad (+0.2\sigma)$	$H(2.33)$	$235.5^{+2.2}_{-2.2} \quad (+0.6\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.6^{+4.4}_{-4.6} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.873^{+0.030}_{-0.030} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(2.33)$	$5750^{+32}_{-33} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$255^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1219^{+35}_{-35} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.448^{+0.024}_{-0.023} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$44^{+20}_{-20} \quad (-0.3\sigma)$	$D_{220}$	$5734^{+100}_{-99} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.742^{+0.017}_{-0.015} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$41^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2533^{+35}_{-35} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.467^{+0.019}_{-0.019} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.1\sigma)$	$D_{1420}$	$816^{+12}_{-13} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.659^{+0.014}_{-0.012} \quad (+0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.4^{+4.1}_{-4.2} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.467^{+0.017}_{-0.017} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.9}_{-4.8} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.970^{+0.012}_{-0.012} \quad (-0.2\sigma)$	$\sigma_8(0.51)$	$0.617^{+0.013}_{-0.010} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.7}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24545^{+0.00018}_{-0.00017} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	$0.463^{+0.015}_{-0.015} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.5^{+8.4}_{-8.4} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24678^{+0.00018}_{-0.00017} \quad (+0.5\sigma)$	$\sigma_8(0.61)$	$0.587^{+0.012}_{-0.0094} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.559^{+0.080}_{-0.079} \quad (-0.5\sigma)$	$f\sigma_8(2.33)$	$0.2963^{+0.0058}_{-0.0043} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.113^{+0.10}_{-0.096}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.769^{+0.071}_{-0.071} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.3058^{+0.0061}_{-0.0042} \quad (+0.1\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.074}_{-0.075}$	$z_*$	$1089.58^{+0.80}_{-0.80} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$28^{+7}_{-7} \quad (-0.4\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.21}$	$r_*$	$144.79^{+0.80}_{-0.82} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$100\theta_*$	$1.04128^{+0.00079}_{-0.00083} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.1^{+4.9}_{-4.7} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.905^{+0.074}_{-0.075} \quad (-0.7\sigma)$	$\chi_{\mathrm{lensing}}^2$	$10.5 \quad (\nu: 2.4) \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.06^{+0.68}_{-0.68}$	$z_{\mathrm{drag}}$	$1060.15^{+0.85}_{-0.83} \quad (+0.7\sigma)$	$\chi_{\mathrm{small}}^2$	$396.4 \quad (\nu: 0.6) \quad (-0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.41^{+0.76}_{-0.78} \quad (-0.9\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.51 \quad (\nu: 0.4) \quad (+0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14064^{+0.00080}_{-0.00078} \quad (+1.1\sigma)$	$\chi_{\mathrm{plik}}^2$	$2357.1 \quad (\nu: 17.7) \quad (+284.0\sigma)$
$H_0$	$68.2^{+1.8}_{-1.7} \quad (-0.3\sigma)$	$100\theta_{\mathrm{D}}$	$0.16064^{+0.00047}_{-0.00047} \quad (-0.8\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.3) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.696^{+0.022}_{-0.024} \quad (-0.4\sigma)$	$z_{\mathrm{eq}}$	$3362^{+85}_{-83} \quad (+0.5\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2786.4 \quad (\nu: 17.2) \quad (+283.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.024}_{-0.022} \quad (+0.4\sigma)$	$k_{\mathrm{eq}}$	$0.01026^{+0.00026}_{-0.00025} \quad (+0.5\sigma)$		
$\Omega_{\mathrm{m}}h^2$	$0.1414^{+0.0035}_{-0.0035} \quad (+0.5\sigma)$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.017}_{-0.016} \quad (-0.5\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2797.97; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.49; R - 1 = 0.02423$$



### 3.56 base\_Alens\_plikHM\_TTTEE\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02251^{+0.00036}_{-0.00036} \quad (+0.9\sigma)$	$\sigma_8$	$0.803^{+0.018}_{-0.016} \quad (+0.2\sigma)$	$D_M(0.15)$	$637^{+11}_{-11} \quad (-0.0\sigma)$
$\Omega_c h^2$	$0.1182^{+0.0027}_{-0.0027} \quad (+0.3\sigma)$	$S_8$	$0.809^{+0.034}_{-0.034} \quad (+0.2\sigma)$	$H(0.38)$	$83.36^{+0.84}_{-0.79} \quad (+0.2\sigma)$
$100\theta_{MC}$	$1.04110^{+0.00074}_{-0.00079} \quad (+0.0\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.443^{+0.019}_{-0.019} \quad (+0.2\sigma)$	$D_M(0.38)$	$1520^{+21}_{-22} \quad (-0.1\sigma)$
$\tau$	$0.053^{+0.016}_{-0.010} \quad (+0.0\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.596^{+0.019}_{-0.018} \quad (+0.2\sigma)$	$H(0.51)$	$90.01^{+0.68}_{-0.63} \quad (+0.3\sigma)$
$A_L$	$1.064^{+0.092}_{-0.087} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.972^{+0.027}_{-0.026} \quad (+0.1\sigma)$	$D_M(0.51)$	$1970^{+25}_{-26} \quad (-0.1\sigma)$
$\ln(10^{10} A_s)$	$3.036^{+0.038}_{-0.027} \quad (+0.1\sigma)$	$r_{drag} h$	$100.5^{+2.2}_{-2.1} \quad (-0.2\sigma)$	$H(0.61)$	$95.58^{+0.56}_{-0.52} \quad (+0.4\sigma)$
$n_s$	$0.9696^{+0.0099}_{-0.010} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.482^{+0.076}_{-0.076} \quad (+0.2\sigma)$	$D_M(0.61)$	$2293^{+27}_{-28} \quad (-0.1\sigma)$
$y_{cal}$	$1.0001^{+0.0067}_{-0.0062} \quad (+0.0\sigma)$	$z_{re}$	$< 8.97 \quad (-0.1\sigma)$	$H(2.33)$	$235.6^{+1.6}_{-1.6} \quad (+0.6\sigma)$
$A_{217}^{CIB}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s$	$2.082^{+0.080}_{-0.055} \quad (+0.1\sigma)$	$D_M(2.33)$	$5751^{+24}_{-25} \quad (-0.5\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s e^{-2\tau}$	$1.874^{+0.027}_{-0.028} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.448^{+0.018}_{-0.018} \quad (+0.2\sigma)$
$A_{143}^{tSZ}$	$5.6^{+4.1}_{-5.0} \quad (+0.2\sigma)$	$D_{40}$	$1219^{+32}_{-31} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.742^{+0.016}_{-0.013} \quad (+0.2\sigma)$
$A_{100}^{PS}$	$255^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5735^{+98}_{-97} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.468^{+0.015}_{-0.015} \quad (+0.2\sigma)$
$A_{143}^{PS}$	$44^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2533^{+34}_{-35} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.659^{+0.014}_{-0.011} \quad (+0.2\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.467^{+0.014}_{-0.013} \quad (+0.2\sigma)$
$A_{217}^{PS}$	$115^{+20}_{-30} \quad (+0.1\sigma)$	$D_{2000}$	$231.4^{+4.0}_{-4.2} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.617^{+0.013}_{-0.0094} \quad (+0.2\sigma)$
$A^{kSZ}$	—	$n_{s,0.002}$	$0.9696^{+0.0099}_{-0.010} \quad (+0.1\sigma)$	$f\sigma_8(0.61)$	$0.463^{+0.013}_{-0.012} \quad (+0.2\sigma)$
$A_{100}^{dustTT}$	$9.0^{+4.9}_{-4.8} \quad (-0.0\sigma)$	$Y_P$	$0.24545^{+0.00014}_{-0.00014} \quad (+0.9\sigma)$	$\sigma_8(0.61)$	$0.587^{+0.012}_{-0.0087} \quad (+0.2\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.7}_{-4.7} \quad (+0.1\sigma)$	$Y_P^{BBN}$	$0.24677^{+0.00014}_{-0.00014} \quad (+0.9\sigma)$	$f\sigma_8(2.33)$	$0.2964^{+0.0059}_{-0.0041} \quad (+0.1\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.5^{+8.6}_{-8.4} \quad (+0.1\sigma)$	$10^5 D/H$	$2.560^{+0.067}_{-0.065} \quad (-0.9\sigma)$	$\sigma_8(2.33)$	$0.3059^{+0.0060}_{-0.0042} \quad (+0.1\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	Age/Gyr	$13.770^{+0.055}_{-0.057} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$28^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100}^{dustTE}$	$0.113^{+0.096}_{-0.097}$	$z_*$	$1089.59^{+0.61}_{-0.62} \quad (-0.6\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.134^{+0.078}_{-0.077}$	$r_*$	$144.78^{+0.63}_{-0.61} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.2^{+4.7}_{-4.5} \quad (-0.5\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	$1.04128^{+0.00072}_{-0.00079} \quad (-0.0\sigma)$	$\chi_{lensing}^2$	$10.5 \quad (\nu: 2.5) \quad (+0.2\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.15}_{-0.13}$	$D_M(z_*)/\text{Gpc}$	$13.904^{+0.059}_{-0.057} \quad (-0.8\sigma)$	$\chi_{small}^2$	$396.4 \quad (\nu: 0.6) \quad (-0.0\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.20}_{-0.20}$	$z_{drag}$	$1060.14^{+0.75}_{-0.78} \quad (+1.0\sigma)$	$\chi_{lowl}^2$	$22.52 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$A_{217}^{dustTE}$	$2.06^{+0.70}_{-0.67}$	$r_{drag}$	$147.40^{+0.64}_{-0.62} \quad (-0.9\sigma)$	$\chi_{plik}^2$	$2356.5 \quad (\nu: 17.0) \quad (+293.9\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_D$	$0.14065^{+0.00070}_{-0.00074} \quad (+1.1\sigma)$	$\chi_{6DF}^2$	$0.030 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_D$	$0.16065^{+0.00043}_{-0.00043} \quad (-1.0\sigma)$	$\chi_{MGS}^2$	$1.75 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$H_0$	$68.2^{+1.3}_{-1.2} \quad (+0.0\sigma)$	$z_{eq}$	$3363^{+61}_{-62} \quad (+0.5\sigma)$	$\chi_{DR12BAO}^2$	$3.98 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$\Omega_\Lambda$	$0.696^{+0.016}_{-0.017} \quad (-0.1\sigma)$	$k_{eq}$	$0.01027^{+0.00019}_{-0.00019} \quad (+0.5\sigma)$	$\chi_{prior}^2$	$11.6 \quad (\nu: 10.1) \quad (+1.1\sigma)$
$\Omega_m$	$0.304^{+0.017}_{-0.016} \quad (+0.1\sigma)$	$100\theta_{eq}$	$0.821^{+0.012}_{-0.012} \quad (-0.4\sigma)$	$\chi_{CMB}^2$	$2785.9 \quad (\nu: 16.5) \quad (+289.3\sigma)$
$\Omega_m h^2$	$0.1414^{+0.0026}_{-0.0026} \quad (+0.5\sigma)$	$100\theta_{s,eq}$	$0.4532^{+0.0061}_{-0.0059} \quad (-0.4\sigma)$	$\chi_{BAO}^2$	$5.75 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$\Omega_m h^3$	$0.09637^{+0.00072}_{-0.00073} \quad (+0.9\sigma)$	$H(0.15)$	$73.4^{+1.1}_{-1.1} \quad (+0.1\sigma)$		

$$\bar{\chi}_{eff}^2 = 2803.19; \Delta \bar{\chi}_{eff}^2 = 1591.19; R - 1 = 0.03248$$



### 3.57 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022439	$0.02243^{+0.00049}_{-0.00045}$	$S_8$	0.8055	$0.805^{+0.048}_{-0.048}$	$H(0.15)$	73.34	$73.3^{+1.6}_{-1.6}$
$\Omega_c h^2$	0.11807	$0.1182^{+0.0040}_{-0.0040}$	$\sigma_8 \Omega_m^{0.5}$	0.4412	$0.441^{+0.026}_{-0.026}$	$D_M(0.15)$	636.8	$637^{+16}_{-16}$
$100\theta_{MC}$	1.04105	$1.04104^{+0.00084}_{-0.00086}$	$\sigma_8 \Omega_m^{0.25}$	0.5941	$0.594^{+0.024}_{-0.026}$	$H(0.38)$	83.32	$83.3^{+1.2}_{-1.1}$
$\tau$	0.0504	$0.049^{+0.020}_{-0.025}$	$\sigma_8/h^{0.5}$	0.9693	$0.969^{+0.035}_{-0.036}$	$D_M(0.38)$	1520.5	$1521^{+31}_{-32}$
$A_L$	1.062	$1.06^{+0.11}_{-0.10}$	$r_{\text{drag}} h$	100.52	$100.5^{+3.3}_{-3.1}$	$H(0.51)$	89.96	$89.94^{+0.97}_{-0.90}$
$\ln(10^{10} A_s)$	3.0296	$3.027^{+0.042}_{-0.050}$	$\langle d^2 \rangle^{1/2}$	2.472	$2.471^{+0.078}_{-0.077}$	$D_M(0.51)$	1970.8	$1972^{+36}_{-37}$
$n_s$	0.9700	$0.970^{+0.013}_{-0.013}$	$z_{\text{re}}$	7.24	$7.1^{+1.9}_{-2.9}$	$H(0.61)$	95.52	$95.51^{+0.80}_{-0.72}$
$y_{\text{cal}}$	1.0000	$1.0000^{+0.0062}_{-0.0062}$	$10^9 A_s$	2.069	$2.063^{+0.088}_{-0.10}$	$D_M(0.61)$	2294.3	$2295^{+39}_{-40}$
$A_{100}^{\text{PS}}$	240	$237^{+60}_{-60}$	$10^9 A_s e^{-2\tau}$	1.8704	$1.871^{+0.031}_{-0.031}$	$H(2.33)$	235.37	$235.4^{+2.3}_{-2.3}$
$A_{143}^{\text{PS}}$	37	$38^{+20}_{-20}$	$D_{40}$	1215.4	$1216^{+36}_{-35}$	$D_M(2.33)$	5754.4	$5755^{+33}_{-35}$
$A_{217}^{\text{PS}}$	105.3	$103^{+30}_{-40}$	$D_{220}$	5721	$5721^{+100}_{-97}$	$f\sigma_8(0.15)$	0.4463	$0.446^{+0.024}_{-0.025}$
$A_{217}^{\text{CIB}}$	37.5	$39^{+20}_{-20}$	$D_{810}$	2530.1	$2530^{+35}_{-35}$	$\sigma_8(0.15)$	0.7401	$0.739^{+0.019}_{-0.021}$
$A_{143}^{\text{tSZ}}$	3.47	$< 8.79$	$D_{1420}$	815.2	$815^{+12}_{-12}$	$f\sigma_8(0.38)$	0.4661	$0.466^{+0.020}_{-0.021}$
$r_{143 \times 217}^{\text{PS}}$	0.676	$0.66^{+0.31}_{-0.34}$	$D_{2000}$	230.79	$230.6^{+4.2}_{-4.1}$	$\sigma_8(0.38)$	0.6569	$0.656^{+0.015}_{-0.018}$
$r_{143 \times 217}^{\text{CIB}}$	0.41	—	$n_{s,0.002}$	0.9700	$0.970^{+0.013}_{-0.013}$	$f\sigma_8(0.51)$	0.4656	$0.465^{+0.017}_{-0.019}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.36	—	$Y_P$	0.245422	$0.24542^{+0.00019}_{-0.00018}$	$\sigma_8(0.51)$	0.6150	$0.614^{+0.014}_{-0.016}$
$A^{\text{kSZ}}$	4.7	—	$Y_P^{\text{BBN}}$	0.246749	$0.24674^{+0.00019}_{-0.00019}$	$f\sigma_8(0.61)$	0.4612	$0.461^{+0.016}_{-0.017}$
$A_{100}^{\text{dust}}$	1.02	$1.02^{+0.50}_{-0.51}$	$10^5 D/H$	2.573	$2.576^{+0.084}_{-0.088}$	$\sigma_8(0.61)$	0.5854	$0.585^{+0.013}_{-0.015}$
$A_{143}^{\text{dust}}$	0.957	$0.96^{+0.44}_{-0.46}$	Age/Gyr	13.778	$13.780^{+0.072}_{-0.078}$	$f\sigma_8(2.33)$	0.2955	$0.2950^{+0.0065}_{-0.0074}$
$A_{217}^{\text{dust}}$	0.971	$0.98^{+0.26}_{-0.26}$	$z_*$	1089.66	$1089.69^{+0.83}_{-0.86}$	$\sigma_8(2.33)$	0.3050	$0.3045^{+0.0066}_{-0.0075}$
$A_{143 \times 217}^{\text{dust}}$	1.052	$1.02^{+0.42}_{-0.42}$	$r_*$	144.88	$144.87^{+0.87}_{-0.84}$	$f_{2000}^{143}$	28.5	$29^{+7}_{-7}$
$c_{100}$	0.99749	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_*$	1.04123	$1.04122^{+0.00082}_{-0.00084}$	$f_{2000}^{217}$	106.0	$106.1^{+5.1}_{-5.1}$
$c_{217}$	1.00069	$1.0010^{+0.0041}_{-0.0039}$	$D_M(z_*)/\text{Gpc}$	13.914	$13.913^{+0.081}_{-0.077}$	$f_{2000}^{143 \times 217}$	31.3	$31^{+5}_{-5}$
$c_{TE}$	0.9949	$0.995^{+0.014}_{-0.012}$	$z_{\text{drag}}$	1059.97	$1059.94^{+0.95}_{-0.88}$	$\chi_{\text{lensing}}^2$	9.02	$9.8 (\nu: 1.4)$
$c_{EE}$	0.9915	$0.992^{+0.012}_{-0.013}$	$r_{\text{drag}}$	147.53	$147.52^{+0.85}_{-0.83}$	$\chi_{\text{small}}^2$	395.66	$396.8 (\nu: 1.1)$
$H_0$	68.14	$68.1^{+1.9}_{-1.8}$	$k_D$	0.14046	$0.14046^{+0.00088}_{-0.00091}$	$\chi_{\text{lowl}}^2$	22.23	$22.37 (\nu: 0.4)$
$\Omega_\Lambda$	0.6960	$0.695^{+0.024}_{-0.025}$	$100\theta_D$	0.16074	$0.16076^{+0.00053}_{-0.00054}$	$\chi_{\text{CamSpec}}^2$	11498.6	$11513.3 (\nu: 16.1)$
$\Omega_m$	0.3040	$0.305^{+0.025}_{-0.024}$	$z_{\text{eq}}$	3358	$3360^{+88}_{-89}$	$\chi_{\text{prior}}^2$	2.1	$7.7 (\nu: 5.5)$
$\Omega_m h^2$	0.14115	$0.1412^{+0.0037}_{-0.0037}$	$k_{\text{eq}}$	0.010248	$0.01025^{+0.00027}_{-0.00027}$	$\chi_{\text{CMB}}^2$	11925.5	$11942.2 (\nu: 17.0)$
$\Omega_m h^3$	0.09618	$0.09616^{+0.00083}_{-0.00078}$	$100\theta_{\text{eq}}$	0.8216	$0.821^{+0.018}_{-0.017}$			
$\sigma_8$	0.8001	$0.799^{+0.021}_{-0.024}$	$100\theta_{s,\text{eq}}$	0.4537	$0.4535^{+0.0091}_{-0.0086}$			

Best-fit  $\chi_{\text{eff}}^2 = 11927.65$ ;  $\bar{\chi}_{\text{eff}}^2 = 11949.88$ ;  $R - 1 = 0.01480$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.02 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.66 commander\_dx12\_v3.2\_29: 22.23 CamSpec like\_10.7HM\_1400\_unified: 11498.60



### 3.58 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02242^{+0.00041}_{-0.00039}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.441^{+0.020}_{-0.020}$	$H(0.38)$	$83.29^{+0.84}_{-0.81}$
$\Omega_{\text{c}} h^2$	$0.1182^{+0.0028}_{-0.0028}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.594^{+0.020}_{-0.021}$	$D_{\text{M}}(0.38)$	$1521^{+22}_{-22}$
$100\theta_{\text{MC}}$	$1.04104^{+0.00073}_{-0.00075}$	$\sigma_8/h^{0.5}$	$0.969^{+0.029}_{-0.031}$	$H(0.51)$	$89.94^{+0.68}_{-0.65}$
$\tau$	$0.049^{+0.020}_{-0.025}$	$r_{\text{drag}} h$	$100.4^{+2.2}_{-2.2}$	$D_{\text{M}}(0.51)$	$1972^{+26}_{-26}$
$A_{\text{L}}$	$1.064^{+0.098}_{-0.093}$	$\langle d^2 \rangle^{1/2}$	$2.471^{+0.080}_{-0.078}$	$H(0.61)$	$95.50^{+0.58}_{-0.54}$
$\ln(10^{10} A_{\text{s}})$	$3.027^{+0.042}_{-0.051}$	$z_{\text{re}}$	$7.1^{+2.0}_{-2.9}$	$D_{\text{M}}(0.61)$	$2295^{+28}_{-28}$
$n_{\text{s}}$	$0.969^{+0.011}_{-0.011}$	$10^9 A_{\text{s}}$	$2.063^{+0.089}_{-0.10}$	$H(2.33)$	$235.4^{+1.7}_{-1.7}$
$y_{\text{cal}}$	$1.0000^{+0.0062}_{-0.0063}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.871^{+0.028}_{-0.027}$	$D_{\text{M}}(2.33)$	$5755^{+25}_{-27}$
$A_{100}^{\text{PS}}$	$237^{+60}_{-60}$	$D_{40}$	$1216^{+34}_{-31}$	$f\sigma_8(0.15)$	$0.446^{+0.019}_{-0.019}$
$A_{143}^{\text{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5720^{+100}_{-94}$	$\sigma_8(0.15)$	$0.739^{+0.018}_{-0.020}$
$A_{217}^{\text{PS}}$	$103^{+30}_{-40}$	$D_{810}$	$2530^{+35}_{-35}$	$f\sigma_8(0.38)$	$0.466^{+0.016}_{-0.017}$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$815^{+12}_{-13}$	$\sigma_8(0.38)$	$0.656^{+0.015}_{-0.018}$
$A_{143}^{\text{tSZ}}$	$< 8.77$	$D_{2000}$	$230.6^{+4.2}_{-4.1}$	$f\sigma_8(0.51)$	$0.465^{+0.014}_{-0.016}$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.34}$	$n_{\text{s},0.002}$	$0.969^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.614^{+0.014}_{-0.016}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.24541^{+0.00016}_{-0.00016}$	$f\sigma_8(0.61)$	$0.461^{+0.014}_{-0.015}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24674^{+0.00016}_{-0.00016}$	$\sigma_8(0.61)$	$0.585^{+0.013}_{-0.015}$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.576^{+0.073}_{-0.074}$	$f\sigma_8(2.33)$	$0.2950^{+0.0065}_{-0.0074}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.51}$	$\text{Age}/\text{Gyr}$	$13.781^{+0.057}_{-0.060}$	$\sigma_8(2.33)$	$0.3045^{+0.0067}_{-0.0077}$
$A_{143}^{\text{dust}}$	$0.96^{+0.43}_{-0.46}$	$z_*$	$1089.69^{+0.65}_{-0.65}$	$f_{2000}^{143}$	$29^{+8}_{-7}$
$A_{217}^{\text{dust}}$	$0.98^{+0.26}_{-0.26}$	$r_*$	$144.87^{+0.66}_{-0.65}$	$f_{2000}^{217}$	$106.1^{+5.1}_{-4.9}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.42}_{-0.42}$	$100\theta_*$	$1.04122^{+0.00073}_{-0.00074}$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.913^{+0.063}_{-0.061}$	$\chi_{\text{lensing}}^2$	$9.8 (\nu: 1.4)$
$c_{217}$	$1.0010^{+0.0041}_{-0.0040}$	$z_{\text{drag}}$	$1059.93^{+0.88}_{-0.84}$	$\chi_{\text{simall}}^2$	$396.8 (\nu: 1.1)$
$c_{TE}$	$0.995^{+0.014}_{-0.012}$	$r_{\text{drag}}$	$147.52^{+0.68}_{-0.67}$	$\chi_{\text{lowl}}^2$	$22.35 (\nu: 0.3)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$k_{\text{D}}$	$0.14046^{+0.00082}_{-0.00081}$	$\chi_{\text{CamSpec}}^2$	$11512.7 (\nu: 15.3)$
$H_0$	$68.1^{+1.3}_{-1.3}$	$100\theta_{\text{D}}$	$0.16076^{+0.00049}_{-0.00050}$	$\chi_{6\text{DF}}^2$	$0.031 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.695^{+0.017}_{-0.017}$	$z_{\text{eq}}$	$3360^{+64}_{-63}$	$\chi_{\text{MGS}}^2$	$1.74 (\nu: 0.1)$
$\Omega_{\text{m}}$	$0.305^{+0.017}_{-0.017}$	$k_{\text{eq}}$	$0.01025^{+0.00019}_{-0.00019}$	$\chi_{\text{DR12BAO}}^2$	$3.99 (\nu: 0.4)$
$\Omega_{\text{m}} h^2$	$0.1412^{+0.0027}_{-0.0026}$	$100\theta_{\text{eq}}$	$0.821^{+0.012}_{-0.012}$	$\chi_{\text{prior}}^2$	$7.7 (\nu: 5.5)$
$\Omega_{\text{m}} h^3$	$0.09616^{+0.00080}_{-0.00077}$	$100\theta_{\text{s,eq}}$	$0.4535^{+0.0063}_{-0.0061}$	$\chi_{\text{CMB}}^2$	$11941.7 (\nu: 16.6)$
$\sigma_8$	$0.799^{+0.020}_{-0.023}$	$H(0.15)$	$73.3^{+1.1}_{-1.1}$	$\chi_{\text{BAO}}^2$	$5.76 (\nu: 0.3)$
$S_8$	$0.805^{+0.036}_{-0.036}$	$D_{\text{M}}(0.15)$	$637^{+11}_{-11}$		

$$\bar{\chi}_{\text{eff}}^2 = 11955.09; R - 1 = 0.01872$$



### 3.59 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02243^{+0.00049}_{-0.00045}$	$S_8$	$0.808^{+0.047}_{-0.047}$	$H(0.15)$	$73.3^{+1.7}_{-1.5}$
$\Omega_c h^2$	$0.1181^{+0.0039}_{-0.0041}$	$\sigma_8 \Omega_m^{0.5}$	$0.442^{+0.026}_{-0.026}$	$D_M(0.15)$	$637^{+15}_{-16}$
$100\theta_{MC}$	$1.04104^{+0.00085}_{-0.00086}$	$\sigma_8 \Omega_m^{0.25}$	$0.595^{+0.023}_{-0.024}$	$H(0.38)$	$83.3^{+1.2}_{-1.1}$
$\tau$	$0.0522^{+0.016}_{-0.0099}$	$\sigma_8/h^{0.5}$	$0.971^{+0.033}_{-0.033}$	$D_M(0.38)$	$1521^{+31}_{-32}$
$A_L$	$1.06^{+0.10}_{-0.10}$	$r_{\text{drag}} h$	$100.5^{+3.3}_{-3.1}$	$H(0.51)$	$89.95^{+0.97}_{-0.91}$
$\ln(10^{10} A_s)$	$3.033^{+0.037}_{-0.025}$	$\langle d^2 \rangle^{1/2}$	$2.471^{+0.080}_{-0.077}$	$D_M(0.51)$	$1972^{+36}_{-38}$
$n_s$	$0.970^{+0.013}_{-0.013}$	$z_{\text{re}}$	$< 8.90$	$H(0.61)$	$95.51^{+0.80}_{-0.73}$
$y_{\text{cal}}$	$0.99998^{+0.0063}_{-0.0063}$	$10^9 A_s$	$2.076^{+0.078}_{-0.052}$	$D_M(0.61)$	$2295^{+39}_{-41}$
$A_{100}^{\text{PS}}$	$237^{+60}_{-60}$	$10^9 A_s e^{-2\tau}$	$1.870^{+0.031}_{-0.031}$	$H(2.33)$	$235.4^{+2.3}_{-2.4}$
$A_{143}^{\text{PS}}$	$38^{+20}_{-20}$	$D_{40}$	$1217^{+37}_{-35}$	$D_M(2.33)$	$5755^{+33}_{-35}$
$A_{217}^{\text{PS}}$	$103^{+30}_{-40}$	$D_{220}$	$5720^{+100}_{-98}$	$f\sigma_8(0.15)$	$0.447^{+0.024}_{-0.024}$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20}$	$D_{810}$	$2530^{+35}_{-35}$	$\sigma_8(0.15)$	$0.741^{+0.017}_{-0.015}$
$A_{143}^{\text{tSZ}}$	$< 8.79$	$D_{1420}$	$815^{+12}_{-13}$	$f\sigma_8(0.38)$	$0.467^{+0.019}_{-0.020}$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.33}_{-0.31}$	$D_{2000}$	$230.7^{+4.2}_{-4.2}$	$\sigma_8(0.38)$	$0.658^{+0.014}_{-0.011}$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{s,0.002}$	$0.970^{+0.013}_{-0.013}$	$f\sigma_8(0.51)$	$0.467^{+0.017}_{-0.017}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P$	$0.24542^{+0.00019}_{-0.00019}$	$\sigma_8(0.51)$	$0.616^{+0.013}_{-0.0099}$
$A^{\text{kSZ}}$	—	$Y_P^{\text{BBN}}$	$0.24674^{+0.00019}_{-0.00019}$	$f\sigma_8(0.61)$	$0.462^{+0.015}_{-0.015}$
$A_{100}^{\text{dust}}$	$1.02^{+0.50}_{-0.51}$	$10^5 D/H$	$2.576^{+0.085}_{-0.088}$	$\sigma_8(0.61)$	$0.586^{+0.012}_{-0.0090}$
$A_{143}^{\text{dust}}$	$0.96^{+0.43}_{-0.46}$	$\text{Age/Gyr}$	$13.780^{+0.073}_{-0.078}$	$f\sigma_8(2.33)$	$0.2959^{+0.0057}_{-0.0041}$
$A_{217}^{\text{dust}}$	$0.98^{+0.26}_{-0.26}$	$z_*$	$1089.69^{+0.84}_{-0.86}$	$\sigma_8(2.33)$	$0.3054^{+0.0060}_{-0.0040}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.42}_{-0.42}$	$r_*$	$144.87^{+0.89}_{-0.82}$	$f_{2000}^{143}$	$29^{+8}_{-7}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_*$	$1.04122^{+0.00083}_{-0.00084}$	$f_{2000}^{217}$	$106.1^{+5.2}_{-5.1}$
$c_{217}$	$1.0010^{+0.0041}_{-0.0039}$	$D_M(z_*)/\text{Gpc}$	$13.914^{+0.081}_{-0.076}$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5}$
$c_{TE}$	$0.995^{+0.014}_{-0.012}$	$z_{\text{drag}}$	$1059.93^{+0.95}_{-0.92}$	$\chi_{\text{lensing}}^2$	$9.8 (\nu: 1.5)$
$c_{EE}$	$0.992^{+0.012}_{-0.013}$	$r_{\text{drag}}$	$147.52^{+0.85}_{-0.80}$	$\chi_{\text{simall}}^2$	$396.31 (\nu: 0.5)$
$H_0$	$68.1^{+1.9}_{-1.8}$	$k_D$	$0.14045^{+0.00088}_{-0.00092}$	$\chi_{\text{lowl}}^2$	$22.43 (\nu: 0.5)$
$\Omega_\Lambda$	$0.695^{+0.024}_{-0.025}$	$100\theta_D$	$0.16076^{+0.00053}_{-0.00054}$	$\chi_{\text{CamSpec}}^2$	$11513.3 (\nu: 16.5)$
$\Omega_m$	$0.305^{+0.025}_{-0.024}$	$z_{\text{eq}}$	$3359^{+86}_{-91}$	$\chi_{\text{prior}}^2$	$7.7 (\nu: 5.5)$
$\Omega_m h^2$	$0.1412^{+0.0036}_{-0.0038}$	$k_{\text{eq}}$	$0.01025^{+0.00026}_{-0.00028}$	$\chi_{\text{CMB}}^2$	$11941.9 (\nu: 17.0)$
$\Omega_m h^3$	$0.09616^{+0.00083}_{-0.00079}$	$100\theta_{\text{eq}}$	$0.821^{+0.018}_{-0.016}$		
$\sigma_8$	$0.802^{+0.020}_{-0.018}$	$100\theta_{s,\text{eq}}$	$0.4536^{+0.0093}_{-0.0084}$		

$$\bar{\chi}_{\text{eff}}^2 = 11949.57; R - 1 = 0.01602$$



### 3.60 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02242^{+0.00041}_{-0.00039}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.442^{+0.019}_{-0.018}$	$H(0.38)$	$83.29^{+0.85}_{-0.81}$
$\Omega_{\text{c}}h^2$	$0.1182^{+0.0028}_{-0.0028}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.596^{+0.019}_{-0.018}$	$D_{\text{M}}(0.38)$	$1521^{+22}_{-22}$
$100\theta_{\text{MC}}$	$1.04104^{+0.00074}_{-0.00077}$	$\sigma_8/h^{0.5}$	$0.972^{+0.027}_{-0.025}$	$H(0.51)$	$89.94^{+0.69}_{-0.66}$
$\tau$	$0.052^{+0.016}_{-0.010}$	$r_{\text{drag}}h$	$100.5^{+2.2}_{-2.2}$	$D_{\text{M}}(0.51)$	$1972^{+26}_{-26}$
$A_{\text{L}}$	$1.057^{+0.092}_{-0.092}$	$\langle d^2 \rangle^{1/2}$	$2.471^{+0.082}_{-0.078}$	$H(0.61)$	$95.50^{+0.58}_{-0.54}$
$\ln(10^{10}A_{\text{s}})$	$3.033^{+0.036}_{-0.025}$	$z_{\text{re}}$	$< 8.95$	$D_{\text{M}}(0.61)$	$2295^{+28}_{-28}$
$n_{\text{s}}$	$0.970^{+0.011}_{-0.011}$	$10^9 A_{\text{s}}$	$2.076^{+0.077}_{-0.051}$	$H(2.33)$	$235.4^{+1.7}_{-1.7}$
$y_{\text{cal}}$	$1.0000^{+0.0063}_{-0.0063}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.871^{+0.029}_{-0.027}$	$D_{\text{M}}(2.33)$	$5755^{+26}_{-27}$
$A_{100}^{\text{PS}}$	$237^{+60}_{-70}$	$D_{40}$	$1217^{+34}_{-31}$	$f\sigma_8(0.15)$	$0.448^{+0.018}_{-0.018}$
$A_{143}^{\text{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5720^{+100}_{-94}$	$\sigma_8(0.15)$	$0.741^{+0.016}_{-0.012}$
$A_{217}^{\text{PS}}$	$103^{+30}_{-40}$	$D_{810}$	$2530^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.467^{+0.015}_{-0.015}$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$815^{+12}_{-13}$	$\sigma_8(0.38)$	$0.658^{+0.013}_{-0.0099}$
$A_{143}^{\text{tSZ}}$	$< 8.68$	$D_{2000}$	$230.6^{+4.2}_{-4.1}$	$f\sigma_8(0.51)$	$0.467^{+0.014}_{-0.013}$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.34}$	$n_{\text{s},0.002}$	$0.970^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.616^{+0.012}_{-0.0089}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.24541^{+0.00016}_{-0.00016}$	$f\sigma_8(0.61)$	$0.462^{+0.012}_{-0.012}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24674^{+0.00016}_{-0.00016}$	$\sigma_8(0.61)$	$0.586^{+0.012}_{-0.0083}$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.576^{+0.073}_{-0.074}$	$f\sigma_8(2.33)$	$0.2959^{+0.0058}_{-0.0040}$
$A_{100}^{\text{dust}}$	$1.01^{+0.52}_{-0.51}$	$\text{Age}/\text{Gyr}$	$13.781^{+0.057}_{-0.059}$	$\sigma_8(2.33)$	$0.3054^{+0.0060}_{-0.0040}$
$A_{143}^{\text{dust}}$	$0.96^{+0.43}_{-0.44}$	$z_*$	$1089.69^{+0.65}_{-0.66}$	$f_{2000}^{143}$	$29^{+8}_{-7}$
$A_{217}^{\text{dust}}$	$0.98^{+0.26}_{-0.26}$	$r_*$	$144.87^{+0.66}_{-0.65}$	$f_{2000}^{217}$	$106.1^{+5.1}_{-4.9}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.41}_{-0.42}$	$100\theta_*$	$1.04122^{+0.00073}_{-0.00075}$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.913^{+0.063}_{-0.061}$	$\chi_{\text{lensing}}^2$	$9.8 (\nu: 1.5)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040}$	$z_{\text{drag}}$	$1059.93^{+0.88}_{-0.83}$	$\chi_{\text{simall}}^2$	$396.31 (\nu: 0.5)$
$c_{TE}$	$0.995^{+0.014}_{-0.012}$	$r_{\text{drag}}$	$147.52^{+0.68}_{-0.68}$	$\chi_{\text{lowl}}^2$	$22.41 (\nu: 0.3)$
$c_{EE}$	$0.992^{+0.013}_{-0.014}$	$k_{\text{D}}$	$0.14045^{+0.00081}_{-0.00081}$	$\chi_{\text{CamSpec}}^2$	$11512.7 (\nu: 15.6)$
$H_0$	$68.1^{+1.3}_{-1.3}$	$100\theta_{\text{D}}$	$0.16076^{+0.00049}_{-0.00050}$	$\chi_{6\text{DF}}^2$	$0.031 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.695^{+0.017}_{-0.017}$	$z_{\text{eq}}$	$3359^{+63}_{-63}$	$\chi_{\text{MGS}}^2$	$1.74 (\nu: 0.1)$
$\Omega_{\text{m}}$	$0.305^{+0.017}_{-0.017}$	$k_{\text{eq}}$	$0.01025^{+0.00019}_{-0.00019}$	$\chi_{\text{DR12BAO}}^2$	$3.99 (\nu: 0.4)$
$\Omega_{\text{m}}h^2$	$0.1412^{+0.0026}_{-0.0027}$	$100\theta_{\text{eq}}$	$0.821^{+0.012}_{-0.012}$	$\chi_{\text{prior}}^2$	$7.7 (\nu: 5.6)$
$\Omega_{\text{m}}h^3$	$0.09616^{+0.00079}_{-0.00079}$	$100\theta_{\text{s,eq}}$	$0.4535^{+0.0063}_{-0.0061}$	$\chi_{\text{CMB}}^2$	$11941.3 (\nu: 16.5)$
$\sigma_8$	$0.802^{+0.018}_{-0.015}$	$H(0.15)$	$73.3^{+1.1}_{-1.1}$	$\chi_{\text{BAO}}^2$	$5.76 (\nu: 0.3)$
$S_8$	$0.808^{+0.035}_{-0.034}$	$D_{\text{M}}(0.15)$	$637^{+11}_{-11}$		

$$\bar{\chi}_{\text{eff}}^2 = 11954.75; R - 1 = 0.02132$$



### 3.61 base\_Alens\_CleanedCamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02267	$0.02259^{+0.00075}_{-0.00075}$	$\sigma_8/h^{0.5}$	0.957	$0.956^{+0.055}_{-0.053}$	$D_M(0.15)$	628.9	$630^{+27}_{-25}$
$\Omega_c h^2$	0.1164	$0.1165^{+0.0069}_{-0.0062}$	$r_{\text{drag}} h$	102.0	$101.9^{+5.3}_{-5.4}$	$H(0.38)$	83.95	$83.8^{+2.1}_{-2.0}$
$100\theta_{\text{MC}}$	1.04145	$1.0414^{+0.0014}_{-0.0014}$	$\langle d^2 \rangle^{1/2}$	2.656	$2.63^{+0.20}_{-0.20}$	$D_M(0.38)$	1504	$1507^{+54}_{-52}$
$\tau$	0.0517	$0.050^{+0.022}_{-0.026}$	$z_{\text{re}}$	7.30	$7.1^{+2.1}_{-3.0}$	$H(0.51)$	90.48	$90.4^{+1.7}_{-1.6}$
$A_L$	1.260	$1.24^{+0.27}_{-0.24}$	$10^9 A_s$	2.068	$2.061^{+0.095}_{-0.11}$	$D_M(0.51)$	1952	$1955^{+63}_{-61}$
$\ln(10^{10} A_s)$	3.029	$3.025^{+0.045}_{-0.055}$	$10^9 A_s e^{-2\tau}$	1.8652	$1.864^{+0.039}_{-0.038}$	$H(0.61)$	95.95	$95.9^{+1.4}_{-1.3}$
$n_s$	0.9761	$0.974^{+0.019}_{-0.019}$	$D_{40}$	1204.1	$1208^{+47}_{-45}$	$D_M(0.61)$	2274	$2277^{+68}_{-66}$
$y_{\text{cal}}$	0.99997	$1.0000^{+0.0066}_{-0.0066}$	$D_{220}$	5732	$5730^{+110}_{-110}$	$H(2.33)$	234.53	$234.5^{+4.0}_{-3.5}$
$A_{100}^{\text{PS}}$	226	$240^{+70}_{-70}$	$D_{810}$	2525.9	$2523^{+38}_{-37}$	$D_M(2.33)$	5735	$5739^{+58}_{-61}$
$A_{143}^{\text{tSZ}}$	6.4	—	$D_{1420}$	814.9	$813^{+14}_{-14}$	$f\sigma_8(0.15)$	0.4363	$0.436^{+0.041}_{-0.038}$
$A^{\text{kSZ}}$	0.0	—	$D_{2000}$	232.8	$231.7^{+5.4}_{-5.5}$	$\sigma_8(0.15)$	0.7368	$0.735^{+0.023}_{-0.026}$
$A_{100}^{\text{dust}}$	1.00	$1.01^{+0.50}_{-0.50}$	$n_{\text{s},0.002}$	0.9761	$0.974^{+0.019}_{-0.019}$	$f\sigma_8(0.38)$	0.4584	$0.458^{+0.033}_{-0.031}$
$A_{143}^{\text{power}}$	7.7	$8.0^{+6.2}_{-5.4}$	$Y_{\text{P}}$	0.245507	$0.24548^{+0.00032}_{-0.00032}$	$\sigma_8(0.38)$	0.6552	$0.654^{+0.018}_{-0.021}$
$A_{217}^{\text{power}}$	6.5	$6.6^{+6.6}_{-3.5}$	$Y_{\text{P}}^{\text{BBN}}$	0.246834	$0.24681^{+0.00032}_{-0.00032}$	$f\sigma_8(0.51)$	0.4592	$0.459^{+0.028}_{-0.027}$
$A_{143 \times 217}^{\text{power}}$	3.25	$< 7.95$	$10^5 \text{D}/\text{H}$	2.531	$2.55^{+0.14}_{-0.13}$	$\sigma_8(0.51)$	0.6140	$0.612^{+0.016}_{-0.019}$
$\gamma_{143}^{\text{power}}$	1.48	$> 0.204$	Age/Gyr	13.735	$13.75^{+0.13}_{-0.13}$	$f\sigma_8(0.61)$	0.4558	$0.455^{+0.025}_{-0.025}$
$\gamma_{217}^{\text{power}}$	2.38	—	$z_*$	1089.23	$1089.4^{+1.4}_{-1.3}$	$\sigma_8(0.61)$	0.5848	$0.583^{+0.015}_{-0.017}$
$\gamma_{143 \times 217}^{\text{power}}$	2.17	—	$r_*$	145.14	$145.2^{+1.3}_{-1.4}$	$f\sigma_8(2.33)$	0.2956	$0.2947^{+0.0070}_{-0.0082}$
$c_{100}$	0.99828	$0.9979^{+0.0026}_{-0.0028}$	$100\theta_*$	1.04160	$1.0416^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	0.3056	$0.3047^{+0.0071}_{-0.0083}$
$c_{217}$	0.99823	$0.9992^{+0.0041}_{-0.0031}$	$D_M(z_*)/\text{Gpc}$	13.934	$13.94^{+0.12}_{-0.13}$	$f_{2000}^{143}$	17.4	$19.4^{+8.9}_{-8.1}$
$H_0$	69.07	$68.9^{+3.1}_{-3.1}$	$z_{\text{drag}}$	1060.39	$1060.2^{+1.4}_{-1.4}$	$f_{2000}^{217}$	13.0	$13.8^{+6.0}_{-5.7}$
$\Omega_\Lambda$	0.7072	$0.705^{+0.036}_{-0.043}$	$r_{\text{drag}}$	147.72	$147.8^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	6.1	$7.6^{+6.5}_{-5.8}$
$\Omega_{\text{m}}$	0.2928	$0.295^{+0.043}_{-0.036}$	$k_{\text{D}}$	0.14043	$0.1403^{+0.0013}_{-0.0013}$	$\chi_{\text{simall}}^2$	395.68	$396.8 (\nu: 1.2)$
$\Omega_{\text{m}} h^2$	0.1397	$0.1398^{+0.0065}_{-0.0057}$	$100\theta_{\text{D}}$	0.16054	$0.16065^{+0.00082}_{-0.00073}$	$\chi_{\text{lowl}}^2$	21.40	$21.8 (\nu: 0.6)$
$\Omega_{\text{m}} h^3$	0.09650	$0.0963^{+0.0013}_{-0.0013}$	$z_{\text{eq}}$	3323	$3325^{+150}_{-140}$	$\chi_{\text{CamSpec}}^2$	6699.1	$6713.2 (\nu: 13.5)$
$\sigma_8$	0.7953	$0.794^{+0.029}_{-0.031}$	$k_{\text{eq}}$	0.010142	$0.01015^{+0.00047}_{-0.00041}$	$\chi_{\text{prior}}^2$	1.6	$5.1 (\nu: 4.0)$
$S_8$	0.786	$0.786^{+0.082}_{-0.073}$	$100\theta_{\text{eq}}$	0.8290	$0.829^{+0.028}_{-0.030}$	$\chi_{\text{CMB}}^2$	7116.1	$7131.9 (\nu: 14.7)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4304	$0.431^{+0.045}_{-0.040}$	$100\theta_{\text{s,eq}}$	0.4574	$0.457^{+0.014}_{-0.015}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5851	$0.585^{+0.040}_{-0.037}$	$H(0.15)$	74.16	$74.0^{+2.7}_{-2.7}$			

Best-fit  $\chi_{\text{eff}}^2 = 7117.73$ ;  $\bar{\chi}_{\text{eff}}^2 = 7136.94$ ;  $R - 1 = 0.00677$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.68 commander\_dx12\_v3.2\_29: 21.40 CamSpec like\_10.7cleaned: 6699.06



### 3.62 base\_Alens\_plikHM\_TT

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02262	$0.02251^{+0.00075}_{-0.00074}$	$\sigma_8$	0.848	$0.832^{+0.11}_{-0.079}$	$100\theta_D$	0.16058	$0.16070^{+0.00081}_{-0.00075}$
$\Omega_c h^2$	0.1169	$0.1176^{+0.0074}_{-0.0069}$	$S_8$	0.842	$0.83^{+0.13}_{-0.11}$	$z_{\text{eq}}$	3334	$3348^{+160}_{-150}$
$100\theta_{\text{MC}}$	1.04136	$1.0413^{+0.0014}_{-0.0014}$	$\sigma_8 \Omega_m^{0.5}$	0.461	$0.456^{+0.072}_{-0.059}$	$k_{\text{eq}}$	0.010174	$0.01022^{+0.00050}_{-0.00046}$
$\tau$	0.112	$< 0.209$	$\sigma_8 \Omega_m^{0.25}$	0.625	$0.616^{+0.088}_{-0.066}$	$100\theta_{\text{eq}}$	0.8268	$0.824^{+0.031}_{-0.031}$
$A_L$	1.100	$1.13^{+0.35}_{-0.31}$	$\sigma_8/h^{0.5}$	1.022	$1.01^{+0.14}_{-0.10}$	$100\theta_{\text{s,eq}}$	0.4563	$0.455^{+0.016}_{-0.016}$
$\ln(10^{10} A_s)$	3.152	$3.11^{+0.24}_{-0.17}$	$r_{\text{drag}} h$	101.6	$101.0^{+5.9}_{-5.8}$	$H(0.15)$	73.94	$73.6^{+3.0}_{-2.9}$
$n_s$	0.9755	$0.972^{+0.022}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.648	$2.63^{+0.19}_{-0.20}$	$D_M(0.15)$	631.0	$634^{+29}_{-28}$
$A_{217}^{\text{CIB}}$	42.7	$45^{+20}_{-20}$	$z_{\text{re}}$	12.7	$10.5^{+9.4}_{-8.7}$	$H(0.38)$	83.78	$83.5^{+2.2}_{-2.1}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.999	—	$10^9 A_s$	2.339	$2.25^{+0.59}_{-0.38}$	$D_M(0.38)$	1509	$1515^{+58}_{-57}$
$A_{143}^{\text{tSZ}}$	6.71	$> 1.01$	$10^9 A_s e^{-2\tau}$	1.8686	$1.871^{+0.041}_{-0.039}$	$H(0.51)$	90.34	$90.2^{+1.8}_{-1.6}$
$A_{100}^{\text{PS}}$	239	$252^{+70}_{-70}$	$D_{40}$	1233	$1235^{+85}_{-57}$	$D_M(0.51)$	1957	$1965^{+67}_{-67}$
$A_{143}^{\text{PS}}$	49.6	$43^{+20}_{-20}$	$D_{220}$	5733	$5733^{+110}_{-110}$	$H(0.61)$	95.84	$95.7^{+1.5}_{-1.3}$
$A_{143 \times 217}^{\text{PS}}$	56.8	$41^{+20}_{-20}$	$D_{810}$	2528.8	$2528^{+37}_{-36}$	$D_M(0.61)$	2279	$2287^{+73}_{-72}$
$A_{217}^{\text{PS}}$	122.9	$115^{+20}_{-30}$	$D_{1420}$	815.7	$814^{+13}_{-13}$	$H(2.33)$	234.79	$235.2^{+4.3}_{-3.9}$
$A^{\text{kSZ}}$	0.00	$< 9.15$	$D_{2000}$	233.0	$231.9^{+5.6}_{-5.3}$	$D_M(2.33)$	5740	$5747^{+58}_{-63}$
$A_{100}^{\text{dustTT}}$	8.73	$8.8^{+4.8}_{-4.8}$	$n_{\text{s},0.002}$	0.9755	$0.972^{+0.022}_{-0.021}$	$f\sigma_8(0.15)$	0.467	$0.462^{+0.071}_{-0.057}$
$A_{143}^{\text{dustTT}}$	10.53	$10.5^{+4.6}_{-4.6}$	$Y_{\text{P}}$	0.245488	$0.24545^{+0.00033}_{-0.00033}$	$\sigma_8(0.15)$	0.785	$0.770^{+0.098}_{-0.071}$
$A_{143 \times 217}^{\text{dustTT}}$	19.6	$17.9^{+8.4}_{-8.5}$	$Y_{\text{P}}^{\text{BBN}}$	0.246814	$0.24677^{+0.00033}_{-0.00033}$	$f\sigma_8(0.38)$	0.490	$0.483^{+0.069}_{-0.053}$
$A_{217}^{\text{dustTT}}$	95.5	$94^{+20}_{-20}$	$10^5 \text{D}/\text{H}$	2.541	$2.56^{+0.14}_{-0.13}$	$\sigma_8(0.38)$	0.698	$0.684^{+0.086}_{-0.062}$
$c_{100}$	0.99970	$0.9996^{+0.0015}_{-0.0016}$	Age/Gyr	13.745	$13.76^{+0.13}_{-0.13}$	$f\sigma_8(0.51)$	0.490	$0.483^{+0.068}_{-0.051}$
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0016}$	$z_*$	1089.33	$1089.5^{+1.4}_{-1.4}$	$\sigma_8(0.51)$	0.654	$0.640^{+0.081}_{-0.057}$
$y_{\text{cal}}$	0.9999	$1.0001^{+0.0066}_{-0.0063}$	$r_*$	145.05	$145.0^{+1.5}_{-1.5}$	$f\sigma_8(0.61)$	0.487	$0.479^{+0.067}_{-0.048}$
$H_0$	68.82	$68.5^{+3.4}_{-3.4}$	$100\theta_*$	1.04152	$1.0414^{+0.0014}_{-0.0014}$	$\sigma_8(0.61)$	0.622	$0.610^{+0.077}_{-0.054}$
$\Omega_\Lambda$	0.7041	$0.699^{+0.041}_{-0.047}$	$D_M(z_*)/\text{Gpc}$	13.927	$13.92^{+0.13}_{-0.14}$	$f\sigma_8(2.33)$	0.3145	$0.308^{+0.039}_{-0.027}$
$\Omega_m$	0.2959	$0.301^{+0.047}_{-0.041}$	$z_{\text{drag}}$	1060.28	$1060.1^{+1.5}_{-1.4}$	$\sigma_8(2.33)$	0.3250	$0.318^{+0.041}_{-0.027}$
$\Omega_m h^2$	0.1401	$0.1408^{+0.0069}_{-0.0063}$	$r_{\text{drag}}$	147.64	$147.6^{+1.4}_{-1.5}$	$\chi_{\text{plik}}^2$	752.3	$767.2 (\nu: 15.0)$
$\Omega_m h^3$	0.09645	$0.0963^{+0.0013}_{-0.0012}$	$k_D$	0.14047	$0.1405^{+0.0014}_{-0.0014}$	$\chi_{\text{prior}}^2$	0.97	$7.0 (\nu: 6.2)$

Best-fit  $\chi_{\text{eff}}^2 = 753.23$ ;  $\bar{\chi}_{\text{eff}}^2 = 774.27$ ;  $R - 1 = 0.00661$   
 $\chi_{\text{eff}}^2$ : CMB - plik\_rd12\_HM\_v22\_TT: 752.27



### 3.63 base\_Alens\_plikHM\_TT\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02252^{+0.00076}_{-0.00076}$	$S_8$	$0.85^{+0.12}_{-0.10}$	$k_{\text{eq}}$	$0.01021^{+0.00050}_{-0.00047}$
$\Omega_c h^2$	$0.1175^{+0.0074}_{-0.0070}$	$\sigma_8 \Omega_m^{0.5}$	$0.463^{+0.068}_{-0.055}$	$100\theta_{\text{eq}}$	$0.825^{+0.031}_{-0.031}$
$100\theta_{\text{MC}}$	$1.0413^{+0.0015}_{-0.0014}$	$\sigma_8 \Omega_m^{0.25}$	$0.626^{+0.081}_{-0.060}$	$100\theta_{\text{s,eq}}$	$0.455^{+0.016}_{-0.016}$
$\tau$	$0.107^{+0.11}_{-0.068}$	$\sigma_8/h^{0.5}$	$1.02^{+0.13}_{-0.091}$	$H(0.15)$	$73.7^{+3.0}_{-2.9}$
$A_L$	$1.09^{+0.31}_{-0.28}$	$r_{\text{drag}} h$	$101.1^{+6.0}_{-5.8}$	$D_M(0.15)$	$634^{+29}_{-28}$
$\ln(10^{10} A_s)$	$3.14^{+0.21}_{-0.14}$	$\langle d^2 \rangle^{1/2}$	$2.63^{+0.19}_{-0.20}$	$H(0.38)$	$83.6^{+2.3}_{-2.1}$
$n_s$	$0.973^{+0.022}_{-0.021}$	$z_{\text{re}}$	$< 19.8$	$D_M(0.38)$	$1514^{+58}_{-57}$
$A_{217}^{\text{CIB}}$	$45^{+20}_{-20}$	$10^9 A_s$	$2.33^{+0.53}_{-0.32}$	$H(0.51)$	$90.2^{+1.8}_{-1.6}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_s e^{-2\tau}$	$1.870^{+0.041}_{-0.039}$	$D_M(0.51)$	$1963^{+68}_{-68}$
$A_{143}^{\text{tSZ}}$	$> 1.08$	$D_{40}$	$1241^{+83}_{-59}$	$H(0.61)$	$95.7^{+1.5}_{-1.3}$
$A_{100}^{\text{PS}}$	$252^{+70}_{-70}$	$D_{220}$	$5732^{+110}_{-110}$	$D_M(0.61)$	$2286^{+73}_{-73}$
$A_{143}^{\text{PS}}$	$42^{+20}_{-20}$	$D_{810}$	$2528^{+37}_{-36}$	$H(2.33)$	$235.1^{+4.3}_{-4.0}$
$A_{143 \times 217}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$D_M(2.33)$	$5746^{+58}_{-64}$
$A_{217}^{\text{PS}}$	$115^{+20}_{-30}$	$D_{2000}$	$232.0^{+5.6}_{-5.4}$	$f\sigma_8(0.15)$	$0.469^{+0.066}_{-0.054}$
$A^{\text{kSZ}}$	$< 9.11$	$n_{\text{s},0.002}$	$0.973^{+0.022}_{-0.021}$	$\sigma_8(0.15)$	$0.783^{+0.088}_{-0.061}$
$A_{100}^{\text{dustTT}}$	$8.8^{+4.7}_{-4.8}$	$Y_{\text{P}}$	$0.24545^{+0.00033}_{-0.00033}$	$f\sigma_8(0.38)$	$0.491^{+0.064}_{-0.049}$
$A_{143}^{\text{dustTT}}$	$10.4^{+4.6}_{-4.6}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24678^{+0.00033}_{-0.00034}$	$\sigma_8(0.38)$	$0.695^{+0.078}_{-0.052}$
$A_{143 \times 217}^{\text{dustTT}}$	$17.9^{+8.4}_{-8.5}$	$10^5 \text{D/H}$	$2.56^{+0.14}_{-0.13}$	$f\sigma_8(0.51)$	$0.491^{+0.062}_{-0.045}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$\text{Age/Gyr}$	$13.76^{+0.13}_{-0.14}$	$\sigma_8(0.51)$	$0.651^{+0.073}_{-0.048}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0015}$	$z_*$	$1089.5^{+1.5}_{-1.4}$	$f\sigma_8(0.61)$	$0.486^{+0.060}_{-0.043}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$r_*$	$145.0^{+1.5}_{-1.5}$	$\sigma_8(0.61)$	$0.620^{+0.069}_{-0.045}$
$y_{\text{cal}}$	$1.0001^{+0.0066}_{-0.0063}$	$100\theta_*$	$1.0415^{+0.0014}_{-0.0014}$	$f\sigma_8(2.33)$	$0.313^{+0.035}_{-0.022}$
$H_0$	$68.5^{+3.5}_{-3.4}$	$D_M(z_*)/\text{Gpc}$	$13.92^{+0.13}_{-0.14}$	$\sigma_8(2.33)$	$0.323^{+0.037}_{-0.023}$
$\Omega_\Lambda$	$0.700^{+0.041}_{-0.047}$	$z_{\text{drag}}$	$1060.1^{+1.4}_{-1.5}$	$f_{2000}^{143}$	$27^{+9}_{-9}$
$\Omega_m$	$0.300^{+0.047}_{-0.041}$	$r_{\text{drag}}$	$147.6^{+1.4}_{-1.5}$	$f_{2000}^{143 \times 217}$	$30^{+7}_{-6}$
$\Omega_m h^2$	$0.1406^{+0.0069}_{-0.0064}$	$k_{\text{D}}$	$0.1404^{+0.0014}_{-0.0014}$	$f_{2000}^{217}$	$105.3^{+6.0}_{-5.9}$
$\Omega_m h^3$	$0.0963^{+0.0013}_{-0.0012}$	$100\theta_{\text{D}}$	$0.16070^{+0.00082}_{-0.00074}$	$\chi_{\text{plik}}^2$	$767.3 (\nu: 15.2)$
$\sigma_8$	$0.846^{+0.096}_{-0.068}$	$z_{\text{eq}}$	$3345^{+170}_{-150}$	$\chi_{\text{prior}}^2$	$7.0 (\nu: 6.2)$

$$\bar{\chi}_{\text{eff}}^2 = 774.31; R - 1 = 0.00620$$



### 3.64 base\_Alens\_plikHM\_TT\_lowl

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02266	$0.02261^{+0.00075}_{-0.00076}$	$S_8$	0.757	$0.792^{+0.10}_{-0.085}$	$k_{\text{eq}}$	0.010159	$0.01014^{+0.00045}_{-0.00043}$
$\Omega_c h^2$	0.1166	$0.1165^{+0.0068}_{-0.0064}$	$\sigma_8 \Omega_m^{0.5}$	0.415	$0.434^{+0.055}_{-0.046}$	$100\theta_{\text{eq}}$	0.8279	$0.829^{+0.029}_{-0.029}$
$100\theta_{\text{MC}}$	1.04140	$1.0414^{+0.0014}_{-0.0013}$	$\sigma_8 \Omega_m^{0.25}$	0.563	$0.589^{+0.065}_{-0.049}$	$100\theta_{\text{s,eq}}$	0.4568	$0.457^{+0.015}_{-0.015}$
$\tau$	0.010	$< 0.150$	$\sigma_8/h^{0.5}$	0.920	$0.964^{+0.10}_{-0.074}$	$H(0.15)$	74.06	$74.1^{+2.8}_{-2.7}$
$A_L$	1.360	$1.23^{+0.30}_{-0.29}$	$r_{\text{drag}} h$	101.8	$101.9^{+5.4}_{-5.3}$	$D_M(0.15)$	629.9	$630^{+27}_{-26}$
$\ln(10^{10} A_s)$	2.948	$3.04^{+0.19}_{-0.11}$	$\langle d^2 \rangle^{1/2}$	2.654	$2.64^{+0.19}_{-0.21}$	$H(0.38)$	83.87	$83.9^{+2.1}_{-2.0}$
$n_s$	0.9753	$0.975^{+0.019}_{-0.019}$	$z_{\text{re}}$	2.1	$7.5^{+8.1}_{-5.8}$	$D_M(0.38)$	1506	$1506^{+54}_{-52}$
$y_{\text{cal}}$	0.99995	$1.0001^{+0.0063}_{-0.0063}$	$10^9 A_s$	1.907	$2.10^{+0.42}_{-0.22}$	$H(0.51)$	90.42	$90.4^{+1.7}_{-1.6}$
$A_{217}^{\text{CIB}}$	42.8	$45^{+20}_{-20}$	$10^9 A_s e^{-2\tau}$	1.8686	$1.866^{+0.038}_{-0.036}$	$D_M(0.51)$	1954	$1954^{+63}_{-62}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.93	—	$D_{40}$	1200	$1212^{+55}_{-46}$	$H(0.61)$	95.91	$95.9^{+1.4}_{-1.3}$
$A_{143}^{\text{tSZ}}$	6.79	$> 1.07$	$D_{220}$	5739	$5736^{+110}_{-100}$	$D_M(0.61)$	2276	$2276^{+68}_{-68}$
$A_{100}^{\text{PS}}$	239	$249^{+70}_{-70}$	$D_{810}$	2529.2	$2527^{+35}_{-35}$	$H(2.33)$	234.67	$234.5^{+3.9}_{-3.6}$
$A_{143}^{\text{PS}}$	48.4	$41^{+20}_{-20}$	$D_{1420}$	815.8	$814^{+13}_{-13}$	$D_M(2.33)$	5737	$5738^{+58}_{-61}$
$A_{143 \times 217}^{\text{PS}}$	55.5	$41^{+20}_{-20}$	$D_{2000}$	233.0	$232.4^{+5.3}_{-5.2}$	$f\sigma_8(0.15)$	0.4202	$0.440^{+0.054}_{-0.045}$
$A_{217}^{\text{PS}}$	123.0	$115^{+30}_{-30}$	$n_{\text{s},0.002}$	0.9753	$0.975^{+0.019}_{-0.019}$	$\sigma_8(0.15)$	0.708	$0.741^{+0.072}_{-0.047}$
$A^{\text{kSZ}}$	0.00	$< 8.93$	$Y_{\text{P}}$	0.245502	$0.24549^{+0.00032}_{-0.00032}$	$f\sigma_8(0.38)$	0.4411	$0.462^{+0.052}_{-0.040}$
$A_{100}^{\text{dustTT}}$	8.88	$9.0^{+4.7}_{-4.7}$	$Y_{\text{P}}^{\text{BBN}}$	0.246829	$0.24682^{+0.00033}_{-0.00032}$	$\sigma_8(0.38)$	0.629	$0.659^{+0.064}_{-0.040}$
$A_{143}^{\text{dustTT}}$	10.64	$10.5^{+4.6}_{-4.7}$	$10^5 \text{D}/\text{H}$	2.534	$2.54^{+0.14}_{-0.13}$	$f\sigma_8(0.51)$	0.4417	$0.462^{+0.051}_{-0.037}$
$A_{143 \times 217}^{\text{dustTT}}$	19.5	$17.9^{+8.4}_{-8.7}$	$\text{Age}/\text{Gyr}$	13.739	$13.74^{+0.13}_{-0.13}$	$\sigma_8(0.51)$	0.5897	$0.618^{+0.060}_{-0.036}$
$A_{217}^{\text{dustTT}}$	95.5	$94^{+20}_{-20}$	$z_*$	1089.26	$1089.3^{+1.4}_{-1.3}$	$f\sigma_8(0.61)$	0.4384	$0.459^{+0.049}_{-0.035}$
$c_{100}$	0.99968	$0.9996^{+0.0016}_{-0.0016}$	$r_*$	145.09	$145.2^{+1.3}_{-1.4}$	$\sigma_8(0.61)$	0.5616	$0.588^{+0.057}_{-0.034}$
$c_{217}$	0.99815	$0.9982^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04155	$1.0416^{+0.0014}_{-0.0013}$	$f\sigma_8(2.33)$	0.2838	$0.297^{+0.029}_{-0.016}$
$H_0$	68.96	$69.0^{+3.2}_{-3.2}$	$D_M(z_*)/\text{Gpc}$	13.930	$13.94^{+0.12}_{-0.13}$	$\sigma_8(2.33)$	0.2934	$0.307^{+0.030}_{-0.017}$
$\Omega_\Lambda$	0.7057	$0.706^{+0.037}_{-0.042}$	$z_{\text{drag}}$	1060.35	$1060.2^{+1.4}_{-1.5}$	$\chi_{\text{lowl}}^2$	20.98	$22.2 (\nu: 1.1)$
$\Omega_m$	0.2943	$0.294^{+0.042}_{-0.037}$	$r_{\text{drag}}$	147.67	$147.8^{+1.3}_{-1.3}$	$\chi_{\text{plik}}^2$	753.0	$767.1 (\nu: 14.8)$
$\Omega_m h^2$	0.1399	$0.1397^{+0.0062}_{-0.0058}$	$k_{\text{D}}$	0.14048	$0.1403^{+0.0013}_{-0.0013}$	$\chi_{\text{prior}}^2$	1.1	$7.1 (\nu: 6.3)$
$\Omega_m h^3$	0.09649	$0.0964^{+0.0013}_{-0.0013}$	$100\theta_{\text{D}}$	0.16054	$0.16062^{+0.00084}_{-0.00074}$	$\chi_{\text{CMB}}^2$	773.9	$789.3 (\nu: 15.4)$
$\sigma_8$	0.764	$0.800^{+0.079}_{-0.053}$	$z_{\text{eq}}$	3328	$3324^{+150}_{-140}$			

Best-fit  $\chi_{\text{eff}}^2 = 775.00$ ;  $\bar{\chi}_{\text{eff}}^2 = 796.44$ ;  $R - 1 = 0.00820$

$\chi_{\text{eff}}^2$ : CMB - commander\_dx12\_v3\_2\_29: 20.98 plik\_rd12\_HM\_v22\_TT: 752.97



### 3.65 base\_Alens\_plikHM\_TT\_lowl\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02263^{+0.00076}_{-0.00076}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.442^{+0.051}_{-0.044}$	$100\theta_{\mathrm{s,eq}}$	$0.458^{+0.015}_{-0.015}$
$\Omega_{\mathrm{c}} h^2$	$0.1162^{+0.0069}_{-0.0064}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.058}_{-0.045}$	$H(0.15)$	$74.2^{+2.8}_{-2.8}$
$100\theta_{\mathrm{MC}}$	$1.0414^{+0.0014}_{-0.0013}$	$\sigma_8/h^{0.5}$	$0.984^{+0.092}_{-0.066}$	$D_{\mathrm{M}}(0.15)$	$629^{+28}_{-26}$
$\tau$	$0.080^{+0.079}_{-0.039}$	$r_{\mathrm{drag}} h$	$102.2^{+5.4}_{-5.6}$	$H(0.38)$	$84.0^{+2.1}_{-2.0}$
$A_{\mathrm{L}}$	$1.18^{+0.27}_{-0.26}$	$\langle d^2 \rangle^{1/2}$	$2.64^{+0.19}_{-0.21}$	$D_{\mathrm{M}}(0.38)$	$1504^{+56}_{-53}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.09^{+0.16}_{-0.085}$	$z_{\mathrm{re}}$	$< 16.0$	$H(0.51)$	$90.5^{+1.7}_{-1.6}$
$n_{\mathrm{s}}$	$0.976^{+0.019}_{-0.020}$	$10^9 A_{\mathrm{s}}$	$2.19^{+0.36}_{-0.18}$	$D_{\mathrm{M}}(0.51)$	$1951^{+65}_{-62}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0064}_{-0.0062}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.865^{+0.038}_{-0.036}$	$H(0.61)$	$96.0^{+1.4}_{-1.3}$
$A_{217}^{\mathrm{CIB}}$	$45^{+20}_{-20}$	$D_{40}$	$1217^{+55}_{-45}$	$D_{\mathrm{M}}(0.61)$	$2273^{+70}_{-68}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{220}$	$5735^{+110}_{-100}$	$H(2.33)$	$234.3^{+3.9}_{-3.6}$
$A_{143}^{\mathrm{tSZ}}$	$> 1.11$	$D_{810}$	$2526^{+36}_{-36}$	$D_{\mathrm{M}}(2.33)$	$5736^{+58}_{-61}$
$A_{100}^{\mathrm{PS}}$	$248^{+70}_{-70}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	$0.448^{+0.049}_{-0.043}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{2000}$	$232.6^{+5.4}_{-5.2}$	$\sigma_8(0.15)$	$0.758^{+0.066}_{-0.037}$
$A_{143 \times 217}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.976^{+0.019}_{-0.020}$	$f\sigma_8(0.38)$	$0.471^{+0.046}_{-0.037}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}$	$0.24550^{+0.00033}_{-0.00032}$	$\sigma_8(0.38)$	$0.674^{+0.055}_{-0.033}$
$A^{\mathrm{kSZ}}$	$< 8.87$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24682^{+0.00033}_{-0.00032}$	$f\sigma_8(0.51)$	$0.472^{+0.045}_{-0.034}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.7}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.54^{+0.14}_{-0.13}$	$\sigma_8(0.51)$	$0.631^{+0.051}_{-0.030}$
$A_{143}^{\mathrm{dustTT}}$	$10.4^{+4.6}_{-4.6}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.74^{+0.13}_{-0.13}$	$f\sigma_8(0.61)$	$0.468^{+0.043}_{-0.031}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$17.9^{+8.4}_{-8.6}$	$z_*$	$1089.3^{+1.4}_{-1.4}$	$\sigma_8(0.61)$	$0.601^{+0.049}_{-0.028}$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$	$r_*$	$145.2^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	$0.304^{+0.025}_{-0.013}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0416^{+0.0014}_{-0.0013}$	$\sigma_8(2.33)$	$0.314^{+0.026}_{-0.014}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.12}_{-0.13}$	$f_{2000}^{143}$	$26^{+9}_{-9}$
$H_0$	$69.1^{+3.2}_{-3.3}$	$z_{\mathrm{drag}}$	$1060.3^{+1.4}_{-1.5}$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6}$
$\Omega_{\Lambda}$	$0.708^{+0.036}_{-0.044}$	$r_{\mathrm{drag}}$	$147.8^{+1.3}_{-1.3}$	$f_{2000}^{217}$	$104.7^{+5.7}_{-5.9}$
$\Omega_{\mathrm{m}}$	$0.292^{+0.044}_{-0.036}$	$k_{\mathrm{D}}$	$0.1403^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{lowl}}^2$	$22.6 (\nu: 1.3)$
$\Omega_{\mathrm{m}} h^2$	$0.1394^{+0.0064}_{-0.0058}$	$100\theta_{\mathrm{D}}$	$0.16061^{+0.00084}_{-0.00074}$	$\chi_{\mathrm{plik}}^2$	$767.1 (\nu: 15.1)$
$\Omega_{\mathrm{m}} h^3$	$0.0964^{+0.0013}_{-0.0013}$	$z_{\mathrm{eq}}$	$3317^{+150}_{-140}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.4)$
$\sigma_8$	$0.818^{+0.072}_{-0.043}$	$k_{\mathrm{eq}}$	$0.01012^{+0.00047}_{-0.00042}$	$\chi_{\mathrm{CMB}}^2$	$789.8 (\nu: 15.7)$
$S_8$	$0.807^{+0.094}_{-0.081}$	$100\theta_{\mathrm{eq}}$	$0.830^{+0.029}_{-0.030}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 796.93$ ;  $R - 1 = 0.00997$



### 3.66 base\_Alens\_plikHM\_TT\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02259	$0.02249^{+0.00077}_{-0.00079}$	$S_8$	0.797	$0.804^{+0.091}_{-0.078}$	$k_{\text{eq}}$	0.010204	$0.01025^{+0.00049}_{-0.00044}$
$\Omega_c h^2$	0.1173	$0.1180^{+0.0073}_{-0.0066}$	$\sigma_8 \Omega_m^{0.5}$	0.4365	$0.440^{+0.050}_{-0.043}$	$100\theta_{\text{eq}}$	0.8249	$0.822^{+0.030}_{-0.031}$
$100\theta_{\text{MC}}$	1.04127	$1.0412^{+0.0014}_{-0.0014}$	$\sigma_8 \Omega_m^{0.25}$	0.5905	$0.593^{+0.044}_{-0.040}$	$100\theta_{\text{s,eq}}$	0.4553	$0.454^{+0.015}_{-0.016}$
$\tau$	0.0508	$0.050^{+0.021}_{-0.027}$	$\sigma_8/h^{0.5}$	0.964	$0.968^{+0.061}_{-0.056}$	$H(0.15)$	73.76	$73.5^{+2.8}_{-2.9}$
$A_L$	1.235	$1.20^{+0.26}_{-0.24}$	$r_{\text{drag}} h$	101.2	$100.7^{+5.6}_{-5.8}$	$D_M(0.15)$	632.8	$636^{+30}_{-26}$
$\ln(10^{10} A_s)$	3.032	$3.030^{+0.046}_{-0.056}$	$\langle d^2 \rangle^{1/2}$	2.650	$2.63^{+0.20}_{-0.21}$	$H(0.38)$	83.65	$83.4^{+2.1}_{-2.1}$
$n_s$	0.9731	$0.970^{+0.020}_{-0.020}$	$z_{\text{re}}$	7.23	$7.1^{+2.1}_{-3.1}$	$D_M(0.38)$	1512	$1518^{+59}_{-53}$
$y_{\text{cal}}$	1.0003	$1.0000^{+0.0063}_{-0.0063}$	$10^9 A_s$	2.073	$2.071^{+0.097}_{-0.11}$	$H(0.51)$	90.24	$90.1^{+1.7}_{-1.7}$
$A_{217}^{\text{CIB}}$	42.7	$46^{+20}_{-20}$	$10^9 A_s e^{-2\tau}$	1.8730	$1.874^{+0.042}_{-0.040}$	$D_M(0.51)$	1961	$1968^{+69}_{-63}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.99	—	$D_{40}$	1213.0	$1219^{+50}_{-49}$	$H(0.61)$	95.76	$95.6^{+1.4}_{-1.3}$
$A_{143}^{\text{tSZ}}$	6.82	$5.4^{+4.2}_{-4.8}$	$D_{220}$	5742	$5738^{+110}_{-110}$	$D_M(0.61)$	2284	$2291^{+74}_{-68}$
$A_{100}^{\text{PS}}$	239	$254^{+70}_{-70}$	$D_{810}$	2531.8	$2529^{+36}_{-35}$	$H(2.33)$	235.04	$235.4^{+4.2}_{-3.8}$
$A_{143}^{\text{PS}}$	50.4	$44^{+20}_{-20}$	$D_{1420}$	815.8	$814^{+13}_{-12}$	$D_M(2.33)$	5743	$5750^{+61}_{-61}$
$A_{143 \times 217}^{\text{PS}}$	57.7	$41^{+20}_{-20}$	$D_{2000}$	232.8	$231.5^{+5.4}_{-5.4}$	$f\sigma_8(0.15)$	0.4420	$0.445^{+0.046}_{-0.041}$
$A_{217}^{\text{PS}}$	123.8	$115^{+30}_{-30}$	$n_{\text{s},0.002}$	0.9731	$0.970^{+0.020}_{-0.020}$	$\sigma_8(0.15)$	0.7395	$0.740^{+0.026}_{-0.027}$
$A^{\text{kSZ}}$	0.0	—	$Y_{\text{P}}$	0.245477	$0.24544^{+0.00033}_{-0.00036}$	$f\sigma_8(0.38)$	0.4630	$0.465^{+0.036}_{-0.033}$
$A_{100}^{\text{dustTT}}$	8.72	$8.9^{+4.7}_{-4.8}$	$Y_{\text{P}}^{\text{BBN}}$	0.246804	$0.24677^{+0.00033}_{-0.00036}$	$\sigma_8(0.38)$	0.6569	$0.657^{+0.019}_{-0.021}$
$A_{143}^{\text{dustTT}}$	10.61	$10.5^{+4.6}_{-4.5}$	$10^5 \text{D}/\text{H}$	2.546	$2.56^{+0.15}_{-0.14}$	$f\sigma_8(0.51)$	0.4631	$0.465^{+0.031}_{-0.029}$
$A_{143 \times 217}^{\text{dustTT}}$	20.0	$17.9^{+8.2}_{-8.4}$	$\text{Age}/\text{Gyr}$	13.753	$13.77^{+0.14}_{-0.13}$	$\sigma_8(0.51)$	0.6153	$0.615^{+0.017}_{-0.018}$
$A_{217}^{\text{dustTT}}$	96.4	$93^{+20}_{-20}$	$z_*$	1089.41	$1089.6^{+1.6}_{-1.4}$	$f\sigma_8(0.61)$	0.4592	$0.461^{+0.027}_{-0.026}$
$c_{100}$	0.99969	$0.9996^{+0.0016}_{-0.0016}$	$r_*$	144.96	$144.9^{+1.4}_{-1.5}$	$\sigma_8(0.61)$	0.5859	$0.585^{+0.016}_{-0.017}$
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04143	$1.0414^{+0.0014}_{-0.0014}$	$f\sigma_8(2.33)$	0.2959	$0.2955^{+0.0073}_{-0.0082}$
$H_0$	68.61	$68.3^{+3.2}_{-3.4}$	$D_M(z_*)/\text{Gpc}$	13.919	$13.91^{+0.13}_{-0.13}$	$\sigma_8(2.33)$	0.3057	$0.3050^{+0.0073}_{-0.0083}$
$\Omega_\Lambda$	0.7014	$0.697^{+0.039}_{-0.048}$	$z_{\text{drag}}$	1060.24	$1060.1^{+1.5}_{-1.5}$	$\chi_{\text{simall}}^2$	395.66	$396.8 (\nu: 1.3)$
$\Omega_m$	0.2986	$0.303^{+0.048}_{-0.039}$	$r_{\text{drag}}$	147.56	$147.5^{+1.4}_{-1.4}$	$\chi_{\text{plik}}^2$	752.6	$767.3 (\nu: 15.2)$
$\Omega_m h^2$	0.1405	$0.1411^{+0.0067}_{-0.0061}$	$k_{\text{D}}$	0.14054	$0.1405^{+0.0014}_{-0.0014}$	$\chi_{\text{prior}}^2$	1.1	$7.0 (\nu: 6.1)$
$\Omega_m h^3$	0.09643	$0.0963^{+0.0013}_{-0.0013}$	$100\theta_{\text{D}}$	0.16059	$0.16071^{+0.00085}_{-0.00077}$	$\chi_{\text{CMB}}^2$	1148.2	$1164.1 (\nu: 16.6)$
$\sigma_8$	0.7988	$0.800^{+0.032}_{-0.032}$	$z_{\text{eq}}$	3343	$3357^{+160}_{-150}$			

Best-fit  $\chi_{\text{eff}}^2 = 1149.29$ ;  $\bar{\chi}_{\text{eff}}^2 = 1171.08$ ;  $R - 1 = 0.00738$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.66 plik\_rd12\_HM\_v22\_TT: 752.58



### 3.67 base\_Alens\_plikHM\_TTTEEE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022605	$0.02256^{+0.00045}_{-0.00044}$ ( $+0.2\sigma$ )	$\Omega_\Lambda$	0.6966	$0.695^{+0.024}_{-0.026}$ ( $-0.3\sigma$ )	$r_{\text{drag}}$	147.32	$147.30^{+0.84}_{-0.84}$ ( $-0.5\sigma$ )
$\Omega_c h^2$	0.11816	$0.1184^{+0.0041}_{-0.0040}$ ( $+0.3\sigma$ )	$\Omega_m$	0.3034	$0.305^{+0.026}_{-0.024}$ ( $+0.3\sigma$ )	$k_D$	0.14080	$0.14079^{+0.00086}_{-0.00085}$ ( $+0.6\sigma$ )
$100\theta_{\text{MC}}$	1.04113	$1.04110^{+0.00085}_{-0.00086}$ ( $-0.3\sigma$ )	$\Omega_m h^2$	0.14141	$0.1416^{+0.0039}_{-0.0038}$ ( $+0.4\sigma$ )	$100\theta_D$	0.160530	$0.16058^{+0.00049}_{-0.00049}$ ( $-0.4\sigma$ )
$\tau$	0.108	$< 0.198$ ( $-0.0\sigma$ )	$\Omega_m h^3$	0.09654	$0.09649^{+0.00080}_{-0.00080}$ ( $+0.3\sigma$ )	$z_{\text{eq}}$	3364	$3369^{+92}_{-90}$ ( $+0.4\sigma$ )
$A_L$	1.056	$1.09^{+0.28}_{-0.27}$ ( $-0.3\sigma$ )	$\sigma_8$	0.849	$0.833^{+0.10}_{-0.073}$ ( $+0.0\sigma$ )	$k_{\text{eq}}$	0.010267	$0.01028^{+0.00028}_{-0.00027}$ ( $+0.4\sigma$ )
$\ln(10^{10} A_s)$	3.147	$3.11^{+0.23}_{-0.17}$ ( $-0.0\sigma$ )	$S_8$	0.854	$0.840^{+0.12}_{-0.088}$ ( $+0.2\sigma$ )	$100\theta_{\text{eq}}$	0.8210	$0.820^{+0.018}_{-0.017}$ ( $-0.3\sigma$ )
$n_s$	0.9723	$0.970^{+0.014}_{-0.013}$ ( $-0.2\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.468	$0.460^{+0.063}_{-0.048}$ ( $+0.2\sigma$ )	$100\theta_{s,\text{eq}}$	0.4532	$0.4527^{+0.0090}_{-0.0088}$ ( $-0.4\sigma$ )
$A_{217}^{\text{CIB}}$	42.2	$45^{+20}_{-20}$ ( $-0.1\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.630	$0.619^{+0.077}_{-0.060}$ ( $+0.1\sigma$ )	$H(0.15)$	73.47	$73.3^{+1.6}_{-1.6}$ ( $-0.2\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.997	—	$\sigma_8/h^{0.5}$	1.027	$1.01^{+0.12}_{-0.095}$ ( $+0.1\sigma$ )	$D_M(0.15)$	635.6	$637^{+16}_{-16}$ ( $+0.2\sigma$ )
$A_{143}^{\text{tSZ}}$	6.93	$> 1.13$ ( $+0.1\sigma$ )	$r_{\text{drag}} h$	100.57	$100.3^{+3.3}_{-3.2}$ ( $-0.3\sigma$ )	$H(0.38)$	83.45	$83.4^{+1.2}_{-1.1}$ ( $-0.2\sigma$ )
$A_{100}^{\text{PS}}$	238	$251^{+70}_{-70}$ ( $-0.1\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.609	$2.60^{+0.16}_{-0.15}$ ( $-0.4\sigma$ )	$D_M(0.38)$	1517.8	$1520^{+31}_{-31}$ ( $+0.2\sigma$ )
$A_{143}^{\text{PS}}$	49.3	$42^{+20}_{-20}$ ( $-0.1\sigma$ )	$z_{\text{re}}$	12.4	$10.3^{+8.9}_{-8.5}$ ( $-0.0\sigma$ )	$H(0.51)$	90.09	$90.02^{+0.97}_{-0.90}$ ( $-0.2\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	57.2	$41^{+20}_{-20}$ ( $+0.0\sigma$ )	$10^9 A_s$	2.327	$2.24^{+0.55}_{-0.36}$ ( $-0.0\sigma$ )	$D_M(0.51)$	1967.5	$1970^{+37}_{-37}$ ( $+0.2\sigma$ )
$A_{217}^{\text{PS}}$	124.0	$116^{+20}_{-30}$ ( $+0.1\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8747	$1.875^{+0.031}_{-0.033}$ ( $+0.2\sigma$ )	$H(0.61)$	95.66	$95.60^{+0.79}_{-0.72}$ ( $-0.2\sigma$ )
$A^{\text{kSZ}}$	0.00	$< 8.84$ ( $-0.1\sigma$ )	$D_{40}$	1238	$1238^{+80}_{-50}$ ( $+0.1\sigma$ )	$D_M(0.61)$	2290.5	$2294^{+39}_{-40}$ ( $+0.2\sigma$ )
$A_{100}^{\text{dustTT}}$	8.60	$8.7^{+4.8}_{-4.7}$ ( $-0.1\sigma$ )	$D_{220}$	5736	$5738^{+100}_{-100}$ ( $+0.1\sigma$ )	$H(2.33)$	235.60	$235.7^{+2.4}_{-2.3}$ ( $+0.4\sigma$ )
$A_{143}^{\text{dustTT}}$	10.62	$10.5^{+4.6}_{-4.7}$ ( $+0.0\sigma$ )	$D_{810}$	2532.6	$2531^{+36}_{-36}$ ( $+0.2\sigma$ )	$D_M(2.33)$	5746.5	$5749^{+33}_{-34}$ ( $+0.1\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.1^{+8.4}_{-8.6}$ ( $+0.1\sigma$ )	$D_{1420}$	816.7	$815^{+12}_{-12}$ ( $+0.2\sigma$ )	$f\sigma_8(0.15)$	0.473	$0.466^{+0.063}_{-0.047}$ ( $+0.1\sigma$ )
$A_{217}^{\text{dustTT}}$	95.8	$94^{+20}_{-20}$ ( $+0.0\sigma$ )	$D_{2000}$	232.82	$232.0^{+4.3}_{-4.2}$ ( $+0.1\sigma$ )	$\sigma_8(0.15)$	0.785	$0.770^{+0.092}_{-0.067}$ ( $+0.0\sigma$ )
$A_{100}^{\text{dustTE}}$	0.111	$0.113^{+0.097}_{-0.095}$	$n_{s,0.002}$	0.9723	$0.970^{+0.014}_{-0.013}$ ( $-0.2\sigma$ )	$f\sigma_8(0.38)$	0.494	$0.486^{+0.061}_{-0.048}$ ( $+0.1\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.134^{+0.075}_{-0.076}$	$Y_P$	0.245482	$0.24547^{+0.00019}_{-0.00017}$ ( $+0.2\sigma$ )	$\sigma_8(0.38)$	0.697	$0.684^{+0.081}_{-0.058}$ ( $+0.0\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$Y_P^{\text{BBN}}$	0.246808	$0.24679^{+0.00019}_{-0.00017}$ ( $+0.2\sigma$ )	$f\sigma_8(0.51)$	0.494	$0.485^{+0.060}_{-0.046}$ ( $+0.1\sigma$ )
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$10^5 \text{D}/\text{H}$	2.544	$2.552^{+0.082}_{-0.081}$ ( $-0.2\sigma$ )	$\sigma_8(0.51)$	0.653	$0.640^{+0.076}_{-0.054}$ ( $-0.0\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.660	$0.66^{+0.21}_{-0.21}$	Age/Gyr	13.760	$13.766^{+0.072}_{-0.075}$ ( $+0.1\sigma$ )	$f\sigma_8(0.61)$	0.489	$0.481^{+0.059}_{-0.045}$ ( $+0.1\sigma$ )
$A_{217}^{\text{dustTE}}$	2.06	$2.06^{+0.68}_{-0.68}$	$z_*$	1089.47	$1089.55^{+0.83}_{-0.82}$ ( $+0.0\sigma$ )	$\sigma_8(0.61)$	0.621	$0.609^{+0.072}_{-0.051}$ ( $-0.0\sigma$ )
$c_{100}$	0.99977	$0.9997^{+0.0016}_{-0.0016}$ ( $+0.1\sigma$ )	$r_*$	144.73	$144.69^{+0.87}_{-0.87}$ ( $-0.5\sigma$ )	$f\sigma_8(2.33)$	0.3136	$0.307^{+0.037}_{-0.025}$ ( $-0.0\sigma$ )
$c_{217}$	0.99813	$0.9981^{+0.0016}_{-0.0016}$ ( $-0.1\sigma$ )	$100\theta_*$	1.04130	$1.04127^{+0.00083}_{-0.00084}$ ( $-0.3\sigma$ )	$\sigma_8(2.33)$	0.3237	$0.317^{+0.038}_{-0.026}$ ( $-0.0\sigma$ )
$y_{\text{cal}}$	0.9999	$0.9999^{+0.0064}_{-0.0066}$ ( $-0.1\sigma$ )	$D_M(z_*)/\text{Gpc}$	13.899	$13.896^{+0.079}_{-0.082}$ ( $-0.4\sigma$ )	$\chi_{\text{plik}}^2$	2336.5	$2354.1$ ( $\nu: 17.3$ ) ( $+290.2\sigma$ )
$H_0$	68.27	$68.1^{+1.9}_{-1.8}$ ( $-0.3\sigma$ )	$z_{\text{drag}}$	1060.35	$1060.26^{+0.86}_{-0.86}$ ( $+0.3\sigma$ )	$\chi_{\text{prior}}^2$	1.4	$11.3$ ( $\nu: 9.8$ ) ( $+1.2\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 2337.89$ ;  $\Delta\chi_{\text{eff}}^2 = 1584.66$ ;  $\bar{\chi}_{\text{eff}}^2 = 2365.39$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.13$ ;  $R - 1 = 0.00672$   
 $\chi_{\text{eff}}^2$ : CMB - plik\_rd12\_HM\_v22b\_TTTEEE: 2336.52



### 3.68 base\_Alens\_plikHM\_TTTEE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02256^{+0.00045}_{-0.00044} \quad (+0.1\sigma)$	$\Omega_m$	$0.305^{+0.026}_{-0.024} \quad (+0.3\sigma)$	$100\theta_D$	$0.16058^{+0.00050}_{-0.00048} \quad (-0.4\sigma)$
$\Omega_c h^2$	$0.1184^{+0.0042}_{-0.0040} \quad (+0.3\sigma)$	$\Omega_m h^2$	$0.1416^{+0.0039}_{-0.0038} \quad (+0.4\sigma)$	$z_{\text{eq}}$	$3368^{+92}_{-90} \quad (+0.4\sigma)$
$100\theta_{\text{MC}}$	$1.04111^{+0.00086}_{-0.00085} \quad (-0.3\sigma)$	$\Omega_m h^3$	$0.09648^{+0.00080}_{-0.00079} \quad (+0.3\sigma)$	$k_{\text{eq}}$	$0.01028^{+0.00028}_{-0.00027} \quad (+0.4\sigma)$
$\tau$	$0.104^{+0.099}_{-0.064} \quad (-0.1\sigma)$	$\sigma_8$	$0.846^{+0.090}_{-0.061} \quad (+0.0\sigma)$	$100\theta_{\text{eq}}$	$0.820^{+0.018}_{-0.018} \quad (-0.4\sigma)$
$A_L$	$1.05^{+0.25}_{-0.24} \quad (-0.3\sigma)$	$S_8$	$0.853^{+0.11}_{-0.079} \quad (+0.2\sigma)$	$100\theta_{\text{s,eq}}$	$0.4528^{+0.0090}_{-0.0089} \quad (-0.4\sigma)$
$\ln(10^{10} A_s)$	$3.14^{+0.20}_{-0.13} \quad (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.467^{+0.058}_{-0.043} \quad (+0.2\sigma)$	$H(0.15)$	$73.4^{+1.6}_{-1.6} \quad (-0.3\sigma)$
$n_s$	$0.970^{+0.014}_{-0.013} \quad (-0.3\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.629^{+0.073}_{-0.050} \quad (+0.1\sigma)$	$D_M(0.15)$	$637^{+16}_{-16} \quad (+0.3\sigma)$
$A_{217}^{\text{CIB}}$	$45^{+20}_{-20} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$1.03^{+0.12}_{-0.077} \quad (+0.1\sigma)$	$H(0.38)$	$83.4^{+1.2}_{-1.1} \quad (-0.3\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$r_{\text{drag}} h$	$100.4^{+3.3}_{-3.2} \quad (-0.3\sigma)$	$D_M(0.38)$	$1520^{+32}_{-31} \quad (+0.3\sigma)$
$A_{143}^{\text{tSZ}}$	$> 1.13 \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.60^{+0.16}_{-0.16} \quad (-0.4\sigma)$	$H(0.51)$	$90.03^{+0.97}_{-0.90} \quad (-0.2\sigma)$
$A_{100}^{\text{PS}}$	$250^{+70}_{-70} \quad (-0.0\sigma)$	$z_{\text{re}}$	$< 19.2 \quad (-0.1\sigma)$	$D_M(0.51)$	$1970^{+37}_{-37} \quad (+0.3\sigma)$
$A_{143}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.0\sigma)$	$10^9 A_s$	$2.31^{+0.49}_{-0.30} \quad (-0.1\sigma)$	$H(0.61)$	$95.60^{+0.79}_{-0.72} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$41^{+20}_{-20} \quad (+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	$1.875^{+0.031}_{-0.033} \quad (+0.3\sigma)$	$D_M(0.61)$	$2293^{+40}_{-40} \quad (+0.3\sigma)$
$A_{217}^{\text{PS}}$	$116^{+20}_{-30} \quad (+0.1\sigma)$	$D_{40}$	$1244^{+76}_{-50} \quad (+0.1\sigma)$	$H(2.33)$	$235.7^{+2.4}_{-2.4} \quad (+0.4\sigma)$
$A^{\text{kSZ}}$	$< 8.79 \quad (-0.1\sigma)$	$D_{220}$	$5737^{+100}_{-100} \quad (+0.1\sigma)$	$D_M(2.33)$	$5749^{+32}_{-34} \quad (+0.1\sigma)$
$A_{100}^{\text{dustTT}}$	$8.7^{+4.8}_{-4.6} \quad (-0.1\sigma)$	$D_{810}$	$2531^{+36}_{-36} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.473^{+0.057}_{-0.042} \quad (+0.2\sigma)$
$A_{143}^{\text{dustTT}}$	$10.5^{+4.6}_{-4.7} \quad (+0.0\sigma)$	$D_{1420}$	$815^{+12}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.783^{+0.082}_{-0.055} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.1^{+8.4}_{-8.6} \quad (+0.1\sigma)$	$D_{2000}$	$232.1^{+4.3}_{-4.2} \quad (+0.0\sigma)$	$f\sigma_8(0.38)$	$0.493^{+0.058}_{-0.040} \quad (+0.1\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$n_{\text{s},0.002}$	$0.970^{+0.014}_{-0.013} \quad (-0.3\sigma)$	$\sigma_8(0.38)$	$0.695^{+0.073}_{-0.047} \quad (-0.0\sigma)$
$A_{100}^{\text{dustTE}}$	$0.113^{+0.098}_{-0.095}$	$Y_{\text{P}}$	$0.24547^{+0.00019}_{-0.00017} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.493^{+0.057}_{-0.038} \quad (+0.1\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.075}_{-0.076}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24679^{+0.00019}_{-0.00017} \quad (+0.1\sigma)$	$\sigma_8(0.51)$	$0.650^{+0.068}_{-0.044} \quad (-0.0\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$10^5 \text{D}/\text{H}$	$2.552^{+0.081}_{-0.080} \quad (-0.1\sigma)$	$f\sigma_8(0.61)$	$0.488^{+0.053}_{-0.038} \quad (+0.1\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$\text{Age}/\text{Gyr}$	$13.766^{+0.072}_{-0.075} \quad (+0.1\sigma)$	$\sigma_8(0.61)$	$0.619^{+0.065}_{-0.042} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$z_*$	$1089.55^{+0.83}_{-0.82} \quad (+0.1\sigma)$	$f\sigma_8(2.33)$	$0.312^{+0.033}_{-0.021} \quad (-0.1\sigma)$
$A_{217}^{\text{dustTE}}$	$2.06^{+0.68}_{-0.68}$	$r_*$	$144.70^{+0.87}_{-0.87} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.322^{+0.034}_{-0.021} \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_*$	$1.04127^{+0.00084}_{-0.00082} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$27^{+8}_{-7} \quad (-0.1\sigma)$
$c_{217}$	$0.9981^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.897^{+0.080}_{-0.081} \quad (-0.5\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+5}_{-5} \quad (-0.1\sigma)$
$y_{\text{cal}}$	$0.9999^{+0.0064}_{-0.0067} \quad (-0.1\sigma)$	$z_{\text{drag}}$	$1060.25^{+0.86}_{-0.86} \quad (+0.3\sigma)$	$f_{2000}^{217}$	$105.1^{+5.2}_{-4.9} \quad (-0.1\sigma)$
$H_0$	$68.1^{+1.9}_{-1.9} \quad (-0.3\sigma)$	$r_{\text{drag}}$	$147.31^{+0.84}_{-0.83} \quad (-0.5\sigma)$	$\chi_{\text{plik}}^2$	$2354.1 \quad (\nu: 17.4) \quad (+288.0\sigma)$
$\Omega_\Lambda$	$0.695^{+0.024}_{-0.026} \quad (-0.3\sigma)$	$k_D$	$0.14078^{+0.00085}_{-0.00085} \quad (+0.6\sigma)$	$\chi_{\text{prior}}^2$	$11.3 \quad (\nu: 9.9) \quad (+1.2\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 2365.44; \Delta \bar{\chi}_{\text{eff}}^2 = 1591.13; R - 1 = 0.00596$$



### 3.69 base\_Alens\_plikHM\_TTTEE\_lowl

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022624	$0.02260^{+0.00046}_{-0.00043} \quad (-0.1\sigma)$	$\Omega_m$	0.3028	$0.303^{+0.024}_{-0.023} \quad (+0.6\sigma)$	$100\theta_D$	0.160509	$0.16055^{+0.00048}_{-0.00048} \quad (-0.2\sigma)$
$\Omega_c h^2$	0.11807	$0.1180^{+0.0039}_{-0.0040} \quad (+0.6\sigma)$	$\Omega_m h^2$	0.14134	$0.1412^{+0.0037}_{-0.0037} \quad (+0.6\sigma)$	$z_{\text{eq}}$	3362	$3359^{+87}_{-88} \quad (+0.6\sigma)$
$100\theta_{\text{MC}}$	1.04114	$1.04114^{+0.00083}_{-0.00083} \quad (-0.5\sigma)$	$\Omega_m h^3$	0.09656	$0.09649^{+0.00079}_{-0.00078} \quad (+0.3\sigma)$	$k_{\text{eq}}$	0.010261	$0.01025^{+0.00027}_{-0.00027} \quad (+0.6\sigma)$
$\tau$	0.010	$< 0.140 \quad (-0.1\sigma)$	$\sigma_8$	0.769	$0.804^{+0.073}_{-0.046} \quad (+0.1\sigma)$	$100\theta_{\text{eq}}$	0.8214	$0.822^{+0.017}_{-0.017} \quad (-0.6\sigma)$
$A_L$	1.289	$1.17^{+0.23}_{-0.24} \quad (-0.5\sigma)$	$S_8$	0.773	$0.807^{+0.086}_{-0.064} \quad (+0.4\sigma)$	$100\theta_{\text{s,eq}}$	0.4534	$0.4537^{+0.0089}_{-0.0085} \quad (-0.6\sigma)$
$\ln(10^{10} A_s)$	2.951	$3.04^{+0.17}_{-0.10} \quad (-0.0\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4233	$0.442^{+0.047}_{-0.035} \quad (+0.4\sigma)$	$H(0.15)$	73.52	$73.5^{+1.6}_{-1.5} \quad (-0.5\sigma)$
$n_s$	0.9718	$0.971^{+0.013}_{-0.013} \quad (-0.5\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.5706	$0.596^{+0.060}_{-0.039} \quad (+0.3\sigma)$	$D_M(0.15)$	635.1	$635^{+15}_{-15} \quad (+0.5\sigma)$
$y_{\text{cal}}$	0.9998	$0.99999^{+0.0064}_{-0.0064} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	0.931	$0.973^{+0.097}_{-0.060} \quad (+0.2\sigma)$	$H(0.38)$	83.49	$83.5^{+1.2}_{-1.1} \quad (-0.5\sigma)$
$A_{217}^{\text{CIB}}$	42.4	$45^{+20}_{-20} \quad (-0.1\sigma)$	$r_{\text{drag}} h$	100.65	$100.7^{+3.2}_{-3.1} \quad (-0.6\sigma)$	$D_M(0.38)$	1516.9	$1517^{+30}_{-31} \quad (+0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.998	—	$\langle d^2 \rangle^{1/2}$	2.612	$2.60^{+0.15}_{-0.15} \quad (-0.5\sigma)$	$H(0.51)$	90.13	$90.12^{+0.96}_{-0.88} \quad (-0.5\sigma)$
$A_{143}^{\text{tSZ}}$	6.87	$> 1.33 \quad (+0.1\sigma)$	$z_{\text{re}}$	2.1	$7.3^{+7.7}_{-5.6} \quad (-0.1\sigma)$	$D_M(0.51)$	1966.4	$1966^{+36}_{-36} \quad (+0.5\sigma)$
$A_{100}^{\text{PS}}$	239	$249^{+70}_{-70} \quad (+0.0\sigma)$	$10^9 A_s$	1.913	$2.09^{+0.39}_{-0.21} \quad (-0.0\sigma)$	$H(0.61)$	95.68	$95.68^{+0.78}_{-0.70} \quad (-0.4\sigma)$
$A_{143}^{\text{PS}}$	49.5	$42^{+20}_{-20} \quad (+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	1.8749	$1.873^{+0.031}_{-0.032} \quad (+0.5\sigma)$	$D_M(0.61)$	2289.2	$2289^{+38}_{-39} \quad (+0.5\sigma)$
$A_{143 \times 217}^{\text{PS}}$	57.5	$42^{+20}_{-20} \quad (+0.1\sigma)$	$D_{40}$	1208.3	$1220^{+47}_{-39} \quad (+0.4\sigma)$	$H(2.33)$	235.56	$235.5^{+2.3}_{-2.3} \quad (+0.7\sigma)$
$A_{217}^{\text{PS}}$	124.2	$116^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	5739	$5737^{+99}_{-100} \quad (+0.0\sigma)$	$D_M(2.33)$	5745.3	$5746^{+32}_{-34} \quad (+0.4\sigma)$
$A^{\text{kSZ}}$	0.00	$< 8.71 \quad (-0.1\sigma)$	$D_{810}$	2532.6	$2531^{+35}_{-35} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	0.4283	$0.448^{+0.047}_{-0.034} \quad (+0.4\sigma)$
$A_{100}^{\text{dustTT}}$	8.83	$8.8^{+4.8}_{-4.8} \quad (-0.1\sigma)$	$D_{1420}$	816.5	$816^{+12}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	0.712	$0.744^{+0.068}_{-0.041} \quad (+0.1\sigma)$
$A_{143}^{\text{dustTT}}$	10.73	$10.6^{+4.5}_{-4.6} \quad (+0.1\sigma)$	$D_{2000}$	232.68	$232.3^{+4.3}_{-4.2} \quad (-0.1\sigma)$	$f\sigma_8(0.38)$	0.4476	$0.468^{+0.047}_{-0.032} \quad (+0.3\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	19.7	$18.1^{+8.5}_{-8.3} \quad (+0.1\sigma)$	$n_{\text{s},0.002}$	0.9718	$0.971^{+0.013}_{-0.013} \quad (-0.5\sigma)$	$\sigma_8(0.38)$	0.6318	$0.660^{+0.060}_{-0.035} \quad (+0.1\sigma)$
$A_{217}^{\text{dustTT}}$	95.6	$94^{+20}_{-20} \quad (-0.0\sigma)$	$Y_{\text{P}}$	0.245488	$0.24548^{+0.00020}_{-0.00017} \quad (-0.1\sigma)$	$f\sigma_8(0.51)$	0.4472	$0.467^{+0.046}_{-0.030} \quad (+0.3\sigma)$
$A_{100}^{\text{dustTE}}$	0.113	$0.114^{+0.099}_{-0.095}$	$Y_{\text{P}}^{\text{BBN}}$	0.246815	$0.24681^{+0.00020}_{-0.00017} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	0.5916	$0.618^{+0.056}_{-0.033} \quad (+0.0\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.134^{+0.077}_{-0.076}$	$10^5 \text{D/H}$	2.540	$2.545^{+0.079}_{-0.081} \quad (+0.0\sigma)$	$f\sigma_8(0.61)$	0.4432	$0.463^{+0.046}_{-0.028} \quad (+0.3\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	Age/Gyr	13.757	$13.759^{+0.070}_{-0.074} \quad (+0.3\sigma)$	$\sigma_8(0.61)$	0.5632	$0.589^{+0.053}_{-0.031} \quad (+0.0\sigma)$
$A_{143}^{\text{dustTE}}$	0.221	$0.22^{+0.14}_{-0.14}$	$z_*$	1089.44	$1089.46^{+0.80}_{-0.82} \quad (+0.3\sigma)$	$f\sigma_8(2.33)$	0.2843	$0.297^{+0.027}_{-0.015} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	0.657	$0.66^{+0.21}_{-0.21}$	$r_*$	144.74	$144.78^{+0.87}_{-0.84} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	0.2935	$0.307^{+0.028}_{-0.016} \quad (-0.1\sigma)$
$A_{217}^{\text{dustTE}}$	2.05	$2.05^{+0.69}_{-0.69}$	$100\theta_*$	1.04131	$1.04131^{+0.00081}_{-0.00082} \quad (-0.5\sigma)$	$\chi^2_{\text{lowl}}$	21.43	$22.6 \quad (\nu: 1.0) \quad (+0.3\sigma)$
$c_{100}$	0.99976	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$D_M(z_*)/\text{Gpc}$	13.900	$13.904^{+0.080}_{-0.077} \quad (-0.7\sigma)$	$\chi^2_{\text{plik}}$	2337.2	$2353.9 \quad (\nu: 16.8) \quad (+291.6\sigma)$
$c_{217}$	0.99815	$0.9981^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\text{drag}}$	1060.39	$1060.31^{+0.88}_{-0.84} \quad (+0.1\sigma)$	$\chi^2_{\text{prior}}$	1.4	$11.2 \quad (\nu: 9.6) \quad (+1.1\sigma)$
$H_0$	68.32	$68.3^{+1.8}_{-1.8} \quad (-0.5\sigma)$	$r_{\text{drag}}$	147.32	$147.38^{+0.84}_{-0.80} \quad (-0.8\sigma)$	$\chi^2_{\text{CMB}}$	2358.7	$2376.5 \quad (\nu: 17.5) \quad (+286.3\sigma)$
$\Omega_\Lambda$	0.6972	$0.697^{+0.023}_{-0.024} \quad (-0.6\sigma)$	$k_{\text{D}}$	0.14081	$0.14074^{+0.00083}_{-0.00086} \quad (+0.8\sigma)$			

Best-fit  $\chi^2_{\text{eff}} = 2360.02$ ;  $\Delta\chi^2_{\text{eff}} = 1585.02$ ;  $\bar{\chi}^2_{\text{eff}} = 2387.73$ ;  $\Delta\bar{\chi}^2_{\text{eff}} = 1591.29$ ;  $R - 1 = 0.00854$   
 $\chi^2_{\text{eff}}$ : CMB - commander\_dx12.v3.2.29: 21.43 ( $\Delta$  0.45) plik\_rd12\_HM.v22b\_TTTEE: 2337.22



### 3.70 base\_Alens\_plikHM\_TTTEE\_lowl\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02260^{+0.00046}_{-0.00043} \quad (-0.1\sigma)$	$\Omega_{\text{m}}h^2$	$0.1411^{+0.0037}_{-0.0037} \quad (+0.7\sigma)$	$k_{\text{eq}}$	$0.01025^{+0.00027}_{-0.00027} \quad (+0.7\sigma)$
$\Omega_{\text{c}}h^2$	$0.1179^{+0.0039}_{-0.0040} \quad (+0.7\sigma)$	$\Omega_{\text{m}}h^3$	$0.09649^{+0.00080}_{-0.00078} \quad (+0.3\sigma)$	$100\theta_{\text{eq}}$	$0.822^{+0.018}_{-0.017} \quad (-0.7\sigma)$
$100\theta_{\text{MC}}$	$1.04115^{+0.00082}_{-0.00085} \quad (-0.5\sigma)$	$\sigma_8$	$0.822^{+0.062}_{-0.038} \quad (+0.2\sigma)$	$100\theta_{\text{s,eq}}$	$0.4539^{+0.0090}_{-0.0086} \quad (-0.7\sigma)$
$\tau$	$0.077^{+0.072}_{-0.036} \quad (-0.1\sigma)$	$S_8$	$0.824^{+0.077}_{-0.060} \quad (+0.5\sigma)$	$H(0.15)$	$73.6^{+1.6}_{-1.5} \quad (-0.6\sigma)$
$A_{\text{L}}$	$1.12^{+0.19}_{-0.21} \quad (-0.6\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.452^{+0.042}_{-0.033} \quad (+0.5\sigma)$	$D_{\text{M}}(0.15)$	$635^{+15}_{-15} \quad (+0.6\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.08^{+0.14}_{-0.079} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.609^{+0.052}_{-0.035} \quad (+0.4\sigma)$	$H(0.38)$	$83.5^{+1.2}_{-1.1} \quad (-0.6\sigma)$
$n_{\text{s}}$	$0.972^{+0.013}_{-0.013} \quad (-0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.994^{+0.083}_{-0.052} \quad (+0.3\sigma)$	$D_{\text{M}}(0.38)$	$1516^{+30}_{-31} \quad (+0.6\sigma)$
$y_{\text{cal}}$	$0.99999^{+0.0065}_{-0.0063} \quad (-0.0\sigma)$	$r_{\text{drag}}h$	$100.8^{+3.2}_{-3.1} \quad (-0.7\sigma)$	$H(0.51)$	$90.14^{+0.95}_{-0.88} \quad (-0.5\sigma)$
$A_{217}^{\text{CIB}}$	$44^{+20}_{-20} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.60^{+0.15}_{-0.16} \quad (-0.5\sigma)$	$D_{\text{M}}(0.51)$	$1966^{+35}_{-36} \quad (+0.6\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 15.5 \quad (-0.1\sigma)$	$H(0.61)$	$95.69^{+0.78}_{-0.71} \quad (-0.5\sigma)$
$A_{143}^{\text{tSZ}}$	$> 1.36 \quad (+0.1\sigma)$	$10^9 A_{\text{s}}$	$2.19^{+0.33}_{-0.17} \quad (-0.0\sigma)$	$D_{\text{M}}(0.61)$	$2288^{+38}_{-39} \quad (+0.6\sigma)$
$A_{100}^{\text{PS}}$	$248^{+70}_{-70} \quad (+0.0\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.873^{+0.032}_{-0.032} \quad (+0.5\sigma)$	$H(2.33)$	$235.4^{+2.3}_{-2.3} \quad (+0.7\sigma)$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20} \quad (+0.0\sigma)$	$D_{40}$	$1225^{+47}_{-39} \quad (+0.4\sigma)$	$D_{\text{M}}(2.33)$	$5746^{+32}_{-34} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$41^{+20}_{-20} \quad (+0.1\sigma)$	$D_{220}$	$5736^{+100}_{-97} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.042}_{-0.032} \quad (+0.5\sigma)$
$A_{217}^{\text{PS}}$	$116^{+20}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2530^{+36}_{-34} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.760^{+0.057}_{-0.034} \quad (+0.1\sigma)$
$A^{\text{kSZ}}$	$< 8.64 \quad (-0.1\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.041}_{-0.028} \quad (+0.4\sigma)$
$A_{100}^{\text{dustTT}}$	$8.8^{+4.8}_{-4.8} \quad (-0.1\sigma)$	$D_{2000}$	$232.4^{+4.3}_{-4.2} \quad (-0.1\sigma)$	$\sigma_8(0.38)$	$0.675^{+0.050}_{-0.029} \quad (+0.1\sigma)$
$A_{143}^{\text{dustTT}}$	$10.5^{+4.5}_{-4.6} \quad (+0.1\sigma)$	$n_{\text{s},0.002}$	$0.972^{+0.013}_{-0.013} \quad (-0.6\sigma)$	$f\sigma_8(0.51)$	$0.477^{+0.040}_{-0.026} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.0^{+8.5}_{-8.4} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.24548^{+0.00020}_{-0.00017} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.632^{+0.047}_{-0.026} \quad (+0.0\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (-0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24681^{+0.00020}_{-0.00017} \quad (-0.1\sigma)$	$f\sigma_8(0.61)$	$0.473^{+0.039}_{-0.024} \quad (+0.3\sigma)$
$A_{100}^{\text{dustTE}}$	$0.113^{+0.099}_{-0.095}$	$10^5 \text{D}/\text{H}$	$2.544^{+0.080}_{-0.082} \quad (+0.1\sigma)$	$\sigma_8(0.61)$	$0.602^{+0.045}_{-0.025} \quad (+0.0\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.076}_{-0.076}$	$\text{Age}/\text{Gyr}$	$13.758^{+0.071}_{-0.075} \quad (+0.4\sigma)$	$f\sigma_8(2.33)$	$0.304^{+0.023}_{-0.012} \quad (-0.0\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.45^{+0.81}_{-0.82} \quad (+0.3\sigma)$	$\sigma_8(2.33)$	$0.314^{+0.024}_{-0.012} \quad (-0.1\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$r_*$	$144.81^{+0.87}_{-0.84} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$26^{+8}_{-8} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$100\theta_*$	$1.04132^{+0.00081}_{-0.00084} \quad (-0.5\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+5}_{-5} \quad (+0.0\sigma)$
$A_{217}^{\text{dustTE}}$	$2.05^{+0.69}_{-0.68}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.906^{+0.080}_{-0.078} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$104.8^{+4.9}_{-4.9} \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1060.31^{+0.92}_{-0.88} \quad (+0.1\sigma)$	$\chi_{\text{lowl}}^2$	$23.2 \quad (\nu: 1.1) \quad (+0.4\sigma)$
$c_{217}$	$0.9981^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\text{drag}}$	$147.40^{+0.84}_{-0.82} \quad (-0.8\sigma)$	$\chi_{\text{plik}}^2$	$2353.8 \quad (\nu: 17.0) \quad (+288.7\sigma)$
$H_0$	$68.4^{+1.9}_{-1.8} \quad (-0.6\sigma)$	$k_{\text{D}}$	$0.14071^{+0.00085}_{-0.00086} \quad (+0.8\sigma)$	$\chi_{\text{prior}}^2$	$11.2 \quad (\nu: 9.5) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.698^{+0.023}_{-0.024} \quad (-0.6\sigma)$	$100\theta_{\text{D}}$	$0.16055^{+0.00049}_{-0.00049} \quad (-0.2\sigma)$	$\chi_{\text{CMB}}^2$	$2377.1 \quad (\nu: 17.8) \quad (+283.1\sigma)$
$\Omega_{\text{m}}$	$0.302^{+0.024}_{-0.023} \quad (+0.6\sigma)$	$z_{\text{eq}}$	$3357^{+88}_{-89} \quad (+0.7\sigma)$		

$\bar{\chi}_{\text{eff}}^2 = 2388.28$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.36$ ;  $R - 1 = 0.01143$



### 3.71 base\_Alens\_plikHM\_TTTEE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022613	$0.02256^{+0.00046}_{-0.00044}$ (+0.2 $\sigma$ )	$\Omega_m h^2$	0.14147	$0.1418^{+0.0037}_{-0.0037}$ (+0.3 $\sigma$ )	$k_{\text{eq}}$	0.010271	$0.01029^{+0.00027}_{-0.00027}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.11821	$0.1186^{+0.0040}_{-0.0040}$ (+0.2 $\sigma$ )	$\Omega_m h^3$	0.09656	$0.09650^{+0.00079}_{-0.00075}$ (+0.4 $\sigma$ )	$100\theta_{\text{eq}}$	0.8208	$0.819^{+0.017}_{-0.017}$ (-0.2 $\sigma$ )
$100\theta_{\text{MC}}$	1.04112	$1.04109^{+0.00082}_{-0.00084}$ (-0.2 $\sigma$ )	$\sigma_8$	0.8025	$0.802^{+0.022}_{-0.026}$ (+0.2 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4531	$0.4524^{+0.0089}_{-0.0085}$ (-0.3 $\sigma$ )
$\tau$	0.0518	$0.049^{+0.021}_{-0.028}$ (-0.1 $\sigma$ )	$S_8$	0.8074	$0.810^{+0.051}_{-0.049}$ (+0.2 $\sigma$ )	$H(0.15)$	73.46	$73.3^{+1.6}_{-1.6}$ (-0.2 $\sigma$ )
$A_L$	1.183	$1.17^{+0.17}_{-0.16}$ (-0.4 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4422	$0.443^{+0.028}_{-0.027}$ (+0.2 $\sigma$ )	$D_M(0.15)$	635.7	$637^{+16}_{-15}$ (+0.1 $\sigma$ )
$\ln(10^{10} A_s)$	3.035	$3.031^{+0.045}_{-0.057}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.5957	$0.596^{+0.026}_{-0.026}$ (+0.2 $\sigma$ )	$H(0.38)$	83.45	$83.3^{+1.2}_{-1.1}$ (-0.1 $\sigma$ )
$n_s$	0.9714	$0.969^{+0.013}_{-0.012}$ (-0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9714	$0.972^{+0.037}_{-0.038}$ (+0.2 $\sigma$ )	$D_M(0.38)$	1518.0	$1521^{+31}_{-31}$ (+0.1 $\sigma$ )
$y_{\text{cal}}$	0.9997	$1.0000^{+0.0065}_{-0.0064}$ (-0.0 $\sigma$ )	$r_{\text{drag}} h$	100.54	$100.2^{+3.3}_{-3.1}$ (-0.2 $\sigma$ )	$H(0.51)$	90.09	$90.00^{+0.96}_{-0.90}$ (-0.1 $\sigma$ )
$A_{217}^{\text{CIB}}$	42.4	$45^{+20}_{-20}$ (-0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.612	$2.60^{+0.15}_{-0.16}$ (-0.4 $\sigma$ )	$D_M(0.51)$	1967.7	$1972^{+37}_{-37}$ (+0.1 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	1.00	—	$z_{\text{re}}$	7.35	$7.1^{+2.1}_{-3.2}$ (-0.1 $\sigma$ )	$H(0.61)$	95.66	$95.58^{+0.79}_{-0.73}$ (-0.1 $\sigma$ )
$A_{143}^{\text{tSZ}}$	6.81	$5.6^{+4.3}_{-4.5}$ (+0.1 $\sigma$ )	$10^9 A_s$	2.080	$2.072^{+0.096}_{-0.11}$ (+0.0 $\sigma$ )	$D_M(0.61)$	2290.7	$2295^{+39}_{-40}$ (+0.1 $\sigma$ )
$A_{100}^{\text{PS}}$	240	$252^{+70}_{-70}$ (-0.1 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8752	$1.877^{+0.032}_{-0.031}$ (+0.2 $\sigma$ )	$H(2.33)$	235.64	$235.8^{+2.3}_{-2.3}$ (+0.3 $\sigma$ )
$A_{143}^{\text{PS}}$	49.6	$43^{+20}_{-20}$ (-0.1 $\sigma$ )	$D_{40}$	1216.0	$1222^{+36}_{-37}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5746.4	$5750^{+33}_{-34}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	57.4	$42^{+20}_{-20}$ (+0.0 $\sigma$ )	$D_{220}$	5738	$5743^{+99}_{-99}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4474	$0.448^{+0.026}_{-0.025}$ (+0.2 $\sigma$ )
$A_{217}^{\text{PS}}$	124.1	$116^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{810}$	2532.4	$2532^{+36}_{-35}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7423	$0.741^{+0.019}_{-0.023}$ (+0.1 $\sigma$ )
$A^{\text{kSZ}}$	0.00	< 9.05 (-0.1 $\sigma$ )	$D_{1420}$	816.3	$815^{+12}_{-12}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4673	$0.468^{+0.021}_{-0.021}$ (+0.2 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.69	$8.8^{+4.7}_{-4.8}$ (-0.0 $\sigma$ )	$D_{2000}$	232.62	$231.9^{+4.3}_{-4.2}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6589	$0.658^{+0.016}_{-0.019}$ (+0.1 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.73	$10.6^{+4.6}_{-4.6}$ (+0.0 $\sigma$ )	$n_{\text{s},0.002}$	0.9714	$0.969^{+0.013}_{-0.012}$ (-0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4668	$0.467^{+0.018}_{-0.019}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.7	$18.1^{+8.5}_{-8.4}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.245484	$0.24546^{+0.00019}_{-0.00017}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6170	$0.616^{+0.015}_{-0.018}$ (+0.1 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.4	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.246811	$0.24679^{+0.00020}_{-0.00018}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4625	$0.462^{+0.017}_{-0.018}$ (+0.2 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.113	$0.114^{+0.10}_{-0.096}$	$10^5 \text{D/H}$	2.542	$2.552^{+0.082}_{-0.083}$ (-0.2 $\sigma$ )	$\sigma_8(0.61)$	0.5873	$0.586^{+0.014}_{-0.017}$ (+0.1 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.134^{+0.076}_{-0.075}$	Age/Gyr	13.759	$13.767^{+0.073}_{-0.075}$ (-0.0 $\sigma$ )	$f\sigma_8(2.33)$	0.2964	$0.2957^{+0.0069}_{-0.0084}$ (+0.1 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.483	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.46	$1089.57^{+0.84}_{-0.84}$ (-0.1 $\sigma$ )	$\sigma_8(2.33)$	0.3059	$0.3051^{+0.0071}_{-0.0087}$ (+0.0 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$r_*$	144.71	$144.66^{+0.84}_{-0.82}$ (-0.4 $\sigma$ )	$f_{2000}^{143}$	25.6	$27^{+7}_{-8}$ (-0.2 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.659	$0.66^{+0.21}_{-0.21}$	$100\theta_*$	1.04128	$1.04126^{+0.00080}_{-0.00083}$ (-0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	29.7	$30^{+5}_{-5}$ (-0.2 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.07	$2.06^{+0.70}_{-0.69}$	$D_M(z_*)/\text{Gpc}$	13.897	$13.893^{+0.076}_{-0.077}$ (-0.4 $\sigma$ )	$f_{2000}^{217}$	104.3	$105.4^{+5.0}_{-5.0}$ (-0.1 $\sigma$ )
$c_{100}$	0.99976	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1060.35	$1060.26^{+0.89}_{-0.86}$ (+0.3 $\sigma$ )	$\chi_{\text{small}}^2$	395.71	$396.9 (\nu: 1.4)$ (+0.0 $\sigma$ )
$c_{217}$	0.99810	$0.9981^{+0.0016}_{-0.0016}$ (-0.1 $\sigma$ )	$r_{\text{drag}}$	147.30	$147.26^{+0.80}_{-0.80}$ (-0.4 $\sigma$ )	$\chi_{\text{plik}}^2$	2337.0	$2353.9 (\nu: 16.5)$ (+288.1 $\sigma$ )
$H_0$	68.25	$68.1^{+1.9}_{-1.8}$ (-0.2 $\sigma$ )	$k_{\text{D}}$	0.14083	$0.14083^{+0.00085}_{-0.00082}$ (+0.6 $\sigma$ )	$\chi_{\text{prior}}^2$	1.3	$11.3 (\nu: 9.7)$ (+1.2 $\sigma$ )
$\Omega_\Lambda$	0.6963	$0.694^{+0.024}_{-0.025}$ (-0.2 $\sigma$ )	$100\theta_{\text{D}}$	0.16052	$0.16058^{+0.00050}_{-0.00049}$ (-0.4 $\sigma$ )	$\chi_{\text{CMB}}^2$	2732.7	$2750.8 (\nu: 17.8)$ (+275.6 $\sigma$ )
$\Omega_{\text{m}}$	0.3037	$0.306^{+0.025}_{-0.024}$ (+0.2 $\sigma$ )	$z_{\text{eq}}$	3365	$3373^{+88}_{-88}$ (+0.3 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 2734.06$ ;  $\Delta\chi_{\text{eff}}^2 = 1584.77$ ;  $\bar{\chi}_{\text{eff}}^2 = 2762.07$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.00$ ;  $R - 1 = 0.00592$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.71 ( $\Delta$  0.05) plik\_rd12\_HM.v22b.TTTEE: 2337.00



### 3.72 base\_Alens\_CamSpecHM\_TT

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02262	$0.02256^{+0.00082}_{-0.00077}$	$S_8$	0.848	$0.83^{+0.13}_{-0.11}$	$100\theta_{\mathrm{eq}}$	0.8273	$0.826^{+0.032}_{-0.031}$
$\Omega_{\mathrm{c}} h^2$	0.1168	$0.1172^{+0.0073}_{-0.0070}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.464	$0.457^{+0.072}_{-0.062}$	$100\theta_{\mathrm{s,eq}}$	0.4565	$0.456^{+0.016}_{-0.016}$
$100\theta_{\mathrm{MC}}$	1.04141	$1.0414^{+0.0014}_{-0.0014}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.630	$0.618^{+0.086}_{-0.071}$	$H(0.15)$	73.98	$73.8^{+3.0}_{-2.9}$
$\tau$	0.121	$< 0.218$	$\sigma_8/h^{0.5}$	1.030	$1.01^{+0.14}_{-0.11}$	$D_{\mathrm{M}}(0.15)$	630.6	$633^{+29}_{-28}$
$A_{\mathrm{L}}$	1.080	$1.12^{+0.37}_{-0.31}$	$r_{\mathrm{drag}} h$	101.7	$101.3^{+5.9}_{-5.8}$	$H(0.38)$	83.81	$83.7^{+2.3}_{-2.1}$
$\ln(10^{10} A_{\mathrm{s}})$	3.169	$3.12^{+0.24}_{-0.19}$	$\langle d^2 \rangle^{1/2}$	2.642	$2.63^{+0.20}_{-0.21}$	$D_{\mathrm{M}}(0.38)$	1508	$1512^{+58}_{-57}$
$n_{\mathrm{s}}$	0.9764	$0.974^{+0.022}_{-0.022}$	$z_{\mathrm{re}}$	13.4	$11.0^{+9.4}_{-9.2}$	$H(0.51)$	90.37	$90.3^{+1.8}_{-1.7}$
$A_{100}^{\mathrm{PS}}$	220	$230^{+70}_{-70}$	$10^9 A_{\mathrm{s}}$	2.38	$2.28^{+0.60}_{-0.41}$	$D_{\mathrm{M}}(0.51)$	1956	$1961^{+68}_{-67}$
$A_{143}^{\mathrm{PS}}$	43.7	$34^{+20}_{-20}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8663	$1.867^{+0.041}_{-0.041}$	$H(0.61)$	95.86	$95.8^{+1.5}_{-1.3}$
$A_{217}^{\mathrm{PS}}$	108.4	$104^{+30}_{-30}$	$D_{40}$	1235	$1233^{+88}_{-64}$	$D_{\mathrm{M}}(0.61)$	2278	$2283^{+73}_{-73}$
$A_{217}^{\mathrm{CIB}}$	37.8	$37^{+20}_{-20}$	$D_{220}$	5724	$5723^{+110}_{-110}$	$H(2.33)$	234.73	$235.0^{+4.2}_{-4.0}$
$A_{143}^{\mathrm{tSZ}}$	6.31	$< 8.91$	$D_{810}$	2526.9	$2525^{+37}_{-36}$	$D_{\mathrm{M}}(2.33)$	5739	$5743^{+61}_{-64}$
$r_{143 \times 217}^{\mathrm{PS}}$	0.764	$> 0.353$	$D_{1420}$	815.5	$814^{+13}_{-13}$	$f\sigma_8(0.15)$	0.470	$0.463^{+0.070}_{-0.061}$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.78	—	$D_{2000}$	232.9	$232.1^{+5.6}_{-5.6}$	$\sigma_8(0.15)$	0.791	$0.774^{+0.099}_{-0.077}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.89	—	$n_{\mathrm{s},0.002}$	0.9764	$0.974^{+0.022}_{-0.022}$	$f\sigma_8(0.38)$	0.494	$0.484^{+0.068}_{-0.057}$
$A^{\mathrm{kSZ}}$	0.0	—	$Y_{\mathrm{P}}$	0.245487	$0.24547^{+0.00035}_{-0.00034}$	$\sigma_8(0.38)$	0.703	$0.688^{+0.088}_{-0.066}$
$A_{100}^{\mathrm{dust}}$	0.99	$1.00^{+0.50}_{-0.50}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246814	$0.24679^{+0.00035}_{-0.00034}$	$f\sigma_8(0.51)$	0.494	$0.485^{+0.066}_{-0.054}$
$A_{143}^{\mathrm{dust}}$	0.965	$0.95^{+0.45}_{-0.46}$	$10^5 \mathrm{D}/\mathrm{H}$	2.541	$2.55^{+0.15}_{-0.14}$	$\sigma_8(0.51)$	0.659	$0.644^{+0.082}_{-0.061}$
$A_{217}^{\mathrm{dust}}$	0.989	$0.98^{+0.27}_{-0.27}$	$\mathrm{Age}/\mathrm{Gyr}$	13.744	$13.75^{+0.13}_{-0.14}$	$f\sigma_8(0.61)$	0.490	$0.481^{+0.065}_{-0.052}$
$A_{143 \times 217}^{\mathrm{dust}}$	1.007	$1.01^{+0.41}_{-0.42}$	$z_*$	1089.33	$1089.4^{+1.5}_{-1.5}$	$\sigma_8(0.61)$	0.628	$0.614^{+0.079}_{-0.058}$
$y_{\mathrm{cal}}$	1.0001	$1.0000^{+0.0065}_{-0.0064}$	$r_*$	145.08	$145.0^{+1.5}_{-1.5}$	$f\sigma_8(2.33)$	0.3172	$0.310^{+0.040}_{-0.029}$
$c_{100}$	0.99783	$0.9976^{+0.0027}_{-0.0027}$	$100\theta_*$	1.04157	$1.0415^{+0.0014}_{-0.0014}$	$\sigma_8(2.33)$	0.3278	$0.320^{+0.042}_{-0.029}$
$c_{217}$	1.00083	$1.0008^{+0.0040}_{-0.0040}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.929	$13.92^{+0.13}_{-0.14}$	$f_{2000}^{143}$	25.8	$26^{+9}_{-9}$
$H_0$	68.87	$68.7^{+3.5}_{-3.4}$	$z_{\mathrm{drag}}$	1060.28	$1060.2^{+1.6}_{-1.5}$	$f_{2000}^{217}$	103.7	$104.5^{+6.4}_{-6.3}$
$\Omega_{\Lambda}$	0.7048	$0.701^{+0.041}_{-0.047}$	$r_{\mathrm{drag}}$	147.67	$147.6^{+1.4}_{-1.4}$	$f_{2000}^{143 \times 217}$	28.8	$29^{+7}_{-7}$
$\Omega_{\mathrm{m}}$	0.2952	$0.299^{+0.047}_{-0.041}$	$k_{\mathrm{D}}$	0.14044	$0.1404^{+0.0014}_{-0.0014}$	$\chi_{\mathrm{CamSpec}}^2$	7045.0	$7059.9 (\nu: 14.8)$
$\Omega_{\mathrm{m}} h^2$	0.1400	$0.1404^{+0.0068}_{-0.0064}$	$100\theta_{\mathrm{D}}$	0.16060	$0.16066^{+0.00082}_{-0.00080}$	$\chi_{\mathrm{prior}}^2$	1.4	$7.2 (\nu: 5.4)$
$\Omega_{\mathrm{m}} h^3$	0.09645	$0.0964^{+0.0013}_{-0.0013}$	$z_{\mathrm{eq}}$	3331	$3341^{+160}_{-150}$			
$\sigma_8$	0.855	$0.836^{+0.11}_{-0.086}$	$k_{\mathrm{eq}}$	0.010167	$0.01020^{+0.00050}_{-0.00047}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 7046.45$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 7067.10$ ;  $R - 1 = 0.00805$   
 $\chi_{\mathrm{eff}}^2$ : CMB - CamSpec like\_10.7HM: 7045.02



### 3.73 base\_Alens\_CamSpecHM\_TT\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02248^{+0.00059}_{-0.00058}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.461^{+0.064}_{-0.048}$	$H(0.15)$	$73.4^{+1.4}_{-1.3}$
$\Omega_{\mathrm{c}} h^2$	$0.1181^{+0.0034}_{-0.0034}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.621^{+0.080}_{-0.063}$	$D_{\mathrm{M}}(0.15)$	$636^{+13}_{-13}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0012}_{-0.0011}$	$\sigma_8/h^{0.5}$	$1.01^{+0.13}_{-0.10}$	$H(0.38)$	$83.4^{+1.1}_{-1.0}$
$\tau$	$< 0.211$	$r_{\mathrm{drag}} h$	$100.6^{+2.7}_{-2.6}$	$D_{\mathrm{M}}(0.38)$	$1519^{+27}_{-27}$
$A_{\mathrm{L}}$	$1.11^{+0.33}_{-0.29}$	$\langle d^2 \rangle^{1/2}$	$2.62^{+0.19}_{-0.20}$	$H(0.51)$	$90.04^{+0.89}_{-0.85}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.12^{+0.24}_{-0.18}$	$z_{\mathrm{re}}$	$10.8^{+9.4}_{-9.1}$	$D_{\mathrm{M}}(0.51)$	$1969^{+32}_{-32}$
$n_{\mathrm{s}}$	$0.972^{+0.013}_{-0.013}$	$10^9 A_{\mathrm{s}}$	$2.27^{+0.58}_{-0.39}$	$H(0.61)$	$95.60^{+0.77}_{-0.72}$
$A_{100}^{\mathrm{PS}}$	$231^{+60}_{-60}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.871^{+0.031}_{-0.030}$	$D_{\mathrm{M}}(0.61)$	$2292^{+34}_{-35}$
$A_{143}^{\mathrm{PS}}$	$35^{+20}_{-20}$	$D_{40}$	$1236^{+86}_{-52}$	$H(2.33)$	$235.4^{+2.1}_{-2.1}$
$A_{217}^{\mathrm{PS}}$	$104^{+30}_{-30}$	$D_{220}$	$5719^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5750^{+36}_{-38}$
$A_{217}^{\mathrm{CIB}}$	$37^{+20}_{-20}$	$D_{810}$	$2526^{+38}_{-36}$	$f\sigma_8(0.15)$	$0.466^{+0.064}_{-0.048}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.93$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.15)$	$0.774^{+0.098}_{-0.071}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.354$	$D_{2000}$	$231.7^{+5.1}_{-4.9}$	$f\sigma_8(0.38)$	$0.487^{+0.063}_{-0.050}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.972^{+0.013}_{-0.013}$	$\sigma_8(0.38)$	$0.687^{+0.087}_{-0.062}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24544^{+0.00025}_{-0.00025}$	$f\sigma_8(0.51)$	$0.487^{+0.063}_{-0.049}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24676^{+0.00025}_{-0.00025}$	$\sigma_8(0.51)$	$0.644^{+0.081}_{-0.058}$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.49}_{-0.49}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.57^{+0.11}_{-0.11}$	$f\sigma_8(0.61)$	$0.482^{+0.062}_{-0.047}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.45}_{-0.46}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.768^{+0.081}_{-0.085}$	$\sigma_8(0.61)$	$0.613^{+0.077}_{-0.055}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.26}_{-0.26}$	$z_*$	$1089.61^{+0.88}_{-0.86}$	$f\sigma_8(2.33)$	$0.309^{+0.039}_{-0.028}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.42}$	$r_*$	$144.84^{+0.84}_{-0.84}$	$\sigma_8(2.33)$	$0.319^{+0.040}_{-0.028}$
$y_{\mathrm{cal}}$	$1.0000^{+0.0063}_{-0.0065}$	$100\theta_*$	$1.0414^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$27^{+9}_{-8}$
$c_{100}$	$0.9976^{+0.0026}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.908^{+0.083}_{-0.082}$	$f_{2000}^{217}$	$104.9^{+6.0}_{-5.6}$
$c_{217}$	$1.0008^{+0.0040}_{-0.0041}$	$z_{\mathrm{drag}}$	$1060.1^{+1.2}_{-1.3}$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6}$
$H_0$	$68.2^{+1.6}_{-1.6}$	$r_{\mathrm{drag}}$	$147.48^{+0.92}_{-0.91}$	$\chi_{\mathrm{CamSpec}}^2$	$7059.1 (\nu: 13.8)$
$\Omega_{\Lambda}$	$0.697^{+0.020}_{-0.021}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0012}$	$\chi_{6\mathrm{DF}}^2$	$0.046 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.303^{+0.021}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16072^{+0.00077}_{-0.00069}$	$\chi_{\mathrm{MGS}}^2$	$1.86 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1412^{+0.0032}_{-0.0032}$	$z_{\mathrm{eq}}$	$3359^{+77}_{-77}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.1 (\nu: 0.6)$
$\Omega_{\mathrm{m}} h^3$	$0.0963^{+0.0013}_{-0.0013}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00024}_{-0.00023}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 5.4)$
$\sigma_8$	$0.837^{+0.11}_{-0.078}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.015}_{-0.014}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.7)$
$S_8$	$0.842^{+0.12}_{-0.088}$	$100\theta_{\mathrm{s,eq}}$	$0.4537^{+0.0076}_{-0.0074}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7072.33; R - 1 = 0.01128$$



### 3.74 base\_Alens\_CamSpecHM\_TT\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02256^{+0.00081}_{-0.00078}$	$S_8$	$0.85^{+0.12}_{-0.11}$	$100\theta_{\mathrm{eq}}$	$0.826^{+0.032}_{-0.031}$
$\Omega_{\mathrm{c}}h^2$	$0.1171^{+0.0073}_{-0.0069}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.464^{+0.067}_{-0.058}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.016}_{-0.016}$
$100\theta_{\mathrm{MC}}$	$1.0414^{+0.0014}_{-0.0014}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.628^{+0.079}_{-0.064}$	$H(0.15)$	$73.8^{+3.0}_{-2.9}$
$\tau$	$0.114^{+0.11}_{-0.074}$	$\sigma_8/h^{0.5}$	$1.03^{+0.13}_{-0.098}$	$D_{\mathrm{M}}(0.15)$	$632^{+29}_{-28}$
$A_{\mathrm{L}}$	$1.08^{+0.32}_{-0.28}$	$r_{\mathrm{drag}}h$	$101.4^{+5.9}_{-5.8}$	$H(0.38)$	$83.7^{+2.3}_{-2.1}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.15^{+0.21}_{-0.15}$	$\langle d^2 \rangle^{1/2}$	$2.63^{+0.20}_{-0.20}$	$D_{\mathrm{M}}(0.38)$	$1511^{+58}_{-56}$
$n_{\mathrm{s}}$	$0.975^{+0.022}_{-0.021}$	$z_{\mathrm{re}}$	$< 20.3$	$H(0.51)$	$90.3^{+1.8}_{-1.6}$
$A_{100}^{\mathrm{PS}}$	$229^{+70}_{-70}$	$10^9 A_{\mathrm{s}}$	$2.35^{+0.55}_{-0.35}$	$D_{\mathrm{M}}(0.51)$	$1959^{+68}_{-67}$
$A_{143}^{\mathrm{PS}}$	$34^{+20}_{-20}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.866^{+0.041}_{-0.040}$	$H(0.61)$	$95.8^{+1.5}_{-1.3}$
$A_{217}^{\mathrm{PS}}$	$104^{+30}_{-30}$	$D_{40}$	$1238^{+83}_{-63}$	$D_{\mathrm{M}}(0.61)$	$2282^{+73}_{-72}$
$A_{217}^{\mathrm{CIB}}$	$37^{+20}_{-20}$	$D_{220}$	$5721^{+110}_{-110}$	$H(2.33)$	$234.9^{+4.2}_{-3.9}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.89$	$D_{810}$	$2525^{+37}_{-36}$	$D_{\mathrm{M}}(2.33)$	$5742^{+61}_{-64}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.353$	$D_{1420}$	$814^{+14}_{-13}$	$f\sigma_8(0.15)$	$0.470^{+0.065}_{-0.057}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$232.2^{+5.6}_{-5.6}$	$\sigma_8(0.15)$	$0.787^{+0.088}_{-0.065}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.975^{+0.022}_{-0.021}$	$f\sigma_8(0.38)$	$0.492^{+0.062}_{-0.052}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24547^{+0.00035}_{-0.00034}$	$\sigma_8(0.38)$	$0.699^{+0.079}_{-0.056}$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.51}_{-0.50}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24680^{+0.00035}_{-0.00034}$	$f\sigma_8(0.51)$	$0.492^{+0.061}_{-0.048}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.45}_{-0.45}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.55^{+0.15}_{-0.14}$	$\sigma_8(0.51)$	$0.655^{+0.074}_{-0.052}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.75^{+0.13}_{-0.14}$	$f\sigma_8(0.61)$	$0.488^{+0.059}_{-0.046}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.01^{+0.41}_{-0.41}$	$z_*$	$1089.4^{+1.5}_{-1.5}$	$\sigma_8(0.61)$	$0.624^{+0.070}_{-0.049}$
$y_{\mathrm{cal}}$	$1.0000^{+0.0065}_{-0.0064}$	$r_*$	$145.0^{+1.5}_{-1.5}$	$f\sigma_8(2.33)$	$0.315^{+0.036}_{-0.024}$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027}$	$100\theta_*$	$1.0415^{+0.0014}_{-0.0014}$	$\sigma_8(2.33)$	$0.326^{+0.037}_{-0.025}$
$c_{217}$	$1.0008^{+0.0040}_{-0.0040}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.93^{+0.13}_{-0.13}$	$f_{2000}^{143}$	$26^{+9}_{-9}$
$H_0$	$68.7^{+3.4}_{-3.4}$	$z_{\mathrm{drag}}$	$1060.2^{+1.6}_{-1.5}$	$f_{2000}^{217}$	$104.4^{+6.5}_{-6.3}$
$\Omega_{\Lambda}$	$0.702^{+0.040}_{-0.046}$	$r_{\mathrm{drag}}$	$147.6^{+1.4}_{-1.4}$	$f_{2000}^{143 \times 217}$	$29^{+7}_{-7}$
$\Omega_{\mathrm{m}}$	$0.298^{+0.046}_{-0.040}$	$k_{\mathrm{D}}$	$0.1404^{+0.0014}_{-0.0014}$	$\chi^2_{\mathrm{CamSpec}}$	$7059.9 (\nu: 14.8)$
$\Omega_{\mathrm{m}}h^2$	$0.1403^{+0.0067}_{-0.0064}$	$100\theta_{\mathrm{D}}$	$0.16066^{+0.00082}_{-0.00080}$	$\chi^2_{\mathrm{prior}}$	$7.2 (\nu: 5.4)$
$\Omega_{\mathrm{m}}h^3$	$0.0964^{+0.0014}_{-0.0013}$	$z_{\mathrm{eq}}$	$3338^{+160}_{-150}$		
$\sigma_8$	$0.850^{+0.096}_{-0.073}$	$k_{\mathrm{eq}}$	$0.01019^{+0.00049}_{-0.00047}$		

$\bar{\chi}^2_{\mathrm{eff}} = 7067.05$ ;  $R - 1 = 0.01053$



### 3.75 base\_Alens\_CamSpecHM\_TT\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02248^{+0.00059}_{-0.00058}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.469^{+0.057}_{-0.042}$	$H(0.15)$	$73.4^{+1.4}_{-1.3}$
$\Omega_{\mathrm{c}} h^2$	$0.1181^{+0.0034}_{-0.0034}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.631^{+0.072}_{-0.053}$	$D_{\mathrm{M}}(0.15)$	$636^{+13}_{-13}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0012}_{-0.0011}$	$\sigma_8/h^{0.5}$	$1.03^{+0.12}_{-0.084}$	$H(0.38)$	$83.4^{+1.1}_{-1.0}$
$\tau$	$0.110^{+0.11}_{-0.071}$	$r_{\mathrm{drag}} h$	$100.6^{+2.7}_{-2.6}$	$D_{\mathrm{M}}(0.38)$	$1519^{+27}_{-27}$
$A_{\mathrm{L}}$	$1.07^{+0.27}_{-0.26}$	$\langle d^2 \rangle^{1/2}$	$2.62^{+0.19}_{-0.19}$	$H(0.51)$	$90.04^{+0.90}_{-0.84}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.15^{+0.21}_{-0.15}$	$z_{\mathrm{re}}$	$< 20.0$	$D_{\mathrm{M}}(0.51)$	$1969^{+32}_{-32}$
$n_{\mathrm{s}}$	$0.972^{+0.013}_{-0.013}$	$10^9 A_{\mathrm{s}}$	$2.34^{+0.53}_{-0.33}$	$H(0.61)$	$95.60^{+0.78}_{-0.73}$
$A_{100}^{\mathrm{PS}}$	$231^{+60}_{-60}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.870^{+0.031}_{-0.029}$	$D_{\mathrm{M}}(0.61)$	$2292^{+34}_{-35}$
$A_{143}^{\mathrm{PS}}$	$35^{+20}_{-20}$	$D_{40}$	$1242^{+81}_{-52}$	$H(2.33)$	$235.4^{+2.1}_{-2.1}$
$A_{217}^{\mathrm{PS}}$	$104^{+30}_{-30}$	$D_{220}$	$5717^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5750^{+36}_{-38}$
$A_{217}^{\mathrm{CIB}}$	$37^{+20}_{-20}$	$D_{810}$	$2526^{+37}_{-35}$	$f\sigma_8(0.15)$	$0.474^{+0.056}_{-0.043}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.93$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.15)$	$0.787^{+0.088}_{-0.059}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.354$	$D_{2000}$	$231.8^{+5.0}_{-4.9}$	$f\sigma_8(0.38)$	$0.495^{+0.057}_{-0.042}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.972^{+0.013}_{-0.013}$	$\sigma_8(0.38)$	$0.699^{+0.078}_{-0.052}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24543^{+0.00025}_{-0.00025}$	$f\sigma_8(0.51)$	$0.495^{+0.056}_{-0.041}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24676^{+0.00025}_{-0.00025}$	$\sigma_8(0.51)$	$0.654^{+0.073}_{-0.049}$
$A_{100}^{\mathrm{dust}}$	$0.999^{+0.49}_{-0.49}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.57^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	$0.490^{+0.055}_{-0.040}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.45}_{-0.46}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.769^{+0.082}_{-0.086}$	$\sigma_8(0.61)$	$0.623^{+0.069}_{-0.046}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.26}_{-0.26}$	$z_*$	$1089.62^{+0.88}_{-0.86}$	$f\sigma_8(2.33)$	$0.314^{+0.035}_{-0.023}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.42}$	$r_*$	$144.85^{+0.84}_{-0.83}$	$\sigma_8(2.33)$	$0.324^{+0.036}_{-0.024}$
$y_{\mathrm{cal}}$	$0.99999^{+0.0064}_{-0.0065}$	$100\theta_*$	$1.0414^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$27^{+9}_{-8}$
$c_{100}$	$0.9976^{+0.0026}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.909^{+0.083}_{-0.083}$	$f_{2000}^{217}$	$104.8^{+6.0}_{-5.7}$
$c_{217}$	$1.0008^{+0.0040}_{-0.0040}$	$z_{\mathrm{drag}}$	$1060.0^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6}$
$H_0$	$68.2^{+1.6}_{-1.6}$	$r_{\mathrm{drag}}$	$147.49^{+0.91}_{-0.91}$	$\chi_{\mathrm{CamSpec}}^2$	$7059.1 (\nu: 13.9)$
$\Omega_{\Lambda}$	$0.697^{+0.020}_{-0.021}$	$k_{\mathrm{D}}$	$0.1405^{+0.0011}_{-0.0012}$	$\chi_{6\mathrm{DF}}^2$	$0.046 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.303^{+0.021}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16072^{+0.00076}_{-0.00069}$	$\chi_{\mathrm{MGS}}^2$	$1.87 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1412^{+0.0032}_{-0.0032}$	$z_{\mathrm{eq}}$	$3358^{+77}_{-76}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.1 (\nu: 0.5)$
$\Omega_{\mathrm{m}} h^3$	$0.0963^{+0.0013}_{-0.0013}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00024}_{-0.00023}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 5.4)$
$\sigma_8$	$0.851^{+0.095}_{-0.065}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.015}_{-0.014}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.7)$
$S_8$	$0.855^{+0.10}_{-0.076}$	$100\theta_{\mathrm{s,eq}}$	$0.4537^{+0.0076}_{-0.0073}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 7072.34; R - 1 = 0.01270$					



### 3.76 base\_Alens\_CamSpecHM\_TT\_lowl

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02267	$0.02266^{+0.00078}_{-0.00075}$	$S_8$	0.756	$0.793^{+0.10}_{-0.087}$	$100\theta_{\text{eq}}$	0.8283	$0.830^{+0.030}_{-0.028}$
$\Omega_c h^2$	0.1165	$0.1162^{+0.0066}_{-0.0065}$	$\sigma_8 \Omega_m^{0.5}$	0.414	$0.434^{+0.057}_{-0.047}$	$100\theta_{\text{s,eq}}$	0.4570	$0.458^{+0.015}_{-0.014}$
$100\theta_{\text{MC}}$	1.04148	$1.0415^{+0.0014}_{-0.0014}$	$\sigma_8 \Omega_m^{0.25}$	0.562	$0.591^{+0.066}_{-0.052}$	$H(0.15)$	74.11	$74.2^{+2.8}_{-2.7}$
$\tau$	0.010	$< 0.159$	$\sigma_8/h^{0.5}$	0.919	$0.967^{+0.10}_{-0.077}$	$D_{\text{M}}(0.15)$	629.4	$628^{+26}_{-26}$
$A_{\text{L}}$	1.362	$1.22^{+0.32}_{-0.29}$	$r_{\text{drag}} h$	101.9	$102.2^{+5.5}_{-5.3}$	$H(0.38)$	83.92	$84.0^{+2.1}_{-2.0}$
$\ln(10^{10} A_{\text{s}})$	2.947	$3.05^{+0.19}_{-0.12}$	$\langle d^2 \rangle^{1/2}$	2.652	$2.64^{+0.19}_{-0.20}$	$D_{\text{M}}(0.38)$	1505	$1503^{+53}_{-53}$
$n_{\text{s}}$	0.9760	$0.977^{+0.020}_{-0.019}$	$z_{\text{re}}$	2.1	$8.1^{+8.2}_{-6.4}$	$H(0.51)$	90.46	$90.5^{+1.7}_{-1.6}$
$y_{\text{cal}}$	1.0001	$1.0000^{+0.0064}_{-0.0064}$	$10^9 A_{\text{s}}$	1.905	$2.12^{+0.44}_{-0.25}$	$D_{\text{M}}(0.51)$	1953	$1950^{+62}_{-62}$
$A_{100}^{\text{PS}}$	218	$228^{+60}_{-70}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8667	$1.863^{+0.038}_{-0.038}$	$H(0.61)$	95.94	$96.0^{+1.4}_{-1.3}$
$A_{143}^{\text{PS}}$	45.1	$33^{+20}_{-20}$	$D_{40}$	1198	$1209^{+55}_{-47}$	$D_{\text{M}}(0.61)$	2275	$2272^{+67}_{-68}$
$A_{217}^{\text{PS}}$	108.8	$105^{+30}_{-30}$	$D_{220}$	5732	$5726^{+110}_{-110}$	$H(2.33)$	234.64	$234.4^{+3.8}_{-3.7}$
$A_{217}^{\text{CIB}}$	37.6	$36^{+20}_{-20}$	$D_{810}$	2527.5	$2524^{+36}_{-35}$	$D_{\text{M}}(2.33)$	5735	$5734^{+58}_{-61}$
$A_{143}^{\text{tSZ}}$	6.32	$< 8.92$	$D_{1420}$	815.5	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	0.420	$0.440^{+0.055}_{-0.046}$
$r_{143 \times 217}^{\text{PS}}$	0.793	$> 0.355$	$D_{2000}$	232.9	$232.6^{+5.5}_{-5.5}$	$\sigma_8(0.15)$	0.708	$0.745^{+0.074}_{-0.051}$
$r_{143 \times 217}^{\text{CIB}}$	0.77	—	$n_{\text{s},0.002}$	0.9760	$0.977^{+0.020}_{-0.019}$	$f\sigma_8(0.38)$	0.4406	$0.463^{+0.052}_{-0.042}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.999	—	$Y_{\text{P}}$	0.245506	$0.24551^{+0.00033}_{-0.00031}$	$\sigma_8(0.38)$	0.629	$0.662^{+0.066}_{-0.043}$
$A^{\text{kSZ}}$	0.0	—	$Y_{\text{P}}^{\text{BBN}}$	0.246833	$0.24684^{+0.00033}_{-0.00032}$	$f\sigma_8(0.51)$	0.4413	$0.464^{+0.050}_{-0.039}$
$A_{100}^{\text{dust}}$	1.01	$1.01^{+0.50}_{-0.50}$	$10^5 \text{D}/\text{H}$	2.532	$2.53^{+0.14}_{-0.14}$	$\sigma_8(0.51)$	0.590	$0.621^{+0.062}_{-0.039}$
$A_{143}^{\text{dust}}$	0.962	$0.95^{+0.45}_{-0.46}$	$\text{Age}/\text{Gyr}$	13.735	$13.73^{+0.13}_{-0.13}$	$f\sigma_8(0.61)$	0.4380	$0.460^{+0.049}_{-0.037}$
$A_{217}^{\text{dust}}$	0.988	$0.98^{+0.26}_{-0.26}$	$z_*$	1089.24	$1089.2^{+1.4}_{-1.4}$	$\sigma_8(0.61)$	0.5614	$0.591^{+0.059}_{-0.037}$
$A_{143 \times 217}^{\text{dust}}$	1.016	$1.01^{+0.41}_{-0.42}$	$r_*$	145.10	$145.2^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	0.2838	$0.299^{+0.030}_{-0.018}$
$c_{100}$	0.99790	$0.9976^{+0.0027}_{-0.0027}$	$100\theta_*$	1.04163	$1.0417^{+0.0013}_{-0.0014}$	$\sigma_8(2.33)$	0.2934	$0.309^{+0.032}_{-0.018}$
$c_{217}$	1.00088	$1.0007^{+0.0041}_{-0.0039}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.930	$13.94^{+0.12}_{-0.12}$	$f_{2000}^{143}$	25.7	$26^{+9}_{-9}$
$H_0$	69.02	$69.2^{+3.2}_{-3.1}$	$z_{\text{drag}}$	1060.39	$1060.3^{+1.5}_{-1.5}$	$f_{2000}^{217}$	103.7	$104.0^{+6.3}_{-6.3}$
$\Omega_{\Lambda}$	0.7064	$0.708^{+0.037}_{-0.041}$	$r_{\text{drag}}$	147.67	$147.8^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	28.9	$29^{+7}_{-7}$
$\Omega_{\text{m}}$	0.2936	$0.292^{+0.041}_{-0.037}$	$k_{\text{D}}$	0.14048	$0.1403^{+0.0013}_{-0.0013}$	$\chi_{\text{lowl}}^2$	20.86	$22.0 (\nu: 1.1)$
$\Omega_{\text{m}} h^2$	0.1399	$0.1395^{+0.0062}_{-0.0059}$	$100\theta_{\text{D}}$	0.16054	$0.16059^{+0.00081}_{-0.00076}$	$\chi_{\text{CamSpec}}^2$	7046.1	$7060.0 (\nu: 14.2)$
$\Omega_{\text{m}} h^3$	0.09653	$0.0965^{+0.0013}_{-0.0013}$	$z_{\text{eq}}$	3327	$3318^{+150}_{-140}$	$\chi_{\text{prior}}^2$	1.4	$7.2 (\nu: 5.3)$
$\sigma_8$	0.764	$0.804^{+0.081}_{-0.057}$	$k_{\text{eq}}$	0.010154	$0.01013^{+0.00045}_{-0.00043}$	$\chi_{\text{CMB}}^2$	7066.9	$7082.0 (\nu: 14.2)$

Best-fit  $\chi_{\text{eff}}^2 = 7068.30$ ;  $\bar{\chi}_{\text{eff}}^2 = 7089.14$ ;  $R - 1 = 0.00730$

$\chi_{\text{eff}}^2$ : CMB - commander\_dx12\_v3\_2\_29: 20.86 CamSpec like\_10.7HM: 7046.06



### 3.77 base\_Alens\_CamSpecHM\_TT\_lowl\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02251^{+0.00057}_{-0.00056}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.597^{+0.058}_{-0.040}$	$H(0.38)$	$83.5^{+1.1}_{-1.0}$
$\Omega_{\text{c}} h^2$	$0.1178^{+0.0033}_{-0.0033}$	$\sigma_8 / h^{0.5}$	$0.974^{+0.093}_{-0.063}$	$D_{\text{M}}(0.38)$	$1516^{+27}_{-27}$
$100\theta_{\text{MC}}$	$1.0413^{+0.0011}_{-0.0011}$	$r_{\text{drag}} h$	$100.9^{+2.7}_{-2.6}$	$H(0.51)$	$90.12^{+0.88}_{-0.83}$
$\tau$	$< 0.145$	$\langle d^2 \rangle^{1/2}$	$2.63^{+0.20}_{-0.19}$	$D_{\text{M}}(0.51)$	$1966^{+32}_{-32}$
$A_{\text{L}}$	$1.20^{+0.26}_{-0.26}$	$z_{\text{re}}$	$7.6^{+7.8}_{-5.9}$	$H(0.61)$	$95.66^{+0.76}_{-0.72}$
$\ln(10^{10} A_{\text{s}})$	$3.04^{+0.18}_{-0.11}$	$10^9 A_{\text{s}}$	$2.10^{+0.40}_{-0.22}$	$D_{\text{M}}(0.61)$	$2289^{+34}_{-34}$
$n_{\text{s}}$	$0.972^{+0.012}_{-0.012}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.870^{+0.029}_{-0.029}$	$H(2.33)$	$235.3^{+2.0}_{-2.0}$
$y_{\text{cal}}$	$1.0000^{+0.0062}_{-0.0066}$	$D_{40}$	$1216^{+49}_{-37}$	$D_{\text{M}}(2.33)$	$5747^{+35}_{-36}$
$A_{100}^{\text{PS}}$	$230^{+60}_{-70}$	$D_{220}$	$5718^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.448^{+0.048}_{-0.032}$
$A_{143}^{\text{PS}}$	$34^{+20}_{-20}$	$D_{810}$	$2526^{+36}_{-34}$	$\sigma_8(0.15)$	$0.745^{+0.069}_{-0.043}$
$A_{217}^{\text{PS}}$	$104^{+30}_{-40}$	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.468^{+0.045}_{-0.032}$
$A_{217}^{\text{CIB}}$	$37^{+20}_{-20}$	$D_{2000}$	$231.9^{+5.0}_{-4.8}$	$\sigma_8(0.38)$	$0.662^{+0.062}_{-0.037}$
$A_{143}^{\text{tSZ}}$	$< 8.81$	$n_{\text{s},0.002}$	$0.972^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	$0.468^{+0.045}_{-0.031}$
$r_{143 \times 217}^{\text{PS}}$	$> 0.363$	$Y_{\text{P}}$	$0.24545^{+0.00025}_{-0.00023}$	$\sigma_8(0.51)$	$0.620^{+0.058}_{-0.034}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24678^{+0.00025}_{-0.00023}$	$f\sigma_8(0.61)$	$0.464^{+0.044}_{-0.030}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^5 \text{D}/\text{H}$	$2.56^{+0.11}_{-0.10}$	$\sigma_8(0.61)$	$0.590^{+0.055}_{-0.033}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.763^{+0.081}_{-0.082}$	$f\sigma_8(2.33)$	$0.298^{+0.028}_{-0.016}$
$A_{100}^{\text{dust}}$	$1.01^{+0.49}_{-0.49}$	$z_*$	$1089.55^{+0.87}_{-0.84}$	$\sigma_8(2.33)$	$0.308^{+0.029}_{-0.017}$
$A_{143}^{\text{dust}}$	$0.95^{+0.46}_{-0.45}$	$r_*$	$144.89^{+0.82}_{-0.79}$	$f_{2000}^{143}$	$27^{+9}_{-8}$
$A_{217}^{\text{dust}}$	$0.98^{+0.25}_{-0.26}$	$100\theta_*$	$1.0415^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$104.7^{+5.9}_{-5.8}$
$A_{143 \times 217}^{\text{dust}}$	$1.01^{+0.41}_{-0.42}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.912^{+0.081}_{-0.077}$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$z_{\text{drag}}$	$1060.1^{+1.2}_{-1.2}$	$\chi_{\text{lowl}}^2$	$22.4 (\nu: 1.0)$
$c_{217}$	$1.0009^{+0.0042}_{-0.0039}$	$r_{\text{drag}}$	$147.51^{+0.90}_{-0.86}$	$\chi_{\text{CamSpec}}^2$	$7058.9 (\nu: 13.0)$
$H_0$	$68.4^{+1.6}_{-1.6}$	$k_{\text{D}}$	$0.1405^{+0.0012}_{-0.0012}$	$\chi_{6\text{DF}}^2$	$0.049 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.698^{+0.019}_{-0.020}$	$100\theta_{\text{D}}$	$0.16069^{+0.00071}_{-0.00069}$	$\chi_{\text{MGS}}^2$	$2.00 (\nu: 0.2)$
$\Omega_{\text{m}}$	$0.302^{+0.020}_{-0.019}$	$z_{\text{eq}}$	$3353^{+74}_{-75}$	$\chi_{\text{DR12BAO}}^2$	$4.05 (\nu: 0.5)$
$\Omega_{\text{m}} h^2$	$0.1410^{+0.0031}_{-0.0031}$	$k_{\text{eq}}$	$0.01023^{+0.00022}_{-0.00023}$	$\chi_{\text{prior}}^2$	$7.2 (\nu: 5.3)$
$\Omega_{\text{m}} h^3$	$0.0964^{+0.0013}_{-0.0013}$	$100\theta_{\text{eq}}$	$0.823^{+0.015}_{-0.014}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.8)$
$\sigma_8$	$0.806^{+0.075}_{-0.047}$	$100\theta_{\text{s,eq}}$	$0.4543^{+0.0075}_{-0.0072}$	$\chi_{\text{CMB}}^2$	$7081.3 (\nu: 13.5)$
$S_8$	$0.808^{+0.087}_{-0.060}$	$H(0.15)$	$73.6^{+1.4}_{-1.4}$		
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.442^{+0.048}_{-0.033}$	$D_{\text{M}}(0.15)$	$635^{+13}_{-13}$		

$\bar{\chi}_{\text{eff}}^2 = 7094.64; R - 1 = 0.01645$



### 3.78 base\_Alens\_CamSpecHM\_TT\_lowl\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02268^{+0.00077}_{-0.00076}$	$S_8$	$0.806^{+0.097}_{-0.082}$	$100\theta_{\text{eq}}$	$0.832^{+0.030}_{-0.029}$
$\Omega_c h^2$	$0.1159^{+0.0068}_{-0.0064}$	$\sigma_8 \Omega_m^{0.5}$	$0.441^{+0.053}_{-0.045}$	$100\theta_{\text{s,eq}}$	$0.459^{+0.015}_{-0.015}$
$100\theta_{\text{MC}}$	$1.0415^{+0.0014}_{-0.0014}$	$\sigma_8 \Omega_m^{0.25}$	$0.601^{+0.059}_{-0.047}$	$H(0.15)$	$74.4^{+2.8}_{-2.7}$
$\tau$	$0.084^{+0.083}_{-0.044}$	$\sigma_8/h^{0.5}$	$0.985^{+0.093}_{-0.070}$	$D_{\text{M}}(0.15)$	$627^{+27}_{-25}$
$A_{\text{L}}$	$1.18^{+0.28}_{-0.26}$	$r_{\text{drag}} h$	$102.5^{+5.5}_{-5.4}$	$H(0.38)$	$84.1^{+2.1}_{-2.0}$
$\ln(10^{10} A_{\text{s}})$	$3.09^{+0.16}_{-0.093}$	$\langle d^2 \rangle^{1/2}$	$2.64^{+0.20}_{-0.20}$	$D_{\text{M}}(0.38)$	$1501^{+54}_{-52}$
$n_{\text{s}}$	$0.978^{+0.020}_{-0.019}$	$z_{\text{re}}$	$< 16.6$	$H(0.51)$	$90.6^{+1.7}_{-1.6}$
$y_{\text{cal}}$	$1.0000^{+0.0064}_{-0.0065}$	$10^9 A_{\text{s}}$	$2.21^{+0.39}_{-0.20}$	$D_{\text{M}}(0.51)$	$1947^{+63}_{-61}$
$A_{100}^{\text{PS}}$	$227^{+70}_{-70}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.861^{+0.037}_{-0.038}$	$H(0.61)$	$96.0^{+1.4}_{-1.3}$
$A_{143}^{\text{PS}}$	$32^{+20}_{-20}$	$D_{40}$	$1213^{+54}_{-47}$	$D_{\text{M}}(0.61)$	$2269^{+68}_{-67}$
$A_{217}^{\text{PS}}$	$105^{+30}_{-30}$	$D_{220}$	$5725^{+110}_{-110}$	$H(2.33)$	$234.2^{+3.9}_{-3.6}$
$A_{217}^{\text{CIB}}$	$36^{+20}_{-20}$	$D_{810}$	$2524^{+36}_{-35}$	$D_{\text{M}}(2.33)$	$5731^{+59}_{-61}$
$A_{143}^{\text{tSZ}}$	$< 8.96$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	$0.448^{+0.052}_{-0.044}$
$r_{143 \times 217}^{\text{PS}}$	$> 0.354$	$D_{2000}$	$232.8^{+5.5}_{-5.7}$	$\sigma_8(0.15)$	$0.760^{+0.069}_{-0.041}$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{\text{s},0.002}$	$0.978^{+0.020}_{-0.019}$	$f\sigma_8(0.38)$	$0.471^{+0.047}_{-0.039}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}$	$0.24552^{+0.00033}_{-0.00032}$	$\sigma_8(0.38)$	$0.676^{+0.057}_{-0.036}$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24684^{+0.00033}_{-0.00032}$	$f\sigma_8(0.51)$	$0.472^{+0.045}_{-0.036}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.50}$	$10^5 \text{D/H}$	$2.53^{+0.14}_{-0.13}$	$\sigma_8(0.51)$	$0.634^{+0.054}_{-0.033}$
$A_{143}^{\text{dust}}$	$0.95^{+0.46}_{-0.45}$	$\text{Age/Gyr}$	$13.73^{+0.13}_{-0.13}$	$f\sigma_8(0.61)$	$0.469^{+0.044}_{-0.033}$
$A_{217}^{\text{dust}}$	$0.99^{+0.27}_{-0.26}$	$z_*$	$1089.2^{+1.4}_{-1.4}$	$\sigma_8(0.61)$	$0.603^{+0.051}_{-0.030}$
$A_{143 \times 217}^{\text{dust}}$	$1.01^{+0.41}_{-0.42}$	$r_*$	$145.3^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	$0.305^{+0.026}_{-0.015}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_*$	$1.0417^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	$0.316^{+0.028}_{-0.015}$
$c_{217}$	$1.0007^{+0.0040}_{-0.0039}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.95^{+0.12}_{-0.13}$	$f_{2000}^{143}$	$25^{+9}_{-9}$
$H_0$	$69.3^{+3.2}_{-3.2}$	$z_{\text{drag}}$	$1060.4^{+1.4}_{-1.5}$	$f_{2000}^{217}$	$103.8^{+6.2}_{-6.2}$
$\Omega_{\Lambda}$	$0.710^{+0.036}_{-0.042}$	$r_{\text{drag}}$	$147.8^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$29^{+7}_{-7}$
$\Omega_{\text{m}}$	$0.290^{+0.042}_{-0.036}$	$k_{\text{D}}$	$0.1403^{+0.0013}_{-0.0013}$	$\chi_{\text{lowl}}^2$	$22.4 (\nu: 1.3)$
$\Omega_{\text{m}} h^2$	$0.1392^{+0.0062}_{-0.0059}$	$100\theta_{\text{D}}$	$0.16057^{+0.00082}_{-0.00075}$	$\chi_{\text{CamSpec}}^2$	$7059.9 (\nu: 14.4)$
$\Omega_{\text{m}} h^3$	$0.0965^{+0.0013}_{-0.0013}$	$z_{\text{eq}}$	$3311^{+150}_{-140}$	$\chi_{\text{prior}}^2$	$7.2 (\nu: 5.4)$
$\sigma_8$	$0.820^{+0.074}_{-0.046}$	$k_{\text{eq}}$	$0.01011^{+0.00045}_{-0.00043}$	$\chi_{\text{CMB}}^2$	$7082.3 (\nu: 14.4)$

$\bar{\chi}_{\text{eff}}^2 = 7089.50$ ;  $R - 1 = 0.00995$



### 3.79 base\_Alens\_CamSpecHM\_TT\_lowl\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02252^{+0.00057}_{-0.00055}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.054}_{-0.033}$	$H(0.38)$	$83.5^{+1.1}_{-1.0}$
$\Omega_{\mathrm{c}} h^2$	$0.1177^{+0.0033}_{-0.0033}$	$\sigma_8 / h^{0.5}$	$0.995^{+0.079}_{-0.054}$	$D_{\mathrm{M}}(0.38)$	$1516^{+26}_{-27}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	$100.9^{+2.6}_{-2.6}$	$H(0.51)$	$90.13^{+0.88}_{-0.84}$
$\tau$	$0.079^{+0.078}_{-0.039}$	$\langle d^2 \rangle^{1/2}$	$2.63^{+0.20}_{-0.20}$	$D_{\mathrm{M}}(0.51)$	$1965^{+31}_{-32}$
$A_{\mathrm{L}}$	$1.15^{+0.23}_{-0.23}$	$z_{\mathrm{re}}$	$< 15.9$	$H(0.61)$	$95.67^{+0.76}_{-0.72}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.09^{+0.15}_{-0.083}$	$10^9 A_{\mathrm{s}}$	$2.19^{+0.34}_{-0.18}$	$D_{\mathrm{M}}(0.61)$	$2288^{+34}_{-34}$
$n_{\mathrm{s}}$	$0.973^{+0.012}_{-0.012}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.869^{+0.029}_{-0.029}$	$H(2.33)$	$235.2^{+2.0}_{-2.0}$
$y_{\mathrm{cal}}$	$0.99998^{+0.0064}_{-0.0070}$	$D_{40}$	$1221^{+46}_{-39}$	$D_{\mathrm{M}}(2.33)$	$5747^{+35}_{-36}$
$A_{100}^{\mathrm{PS}}$	$229^{+60}_{-70}$	$D_{220}$	$5715^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.457^{+0.043}_{-0.029}$
$A_{143}^{\mathrm{PS}}$	$34^{+20}_{-20}$	$D_{810}$	$2526^{+36}_{-35}$	$\sigma_8(0.15)$	$0.761^{+0.059}_{-0.035}$
$A_{217}^{\mathrm{PS}}$	$105^{+30}_{-30}$	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.478^{+0.043}_{-0.026}$
$A_{217}^{\mathrm{CIB}}$	$37^{+20}_{-20}$	$D_{2000}$	$232.0^{+4.9}_{-5.1}$	$\sigma_8(0.38)$	$0.676^{+0.052}_{-0.030}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.81$	$n_{\mathrm{s},0.002}$	$0.973^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	$0.478^{+0.038}_{-0.027}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.363$	$Y_{\mathrm{P}}$	$0.24545^{+0.00024}_{-0.00023}$	$\sigma_8(0.51)$	$0.633^{+0.049}_{-0.027}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24678^{+0.00024}_{-0.00023}$	$f\sigma_8(0.61)$	$0.474^{+0.038}_{-0.025}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.56^{+0.10}_{-0.10}$	$\sigma_8(0.61)$	$0.603^{+0.046}_{-0.026}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.762^{+0.079}_{-0.082}$	$f\sigma_8(2.33)$	$0.304^{+0.024}_{-0.013}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$z_*$	$1089.54^{+0.85}_{-0.84}$	$\sigma_8(2.33)$	$0.314^{+0.024}_{-0.013}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.46}_{-0.46}$	$r_*$	$144.91^{+0.81}_{-0.78}$	$f_{2000}^{143}$	$26^{+9}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.25}_{-0.26}$	$100\theta_*$	$1.0415^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$104.6^{+5.9}_{-5.9}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.01^{+0.42}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.915^{+0.080}_{-0.077}$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0029}$	$z_{\mathrm{drag}}$	$1060.1^{+1.2}_{-1.2}$	$\chi_{\mathrm{lowl}}^2$	$23.0 (\nu: 1.1)$
$c_{217}$	$1.0008^{+0.0041}_{-0.0037}$	$r_{\mathrm{drag}}$	$147.54^{+0.90}_{-0.84}$	$\chi_{\mathrm{CamSpec}}^2$	$7058.7 (\nu: 13.3)$
$H_0$	$68.4^{+1.6}_{-1.6}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0012}$	$\chi_{6\mathrm{DF}}^2$	$0.051 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.699^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16069^{+0.00071}_{-0.00069}$	$\chi_{\mathrm{MGS}}^2$	$2.05 (\nu: 0.2)$
$\Omega_{\mathrm{m}}$	$0.301^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3351^{+73}_{-74}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.04 (\nu: 0.5)$
$\Omega_{\mathrm{m}} h^2$	$0.1409^{+0.0031}_{-0.0031}$	$k_{\mathrm{eq}}$	$0.01023^{+0.00022}_{-0.00023}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 5.5)$
$\Omega_{\mathrm{m}} h^3$	$0.0964^{+0.0013}_{-0.0012}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.014}_{-0.014}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.8)$
$\sigma_8$	$0.823^{+0.064}_{-0.039}$	$100\theta_{\mathrm{s,eq}}$	$0.4545^{+0.0074}_{-0.0072}$	$\chi_{\mathrm{CMB}}^2$	$7081.7 (\nu: 13.8)$
$S_8$	$0.824^{+0.079}_{-0.054}$	$H(0.15)$	$73.6^{+1.4}_{-1.3}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.043}_{-0.030}$	$D_{\mathrm{M}}(0.15)$	$635^{+13}_{-13}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7095.11$ ;  $R - 1 = 0.02149$



### 3.80 base\_Alens\_CamSpecHM\_TT\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02255	$0.02253^{+0.00080}_{-0.00077}$	$S_8$	0.798	$0.800^{+0.086}_{-0.080}$	$100\theta_{\text{eq}}$	0.8245	$0.823^{+0.031}_{-0.030}$
$\Omega_c h^2$	0.1174	$0.1177^{+0.0071}_{-0.0068}$	$\sigma_8 \Omega_m^{0.5}$	0.4370	$0.438^{+0.047}_{-0.044}$	$100\theta_{\text{s,eq}}$	0.4551	$0.455^{+0.015}_{-0.015}$
$100\theta_{\text{MC}}$	1.04132	$1.0413^{+0.0014}_{-0.0014}$	$\sigma_8 \Omega_m^{0.25}$	0.5909	$0.592^{+0.041}_{-0.040}$	$H(0.15)$	73.71	$73.6^{+2.9}_{-2.8}$
$\tau$	0.0509	$0.050^{+0.022}_{-0.026}$	$\sigma_8/h^{0.5}$	0.965	$0.966^{+0.056}_{-0.057}$	$D_{\text{M}}(0.15)$	633.3	$634^{+29}_{-27}$
$A_{\text{L}}$	1.222	$1.21^{+0.27}_{-0.23}$	$r_{\text{drag}} h$	101.2	$101.0^{+5.8}_{-5.7}$	$H(0.38)$	83.61	$83.6^{+2.2}_{-2.1}$
$\ln(10^{10} A_{\text{s}})$	3.030	$3.030^{+0.045}_{-0.054}$	$\langle d^2 \rangle^{1/2}$	2.638	$2.63^{+0.19}_{-0.20}$	$D_{\text{M}}(0.38)$	1513	$1515^{+57}_{-56}$
$n_{\text{s}}$	0.9728	$0.971^{+0.021}_{-0.021}$	$z_{\text{re}}$	7.25	$7.2^{+2.1}_{-3.0}$	$H(0.51)$	90.20	$90.2^{+1.8}_{-1.6}$
$y_{\text{cal}}$	0.99998	$1.0001^{+0.0065}_{-0.0065}$	$10^9 A_{\text{s}}$	2.071	$2.069^{+0.095}_{-0.11}$	$D_{\text{M}}(0.51)$	1962	$1965^{+67}_{-66}$
$A_{100}^{\text{PS}}$	221	$232^{+60}_{-70}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8702	$1.870^{+0.040}_{-0.040}$	$H(0.61)$	95.73	$95.7^{+1.5}_{-1.3}$
$A_{143}^{\text{PS}}$	47.8	$35^{+20}_{-20}$	$D_{40}$	1211	$1214^{+51}_{-49}$	$D_{\text{M}}(0.61)$	2285	$2287^{+72}_{-71}$
$A_{217}^{\text{PS}}$	107.6	$103^{+30}_{-30}$	$D_{220}$	5729	$5729^{+110}_{-110}$	$H(2.33)$	235.09	$235.2^{+4.1}_{-3.8}$
$A_{217}^{\text{CIB}}$	38.9	$38^{+20}_{-20}$	$D_{810}$	2528.0	$2526^{+37}_{-37}$	$D_{\text{M}}(2.33)$	5744	$5746^{+59}_{-63}$
$A_{143}^{\text{tSZ}}$	6.40	$< 8.92$	$D_{1420}$	814.5	$813^{+13}_{-14}$	$f\sigma_8(0.15)$	0.4425	$0.444^{+0.043}_{-0.042}$
$r_{143 \times 217}^{\text{PS}}$	0.773	$> 0.345$	$D_{2000}$	232.2	$231.7^{+5.6}_{-5.8}$	$\sigma_8(0.15)$	0.7394	$0.739^{+0.024}_{-0.026}$
$r_{143 \times 217}^{\text{CIB}}$	0.85	—	$n_{\text{s},0.002}$	0.9728	$0.971^{+0.021}_{-0.021}$	$f\sigma_8(0.38)$	0.4633	$0.464^{+0.034}_{-0.034}$
$\xi^{\text{tSZ} \times \text{CIB}}$	1.00	—	$Y_{\text{P}}$	0.245464	$0.24546^{+0.00034}_{-0.00034}$	$\sigma_8(0.38)$	0.6568	$0.656^{+0.019}_{-0.021}$
$A^{\text{kSZ}}$	0.0	—	$Y_{\text{P}}^{\text{BBN}}$	0.246791	$0.24678^{+0.00034}_{-0.00034}$	$f\sigma_8(0.51)$	0.4633	$0.464^{+0.028}_{-0.030}$
$A_{100}^{\text{dust}}$	1.00	$1.01^{+0.50}_{-0.51}$	$10^5 \text{D}/\text{H}$	2.552	$2.56^{+0.15}_{-0.14}$	$\sigma_8(0.51)$	0.6152	$0.615^{+0.016}_{-0.018}$
$A_{143}^{\text{dust}}$	0.969	$0.96^{+0.46}_{-0.45}$	Age/Gyr	13.756	$13.76^{+0.13}_{-0.14}$	$f\sigma_8(0.61)$	0.4594	$0.460^{+0.025}_{-0.026}$
$A_{217}^{\text{dust}}$	0.985	$0.98^{+0.27}_{-0.27}$	$z_*$	1089.47	$1089.5^{+1.5}_{-1.4}$	$\sigma_8(0.61)$	0.5857	$0.585^{+0.015}_{-0.017}$
$A_{143 \times 217}^{\text{dust}}$	1.003	$1.02^{+0.41}_{-0.41}$	$r_*$	144.96	$144.9^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	0.2958	$0.2955^{+0.0071}_{-0.0082}$
$c_{100}$	0.99793	$0.9976^{+0.0027}_{-0.0027}$	$100\theta_*$	1.04149	$1.0415^{+0.0014}_{-0.0014}$	$\sigma_8(2.33)$	0.3055	$0.3052^{+0.0071}_{-0.0082}$
$c_{217}$	1.00095	$1.0009^{+0.0041}_{-0.0040}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.918	$13.91^{+0.13}_{-0.13}$	$f_{2000}^{143}$	27.0	$27^{+9}_{-9}$
$H_0$	68.55	$68.4^{+3.4}_{-3.3}$	$z_{\text{drag}}$	1060.16	$1060.1^{+1.5}_{-1.5}$	$f_{2000}^{217}$	104.3	$105.0^{+6.3}_{-6.2}$
$\Omega_{\Lambda}$	0.7007	$0.699^{+0.040}_{-0.046}$	$r_{\text{drag}}$	147.57	$147.5^{+1.3}_{-1.4}$	$f_{2000}^{143 \times 217}$	29.7	$30^{+7}_{-7}$
$\Omega_{\text{m}}$	0.2993	$0.301^{+0.046}_{-0.040}$	$k_{\text{D}}$	0.14050	$0.1405^{+0.0014}_{-0.0013}$	$\chi_{\text{simall}}^2$	395.67	$396.8 (\nu: 1.2)$
$\Omega_{\text{m}} h^2$	0.1406	$0.1409^{+0.0066}_{-0.0062}$	$100\theta_{\text{D}}$	0.16065	$0.16068^{+0.00084}_{-0.00078}$	$\chi_{\text{CamSpec}}^2$	7045.6	$7059.8 (\nu: 14.2)$
$\Omega_{\text{m}} h^3$	0.09641	$0.0964^{+0.0013}_{-0.0013}$	$z_{\text{eq}}$	3345	$3351^{+160}_{-150}$	$\chi_{\text{prior}}^2$	1.4	$7.2 (\nu: 5.5)$
$\sigma_8$	0.7989	$0.799^{+0.029}_{-0.031}$	$k_{\text{eq}}$	0.010210	$0.01023^{+0.00048}_{-0.00045}$	$\chi_{\text{CMB}}^2$	7441.3	$7456.6 (\nu: 15.5)$

Best-fit  $\chi_{\text{eff}}^2 = 7442.68$ ;  $\bar{\chi}_{\text{eff}}^2 = 7463.85$ ;  $R - 1 = 0.00741$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.67 CamSpec like\_10.7HM: 7045.62



### 3.81 base\_Alens\_CamSpecHM\_TTTEEE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02250	$0.02247^{+0.00051}_{-0.00049} \quad (-0.3\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.09631	$0.09626^{+0.00087}_{-0.00085} \quad (-0.2\sigma)$	$z_{\mathrm{eq}}$	3361	$3362^{+95}_{-94} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.11815	$0.1182^{+0.0043}_{-0.0043} \quad (+0.3\sigma)$	$\sigma_8$	0.843	$0.850^{+0.10}_{-0.088} \quad (+0.3\sigma)$	$k_{\mathrm{eq}}$	0.010259	$0.01026^{+0.00029}_{-0.00029} \quad (+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	1.04105	$1.04105^{+0.00086}_{-0.00086} \quad (-0.5\sigma)$	$S_8$	0.849	$0.86^{+0.12}_{-0.10} \quad (+0.5\sigma)$	$100\theta_{\mathrm{eq}}$	0.8212	$0.821^{+0.019}_{-0.018} \quad (-0.4\sigma)$
$\tau$	0.101	$< 0.224 \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.465	$0.469^{+0.065}_{-0.056} \quad (+0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4534	$0.4534^{+0.0095}_{-0.0092} \quad (-0.4\sigma)$
$A_{\mathrm{L}}$	1.035	$1.02^{+0.31}_{-0.27} \quad (-0.7\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.626	$0.632^{+0.082}_{-0.069} \quad (+0.4\sigma)$	$H(0.15)$	73.37	$73.3^{+1.7}_{-1.7} \quad (-0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.133	$3.15^{+0.23}_{-0.20} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	1.021	$1.03^{+0.13}_{-0.11} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	636.6	$637^{+17}_{-17} \quad (+0.4\sigma)$
$n_{\mathrm{s}}$	0.9716	$0.971^{+0.017}_{-0.015} \quad (-0.3\sigma)$	$r_{\mathrm{drag}}h$	100.49	$100.5^{+3.5}_{-3.3} \quad (-0.4\sigma)$	$H(0.38)$	83.35	$83.3^{+1.3}_{-1.2} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	222	$232^{+60}_{-70} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	2.566	$2.55^{+0.16}_{-0.18} \quad (-1.0\sigma)$	$D_{\mathrm{M}}(0.38)$	1519.9	$1521^{+33}_{-34} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	48.5	$35^{+20}_{-20} \quad (+0.2\sigma)$	$z_{\mathrm{re}}$	11.9	$12.0^{+8.9}_{-9.7} \quad (+0.2\sigma)$	$H(0.51)$	90.00	$90.0^{+1.0}_{-0.96} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	108.5	$105^{+30}_{-30} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	2.29	$2.34^{+0.59}_{-0.45} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.51)$	1970.1	$1971^{+39}_{-40} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	38.8	$37^{+20}_{-20} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8725	$1.871^{+0.033}_{-0.034} \quad (+0.2\sigma)$	$H(0.61)$	95.56	$95.54^{+0.85}_{-0.77} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{tSZ}}$	6.30	$< 8.83 \quad (-0.0\sigma)$	$D_{40}$	1234	$1247^{+87}_{-60} \quad (+0.5\sigma)$	$D_{\mathrm{M}}(0.61)$	2293.4	$2294^{+42}_{-43} \quad (+0.4\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	0.775	$> 0.363 \quad (+0.0\sigma)$	$D_{220}$	5724	$5720^{+110}_{-110} \quad (-0.1\sigma)$	$H(2.33)$	235.49	$235.5^{+2.5}_{-2.4} \quad (+0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.84	—	$D_{810}$	2530.6	$2529^{+36}_{-36} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	5751.8	$5753^{+35}_{-38} \quad (+0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.996	—	$D_{1420}$	815.7	$815^{+13}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	0.470	$0.475^{+0.065}_{-0.055} \quad (+0.4\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	231.94	$231.6^{+4.9}_{-4.8} \quad (-0.3\sigma)$	$\sigma_8(0.15)$	0.780	$0.787^{+0.097}_{-0.081} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	1.00	$0.998^{+0.50}_{-0.50} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	0.9716	$0.971^{+0.017}_{-0.015} \quad (-0.3\sigma)$	$f\sigma_8(0.38)$	0.491	$0.496^{+0.065}_{-0.054} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{dust}}$	0.960	$0.94^{+0.46}_{-0.45} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	0.245446	$0.24543^{+0.00021}_{-0.00020} \quad (-0.3\sigma)$	$\sigma_8(0.38)$	0.692	$0.698^{+0.086}_{-0.071} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	0.987	$0.98^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246772	$0.24676^{+0.00021}_{-0.00020} \quad (-0.3\sigma)$	$f\sigma_8(0.51)$	0.491	$0.495^{+0.064}_{-0.053} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	1.001	$1.02^{+0.41}_{-0.40} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	2.561	$2.567^{+0.093}_{-0.091} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	0.648	$0.654^{+0.080}_{-0.066} \quad (+0.3\sigma)$
$y_{\mathrm{cal}}$	1.0000	$1.0001^{+0.0065}_{-0.0064} \quad (+0.0\sigma)$	Age/Gyr	13.772	$13.775^{+0.079}_{-0.082} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	0.486	$0.490^{+0.062}_{-0.053} \quad (+0.4\sigma)$
$c_{100}$	0.99791	$0.9976^{+0.0028}_{-0.0028} \quad (-0.0\sigma)$	$z_*$	1089.59	$1089.64^{+0.90}_{-0.91} \quad (+0.3\sigma)$	$\sigma_8(0.61)$	0.617	$0.622^{+0.076}_{-0.063} \quad (+0.3\sigma)$
$c_{217}$	1.00098	$1.0009^{+0.0041}_{-0.0040} \quad (+0.1\sigma)$	$r_*$	144.81	$144.82^{+0.90}_{-0.90} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	0.3113	$0.314^{+0.039}_{-0.032} \quad (+0.2\sigma)$
$c_{TE}$	0.9919	$0.992^{+0.014}_{-0.014}$	$100\theta_*$	1.04123	$1.04122^{+0.00083}_{-0.00084} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	0.3213	$0.324^{+0.040}_{-0.033} \quad (+0.2\sigma)$
$c_{EE}$	0.9905	$0.990^{+0.013}_{-0.013}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.908	$13.909^{+0.083}_{-0.083} \quad (-0.3\sigma)$	$f_{2000}^{143}$	27.2	$27^{+8}_{-8} \quad (+0.2\sigma)$
$H_0$	68.16	$68.1^{+2.0}_{-1.9} \quad (-0.4\sigma)$	$z_{\mathrm{drag}}$	1060.12	$1060.04^{+0.99}_{-0.99} \quad (-0.2\sigma)$	$f_{2000}^{217}$	104.6	$105.1^{+5.7}_{-5.7} \quad (+0.2\sigma)$
$\Omega_{\Lambda}$	0.6959	$0.695^{+0.025}_{-0.027} \quad (-0.4\sigma)$	$r_{\mathrm{drag}}$	147.43	$147.46^{+0.88}_{-0.87} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	29.9	$30^{+6}_{-6} \quad (+0.2\sigma)$
$\Omega_{\mathrm{m}}$	0.3041	$0.305^{+0.027}_{-0.025} \quad (+0.4\sigma)$	$k_{\mathrm{D}}$	0.14061	$0.14056^{+0.00092}_{-0.00092} \quad (+0.2\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	11495.7	$11512.3 (\nu: 16.2) \quad (+819.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	0.14130	$0.1413^{+0.0040}_{-0.0039} \quad (+0.3\sigma)$	$100\theta_{\mathrm{D}}$	0.16066	$0.16070^{+0.00057}_{-0.00055} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	1.8	$7.8 (\nu: 5.6) \quad (+0.2\sigma)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 11497.50$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4451.05$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 11520.05$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4452.95$ ;  $R - 1 = 0.00760$

$\chi_{\mathrm{eff}}^2$ : CMB - CamSpec like\_10.7HM\_1400\_unified: 11495.71



### 3.82 base\_Alens\_CamSpecHM\_TTTEEE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02247^{+0.00043}_{-0.00043} \quad (-0.1\sigma)$	$S_8$	$0.857^{+0.11}_{-0.094} \quad (+0.3\sigma)$	$H(0.15)$	$73.3^{+1.2}_{-1.1} \quad (-0.2\sigma)$
$\Omega_c h^2$	$0.1182^{+0.0029}_{-0.0028} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.469^{+0.063}_{-0.052} \quad (+0.3\sigma)$	$D_M(0.15)$	$637^{+11}_{-11} \quad (+0.2\sigma)$
$100\theta_{MC}$	$1.04105^{+0.00077}_{-0.00076} \quad (-0.4\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.632^{+0.081}_{-0.068} \quad (+0.3\sigma)$	$H(0.38)$	$83.32^{+0.87}_{-0.84} \quad (-0.2\sigma)$
$\tau$	$< 0.223 \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$1.03^{+0.13}_{-0.11} \quad (+0.3\sigma)$	$D_M(0.38)$	$1521^{+22}_{-22} \quad (+0.2\sigma)$
$A_L$	$1.02^{+0.30}_{-0.26} \quad (-0.7\sigma)$	$r_{\text{drag}} h$	$100.4^{+2.3}_{-2.2} \quad (-0.2\sigma)$	$H(0.51)$	$89.97^{+0.70}_{-0.68} \quad (-0.2\sigma)$
$\ln(10^{10} A_s)$	$3.15^{+0.23}_{-0.21} \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.55^{+0.16}_{-0.17} \quad (-0.9\sigma)$	$D_M(0.51)$	$1971^{+26}_{-26} \quad (+0.2\sigma)$
$n_s$	$0.971^{+0.013}_{-0.012} \quad (-0.0\sigma)$	$z_{\text{re}}$	$12.0^{+9.0}_{-9.7} \quad (+0.3\sigma)$	$H(0.61)$	$95.54^{+0.59}_{-0.56} \quad (-0.2\sigma)$
$A_{100}^{\text{PS}}$	$232^{+60}_{-60} \quad (+0.0\sigma)$	$10^9 A_s$	$2.34^{+0.59}_{-0.45} \quad (+0.3\sigma)$	$D_M(0.61)$	$2294^{+28}_{-29} \quad (+0.2\sigma)$
$A_{143}^{\text{PS}}$	$35^{+20}_{-20} \quad (+0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.871^{+0.030}_{-0.029} \quad (+0.0\sigma)$	$H(2.33)$	$235.5^{+1.7}_{-1.7} \quad (+0.1\sigma)$
$A_{217}^{\text{PS}}$	$105^{+30}_{-30} \quad (+0.1\sigma)$	$D_{40}$	$1247^{+87}_{-57} \quad (+0.4\sigma)$	$D_M(2.33)$	$5753^{+27}_{-27} \quad (+0.2\sigma)$
$A_{217}^{\text{CIB}}$	$37^{+20}_{-20} \quad (-0.0\sigma)$	$D_{220}$	$5721^{+100}_{-110} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.475^{+0.063}_{-0.053} \quad (+0.3\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.84 \quad (-0.0\sigma)$	$D_{810}$	$2529^{+36}_{-35} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.786^{+0.097}_{-0.080} \quad (+0.3\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$> 0.362 \quad (+0.0\sigma)$	$D_{1420}$	$815^{+13}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.495^{+0.064}_{-0.054} \quad (+0.3\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$D_{2000}$	$231.5^{+4.6}_{-4.6} \quad (-0.1\sigma)$	$\sigma_8(0.38)$	$0.698^{+0.086}_{-0.071} \quad (+0.3\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$n_{s,0.002}$	$0.971^{+0.013}_{-0.012} \quad (-0.0\sigma)$	$f\sigma_8(0.51)$	$0.495^{+0.063}_{-0.053} \quad (+0.3\sigma)$
$A^{\text{kSZ}}$	—	$Y_P$	$0.24543^{+0.00017}_{-0.00017} \quad (-0.0\sigma)$	$\sigma_8(0.51)$	$0.653^{+0.081}_{-0.066} \quad (+0.3\sigma)$
$A_{100}^{\text{dust}}$	$0.998^{+0.51}_{-0.50} \quad (-0.0\sigma)$	$Y_P^{\text{BBN}}$	$0.24676^{+0.00017}_{-0.00017} \quad (-0.0\sigma)$	$f\sigma_8(0.61)$	$0.490^{+0.062}_{-0.052} \quad (+0.3\sigma)$
$A_{143}^{\text{dust}}$	$0.94^{+0.46}_{-0.46} \quad (-0.1\sigma)$	$10^5 \text{D/H}$	$2.568^{+0.081}_{-0.076} \quad (+0.0\sigma)$	$\sigma_8(0.61)$	$0.622^{+0.077}_{-0.063} \quad (+0.3\sigma)$
$A_{217}^{\text{dust}}$	$0.98^{+0.26}_{-0.27} \quad (+0.0\sigma)$	$\text{Age/Gyr}$	$13.776^{+0.061}_{-0.061} \quad (+0.2\sigma)$	$f\sigma_8(2.33)$	$0.314^{+0.039}_{-0.032} \quad (+0.3\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.01^{+0.42}_{-0.40} \quad (-0.0\sigma)$	$z_*$	$1089.64^{+0.69}_{-0.67} \quad (+0.1\sigma)$	$\sigma_8(2.33)$	$0.324^{+0.040}_{-0.033} \quad (+0.3\sigma)$
$y_{\text{cal}}$	$1.0001^{+0.0065}_{-0.0063} \quad (+0.0\sigma)$	$r_*$	$144.82^{+0.66}_{-0.65} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$27^{+8}_{-8} \quad (+0.1\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0028} \quad (+0.0\sigma)$	$100\theta_*$	$1.04122^{+0.00075}_{-0.00076} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$105.1^{+5.5}_{-5.4} \quad (+0.1\sigma)$
$c_{217}$	$1.0009^{+0.0040}_{-0.0040} \quad (+0.0\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.909^{+0.063}_{-0.063} \quad (+0.0\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6} \quad (+0.1\sigma)$
$c_{TE}$	$0.992^{+0.014}_{-0.014}$	$z_{\text{drag}}$	$1060.04^{+0.92}_{-0.91} \quad (-0.0\sigma)$	$\chi_{\text{CamSpec}}^2$	$11511.8 \quad (\nu: 15.5) \quad (+847.9\sigma)$
$c_{EE}$	$0.990^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$147.46^{+0.68}_{-0.68} \quad (-0.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.032 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$H_0$	$68.1^{+1.3}_{-1.3} \quad (-0.2\sigma)$	$k_D$	$0.14056^{+0.00082}_{-0.00084} \quad (+0.0\sigma)$	$\chi_{\text{MGS}}^2$	$1.74 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_\Lambda$	$0.695^{+0.017}_{-0.018} \quad (-0.2\sigma)$	$100\theta_D$	$0.16070^{+0.00054}_{-0.00052} \quad (-0.1\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.02 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$\Omega_m$	$0.305^{+0.018}_{-0.017} \quad (+0.2\sigma)$	$z_{\text{eq}}$	$3362^{+64}_{-64} \quad (+0.1\sigma)$	$\chi_{\text{prior}}^2$	$7.8 \quad (\nu: 5.7) \quad (+0.2\sigma)$
$\Omega_m h^2$	$0.1413^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$k_{\text{eq}}$	$0.01026^{+0.00020}_{-0.00020} \quad (+0.1\sigma)$	$\chi_{\text{BAO}}^2$	$5.79 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$\Omega_m h^3$	$0.09626^{+0.00086}_{-0.00084} \quad (-0.2\sigma)$	$100\theta_{\text{eq}}$	$0.821^{+0.012}_{-0.012} \quad (-0.1\sigma)$		
$\sigma_8$	$0.850^{+0.11}_{-0.087} \quad (+0.3\sigma)$	$100\theta_{s,\text{eq}}$	$0.4533^{+0.0064}_{-0.0062} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 11525.37; \Delta\bar{\chi}_{\text{eff}}^2 = 4453.04; R - 1 = 0.00886$$



### 3.83 base\_Alens\_CamSpecHM\_TTTEEE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02248^{+0.00051}_{-0.00050} \quad (-0.3\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09626^{+0.00085}_{-0.00085} \quad (-0.2\sigma)$	$z_{\mathrm{eq}}$	$3360^{+94}_{-94} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1181^{+0.0042}_{-0.0042} \quad (+0.4\sigma)$	$\sigma_8$	$0.864^{+0.092}_{-0.076} \quad (+0.4\sigma)$	$k_{\mathrm{eq}}$	$0.01025^{+0.00029}_{-0.00029} \quad (+0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04105^{+0.00086}_{-0.00087} \quad (-0.6\sigma)$	$S_8$	$0.870^{+0.11}_{-0.092} \quad (+0.5\sigma)$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.019}_{-0.018} \quad (-0.4\sigma)$
$\tau$	$0.126^{+0.10}_{-0.085} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.477^{+0.059}_{-0.050} \quad (+0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4535^{+0.0095}_{-0.0091} \quad (-0.4\sigma)$
$A_{\mathrm{L}}$	$0.98^{+0.26}_{-0.24} \quad (-0.8\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.642^{+0.073}_{-0.060} \quad (+0.5\sigma)$	$H(0.15)$	$73.4^{+1.8}_{-1.7} \quad (-0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.18^{+0.20}_{-0.17} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$1.05^{+0.12}_{-0.095} \quad (+0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	$637^{+17}_{-17} \quad (+0.4\sigma)$
$n_{\mathrm{s}}$	$0.972^{+0.016}_{-0.015} \quad (-0.3\sigma)$	$r_{\mathrm{drag}}h$	$100.5^{+3.5}_{-3.3} \quad (-0.4\sigma)$	$H(0.38)$	$83.3^{+1.3}_{-1.2} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$231^{+60}_{-70} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.56^{+0.16}_{-0.17} \quad (-0.9\sigma)$	$D_{\mathrm{M}}(0.38)$	$1520^{+33}_{-34} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$35^{+20}_{-20} \quad (+0.2\sigma)$	$z_{\mathrm{re}}$	$< 20.7 \quad (+0.3\sigma)$	$H(0.51)$	$90.0^{+1.0}_{-0.97} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$105^{+30}_{-30} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.42^{+0.52}_{-0.40} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.51)$	$1970^{+39}_{-40} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$37^{+20}_{-20} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.870^{+0.033}_{-0.033} \quad (+0.2\sigma)$	$H(0.61)$	$95.55^{+0.86}_{-0.78} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.84 \quad (-0.0\sigma)$	$D_{40}$	$1253^{+82}_{-61} \quad (+0.5\sigma)$	$D_{\mathrm{M}}(0.61)$	$2294^{+42}_{-43} \quad (+0.4\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.364 \quad (+0.0\sigma)$	$D_{220}$	$5718^{+110}_{-110} \quad (-0.1\sigma)$	$H(2.33)$	$235.4^{+2.5}_{-2.4} \quad (+0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$D_{810}$	$2528^{+36}_{-36} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5753^{+36}_{-38} \quad (+0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.482^{+0.058}_{-0.049} \quad (+0.5\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.7^{+4.9}_{-4.8} \quad (-0.3\sigma)$	$\sigma_8(0.15)$	$0.799^{+0.085}_{-0.070} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{dust}}$	$0.995^{+0.50}_{-0.50} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.972^{+0.016}_{-0.015} \quad (-0.3\sigma)$	$f\sigma_8(0.38)$	$0.503^{+0.058}_{-0.048} \quad (+0.5\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.94^{+0.46}_{-0.45} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24543^{+0.00021}_{-0.00020} \quad (-0.3\sigma)$	$\sigma_8(0.38)$	$0.709^{+0.075}_{-0.061} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24676^{+0.00021}_{-0.00020} \quad (-0.3\sigma)$	$f\sigma_8(0.51)$	$0.503^{+0.056}_{-0.046} \quad (+0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.01^{+0.41}_{-0.41} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.566^{+0.093}_{-0.091} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.664^{+0.070}_{-0.057} \quad (+0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0001^{+0.0065}_{-0.0064} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.774^{+0.080}_{-0.082} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.498^{+0.055}_{-0.045} \quad (+0.4\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0028} \quad (-0.0\sigma)$	$z_*$	$1089.62^{+0.91}_{-0.91} \quad (+0.3\sigma)$	$\sigma_8(0.61)$	$0.632^{+0.067}_{-0.054} \quad (+0.3\sigma)$
$c_{217}$	$1.0009^{+0.0041}_{-0.0040} \quad (+0.1\sigma)$	$r_*$	$144.84^{+0.90}_{-0.89} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	$0.319^{+0.034}_{-0.027} \quad (+0.3\sigma)$
$c_{TE}$	$0.992^{+0.014}_{-0.014}$	$100\theta_*$	$1.04123^{+0.00084}_{-0.00084} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.329^{+0.035}_{-0.028} \quad (+0.3\sigma)$
$c_{EE}$	$0.990^{+0.013}_{-0.013}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.910^{+0.083}_{-0.083} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$27^{+8}_{-8} \quad (+0.2\sigma)$
$H_0$	$68.2^{+2.0}_{-1.9} \quad (-0.4\sigma)$	$z_{\mathrm{drag}}$	$1060.05^{+0.99}_{-1.0} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$104.9^{+5.7}_{-5.6} \quad (+0.2\sigma)$
$\Omega_{\Lambda}$	$0.696^{+0.025}_{-0.026} \quad (-0.4\sigma)$	$r_{\mathrm{drag}}$	$147.47^{+0.87}_{-0.87} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6} \quad (+0.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.026}_{-0.025} \quad (+0.4\sigma)$	$k_{\mathrm{D}}$	$0.14055^{+0.00092}_{-0.00092} \quad (+0.2\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11512.2 \quad (\nu: 16.3) \quad (+817.7\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1412^{+0.0039}_{-0.0039} \quad (+0.4\sigma)$	$100\theta_{\mathrm{D}}$	$0.16069^{+0.00057}_{-0.00054} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.6) \quad (+0.2\sigma)$

$\bar{\chi}_{\mathrm{eff}}^2 = 11520.01$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4452.96$ ;  $R - 1 = 0.00786$



### 3.84 base\_Alens\_CamSpecHM\_TTTEEE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02247^{+0.00042}_{-0.00043} \quad (-0.0\sigma)$	$S_8$	$0.870^{+0.10}_{-0.083} \quad (+0.4\sigma)$	$H(0.15)$	$73.3^{+1.1}_{-1.1} \quad (-0.2\sigma)$
$\Omega_c h^2$	$0.1182^{+0.0029}_{-0.0029} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.477^{+0.056}_{-0.046} \quad (+0.4\sigma)$	$D_M(0.15)$	$637^{+11}_{-11} \quad (+0.2\sigma)$
$100\theta_{MC}$	$1.04105^{+0.00077}_{-0.00076} \quad (-0.4\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.642^{+0.071}_{-0.059} \quad (+0.4\sigma)$	$H(0.38)$	$83.33^{+0.86}_{-0.84} \quad (-0.2\sigma)$
$\tau$	$0.125^{+0.10}_{-0.085} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$1.05^{+0.11}_{-0.095} \quad (+0.4\sigma)$	$D_M(0.38)$	$1520^{+23}_{-22} \quad (+0.2\sigma)$
$A_L$	$0.98^{+0.26}_{-0.23} \quad (-0.8\sigma)$	$r_{drag} h$	$100.5^{+2.3}_{-2.2} \quad (-0.2\sigma)$	$H(0.51)$	$89.98^{+0.69}_{-0.68} \quad (-0.2\sigma)$
$\ln(10^{10} A_s)$	$3.18^{+0.20}_{-0.17} \quad (+0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.55^{+0.16}_{-0.17} \quad (-0.9\sigma)$	$D_M(0.51)$	$1971^{+26}_{-26} \quad (+0.2\sigma)$
$n_s$	$0.972^{+0.013}_{-0.012} \quad (-0.0\sigma)$	$z_{re}$	$< 20.7 \quad (+0.3\sigma)$	$H(0.61)$	$95.54^{+0.58}_{-0.56} \quad (-0.2\sigma)$
$A_{100}^{PS}$	$232^{+60}_{-60} \quad (+0.0\sigma)$	$10^9 A_s$	$2.41^{+0.52}_{-0.40} \quad (+0.4\sigma)$	$D_M(0.61)$	$2294^{+29}_{-29} \quad (+0.2\sigma)$
$A_{143}^{PS}$	$35^{+20}_{-20} \quad (+0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.870^{+0.030}_{-0.029} \quad (+0.0\sigma)$	$H(2.33)$	$235.5^{+1.7}_{-1.7} \quad (+0.1\sigma)$
$A_{217}^{PS}$	$105^{+30}_{-30} \quad (+0.1\sigma)$	$D_{40}$	$1253^{+82}_{-59} \quad (+0.4\sigma)$	$D_M(2.33)$	$5753^{+27}_{-27} \quad (+0.2\sigma)$
$A_{217}^{CIB}$	$37^{+20}_{-20} \quad (-0.0\sigma)$	$D_{220}$	$5719^{+100}_{-110} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.482^{+0.056}_{-0.045} \quad (+0.4\sigma)$
$A_{143}^{tSZ}$	$< 8.86 \quad (-0.0\sigma)$	$D_{810}$	$2528^{+36}_{-35} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.799^{+0.086}_{-0.069} \quad (+0.4\sigma)$
$r_{143 \times 217}^{PS}$	$> 0.366 \quad (+0.0\sigma)$	$D_{1420}$	$815^{+13}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.503^{+0.056}_{-0.047} \quad (+0.4\sigma)$
$r_{143 \times 217}^{CIB}$	—	$D_{2000}$	$231.6^{+4.6}_{-4.6} \quad (-0.1\sigma)$	$\sigma_8(0.38)$	$0.709^{+0.076}_{-0.061} \quad (+0.4\sigma)$
$\xi^{tSZ \times CIB}$	—	$n_{s,0.002}$	$0.972^{+0.013}_{-0.012} \quad (-0.0\sigma)$	$f\sigma_8(0.51)$	$0.503^{+0.055}_{-0.046} \quad (+0.4\sigma)$
$A^{kSZ}$	—	$Y_P$	$0.24543^{+0.00017}_{-0.00017} \quad (-0.0\sigma)$	$\sigma_8(0.51)$	$0.664^{+0.071}_{-0.057} \quad (+0.4\sigma)$
$A_{100}^{dust}$	$0.995^{+0.51}_{-0.50} \quad (-0.0\sigma)$	$Y_P^{BBN}$	$0.24676^{+0.00017}_{-0.00017} \quad (-0.0\sigma)$	$f\sigma_8(0.61)$	$0.498^{+0.055}_{-0.045} \quad (+0.4\sigma)$
$A_{143}^{dust}$	$0.94^{+0.46}_{-0.46} \quad (-0.1\sigma)$	$10^5 D/H$	$2.567^{+0.080}_{-0.076} \quad (+0.0\sigma)$	$\sigma_8(0.61)$	$0.632^{+0.067}_{-0.054} \quad (+0.4\sigma)$
$A_{217}^{dust}$	$0.98^{+0.25}_{-0.27} \quad (+0.0\sigma)$	$Age/Gyr$	$13.775^{+0.060}_{-0.061} \quad (+0.2\sigma)$	$f\sigma_8(2.33)$	$0.319^{+0.034}_{-0.027} \quad (+0.3\sigma)$
$A_{143 \times 217}^{dust}$	$1.01^{+0.42}_{-0.41} \quad (-0.0\sigma)$	$z_*$	$1089.63^{+0.68}_{-0.67} \quad (+0.0\sigma)$	$\sigma_8(2.33)$	$0.329^{+0.035}_{-0.028} \quad (+0.3\sigma)$
$y_{cal}$	$1.0001^{+0.0064}_{-0.0063} \quad (+0.0\sigma)$	$r_*$	$144.83^{+0.66}_{-0.66} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$27^{+8}_{-8} \quad (+0.0\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0028} \quad (+0.0\sigma)$	$100\theta_*$	$1.04123^{+0.00076}_{-0.00076} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$105.0^{+5.3}_{-5.3} \quad (+0.1\sigma)$
$c_{217}$	$1.0009^{+0.0040}_{-0.0040} \quad (+0.0\sigma)$	$D_M(z_*)/Gpc$	$13.909^{+0.063}_{-0.062} \quad (+0.0\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6} \quad (+0.1\sigma)$
$c_{TE}$	$0.992^{+0.014}_{-0.014}$	$z_{drag}$	$1060.04^{+0.92}_{-0.95} \quad (-0.0\sigma)$	$\chi_{CamSpec}^2$	$11511.7 \quad (\nu: 15.7) \quad (+844.5\sigma)$
$c_{EE}$	$0.990^{+0.013}_{-0.013}$	$r_{drag}$	$147.46^{+0.68}_{-0.67} \quad (-0.1\sigma)$	$\chi_{6DF}^2$	$0.032 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$H_0$	$68.1^{+1.3}_{-1.3} \quad (-0.2\sigma)$	$k_D$	$0.14055^{+0.00082}_{-0.00083} \quad (+0.0\sigma)$	$\chi_{MGS}^2$	$1.75 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_\Lambda$	$0.696^{+0.017}_{-0.018} \quad (-0.1\sigma)$	$100\theta_D$	$0.16070^{+0.00055}_{-0.00052} \quad (-0.1\sigma)$	$\chi_{DR12BAO}^2$	$4.00 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$\Omega_m$	$0.304^{+0.018}_{-0.017} \quad (+0.1\sigma)$	$z_{eq}$	$3361^{+64}_{-64} \quad (+0.1\sigma)$	$\chi_{prior}^2$	$7.8 \quad (\nu: 5.7) \quad (+0.2\sigma)$
$\Omega_m h^2$	$0.1413^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$k_{eq}$	$0.01026^{+0.00020}_{-0.00020} \quad (+0.1\sigma)$	$\chi_{BAO}^2$	$5.79 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$\Omega_m h^3$	$0.09626^{+0.00083}_{-0.00084} \quad (-0.2\sigma)$	$100\theta_{eq}$	$0.821^{+0.012}_{-0.012} \quad (-0.1\sigma)$		
$\sigma_8$	$0.864^{+0.093}_{-0.076} \quad (+0.4\sigma)$	$100\theta_{s,eq}$	$0.4534^{+0.0064}_{-0.0062} \quad (-0.1\sigma)$		

$$\bar{\chi}_{eff}^2 = 11525.31; \Delta\bar{\chi}_{eff}^2 = 4452.97; R - 1 = 0.00906$$



### 3.85 base\_Alens\_CamSpecHM\_TTTEEE\_lowl

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022524	$0.02251^{+0.00049}_{-0.00048} \quad (-0.5\sigma)$	$\sigma_8$	0.769	$0.805^{+0.081}_{-0.048} \quad (+0.0\sigma)$	$100\theta_{\text{eq}}$	0.8220	$0.823^{+0.018}_{-0.018} \quad (-0.7\sigma)$
$\Omega_c h^2$	0.11795	$0.1179^{+0.0043}_{-0.0040} \quad (+0.7\sigma)$	$S_8$	0.772	$0.808^{+0.091}_{-0.066} \quad (+0.4\sigma)$	$100\theta_{\text{s,eq}}$	0.4538	$0.4541^{+0.0089}_{-0.0091} \quad (-0.7\sigma)$
$100\theta_{\text{MC}}$	1.04108	$1.04108^{+0.00084}_{-0.00085} \quad (-0.8\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4230	$0.443^{+0.050}_{-0.036} \quad (+0.4\sigma)$	$H(0.15)$	73.45	$73.5^{+1.7}_{-1.6} \quad (-0.7\sigma)$
$\tau$	0.010	$< 0.151 \quad (-0.2\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.570	$0.597^{+0.065}_{-0.040} \quad (+0.2\sigma)$	$D_{\text{M}}(0.15)$	635.7	$636^{+16}_{-16} \quad (+0.7\sigma)$
$A_{\text{L}}$	1.248	$1.14^{+0.24}_{-0.25} \quad (-0.7\sigma)$	$\sigma_8/h^{0.5}$	0.930	$0.974^{+0.11}_{-0.062} \quad (+0.2\sigma)$	$H(0.38)$	83.42	$83.4^{+1.2}_{-1.2} \quad (-0.7\sigma)$
$\ln(10^{10} A_{\text{s}})$	2.950	$3.04^{+0.19}_{-0.11} \quad (-0.1\sigma)$	$r_{\text{drag}} h$	100.66	$100.7^{+3.3}_{-3.3} \quad (-0.7\sigma)$	$D_{\text{M}}(0.38)$	1518.2	$1518^{+32}_{-32} \quad (+0.7\sigma)$
$n_{\text{s}}$	0.9717	$0.972^{+0.014}_{-0.014} \quad (-0.7\sigma)$	$\langle d^2 \rangle^{1/2}$	2.568	$2.56^{+0.17}_{-0.18} \quad (-1.0\sigma)$	$H(0.51)$	90.05	$90.1^{+1.0}_{-0.95} \quad (-0.7\sigma)$
$y_{\text{cal}}$	0.99998	$1.0001^{+0.0065}_{-0.0064} \quad (+0.0\sigma)$	$z_{\text{re}}$	2.1	$7.5^{+8.4}_{-5.8} \quad (-0.2\sigma)$	$D_{\text{M}}(0.51)$	1968.1	$1968^{+38}_{-38} \quad (+0.7\sigma)$
$A_{100}^{\text{PS}}$	222	$232^{+60}_{-60} \quad (+0.1\sigma)$	$10^9 A_{\text{s}}$	1.910	$2.10^{+0.44}_{-0.22} \quad (-0.1\sigma)$	$H(0.61)$	95.60	$95.61^{+0.82}_{-0.76} \quad (-0.7\sigma)$
$A_{143}^{\text{PS}}$	48.5	$35^{+20}_{-20} \quad (+0.3\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8720	$1.870^{+0.032}_{-0.031} \quad (+0.5\sigma)$	$D_{\text{M}}(0.61)$	2291.3	$2291^{+41}_{-41} \quad (+0.7\sigma)$
$A_{217}^{\text{PS}}$	108.5	$105^{+30}_{-30} \quad (+0.0\sigma)$	$D_{40}$	1206.1	$1217^{+54}_{-39} \quad (+0.4\sigma)$	$H(2.33)$	235.38	$235.3^{+2.5}_{-2.3} \quad (+0.6\sigma)$
$A_{217}^{\text{CIB}}$	38.7	$37^{+20}_{-20} \quad (+0.1\sigma)$	$D_{220}$	5725	$5722^{+100}_{-100} \quad (-0.1\sigma)$	$D_{\text{M}}(2.33)$	5750.1	$5750^{+35}_{-36} \quad (+0.7\sigma)$
$A_{143}^{\text{tSZ}}$	6.30	$< 8.83 \quad (-0.0\sigma)$	$D_{810}$	2530.4	$2528^{+34}_{-36} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	0.4280	$0.448^{+0.050}_{-0.035} \quad (+0.4\sigma)$
$r_{143 \times 217}^{\text{PS}}$	0.779	$> 0.370 \quad (-0.0\sigma)$	$D_{1420}$	815.6	$815^{+12}_{-13} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	0.711	$0.744^{+0.075}_{-0.043} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	0.83	—	$D_{2000}$	231.89	$231.6^{+4.4}_{-4.4} \quad (-0.5\sigma)$	$f\sigma_8(0.38)$	0.4472	$0.468^{+0.051}_{-0.032} \quad (+0.3\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.998	—	$n_{\text{s},0.002}$	0.9717	$0.972^{+0.014}_{-0.014} \quad (-0.7\sigma)$	$\sigma_8(0.38)$	0.631	$0.661^{+0.066}_{-0.037} \quad (-0.1\sigma)$
$A^{\text{kSZ}}$	0.0	—	$Y_{\text{P}}$	0.245453	$0.24545^{+0.00020}_{-0.00019} \quad (-0.5\sigma)$	$f\sigma_8(0.51)$	0.4469	$0.468^{+0.051}_{-0.030} \quad (+0.2\sigma)$
$A_{100}^{\text{dust}}$	1.01	$1.01^{+0.50}_{-0.50} \quad (-0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	0.246780	$0.24677^{+0.00020}_{-0.00019} \quad (-0.5\sigma)$	$\sigma_8(0.51)$	0.5911	$0.619^{+0.062}_{-0.034} \quad (-0.1\sigma)$
$A_{143}^{\text{dust}}$	0.971	$0.95^{+0.45}_{-0.45} \quad (-0.0\sigma)$	$10^5 \text{D}/\text{H}$	2.558	$2.561^{+0.089}_{-0.088} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	0.4428	$0.463^{+0.047}_{-0.031} \quad (+0.2\sigma)$
$A_{217}^{\text{dust}}$	0.993	$0.98^{+0.26}_{-0.26} \quad (-0.0\sigma)$	Age/Gyr	13.768	$13.769^{+0.078}_{-0.078} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	0.5627	$0.589^{+0.059}_{-0.032} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\text{dust}}$	1.016	$1.01^{+0.42}_{-0.41} \quad (+0.0\sigma)$	$z_*$	1089.55	$1089.56^{+0.87}_{-0.86} \quad (+0.6\sigma)$	$f\sigma_8(2.33)$	0.2840	$0.297^{+0.030}_{-0.016} \quad (-0.1\sigma)$
$c_{100}$	0.99788	$0.9975^{+0.0027}_{-0.0027} \quad (-0.0\sigma)$	$r_*$	144.85	$144.88^{+0.85}_{-0.90} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	0.2932	$0.307^{+0.031}_{-0.016} \quad (-0.2\sigma)$
$c_{217}$	1.00107	$1.0009^{+0.0041}_{-0.0040} \quad (+0.1\sigma)$	$100\theta_*$	1.04125	$1.04125^{+0.00083}_{-0.00083} \quad (-0.8\sigma)$	$f_{2000}^{143}$	27.2	$27^{+8}_{-8} \quad (+0.4\sigma)$
$c_{\text{TE}}$	0.9922	$0.992^{+0.014}_{-0.013}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.911	$13.914^{+0.079}_{-0.083} \quad (-0.5\sigma)$	$f_{2000}^{217}$	104.7	$105.0^{+5.4}_{-5.5} \quad (+0.4\sigma)$
$c_{\text{EE}}$	0.9904	$0.990^{+0.013}_{-0.013}$	$z_{\text{drag}}$	1060.16	$1060.10^{+0.97}_{-0.97} \quad (-0.4\sigma)$	$f_{2000}^{143 \times 217}$	30.0	$30^{+6}_{-6} \quad (+0.4\sigma)$
$H_0$	68.26	$68.3^{+1.9}_{-1.9} \quad (-0.7\sigma)$	$r_{\text{drag}}$	147.46	$147.51^{+0.84}_{-0.87} \quad (-0.6\sigma)$	$\chi_{\text{lowl}}^2$	21.34	$22.5 \quad (\nu: 1.0) \quad (+0.3\sigma)$
$\Omega_{\Lambda}$	0.6971	$0.697^{+0.024}_{-0.026} \quad (-0.7\sigma)$	$k_{\text{D}}$	0.14059	$0.14053^{+0.00092}_{-0.00090} \quad (+0.4\sigma)$	$\chi_{\text{CamSpec}}^2$	11496.5	$11512.4 \quad (\nu: 16.3) \quad (+836.3\sigma)$
$\Omega_{\text{m}}$	0.3029	$0.303^{+0.026}_{-0.024} \quad (+0.7\sigma)$	$100\theta_{\text{D}}$	0.16064	$0.16066^{+0.00055}_{-0.00053} \quad (+0.3\sigma)$	$\chi_{\text{prior}}^2$	1.9	$7.7 \quad (\nu: 5.5) \quad (+0.2\sigma)$
$\Omega_{\text{m}} h^2$	0.14112	$0.1410^{+0.0039}_{-0.0037} \quad (+0.6\sigma)$	$z_{\text{eq}}$	3357	$3354^{+94}_{-87} \quad (+0.6\sigma)$	$\chi_{\text{CMB}}^2$	11517.8	$11534.9 \quad (\nu: 16.8) \quad (+835.6\sigma)$
$\Omega_{\text{m}} h^3$	0.09633	$0.09628^{+0.00085}_{-0.00087} \quad (-0.3\sigma)$	$k_{\text{eq}}$	0.010245	$0.01024^{+0.00029}_{-0.00027} \quad (+0.6\sigma)$			

Best-fit  $\chi_{\text{eff}}^2 = 11519.71$ ;  $\Delta\chi_{\text{eff}}^2 = 4451.41$ ;  $\bar{\chi}_{\text{eff}}^2 = 11542.67$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 4453.53$ ;  $R - 1 = 0.01017$   
 $\chi_{\text{eff}}^2$ : CMB - commander\_dx12\_v3.2.29: 21.34 ( $\Delta$  0.48) CamSpec like\_10.7HM\_1400\_unified: 11496.50



### 3.86 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02249^{+0.00042}_{-0.00042} \quad (-0.1\sigma)$	$S_8$	$0.809^{+0.084}_{-0.059} \quad (+0.0\sigma)$	$H(0.15)$	$73.4^{+1.1}_{-1.1} \quad (-0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1180^{+0.0028}_{-0.0028} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.443^{+0.046}_{-0.032} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$636^{+11}_{-11} \quad (+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04106^{+0.00075}_{-0.00078} \quad (-0.5\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.597^{+0.060}_{-0.038} \quad (-0.0\sigma)$	$H(0.38)$	$83.37^{+0.86}_{-0.83} \quad (-0.3\sigma)$
$\tau$	$< 0.146 \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.974^{+0.098}_{-0.060} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1519^{+22}_{-22} \quad (+0.3\sigma)$
$A_{\mathrm{L}}$	$1.13^{+0.22}_{-0.25} \quad (-0.6\sigma)$	$r_{\mathrm{drag}} h$	$100.6^{+2.2}_{-2.2} \quad (-0.3\sigma)$	$H(0.51)$	$90.01^{+0.70}_{-0.67} \quad (-0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.04^{+0.19}_{-0.10} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.56^{+0.17}_{-0.17} \quad (-0.9\sigma)$	$D_{\mathrm{M}}(0.51)$	$1969^{+26}_{-26} \quad (+0.3\sigma)$
$n_{\mathrm{s}}$	$0.971^{+0.011}_{-0.011} \quad (-0.3\sigma)$	$z_{\mathrm{re}}$	$7.4^{+8.3}_{-5.7} \quad (-0.1\sigma)$	$H(0.61)$	$95.57^{+0.59}_{-0.56} \quad (-0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0000^{+0.0065}_{-0.0066} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.42}_{-0.21} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2293^{+28}_{-28} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$232^{+60}_{-70} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.871^{+0.029}_{-0.028} \quad (+0.1\sigma)$	$H(2.33)$	$235.4^{+1.7}_{-1.7} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$35^{+20}_{-20} \quad (+0.1\sigma)$	$D_{40}$	$1218^{+52}_{-37} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5752^{+27}_{-27} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$105^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5721^{+100}_{-100} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.448^{+0.046}_{-0.032} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$37^{+20}_{-20} \quad (+0.0\sigma)$	$D_{810}$	$2528^{+33}_{-36} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.744^{+0.073}_{-0.041} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.82 \quad (-0.0\sigma)$	$D_{1420}$	$815^{+12}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.468^{+0.047}_{-0.031} \quad (+0.0\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.374 \quad (+0.0\sigma)$	$D_{2000}$	$231.5^{+4.2}_{-4.3} \quad (-0.2\sigma)$	$\sigma_8(0.38)$	$0.660^{+0.065}_{-0.036} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.971^{+0.011}_{-0.011} \quad (-0.3\sigma)$	$f\sigma_8(0.51)$	$0.468^{+0.047}_{-0.029} \quad (-0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24544^{+0.00017}_{-0.00017} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.618^{+0.061}_{-0.033} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24677^{+0.00017}_{-0.00017} \quad (-0.1\sigma)$	$f\sigma_8(0.61)$	$0.464^{+0.046}_{-0.028} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.49} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.564^{+0.078}_{-0.075} \quad (+0.1\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.058}_{-0.031} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.44}_{-0.45} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.773^{+0.060}_{-0.060} \quad (+0.3\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.029}_{-0.016} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.0\sigma)$	$z_*$	$1089.60^{+0.67}_{-0.66} \quad (+0.1\sigma)$	$\sigma_8(2.33)$	$0.307^{+0.030}_{-0.016} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.42}_{-0.40} \quad (+0.0\sigma)$	$r_*$	$144.85^{+0.64}_{-0.64} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$27^{+8}_{-8} \quad (+0.1\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.04123^{+0.00073}_{-0.00076} \quad (-0.5\sigma)$	$f_{2000}^{217}$	$105.1^{+5.2}_{-5.2} \quad (+0.2\sigma)$
$c_{217}$	$1.0009^{+0.0040}_{-0.0040} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.911^{+0.061}_{-0.062} \quad (-0.0\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+5}_{-6} \quad (+0.2\sigma)$
$c_{TE}$	$0.993^{+0.014}_{-0.013}$	$z_{\mathrm{drag}}$	$1060.08^{+0.89}_{-0.91} \quad (-0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.5 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$c_{EE}$	$0.990^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.48^{+0.68}_{-0.67} \quad (-0.1\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11511.8 \quad (\nu: 15.1) \quad (+871.9\sigma)$
$H_0$	$68.2^{+1.3}_{-1.3} \quad (-0.3\sigma)$	$k_{\mathrm{D}}$	$0.14055^{+0.00084}_{-0.00082} \quad (+0.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.031 \quad (\nu: 0.0) \quad (-0.3\sigma)$
$\Omega_{\Lambda}$	$0.696^{+0.017}_{-0.017} \quad (-0.3\sigma)$	$100\theta_{\mathrm{D}}$	$0.16068^{+0.00053}_{-0.00051} \quad (-0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.82 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.017}_{-0.017} \quad (+0.3\sigma)$	$z_{\mathrm{eq}}$	$3358^{+63}_{-63} \quad (+0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$3.94 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1412^{+0.0026}_{-0.0026} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01025^{+0.00019}_{-0.00019} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.7 \quad (\nu: 5.5) \quad (+0.2\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09627^{+0.00088}_{-0.00086} \quad (-0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.012}_{-0.012} \quad (-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.78 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$\sigma_8$	$0.804^{+0.080}_{-0.045} \quad (-0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4537^{+0.0062}_{-0.0062} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11534.3 \quad (\nu: 15.7) \quad (+856.6\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 11547.85; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4453.21; R - 1 = 0.01201$$



### 3.87 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02252^{+0.00049}_{-0.00048} \quad (-0.5\sigma)$	$\sigma_8$	$0.823^{+0.071}_{-0.041} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.018}_{-0.018} \quad (-0.7\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1177^{+0.0043}_{-0.0040} \quad (+0.7\sigma)$	$S_8$	$0.825^{+0.081}_{-0.060} \quad (+0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4544^{+0.0091}_{-0.0093} \quad (-0.7\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04110^{+0.00084}_{-0.00084} \quad (-0.8\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.044}_{-0.033} \quad (+0.5\sigma)$	$H(0.15)$	$73.5^{+1.7}_{-1.7} \quad (-0.8\sigma)$
$\tau$	$0.079^{+0.083}_{-0.039} \quad (-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.056}_{-0.035} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$635^{+17}_{-16} \quad (+0.8\sigma)$
$A_{\mathrm{L}}$	$1.09^{+0.21}_{-0.22} \quad (-0.9\sigma)$	$\sigma_8/h^{0.5}$	$0.995^{+0.093}_{-0.053} \quad (+0.3\sigma)$	$H(0.38)$	$83.5^{+1.3}_{-1.2} \quad (-0.8\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.09^{+0.17}_{-0.086} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$100.8^{+3.3}_{-3.3} \quad (-0.8\sigma)$	$D_{\mathrm{M}}(0.38)$	$1517^{+33}_{-33} \quad (+0.8\sigma)$
$n_{\mathrm{s}}$	$0.972^{+0.014}_{-0.014} \quad (-0.7\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.56^{+0.17}_{-0.18} \quad (-1.0\sigma)$	$H(0.51)$	$90.1^{+1.0}_{-0.95} \quad (-0.8\sigma)$
$y_{\mathrm{cal}}$	$1.0001^{+0.0069}_{-0.0064} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 16.4 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1967^{+39}_{-39} \quad (+0.8\sigma)$
$A_{100}^{\mathrm{PS}}$	$231^{+60}_{-60} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.19^{+0.39}_{-0.19} \quad (-0.1\sigma)$	$H(0.61)$	$95.63^{+0.83}_{-0.76} \quad (-0.8\sigma)$
$A_{143}^{\mathrm{PS}}$	$35^{+20}_{-20} \quad (+0.3\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.869^{+0.034}_{-0.031} \quad (+0.6\sigma)$	$D_{\mathrm{M}}(0.61)$	$2290^{+42}_{-42} \quad (+0.8\sigma)$
$A_{217}^{\mathrm{PS}}$	$105^{+30}_{-30} \quad (+0.0\sigma)$	$D_{40}$	$1222^{+55}_{-38} \quad (+0.5\sigma)$	$H(2.33)$	$235.2^{+2.5}_{-2.3} \quad (+0.7\sigma)$
$A_{217}^{\mathrm{CIB}}$	$37^{+20}_{-20} \quad (+0.1\sigma)$	$D_{220}$	$5720^{+100}_{-97} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5749^{+35}_{-36} \quad (+0.8\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.91 \quad (-0.0\sigma)$	$D_{810}$	$2528^{+36}_{-35} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.044}_{-0.032} \quad (+0.5\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.370 \quad (-0.0\sigma)$	$D_{1420}$	$815^{+12}_{-12} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.761^{+0.066}_{-0.036} \quad (+0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$231.8^{+4.3}_{-4.5} \quad (-0.5\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.044}_{-0.029} \quad (+0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.972^{+0.014}_{-0.014} \quad (-0.7\sigma)$	$\sigma_8(0.38)$	$0.676^{+0.058}_{-0.031} \quad (-0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24545^{+0.00020}_{-0.00019} \quad (-0.5\sigma)$	$f\sigma_8(0.51)$	$0.478^{+0.044}_{-0.027} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.52}_{-0.51} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24678^{+0.00020}_{-0.00019} \quad (-0.5\sigma)$	$\sigma_8(0.51)$	$0.633^{+0.055}_{-0.028} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.44}_{-0.44} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.559^{+0.089}_{-0.087} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	$0.474^{+0.044}_{-0.025} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.26}_{-0.27} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.767^{+0.077}_{-0.079} \quad (+0.8\sigma)$	$\sigma_8(0.61)$	$0.603^{+0.052}_{-0.027} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.42}_{-0.42} \quad (+0.0\sigma)$	$z_*$	$1089.54^{+0.88}_{-0.86} \quad (+0.7\sigma)$	$f\sigma_8(2.33)$	$0.304^{+0.026}_{-0.013} \quad (-0.1\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (-0.0\sigma)$	$r_*$	$144.91^{+0.85}_{-0.91} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.314^{+0.028}_{-0.014} \quad (-0.2\sigma)$
$c_{217}$	$1.0008^{+0.0041}_{-0.0040} \quad (+0.1\sigma)$	$100\theta_*$	$1.04127^{+0.00082}_{-0.00082} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$27^{+8}_{-8} \quad (+0.4\sigma)$
$c_{TE}$	$0.992^{+0.014}_{-0.013}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.916^{+0.078}_{-0.084} \quad (-0.6\sigma)$	$f_{2000}^{217}$	$104.8^{+5.3}_{-5.4} \quad (+0.4\sigma)$
$c_{EE}$	$0.990^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1060.12^{+0.92}_{-0.95} \quad (-0.4\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6} \quad (+0.5\sigma)$
$H_0$	$68.3^{+2.0}_{-1.9} \quad (-0.8\sigma)$	$r_{\mathrm{drag}}$	$147.53^{+0.84}_{-0.88} \quad (-0.6\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.1 \quad (\nu: 1.2) \quad (+0.4\sigma)$
$\Omega_{\Lambda}$	$0.698^{+0.024}_{-0.026} \quad (-0.8\sigma)$	$k_{\mathrm{D}}$	$0.14052^{+0.00093}_{-0.00089} \quad (+0.4\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11512.4 \quad (\nu: 16.5) \quad (+828.9\sigma)$
$\Omega_{\mathrm{m}}$	$0.302^{+0.026}_{-0.024} \quad (+0.8\sigma)$	$100\theta_{\mathrm{D}}$	$0.16066^{+0.00055}_{-0.00052} \quad (+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.6) \quad (+0.2\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1409^{+0.0040}_{-0.0037} \quad (+0.7\sigma)$	$z_{\mathrm{eq}}$	$3351^{+95}_{-88} \quad (+0.7\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11535.5 \quad (\nu: 17.2) \quad (+829.2\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09628^{+0.00087}_{-0.00085} \quad (-0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01023^{+0.00029}_{-0.00027} \quad (+0.7\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11543.27; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4453.76; R - 1 = 0.01232$$



### 3.88 base\_Alens\_CamSpecHM\_TTTEEE\_lowl\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02250^{+0.00043}_{-0.00042} \quad (-0.1\sigma)$	$S_8$	$0.827^{+0.076}_{-0.049} \quad (+0.1\sigma)$	$H(0.15)$	$73.4^{+1.2}_{-1.1} \quad (-0.3\sigma)$
$\Omega_c h^2$	$0.1180^{+0.0029}_{-0.0028} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.453^{+0.042}_{-0.027} \quad (+0.1\sigma)$	$D_M(0.15)$	$636^{+11}_{-11} \quad (+0.3\sigma)$
$100\theta_{MC}$	$1.04106^{+0.00075}_{-0.00077} \quad (-0.5\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.611^{+0.056}_{-0.030} \quad (+0.1\sigma)$	$H(0.38)$	$83.38^{+0.87}_{-0.83} \quad (-0.3\sigma)$
$\tau$	$0.078^{+0.080}_{-0.038} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.996^{+0.085}_{-0.051} \quad (+0.0\sigma)$	$D_M(0.38)$	$1519^{+22}_{-22} \quad (+0.3\sigma)$
$A_L$	$1.08^{+0.20}_{-0.21} \quad (-0.7\sigma)$	$r_{drag} h$	$100.6^{+2.3}_{-2.2} \quad (-0.3\sigma)$	$H(0.51)$	$90.02^{+0.71}_{-0.67} \quad (-0.3\sigma)$
$\ln(10^{10} A_s)$	$3.08^{+0.16}_{-0.084} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.56^{+0.17}_{-0.17} \quad (-0.9\sigma)$	$D_M(0.51)$	$1969^{+26}_{-26} \quad (+0.3\sigma)$
$n_s$	$0.972^{+0.011}_{-0.011} \quad (-0.3\sigma)$	$z_{re}$	$< 16.1 \quad (-0.0\sigma)$	$H(0.61)$	$95.58^{+0.60}_{-0.57} \quad (-0.3\sigma)$
$y_{cal}$	$1.0001^{+0.0071}_{-0.0067} \quad (+0.0\sigma)$	$10^9 A_s$	$2.19^{+0.38}_{-0.18} \quad (-0.0\sigma)$	$D_M(0.61)$	$2292^{+28}_{-29} \quad (+0.3\sigma)$
$A_{100}^{PS}$	$231^{+60}_{-70} \quad (+0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.870^{+0.030}_{-0.028} \quad (+0.1\sigma)$	$H(2.33)$	$235.4^{+1.7}_{-1.7} \quad (+0.2\sigma)$
$A_{143}^{PS}$	$35^{+20}_{-20} \quad (+0.1\sigma)$	$D_{40}$	$1223^{+52}_{-35} \quad (+0.2\sigma)$	$D_M(2.33)$	$5752^{+27}_{-27} \quad (+0.3\sigma)$
$A_{217}^{PS}$	$105^{+30}_{-30} \quad (+0.0\sigma)$	$D_{220}$	$5719^{+100}_{-98} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.042}_{-0.026} \quad (+0.1\sigma)$
$A_{217}^{CIB}$	$37^{+20}_{-20} \quad (+0.0\sigma)$	$D_{810}$	$2528^{+34}_{-35} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.761^{+0.065}_{-0.034} \quad (-0.0\sigma)$
$A_{143}^{tSZ}$	$< 8.89 \quad (-0.0\sigma)$	$D_{1420}$	$815^{+12}_{-12} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.479^{+0.044}_{-0.025} \quad (+0.1\sigma)$
$r_{143 \times 217}^{PS}$	$> 0.375 \quad (+0.0\sigma)$	$D_{2000}$	$231.6^{+4.2}_{-4.3} \quad (-0.2\sigma)$	$\sigma_8(0.38)$	$0.676^{+0.057}_{-0.029} \quad (-0.0\sigma)$
$r_{143 \times 217}^{CIB}$	—	$n_{s,0.002}$	$0.972^{+0.011}_{-0.011} \quad (-0.3\sigma)$	$f\sigma_8(0.51)$	$0.478^{+0.041}_{-0.025} \quad (+0.0\sigma)$
$\xi^{tSZ \times CIB}$	—	$Y_P$	$0.24544^{+0.00017}_{-0.00017} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.633^{+0.054}_{-0.027} \quad (-0.0\sigma)$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.24677^{+0.00017}_{-0.00017} \quad (-0.1\sigma)$	$f\sigma_8(0.61)$	$0.474^{+0.041}_{-0.024} \quad (+0.0\sigma)$
$A_{100}^{dust}$	$1.01^{+0.52}_{-0.47} \quad (-0.0\sigma)$	$10^5 D/H$	$2.563^{+0.079}_{-0.077} \quad (+0.1\sigma)$	$\sigma_8(0.61)$	$0.602^{+0.051}_{-0.026} \quad (-0.0\sigma)$
$A_{143}^{dust}$	$0.94^{+0.43}_{-0.45} \quad (-0.0\sigma)$	$Age/Gyr$	$13.772^{+0.060}_{-0.061} \quad (+0.3\sigma)$	$f\sigma_8(2.33)$	$0.304^{+0.026}_{-0.013} \quad (-0.1\sigma)$
$A_{217}^{dust}$	$0.98^{+0.27}_{-0.28} \quad (-0.0\sigma)$	$z_*$	$1089.59^{+0.67}_{-0.66} \quad (+0.1\sigma)$	$\sigma_8(2.33)$	$0.314^{+0.027}_{-0.013} \quad (-0.1\sigma)$
$A_{143 \times 217}^{dust}$	$1.02^{+0.42}_{-0.41} \quad (+0.0\sigma)$	$r_*$	$144.86^{+0.65}_{-0.64} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$27^{+8}_{-8} \quad (+0.1\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.04124^{+0.00073}_{-0.00075} \quad (-0.5\sigma)$	$f_{2000}^{217}$	$105.0^{+5.2}_{-5.3} \quad (+0.2\sigma)$
$c_{217}$	$1.0009^{+0.0040}_{-0.0041} \quad (+0.0\sigma)$	$D_M(z_*)/Gpc$	$13.912^{+0.063}_{-0.062} \quad (-0.1\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+5}_{-6} \quad (+0.2\sigma)$
$c_{TE}$	$0.992^{+0.014}_{-0.014}$	$z_{drag}$	$1060.08^{+0.92}_{-0.91} \quad (-0.0\sigma)$	$\chi_{lowl}^2$	$23.2 \quad (\nu: 1.1) \quad (+0.1\sigma)$
$c_{EE}$	$0.990^{+0.012}_{-0.013}$	$r_{drag}$	$147.48^{+0.68}_{-0.68} \quad (-0.2\sigma)$	$\chi_{CamSpec}^2$	$11511.7 \quad (\nu: 15.4) \quad (+864.6\sigma)$
$H_0$	$68.2^{+1.3}_{-1.3} \quad (-0.3\sigma)$	$k_D$	$0.14055^{+0.00086}_{-0.00084} \quad (+0.1\sigma)$	$\chi_{6DF}^2$	$0.032 \quad (\nu: 0.0) \quad (-0.3\sigma)$
$\Omega_\Lambda$	$0.697^{+0.017}_{-0.017} \quad (-0.3\sigma)$	$100\theta_D$	$0.16067^{+0.00053}_{-0.00051} \quad (-0.1\sigma)$	$\chi_{MGS}^2$	$1.84 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$\Omega_m$	$0.303^{+0.017}_{-0.017} \quad (+0.3\sigma)$	$z_{eq}$	$3357^{+63}_{-64} \quad (+0.2\sigma)$	$\chi_{DR12BAO}^2$	$3.93 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$\Omega_m h^2$	$0.1411^{+0.0026}_{-0.0027} \quad (+0.2\sigma)$	$k_{eq}$	$0.01025^{+0.00019}_{-0.00019} \quad (+0.2\sigma)$	$\chi_{prior}^2$	$7.8 \quad (\nu: 5.5) \quad (+0.2\sigma)$
$\Omega_m h^3$	$0.09627^{+0.00090}_{-0.00085} \quad (-0.2\sigma)$	$100\theta_{eq}$	$0.822^{+0.012}_{-0.012} \quad (-0.3\sigma)$	$\chi_{BAO}^2$	$5.80 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$\sigma_8$	$0.823^{+0.070}_{-0.038} \quad (-0.0\sigma)$	$100\theta_{s,eq}$	$0.4538^{+0.0064}_{-0.0062} \quad (-0.3\sigma)$	$\chi_{CMB}^2$	$11534.9 \quad (\nu: 16.3) \quad (+846.6\sigma)$

$$\bar{\chi}_{eff}^2 = 11548.48; \Delta\bar{\chi}_{eff}^2 = 4453.38; R - 1 = 0.01389$$



### 3.89 base\_Alens\_CamSpecHM\_TTTEEE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022483	$0.02246^{+0.00049}_{-0.00050} \quad (-0.2\sigma)$	$\sigma_8$	0.8015	$0.801^{+0.022}_{-0.026} \quad (+0.2\sigma)$	$100\theta_{\text{eq}}$	0.8203	$0.820^{+0.018}_{-0.018} \quad (-0.3\sigma)$
$\Omega_c h^2$	0.11835	$0.1185^{+0.0041}_{-0.0041} \quad (+0.3\sigma)$	$S_8$	0.809	$0.810^{+0.051}_{-0.052} \quad (+0.3\sigma)$	$100\theta_{\text{s,eq}}$	0.4530	$0.4528^{+0.0091}_{-0.0089} \quad (-0.3\sigma)$
$100\theta_{\text{MC}}$	1.04101	$1.04102^{+0.00086}_{-0.00084} \quad (-0.5\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4429	$0.443^{+0.028}_{-0.028} \quad (+0.3\sigma)$	$H(0.15)$	73.28	$73.2^{+1.7}_{-1.7} \quad (-0.3\sigma)$
$\tau$	0.0505	$0.050^{+0.022}_{-0.027} \quad (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.5958	$0.596^{+0.026}_{-0.027} \quad (+0.3\sigma)$	$D_{\text{M}}(0.15)$	637.4	$638^{+17}_{-16} \quad (+0.3\sigma)$
$A_{\text{L}}$	1.137	$1.13^{+0.19}_{-0.18} \quad (-0.8\sigma)$	$\sigma_8/h^{0.5}$	0.9714	$0.972^{+0.037}_{-0.039} \quad (+0.3\sigma)$	$H(0.38)$	83.29	$83.3^{+1.2}_{-1.2} \quad (-0.4\sigma)$
$\ln(10^{10} A_{\text{s}})$	3.031	$3.030^{+0.046}_{-0.055} \quad (+0.0\sigma)$	$r_{\text{drag}} h$	100.33	$100.2^{+3.3}_{-3.3} \quad (-0.3\sigma)$	$D_{\text{M}}(0.38)$	1521.6	$1523^{+34}_{-32} \quad (+0.3\sigma)$
$n_{\text{s}}$	0.9699	$0.969^{+0.014}_{-0.014} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	2.562	$2.55^{+0.17}_{-0.17} \quad (-1.0\sigma)$	$H(0.51)$	89.95	$89.9^{+1.0}_{-0.97} \quad (-0.4\sigma)$
$y_{\text{cal}}$	0.9998	$1.0001^{+0.0066}_{-0.0067} \quad (+0.0\sigma)$	$z_{\text{re}}$	7.23	$7.2^{+2.1}_{-3.1} \quad (-0.0\sigma)$	$D_{\text{M}}(0.51)$	1972.0	$1973^{+39}_{-38} \quad (+0.3\sigma)$
$A_{100}^{\text{PS}}$	224	$234^{+60}_{-60} \quad (+0.1\sigma)$	$10^9 A_{\text{s}}$	2.072	$2.070^{+0.097}_{-0.11} \quad (+0.0\sigma)$	$H(0.61)$	95.52	$95.50^{+0.81}_{-0.79} \quad (-0.4\sigma)$
$A_{143}^{\text{PS}}$	49.0	$36^{+20}_{-20} \quad (+0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8732	$1.874^{+0.032}_{-0.032} \quad (+0.2\sigma)$	$D_{\text{M}}(0.61)$	2295.5	$2297^{+43}_{-41} \quad (+0.3\sigma)$
$A_{217}^{\text{PS}}$	107.3	$104^{+30}_{-30} \quad (+0.0\sigma)$	$D_{40}$	1216.5	$1219^{+38}_{-39} \quad (+0.3\sigma)$	$H(2.33)$	235.59	$235.7^{+2.4}_{-2.4} \quad (+0.3\sigma)$
$A_{217}^{\text{CIB}}$	39.7	$38^{+20}_{-20} \quad (+0.0\sigma)$	$D_{220}$	5726	$5728^{+100}_{-100} \quad (-0.0\sigma)$	$D_{\text{M}}(2.33)$	5753.6	$5755^{+36}_{-36} \quad (+0.4\sigma)$
$A_{143}^{\text{tSZ}}$	6.41	$< 8.88 \quad (-0.0\sigma)$	$D_{810}$	2529.8	$2530^{+36}_{-36} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	0.4479	$0.448^{+0.026}_{-0.027} \quad (+0.3\sigma)$
$r_{143 \times 217}^{\text{PS}}$	0.758	$0.67^{+0.32}_{-0.31} \quad (+0.0\sigma)$	$D_{1420}$	814.8	$814^{+13}_{-13} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	0.7412	$0.741^{+0.019}_{-0.023} \quad (+0.2\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	0.87	—	$D_{2000}$	231.47	$231.1^{+4.6}_{-4.4} \quad (-0.3\sigma)$	$f\sigma_8(0.38)$	0.4674	$0.468^{+0.021}_{-0.022} \quad (+0.3\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.95	—	$n_{\text{s},0.002}$	0.9699	$0.969^{+0.014}_{-0.014} \quad (-0.3\sigma)$	$\sigma_8(0.38)$	0.6577	$0.657^{+0.016}_{-0.019} \quad (+0.1\sigma)$
$A^{\text{kSZ}}$	0.0	—	$Y_{\text{P}}$	0.245438	$0.24543^{+0.00020}_{-0.00021} \quad (-0.2\sigma)$	$f\sigma_8(0.51)$	0.4667	$0.467^{+0.018}_{-0.020} \quad (+0.3\sigma)$
$A_{100}^{\text{dust}}$	1.003	$1.01^{+0.50}_{-0.49} \quad (-0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	0.246765	$0.24675^{+0.00020}_{-0.00021} \quad (-0.2\sigma)$	$\sigma_8(0.51)$	0.6157	$0.615^{+0.015}_{-0.018} \quad (+0.1\sigma)$
$A_{143}^{\text{dust}}$	0.968	$0.95^{+0.45}_{-0.44} \quad (-0.0\sigma)$	$10^5 \text{D}/\text{H}$	2.565	$2.570^{+0.094}_{-0.088} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	0.4623	$0.462^{+0.017}_{-0.018} \quad (+0.3\sigma)$
$A_{217}^{\text{dust}}$	0.986	$0.98^{+0.27}_{-0.27} \quad (-0.0\sigma)$	Age/Gyr	13.776	$13.779^{+0.081}_{-0.078} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	0.5861	$0.586^{+0.014}_{-0.017} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{dust}}$	0.996	$1.02^{+0.42}_{-0.42} \quad (+0.0\sigma)$	$z_*$	1089.63	$1089.68^{+0.92}_{-0.88} \quad (+0.3\sigma)$	$f\sigma_8(2.33)$	0.2957	$0.2955^{+0.0070}_{-0.0081} \quad (+0.0\sigma)$
$c_{100}$	0.99790	$0.9976^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$r_*$	144.77	$144.76^{+0.88}_{-0.86} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	0.3052	$0.3049^{+0.0073}_{-0.0082} \quad (-0.1\sigma)$
$c_{217}$	1.00108	$1.0009^{+0.0040}_{-0.0041} \quad (+0.1\sigma)$	$100\theta_*$	1.04119	$1.04120^{+0.00084}_{-0.00083} \quad (-0.5\sigma)$	$f_{2000}^{143}$	27.9	$28^{+8}_{-8} \quad (+0.2\sigma)$
$c_{\text{TE}}$	0.9926	$0.993^{+0.014}_{-0.013}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.905	$13.903^{+0.081}_{-0.079} \quad (-0.2\sigma)$	$f_{2000}^{217}$	105.0	$105.5^{+5.5}_{-5.5} \quad (+0.2\sigma)$
$c_{\text{EE}}$	0.9908	$0.991^{+0.013}_{-0.013}$	$z_{\text{drag}}$	1060.09	$1060.03^{+0.97}_{-1.0} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	30.4	$31^{+6}_{-6} \quad (+0.2\sigma)$
$H_0$	68.06	$68.0^{+1.9}_{-1.9} \quad (-0.3\sigma)$	$r_{\text{drag}}$	147.40	$147.40^{+0.86}_{-0.83} \quad (-0.2\sigma)$	$\chi_{\text{small}}^2$	395.68	$396.8 \quad (\nu: 1.3) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	0.6946	$0.694^{+0.024}_{-0.026} \quad (-0.3\sigma)$	$k_{\text{D}}$	0.14062	$0.14061^{+0.00090}_{-0.00092} \quad (+0.2\sigma)$	$\chi_{\text{CamSpec}}^2$	11496.2	$11512.2 \quad (\nu: 15.6) \quad (+835.1\sigma)$
$\Omega_{\text{m}}$	0.3054	$0.306^{+0.026}_{-0.024} \quad (+0.3\sigma)$	$100\theta_{\text{D}}$	0.16067	$0.16070^{+0.00057}_{-0.00055} \quad (+0.1\sigma)$	$\chi_{\text{prior}}^2$	1.8	$7.8 \quad (\nu: 5.7) \quad (+0.2\sigma)$
$\Omega_{\text{m}} h^2$	0.14148	$0.1416^{+0.0038}_{-0.0038} \quad (+0.3\sigma)$	$z_{\text{eq}}$	3365	$3368^{+91}_{-91} \quad (+0.3\sigma)$	$\chi_{\text{CMB}}^2$	11891.9	$11909.0 \quad (\nu: 16.9) \quad (+800.5\sigma)$
$\Omega_{\text{m}} h^3$	0.09629	$0.09627^{+0.00085}_{-0.00086} \quad (-0.2\sigma)$	$k_{\text{eq}}$	0.010272	$0.01028^{+0.00028}_{-0.00028} \quad (+0.3\sigma)$			

Best-fit  $\chi_{\text{eff}}^2 = 11893.69$ ;  $\Delta\chi_{\text{eff}}^2 = 4451.02$ ;  $\bar{\chi}_{\text{eff}}^2 = 11916.80$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 4452.95$ ;  $R - 1 = 0.00486$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.68 ( $\Delta$  0.01) CamSpec like\_10.7HM\_1400\_unified: 11496.17



## 4 Aphihi

### 4.1 base\_Aphihi\_plikHM\_TT\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02216	$0.02214^{+0.00056}_{-0.00055}$	$\sigma_8 \Omega_m^{0.25}$	0.6089	$0.608^{+0.030}_{-0.029}$	$D_M(0.15)$	646.0	$646^{+20}_{-20}$
$\Omega_c h^2$	0.1202	$0.1201^{+0.0053}_{-0.0052}$	$\sigma_8/h^{0.5}$	0.9902	$0.989^{+0.040}_{-0.041}$	$H(0.38)$	82.63	$82.6^{+1.5}_{-1.4}$
$100\theta_{MC}$	1.04078	$1.0408^{+0.0012}_{-0.0012}$	$r_{drag} h$	98.77	$98.8^{+4.2}_{-4.0}$	$D_M(0.38)$	1539.0	$1539^{+40}_{-40}$
$\tau$	0.0525	$0.052^{+0.022}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.446	$2.445^{+0.098}_{-0.095}$	$H(0.51)$	89.40	$89.4^{+1.2}_{-1.1}$
$\ln(10^{10} A_s)$	3.0406	$3.039^{+0.043}_{-0.045}$	$z_{re}$	7.55	$7.5^{+2.1}_{-2.4}$	$D_M(0.51)$	1992.6	$1992^{+47}_{-47}$
$n_s$	0.9644	$0.963^{+0.015}_{-0.015}$	$10^9 A_s$	2.092	$2.088^{+0.092}_{-0.093}$	$H(0.61)$	95.07	$95.08^{+0.94}_{-0.85}$
$A_L^{\phi\phi}$	0.9996	$1.001^{+0.097}_{-0.089}$	$10^9 A_s e^{-2\tau}$	1.8831	$1.882^{+0.035}_{-0.034}$	$D_M(0.61)$	2318	$2318^{+50}_{-51}$
$y_{cal}$	1.0005	$1.0005^{+0.0065}_{-0.0064}$	$D_{40}$	1229.8	$1232^{+40}_{-38}$	$H(2.33)$	236.47	$236.4^{+3.3}_{-3.2}$
$A_{217}^{CIB}$	49.2	$48^{+20}_{-20}$	$D_{220}$	5714	$5716^{+100}_{-100}$	$D_M(2.33)$	5774.8	$5775^{+40}_{-42}$
$\xi^{tSZ \times CIB}$	0.28	—	$D_{810}$	2537.7	$2536^{+35}_{-35}$	$f\sigma_8(0.15)$	0.4613	$0.460^{+0.031}_{-0.030}$
$A_{143}^{tSZ}$	7.1	—	$D_{1420}$	815.6	$815^{+13}_{-13}$	$\sigma_8(0.15)$	0.7487	$0.748^{+0.019}_{-0.020}$
$A_{100}^{PS}$	255	$264^{+70}_{-70}$	$D_{2000}$	230.00	$229.6^{+4.7}_{-4.7}$	$f\sigma_8(0.38)$	0.4782	$0.477^{+0.024}_{-0.024}$
$A_{143}^{PS}$	48.7	$49^{+20}_{-20}$	$n_{s,0.002}$	0.9644	$0.963^{+0.015}_{-0.015}$	$\sigma_8(0.38)$	0.6630	$0.662^{+0.016}_{-0.016}$
$A_{143 \times 217}^{PS}$	45.8	$43^{+20}_{-20}$	$Y_P$	0.245310	$0.24530^{+0.00022}_{-0.00026}$	$f\sigma_8(0.51)$	0.4761	$0.475^{+0.020}_{-0.021}$
$A_{217}^{PS}$	118.5	$115^{+30}_{-30}$	$Y_P^{BBN}$	0.246636	$0.24662^{+0.00022}_{-0.00026}$	$\sigma_8(0.51)$	0.6201	$0.619^{+0.014}_{-0.015}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.625	$2.63^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	0.4706	$0.470^{+0.018}_{-0.019}$
$A_{100}^{dustTT}$	8.85	$8.9^{+4.7}_{-4.6}$	Age/Gyr	13.823	$13.824^{+0.091}_{-0.094}$	$\sigma_8(0.61)$	0.5899	$0.589^{+0.014}_{-0.014}$
$A_{143}^{dustTT}$	10.80	$10.7^{+4.5}_{-4.6}$	$z_*$	1090.20	$1090.2^{+1.0}_{-1.0}$	$f\sigma_8(2.33)$	0.2972	$0.2968^{+0.0069}_{-0.0069}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.3^{+8.6}_{-8.6}$	$r_*$	144.54	$144.6^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	0.3061	$0.3057^{+0.0073}_{-0.0071}$
$A_{217}^{dustTT}$	94.5	$93^{+20}_{-20}$	$100\theta_*$	1.04099	$1.0410^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	30.4	$31^{+8}_{-8}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.885	$13.89^{+0.11}_{-0.11}$	$f_{2000}^{143 \times 217}$	33.3	$34^{+5}_{-5}$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.47	$1059.4^{+1.2}_{-1.2}$	$f_{2000}^{217}$	107.69	$108.2^{+4.9}_{-4.9}$
$H_0$	67.06	$67.1^{+2.4}_{-2.3}$	$r_{drag}$	147.27	$147.3^{+1.2}_{-1.2}$	$\chi_{lensing}^2$	8.89	$9.9 (\nu: 1.0)$
$\Omega_\Lambda$	0.6820	$0.682^{+0.031}_{-0.034}$	$k_D$	0.14052	$0.1405^{+0.0013}_{-0.0014}$	$\chi_{small}^2$	395.87	$396.9 (\nu: 1.3)$
$\Omega_m$	0.3180	$0.318^{+0.034}_{-0.031}$	$100\theta_D$	0.16102	$0.16106^{+0.00068}_{-0.00066}$	$\chi_{lowl}^2$	23.41	$23.7 (\nu: 0.8)$
$\Omega_m h^2$	0.1430	$0.1429^{+0.0051}_{-0.0050}$	$z_{eq}$	3402	$3400^{+120}_{-120}$	$\chi_{plik}^2$	758.9	$771.7 (\nu: 15.5)$
$\Omega_m h^3$	0.09591	$0.0959^{+0.0012}_{-0.0012}$	$k_{eq}$	0.010384	$0.01038^{+0.00037}_{-0.00036}$	$\chi_{prior}^2$	1.4	$7.3 (\nu: 6.7)$
$\sigma_8$	0.8109	$0.810^{+0.023}_{-0.023}$	$100\theta_{eq}$	0.8126	$0.813^{+0.023}_{-0.022}$	$\chi_{CMB}^2$	1187.1	$1202.1 (\nu: 16.2)$
$S_8$	0.835	$0.833^{+0.062}_{-0.059}$	$100\theta_{s,eq}$	0.4492	$0.449^{+0.012}_{-0.012}$			
$\sigma_8 \Omega_m^{0.5}$	0.4573	$0.456^{+0.034}_{-0.033}$	$H(0.15)$	72.41	$72.4^{+2.0}_{-2.0}$			

Best-fit  $\chi_{\text{eff}}^2 = 1188.51$ ;  $\bar{\chi}_{\text{eff}}^2 = 1209.46$ ;  $R - 1 = 0.00514$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.89 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2\_29: 23.41 plik\_rd12\_HM.v22\_TT: 758.90



## 4.2 base\_Aphiphi\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02215^{+0.00055}_{-0.00055}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.029}_{-0.030}$	$D_{\mathrm{M}}(0.15)$	$646^{+20}_{-20}$
$\Omega_{\mathrm{c}} h^2$	$0.1201^{+0.0053}_{-0.0052}$	$\sigma_8/h^{0.5}$	$0.990^{+0.040}_{-0.040}$	$H(0.38)$	$82.7^{+1.5}_{-1.4}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	$98.9^{+4.2}_{-4.0}$	$D_{\mathrm{M}}(0.38)$	$1538^{+40}_{-40}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.096}_{-0.094}$	$H(0.51)$	$89.4^{+1.2}_{-1.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.041}_{-0.029}$	$z_{\mathrm{re}}$	$< 9.36$	$D_{\mathrm{M}}(0.51)$	$1992^{+46}_{-47}$
$n_{\mathrm{s}}$	$0.964^{+0.015}_{-0.015}$	$10^9 A_{\mathrm{s}}$	$2.095^{+0.087}_{-0.061}$	$H(0.61)$	$95.09^{+0.95}_{-0.85}$
$A_{\mathrm{L}}^{\phi\phi}$	$0.999^{+0.095}_{-0.088}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.036}_{-0.034}$	$D_{\mathrm{M}}(0.61)$	$2317^{+50}_{-50}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0064}$	$D_{40}$	$1232^{+40}_{-38}$	$H(2.33)$	$236.4^{+3.2}_{-3.2}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5717^{+100}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5774^{+40}_{-42}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2536^{+35}_{-35}$	$f\sigma_8(0.15)$	$0.461^{+0.031}_{-0.031}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.749^{+0.019}_{-0.017}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-70}$	$D_{2000}$	$229.6^{+4.8}_{-4.6}$	$f\sigma_8(0.38)$	$0.478^{+0.024}_{-0.024}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.964^{+0.015}_{-0.015}$	$\sigma_8(0.38)$	$0.663^{+0.015}_{-0.013}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00022}_{-0.00026}$	$f\sigma_8(0.51)$	$0.476^{+0.020}_{-0.021}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00022}_{-0.00026}$	$\sigma_8(0.51)$	$0.620^{+0.014}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	$0.470^{+0.018}_{-0.019}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.6}_{-4.6}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.822^{+0.091}_{-0.094}$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.010}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.6}$	$z_{*}$	$1090.2^{+1.0}_{-0.99}$	$f\sigma_8(2.33)$	$0.2973^{+0.0066}_{-0.0047}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.6}_{-8.5}$	$r_{*}$	$144.6^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	$0.3063^{+0.0069}_{-0.0048}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$100\theta_{*}$	$1.0410^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	$31^{+7}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.89^{+0.11}_{-0.11}$	$f_{2000}^{143 \times 217}$	$34^{+5}_{-5}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.4^{+1.2}_{-1.2}$	$f_{2000}^{217}$	$108.2^{+4.8}_{-4.9}$
$H_0$	$67.1^{+2.3}_{-2.3}$	$r_{\mathrm{drag}}$	$147.3^{+1.2}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$9.8 (\nu: 1.0)$
$\Omega_{\Lambda}$	$0.683^{+0.031}_{-0.034}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0014}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.317^{+0.034}_{-0.031}$	$100\theta_{\mathrm{D}}$	$0.16105^{+0.00068}_{-0.00066}$	$\chi_{\mathrm{lowl}}^2$	$23.7 (\nu: 0.8)$
$\Omega_{\mathrm{m}} h^2$	$0.1429^{+0.0051}_{-0.0050}$	$z_{\mathrm{eq}}$	$3398^{+120}_{-120}$	$\chi_{\mathrm{plik}}^2$	$771.5 (\nu: 15.4)$
$\Omega_{\mathrm{m}} h^3$	$0.0959^{+0.0012}_{-0.0011}$	$k_{\mathrm{eq}}$	$0.01037^{+0.00037}_{-0.00036}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.7)$
$\sigma_8$	$0.811^{+0.022}_{-0.021}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.023}_{-0.022}$	$\chi_{\mathrm{CMB}}^2$	$1201.8 (\nu: 15.7)$
$S_8$	$0.834^{+0.062}_{-0.060}$	$100\theta_{\mathrm{s,eq}}$	$0.450^{+0.012}_{-0.011}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.034}_{-0.033}$	$H(0.15)$	$72.5^{+2.0}_{-1.9}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1209.13; R - 1 = 0.00594$$



### 4.3 base\_Aphiphi\_plikHM\_TTTEEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022385	$0.02237^{+0.00038}_{-0.00038}$ (+1.1 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09636	$0.09633^{+0.00077}_{-0.00074}$ (+1.0 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4492	$0.4493^{+0.0076}_{-0.0072}$ (−0.0 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.12005	$0.1201^{+0.0034}_{-0.0034}$ (−0.0 $\sigma$ )	$\sigma_8$	0.8118	$0.811^{+0.020}_{-0.019}$ (+0.2 $\sigma$ )	$H(0.15)$	72.67	$72.7^{+1.3}_{-1.3}$ (+0.3 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04092	$1.04092^{+0.00078}_{-0.00079}$ (+0.2 $\sigma$ )	$S_8$	0.8325	$0.832^{+0.040}_{-0.040}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	643.4	$644^{+13}_{-13}$ (−0.3 $\sigma$ )
$\tau$	0.0543	$0.054^{+0.021}_{-0.020}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4560	$0.456^{+0.022}_{-0.022}$ (−0.0 $\sigma$ )	$H(0.38)$	82.86	$82.85^{+0.98}_{-0.94}$ (+0.4 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0448	$3.044^{+0.043}_{-0.041}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6084	$0.608^{+0.021}_{-0.020}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1533.6	$1534^{+26}_{-27}$ (−0.3 $\sigma$ )
$n_{\mathrm{s}}$	0.9660	$0.965^{+0.011}_{-0.011}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9893	$0.989^{+0.030}_{-0.029}$ (+0.0 $\sigma$ )	$H(0.51)$	89.63	$89.62^{+0.78}_{-0.74}$ (+0.5 $\sigma$ )
$A_{\mathrm{L}}^{\phi\phi}$	0.999	$0.998^{+0.084}_{-0.076}$ (−0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	99.04	$99.0^{+2.7}_{-2.6}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1986.0	$1986^{+31}_{-31}$ (−0.3 $\sigma$ )
$y_{\mathrm{cal}}$	1.0006	$1.0006^{+0.0064}_{-0.0067}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.444	$2.446^{+0.071}_{-0.072}$ (+0.0 $\sigma$ )	$H(0.61)$	95.28	$95.27^{+0.62}_{-0.59}$ (+0.6 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	46.9	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$z_{\mathrm{re}}$	7.68	$7.7^{+2.0}_{-2.1}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2310.5	$2311^{+33}_{-34}$ (−0.3 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.48	—	$10^9 A_{\mathrm{s}}$	2.101	$2.100^{+0.091}_{-0.084}$ (+0.3 $\sigma$ )	$H(2.33)$	236.61	$236.6^{+2.0}_{-2.0}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.15	$5.4^{+4.3}_{-4.7}$ (+0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8843	$1.884^{+0.029}_{-0.029}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5763.2	$5764^{+28}_{-28}$ (−0.7 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	250	$259^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{40}$	1229.2	$1232^{+33}_{-32}$ (−0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4602	$0.460^{+0.021}_{-0.021}$ (−0.0 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	48.2	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{220}$	5732	$5734^{+100}_{-100}$ (+0.4 $\sigma$ )	$\sigma_8(0.15)$	0.7498	$0.749^{+0.017}_{-0.017}$ (+0.2 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	48.8	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2541.4	$2540^{+34}_{-35}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4777	$0.478^{+0.017}_{-0.017}$ (+0.0 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	120.3	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{1420}$	818.5	$817^{+12}_{-13}$ (+0.5 $\sigma$ )	$\sigma_8(0.38)$	0.6642	$0.664^{+0.015}_{-0.014}$ (+0.3 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	231.33	$230.9^{+4.0}_{-4.2}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4759	$0.476^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.83	$8.9^{+4.8}_{-4.6}$ (+0.0 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9660	$0.965^{+0.011}_{-0.011}$ (+0.3 $\sigma$ )	$\sigma_8(0.51)$	0.6214	$0.621^{+0.014}_{-0.013}$ (+0.3 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.04	$10.9^{+4.6}_{-4.5}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.245402	$0.24539^{+0.00014}_{-0.00016}$ (+1.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4706	$0.470^{+0.014}_{-0.013}$ (+0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	19.9	$18.6^{+8.5}_{-8.5}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246728	$0.24672^{+0.00014}_{-0.00016}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5912	$0.591^{+0.013}_{-0.012}$ (+0.3 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.2	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.583	$2.587^{+0.072}_{-0.069}$ (−1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.2979	$0.2977^{+0.0066}_{-0.0060}$ (+0.4 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.114^{+0.10}_{-0.094}$	Age/Gyr	13.796	$13.798^{+0.063}_{-0.062}$ (−0.7 $\sigma$ )	$\sigma_8(2.33)$	0.3070	$0.3068^{+0.0070}_{-0.0063}$ (+0.4 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.074}_{-0.073}$	$z_*$	1089.90	$1089.93^{+0.71}_{-0.70}$ (−0.8 $\sigma$ )	$f_{2000}^{143}$	28.8	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	0.484	$0.48^{+0.22}_{-0.22}$	$r_*$	144.41	$144.42^{+0.77}_{-0.75}$ (−0.3 $\sigma$ )	$f_{2000}^{143\times 217}$	31.97	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.226	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	1.04110	$1.04110^{+0.00077}_{-0.00077}$ (+0.2 $\sigma$ )	$f_{2000}^{217}$	106.60	$107.0^{+4.6}_{-4.6}$ (−0.6 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	0.666	$0.67^{+0.20}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.871	$13.872^{+0.071}_{-0.070}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	8.83	$9.8$ ( $\nu$ : 1.0) (−0.0 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.08	$2.08^{+0.68}_{-0.69}$	$z_{\mathrm{drag}}$	1059.97	$1059.93^{+0.76}_{-0.76}$ (+1.2 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.05	$397.1$ ( $\nu$ : 1.7) (+0.1 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0015}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}$	147.06	$147.08^{+0.76}_{-0.74}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.24	$23.52$ ( $\nu$ : 0.5) (−0.1 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.14091	$0.14088^{+0.00081}_{-0.00081}$ (+0.8 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2344.7	$2359.7$ ( $\nu$ : 16.9) (+285.2 $\sigma$ )
$H_0$	67.35	$67.3^{+1.6}_{-1.5}$ (+0.3 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.160735	$0.16076^{+0.00045}_{-0.00044}$ (−1.1 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.8	$11.6$ ( $\nu$ : 10.1) (+1.1 $\sigma$ )
$\Omega_{\Lambda}$	0.6845	$0.684^{+0.021}_{-0.022}$ (+0.2 $\sigma$ )	$z_{\mathrm{eq}}$	3404	$3404^{+76}_{-77}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2772.8	$2790.1$ ( $\nu$ : 18.0) (+278.7 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3155	$0.316^{+0.022}_{-0.021}$ (−0.2 $\sigma$ )	$k_{\mathrm{eq}}$	0.010389	$0.01039^{+0.00023}_{-0.00023}$ (+0.1 $\sigma$ )			
$\Omega_{\mathrm{m}}h^2$	0.14308	$0.1431^{+0.0032}_{-0.0032}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8130	$0.813^{+0.015}_{-0.014}$ (+0.0 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2774.59$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1586.08$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2801.64$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.18$ ;  $R - 1 = 0.01120$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp-p.teb.consext8: 8.83 ( $\Delta$  -0.06) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.05 ( $\Delta$  0.18) commander\_dx12.v3.2.29: 23.24 ( $\Delta$  -0.17) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.72



#### 4.4 base\_Aphiphi\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02237^{+0.00038}_{-0.00038} \quad (+1.0\sigma)$	$\Omega_{\text{m}}h^3$	$0.09633^{+0.00078}_{-0.00074} \quad (+1.0\sigma)$	$100\theta_{\text{s,eq}}$	$0.4493^{+0.0075}_{-0.0072} \quad (-0.1\sigma)$
$\Omega_{\text{c}}h^2$	$0.1200^{+0.0034}_{-0.0034} \quad (-0.0\sigma)$	$\sigma_8$	$0.812^{+0.019}_{-0.016} \quad (+0.2\sigma)$	$H(0.15)$	$72.7^{+1.3}_{-1.3} \quad (+0.3\sigma)$
$100\theta_{\text{MC}}$	$1.04092^{+0.00079}_{-0.00079} \quad (+0.2\sigma)$	$S_8$	$0.833^{+0.040}_{-0.040} \quad (-0.0\sigma)$	$D_{\text{M}}(0.15)$	$644^{+13}_{-13} \quad (-0.3\sigma)$
$\tau$	$0.055^{+0.019}_{-0.014} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.456^{+0.022}_{-0.022} \quad (-0.0\sigma)$	$H(0.38)$	$82.86^{+0.98}_{-0.94} \quad (+0.3\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.046^{+0.041}_{-0.029} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.609^{+0.021}_{-0.020} \quad (+0.0\sigma)$	$D_{\text{M}}(0.38)$	$1534^{+26}_{-26} \quad (-0.3\sigma)$
$n_{\text{s}}$	$0.965^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.990^{+0.029}_{-0.028} \quad (-0.0\sigma)$	$H(0.51)$	$89.62^{+0.78}_{-0.74} \quad (+0.4\sigma)$
$A_{\text{L}}^{\phi\phi}$	$0.997^{+0.082}_{-0.075} \quad (-0.1\sigma)$	$r_{\text{drag}}h$	$99.1^{+2.7}_{-2.6} \quad (+0.1\sigma)$	$D_{\text{M}}(0.51)$	$1986^{+31}_{-31} \quad (-0.3\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0064}_{-0.0067} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.069}_{-0.068} \quad (+0.0\sigma)$	$H(0.61)$	$95.27^{+0.62}_{-0.59} \quad (+0.5\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\text{re}}$	$< 9.50 \quad (+0.2\sigma)$	$D_{\text{M}}(0.61)$	$2311^{+33}_{-33} \quad (-0.3\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_{\text{s}}$	$2.104^{+0.088}_{-0.061} \quad (+0.3\sigma)$	$H(2.33)$	$236.6^{+2.0}_{-2.0} \quad (+0.2\sigma)$
$A_{143}^{\text{tSZ}}$	$5.4^{+4.3}_{-4.7} \quad (+0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.884^{+0.029}_{-0.029} \quad (+0.1\sigma)$	$D_{\text{M}}(2.33)$	$5764^{+28}_{-28} \quad (-0.7\sigma)$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1232^{+33}_{-32} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.020}_{-0.021} \quad (-0.0\sigma)$
$A_{143}^{\text{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5734^{+100}_{-100} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.750^{+0.017}_{-0.014} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2540^{+34}_{-35} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.017}_{-0.017} \quad (+0.0\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.014}_{-0.011} \quad (+0.3\sigma)$
$A^{\text{kSZ}}$	—	$D_{2000}$	$230.9^{+4.0}_{-4.2} \quad (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.476^{+0.015}_{-0.014} \quad (+0.0\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.8}_{-4.6} \quad (+0.0\sigma)$	$n_{\text{s},0.002}$	$0.965^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.013}_{-0.010} \quad (+0.3\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.5} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.24539^{+0.00014}_{-0.00016} \quad (+1.0\sigma)$	$f\sigma_8(0.61)$	$0.471^{+0.013}_{-0.013} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.5}_{-8.5} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24672^{+0.00014}_{-0.00016} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.013}_{-0.0094} \quad (+0.3\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$10^5 \text{D}/\text{H}$	$2.586^{+0.072}_{-0.069} \quad (-1.0\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0064}_{-0.0045} \quad (+0.3\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.094}$	$\text{Age}/\text{Gyr}$	$13.798^{+0.063}_{-0.062} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.3071^{+0.0067}_{-0.0046} \quad (+0.4\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.074}_{-0.073}$	$z_*$	$1089.92^{+0.70}_{-0.70} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$144.42^{+0.76}_{-0.75} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{143}^{\text{dustTE}}$	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	$1.04110^{+0.00077}_{-0.00077} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$107.0^{+4.6}_{-4.6} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.67^{+0.20}_{-0.21}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.872^{+0.071}_{-0.069} \quad (-0.4\sigma)$	$\chi_{\text{lensing}}^2$	$9.8 \quad (\nu: 1.0) \quad (-0.0\sigma)$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.68}_{-0.68}$	$z_{\text{drag}}$	$1059.94^{+0.76}_{-0.77} \quad (+1.1\sigma)$	$\chi_{\text{small}}^2$	$397.1 \quad (\nu: 1.7) \quad (+0.2\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$r_{\text{drag}}$	$147.08^{+0.75}_{-0.75} \quad (-0.5\sigma)$	$\chi_{\text{lowl}}^2$	$23.53 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\text{D}}$	$0.14088^{+0.00081}_{-0.00080} \quad (+0.8\sigma)$	$\chi_{\text{plik}}^2$	$2359.5 \quad (\nu: 16.6) \quad (+286.3\sigma)$
$H_0$	$67.3^{+1.6}_{-1.5} \quad (+0.2\sigma)$	$100\theta_{\text{D}}$	$0.16076^{+0.00045}_{-0.00044} \quad (-1.1\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.684^{+0.021}_{-0.022} \quad (+0.1\sigma)$	$z_{\text{eq}}$	$3403^{+76}_{-76} \quad (+0.1\sigma)$	$\chi_{\text{CMB}}^2$	$2789.8 \quad (\nu: 17.5) \quad (+283.8\sigma)$
$\Omega_{\text{m}}$	$0.316^{+0.022}_{-0.021} \quad (-0.1\sigma)$	$k_{\text{eq}}$	$0.01039^{+0.00023}_{-0.00023} \quad (+0.1\sigma)$		
$\Omega_{\text{m}}h^2$	$0.1431^{+0.0032}_{-0.0032} \quad (+0.1\sigma)$	$100\theta_{\text{eq}}$	$0.813^{+0.015}_{-0.014} \quad (-0.0\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2801.40; \Delta\bar{\chi}_{\text{eff}}^2 = 1592.27; R - 1 = 0.01121$$



## 5 alpha1

### 5.1 base\_alpha1\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02219^{+0.00059}_{-0.00057}$	$\sigma_8 \Omega_m^{0.5}$	0.4622	$0.464^{+0.036}_{-0.035}$	$100\theta_{s,eq}$	0.4471	$0.446^{+0.013}_{-0.012}$
$\Omega_c h^2$	0.1211	$0.1214^{+0.0058}_{-0.0057}$	$\sigma_8 \Omega_m^{0.25}$	0.6128	$0.614^{+0.031}_{-0.031}$	$H(0.15)$	72.11	$72.0^{+2.2}_{-2.0}$
$100\theta_{MC}$	1.04062	$1.0405^{+0.0015}_{-0.0014}$	$\sigma_8/h^{0.5}$	0.9949	$0.996^{+0.042}_{-0.043}$	$D_M(0.15)$	649.0	$650^{+22}_{-22}$
$\tau$	0.0526	$0.054^{+0.023}_{-0.022}$	$r_{drag}h$	98.06	$97.8^{+4.6}_{-4.3}$	$H(0.38)$	82.43	$82.4^{+1.6}_{-1.4}$
$\alpha_{-1}$	-0.0003	$-0.0015^{+0.0042}_{-0.0062}$	$\langle d^2 \rangle^{1/2}$	2.458	$2.47^{+0.10}_{-0.11}$	$D_M(0.38)$	1545.0	$1547^{+42}_{-43}$
$\ln(10^{10} A_s)$	3.0442	$3.047^{+0.048}_{-0.048}$	$z_{re}$	7.57	$7.7^{+2.2}_{-2.4}$	$H(0.51)$	89.26	$89.2^{+1.2}_{-1.1}$
$n_s$	0.9607	$0.958^{+0.021}_{-0.018}$	$10^9 A_s$	2.099	$2.11^{+0.10}_{-0.099}$	$D_M(0.51)$	2000	$2002^{+49}_{-50}$
$y_{cal}$	1.0005	$1.0005^{+0.0066}_{-0.0066}$	$10^9 A_s e^{-2\tau}$	1.8895	$1.892^{+0.040}_{-0.039}$	$H(0.61)$	94.97	$94.94^{+0.97}_{-0.86}$
$A_{217}^{CIB}$	49.1	$48^{+20}_{-20}$	$D_{40}$	1222	$1218^{+61}_{-48}$	$D_M(0.61)$	2325	$2328^{+52}_{-54}$
$\xi^{tSZ \times CIB}$	0.28	—	$D_{220}$	5715	$5719^{+110}_{-110}$	$H(2.33)$	237.08	$237.3^{+3.6}_{-3.6}$
$A_{143}^{tSZ}$	7.0	—	$D_{810}$	2540.2	$2539^{+38}_{-37}$	$D_M(2.33)$	5778.1	$5780^{+41}_{-43}$
$A_{100}^{PS}$	255	$265^{+70}_{-70}$	$D_{1420}$	815.6	$814^{+13}_{-13}$	$f\sigma_8(0.15)$	0.4657	$0.467^{+0.032}_{-0.032}$
$A_{143}^{PS}$	49.1	$49^{+20}_{-20}$	$D_{2000}$	229.95	$229.4^{+4.6}_{-4.7}$	$\sigma_8(0.15)$	0.7497	$0.749^{+0.020}_{-0.020}$
$A_{143 \times 217}^{PS}$	46.1	$43^{+20}_{-20}$	$n_{s,0.002}$	0.9607	$0.958^{+0.021}_{-0.018}$	$f\sigma_8(0.38)$	0.4814	$0.482^{+0.025}_{-0.026}$
$A_{217}^{PS}$	118.8	$115^{+30}_{-30}$	$Y_P$	0.245318	$0.24532^{+0.00023}_{-0.00027}$	$\sigma_8(0.38)$	0.6632	$0.663^{+0.016}_{-0.016}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246644	$0.24664^{+0.00023}_{-0.00027}$	$f\sigma_8(0.51)$	0.4786	$0.479^{+0.021}_{-0.022}$
$A_{100}^{dustTT}$	8.90	$9.0^{+4.7}_{-4.8}$	$10^5 D/H$	2.622	$2.62^{+0.11}_{-0.11}$	$\sigma_8(0.51)$	0.6201	$0.620^{+0.015}_{-0.015}$
$A_{143}^{dustTT}$	10.83	$10.7^{+4.6}_{-4.6}$	Age/Gyr	13.830	$13.834^{+0.092}_{-0.096}$	$f\sigma_8(0.61)$	0.4727	$0.473^{+0.018}_{-0.020}$
$A_{143 \times 217}^{dustTT}$	19.3	$18.3^{+8.5}_{-8.5}$	$z_*$	1090.26	$1090.3^{+1.0}_{-1.0}$	$\sigma_8(0.61)$	0.5898	$0.589^{+0.014}_{-0.014}$
$A_{217}^{dustTT}$	94.4	$93^{+20}_{-20}$	$r_*$	144.29	$144.2^{+1.4}_{-1.3}$	$f\sigma_8(2.33)$	0.2969	$0.2965^{+0.0069}_{-0.0070}$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04082	$1.0407^{+0.0015}_{-0.0014}$	$\sigma_8(2.33)$	0.3056	$0.3051^{+0.0074}_{-0.0074}$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.863	$13.86^{+0.13}_{-0.12}$	$f_{2000}^{143}$	30.5	$31^{+8}_{-8}$
$H_0$	66.71	$66.6^{+2.5}_{-2.4}$	$z_{drag}$	1059.59	$1059.6^{+1.2}_{-1.3}$	$f_{2000}^{143 \times 217}$	33.4	$34^{+5}_{-5}$
$\Omega_\Lambda$	0.6765	$0.674^{+0.035}_{-0.037}$	$r_{drag}$	147.01	$146.9^{+1.5}_{-1.4}$	$f_{2000}^{217}$	107.77	$108.3^{+4.9}_{-4.9}$
$\Omega_m$	0.3235	$0.326^{+0.037}_{-0.035}$	$k_D$	0.14081	$0.1409^{+0.0015}_{-0.0017}$	$\chi_{small}^2$	395.88	$397.1 (\nu: 1.5)$
$\Omega_m h^2$	0.1439	$0.1443^{+0.0056}_{-0.0056}$	$100\theta_D$	0.16094	$0.16090^{+0.00084}_{-0.00075}$	$\chi_{lowl}^2$	22.2	$22.1 (\nu: 2.3)$
$\Omega_m h^3$	0.09602	$0.0960^{+0.0012}_{-0.0012}$	$z_{eq}$	3425	$3432^{+130}_{-130}$	$\chi_{plik}^2$	759.7	$774.0 (\nu: 17.1)$
$\sigma_8$	0.8126	$0.812^{+0.023}_{-0.023}$	$k_{eq}$	0.010452	$0.01047^{+0.00041}_{-0.00041}$	$\chi_{prior}^2$	1.4	$7.3 (\nu: 6.8)$
$S_8$	0.844	$0.847^{+0.065}_{-0.064}$	$100\theta_{eq}$	0.8086	$0.807^{+0.025}_{-0.024}$	$\chi_{CMB}^2$	1177.7	$1193.2 (\nu: 16.7)$

Best-fit  $\chi_{eff}^2 = 1179.15$ ;  $\bar{\chi}_{eff}^2 = 1200.56$ ;  $R - 1 = 0.00658$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.88 commander\_dx12\_v3.2\_29: 22.18 plik\_rd12\_HM\_v22\_TT: 759.66



## 5.2 base\_alpha1\_plikHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02225	$0.02228^{+0.00058}_{-0.00062}$	$\sigma_8/h^{0.5}$	0.9814	$0.981^{+0.030}_{-0.030}$	$D_M(0.38)$	1529.4	$1530^{+24}_{-24}$
$\Omega_c h^2$	0.11894	$0.1191^{+0.0032}_{-0.0031}$	$r_{\text{drag}} h$	99.76	$99.7^{+2.5}_{-2.5}$	$H(0.51)$	89.67	$89.67^{+0.75}_{-0.72}$
$100\theta_{\text{MC}}$	1.04092	$1.0409^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	2.427	$2.429^{+0.074}_{-0.076}$	$D_M(0.51)$	1981.4	$1982^{+28}_{-28}$
$\tau$	0.0547	$0.055^{+0.023}_{-0.021}$	$z_{\text{re}}$	7.73	$7.8^{+2.2}_{-2.3}$	$H(0.61)$	95.27	$95.28^{+0.62}_{-0.62}$
$\alpha_{-1}$	-0.0001	$-0.0008^{+0.0044}_{-0.0059}$	$10^9 A_s$	2.095	$2.10^{+0.10}_{-0.10}$	$D_M(0.61)$	2305.8	$2306^{+30}_{-31}$
$\ln(10^{10} A_s)$	3.0422	$3.044^{+0.048}_{-0.049}$	$10^9 A_s e^{-2\tau}$	1.8781	$1.880^{+0.032}_{-0.032}$	$H(2.33)$	235.74	$235.9^{+2.1}_{-2.0}$
$n_s$	0.9664	$0.964^{+0.015}_{-0.014}$	$D_{40}$	1219	$1215^{+61}_{-48}$	$D_M(2.33)$	5766.2	$5766^{+32}_{-30}$
$y_{\text{cal}}$	1.0004	$1.0006^{+0.0066}_{-0.0066}$	$D_{220}$	5719	$5725^{+110}_{-110}$	$f\sigma_8(0.15)$	0.4541	$0.454^{+0.020}_{-0.019}$
$A_{217}^{\text{CIB}}$	48.7	$48^{+20}_{-20}$	$D_{810}$	2536.6	$2537^{+38}_{-37}$	$\sigma_8(0.15)$	0.7460	$0.745^{+0.018}_{-0.019}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.34	—	$D_{1420}$	816.0	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4727	$0.473^{+0.017}_{-0.017}$
$A_{143}^{\text{tSZ}}$	6.9	—	$D_{2000}$	230.14	$229.9^{+4.5}_{-4.7}$	$\sigma_8(0.38)$	0.6614	$0.661^{+0.016}_{-0.017}$
$A_{100}^{\text{PS}}$	255	$264^{+70}_{-70}$	$n_{s,0.002}$	0.9664	$0.964^{+0.015}_{-0.014}$	$f\sigma_8(0.51)$	0.4715	$0.471^{+0.015}_{-0.016}$
$A_{143}^{\text{PS}}$	49.9	$48^{+20}_{-20}$	$Y_{\text{P}}$	0.245347	$0.24536^{+0.00023}_{-0.00029}$	$\sigma_8(0.51)$	0.6190	$0.618^{+0.015}_{-0.016}$
$A_{143 \times 217}^{\text{PS}}$	47.0	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246674	$0.24668^{+0.00023}_{-0.00029}$	$f\sigma_8(0.61)$	0.4666	$0.466^{+0.014}_{-0.014}$
$A_{217}^{\text{PS}}$	119.0	$114^{+20}_{-30}$	$10^5 \text{D}/\text{H}$	2.608	$2.60^{+0.12}_{-0.10}$	$\sigma_8(0.61)$	0.5890	$0.588^{+0.014}_{-0.015}$
$A^{\text{kSZ}}$	0.2	—	Age/Gyr	13.805	$13.804^{+0.073}_{-0.070}$	$f\sigma_8(2.33)$	0.2971	$0.2967^{+0.0068}_{-0.0073}$
$A_{100}^{\text{dustTT}}$	8.89	$9.0^{+4.6}_{-4.7}$	$z_*$	1089.98	$1089.95^{+0.87}_{-0.79}$	$\sigma_8(2.33)$	0.3063	$0.3059^{+0.0070}_{-0.0072}$
$A_{143}^{\text{dustTT}}$	10.74	$10.8^{+4.8}_{-4.6}$	$r_*$	144.80	$144.74^{+0.88}_{-0.88}$	$f_{2000}^{143}$	30.4	$31^{+8}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	19.4	$18.3^{+8.5}_{-9.0}$	$100\theta_*$	1.04111	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	33.2	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	94.5	$94^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.908	$13.903^{+0.082}_{-0.083}$	$f_{2000}^{217}$	107.58	$108.0^{+4.9}_{-4.9}$
$c_{100}$	0.99970	$0.9996^{+0.0016}_{-0.0015}$	$z_{\text{drag}}$	1059.59	$1059.7^{+1.3}_{-1.4}$	$\chi_{\text{small}}^2$	396.06	$397.2 (\nu: 1.7)$
$c_{217}$	0.99823	$0.9983^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	147.50	$147.4^{+1.0}_{-0.98}$	$\chi_{\text{lowl}}^2$	22.3	$22 (\nu: 3.1)$
$H_0$	67.63	$67.6^{+1.4}_{-1.4}$	$k_{\text{D}}$	0.14034	$0.1404^{+0.0013}_{-0.0014}$	$\chi_{\text{plik}}^2$	760.7	$774.1 (\nu: 17.0)$
$\Omega_\Lambda$	0.6899	$0.689^{+0.018}_{-0.020}$	$100\theta_{\text{D}}$	0.16095	$0.16091^{+0.00090}_{-0.00080}$	$\chi_{6\text{DF}}^2$	0.022	$0.067 (\nu: 0.0)$
$\Omega_{\text{m}}$	0.3101	$0.311^{+0.020}_{-0.018}$	$z_{\text{eq}}$	3374	$3378^{+77}_{-73}$	$\chi_{\text{MGS}}^2$	1.28	$1.30 (\nu: 0.1)$
$\Omega_{\text{m}} h^2$	0.14183	$0.1420^{+0.0032}_{-0.0031}$	$k_{\text{eq}}$	0.010298	$0.01031^{+0.00023}_{-0.00022}$	$\chi_{\text{DR12BAO}}^2$	4.22	$5.0 (\nu: 1.7)$
$\Omega_{\text{m}} h^3$	0.09592	$0.0960^{+0.0012}_{-0.0012}$	$100\theta_{\text{eq}}$	0.8180	$0.817^{+0.014}_{-0.014}$	$\chi_{\text{prior}}^2$	1.2	$7.3 (\nu: 6.9)$
$\sigma_8$	0.8071	$0.807^{+0.020}_{-0.021}$	$100\theta_{\text{s,eq}}$	0.4519	$0.4516^{+0.0071}_{-0.0072}$	$\chi_{\text{BAO}}^2$	5.52	$6.4 (\nu: 1.2)$
$S_8$	0.8206	$0.821^{+0.039}_{-0.037}$	$H(0.15)$	72.89	$72.9^{+1.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	1179.0	$1193.6 (\nu: 16.3)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4495	$0.450^{+0.021}_{-0.020}$	$D_M(0.15)$	641.1	$641^{+12}_{-12}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6023	$0.602^{+0.021}_{-0.021}$	$H(0.38)$	82.97	$82.96^{+0.92}_{-0.88}$			

Best-fit  $\chi_{\text{eff}}^2 = 1185.69$ ;  $\bar{\chi}_{\text{eff}}^2 = 1207.24$ ;  $R - 1 = 0.02382$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.22 CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 396.06 commander\_dx12\_v3.2.29: 22.26 plik\_rd12\_HM\_v22.TT: 760.65



### 5.3 base\_alpha1\_plikHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.02223^{+0.00057}_{-0.00057}$	$\sigma_8 \Omega_m^{0.25}$	0.6095	$0.609^{+0.020}_{-0.020}$	$D_M(0.15)$	646.8	$647^{+16}_{-16}$
$\Omega_c h^2$	0.12051	$0.1207^{+0.0042}_{-0.0041}$	$\sigma_8/h^{0.5}$	0.9905	$0.990^{+0.027}_{-0.027}$	$H(0.38)$	82.58	$82.5^{+1.2}_{-1.1}$
$100\theta_{MC}$	1.04069	$1.0406^{+0.0014}_{-0.0013}$	$r_{drag}h$	98.53	$98.4^{+3.4}_{-3.2}$	$D_M(0.38)$	1540.7	$1542^{+32}_{-33}$
$\tau$	0.0528	$0.054^{+0.021}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.449	$2.452^{+0.065}_{-0.065}$	$H(0.51)$	89.38	$89.35^{+0.96}_{-0.91}$
$\alpha_{-1}$	-0.00018	$-0.0013^{+0.0040}_{-0.0058}$	$z_{re}$	7.58	$7.6^{+2.0}_{-2.3}$	$D_M(0.51)$	1994.5	$1996^{+38}_{-39}$
$\ln(10^{10} A_s)$	3.0425	$3.045^{+0.043}_{-0.041}$	$10^9 A_s$	2.096	$2.101^{+0.093}_{-0.085}$	$H(0.61)$	95.06	$95.04^{+0.78}_{-0.74}$
$n_s$	0.9621	$0.959^{+0.018}_{-0.016}$	$10^9 A_s e^{-2\tau}$	1.8855	$1.888^{+0.033}_{-0.033}$	$D_M(0.61)$	2319.8	$2321^{+41}_{-42}$
$y_{cal}$	1.0002	$1.0004^{+0.0065}_{-0.0066}$	$D_{40}$	1222	$1216^{+61}_{-45}$	$H(2.33)$	236.72	$236.8^{+2.6}_{-2.6}$
$A_{217}^{CIB}$	49.4	$48^{+20}_{-20}$	$D_{220}$	5716	$5721^{+110}_{-100}$	$D_M(2.33)$	5774.8	$5776^{+36}_{-37}$
$\xi^{tSZ \times CIB}$	0.26	—	$D_{810}$	2537.9	$2538^{+36}_{-35}$	$f\sigma_8(0.15)$	0.4622	$0.462^{+0.021}_{-0.021}$
$A_{143}^{tSZ}$	7.0	—	$D_{1420}$	815.2	$814^{+13}_{-13}$	$\sigma_8(0.15)$	0.7482	$0.747^{+0.014}_{-0.014}$
$A_{100}^{PS}$	257	$265^{+70}_{-70}$	$D_{2000}$	229.84	$229.4^{+4.7}_{-4.7}$	$f\sigma_8(0.38)$	0.4787	$0.479^{+0.016}_{-0.016}$
$A_{143}^{PS}$	48.9	$49^{+20}_{-20}$	$n_{s,0.002}$	0.9621	$0.959^{+0.018}_{-0.016}$	$\sigma_8(0.38)$	0.6623	$0.661^{+0.012}_{-0.013}$
$A_{143 \times 217}^{PS}$	45.3	$43^{+20}_{-20}$	$Y_P$	0.245329	$0.24533^{+0.00022}_{-0.00027}$	$f\sigma_8(0.51)$	0.4764	$0.476^{+0.014}_{-0.014}$
$A_{217}^{PS}$	118.1	$114^{+30}_{-30}$	$Y_P^{BBN}$	0.246655	$0.24666^{+0.00022}_{-0.00027}$	$\sigma_8(0.51)$	0.6195	$0.619^{+0.012}_{-0.012}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.617	$2.61^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	0.4707	$0.470^{+0.012}_{-0.012}$
$A_{100}^{dustTT}$	8.88	$8.9^{+4.6}_{-4.8}$	Age/Gyr	13.823	$13.825^{+0.082}_{-0.084}$	$\sigma_8(0.61)$	0.5892	$0.588^{+0.011}_{-0.012}$
$A_{143}^{dustTT}$	10.80	$10.8^{+4.7}_{-4.5}$	$z_*$	1090.17	$1090.16^{+0.90}_{-0.92}$	$f\sigma_8(2.33)$	0.2968	$0.2963^{+0.0061}_{-0.0065}$
$A_{143 \times 217}^{dustTT}$	19.3	$18.4^{+8.5}_{-8.6}$	$r_*$	144.42	$144.4^{+1.0}_{-1.0}$	$\sigma_8(2.33)$	0.3056	$0.3051^{+0.0069}_{-0.0072}$
$A_{217}^{dustTT}$	94.2	$93^{+20}_{-20}$	$100\theta_*$	1.04089	$1.0408^{+0.0014}_{-0.0013}$	$f_{2000}^{143}$	30.5	$31^{+8}_{-8}$
$c_{100}$	0.99968	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.875	$13.872^{+0.096}_{-0.093}$	$f_{2000}^{143 \times 217}$	33.3	$34^{+5}_{-5}$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0015}$	$z_{drag}$	1059.59	$1059.7^{+1.3}_{-1.3}$	$f_{2000}^{217}$	107.62	$108.2^{+5.0}_{-4.9}$
$H_0$	66.96	$66.9^{+1.9}_{-1.8}$	$r_{drag}$	147.14	$147.1^{+1.1}_{-1.1}$	$\chi_{lensing}^2$	8.93	$9.52 (\nu: 0.5)$
$\Omega_\Lambda$	0.6803	$0.679^{+0.026}_{-0.027}$	$k_D$	0.14069	$0.1408^{+0.0013}_{-0.0014}$	$\chi_{small}^2$	395.89	$397.0 (\nu: 1.1)$
$\Omega_m$	0.3197	$0.321^{+0.027}_{-0.026}$	$100\theta_D$	0.16093	$0.16089^{+0.00086}_{-0.00075}$	$\chi_{lowl}^2$	22.35	$22.1 (\nu: 2.4)$
$\Omega_m h^2$	0.14337	$0.1435^{+0.0041}_{-0.0040}$	$z_{eq}$	3411	$3415^{+97}_{-97}$	$\chi_{plik}^2$	759.7	$773.7 (\nu: 16.1)$
$\Omega_m h^3$	0.09600	$0.0960^{+0.0012}_{-0.0012}$	$k_{eq}$	0.010409	$0.01042^{+0.00030}_{-0.00029}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.7)$
$\sigma_8$	0.8106	$0.810^{+0.016}_{-0.016}$	$100\theta_{eq}$	0.8112	$0.810^{+0.018}_{-0.018}$	$\chi_{CMB}^2$	1186.9	$1202.2 (\nu: 16.4)$
$S_8$	0.8368	$0.837^{+0.043}_{-0.042}$	$100\theta_{s,eq}$	0.4484	$0.4480^{+0.0094}_{-0.0091}$			
$\sigma_8 \Omega_m^{0.5}$	0.4583	$0.459^{+0.024}_{-0.023}$	$H(0.15)$	72.33	$72.3^{+1.7}_{-1.6}$			

Best-fit  $\chi_{\text{eff}}^2 = 1188.17$ ;  $\bar{\chi}_{\text{eff}}^2 = 1209.53$ ;  $R - 1 = 0.01166$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.93 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.89 commander\_dx12\_v3.2.29: 22.35 plik\_rd12\_HM.v22.TT: 759.73



#### 5.4 base\_alpha1\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02228	$0.02229^{+0.00059}_{-0.00060}$	$\sigma_8/h^{0.5}$	0.9842	$0.983^{+0.023}_{-0.023}$	$D_M(0.38)$	1529.9	$1531^{+22}_{-22}$
$\Omega_c h^2$	0.11911	$0.1192^{+0.0029}_{-0.0028}$	$r_{\text{drag}} h$	99.65	$99.6^{+2.2}_{-2.2}$	$H(0.51)$	89.67	$89.65^{+0.68}_{-0.69}$
$100\theta_{\text{MC}}$	1.04092	$1.0408^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	2.436	$2.436^{+0.055}_{-0.055}$	$D_M(0.51)$	1982.0	$1983^{+26}_{-26}$
$\tau$	0.0565	$0.057^{+0.021}_{-0.019}$	$z_{\text{re}}$	7.91	$7.9^{+2.0}_{-2.0}$	$H(0.61)$	95.28	$95.26^{+0.58}_{-0.60}$
$\alpha_{-1}$	-0.0001	$-0.0009^{+0.0045}_{-0.0059}$	$10^9 A_s$	2.106	$2.107^{+0.094}_{-0.086}$	$D_M(0.61)$	2306.4	$2307^{+28}_{-28}$
$\ln(10^{10} A_s)$	3.0472	$3.048^{+0.044}_{-0.041}$	$10^9 A_s e^{-2\tau}$	1.8806	$1.881^{+0.030}_{-0.030}$	$H(2.33)$	235.89	$235.9^{+1.9}_{-1.8}$
$n_s$	0.9654	$0.964^{+0.015}_{-0.013}$	$D_{40}$	1221	$1216^{+60}_{-47}$	$D_M(2.33)$	5765.4	$5766^{+31}_{-30}$
$y_{\text{cal}}$	1.0007	$1.0007^{+0.0067}_{-0.0067}$	$D_{220}$	5728	$5728^{+110}_{-100}$	$f\sigma_8(0.15)$	0.4558	$0.456^{+0.016}_{-0.015}$
$A_{217}^{\text{CIB}}$	50.3	$48^{+20}_{-20}$	$D_{810}$	2538.5	$2538^{+37}_{-36}$	$\sigma_8(0.15)$	0.7478	$0.747^{+0.014}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.099	—	$D_{1420}$	816.4	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4743	$0.474^{+0.013}_{-0.013}$
$A_{143}^{\text{tSZ}}$	7.1	—	$D_{2000}$	230.31	$230.0^{+4.6}_{-4.6}$	$\sigma_8(0.38)$	0.6629	$0.662^{+0.012}_{-0.013}$
$A_{100}^{\text{PS}}$	257	$264^{+70}_{-70}$	$n_{s,0.002}$	0.9654	$0.964^{+0.015}_{-0.013}$	$f\sigma_8(0.51)$	0.4729	$0.473^{+0.011}_{-0.012}$
$A_{143}^{\text{PS}}$	45.7	$48^{+20}_{-20}$	$Y_{\text{P}}$	0.245360	$0.24536^{+0.00023}_{-0.00028}$	$\sigma_8(0.51)$	0.6204	$0.619^{+0.011}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	41	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246686	$0.24668^{+0.00023}_{-0.00028}$	$f\sigma_8(0.61)$	0.4680	$0.468^{+0.011}_{-0.011}$
$A_{217}^{\text{PS}}$	116.4	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.602	$2.60^{+0.12}_{-0.11}$	$\sigma_8(0.61)$	0.5903	$0.589^{+0.011}_{-0.011}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.803	$13.804^{+0.071}_{-0.070}$	$f\sigma_8(2.33)$	0.2977	$0.2972^{+0.0057}_{-0.0059}$
$A_{100}^{\text{dustTT}}$	8.89	$8.9^{+4.6}_{-4.7}$	$z_*$	1089.95	$1089.96^{+0.85}_{-0.79}$	$\sigma_8(2.33)$	0.3069	$0.3064^{+0.0062}_{-0.0062}$
$A_{143}^{\text{dustTT}}$	10.75	$10.7^{+4.8}_{-4.3}$	$r_*$	144.73	$144.70^{+0.79}_{-0.79}$	$f_{2000}^{143}$	30.4	$31^{+8}_{-7}$
$A_{143 \times 217}^{\text{dustTT}}$	18.9	$18.3^{+8.6}_{-9.1}$	$100\theta_*$	1.04112	$1.0410^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	33.1	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	93.9	$94^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.901	$13.899^{+0.074}_{-0.076}$	$f_{2000}^{217}$	107.70	$108.0^{+5.0}_{-4.8}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0015}$	$z_{\text{drag}}$	1059.67	$1059.7^{+1.4}_{-1.4}$	$\chi^2_{\text{lensing}}$	8.78	$9.25 (\nu: 0.3)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	147.43	$147.39^{+0.90}_{-0.91}$	$\chi^2_{\text{small}}$	396.43	$397.3 (\nu: 1.7)$
$H_0$	67.59	$67.5^{+1.3}_{-1.3}$	$k_{\text{D}}$	0.14045	$0.1405^{+0.0012}_{-0.0012}$	$\chi^2_{\text{lowl}}$	22.3	$22 (\nu: 3.2)$
$\Omega_\Lambda$	0.6891	$0.688^{+0.017}_{-0.018}$	$100\theta_{\text{D}}$	0.16091	$0.16089^{+0.00088}_{-0.00081}$	$\chi^2_{\text{plik}}$	759.8	$773.6 (\nu: 16.1)$
$\Omega_{\text{m}}$	0.3109	$0.312^{+0.018}_{-0.017}$	$z_{\text{eq}}$	3379	$3381^{+69}_{-66}$	$\chi^2_{6\text{DF}}$	0.029	$0.068 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.14204	$0.1421^{+0.0029}_{-0.0028}$	$k_{\text{eq}}$	0.010313	$0.01032^{+0.00021}_{-0.00020}$	$\chi^2_{\text{MGS}}$	1.22	$1.23 (\nu: 0.1)$
$\Omega_{\text{m}} h^3$	0.09601	$0.0960^{+0.0012}_{-0.0012}$	$100\theta_{\text{eq}}$	0.8172	$0.817^{+0.012}_{-0.012}$	$\chi^2_{\text{DR12BAO}}$	4.40	$5.1 (\nu: 1.5)$
$\sigma_8$	0.8092	$0.808^{+0.016}_{-0.016}$	$100\theta_{\text{s,eq}}$	0.4515	$0.4513^{+0.0063}_{-0.0064}$	$\chi^2_{\text{prior}}$	1.6	$7.2 (\nu: 6.8)$
$S_8$	0.8237	$0.824^{+0.031}_{-0.029}$	$H(0.15)$	72.86	$72.8^{+1.1}_{-1.1}$	$\chi^2_{\text{CMB}}$	1187.3	$1202.5 (\nu: 16.1)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4512	$0.451^{+0.017}_{-0.016}$	$D_M(0.15)$	641.4	$642^{+11}_{-11}$	$\chi^2_{\text{BAO}}$	5.64	$6.4 (\nu: 1.0)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6042	$0.604^{+0.016}_{-0.016}$	$H(0.38)$	82.96	$82.93^{+0.84}_{-0.82}$			

Best-fit  $\chi^2_{\text{eff}} = 1194.56$ ;  $\bar{\chi}^2_{\text{eff}} = 1216.09$ ;  $R - 1 = 0.02745$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.40 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.78 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.43 commander\_dx12.v3.2.29: 22.31 plik\_rd12\_HM.v22\_TT: 759.82



## 5.5 base\_alpha1\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02220^{+0.00058}_{-0.00057}$	$\sigma_8 \Omega_m^{0.5}$	$0.464^{+0.036}_{-0.034}$	$100\theta_{s,eq}$	$0.446^{+0.013}_{-0.012}$
$\Omega_c h^2$	$0.1214^{+0.0058}_{-0.0056}$	$\sigma_8 \Omega_m^{0.25}$	$0.614^{+0.031}_{-0.030}$	$H(0.15)$	$72.0^{+2.1}_{-2.0}$
$100\theta_{MC}$	$1.0405^{+0.0015}_{-0.0014}$	$\sigma_8/h^{0.5}$	$0.997^{+0.041}_{-0.041}$	$D_M(0.15)$	$650^{+21}_{-21}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$r_{drag}h$	$97.9^{+4.5}_{-4.3}$	$H(0.38)$	$82.4^{+1.5}_{-1.4}$
$\alpha_{-1}$	$-0.0015^{+0.0042}_{-0.0063}$	$\langle d^2 \rangle^{1/2}$	$2.47^{+0.10}_{-0.099}$	$D_M(0.38)$	$1547^{+42}_{-43}$
$\ln(10^{10} A_s)$	$3.050^{+0.046}_{-0.035}$	$z_{re}$	$< 9.65$	$H(0.51)$	$89.2^{+1.2}_{-1.1}$
$n_s$	$0.958^{+0.021}_{-0.018}$	$10^9 A_s$	$2.11^{+0.10}_{-0.073}$	$D_M(0.51)$	$2002^{+49}_{-50}$
$y_{cal}$	$1.0005^{+0.0066}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	$1.892^{+0.040}_{-0.039}$	$H(0.61)$	$94.95^{+0.96}_{-0.85}$
$A_{217}^{CIB}$	$48^{+20}_{-20}$	$D_{40}$	$1217^{+61}_{-47}$	$D_M(0.61)$	$2328^{+52}_{-54}$
$\xi^{tSZ \times CIB}$	—	$D_{220}$	$5719^{+110}_{-100}$	$H(2.33)$	$237.3^{+3.5}_{-3.5}$
$A_{143}^{tSZ}$	—	$D_{810}$	$2539^{+38}_{-37}$	$D_M(2.33)$	$5779^{+40}_{-43}$
$A_{100}^{PS}$	$264^{+70}_{-70}$	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.15)$	$0.467^{+0.032}_{-0.032}$
$A_{143}^{PS}$	$49^{+20}_{-20}$	$D_{2000}$	$229.4^{+4.6}_{-4.6}$	$\sigma_8(0.15)$	$0.750^{+0.019}_{-0.018}$
$A_{143 \times 217}^{PS}$	$43^{+20}_{-20}$	$n_{s,0.002}$	$0.958^{+0.021}_{-0.018}$	$f\sigma_8(0.38)$	$0.483^{+0.025}_{-0.025}$
$A_{217}^{PS}$	$115^{+30}_{-30}$	$Y_P$	$0.24532^{+0.00023}_{-0.00027}$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.013}$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.24665^{+0.00023}_{-0.00027}$	$f\sigma_8(0.51)$	$0.479^{+0.021}_{-0.021}$
$A_{100}^{dustTT}$	$9.0^{+4.7}_{-4.8}$	$10^5 D/H$	$2.62^{+0.11}_{-0.11}$	$\sigma_8(0.51)$	$0.620^{+0.014}_{-0.012}$
$A_{143}^{dustTT}$	$10.7^{+4.6}_{-4.6}$	Age/Gyr	$13.833^{+0.092}_{-0.096}$	$f\sigma_8(0.61)$	$0.473^{+0.018}_{-0.019}$
$A_{143 \times 217}^{dustTT}$	$18.3^{+8.5}_{-8.5}$	$z_*$	$1090.3^{+1.0}_{-1.0}$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.011}$
$A_{217}^{dustTT}$	$93^{+20}_{-20}$	$r_*$	$144.2^{+1.4}_{-1.3}$	$f\sigma_8(2.33)$	$0.2969^{+0.0066}_{-0.0053}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0407^{+0.0015}_{-0.0013}$	$\sigma_8(2.33)$	$0.3055^{+0.0071}_{-0.0057}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	$13.86^{+0.12}_{-0.12}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$H_0$	$66.6^{+2.5}_{-2.4}$	$z_{drag}$	$1059.6^{+1.2}_{-1.3}$	$f_{2000}^{143 \times 217}$	$34^{+5}_{-5}$
$\Omega_\Lambda$	$0.675^{+0.034}_{-0.037}$	$r_{drag}$	$146.9^{+1.4}_{-1.4}$	$f_{2000}^{217}$	$108.2^{+4.9}_{-4.9}$
$\Omega_m$	$0.325^{+0.037}_{-0.034}$	$k_D$	$0.1409^{+0.0015}_{-0.0016}$	$\chi_{simall}^2$	$397.0 (\nu: 1.5)$
$\Omega_m h^2$	$0.1442^{+0.0056}_{-0.0055}$	$100\theta_D$	$0.16089^{+0.00083}_{-0.00074}$	$\chi_{lowl}^2$	$22.1 (\nu: 2.2)$
$\Omega_m h^3$	$0.0960^{+0.0012}_{-0.0012}$	$z_{eq}$	$3431^{+130}_{-130}$	$\chi_{plik}^2$	$773.9 (\nu: 16.9)$
$\sigma_8$	$0.813^{+0.022}_{-0.022}$	$k_{eq}$	$0.01047^{+0.00041}_{-0.00040}$	$\chi_{prior}^2$	$7.3 (\nu: 6.7)$
$S_8$	$0.847^{+0.065}_{-0.063}$	$100\theta_{eq}$	$0.808^{+0.025}_{-0.024}$	$\chi_{CMB}^2$	$1193.0 (\nu: 16.1)$

$$\bar{\chi}_{eff}^2 = 1200.29; R - 1 = 0.00693$$



## 5.6 base\_alpha1\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02229^{+0.00057}_{-0.00060}$	$\sigma_8/h^{0.5}$	$0.982^{+0.030}_{-0.027}$	$D_M(0.38)$	$1530^{+24}_{-24}$
$\Omega_c h^2$	$0.1191^{+0.0032}_{-0.0031}$	$r_{\text{drag}} h$	$99.7^{+2.5}_{-2.5}$	$H(0.51)$	$89.67^{+0.75}_{-0.72}$
$100\theta_{\text{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.072}_{-0.065}$	$D_M(0.51)$	$1982^{+28}_{-28}$
$\tau$	$0.056^{+0.020}_{-0.015}$	$z_{\text{re}}$	$< 9.68$	$H(0.61)$	$95.28^{+0.62}_{-0.61}$
$\alpha_{-1}$	$-0.0009^{+0.0045}_{-0.0059}$	$10^9 A_s$	$2.104^{+0.099}_{-0.073}$	$D_M(0.61)$	$2306^{+30}_{-31}$
$\ln(10^{10} A_s)$	$3.046^{+0.046}_{-0.035}$	$10^9 A_s e^{-2\tau}$	$1.880^{+0.032}_{-0.032}$	$H(2.33)$	$235.9^{+2.1}_{-2.0}$
$n_s$	$0.964^{+0.015}_{-0.013}$	$D_{40}$	$1214^{+61}_{-48}$	$D_M(2.33)$	$5766^{+31}_{-31}$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0066}$	$D_{220}$	$5725^{+110}_{-110}$	$f\sigma_8(0.15)$	$0.455^{+0.020}_{-0.019}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+37}_{-36}$	$\sigma_8(0.15)$	$0.746^{+0.017}_{-0.015}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.473^{+0.017}_{-0.016}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$229.9^{+4.5}_{-4.5}$	$\sigma_8(0.38)$	$0.661^{+0.015}_{-0.013}$
$A_{100}^{\text{PS}}$	$264^{+70}_{-70}$	$n_{s,0.002}$	$0.964^{+0.015}_{-0.013}$	$f\sigma_8(0.51)$	$0.472^{+0.015}_{-0.014}$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20}$	$Y_{\text{P}}$	$0.24536^{+0.00022}_{-0.00028}$	$\sigma_8(0.51)$	$0.619^{+0.014}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24668^{+0.00022}_{-0.00028}$	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.013}$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	$2.60^{+0.12}_{-0.10}$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.012}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.803^{+0.071}_{-0.070}$	$f\sigma_8(2.33)$	$0.2970^{+0.0066}_{-0.0057}$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.6}_{-4.7}$	$z_*$	$1089.94^{+0.86}_{-0.80}$	$\sigma_8(2.33)$	$0.3063^{+0.0068}_{-0.0059}$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.8}_{-4.6}$	$r_*$	$144.74^{+0.88}_{-0.88}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.5}_{-9.0}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.903^{+0.081}_{-0.083}$	$f_{2000}^{217}$	$107.9^{+4.9}_{-4.8}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0015}$	$z_{\text{drag}}$	$1059.7^{+1.3}_{-1.3}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 1.7)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	$147.4^{+1.0}_{-0.97}$	$\chi_{\text{lowl}}^2$	$22 (\nu: 3.1)$
$H_0$	$67.6^{+1.4}_{-1.4}$	$k_{\text{D}}$	$0.1404^{+0.0013}_{-0.0014}$	$\chi_{\text{plik}}^2$	$774.0 (\nu: 16.7)$
$\Omega_{\Lambda}$	$0.689^{+0.018}_{-0.020}$	$100\theta_{\text{D}}$	$0.16090^{+0.00089}_{-0.00079}$	$\chi_{6\text{DF}}^2$	$0.066 (\nu: 0.0)$
$\Omega_{\text{m}}$	$0.311^{+0.020}_{-0.018}$	$z_{\text{eq}}$	$3378^{+77}_{-73}$	$\chi_{\text{MGS}}^2$	$1.30 (\nu: 0.1)$
$\Omega_{\text{m}} h^2$	$0.1420^{+0.0032}_{-0.0031}$	$k_{\text{eq}}$	$0.01031^{+0.00023}_{-0.00022}$	$\chi_{\text{DR12BAO}}^2$	$5.0 (\nu: 1.7)$
$\Omega_{\text{m}} h^3$	$0.0960^{+0.0012}_{-0.0012}$	$100\theta_{\text{eq}}$	$0.817^{+0.014}_{-0.014}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.8)$
$\sigma_8$	$0.807^{+0.020}_{-0.018}$	$100\theta_{\text{s,eq}}$	$0.4516^{+0.0072}_{-0.0072}$	$\chi_{\text{BAO}}^2$	$6.4 (\nu: 1.2)$
$S_8$	$0.822^{+0.039}_{-0.036}$	$H(0.15)$	$72.9^{+1.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	$1193.4 (\nu: 15.7)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.450^{+0.021}_{-0.020}$	$D_M(0.15)$	$641^{+12}_{-12}$		
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.603^{+0.021}_{-0.019}$	$H(0.38)$	$82.97^{+0.92}_{-0.88}$		

$\bar{\chi}_{\text{eff}}^2 = 1207.05; R - 1 = 0.02346$



## 5.7 base\_alpha1\_plikHM\_TT\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02224^{+0.00056}_{-0.00058}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.020}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$647^{+16}_{-16}$
$\Omega_{\mathrm{c}} h^2$	$0.1205^{+0.0041}_{-0.0040}$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.027}$	$H(0.38)$	$82.6^{+1.2}_{-1.1}$
$100\theta_{\mathrm{MC}}$	$1.0406^{+0.0014}_{-0.0013}$	$r_{\mathrm{drag}} h$	$98.5^{+3.3}_{-3.1}$	$D_{\mathrm{M}}(0.38)$	$1541^{+31}_{-32}$
$\tau$	$0.055^{+0.019}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.453^{+0.064}_{-0.065}$	$H(0.51)$	$89.37^{+0.94}_{-0.88}$
$\alpha_{-1}$	$-0.0014^{+0.0039}_{-0.0060}$	$z_{\mathrm{re}}$	$< 9.49$	$D_{\mathrm{M}}(0.51)$	$1995^{+36}_{-38}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.041}_{-0.030}$	$10^9 A_{\mathrm{s}}$	$2.106^{+0.088}_{-0.063}$	$H(0.61)$	$95.06^{+0.77}_{-0.72}$
$n_{\mathrm{s}}$	$0.959^{+0.018}_{-0.015}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.887^{+0.032}_{-0.033}$	$D_{\mathrm{M}}(0.61)$	$2320^{+39}_{-41}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0065}_{-0.0065}$	$D_{40}$	$1215^{+60}_{-45}$	$H(2.33)$	$236.8^{+2.5}_{-2.6}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5721^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5775^{+35}_{-37}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2538^{+36}_{-35}$	$f\sigma_8(0.15)$	$0.462^{+0.021}_{-0.021}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.15)$	$0.748^{+0.014}_{-0.013}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$D_{2000}$	$229.5^{+4.7}_{-4.7}$	$f\sigma_8(0.38)$	$0.479^{+0.016}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.018}_{-0.015}$	$\sigma_8(0.38)$	$0.662^{+0.012}_{-0.011}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24534^{+0.00022}_{-0.00027}$	$f\sigma_8(0.51)$	$0.476^{+0.013}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00022}_{-0.00027}$	$\sigma_8(0.51)$	$0.619^{+0.011}_{-0.010}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	$0.471^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.6}_{-4.7}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.823^{+0.080}_{-0.083}$	$\sigma_8(0.61)$	$0.589^{+0.011}_{-0.0096}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.7}_{-4.6}$	$z_{*}$	$1090.14^{+0.87}_{-0.91}$	$f\sigma_8(2.33)$	$0.2966^{+0.0058}_{-0.0050}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.4^{+8.5}_{-8.6}$	$r_{*}$	$144.4^{+1.0}_{-1.0}$	$\sigma_8(2.33)$	$0.3054^{+0.0065}_{-0.0055}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$100\theta_{*}$	$1.0408^{+0.0014}_{-0.0013}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0015}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.874^{+0.095}_{-0.093}$	$f_{2000}^{143 \times 217}$	$34^{+5}_{-5}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0015}$	$z_{\mathrm{drag}}$	$1059.7^{+1.3}_{-1.3}$	$f_{2000}^{217}$	$108.2^{+5.0}_{-4.9}$
$H_0$	$66.9^{+1.9}_{-1.8}$	$r_{\mathrm{drag}}$	$147.1^{+1.1}_{-1.1}$	$\chi_{\mathrm{lensing}}^2$	$9.50 (\nu: 0.5)$
$\Omega_{\Lambda}$	$0.680^{+0.025}_{-0.026}$	$k_{\mathrm{D}}$	$0.1408^{+0.0013}_{-0.0014}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.1)$
$\Omega_{\mathrm{m}}$	$0.320^{+0.026}_{-0.025}$	$100\theta_{\mathrm{D}}$	$0.16088^{+0.00085}_{-0.00074}$	$\chi_{\mathrm{lowl}}^2$	$22.0 (\nu: 2.4)$
$\Omega_{\mathrm{m}} h^2$	$0.1434^{+0.0039}_{-0.0040}$	$z_{\mathrm{eq}}$	$3412^{+93}_{-95}$	$\chi_{\mathrm{plik}}^2$	$773.6 (\nu: 16.0)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0012}_{-0.0012}$	$k_{\mathrm{eq}}$	$0.01041^{+0.00028}_{-0.00029}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.7)$
$\sigma_8$	$0.810^{+0.016}_{-0.015}$	$100\theta_{\mathrm{eq}}$	$0.811^{+0.018}_{-0.017}$	$\chi_{\mathrm{CMB}}^2$	$1202.0 (\nu: 15.9)$
$S_8$	$0.837^{+0.043}_{-0.041}$	$100\theta_{\mathrm{s,eq}}$	$0.4483^{+0.0092}_{-0.0088}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.458^{+0.023}_{-0.023}$	$H(0.15)$	$72.3^{+1.6}_{-1.5}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 1209.29; R - 1 = 0.01342$					



## 5.8 base\_alpha1\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02229^{+0.00059}_{-0.00059}$	$\sigma_8/h^{0.5}$	$0.984^{+0.023}_{-0.022}$	$D_M(0.38)$	$1531^{+22}_{-22}$
$\Omega_c h^2$	$0.1192^{+0.0029}_{-0.0027}$	$r_{\text{drag}} h$	$99.6^{+2.2}_{-2.2}$	$H(0.51)$	$89.65^{+0.68}_{-0.69}$
$100\theta_{\text{MC}}$	$1.0408^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	$2.436^{+0.054}_{-0.053}$	$D_M(0.51)$	$1983^{+26}_{-26}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$z_{\text{re}}$	$< 9.65$	$H(0.61)$	$95.27^{+0.58}_{-0.59}$
$\alpha_{-1}$	$-0.0009^{+0.0044}_{-0.0059}$	$10^9 A_s$	$2.110^{+0.092}_{-0.070}$	$D_M(0.61)$	$2307^{+28}_{-28}$
$\ln(10^{10} A_s)$	$3.049^{+0.043}_{-0.034}$	$10^9 A_s e^{-2\tau}$	$1.881^{+0.030}_{-0.030}$	$H(2.33)$	$235.9^{+1.9}_{-1.8}$
$n_s$	$0.964^{+0.015}_{-0.013}$	$D_{40}$	$1216^{+60}_{-46}$	$D_M(2.33)$	$5766^{+30}_{-29}$
$y_{\text{cal}}$	$1.0007^{+0.0065}_{-0.0067}$	$D_{220}$	$5728^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.015}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2538^{+37}_{-36}$	$\sigma_8(0.15)$	$0.747^{+0.014}_{-0.013}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$230.0^{+4.5}_{-4.5}$	$\sigma_8(0.38)$	$0.662^{+0.012}_{-0.011}$
$A_{100}^{\text{PS}}$	$264^{+70}_{-70}$	$n_{s,0.002}$	$0.964^{+0.015}_{-0.013}$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.011}$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20}$	$Y_{\text{P}}$	$0.24536^{+0.00023}_{-0.00027}$	$\sigma_8(0.51)$	$0.620^{+0.011}_{-0.011}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24669^{+0.00023}_{-0.00028}$	$f\sigma_8(0.61)$	$0.468^{+0.010}_{-0.010}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D/H}$	$2.60^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.010}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.804^{+0.070}_{-0.069}$	$f\sigma_8(2.33)$	$0.2973^{+0.0055}_{-0.0053}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.6}_{-4.7}$	$z_*$	$1089.95^{+0.84}_{-0.78}$	$\sigma_8(2.33)$	$0.3066^{+0.0061}_{-0.0057}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.8}_{-4.3}$	$r_*$	$144.70^{+0.79}_{-0.79}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.4^{+8.6}_{-9.1}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.900^{+0.074}_{-0.076}$	$f_{2000}^{217}$	$107.9^{+4.9}_{-4.7}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0015}$	$z_{\text{drag}}$	$1059.7^{+1.3}_{-1.4}$	$\chi_{\text{lensing}}^2$	$9.21 (\nu: 0.2)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	$147.39^{+0.90}_{-0.91}$	$\chi_{\text{simall}}^2$	$397.3 (\nu: 1.7)$
$H_0$	$67.6^{+1.3}_{-1.3}$	$k_{\text{D}}$	$0.1405^{+0.0012}_{-0.0012}$	$\chi_{\text{lowl}}^2$	$22 (\nu: 3.1)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.018}$	$100\theta_{\text{D}}$	$0.16088^{+0.00087}_{-0.00080}$	$\chi_{\text{plik}}^2$	$773.6 (\nu: 16.0)$
$\Omega_{\text{m}}$	$0.311^{+0.018}_{-0.016}$	$z_{\text{eq}}$	$3381^{+68}_{-66}$	$\chi_{6\text{DF}}^2$	$0.066 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	$0.1421^{+0.0029}_{-0.0028}$	$k_{\text{eq}}$	$0.01032^{+0.00021}_{-0.00020}$	$\chi_{\text{MGS}}^2$	$1.24 (\nu: 0.1)$
$\Omega_{\text{m}} h^3$	$0.0960^{+0.0012}_{-0.0012}$	$100\theta_{\text{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{\text{DR12BAO}}^2$	$5.0 (\nu: 1.4)$
$\sigma_8$	$0.809^{+0.016}_{-0.015}$	$100\theta_{\text{s,eq}}$	$0.4513^{+0.0063}_{-0.0064}$	$\chi_{\text{prior}}^2$	$7.2 (\nu: 6.7)$
$S_8$	$0.824^{+0.031}_{-0.030}$	$H(0.15)$	$72.8^{+1.1}_{-1.1}$	$\chi_{\text{CMB}}^2$	$1202.4 (\nu: 15.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.451^{+0.017}_{-0.016}$	$D_M(0.15)$	$642^{+11}_{-11}$	$\chi_{\text{BAO}}^2$	$6.3 (\nu: 1.0)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.604^{+0.016}_{-0.016}$	$H(0.38)$	$82.94^{+0.83}_{-0.82}$		

$\bar{\chi}_{\text{eff}}^2 = 1215.96; R - 1 = 0.02803$



## 5.9 base\_alpha1\_plikHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022381	$0.02236^{+0.00038}_{-0.00040}$ $(+0.7\sigma)$	$\Omega_m h^2$	0.14328	$0.1435^{+0.0043}_{-0.0044}$ $(-0.4\sigma)$	$k_{\text{eq}}$	0.010403	$0.01042^{+0.00032}_{-0.00032}$ $(-0.4\sigma)$
$\Omega_c h^2$	0.12025	$0.1205^{+0.0046}_{-0.0046}$ $(-0.4\sigma)$	$\Omega_m h^3$	0.09637	$0.09634^{+0.00075}_{-0.00076}$ $(+0.7\sigma)$	$100\theta_{\text{eq}}$	0.8122	$0.811^{+0.020}_{-0.019}$ $(+0.4\sigma)$
$100\theta_{\text{MC}}$	1.04086	$1.0408^{+0.0012}_{-0.0011}$ $(+0.6\sigma)$	$\sigma_8$	0.8123	$0.813^{+0.020}_{-0.021}$ $(+0.0\sigma)$	$100\theta_{\text{s,eq}}$	0.4488	$0.448^{+0.010}_{-0.0099}$ $(+0.4\sigma)$
$\tau$	0.0543	$0.055^{+0.022}_{-0.020}$ $(+0.1\sigma)$	$S_8$	0.835	$0.837^{+0.051}_{-0.050}$ $(-0.4\sigma)$	$H(0.15)$	72.60	$72.5^{+1.8}_{-1.7}$ $(+0.6\sigma)$
$\alpha_{-1}$	-0.00001	$-0.0001^{+0.0018}_{-0.0017}$ $(+0.8\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4572	$0.459^{+0.028}_{-0.028}$ $(-0.4\sigma)$	$D_M(0.15)$	644.2	$645^{+17}_{-17}$ $(-0.6\sigma)$
$\ln(10^{10} A_s)$	3.0459	$3.046^{+0.044}_{-0.043}$ $(-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6094	$0.610^{+0.024}_{-0.025}$ $(-0.3\sigma)$	$H(0.38)$	82.81	$82.7^{+1.3}_{-1.2}$ $(+0.7\sigma)$
$n_s$	0.9649	$0.964^{+0.017}_{-0.016}$ $(+0.8\sigma)$	$\sigma_8/h^{0.5}$	0.9905	$0.992^{+0.033}_{-0.034}$ $(-0.2\sigma)$	$D_M(0.38)$	1535.1	$1537^{+34}_{-35}$ $(-0.6\sigma)$
$y_{\text{cal}}$	1.0008	$1.0006^{+0.0065}_{-0.0062}$ $(+0.0\sigma)$	$r_{\text{drag}} h$	98.88	$98.7^{+3.7}_{-3.5}$ $(+0.5\sigma)$	$H(0.51)$	89.59	$89.54^{+0.99}_{-0.90}$ $(+0.7\sigma)$
$A_{217}^{\text{CIB}}$	46.8	$47^{+20}_{-20}$ $(-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	2.449	$2.454^{+0.086}_{-0.085}$ $(-0.3\sigma)$	$D_M(0.51)$	1987.8	$1990^{+40}_{-40}$ $(-0.6\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.51	—	$z_{\text{re}}$	7.68	$7.7^{+2.1}_{-2.1}$ $(+0.1\sigma)$	$H(0.61)$	95.25	$95.21^{+0.78}_{-0.70}$ $(+0.8\sigma)$
$A_{143}^{\text{tSZ}}$	7.20	$5.4^{+4.3}_{-4.9}$ $(+0.2\sigma)$	$10^9 A_s$	2.103	$2.104^{+0.094}_{-0.088}$ $(-0.1\sigma)$	$D_M(0.61)$	2312.4	$2315^{+43}_{-44}$ $(-0.6\sigma)$
$A_{100}^{\text{PS}}$	250	$259^{+70}_{-70}$ $(-0.2\sigma)$	$10^9 A_s e^{-2\tau}$	1.8866	$1.886^{+0.036}_{-0.036}$ $(-0.4\sigma)$	$H(2.33)$	236.73	$236.9^{+2.7}_{-2.8}$ $(-0.3\sigma)$
$A_{143}^{\text{PS}}$	49.1	$46^{+20}_{-20}$ $(-0.4\sigma)$	$D_{40}$	1230.5	$1231^{+38}_{-35}$ $(+0.6\sigma)$	$D_M(2.33)$	5764.4	$5766^{+32}_{-34}$ $(-0.8\sigma)$
$A_{143 \times 217}^{\text{PS}}$	50.0	$42^{+20}_{-20}$ $(-0.1\sigma)$	$D_{220}$	5737	$5733^{+96}_{-98}$ $(+0.3\sigma)$	$f\sigma_8(0.15)$	0.4613	$0.463^{+0.026}_{-0.026}$ $(-0.4\sigma)$
$A_{217}^{\text{PS}}$	120.7	$115^{+30}_{-30}$ $(+0.1\sigma)$	$D_{810}$	2542.8	$2540^{+34}_{-34}$ $(+0.1\sigma)$	$\sigma_8(0.15)$	0.7501	$0.750^{+0.018}_{-0.018}$ $(+0.1\sigma)$
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	818.5	$817^{+12}_{-13}$ $(+0.6\sigma)$	$f\sigma_8(0.38)$	0.4785	$0.479^{+0.020}_{-0.020}$ $(-0.3\sigma)$
$A_{100}^{\text{dustTT}}$	8.78	$8.9^{+4.7}_{-4.8}$ $(-0.0\sigma)$	$D_{2000}$	231.29	$230.8^{+4.1}_{-4.3}$ $(+0.8\sigma)$	$\sigma_8(0.38)$	0.6644	$0.664^{+0.015}_{-0.015}$ $(+0.3\sigma)$
$A_{143}^{\text{dustTT}}$	11.01	$10.9^{+4.7}_{-4.6}$ $(+0.1\sigma)$	$n_{\text{s},0.002}$	0.9649	$0.964^{+0.017}_{-0.016}$ $(+0.8\sigma)$	$f\sigma_8(0.51)$	0.4765	$0.477^{+0.017}_{-0.018}$ $(-0.2\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	20.0	$18.6^{+8.5}_{-8.5}$ $(+0.1\sigma)$	$Y_{\text{P}}$	0.245400	$0.24539^{+0.00014}_{-0.00017}$ $(+0.7\sigma)$	$\sigma_8(0.51)$	0.6215	$0.621^{+0.013}_{-0.014}$ $(+0.3\sigma)$
$A_{217}^{\text{dustTT}}$	95.3	$94^{+20}_{-20}$ $(+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	0.246726	$0.24672^{+0.00014}_{-0.00017}$ $(+0.7\sigma)$	$f\sigma_8(0.61)$	0.4711	$0.472^{+0.015}_{-0.016}$ $(-0.2\sigma)$
$A_{100}^{\text{dustTE}}$	0.114	$0.115^{+0.10}_{-0.096}$	$10^5 \text{D/H}$	2.583	$2.588^{+0.075}_{-0.068}$ $(-0.7\sigma)$	$\sigma_8(0.61)$	0.5912	$0.591^{+0.013}_{-0.013}$ $(+0.4\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	0.136	$0.135^{+0.076}_{-0.076}$	Age/Gyr	13.799	$13.803^{+0.071}_{-0.073}$ $(-0.8\sigma)$	$f\sigma_8(2.33)$	0.2979	$0.2977^{+0.0065}_{-0.0066}$ $(+0.5\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.21}$	$z_*$	1089.93	$1089.98^{+0.78}_{-0.74}$ $(-0.7\sigma)$	$\sigma_8(2.33)$	0.3069	$0.3067^{+0.0070}_{-0.0071}$ $(+0.6\sigma)$
$A_{143}^{\text{dustTE}}$	0.226	$0.23^{+0.14}_{-0.14}$	$r_*$	144.36	$144.3^{+1.1}_{-1.0}$ $(+0.2\sigma)$	$f_{2000}^{143}$	28.9	$30^{+7}_{-7}$ $(-0.6\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	0.666	$0.67^{+0.21}_{-0.20}$	$100\theta_*$	1.04105	$1.0410^{+0.0012}_{-0.0011}$ $(+0.6\sigma)$	$f_{2000}^{143 \times 217}$	32.11	$32^{+5}_{-5}$ $(-0.7\sigma)$
$A_{217}^{\text{dustTE}}$	2.08	$2.09^{+0.70}_{-0.69}$	$D_M(z_*)/\text{Gpc}$	13.867	$13.863^{+0.096}_{-0.093}$ $(+0.1\sigma)$	$f_{2000}^{217}$	106.71	$107.1^{+4.7}_{-4.5}$ $(-0.6\sigma)$
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ $(+0.1\sigma)$	$z_{\text{drag}}$	1059.97	$1059.95^{+0.79}_{-0.81}$ $(+0.7\sigma)$	$\chi_{\text{simall}}^2$	396.06	$397.1 (\nu: 1.8)$ $(+0.0\sigma)$
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ $(-0.1\sigma)$	$r_{\text{drag}}$	147.01	$147.0^{+1.1}_{-1.0}$ $(+0.1\sigma)$	$\chi_{\text{lowl}}^2$	23.22	$23.4 (\nu: 1.3)$ $(+0.6\sigma)$
$H_0$	67.26	$67.1^{+2.1}_{-2.0}$ $(+0.6\sigma)$	$k_{\text{D}}$	0.14096	$0.1410^{+0.0011}_{-0.0012}$ $(+0.1\sigma)$	$\chi_{\text{plik}}^2$	2344.8	$2361.5 (\nu: 18.7)$ $(+271.7\sigma)$
$\Omega_\Lambda$	0.6833	$0.682^{+0.028}_{-0.029}$ $(+0.5\sigma)$	$100\theta_{\text{D}}$	0.16073	$0.16074^{+0.00052}_{-0.00051}$ $(-0.5\sigma)$	$\chi_{\text{prior}}^2$	1.7	$11.5 (\nu: 10.3)$ $(+1.1\sigma)$
$\Omega_{\text{m}}$	0.3167	$0.318^{+0.029}_{-0.028}$ $(-0.5\sigma)$	$z_{\text{eq}}$	3408	$3414^{+100}_{-110}$ $(-0.4\sigma)$	$\chi_{\text{CMB}}^2$	2764.1	$2782.1 (\nu: 18.2)$ $(+275.2\sigma)$

Best-fit  $\chi_{\text{eff}}^2 = 2765.78$ ;  $\Delta\chi_{\text{eff}}^2 = 1586.63$ ;  $\bar{\chi}_{\text{eff}}^2 = 2793.61$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1593.05$ ;  $R - 1 = 0.01294$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.06 ( $\Delta$  0.17) commander\_dx12\_v3.2.29: 23.22 ( $\Delta$  1.04) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.78



## 5.10 base\_alpha1\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022431	$0.02240^{+0.00035}_{-0.00037}$ (+0.5 $\sigma$ )	$\sigma_8$	0.8109	$0.810^{+0.020}_{-0.019}$ (+0.4 $\sigma$ )	$D_M(0.15)$	640.0	$640^{+11}_{-11}$ (−0.3 $\sigma$ )
$\Omega_c h^2$	0.11917	$0.1191^{+0.0030}_{-0.0029}$ (+0.0 $\sigma$ )	$S_8$	0.8242	$0.823^{+0.036}_{-0.034}$ (+0.1 $\sigma$ )	$H(0.38)$	83.11	$83.10^{+0.82}_{-0.78}$ (+0.4 $\sigma$ )
$100\theta_{MC}$	1.04107	$1.04109^{+0.00093}_{-0.0010}$ (+0.5 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4515	$0.451^{+0.020}_{-0.019}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1526.8	$1527^{+22}_{-22}$ (−0.3 $\sigma$ )
$\tau$	0.0561	$0.055^{+0.021}_{-0.020}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6051	$0.604^{+0.019}_{-0.019}$ (+0.2 $\sigma$ )	$H(0.51)$	89.81	$89.81^{+0.65}_{-0.62}$ (+0.5 $\sigma$ )
$\alpha_{-1}$	0.00002	$0.0002^{+0.0016}_{-0.0014}$ (+0.6 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9852	$0.984^{+0.028}_{-0.027}$ (+0.2 $\sigma$ )	$D_M(0.51)$	1978.1	$1978^{+26}_{-26}$ (−0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0466	$3.044^{+0.044}_{-0.044}$ (+0.0 $\sigma$ )	$r_{drag} h$	99.75	$99.8^{+2.3}_{-2.3}$ (+0.1 $\sigma$ )	$H(0.61)$	95.42	$95.41^{+0.54}_{-0.50}$ (+0.6 $\sigma$ )
$n_s$	0.9693	$0.968^{+0.013}_{-0.013}$ (+0.7 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.433	$2.433^{+0.068}_{-0.064}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2302.0	$2302^{+28}_{-28}$ (−0.4 $\sigma$ )
$y_{cal}$	1.0008	$1.0007^{+0.0063}_{-0.0061}$ (+0.1 $\sigma$ )	$z_{re}$	7.83	$7.8^{+2.1}_{-2.1}$ (+0.0 $\sigma$ )	$H(2.33)$	236.09	$236.0^{+1.9}_{-1.8}$ (+0.2 $\sigma$ )
$A_{217}^{CIB}$	45.1	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.104	$2.100^{+0.093}_{-0.090}$ (−0.0 $\sigma$ )	$D_M(2.33)$	5757.2	$5758^{+24}_{-24}$ (−0.6 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.76	—	$10^9 A_s e^{-2\tau}$	1.8811	$1.879^{+0.030}_{-0.029}$ (−0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4562	$0.455^{+0.018}_{-0.018}$ (+0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.05	$> 0.847$ (+0.3 $\sigma$ )	$D_{40}$	1227.3	$1230^{+40}_{-34}$ (+0.7 $\sigma$ )	$\sigma_8(0.15)$	0.7495	$0.748^{+0.017}_{-0.017}$ (+0.4 $\sigma$ )
$A_{100}^{PS}$	246	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5735	$5734^{+98}_{-97}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4749	$0.474^{+0.016}_{-0.015}$ (+0.2 $\sigma$ )
$A_{143}^{PS}$	51.3	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2542.5	$2539^{+34}_{-33}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6645	$0.664^{+0.015}_{-0.014}$ (+0.5 $\sigma$ )
$A_{143 \times 217}^{PS}$	55.4	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	819.9	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4737	$0.473^{+0.014}_{-0.014}$ (+0.3 $\sigma$ )
$A_{217}^{PS}$	122.9	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.90	$231.2^{+4.0}_{-4.1}$ (+0.8 $\sigma$ )	$\sigma_8(0.51)$	0.6220	$0.621^{+0.014}_{-0.013}$ (+0.5 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9693	$0.968^{+0.013}_{-0.013}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4688	$0.468^{+0.013}_{-0.013}$ (+0.3 $\sigma$ )
$A_{100}^{dustTT}$	8.87	$9.0^{+4.7}_{-4.6}$ (+0.0 $\sigma$ )	$Y_P$	0.245419	$0.24541^{+0.00013}_{-0.00015}$ (+0.5 $\sigma$ )	$\sigma_8(0.61)$	0.5919	$0.591^{+0.013}_{-0.012}$ (+0.5 $\sigma$ )
$A_{143}^{dustTT}$	11.03	$10.9^{+4.7}_{-4.5}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246746	$0.24673^{+0.00013}_{-0.00015}$ (+0.5 $\sigma$ )	$f\sigma_8(2.33)$	0.2985	$0.2980^{+0.0064}_{-0.0064}$ (+0.5 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.2	$18.7^{+8.6}_{-8.5}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.574	$2.580^{+0.071}_{-0.063}$ (−0.5 $\sigma$ )	$\sigma_8(2.33)$	0.3078	$0.3074^{+0.0068}_{-0.0065}$ (+0.5 $\sigma$ )
$A_{217}^{dustTT}$	95.8	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.783	$13.785^{+0.053}_{-0.054}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	28.1	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.115^{+0.094}_{-0.10}$	$z_*$	1089.77	$1089.80^{+0.59}_{-0.56}$ (−0.5 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.63	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.136^{+0.075}_{-0.076}$	$r_*$	144.60	$144.64^{+0.72}_{-0.75}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	106.17	$106.9^{+4.7}_{-4.5}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.481	$0.48^{+0.21}_{-0.21}$	$100\theta_*$	1.04125	$1.04127^{+0.00093}_{-0.0010}$ (+0.4 $\sigma$ )	$\chi_{small}^2$	396.4	$397.2$ ( $\nu$ : 2.1) (+0.0 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.23^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.887	$13.890^{+0.067}_{-0.067}$ (−0.4 $\sigma$ )	$\chi_{lowl}^2$	23.20	$23.8$ ( $\nu$ : 1.4) (+0.6 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.664	$0.67^{+0.20}_{-0.19}$	$z_{drag}$	1060.01	$1059.95^{+0.82}_{-0.82}$ (+0.6 $\sigma$ )	$\chi_{plik}^2$	2345.2	$2360.9$ ( $\nu$ : 17.8) (+272.0 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.66}_{-0.72}$	$r_{drag}$	147.24	$147.29^{+0.77}_{-0.79}$ (−0.4 $\sigma$ )	$\chi_{6DF}^2$	0.023	$0.056$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$c_{100}$	0.99974	$0.9996^{+0.0016}_{-0.0016}$ (+0.0 $\sigma$ )	$k_D$	0.14075	$0.14068^{+0.00096}_{-0.00093}$ (+0.5 $\sigma$ )	$\chi_{MGS}^2$	1.28	$1.36$ ( $\nu$ : 0.1) (+0.1 $\sigma$ )
$c_{217}$	0.99815	$0.9982^{+0.0016}_{-0.0016}$ (−0.2 $\sigma$ )	$100\theta_D$	0.16072	$0.16077^{+0.00053}_{-0.00051}$ (−0.4 $\sigma$ )	$\chi_{DR12BAO}^2$	4.25	$4.8$ ( $\nu$ : 1.3) (−0.1 $\sigma$ )
$H_0$	67.75	$67.8^{+1.3}_{-1.3}$ (+0.3 $\sigma$ )	$z_{eq}$	3384	$3382^{+70}_{-68}$ (+0.1 $\sigma$ )	$\chi_{prior}^2$	1.6	$11.7$ ( $\nu$ : 9.8) (+1.2 $\sigma$ )
$\Omega_\Lambda$	0.6901	$0.690^{+0.017}_{-0.018}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010328	$0.01032^{+0.00021}_{-0.00021}$ (+0.1 $\sigma$ )	$\chi_{BAO}^2$	5.55	$6.2$ ( $\nu$ : 0.8) (−0.1 $\sigma$ )
$\Omega_m$	0.3099	$0.310^{+0.018}_{-0.017}$ (−0.1 $\sigma$ )	$100\theta_{eq}$	0.8169	$0.817^{+0.013}_{-0.013}$ (−0.0 $\sigma$ )	$\chi_{CMB}^2$	2764.7	$2781.9$ ( $\nu$ : 17.5) (+278.5 $\sigma$ )
$\Omega_m h^2$	0.14224	$0.1422^{+0.0029}_{-0.0028}$ (+0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4512	$0.4514^{+0.0067}_{-0.0066}$ (−0.1 $\sigma$ )			
$\Omega_m h^3$	0.09637	$0.09631^{+0.00077}_{-0.00078}$ (+0.7 $\sigma$ )	$H(0.15)$	73.01	$73.0^{+1.1}_{-1.1}$ (+0.3 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 2771.88$ ;  $\Delta\chi_{eff}^2 = 1586.19$ ;  $\bar{\chi}_{eff}^2 = 2799.77$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.53$ ;  $R - 1 = 0.02417$

$\chi_{eff}^2$ : BAO - 6DF: 0.02 ( $\Delta$  0.00) MGS: 1.28 ( $\Delta$  0.00) DR12BAO: 4.25 ( $\Delta$  0.04) CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 396.37 ( $\Delta$  0.31) commander\_dx12\_v3\_2\_29: 23.20 ( $\Delta$  0.94) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.16



### 5.11 base\_alpha1\_plikHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022410	$0.02238^{+0.00037}_{-0.00038}$ (+0.7 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09641	$0.09633^{+0.00075}_{-0.00075}$ (+0.7 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4491	$0.4491^{+0.0089}_{-0.0083}$ (+0.3 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.12008	$0.1201^{+0.0038}_{-0.0039}$ (−0.3 $\sigma$ )	$\sigma_8$	0.8115	$0.811^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )	$H(0.15)$	72.68	$72.6^{+1.5}_{-1.4}$ (+0.6 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04090	$1.0409^{+0.0011}_{-0.0010}$ (+0.6 $\sigma$ )	$S_8$	0.8322	$0.833^{+0.038}_{-0.037}$ (−0.3 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	643.4	$644^{+15}_{-15}$ (−0.6 $\sigma$ )
$\tau$	0.0543	$0.054^{+0.021}_{-0.020}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4558	$0.456^{+0.021}_{-0.021}$ (−0.3 $\sigma$ )	$H(0.38)$	82.87	$82.8^{+1.1}_{-1.0}$ (+0.6 $\sigma$ )
$\alpha_{-1}$	0.00000	$-0.0001^{+0.0016}_{-0.0016}$ (+0.8 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6082	$0.608^{+0.017}_{-0.018}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1533.4	$1534^{+29}_{-29}$ (−0.6 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0446	$3.045^{+0.038}_{-0.037}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9888	$0.989^{+0.024}_{-0.025}$ (−0.1 $\sigma$ )	$H(0.51)$	89.64	$89.60^{+0.85}_{-0.78}$ (+0.7 $\sigma$ )
$n_{\mathrm{s}}$	0.9657	$0.964^{+0.016}_{-0.014}$ (+0.8 $\sigma$ )	$r_{\mathrm{drag}}h$	99.03	$99.0^{+3.1}_{-3.0}$ (+0.5 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1985.8	$1987^{+34}_{-35}$ (−0.6 $\sigma$ )
$y_{\mathrm{cal}}$	1.0002	$1.0006^{+0.0062}_{-0.0063}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.444	$2.447^{+0.060}_{-0.061}$ (−0.2 $\sigma$ )	$H(0.61)$	95.29	$95.26^{+0.67}_{-0.61}$ (+0.8 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	46.1	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$z_{\mathrm{re}}$	7.68	$7.7^{+2.0}_{-2.1}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2310.2	$2312^{+37}_{-37}$ (−0.6 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.60	—	$10^9 A_{\mathrm{s}}$	2.100	$2.101^{+0.081}_{-0.076}$ (−0.0 $\sigma$ )	$H(2.33)$	236.65	$236.6^{+2.3}_{-2.4}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.1	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8840	$1.884^{+0.030}_{-0.031}$ (−0.3 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5762.3	$5764^{+29}_{-30}$ (−0.8 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	248	$259^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{40}$	1228.1	$1230^{+39}_{-34}$ (+0.7 $\sigma$ )	$f\sigma_8(0.15)$	0.4601	$0.460^{+0.019}_{-0.019}$ (−0.3 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	49.7	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{220}$	5732	$5734^{+98}_{-98}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7495	$0.749^{+0.014}_{-0.014}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	51.7	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2540.6	$2540^{+33}_{-33}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4776	$0.478^{+0.014}_{-0.015}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	121.3	$115^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{1420}$	818.2	$817^{+12}_{-13}$ (+0.6 $\sigma$ )	$\sigma_8(0.38)$	0.6639	$0.664^{+0.013}_{-0.012}$ (+0.4 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	231.28	$230.8^{+4.1}_{-4.5}$ (+0.8 $\sigma$ )	$f\sigma_8(0.51)$	0.4757	$0.476^{+0.012}_{-0.013}$ (−0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.79	$8.9^{+4.8}_{-4.6}$ (−0.0 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9657	$0.964^{+0.016}_{-0.014}$ (+0.8 $\sigma$ )	$\sigma_8(0.51)$	0.6211	$0.621^{+0.012}_{-0.012}$ (+0.5 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.00	$10.9^{+4.8}_{-4.6}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.245411	$0.24540^{+0.00014}_{-0.00016}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4704	$0.470^{+0.011}_{-0.011}$ (−0.0 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.1	$18.7^{+8.3}_{-8.6}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246738	$0.24672^{+0.00014}_{-0.00016}$ (+0.7 $\sigma$ )	$\sigma_8(0.61)$	0.5909	$0.591^{+0.012}_{-0.012}$ (+0.5 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.5	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$10^5 \mathrm{D}/\mathrm{H}$	2.578	$2.585^{+0.073}_{-0.066}$ (−0.7 $\sigma$ )	$f\sigma_8(2.33)$	0.2978	$0.2976^{+0.0063}_{-0.0062}$ (+0.5 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.116^{+0.094}_{-0.095}$	Age/Gyr	13.794	$13.799^{+0.066}_{-0.065}$ (−0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3068	$0.3066^{+0.0070}_{-0.0070}$ (+0.6 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.135	$0.136^{+0.078}_{-0.075}$	$z_*$	1089.88	$1089.92^{+0.67}_{-0.66}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	28.6	$30^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.482	$0.48^{+0.23}_{-0.22}$	$r_*$	144.38	$144.40^{+0.92}_{-0.89}$ (+0.1 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.86	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.226	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	1.04109	$1.0411^{+0.0011}_{-0.0010}$ (+0.6 $\sigma$ )	$f_{2000}^{217}$	106.36	$107.0^{+4.7}_{-4.5}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.667	$0.67^{+0.21}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.868	$13.870^{+0.083}_{-0.078}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	8.84	$9.35 (\nu: 0.3)$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.08	$2.08^{+0.67}_{-0.72}$	$z_{\mathrm{drag}}$	1060.05	$1059.96^{+0.81}_{-0.83}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.04	$397.0 (\nu: 1.6)$ (+0.1 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0015}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}$	147.03	$147.06^{+0.95}_{-0.92}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.15	$23.4 (\nu: 1.4)$ (+0.6 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0017}$ (−0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.14097	$0.1409^{+0.0010}_{-0.0011}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2345.1	$2361.2 (\nu: 18.1)$ (+280.1 $\sigma$ )
$H_0$	67.35	$67.3^{+1.7}_{-1.7}$ (+0.6 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16070	$0.16074^{+0.00053}_{-0.00050}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.6	$11.6 (\nu: 10.0)$ (+1.2 $\sigma$ )
$\Omega_{\Lambda}$	0.6845	$0.684^{+0.024}_{-0.025}$ (+0.5 $\sigma$ )	$z_{\mathrm{eq}}$	3405	$3405^{+87}_{-89}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2773.1	$2791.0 (\nu: 18.5)$ (+277.8 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3155	$0.316^{+0.025}_{-0.024}$ (−0.5 $\sigma$ )	$k_{\mathrm{eq}}$	0.010393	$0.01039^{+0.00027}_{-0.00027}$ (−0.2 $\sigma$ )			
$\Omega_{\mathrm{m}}h^2$	0.14314	$0.1431^{+0.0036}_{-0.0037}$ (−0.2 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8129	$0.813^{+0.017}_{-0.016}$ (+0.3 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2774.65$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1586.48$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2802.58$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1593.04$ ;  $R - 1 = 0.01462$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12.Dec5\_ftl\_mv2\_ndclpp-p.teb.consext8: 8.84 ( $\Delta$  -0.10) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.04 ( $\Delta$  0.15) commander\_dx12.v3.2.29: 23.15 ( $\Delta$  0.80) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.06



## 5.12 base\_alpha1\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022420	$0.02241^{+0.00035}_{-0.00038}$ (+0.5 $\sigma$ )	$\sigma_8$	0.8109	$0.810^{+0.015}_{-0.015}$ (+0.4 $\sigma$ )	$D_M(0.15)$	640.5	$640^{+10}_{-9.9}$ (−0.4 $\sigma$ )
$\Omega_c h^2$	0.11927	$0.1192^{+0.0027}_{-0.0026}$ (−0.0 $\sigma$ )	$S_8$	0.8252	$0.824^{+0.029}_{-0.029}$ (+0.0 $\sigma$ )	$H(0.38)$	83.07	$83.09^{+0.75}_{-0.73}$ (+0.5 $\sigma$ )
$100\theta_{MC}$	1.04102	$1.04107^{+0.00094}_{-0.0010}$ (+0.5 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4520	$0.451^{+0.016}_{-0.016}$ (+0.0 $\sigma$ )	$D_M(0.38)$	1527.9	$1527^{+20}_{-20}$ (−0.4 $\sigma$ )
$\tau$	0.0560	$0.056^{+0.020}_{-0.018}$ (−0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6054	$0.605^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )	$H(0.51)$	89.78	$89.80^{+0.61}_{-0.58}$ (+0.5 $\sigma$ )
$\alpha_{-1}$	0.00001	$0.0001^{+0.0016}_{-0.0014}$ (+0.6 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9857	$0.985^{+0.022}_{-0.022}$ (+0.2 $\sigma$ )	$D_M(0.51)$	1979.3	$1979^{+24}_{-24}$ (−0.4 $\sigma$ )
$\ln(10^{10} A_s)$	3.0467	$3.046^{+0.038}_{-0.036}$ (−0.1 $\sigma$ )	$r_{drag} h$	99.66	$99.7^{+2.1}_{-2.1}$ (+0.2 $\sigma$ )	$H(0.61)$	95.397	$95.41^{+0.50}_{-0.48}$ (+0.6 $\sigma$ )
$n_s$	0.9684	$0.968^{+0.012}_{-0.013}$ (+0.7 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.436	$2.436^{+0.054}_{-0.053}$ (+0.0 $\sigma$ )	$D_M(0.61)$	2303.3	$2303^{+25}_{-25}$ (−0.4 $\sigma$ )
$y_{cal}$	1.0009	$1.0008^{+0.0062}_{-0.0062}$ (+0.0 $\sigma$ )	$z_{re}$	7.83	$7.8^{+1.9}_{-1.9}$ (−0.1 $\sigma$ )	$H(2.33)$	236.14	$236.1^{+1.7}_{-1.7}$ (+0.2 $\sigma$ )
$A_{217}^{CIB}$	46.4	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.104	$2.104^{+0.081}_{-0.074}$ (−0.1 $\sigma$ )	$D_M(2.33)$	5758.5	$5758^{+23}_{-23}$ (−0.7 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.54	—	$10^9 A_s e^{-2\tau}$	1.8815	$1.880^{+0.028}_{-0.028}$ (−0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4567	$0.456^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.12	$5.5^{+4.4}_{-4.7}$ (+0.3 $\sigma$ )	$D_{40}$	1228.3	$1231^{+40}_{-34}$ (+0.7 $\sigma$ )	$\sigma_8(0.15)$	0.7494	$0.749^{+0.014}_{-0.014}$ (+0.4 $\sigma$ )
$A_{100}^{PS}$	249	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5736	$5737^{+97}_{-95}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4752	$0.475^{+0.012}_{-0.012}$ (+0.1 $\sigma$ )
$A_{143}^{PS}$	48.6	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2542.0	$2539^{+34}_{-32}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6644	$0.664^{+0.012}_{-0.012}$ (+0.4 $\sigma$ )
$A_{143 \times 217}^{PS}$	49.9	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	819.4	$818^{+13}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4739	$0.473^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )
$A_{217}^{PS}$	120.7	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.68	$231.2^{+4.0}_{-4.1}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6218	$0.622^{+0.012}_{-0.012}$ (+0.4 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9684	$0.968^{+0.012}_{-0.013}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4690	$0.469^{+0.010}_{-0.010}$ (+0.2 $\sigma$ )
$A_{100}^{dustTT}$	8.92	$8.9^{+4.7}_{-4.6}$ (+0.0 $\sigma$ )	$Y_P$	0.245415	$0.24541^{+0.00013}_{-0.00016}$ (+0.5 $\sigma$ )	$\sigma_8(0.61)$	0.5917	$0.591^{+0.011}_{-0.011}$ (+0.5 $\sigma$ )
$A_{143}^{dustTT}$	11.07	$10.9^{+4.8}_{-4.5}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246742	$0.24673^{+0.00013}_{-0.00016}$ (+0.5 $\sigma$ )	$f\sigma_8(2.33)$	0.2984	$0.2983^{+0.0059}_{-0.0058}$ (+0.5 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.0	$18.7^{+8.3}_{-8.4}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.576	$2.579^{+0.071}_{-0.062}$ (−0.5 $\sigma$ )	$\sigma_8(2.33)$	0.3076	$0.3076^{+0.0064}_{-0.0062}$ (+0.5 $\sigma$ )
$A_{217}^{dustTT}$	95.4	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.786	$13.786^{+0.051}_{-0.053}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	28.5	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.115^{+0.094}_{-0.10}$	$z_*$	1089.79	$1089.80^{+0.57}_{-0.56}$ (−0.5 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.78	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.136^{+0.075}_{-0.076}$	$r_*$	144.58	$144.62^{+0.69}_{-0.68}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	106.43	$106.9^{+4.7}_{-4.5}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	1.04120	$1.04125^{+0.00094}_{-0.0010}$ (+0.4 $\sigma$ )	$\chi^2_{lensing}$	8.74	$9.14$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.23^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.886	$13.889^{+0.065}_{-0.062}$ (−0.4 $\sigma$ )	$\chi^2_{small}$	396.38	$397.3$ ( $\nu$ : 2.0) (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.667	$0.67^{+0.20}_{-0.19}$	$z_{drag}$	1060.01	$1059.96^{+0.81}_{-0.83}$ (+0.5 $\sigma$ )	$\chi^2_{lowl}$	23.24	$23.8$ ( $\nu$ : 1.5) (+0.6 $\sigma$ )
$A_{217}^{dustTE}$	2.09	$2.08^{+0.67}_{-0.72}$	$r_{drag}$	147.23	$147.27^{+0.73}_{-0.73}$ (−0.3 $\sigma$ )	$\chi^2_{plik}$	2344.9	$2360.6$ ( $\nu$ : 17.6) (+279.8 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ (+0.0 $\sigma$ )	$k_D$	0.14076	$0.14071^{+0.00091}_{-0.00092}$ (+0.4 $\sigma$ )	$\chi^2_{6DF}$	0.029	$0.053$ ( $\nu$ : 0.0) (−0.2 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.16073	$0.16076^{+0.00055}_{-0.00051}$ (−0.4 $\sigma$ )	$\chi^2_{MGS}$	1.22	$1.33$ ( $\nu$ : 0.1) (+0.2 $\sigma$ )
$H_0$	67.69	$67.7^{+1.2}_{-1.2}$ (+0.4 $\sigma$ )	$z_{eq}$	3386	$3383^{+63}_{-61}$ (+0.1 $\sigma$ )	$\chi^2_{DR12BAO}$	4.41	$4.7$ ( $\nu$ : 1.1) (−0.2 $\sigma$ )
$\Omega_\Lambda$	0.6893	$0.690^{+0.016}_{-0.017}$ (+0.2 $\sigma$ )	$k_{eq}$	0.010334	$0.01033^{+0.00019}_{-0.00019}$ (+0.1 $\sigma$ )	$\chi^2_{prior}$	1.7	$11.6$ ( $\nu$ : 9.7) (+1.2 $\sigma$ )
$\Omega_m$	0.3107	$0.310^{+0.017}_{-0.016}$ (−0.2 $\sigma$ )	$100\theta_{eq}$	0.8164	$0.817^{+0.012}_{-0.012}$ (+0.0 $\sigma$ )	$\chi^2_{CMB}$	2773.3	$2790.9$ ( $\nu$ : 17.9) (+280.3 $\sigma$ )
$\Omega_m h^2$	0.14233	$0.1422^{+0.0026}_{-0.0025}$ (+0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4510	$0.4513^{+0.0061}_{-0.0060}$ (−0.0 $\sigma$ )	$\chi^2_{BAO}$	5.66	$6.1$ ( $\nu$ : 0.7) (−0.2 $\sigma$ )
$\Omega_m h^3$	0.09634	$0.09632^{+0.00075}_{-0.00078}$ (+0.7 $\sigma$ )	$H(0.15)$	72.96	$73.0^{+1.0}_{-1.0}$ (+0.4 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 2780.63$ ;  $\Delta\chi^2_{eff} = 1586.07$ ;  $\bar{\chi}^2_{eff} = 2808.59$ ;  $\Delta\bar{\chi}^2_{eff} = 1592.50$ ;  $R - 1 = 0.02748$

$\chi^2_{eff}$ : BAO - 6DF: 0.03 ( $\Delta$  0.00) MGS: 1.22 ( $\Delta$  0.00) DR12BAO: 4.41 ( $\Delta$  0.02) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.74 ( $\Delta$  -0.04) small\_100x143\_offlike5\_EE\_Aplanck: 396.38 ( $\Delta$  -0.05) commander\_dx12\_v3.2\_29: 23.24 ( $\Delta$  0.93) plik\_rd12\_HM\_v22b.TTTEEE: 2344.91



### 5.13 base\_alpha1\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022493	$0.02247^{+0.00034}_{-0.00037}$	$\Omega_m h^3$	0.09640	$0.09633^{+0.00075}_{-0.00078}$	$100\theta_{s,eq}$	0.4533	$0.4543^{+0.0089}_{-0.0096}$
$\Omega_c h^2$	0.11824	$0.1178^{+0.0043}_{-0.0039}$	$\sigma_8$	0.8078	$0.807^{+0.020}_{-0.020}$	$H(0.15)$	73.39	$73.5^{+1.5}_{-1.6}$
$100\theta_{MC}$	1.04124	$1.0413^{+0.0011}_{-0.0012}$	$S_8$	0.8133	$0.809^{+0.048}_{-0.050}$	$D_M(0.15)$	636.4	$635^{+16}_{-14}$
$\tau$	0.0564	$0.057^{+0.026}_{-0.021}$	$\sigma_8 \Omega_m^{0.5}$	0.4455	$0.443^{+0.026}_{-0.027}$	$H(0.38)$	83.38	$83.5^{+1.1}_{-1.1}$
$\alpha_{-1}$	0.00006	$0.0004^{+0.0020}_{-0.0016}$	$\sigma_8 \Omega_m^{0.25}$	0.5999	$0.598^{+0.024}_{-0.026}$	$D_M(0.38)$	1519.5	$1517^{+32}_{-28}$
$\ln(10^{10} A_s)$	3.0446	$3.043^{+0.048}_{-0.044}$	$\sigma_8/h^{0.5}$	0.9783	$0.976^{+0.033}_{-0.036}$	$H(0.51)$	90.02	$90.10^{+0.82}_{-0.88}$
$n_s$	0.9714	$0.972^{+0.014}_{-0.016}$	$r_{drag} h$	100.51	$100.9^{+3.1}_{-3.4}$	$D_M(0.51)$	1969.5	$1966^{+37}_{-33}$
$y_{cal}$	1.0008	$1.0007^{+0.0064}_{-0.0060}$	$\langle d^2 \rangle^{1/2}$	2.418	$2.414^{+0.083}_{-0.085}$	$H(0.61)$	95.59	$95.64^{+0.64}_{-0.69}$
$A_{217}^{CIB}$	46.3	$47^{+20}_{-20}$	$z_{re}$	7.83	$7.9^{+2.5}_{-2.2}$	$D_M(0.61)$	2292.7	$2289^{+39}_{-36}$
$\xi^{tSZ \times CIB}$	0.59	—	$10^9 A_s$	2.100	$2.10^{+0.10}_{-0.091}$	$H(2.33)$	235.56	$235.3^{+2.6}_{-2.3}$
$A_{143}^{tSZ}$	7.14	$> 0.758$	$10^9 A_s e^{-2\tau}$	1.8763	$1.872^{+0.034}_{-0.033}$	$D_M(2.33)$	5750.1	$5748^{+30}_{-27}$
$A_{100}^{PS}$	248	$255^{+70}_{-70}$	$D_{40}$	1225.4	$1229^{+35}_{-33}$	$f\sigma_8(0.15)$	0.4506	$0.449^{+0.024}_{-0.026}$
$A_{143}^{PS}$	48.5	$44^{+20}_{-20}$	$D_{220}$	5740	$5738^{+95}_{-95}$	$\sigma_8(0.15)$	0.7472	$0.746^{+0.017}_{-0.017}$
$A_{143 \times 217}^{PS}$	50.7	$41^{+20}_{-20}$	$D_{810}$	2540.8	$2537^{+35}_{-30}$	$f\sigma_8(0.38)$	0.4706	$0.469^{+0.020}_{-0.022}$
$A_{217}^{PS}$	120.6	$115^{+20}_{-20}$	$D_{1420}$	820.0	$819^{+12}_{-12}$	$\sigma_8(0.38)$	0.6631	$0.663^{+0.014}_{-0.014}$
$A^{kSZ}$	0.0	—	$D_{2000}$	232.00	$231.6^{+3.8}_{-3.9}$	$f\sigma_8(0.51)$	0.4700	$0.469^{+0.017}_{-0.019}$
$A_{100}^{dustTT}$	8.86	$8.9^{+4.7}_{-4.6}$	$n_{s,0.002}$	0.9714	$0.972^{+0.014}_{-0.016}$	$\sigma_8(0.51)$	0.6209	$0.621^{+0.014}_{-0.013}$
$A_{143}^{dustTT}$	11.05	$11.1^{+4.5}_{-4.4}$	$Y_P$	0.245442	$0.24543^{+0.00011}_{-0.00015}$	$f\sigma_8(0.61)$	0.4657	$0.465^{+0.015}_{-0.017}$
$A_{143 \times 217}^{dustTT}$	20.0	$18.8^{+8.6}_{-8.6}$	$Y_P^{BBN}$	0.246769	$0.24676^{+0.00011}_{-0.00015}$	$\sigma_8(0.61)$	0.5910	$0.591^{+0.014}_{-0.012}$
$A_{217}^{dustTT}$	95.3	$94^{+20}_{-20}$	$10^5 D/H$	2.563	$2.567^{+0.069}_{-0.060}$	$f\sigma_8(2.33)$	0.2983	$0.2983^{+0.0076}_{-0.0065}$
$A_{100}^{dustTE}$	0.113	$0.115^{+0.090}_{-0.10}$	Age/Gyr	13.768	$13.765^{+0.066}_{-0.058}$	$\sigma_8(2.33)$	0.3078	$0.3080^{+0.0076}_{-0.0067}$
$A_{100 \times 143}^{dustTE}$	0.133	$0.134^{+0.074}_{-0.072}$	$z_*$	1089.61	$1089.60^{+0.69}_{-0.60}$	$f_{2000}^{143}$	28.1	$29^{+7}_{-8}$
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.21}_{-0.21}$	$r_*$	144.79	$144.92^{+0.87}_{-1.0}$	$f_{2000}^{143 \times 217}$	31.51	$32^{+5}_{-4}$
$A_{143}^{dustTE}$	0.222	$0.22^{+0.13}_{-0.16}$	$100\theta_*$	1.04141	$1.0415^{+0.0011}_{-0.0012}$	$f_{2000}^{217}$	106.13	$106.6^{+4.7}_{-4.2}$
$A_{143 \times 217}^{dustTE}$	0.663	$0.67^{+0.21}_{-0.19}$	$D_M(z_*)/\text{Gpc}$	13.903	$13.914^{+0.077}_{-0.090}$	$\chi_{small}^2$	396.4	$397.5 (\nu: 3.0)$
$A_{217}^{dustTE}$	2.07	$2.08^{+0.65}_{-0.67}$	$z_{drag}$	1060.09	$1060.02^{+0.75}_{-0.81}$	$\chi_{lowl}^2$	23.14	$23.9 (\nu: 1.2)$
$c_{100}$	0.99972	$0.9996^{+0.0016}_{-0.0016}$	$r_{drag}$	147.42	$147.55^{+0.83}_{-1.1}$	$\chi_{plik}^2$	2346.3	$2362.6 (\nu: 19.9)$
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0015}$	$k_D$	0.14061	$0.1405^{+0.0011}_{-0.00098}$	$\chi_{H073p45}^2$	10.1	$9.6 (\nu: 3.5)$
$H_0$	68.18	$68.4^{+1.7}_{-1.9}$	$100\theta_D$	0.160695	$0.16075^{+0.00048}_{-0.00050}$	$\chi_{prior}^2$	1.7	$11.7 (\nu: 9.6)$
$\Omega_\Lambda$	0.6959	$0.698^{+0.022}_{-0.026}$	$z_{eq}$	3363	$3353^{+99}_{-88}$	$\chi_{CMB}^2$	2765.8	$2784.0 (\nu: 21.2)$
$\Omega_m$	0.3041	$0.302^{+0.026}_{-0.022}$	$k_{eq}$	0.010265	$0.01023^{+0.00030}_{-0.00027}$			
$\Omega_m h^2$	0.14138	$0.1409^{+0.0042}_{-0.0037}$	$100\theta_{eq}$	0.8209	$0.823^{+0.017}_{-0.019}$			

Best-fit  $\chi_{eff}^2 = 2777.60$ ;  $\bar{\chi}_{eff}^2 = 2805.32$ ;  $R - 1 = 0.05553$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.36 commander\_dx12\_v3.2\_29: 23.14 plik\_rd12\_HM\_v22b\_TTTEEE: 2346.34 Hubble - H073p45: 10.07



## 5.14 base\_alpha1\_plikHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02236^{+0.00038}_{-0.00040} \quad (+0.7\sigma)$	$\Omega_{\text{m}}h^2$	$0.1435^{+0.0043}_{-0.0044} \quad (-0.4\sigma)$	$k_{\text{eq}}$	$0.01042^{+0.00032}_{-0.00032} \quad (-0.4\sigma)$
$\Omega_{\text{c}}h^2$	$0.1205^{+0.0045}_{-0.0045} \quad (-0.4\sigma)$	$\Omega_{\text{m}}h^3$	$0.09634^{+0.00075}_{-0.00076} \quad (+0.7\sigma)$	$100\theta_{\text{eq}}$	$0.811^{+0.020}_{-0.019} \quad (+0.4\sigma)$
$100\theta_{\text{MC}}$	$1.0408^{+0.0011}_{-0.0011} \quad (+0.6\sigma)$	$\sigma_8$	$0.813^{+0.020}_{-0.018} \quad (+0.0\sigma)$	$100\theta_{\text{s,eq}}$	$0.448^{+0.010}_{-0.0098} \quad (+0.4\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (+0.1\sigma)$	$S_8$	$0.838^{+0.051}_{-0.049} \quad (-0.4\sigma)$	$H(0.15)$	$72.5^{+1.8}_{-1.7} \quad (+0.6\sigma)$
$\alpha_{-1}$	$-0.0001^{+0.0018}_{-0.0018} \quad (+0.8\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.459^{+0.028}_{-0.027} \quad (-0.4\sigma)$	$D_{\text{M}}(0.15)$	$645^{+17}_{-17} \quad (-0.6\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.048^{+0.042}_{-0.032} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.611^{+0.024}_{-0.024} \quad (-0.3\sigma)$	$H(0.38)$	$82.8^{+1.3}_{-1.2} \quad (+0.7\sigma)$
$n_{\text{s}}$	$0.964^{+0.017}_{-0.016} \quad (+0.8\sigma)$	$\sigma_8/h^{0.5}$	$0.992^{+0.033}_{-0.032} \quad (-0.3\sigma)$	$D_{\text{M}}(0.38)$	$1537^{+34}_{-35} \quad (-0.6\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0062} \quad (+0.0\sigma)$	$r_{\text{drag}}h$	$98.7^{+3.7}_{-3.5} \quad (+0.5\sigma)$	$H(0.51)$	$89.54^{+0.99}_{-0.90} \quad (+0.7\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.455^{+0.084}_{-0.083} \quad (-0.3\sigma)$	$D_{\text{M}}(0.51)$	$1990^{+40}_{-40} \quad (-0.6\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 9.57 \quad (+0.0\sigma)$	$H(0.61)$	$95.22^{+0.78}_{-0.70} \quad (+0.8\sigma)$
$A_{143}^{\text{tSZ}}$	$5.4^{+4.3}_{-4.9} \quad (+0.2\sigma)$	$10^9 A_{\text{s}}$	$2.108^{+0.091}_{-0.066} \quad (-0.1\sigma)$	$D_{\text{M}}(0.61)$	$2315^{+43}_{-43} \quad (-0.6\sigma)$
$A_{100}^{\text{PS}}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.886^{+0.035}_{-0.036} \quad (-0.4\sigma)$	$H(2.33)$	$236.8^{+2.7}_{-2.8} \quad (-0.3\sigma)$
$A_{143}^{\text{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{40}$	$1231^{+38}_{-34} \quad (+0.6\sigma)$	$D_{\text{M}}(2.33)$	$5766^{+32}_{-33} \quad (-0.8\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5733^{+96}_{-98} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.463^{+0.026}_{-0.025} \quad (-0.4\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2540^{+34}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.751^{+0.017}_{-0.015} \quad (+0.1\sigma)$
$A^{\text{kSZ}}$	—	$D_{1420}$	$817^{+12}_{-13} \quad (+0.6\sigma)$	$f\sigma_8(0.38)$	$0.480^{+0.020}_{-0.020} \quad (-0.3\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.8} \quad (-0.0\sigma)$	$D_{2000}$	$230.8^{+4.0}_{-4.2} \quad (+0.8\sigma)$	$\sigma_8(0.38)$	$0.665^{+0.014}_{-0.012} \quad (+0.2\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.5} \quad (+0.1\sigma)$	$n_{\text{s},0.002}$	$0.964^{+0.017}_{-0.016} \quad (+0.8\sigma)$	$f\sigma_8(0.51)$	$0.477^{+0.017}_{-0.017} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.5}_{-8.5} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.24539^{+0.00014}_{-0.00017} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.013}_{-0.011} \quad (+0.3\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24672^{+0.00014}_{-0.00017} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.472^{+0.015}_{-0.015} \quad (-0.2\sigma)$
$A_{100}^{\text{dustTE}}$	$0.115^{+0.10}_{-0.096}$	$10^5 \text{D}/\text{H}$	$2.587^{+0.075}_{-0.068} \quad (-0.7\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.012}_{-0.0099} \quad (+0.4\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.077}_{-0.075}$	$\text{Age}/\text{Gyr}$	$13.803^{+0.072}_{-0.072} \quad (-0.8\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0063}_{-0.0049} \quad (+0.5\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.97^{+0.78}_{-0.73} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.3070^{+0.0068}_{-0.0053} \quad (+0.6\sigma)$
$A_{143}^{\text{dustTE}}$	$0.23^{+0.14}_{-0.14}$	$r_*$	$144.3^{+1.1}_{-1.0} \quad (+0.2\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.67^{+0.21}_{-0.20}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0011} \quad (+0.6\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{217}^{\text{dustTE}}$	$2.09^{+0.70}_{-0.70}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.864^{+0.096}_{-0.093} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$107.0^{+4.7}_{-4.5} \quad (-0.6\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1059.95^{+0.82}_{-0.82} \quad (+0.6\sigma)$	$\chi_{\text{small}}^2$	$397.1 \quad (\nu: 1.9) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\text{drag}}$	$147.0^{+1.1}_{-1.0} \quad (+0.1\sigma)$	$\chi_{\text{lowl}}^2$	$23.4 \quad (\nu: 1.3) \quad (+0.6\sigma)$
$H_0$	$67.2^{+2.0}_{-2.0} \quad (+0.6\sigma)$	$k_{\text{D}}$	$0.1410^{+0.0011}_{-0.0012} \quad (+0.1\sigma)$	$\chi_{\text{plik}}^2$	$2361.4 \quad (\nu: 18.5) \quad (+273.2\sigma)$
$\Omega_{\Lambda}$	$0.682^{+0.028}_{-0.029} \quad (+0.5\sigma)$	$100\theta_{\text{D}}$	$0.16074^{+0.00053}_{-0.00051} \quad (-0.5\sigma)$	$\chi_{\text{prior}}^2$	$11.5 \quad (\nu: 10.2) \quad (+1.1\sigma)$
$\Omega_{\text{m}}$	$0.318^{+0.029}_{-0.028} \quad (-0.5\sigma)$	$z_{\text{eq}}$	$3413^{+100}_{-100} \quad (-0.4\sigma)$	$\chi_{\text{CMB}}^2$	$2781.9 \quad (\nu: 17.9) \quad (+280.0\sigma)$

$\bar{\chi}_{\text{eff}}^2 = 2793.42$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1593.12$ ;  $R - 1 = 0.01296$



### 5.15 base\_alpha1\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00035}_{-0.00038} \quad (+0.5\sigma)$	$\sigma_8$	$0.810^{+0.019}_{-0.015} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+11}_{-11} \quad (-0.3\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0030}_{-0.0029} \quad (+0.0\sigma)$	$S_8$	$0.823^{+0.035}_{-0.033} \quad (+0.1\sigma)$	$H(0.38)$	$83.11^{+0.81}_{-0.78} \quad (+0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04109^{+0.00092}_{-0.0010} \quad (+0.5\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.019}_{-0.018} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1527^{+22}_{-22} \quad (-0.3\sigma)$
$\tau$	$0.056^{+0.020}_{-0.015} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.019}_{-0.017} \quad (+0.2\sigma)$	$H(0.51)$	$89.81^{+0.65}_{-0.62} \quad (+0.5\sigma)$
$\alpha_{-1}$	$0.0001^{+0.0016}_{-0.0014} \quad (+0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.027}_{-0.024} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1978^{+26}_{-26} \quad (-0.3\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.042}_{-0.032} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.8^{+2.3}_{-2.3} \quad (+0.1\sigma)$	$H(0.61)$	$95.42^{+0.53}_{-0.50} \quad (+0.6\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.013}_{-0.013} \quad (+0.7\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.434^{+0.067}_{-0.063} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2302^{+28}_{-28} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0063} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.62 \quad (-0.0\sigma)$	$H(2.33)$	$236.0^{+1.9}_{-1.8} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.090}_{-0.066} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5758^{+24}_{-24} \quad (-0.6\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.030}_{-0.029} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.018}_{-0.017} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 0.835 \quad (+0.3\sigma)$	$D_{40}$	$1230^{+40}_{-34} \quad (+0.7\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.017}_{-0.014} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5734^{+99}_{-98} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.015}_{-0.014} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2539^{+34}_{-33} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.014}_{-0.011} \quad (+0.5\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.014}_{-0.013} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.2^{+4.0}_{-4.1} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.013}_{-0.011} \quad (+0.5\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.968^{+0.013}_{-0.013} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.013}_{-0.011} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00015} \quad (+0.5\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.010} \quad (+0.5\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.7}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00013}_{-0.00015} \quad (+0.5\sigma)$	$f\sigma_8(2.33)$	$0.2983^{+0.0063}_{-0.0050} \quad (+0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.7^{+8.6}_{-8.4} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.580^{+0.071}_{-0.063} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.3076^{+0.0067}_{-0.0052} \quad (+0.5\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.785^{+0.053}_{-0.054} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.094}_{-0.10}$	$z_*$	$1089.80^{+0.59}_{-0.57} \quad (-0.5\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.136^{+0.076}_{-0.075}$	$r_*$	$144.64^{+0.72}_{-0.75} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$106.8^{+4.7}_{-4.5} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.21}$	$100\theta_*$	$1.04127^{+0.00093}_{-0.0010} \quad (+0.4\sigma)$	$\chi_{\mathrm{small}}^2$	$397.2 \quad (\nu: 2.2) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.23^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.890^{+0.067}_{-0.067} \quad (-0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.8 \quad (\nu: 1.4) \quad (+0.6\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.20}_{-0.19}$	$z_{\mathrm{drag}}$	$1059.95^{+0.82}_{-0.82} \quad (+0.5\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.8 \quad (\nu: 17.7) \quad (+274.2\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.66}_{-0.72}$	$r_{\mathrm{drag}}$	$147.29^{+0.76}_{-0.79} \quad (-0.4\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.056 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0017} \quad (+0.0\sigma)$	$k_{\mathrm{D}}$	$0.14068^{+0.00095}_{-0.00094} \quad (+0.5\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.36 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.16077^{+0.00054}_{-0.00051} \quad (-0.4\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 \quad (\nu: 1.2) \quad (-0.1\sigma)$
$H_0$	$67.8^{+1.3}_{-1.3} \quad (+0.3\sigma)$	$z_{\mathrm{eq}}$	$3382^{+70}_{-67} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.7 \quad (\nu: 9.7) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.017}_{-0.018} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01032^{+0.00021}_{-0.00021} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.2 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.013} \quad (-0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2781.8 \quad (\nu: 17.3) \quad (+283.4\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1422^{+0.0029}_{-0.0028} \quad (+0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4514^{+0.0067}_{-0.0066} \quad (-0.1\sigma)$		
$\Omega_{\mathrm{m}}h^3$	$0.09631^{+0.00077}_{-0.00078} \quad (+0.7\sigma)$	$H(0.15)$	$73.0^{+1.1}_{-1.1} \quad (+0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2799.63; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.58; R - 1 = 0.02644$$



# 5.16 base\_alpha1\_plikHM\_TTTEEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02238^{+0.00037}_{-0.00038} \quad (+0.6\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09633^{+0.00074}_{-0.00075} \quad (+0.7\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4493^{+0.0088}_{-0.0080} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1200^{+0.0037}_{-0.0038} \quad (-0.3\sigma)$	$\sigma_8$	$0.812^{+0.015}_{-0.014} \quad (+0.2\sigma)$	$H(0.15)$	$72.7^{+1.5}_{-1.4} \quad (+0.6\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0010} \quad (+0.6\sigma)$	$S_8$	$0.833^{+0.038}_{-0.037} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$644^{+14}_{-14} \quad (-0.6\sigma)$
$\tau$	$0.055^{+0.019}_{-0.014} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.021}_{-0.020} \quad (-0.3\sigma)$	$H(0.38)$	$82.9^{+1.1}_{-0.99} \quad (+0.6\sigma)$
$\alpha_{-1}$	$-0.0001^{+0.0016}_{-0.0017} \quad (+0.8\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.017}_{-0.018} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1534^{+28}_{-29} \quad (-0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.036}_{-0.028} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.024}_{-0.024} \quad (-0.1\sigma)$	$H(0.51)$	$89.62^{+0.84}_{-0.77} \quad (+0.7\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.015}_{-0.014} \quad (+0.8\sigma)$	$r_{\mathrm{drag}}h$	$99.0^{+3.1}_{-2.9} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1986^{+33}_{-34} \quad (-0.6\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0062}_{-0.0063} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.060}_{-0.060} \quad (-0.2\sigma)$	$H(0.61)$	$95.27^{+0.67}_{-0.60} \quad (+0.7\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.48 \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2311^{+35}_{-37} \quad (-0.6\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.104^{+0.078}_{-0.058} \quad (-0.1\sigma)$	$H(2.33)$	$236.6^{+2.2}_{-2.3} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.4}_{-4.7} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.884^{+0.030}_{-0.031} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5764^{+29}_{-29} \quad (-0.8\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1230^{+39}_{-34} \quad (+0.7\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.019}_{-0.019} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5734^{+98}_{-98} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.750^{+0.013}_{-0.012} \quad (+0.3\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2539^{+33}_{-33} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.014}_{-0.015} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.1\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.012}_{-0.010} \quad (+0.5\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$230.9^{+4.1}_{-4.3} \quad (+0.8\sigma)$	$f\sigma_8(0.51)$	$0.476^{+0.012}_{-0.013} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.8} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.965^{+0.015}_{-0.014} \quad (+0.8\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0095} \quad (+0.5\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.9}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24540^{+0.00014}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.471^{+0.011}_{-0.011} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.7^{+8.3}_{-8.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00014}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0091} \quad (+0.5\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.584^{+0.072}_{-0.066} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.2979^{+0.0061}_{-0.0047} \quad (+0.6\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.094}_{-0.096}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.798^{+0.064}_{-0.065} \quad (-0.8\sigma)$	$\sigma_8(2.33)$	$0.3069^{+0.0067}_{-0.0052} \quad (+0.6\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.079}_{-0.075}$	$z_*$	$1089.91^{+0.67}_{-0.65} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.23}_{-0.22}$	$r_*$	$144.41^{+0.92}_{-0.88} \quad (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0010} \quad (+0.6\sigma)$	$f_{2000}^{217}$	$107.0^{+4.6}_{-4.5} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.872^{+0.082}_{-0.077} \quad (-0.0\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.34 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.67}_{-0.72}$	$z_{\mathrm{drag}}$	$1059.96^{+0.81}_{-0.83} \quad (+0.6\sigma)$	$\chi_{\mathrm{small}}^2$	$397.0 \quad (\nu: 1.6) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.07^{+0.94}_{-0.90} \quad (-0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.4 \quad (\nu: 1.4) \quad (+0.7\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.1409^{+0.0010}_{-0.0011} \quad (+0.3\sigma)$	$\chi_{\mathrm{plik}}^2$	$2361.0 \quad (\nu: 17.7) \quad (+280.8\sigma)$
$H_0$	$67.3^{+1.7}_{-1.6} \quad (+0.5\sigma)$	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00053}_{-0.00051} \quad (-0.5\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 9.9) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.684^{+0.023}_{-0.024} \quad (+0.4\sigma)$	$z_{\mathrm{eq}}$	$3403^{+83}_{-88} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2790.8 \quad (\nu: 18.0) \quad (+281.8\sigma)$
$\Omega_{\mathrm{m}}$	$0.316^{+0.024}_{-0.023} \quad (-0.4\sigma)$	$k_{\mathrm{eq}}$	$0.01039^{+0.00025}_{-0.00027} \quad (-0.2\sigma)$		
$\Omega_{\mathrm{m}}h^2$	$0.1431^{+0.0035}_{-0.0037} \quad (-0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.017}_{-0.016} \quad (+0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2802.36; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1593.07; R - 1 = 0.01801$$



### 5.17 base\_alpha1\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02241^{+0.00035}_{-0.00038} \quad (+0.5\sigma)$	$\sigma_8$	$0.811^{+0.015}_{-0.014} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+10}_{-9.9} \quad (-0.4\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1192^{+0.0027}_{-0.0026} \quad (-0.0\sigma)$	$S_8$	$0.824^{+0.029}_{-0.029} \quad (+0.0\sigma)$	$H(0.38)$	$83.10^{+0.75}_{-0.73} \quad (+0.5\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04107^{+0.00094}_{-0.0010} \quad (+0.5\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.016}_{-0.016} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1527^{+20}_{-20} \quad (-0.4\sigma)$
$\tau$	$0.057^{+0.019}_{-0.015} \quad (-0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.015}_{-0.015} \quad (+0.2\sigma)$	$H(0.51)$	$89.80^{+0.61}_{-0.58} \quad (+0.5\sigma)$
$\alpha_{-1}$	$0.0001^{+0.0016}_{-0.0014} \quad (+0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.022}_{-0.021} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1978^{+23}_{-24} \quad (-0.4\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.037}_{-0.029} \quad (-0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.8^{+2.1}_{-2.1} \quad (+0.2\sigma)$	$H(0.61)$	$95.41^{+0.49}_{-0.47} \quad (+0.6\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.012}_{-0.013} \quad (+0.8\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.054}_{-0.051} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2302^{+25}_{-25} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0008^{+0.0063}_{-0.0062} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.59 \quad (-0.1\sigma)$	$H(2.33)$	$236.1^{+1.7}_{-1.7} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.106^{+0.079}_{-0.061} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5758^{+23}_{-23} \quad (-0.7\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.028}_{-0.028} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.015}_{-0.015} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.4}_{-4.7} \quad (+0.3\sigma)$	$D_{40}$	$1231^{+40}_{-34} \quad (+0.7\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.012} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5737^{+98}_{-95} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.012}_{-0.012} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2539^{+34}_{-32} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.012}_{-0.011} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.011}_{-0.011} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.2^{+4.0}_{-4.1} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.012}_{-0.010} \quad (+0.5\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.968^{+0.012}_{-0.013} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.010}_{-0.0096} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.6} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00016} \quad (+0.5\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.011}_{-0.0096} \quad (+0.5\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.8}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00013}_{-0.00016} \quad (+0.5\sigma)$	$f\sigma_8(2.33)$	$0.2984^{+0.0058}_{-0.0049} \quad (+0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.3}_{-8.4} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.579^{+0.072}_{-0.062} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.3077^{+0.0063}_{-0.0052} \quad (+0.5\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.785^{+0.051}_{-0.052} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.094}_{-0.10}$	$z_*$	$1089.80^{+0.56}_{-0.56} \quad (-0.5\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.136^{+0.075}_{-0.076}$	$r_*$	$144.62^{+0.68}_{-0.67} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$106.9^{+4.7}_{-4.5} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.21}$	$100\theta_*$	$1.04125^{+0.00094}_{-0.0010} \quad (+0.5\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.12 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.23^{+0.13}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.889^{+0.064}_{-0.062} \quad (-0.4\sigma)$	$\chi_{\mathrm{small}}^2$	$397.3 \quad (\nu: 2.1) \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.20}_{-0.19}$	$z_{\mathrm{drag}}$	$1059.96^{+0.81}_{-0.87} \quad (+0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.8 \quad (\nu: 1.5) \quad (+0.6\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.66}_{-0.72}$	$r_{\mathrm{drag}}$	$147.27^{+0.73}_{-0.73} \quad (-0.3\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.6 \quad (\nu: 17.5) \quad (+280.3\sigma)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016} \quad (+0.0\sigma)$	$k_{\mathrm{D}}$	$0.14070^{+0.00090}_{-0.00092} \quad (+0.4\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.052 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16076^{+0.00056}_{-0.00051} \quad (-0.4\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.34 \quad (\nu: 0.1) \quad (+0.2\sigma)$
$H_0$	$67.7^{+1.2}_{-1.2} \quad (+0.4\sigma)$	$z_{\mathrm{eq}}$	$3383^{+62}_{-60} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 \quad (\nu: 1.0) \quad (-0.2\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.016}_{-0.017} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01032^{+0.00019}_{-0.00018} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 9.7) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.017}_{-0.016} \quad (-0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.012}_{-0.012} \quad (+0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2790.8 \quad (\nu: 17.9) \quad (+282.2\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1422^{+0.0026}_{-0.0025} \quad (+0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4513^{+0.0060}_{-0.0060} \quad (-0.0\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.1 \quad (\nu: 0.6) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09632^{+0.00073}_{-0.00078} \quad (+0.7\sigma)$	$H(0.15)$	$73.0^{+1.0}_{-1.0} \quad (+0.4\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2808.47; \Delta \bar{\chi}_{\mathrm{eff}}^2 = 1592.51; R - 1 = 0.02935$$



# 5.18 base\_alpha1\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02247^{+0.00034}_{-0.00037}$	$\Omega_{\mathrm{m}}h^3$	$0.09633^{+0.00075}_{-0.00080}$	$100\theta_{\mathrm{s,eq}}$	$0.4543^{+0.0089}_{-0.0096}$
$\Omega_{\mathrm{c}}h^2$	$0.1178^{+0.0042}_{-0.0039}$	$\sigma_8$	$0.807^{+0.019}_{-0.021}$	$H(0.15)$	$73.5^{+1.5}_{-1.6}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0011}_{-0.0012}$	$S_8$	$0.810^{+0.048}_{-0.051}$	$D_{\mathrm{M}}(0.15)$	$635^{+16}_{-14}$
$\tau$	$0.058^{+0.023}_{-0.016}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.026}_{-0.028}$	$H(0.38)$	$83.5^{+1.1}_{-1.1}$
$\alpha_{-1}$	$0.0004^{+0.0020}_{-0.0016}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.598^{+0.023}_{-0.027}$	$D_{\mathrm{M}}(0.38)$	$1517^{+31}_{-28}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.043}_{-0.035}$	$\sigma_8/h^{0.5}$	$0.977^{+0.032}_{-0.037}$	$H(0.51)$	$90.10^{+0.82}_{-0.87}$
$n_{\mathrm{s}}$	$0.972^{+0.013}_{-0.016}$	$r_{\mathrm{drag}}h$	$100.9^{+3.1}_{-3.4}$	$D_{\mathrm{M}}(0.51)$	$1966^{+37}_{-33}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0060}$	$\langle d^2 \rangle^{1/2}$	$2.416^{+0.081}_{-0.087}$	$H(0.61)$	$95.64^{+0.65}_{-0.69}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$z_{\mathrm{re}}$	$< 10.0$	$D_{\mathrm{M}}(0.61)$	$2289^{+39}_{-36}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.101^{+0.091}_{-0.074}$	$H(2.33)$	$235.3^{+2.6}_{-2.3}$
$A_{143}^{\mathrm{tSZ}}$	$> 0.752$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.872^{+0.034}_{-0.033}$	$D_{\mathrm{M}}(2.33)$	$5749^{+30}_{-27}$
$A_{100}^{\mathrm{PS}}$	$255^{+70}_{-70}$	$D_{40}$	$1229^{+35}_{-33}$	$f\sigma_8(0.15)$	$0.449^{+0.024}_{-0.026}$
$A_{143}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$D_{220}$	$5738^{+95}_{-95}$	$\sigma_8(0.15)$	$0.747^{+0.017}_{-0.017}$
$A_{143 \times 217}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2537^{+35}_{-30}$	$f\sigma_8(0.38)$	$0.469^{+0.019}_{-0.022}$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-20}$	$D_{1420}$	$819^{+12}_{-12}$	$\sigma_8(0.38)$	$0.663^{+0.014}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.6^{+3.8}_{-3.9}$	$f\sigma_8(0.51)$	$0.469^{+0.017}_{-0.019}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.6}$	$n_{\mathrm{s},0.002}$	$0.972^{+0.013}_{-0.016}$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.011}$
$A_{143}^{\mathrm{dustTT}}$	$11.1^{+4.5}_{-4.5}$	$Y_{\mathrm{P}}$	$0.24543^{+0.00013}_{-0.00015}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.017}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.8^{+8.6}_{-8.7}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24676^{+0.00013}_{-0.00015}$	$\sigma_8(0.61)$	$0.591^{+0.014}_{-0.010}$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.567^{+0.069}_{-0.060}$	$f\sigma_8(2.33)$	$0.2986^{+0.0075}_{-0.0052}$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.091}_{-0.099}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.765^{+0.066}_{-0.058}$	$\sigma_8(2.33)$	$0.3082^{+0.0074}_{-0.0056}$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.073}_{-0.072}$	$z_*$	$1089.60^{+0.69}_{-0.60}$	$f_{2000}^{143}$	$29^{+7}_{-8}$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.21}$	$r_*$	$144.91^{+0.87}_{-1.0}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-4}$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.13}_{-0.16}$	$100\theta_*$	$1.0415^{+0.0011}_{-0.0012}$	$f_{2000}^{217}$	$106.6^{+4.8}_{-4.2}$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.19}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.914^{+0.077}_{-0.090}$	$\chi_{\mathrm{simall}}^2$	$397.6 (\nu: 3.2)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.66}_{-0.66}$	$z_{\mathrm{drag}}$	$1060.02^{+0.75}_{-0.81}$	$\chi_{\mathrm{lowl}}^2$	$23.9 (\nu: 1.2)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.55^{+0.83}_{-1.0}$	$\chi_{\mathrm{plik}}^2$	$2362.3 (\nu: 19.3)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015}$	$k_{\mathrm{D}}$	$0.1405^{+0.0011}_{-0.00090}$	$\chi_{\mathrm{H073p45}}^2$	$9.6 (\nu: 3.4)$
$H_0$	$68.3^{+1.7}_{-1.9}$	$100\theta_{\mathrm{D}}$	$0.16075^{+0.00049}_{-0.00050}$	$\chi_{\mathrm{prior}}^2$	$11.7 (\nu: 9.5)$
$\Omega_{\Lambda}$	$0.698^{+0.022}_{-0.026}$	$z_{\mathrm{eq}}$	$3353^{+99}_{-88}$	$\chi_{\mathrm{CMB}}^2$	$2783.8 (\nu: 20.7)$
$\Omega_{\mathrm{m}}$	$0.302^{+0.026}_{-0.022}$	$k_{\mathrm{eq}}$	$0.01023^{+0.00030}_{-0.00027}$		
$\Omega_{\mathrm{m}}h^2$	$0.1410^{+0.0041}_{-0.0037}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.017}_{-0.018}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 2805.11$ ;  $R - 1 = 0.05749$



### 5.19 base\_alpha1\_CamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02214	$0.02220^{+0.00059}_{-0.00059}$	$\sigma_8 \Omega_m^{0.5}$	0.4615	$0.461^{+0.035}_{-0.033}$	$H(0.15)$	72.11	$72.2^{+2.1}_{-2.1}$
$\Omega_c h^2$	0.1211	$0.1210^{+0.0057}_{-0.0055}$	$\sigma_8 \Omega_m^{0.25}$	0.6120	$0.612^{+0.031}_{-0.029}$	$D_M(0.15)$	649.1	$649^{+22}_{-20}$
$100\theta_{MC}$	1.04066	$1.0406^{+0.0015}_{-0.0014}$	$\sigma_8/h^{0.5}$	0.9938	$0.993^{+0.041}_{-0.041}$	$H(0.38)$	82.42	$82.5^{+1.5}_{-1.5}$
$\tau$	0.0526	$0.054^{+0.024}_{-0.022}$	$r_{drag} h$	98.11	$98.2^{+4.3}_{-4.3}$	$D_M(0.38)$	1545.1	$1544^{+43}_{-41}$
$\alpha_{-1}$	-0.0002	$-0.0012^{+0.0045}_{-0.0057}$	$\langle d^2 \rangle^{1/2}$	2.456	$2.46^{+0.10}_{-0.099}$	$H(0.51)$	89.25	$89.3^{+1.2}_{-1.1}$
$\ln(10^{10} A_s)$	3.0417	$3.045^{+0.049}_{-0.047}$	$z_{re}$	7.57	$7.7^{+2.2}_{-2.4}$	$D_M(0.51)$	1999.7	$1999^{+50}_{-48}$
$n_s$	0.9607	$0.960^{+0.021}_{-0.019}$	$10^9 A_s$	2.094	$2.10^{+0.11}_{-0.097}$	$H(0.61)$	94.96	$95.00^{+0.94}_{-0.87}$
$y_{cal}$	1.0003	$1.0005^{+0.0065}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	1.8850	$1.887^{+0.039}_{-0.038}$	$D_M(0.61)$	2325	$2324^{+53}_{-51}$
$A_{100}^{PS}$	240	$244^{+60}_{-70}$	$D_{40}$	1222	$1216^{+61}_{-50}$	$H(2.33)$	237.00	$237.0^{+3.5}_{-3.5}$
$A_{143}^{PS}$	39.3	$41^{+20}_{-20}$	$D_{220}$	5701	$5709^{+110}_{-110}$	$D_M(2.33)$	5779.3	$5777^{+41}_{-42}$
$A_{217}^{PS}$	99.2	$100^{+30}_{-30}$	$D_{810}$	2534.4	$2536^{+36}_{-36}$	$f\sigma_8(0.15)$	0.4651	$0.465^{+0.032}_{-0.031}$
$A_{217}^{CIB}$	45.6	$41^{+20}_{-20}$	$D_{1420}$	813.5	$814^{+14}_{-13}$	$\sigma_8(0.15)$	0.7489	$0.748^{+0.019}_{-0.019}$
$A_{143}^{tSZ}$	5.89	$< 8.72$	$D_{2000}$	229.24	$229.4^{+4.9}_{-4.7}$	$f\sigma_8(0.38)$	0.4808	$0.480^{+0.025}_{-0.024}$
$r_{143 \times 217}^{PS}$	0.560	$0.64^{+0.32}_{-0.33}$	$n_{s,0.002}$	0.9607	$0.960^{+0.021}_{-0.019}$	$\sigma_8(0.38)$	0.6626	$0.662^{+0.016}_{-0.016}$
$r_{143 \times 217}^{CIB}$	0.76	—	$Y_P$	0.245301	$0.24532^{+0.00023}_{-0.00028}$	$f\sigma_8(0.51)$	0.4780	$0.478^{+0.021}_{-0.021}$
$\xi^{tSZ \times CIB}$	0.02	—	$Y_P^{BBN}$	0.246627	$0.24665^{+0.00023}_{-0.00028}$	$\sigma_8(0.51)$	0.6195	$0.619^{+0.015}_{-0.015}$
$A^{kSZ}$	1.5	—	$10^5 D/H$	2.630	$2.62^{+0.12}_{-0.11}$	$f\sigma_8(0.61)$	0.4721	$0.472^{+0.018}_{-0.019}$
$A_{100}^{dust}$	1.02	$1.02^{+0.50}_{-0.50}$	Age/Gyr	13.833	$13.829^{+0.092}_{-0.094}$	$\sigma_8(0.61)$	0.5892	$0.589^{+0.014}_{-0.014}$
$A_{143}^{dust}$	0.993	$0.98^{+0.45}_{-0.45}$	$z_*$	1090.31	$1090.2^{+1.1}_{-1.0}$	$f\sigma_8(2.33)$	0.2966	$0.2965^{+0.0070}_{-0.0070}$
$A_{217}^{dust}$	0.962	$0.97^{+0.27}_{-0.27}$	$r_*$	144.34	$144.3^{+1.4}_{-1.3}$	$\sigma_8(2.33)$	0.3053	$0.3052^{+0.0076}_{-0.0076}$
$A_{143 \times 217}^{dust}$	1.005	$1.03^{+0.41}_{-0.41}$	$100\theta_*$	1.04086	$1.0408^{+0.0015}_{-0.0014}$	$f_{2000}^{143}$	31.3	$31^{+8}_{-8}$
$c_{100}$	0.99750	$0.9975^{+0.0028}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	13.867	$13.87^{+0.12}_{-0.12}$	$f_{2000}^{217}$	107.8	$107.7^{+5.4}_{-5.2}$
$c_{217}$	1.00144	$1.0012^{+0.0041}_{-0.0041}$	$z_{drag}$	1059.47	$1059.6^{+1.2}_{-1.3}$	$f_{2000}^{143 \times 217}$	33.2	$33^{+6}_{-6}$
$H_0$	66.71	$66.8^{+2.4}_{-2.5}$	$r_{drag}$	147.07	$147.0^{+1.5}_{-1.4}$	$\chi_{small}^2$	395.89	$397.1 (\nu: 1.6)$
$\Omega_\Lambda$	0.6767	$0.677^{+0.033}_{-0.038}$	$k_D$	0.14071	$0.1408^{+0.0015}_{-0.0017}$	$\chi_{lowl}^2$	22.3	$22.2 (\nu: 2.8)$
$\Omega_m$	0.3233	$0.323^{+0.038}_{-0.033}$	$100\theta_D$	0.16101	$0.16092^{+0.00085}_{-0.00075}$	$\chi_{CamSpec}^2$	7050.8	$7065.8 (\nu: 17.1)$
$\Omega_m h^2$	0.1438	$0.1438^{+0.0055}_{-0.0054}$	$z_{eq}$	3422	$3422^{+130}_{-130}$	$\chi_{prior}^2$	2.4	$7.6 (\nu: 6.0)$
$\Omega_m h^3$	0.09595	$0.0960^{+0.0012}_{-0.0012}$	$k_{eq}$	0.010444	$0.01044^{+0.00040}_{-0.00039}$	$\chi_{CMB}^2$	7469.0	$7485.1 (\nu: 16.9)$
$\sigma_8$	0.8117	$0.811^{+0.023}_{-0.023}$	$100\theta_{eq}$	0.8090	$0.809^{+0.024}_{-0.023}$			
$S_8$	0.843	$0.842^{+0.065}_{-0.061}$	$100\theta_{s,eq}$	0.4473	$0.447^{+0.013}_{-0.012}$			

Best-fit  $\chi_{eff}^2 = 7471.39$ ;  $\bar{\chi}_{eff}^2 = 7492.71$ ;  $R - 1 = 0.00444$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.89 commander\_dx12\_v3.2\_29: 22.30 CamSpec like\_10.7HM: 7050.85



## 5.20 base\_alpha1\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02228^{+0.00057}_{-0.00060}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.021}_{-0.020}$	$H(0.38)$	$82.99^{+0.89}_{-0.90}$
$\Omega_{\mathrm{c}} h^2$	$0.1190^{+0.0032}_{-0.0030}$	$\sigma_8 / h^{0.5}$	$0.980^{+0.031}_{-0.029}$	$D_{\mathrm{M}}(0.38)$	$1529^{+25}_{-23}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0013}_{-0.0012}$	$r_{\mathrm{drag}} h$	$99.8^{+2.4}_{-2.5}$	$H(0.51)$	$89.69^{+0.74}_{-0.73}$
$\tau$	$0.055^{+0.024}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.074}_{-0.069}$	$D_{\mathrm{M}}(0.51)$	$1981^{+29}_{-27}$
$\alpha_{-1}$	$-0.0007^{+0.0043}_{-0.0055}$	$z_{\mathrm{re}}$	$7.7^{+2.3}_{-2.2}$	$H(0.61)$	$95.30^{+0.65}_{-0.63}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.053}_{-0.046}$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.11}_{-0.094}$	$D_{\mathrm{M}}(0.61)$	$2305^{+31}_{-30}$
$n_{\mathrm{s}}$	$0.966^{+0.015}_{-0.014}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.032}_{-0.030}$	$H(2.33)$	$235.8^{+2.1}_{-2.1}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0064}_{-0.0065}$	$D_{40}$	$1214^{+61}_{-53}$	$D_{\mathrm{M}}(2.33)$	$5765^{+32}_{-32}$
$A_{100}^{\mathrm{PS}}$	$243^{+60}_{-60}$	$D_{220}$	$5716^{+110}_{-110}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.019}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2535^{+37}_{-34}$	$\sigma_8(0.15)$	$0.745^{+0.019}_{-0.018}$
$A_{217}^{\mathrm{PS}}$	$100^{+30}_{-40}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.472^{+0.017}_{-0.016}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.9^{+4.7}_{-4.6}$	$\sigma_8(0.38)$	$0.661^{+0.016}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87$	$n_{\mathrm{s},0.002}$	$0.966^{+0.015}_{-0.014}$	$f\sigma_8(0.51)$	$0.471^{+0.016}_{-0.015}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.64^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}$	$0.24535^{+0.00022}_{-0.00028}$	$\sigma_8(0.51)$	$0.618^{+0.015}_{-0.014}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24668^{+0.00022}_{-0.00028}$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.60^{+0.12}_{-0.10}$	$\sigma_8(0.61)$	$0.588^{+0.014}_{-0.014}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.802^{+0.075}_{-0.074}$	$f\sigma_8(2.33)$	$0.2968^{+0.0072}_{-0.0068}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.50}_{-0.46}$	$z_{*}$	$1089.95^{+0.85}_{-0.79}$	$\sigma_8(2.33)$	$0.3060^{+0.0078}_{-0.0072}$
$A_{143}^{\mathrm{dust}}$	$0.99^{+0.45}_{-0.47}$	$r_{*}$	$144.77^{+0.89}_{-0.88}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$100\theta_{*}$	$1.0411^{+0.0013}_{-0.0012}$	$f_{2000}^{217}$	$107.4^{+5.1}_{-5.1}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.905^{+0.085}_{-0.082}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$z_{\mathrm{drag}}$	$1059.6^{+1.3}_{-1.4}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.9)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$r_{\mathrm{drag}}$	$147.5^{+1.0}_{-0.97}$	$\chi_{\mathrm{lowl}}^2$	$22 (\nu: 3.4)$
$H_0$	$67.6^{+1.4}_{-1.4}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0015}$	$\chi_{\mathrm{CamSpec}}^2$	$7065.8 (\nu: 17.4)$
$\Omega_{\Lambda}$	$0.690^{+0.018}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16093^{+0.00086}_{-0.00077}$	$\chi_{6\mathrm{DF}}^2$	$0.061 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.020}_{-0.018}$	$z_{\mathrm{eq}}$	$3375^{+76}_{-73}$	$\chi_{\mathrm{MGS}}^2$	$1.35 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1419^{+0.0032}_{-0.0031}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00023}_{-0.00022}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.5)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0012}_{-0.0013}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.013}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 6.0)$
$\sigma_8$	$0.806^{+0.021}_{-0.020}$	$100\theta_{\mathrm{s,eq}}$	$0.4519^{+0.0071}_{-0.0072}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 1.0)$
$S_8$	$0.820^{+0.039}_{-0.037}$	$H(0.15)$	$72.9^{+1.2}_{-1.2}$	$\chi_{\mathrm{CMB}}^2$	$7485.4 (\nu: 17.0)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.021}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$641^{+12}_{-11}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7499.33; R - 1 = 0.01534$$



## 5.21 base\_alpha1\_CamSpecHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02222^{+0.00059}_{-0.00059}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.458^{+0.023}_{-0.023}$	$H(0.15)$	$72.3^{+1.6}_{-1.6}$
$\Omega_{\mathrm{c}} h^2$	$0.1206^{+0.0042}_{-0.0042}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.020}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$647^{+16}_{-16}$
$100\theta_{\mathrm{MC}}$	$1.0406^{+0.0014}_{-0.0013}$	$\sigma_8/h^{0.5}$	$0.990^{+0.026}_{-0.027}$	$H(0.38)$	$82.6^{+1.2}_{-1.1}$
$\tau$	$0.054^{+0.023}_{-0.021}$	$r_{\mathrm{drag}} h$	$98.5^{+3.4}_{-3.2}$	$D_{\mathrm{M}}(0.38)$	$1541^{+32}_{-33}$
$\alpha_{-1}$	$-0.0012^{+0.0042}_{-0.0058}$	$\langle d^2 \rangle^{1/2}$	$2.450^{+0.065}_{-0.067}$	$H(0.51)$	$89.37^{+0.98}_{-0.91}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.044}_{-0.042}$	$z_{\mathrm{re}}$	$7.7^{+2.1}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	$1995^{+38}_{-38}$
$n_{\mathrm{s}}$	$0.960^{+0.018}_{-0.016}$	$10^9 A_{\mathrm{s}}$	$2.100^{+0.094}_{-0.086}$	$H(0.61)$	$95.05^{+0.80}_{-0.74}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0065}_{-0.0064}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.885^{+0.032}_{-0.032}$	$D_{\mathrm{M}}(0.61)$	$2320^{+41}_{-42}$
$A_{100}^{\mathrm{PS}}$	$244^{+60}_{-60}$	$D_{40}$	$1216^{+61}_{-48}$	$H(2.33)$	$236.8^{+2.6}_{-2.6}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5712^{+110}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5775^{+37}_{-38}$
$A_{217}^{\mathrm{PS}}$	$100^{+30}_{-30}$	$D_{810}$	$2536^{+36}_{-34}$	$f\sigma_8(0.15)$	$0.462^{+0.021}_{-0.021}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.72$	$D_{2000}$	$229.4^{+4.9}_{-4.7}$	$f\sigma_8(0.38)$	$0.478^{+0.016}_{-0.017}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.64^{+0.31}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.018}_{-0.016}$	$\sigma_8(0.38)$	$0.662^{+0.013}_{-0.013}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24533^{+0.00023}_{-0.00028}$	$f\sigma_8(0.51)$	$0.476^{+0.013}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00023}_{-0.00028}$	$\sigma_8(0.51)$	$0.619^{+0.013}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.11}_{-0.11}$	$f\sigma_8(0.61)$	$0.470^{+0.012}_{-0.013}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.50}_{-0.49}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.823^{+0.084}_{-0.084}$	$\sigma_8(0.61)$	$0.589^{+0.012}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.45}$	$z_*$	$1090.16^{+0.93}_{-0.89}$	$f\sigma_8(2.33)$	$0.2965^{+0.0067}_{-0.0066}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$r_*$	$144.4^{+1.1}_{-1.0}$	$\sigma_8(2.33)$	$0.3053^{+0.0076}_{-0.0073}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	$1.0408^{+0.0014}_{-0.0013}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.873^{+0.097}_{-0.092}$	$f_{2000}^{217}$	$107.7^{+5.4}_{-5.1}$
$c_{217}$	$1.0012^{+0.0041}_{-0.0041}$	$z_{\mathrm{drag}}$	$1059.6^{+1.3}_{-1.4}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$H_0$	$66.9^{+1.9}_{-1.8}$	$r_{\mathrm{drag}}$	$147.1^{+1.1}_{-1.1}$	$\chi_{\mathrm{lensing}}^2$	$9.52 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.680^{+0.026}_{-0.027}$	$k_{\mathrm{D}}$	$0.1407^{+0.0013}_{-0.0014}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.4)$
$\Omega_{\mathrm{m}}$	$0.320^{+0.027}_{-0.026}$	$100\theta_{\mathrm{D}}$	$0.16091^{+0.00085}_{-0.00075}$	$\chi_{\mathrm{lowl}}^2$	$22.2 (\nu: 2.8)$
$\Omega_{\mathrm{m}} h^2$	$0.1434^{+0.0040}_{-0.0040}$	$z_{\mathrm{eq}}$	$3412^{+96}_{-96}$	$\chi_{\mathrm{CamSpec}}^2$	$7065.3 (\nu: 16.5)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0012}_{-0.0012}$	$k_{\mathrm{eq}}$	$0.01042^{+0.00029}_{-0.00029}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.9)$
$\sigma_8$	$0.810^{+0.017}_{-0.016}$	$100\theta_{\mathrm{eq}}$	$0.811^{+0.019}_{-0.017}$	$\chi_{\mathrm{CMB}}^2$	$7494.0 (\nu: 17.3)$
$S_8$	$0.837^{+0.042}_{-0.042}$	$100\theta_{\mathrm{s,eq}}$	$0.4482^{+0.0095}_{-0.0090}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7501.64; R - 1 = 0.00636$$



## 5.22 base\_alpha1\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02228^{+0.00058}_{-0.00059}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.016}_{-0.016}$	$H(0.38)$	$82.95^{+0.87}_{-0.84}$
$\Omega_{\mathrm{c}} h^2$	$0.1192^{+0.0029}_{-0.0028}$	$\sigma_8 / h^{0.5}$	$0.984^{+0.024}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1530^{+23}_{-22}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	$99.6^{+2.3}_{-2.2}$	$H(0.51)$	$89.66^{+0.73}_{-0.70}$
$\tau$	$0.057^{+0.023}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	$2.434^{+0.057}_{-0.056}$	$D_{\mathrm{M}}(0.51)$	$1983^{+27}_{-26}$
$\alpha_{-1}$	$-0.0007^{+0.0043}_{-0.0056}$	$z_{\mathrm{re}}$	$7.9^{+2.1}_{-2.0}$	$H(0.61)$	$95.28^{+0.64}_{-0.60}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.047}_{-0.041}$	$10^9 A_{\mathrm{s}}$	$2.11^{+0.10}_{-0.086}$	$D_{\mathrm{M}}(0.61)$	$2307^{+29}_{-29}$
$n_{\mathrm{s}}$	$0.965^{+0.015}_{-0.014}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.029}_{-0.029}$	$H(2.33)$	$235.9^{+1.9}_{-1.9}$
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0065}$	$D_{40}$	$1216^{+61}_{-52}$	$D_{\mathrm{M}}(2.33)$	$5766^{+32}_{-32}$
$A_{100}^{\mathrm{PS}}$	$243^{+60}_{-60}$	$D_{220}$	$5721^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2536^{+35}_{-34}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.015}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$230.0^{+4.6}_{-4.6}$	$\sigma_8(0.38)$	$0.662^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.81$	$n_{\mathrm{s},0.002}$	$0.965^{+0.015}_{-0.014}$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.012}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.64^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}$	$0.24536^{+0.00023}_{-0.00027}$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.012}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24668^{+0.00023}_{-0.00027}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.60^{+0.11}_{-0.10}$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.803^{+0.074}_{-0.074}$	$f\sigma_8(2.33)$	$0.2974^{+0.0066}_{-0.0059}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.50}_{-0.46}$	$z_{*}$	$1089.96^{+0.84}_{-0.77}$	$\sigma_8(2.33)$	$0.3066^{+0.0072}_{-0.0063}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.44}_{-0.47}$	$r_{*}$	$144.71^{+0.83}_{-0.80}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$100\theta_{*}$	$1.0411^{+0.0013}_{-0.0012}$	$f_{2000}^{217}$	$107.4^{+5.0}_{-5.1}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.899^{+0.079}_{-0.074}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.7^{+1.3}_{-1.4}$	$\chi_{\mathrm{lensing}}^2$	$9.35 (\nu: 0.3)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$r_{\mathrm{drag}}$	$147.40^{+0.98}_{-0.88}$	$\chi_{\mathrm{simall}}^2$	$397.3 (\nu: 2.0)$
$H_0$	$67.6^{+1.3}_{-1.3}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0013}$	$\chi_{\mathrm{lowl}}^2$	$23 (\nu: 3.4)$
$\Omega_{\Lambda}$	$0.689^{+0.017}_{-0.018}$	$100\theta_{\mathrm{D}}$	$0.16091^{+0.00085}_{-0.00075}$	$\chi_{\mathrm{CamSpec}}^2$	$7065.2 (\nu: 16.4)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.018}_{-0.017}$	$z_{\mathrm{eq}}$	$3381^{+68}_{-67}$	$\chi_{6\mathrm{DF}}^2$	$0.065 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1421^{+0.0028}_{-0.0028}$	$k_{\mathrm{eq}}$	$0.01032^{+0.00021}_{-0.00020}$	$\chi_{\mathrm{MGS}}^2$	$1.25 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0012}_{-0.0013}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 (\nu: 1.4)$
$\sigma_8$	$0.808^{+0.017}_{-0.016}$	$100\theta_{\mathrm{s,eq}}$	$0.4513^{+0.0065}_{-0.0064}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.9)$
$S_8$	$0.824^{+0.031}_{-0.030}$	$H(0.15)$	$72.8^{+1.1}_{-1.1}$	$\chi_{\mathrm{CMB}}^2$	$7494.3 (\nu: 17.2)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.017}$	$D_{\mathrm{M}}(0.15)$	$642^{+11}_{-11}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 0.9)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 7508.28; R - 1 = 0.01595$$



### 5.23 base\_alpha1\_CamSpecHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02221^{+0.00058}_{-0.00058}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.461^{+0.035}_{-0.033}$	$H(0.15)$	$72.2^{+2.1}_{-2.0}$
$\Omega_{\mathrm{c}} h^2$	$0.1210^{+0.0056}_{-0.0056}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.612^{+0.030}_{-0.030}$	$D_{\mathrm{M}}(0.15)$	$648^{+22}_{-20}$
$100\theta_{\mathrm{MC}}$	$1.0406^{+0.0015}_{-0.0014}$	$\sigma_8/h^{0.5}$	$0.994^{+0.041}_{-0.040}$	$H(0.38)$	$82.5^{+1.5}_{-1.4}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$r_{\mathrm{drag}} h$	$98.2^{+4.4}_{-4.3}$	$D_{\mathrm{M}}(0.38)$	$1544^{+42}_{-41}$
$\alpha_{-1}$	$-0.0013^{+0.0044}_{-0.0057}$	$\langle d^2 \rangle^{1/2}$	$2.46^{+0.10}_{-0.098}$	$H(0.51)$	$89.3^{+1.2}_{-1.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.048^{+0.047}_{-0.034}$	$z_{\mathrm{re}}$	$< 9.68$	$D_{\mathrm{M}}(0.51)$	$1998^{+49}_{-48}$
$n_{\mathrm{s}}$	$0.960^{+0.021}_{-0.018}$	$10^9 A_{\mathrm{s}}$	$2.11^{+0.10}_{-0.072}$	$H(0.61)$	$95.01^{+0.93}_{-0.86}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0064}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.887^{+0.038}_{-0.038}$	$D_{\mathrm{M}}(0.61)$	$2324^{+53}_{-51}$
$A_{100}^{\mathrm{PS}}$	$244^{+60}_{-70}$	$D_{40}$	$1216^{+60}_{-49}$	$H(2.33)$	$237.0^{+3.5}_{-3.5}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5710^{+110}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5777^{+40}_{-42}$
$A_{217}^{\mathrm{PS}}$	$100^{+30}_{-30}$	$D_{810}$	$2536^{+35}_{-36}$	$f\sigma_8(0.15)$	$0.465^{+0.032}_{-0.031}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.15)$	$0.749^{+0.019}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.73$	$D_{2000}$	$229.4^{+4.8}_{-4.7}$	$f\sigma_8(0.38)$	$0.481^{+0.024}_{-0.024}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.64^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.021}_{-0.018}$	$\sigma_8(0.38)$	$0.663^{+0.015}_{-0.013}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24532^{+0.00023}_{-0.00027}$	$f\sigma_8(0.51)$	$0.478^{+0.021}_{-0.021}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00023}_{-0.00028}$	$\sigma_8(0.51)$	$0.620^{+0.014}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.11}$	$f\sigma_8(0.61)$	$0.472^{+0.018}_{-0.018}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.50}_{-0.51}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.827^{+0.090}_{-0.093}$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.011}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.45}$	$z_*$	$1090.2^{+1.0}_{-1.0}$	$f\sigma_8(2.33)$	$0.2969^{+0.0068}_{-0.0053}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_*$	$144.3^{+1.4}_{-1.3}$	$\sigma_8(2.33)$	$0.3056^{+0.0073}_{-0.0057}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.40}$	$100\theta_*$	$1.0408^{+0.0015}_{-0.0014}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.87^{+0.12}_{-0.12}$	$f_{2000}^{217}$	$107.7^{+5.3}_{-5.2}$
$c_{217}$	$1.0012^{+0.0041}_{-0.0041}$	$z_{\mathrm{drag}}$	$1059.6^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$H_0$	$66.8^{+2.4}_{-2.4}$	$r_{\mathrm{drag}}$	$147.0^{+1.5}_{-1.4}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.6)$
$\Omega_{\Lambda}$	$0.677^{+0.033}_{-0.037}$	$k_{\mathrm{D}}$	$0.1408^{+0.0015}_{-0.0017}$	$\chi_{\mathrm{lowl}}^2$	$22.2 (\nu: 2.6)$
$\Omega_{\mathrm{m}}$	$0.323^{+0.037}_{-0.033}$	$100\theta_{\mathrm{D}}$	$0.16091^{+0.00084}_{-0.00074}$	$\chi_{\mathrm{CamSpec}}^2$	$7065.7 (\nu: 17.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1438^{+0.0054}_{-0.0054}$	$z_{\mathrm{eq}}$	$3421^{+130}_{-130}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 6.0)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0012}_{-0.0012}$	$k_{\mathrm{eq}}$	$0.01044^{+0.00040}_{-0.00039}$	$\chi_{\mathrm{CMB}}^2$	$7484.8 (\nu: 16.4)$
$\sigma_8$	$0.812^{+0.022}_{-0.021}$	$100\theta_{\mathrm{eq}}$	$0.809^{+0.024}_{-0.023}$		
$S_8$	$0.842^{+0.064}_{-0.061}$	$100\theta_{\mathrm{s,eq}}$	$0.447^{+0.013}_{-0.012}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7492.46; R - 1 = 0.00453$$



## 5.24 base\_alpha1\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02228^{+0.00057}_{-0.00059}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.602^{+0.021}_{-0.019}$	$H(0.38)$	$83.00^{+0.89}_{-0.89}$
$\Omega_{\text{c}} h^2$	$0.1190^{+0.0032}_{-0.0030}$	$\sigma_8 / h^{0.5}$	$0.981^{+0.030}_{-0.028}$	$D_{\text{M}}(0.38)$	$1529^{+24}_{-23}$
$100\theta_{\text{MC}}$	$1.0409^{+0.0013}_{-0.0012}$	$r_{\text{drag}} h$	$99.8^{+2.4}_{-2.5}$	$H(0.51)$	$89.70^{+0.74}_{-0.73}$
$\tau$	$0.056^{+0.021}_{-0.015}$	$\langle d^2 \rangle^{1/2}$	$2.428^{+0.072}_{-0.066}$	$D_{\text{M}}(0.51)$	$1981^{+29}_{-27}$
$\alpha_{-1}$	$-0.0007^{+0.0043}_{-0.0055}$	$z_{\text{re}}$	$< 9.74$	$H(0.61)$	$95.30^{+0.65}_{-0.62}$
$\ln(10^{10} A_{\text{s}})$	$3.045^{+0.047}_{-0.037}$	$10^9 A_{\text{s}}$	$2.10^{+0.10}_{-0.077}$	$D_{\text{M}}(0.61)$	$2305^{+31}_{-30}$
$n_{\text{s}}$	$0.965^{+0.015}_{-0.014}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.877^{+0.032}_{-0.030}$	$H(2.33)$	$235.8^{+2.1}_{-2.1}$
$y_{\text{cal}}$	$1.0006^{+0.0064}_{-0.0064}$	$D_{40}$	$1214^{+60}_{-52}$	$D_{\text{M}}(2.33)$	$5765^{+32}_{-32}$
$A_{100}^{\text{PS}}$	$243^{+60}_{-60}$	$D_{220}$	$5716^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.019}$
$A_{143}^{\text{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2535^{+36}_{-34}$	$\sigma_8(0.15)$	$0.746^{+0.018}_{-0.016}$
$A_{217}^{\text{PS}}$	$100^{+30}_{-40}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.473^{+0.017}_{-0.016}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.9^{+4.7}_{-4.7}$	$\sigma_8(0.38)$	$0.661^{+0.016}_{-0.013}$
$A_{143}^{\text{tSZ}}$	$< 8.88$	$n_{\text{s},0.002}$	$0.965^{+0.015}_{-0.014}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.014}$
$r_{143 \times 217}^{\text{PS}}$	$0.64^{+0.31}_{-0.33}$	$Y_{\text{P}}$	$0.24536^{+0.00022}_{-0.00028}$	$\sigma_8(0.51)$	$0.619^{+0.015}_{-0.012}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24668^{+0.00022}_{-0.00028}$	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.013}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^5 \text{D/H}$	$2.60^{+0.11}_{-0.10}$	$\sigma_8(0.61)$	$0.589^{+0.014}_{-0.011}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.801^{+0.075}_{-0.073}$	$f\sigma_8(2.33)$	$0.2971^{+0.0072}_{-0.0056}$
$A_{100}^{\text{dust}}$	$1.02^{+0.50}_{-0.46}$	$z_*$	$1089.94^{+0.86}_{-0.80}$	$\sigma_8(2.33)$	$0.3063^{+0.0076}_{-0.0058}$
$A_{143}^{\text{dust}}$	$0.99^{+0.45}_{-0.47}$	$r_*$	$144.77^{+0.89}_{-0.88}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.27}$	$100\theta_*$	$1.0411^{+0.0013}_{-0.0012}$	$f_{2000}^{217}$	$107.4^{+5.0}_{-5.0}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.41}_{-0.41}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.905^{+0.085}_{-0.082}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$z_{\text{drag}}$	$1059.7^{+1.3}_{-1.4}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 2.0)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$r_{\text{drag}}$	$147.5^{+1.0}_{-0.97}$	$\chi_{\text{lowl}}^2$	$22 (\nu: 3.3)$
$H_0$	$67.7^{+1.4}_{-1.4}$	$k_{\text{D}}$	$0.1404^{+0.0013}_{-0.0015}$	$\chi_{\text{CamSpec}}^2$	$7065.7 (\nu: 17.2)$
$\Omega_{\Lambda}$	$0.690^{+0.018}_{-0.020}$	$100\theta_{\text{D}}$	$0.16092^{+0.00085}_{-0.00076}$	$\chi_{6\text{DF}}^2$	$0.060 (\nu: 0.0)$
$\Omega_{\text{m}}$	$0.310^{+0.020}_{-0.018}$	$z_{\text{eq}}$	$3375^{+76}_{-73}$	$\chi_{\text{MGS}}^2$	$1.35 (\nu: 0.1)$
$\Omega_{\text{m}} h^2$	$0.1419^{+0.0032}_{-0.0031}$	$k_{\text{eq}}$	$0.01030^{+0.00023}_{-0.00022}$	$\chi_{\text{DR12BAO}}^2$	$4.8 (\nu: 1.5)$
$\Omega_{\text{m}} h^3$	$0.0960^{+0.0012}_{-0.0014}$	$100\theta_{\text{eq}}$	$0.818^{+0.013}_{-0.014}$	$\chi_{\text{prior}}^2$	$7.7 (\nu: 6.0)$
$\sigma_8$	$0.807^{+0.021}_{-0.018}$	$100\theta_{\text{s,eq}}$	$0.4519^{+0.0071}_{-0.0072}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 1.0)$
$S_8$	$0.820^{+0.039}_{-0.037}$	$H(0.15)$	$72.9^{+1.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	$7485.2 (\nu: 16.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.449^{+0.021}_{-0.020}$	$D_{\text{M}}(0.15)$	$641^{+12}_{-11}$		

$$\bar{\chi}_{\text{eff}}^2 = 7499.10; R - 1 = 0.01710$$



## 5.25 base\_alpha1\_CamSpecHM\_TT\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02223^{+0.00058}_{-0.00058}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.458^{+0.023}_{-0.023}$	$H(0.15)$	$72.3^{+1.6}_{-1.5}$
$\Omega_{\mathrm{c}} h^2$	$0.1205^{+0.0040}_{-0.0041}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.019}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$647^{+16}_{-16}$
$100\theta_{\mathrm{MC}}$	$1.0406^{+0.0014}_{-0.0013}$	$\sigma_8/h^{0.5}$	$0.990^{+0.026}_{-0.027}$	$H(0.38)$	$82.6^{+1.2}_{-1.1}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$r_{\mathrm{drag}} h$	$98.5^{+3.3}_{-3.1}$	$D_{\mathrm{M}}(0.38)$	$1540^{+31}_{-32}$
$\alpha_{-1}$	$-0.0012^{+0.0042}_{-0.0058}$	$\langle d^2 \rangle^{1/2}$	$2.451^{+0.065}_{-0.066}$	$H(0.51)$	$89.39^{+0.96}_{-0.88}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.042}_{-0.031}$	$z_{\mathrm{re}}$	$< 9.62$	$D_{\mathrm{M}}(0.51)$	$1994^{+36}_{-38}$
$n_{\mathrm{s}}$	$0.961^{+0.017}_{-0.016}$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.091}_{-0.064}$	$H(0.61)$	$95.07^{+0.78}_{-0.73}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0064}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.885^{+0.031}_{-0.032}$	$D_{\mathrm{M}}(0.61)$	$2319^{+39}_{-41}$
$A_{100}^{\mathrm{PS}}$	$244^{+60}_{-70}$	$D_{40}$	$1215^{+59}_{-47}$	$H(2.33)$	$236.7^{+2.5}_{-2.6}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5713^{+110}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5774^{+35}_{-37}$
$A_{217}^{\mathrm{PS}}$	$100^{+30}_{-30}$	$D_{810}$	$2536^{+35}_{-34}$	$f\sigma_8(0.15)$	$0.462^{+0.021}_{-0.021}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.15)$	$0.748^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.72$	$D_{2000}$	$229.4^{+4.8}_{-4.7}$	$f\sigma_8(0.38)$	$0.479^{+0.016}_{-0.016}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.64^{+0.31}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.017}_{-0.016}$	$\sigma_8(0.38)$	$0.662^{+0.013}_{-0.011}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24533^{+0.00023}_{-0.00027}$	$f\sigma_8(0.51)$	$0.476^{+0.013}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00023}_{-0.00027}$	$\sigma_8(0.51)$	$0.619^{+0.012}_{-0.010}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.11}_{-0.11}$	$f\sigma_8(0.61)$	$0.471^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.50}_{-0.49}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.822^{+0.081}_{-0.083}$	$\sigma_8(0.61)$	$0.589^{+0.012}_{-0.0096}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.45}$	$z_*$	$1090.14^{+0.90}_{-0.87}$	$f\sigma_8(2.33)$	$0.2967^{+0.0065}_{-0.0050}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_*$	$144.4^{+1.1}_{-0.99}$	$\sigma_8(2.33)$	$0.3056^{+0.0073}_{-0.0056}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	$1.0408^{+0.0014}_{-0.0013}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.875^{+0.097}_{-0.090}$	$f_{2000}^{217}$	$107.6^{+5.2}_{-5.1}$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$z_{\mathrm{drag}}$	$1059.6^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-6}$
$H_0$	$67.0^{+1.9}_{-1.8}$	$r_{\mathrm{drag}}$	$147.1^{+1.1}_{-1.0}$	$\chi_{\mathrm{lensing}}^2$	$9.50 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.680^{+0.025}_{-0.026}$	$k_{\mathrm{D}}$	$0.1407^{+0.0013}_{-0.0014}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.4)$
$\Omega_{\mathrm{m}}$	$0.320^{+0.026}_{-0.025}$	$100\theta_{\mathrm{D}}$	$0.16090^{+0.00085}_{-0.00074}$	$\chi_{\mathrm{lowl}}^2$	$22.1 (\nu: 2.7)$
$\Omega_{\mathrm{m}} h^2$	$0.1434^{+0.0039}_{-0.0040}$	$z_{\mathrm{eq}}$	$3410^{+93}_{-95}$	$\chi_{\mathrm{CamSpec}}^2$	$7065.2 (\nu: 16.5)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0012}_{-0.0012}$	$k_{\mathrm{eq}}$	$0.01041^{+0.00028}_{-0.00029}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.9)$
$\sigma_8$	$0.810^{+0.016}_{-0.015}$	$100\theta_{\mathrm{eq}}$	$0.811^{+0.018}_{-0.017}$	$\chi_{\mathrm{CMB}}^2$	$7493.7 (\nu: 16.8)$
$S_8$	$0.837^{+0.042}_{-0.042}$	$100\theta_{\mathrm{s,eq}}$	$0.4484^{+0.0094}_{-0.0087}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7501.39; R - 1 = 0.00867$$



## 5.26 base\_alpha1\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02229^{+0.00057}_{-0.00059}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.016}_{-0.016}$	$H(0.38)$	$82.95^{+0.86}_{-0.83}$
$\Omega_{\mathrm{c}} h^2$	$0.1192^{+0.0029}_{-0.0028}$	$\sigma_8 / h^{0.5}$	$0.984^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1530^{+22}_{-22}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	$99.6^{+2.3}_{-2.2}$	$H(0.51)$	$89.67^{+0.73}_{-0.69}$
$\tau$	$0.057^{+0.021}_{-0.016}$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.057}_{-0.055}$	$D_{\mathrm{M}}(0.51)$	$1982^{+26}_{-26}$
$\alpha_{-1}$	$-0.0008^{+0.0043}_{-0.0055}$	$z_{\mathrm{re}}$	$< 9.75$	$H(0.61)$	$95.28^{+0.63}_{-0.60}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.048^{+0.046}_{-0.033}$	$10^9 A_{\mathrm{s}}$	$2.108^{+0.098}_{-0.069}$	$D_{\mathrm{M}}(0.61)$	$2307^{+28}_{-29}$
$n_{\mathrm{s}}$	$0.965^{+0.015}_{-0.013}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.030}_{-0.029}$	$H(2.33)$	$235.9^{+1.9}_{-1.9}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0064}_{-0.0065}$	$D_{40}$	$1216^{+59}_{-52}$	$D_{\mathrm{M}}(2.33)$	$5765^{+32}_{-32}$
$A_{100}^{\mathrm{PS}}$	$243^{+60}_{-60}$	$D_{220}$	$5721^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2536^{+35}_{-33}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.013}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$230.0^{+4.6}_{-4.6}$	$\sigma_8(0.38)$	$0.663^{+0.014}_{-0.012}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.80$	$n_{\mathrm{s},0.002}$	$0.965^{+0.015}_{-0.013}$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.012}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.64^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}$	$0.24536^{+0.00022}_{-0.00027}$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.011}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24668^{+0.00023}_{-0.00027}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.010}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.60^{+0.11}_{-0.10}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.010}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.803^{+0.073}_{-0.074}$	$f\sigma_8(2.33)$	$0.2975^{+0.0065}_{-0.0053}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.50}_{-0.46}$	$z_*$	$1089.95^{+0.83}_{-0.77}$	$\sigma_8(2.33)$	$0.3067^{+0.0071}_{-0.0056}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.47}$	$r_*$	$144.71^{+0.83}_{-0.79}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$100\theta_*$	$1.0411^{+0.0013}_{-0.0012}$	$f_{2000}^{217}$	$107.4^{+5.0}_{-5.0}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.900^{+0.079}_{-0.074}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.7^{+1.3}_{-1.4}$	$\chi_{\mathrm{lensing}}^2$	$9.32 (\nu: 0.3)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.40^{+0.98}_{-0.88}$	$\chi_{\mathrm{simall}}^2$	$397.3 (\nu: 2.0)$
$H_0$	$67.6^{+1.3}_{-1.3}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0013}$	$\chi_{\mathrm{lowl}}^2$	$22 (\nu: 3.3)$
$\Omega_{\Lambda}$	$0.689^{+0.017}_{-0.018}$	$100\theta_{\mathrm{D}}$	$0.16090^{+0.00084}_{-0.00075}$	$\chi_{\mathrm{CamSpec}}^2$	$7065.2 (\nu: 16.4)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.018}_{-0.017}$	$z_{\mathrm{eq}}$	$3380^{+68}_{-67}$	$\chi_{6\mathrm{DF}}^2$	$0.063 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1421^{+0.0028}_{-0.0028}$	$k_{\mathrm{eq}}$	$0.01032^{+0.00021}_{-0.00020}$	$\chi_{\mathrm{MGS}}^2$	$1.26 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0012}_{-0.0013}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 (\nu: 1.4)$
$\sigma_8$	$0.809^{+0.017}_{-0.015}$	$100\theta_{\mathrm{s,eq}}$	$0.4514^{+0.0065}_{-0.0064}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.9)$
$S_8$	$0.824^{+0.031}_{-0.031}$	$H(0.15)$	$72.8^{+1.1}_{-1.1}$	$\chi_{\mathrm{CMB}}^2$	$7494.2 (\nu: 16.9)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.017}$	$D_{\mathrm{M}}(0.15)$	$642^{+11}_{-11}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 0.9)$

$\bar{\chi}_{\mathrm{eff}}^2 = 7508.12; R - 1 = 0.01736$



## 6 mnu

### 6.1 base\_mnu\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02216	$0.02205^{+0.00059}_{-0.00070}$	$\sigma_8 \Omega_m^{0.5}$	0.4615	$0.457^{+0.034}_{-0.037}$	$H(0.15)$	72.8	$71.2^{+3.2}_{-7.2}$
$\Omega_c h^2$	0.1204	$0.1210^{+0.0060}_{-0.0057}$	$\sigma_8 \Omega_m^{0.25}$	0.617	$0.600^{+0.038}_{-0.075}$	$D_M(0.15)$	642	$658^{+80}_{-30}$
$100\theta_{MC}$	1.04081	$1.0406^{+0.0013}_{-0.0014}$	$\sigma_8/h^{0.5}$	1.004	$0.973^{+0.058}_{-0.14}$	$H(0.38)$	82.94	$81.7^{+2.4}_{-5.3}$
$\tau$	0.0525	$0.052^{+0.022}_{-0.021}$	$r_{\text{drag}} h$	99.4	$96.7^{+6.1}_{-13}$	$D_M(0.38)$	1531	$1564^{+170}_{-65}$
$\Sigma m_\nu [\text{eV}]$	0.001	$< 0.856$	$\langle d^2 \rangle^{1/2}$	2.459	$2.448^{+0.097}_{-0.098}$	$H(0.51)$	89.68	$88.7^{+1.9}_{-4.3}$
$\ln(10^{10} A_s)$	3.0413	$3.040^{+0.044}_{-0.043}$	$z_{\text{re}}$	7.55	$7.5^{+2.1}_{-2.4}$	$D_M(0.51)$	1983	$2022^{+190}_{-77}$
$n_s$	0.9640	$0.961^{+0.016}_{-0.018}$	$10^9 A_s$	2.093	$2.091^{+0.093}_{-0.089}$	$H(0.61)$	95.31	$94.5^{+1.6}_{-3.5}$
$y_{\text{cal}}$	1.0004	$1.0005^{+0.0064}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	1.8845	$1.886^{+0.035}_{-0.035}$	$D_M(0.61)$	2308	$2350^{+210}_{-83}$
$A_{217}^{\text{CIB}}$	48.6	$48^{+20}_{-20}$	$D_{40}$	1231.4	$1234^{+40}_{-39}$	$H(2.33)$	236.3	$237.6^{+7.2}_{-4.0}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.35	—	$D_{220}$	5713	$5712^{+110}_{-100}$	$D_M(2.33)$	5763	$5806^{+200}_{-75}$
$A_{143}^{\text{tSZ}}$	7.0	—	$D_{810}$	2537.6	$2537^{+35}_{-37}$	$f\sigma_8(0.15)$	0.4653	$0.460^{+0.031}_{-0.037}$
$A_{100}^{\text{PS}}$	254	$265^{+70}_{-70}$	$D_{1420}$	815.4	$814^{+13}_{-13}$	$\sigma_8(0.15)$	0.762	$0.727^{+0.052}_{-0.13}$
$A_{143}^{\text{PS}}$	49.8	$50^{+20}_{-20}$	$D_{2000}$	230.08	$229.2^{+4.7}_{-5.0}$	$f\sigma_8(0.38)$	0.4834	$0.473^{+0.028}_{-0.055}$
$A_{143 \times 217}^{\text{PS}}$	47.7	$44^{+20}_{-20}$	$n_{s,0.002}$	0.9640	$0.961^{+0.016}_{-0.018}$	$\sigma_8(0.38)$	0.675	$0.642^{+0.047}_{-0.12}$
$A_{217}^{\text{PS}}$	119.6	$115^{+30}_{-30}$	$Y_P$	0.245310	$0.24525^{+0.00024}_{-0.00032}$	$f\sigma_8(0.51)$	0.4817	$0.469^{+0.027}_{-0.065}$
$A^{\text{kSZ}}$	0.0	—	$Y_P^{\text{BBN}}$	0.246636	$0.24658^{+0.00024}_{-0.00032}$	$\sigma_8(0.51)$	0.632	$0.600^{+0.044}_{-0.12}$
$A_{100}^{\text{dustTT}}$	8.88	$8.9^{+4.7}_{-4.7}$	$10^5 D/H$	2.625	$2.65^{+0.14}_{-0.11}$	$f\sigma_8(0.61)$	0.4765	$0.463^{+0.030}_{-0.060}$
$A_{143}^{\text{dustTT}}$	10.82	$10.7^{+4.6}_{-4.6}$	Age/Gyr	13.795	$13.90^{+0.47}_{-0.17}$	$\sigma_8(0.61)$	0.601	$0.571^{+0.042}_{-0.11}$
$A_{143 \times 217}^{\text{dustTT}}$	19.5	$18.3^{+8.4}_{-8.8}$	$z_*$	1090.22	$1090.4^{+1.5}_{-1.1}$	$f\sigma_8(2.33)$	0.3019	$0.288^{+0.020}_{-0.054}$
$A_{217}^{\text{dustTT}}$	94.7	$93^{+20}_{-20}$	$r_*$	144.48	$144.4^{+1.3}_{-1.4}$	$\sigma_8(2.33)$	0.3116	$0.296^{+0.023}_{-0.061}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04099	$1.0409^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	30.2	$32^{+8}_{-8}$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.879	$13.87^{+0.12}_{-0.13}$	$f_{2000}^{143 \times 217}$	33.2	$34^{+6}_{-5}$
$H_0$	67.5	$65.7^{+3.7}_{-8.4}$	$z_{\text{drag}}$	1059.47	$1059.3^{+1.2}_{-1.3}$	$f_{2000}^{217}$	107.6	$108.6^{+5.4}_{-5.0}$
$\Omega_\Lambda$	0.687	$0.663^{+0.050}_{-0.14}$	$r_{\text{drag}}$	147.22	$147.2^{+1.3}_{-1.3}$	$\chi_{\text{simall}}^2$	395.87	$396.9 (\nu: 1.4)$
$\Omega_m$	0.313	$0.337^{+0.14}_{-0.050}$	$k_D$	0.14057	$0.1406^{+0.0014}_{-0.0013}$	$\chi_{\text{lowl}}^2$	23.66	$23.9 (\nu: 0.8)$
$\Omega_m h^2$	0.1426	$0.145^{+0.013}_{-0.0065}$	$100\theta_D$	0.16102	$0.16112^{+0.00069}_{-0.00068}$	$\chi_{\text{plik}}^2$	758.1	$772.5 (\nu: 16.3)$
$\Omega_\nu h^2$	0.00001	$< 0.00921$	$z_{\text{eq}}$	3408	$3419^{+130}_{-130}$	$\chi_{\text{prior}}^2$	1.3	$7.3 (\nu: 6.7)$
$\Omega_m h^3$	0.09626	$0.0952^{+0.0020}_{-0.0052}$	$k_{\text{eq}}$	0.010401	$0.01044^{+0.00041}_{-0.00040}$	$\chi_{\text{CMB}}^2$	1177.6	$1193.4 (\nu: 16.9)$
$\sigma_8$	0.825	$0.789^{+0.055}_{-0.13}$	$100\theta_{\text{eq}}$	0.8116	$0.809^{+0.025}_{-0.024}$			
$S_8$	0.843	$0.834^{+0.062}_{-0.067}$	$100\theta_{s,\text{eq}}$	0.4486	$0.448^{+0.013}_{-0.012}$			

Best-fit  $\chi_{\text{eff}}^2 = 1178.95$ ;  $\bar{\chi}_{\text{eff}}^2 = 1200.74$ ;  $R - 1 = 0.00818$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3\_2\_29: 23.66 plik\_rd12\_HM\_v22\_TT: 758.09



## 6.2 base\_mnu\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02206^{+0.00059}_{-0.00068}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.457^{+0.034}_{-0.036}$	$H(0.15)$	$71.3^{+3.2}_{-7.0}$
$\Omega_{\text{c}} h^2$	$0.1209^{+0.0059}_{-0.0057}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.601^{+0.038}_{-0.074}$	$D_{\text{M}}(0.15)$	$658^{+80}_{-30}$
$100\theta_{\text{MC}}$	$1.0407^{+0.0013}_{-0.0014}$	$\sigma_8/h^{0.5}$	$0.974^{+0.058}_{-0.13}$	$H(0.38)$	$81.8^{+2.4}_{-5.2}$
$\tau$	$0.053^{+0.019}_{-0.013}$	$r_{\text{drag}} h$	$96.8^{+6.2}_{-13}$	$D_{\text{M}}(0.38)$	$1563^{+160}_{-65}$
$\Sigma m_{\nu} [\text{eV}]$	$< 0.838$	$\langle d^2 \rangle^{1/2}$	$2.451^{+0.096}_{-0.096}$	$H(0.51)$	$88.7^{+1.9}_{-4.2}$
$\ln(10^{10} A_{\text{s}})$	$3.043^{+0.041}_{-0.030}$	$z_{\text{re}}$	$< 9.42$	$D_{\text{M}}(0.51)$	$2021^{+190}_{-77}$
$n_{\text{s}}$	$0.962^{+0.016}_{-0.017}$	$10^9 A_{\text{s}}$	$2.098^{+0.087}_{-0.062}$	$H(0.61)$	$94.5^{+1.6}_{-3.5}$
$y_{\text{cal}}$	$1.0005^{+0.0064}_{-0.0066}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.885^{+0.036}_{-0.035}$	$D_{\text{M}}(0.61)$	$2349^{+200}_{-83}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{40}$	$1234^{+40}_{-39}$	$H(2.33)$	$237.5^{+7.0}_{-4.0}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{220}$	$5712^{+110}_{-100}$	$D_{\text{M}}(2.33)$	$5805^{+200}_{-75}$
$A_{143}^{\text{tSZ}}$	—	$D_{810}$	$2537^{+35}_{-37}$	$f\sigma_8(0.15)$	$0.461^{+0.031}_{-0.037}$
$A_{100}^{\text{PS}}$	$265^{+70}_{-70}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.15)$	$0.728^{+0.051}_{-0.13}$
$A_{143}^{\text{PS}}$	$50^{+20}_{-20}$	$D_{2000}$	$229.2^{+4.7}_{-5.0}$	$f\sigma_8(0.38)$	$0.473^{+0.028}_{-0.054}$
$A_{143 \times 217}^{\text{PS}}$	$44^{+20}_{-20}$	$n_{\text{s},0.002}$	$0.962^{+0.016}_{-0.017}$	$\sigma_8(0.38)$	$0.643^{+0.046}_{-0.12}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$Y_{\text{P}}$	$0.24526^{+0.00024}_{-0.00031}$	$f\sigma_8(0.51)$	$0.470^{+0.027}_{-0.063}$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24658^{+0.00024}_{-0.00031}$	$\sigma_8(0.51)$	$0.601^{+0.043}_{-0.11}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.7}$	$10^5 \text{D}/\text{H}$	$2.65^{+0.14}_{-0.11}$	$f\sigma_8(0.61)$	$0.463^{+0.030}_{-0.059}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.7}_{-4.6}$	$\text{Age}/\text{Gyr}$	$13.89^{+0.46}_{-0.17}$	$\sigma_8(0.61)$	$0.571^{+0.042}_{-0.11}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.5}_{-8.7}$	$z_*$	$1090.4^{+1.5}_{-1.1}$	$f\sigma_8(2.33)$	$0.289^{+0.019}_{-0.053}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$r_*$	$144.4^{+1.3}_{-1.4}$	$\sigma_8(2.33)$	$0.296^{+0.022}_{-0.060}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0409^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.87^{+0.12}_{-0.13}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-5}$
$H_0$	$65.8^{+3.7}_{-8.1}$	$z_{\text{drag}}$	$1059.3^{+1.2}_{-1.3}$	$f_{2000}^{217}$	$108.5^{+5.3}_{-5.1}$
$\Omega_{\Lambda}$	$0.663^{+0.050}_{-0.14}$	$r_{\text{drag}}$	$147.2^{+1.3}_{-1.3}$	$\chi_{\text{simall}}^2$	$396.8 (\nu: 1.4)$
$\Omega_{\text{m}}$	$0.337^{+0.14}_{-0.050}$	$k_{\text{D}}$	$0.1406^{+0.0014}_{-0.0013}$	$\chi_{\text{lowl}}^2$	$23.9 (\nu: 0.8)$
$\Omega_{\text{m}} h^2$	$0.145^{+0.012}_{-0.0065}$	$100\theta_{\text{D}}$	$0.16112^{+0.00069}_{-0.00067}$	$\chi_{\text{plik}}^2$	$772.4 (\nu: 16.2)$
$\Omega_{\nu} h^2$	$< 0.00901$	$z_{\text{eq}}$	$3417^{+130}_{-130}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.7)$
$\Omega_{\text{m}} h^3$	$0.0952^{+0.0020}_{-0.0051}$	$k_{\text{eq}}$	$0.01043^{+0.00041}_{-0.00039}$	$\chi_{\text{CMB}}^2$	$1193.1 (\nu: 16.5)$
$\sigma_8$	$0.790^{+0.055}_{-0.13}$	$100\theta_{\text{eq}}$	$0.810^{+0.025}_{-0.024}$		
$S_8$	$0.835^{+0.062}_{-0.066}$	$100\theta_{\text{s,eq}}$	$0.448^{+0.013}_{-0.012}$		

$$\bar{\chi}_{\text{eff}}^2 = 1200.49; R - 1 = 0.01089$$



### 6.3 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.022395	$0.02235^{+0.00039}_{-0.00039}$ (+1.2 $\sigma$ )	$\Omega_{\nu}h^2$	0.00001	$< 0.00394$ (−0.5 $\sigma$ )	$100\theta_{\text{eq}}$	0.8131	$0.812^{+0.015}_{-0.015}$ (+0.3 $\sigma$ )
$\Omega_{\text{c}}h^2$	0.12003	$0.1202^{+0.0036}_{-0.0035}$ (−0.4 $\sigma$ )	$\Omega_{\text{m}}h^3$	0.09669	$0.0962^{+0.0011}_{-0.0021}$ (+0.8 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4493	$0.4489^{+0.0075}_{-0.0077}$ (+0.3 $\sigma$ )
$100\theta_{\text{MC}}$	1.04095	$1.04089^{+0.00080}_{-0.00084}$ (+0.5 $\sigma$ )	$\sigma_8$	0.8258	$0.807^{+0.035}_{-0.064}$ (+0.5 $\sigma$ )	$H(0.15)$	73.14	$72.4^{+1.8}_{-3.3}$ (+0.6 $\sigma$ )
$\tau$	0.0552	$0.055^{+0.022}_{-0.020}$ (+0.4 $\sigma$ )	$S_8$	0.8383	$0.833^{+0.043}_{-0.042}$ (−0.1 $\sigma$ )	$D_{\text{M}}(0.15)$	638.9	$646^{+34}_{-18}$ (−0.6 $\sigma$ )
$\Sigma m_{\nu}$ [eV]	0.001	$< 0.367$ (−0.5 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4592	$0.456^{+0.023}_{-0.023}$ (−0.1 $\sigma$ )	$H(0.38)$	83.23	$82.7^{+1.3}_{-2.5}$ (+0.7 $\sigma$ )
$\ln(10^{10}A_{\text{s}})$	3.0469	$3.045^{+0.044}_{-0.042}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.6158	$0.607^{+0.025}_{-0.038}$ (+0.3 $\sigma$ )	$D_{\text{M}}(0.38)$	1524	$1539^{+69}_{-36}$ (−0.6 $\sigma$ )
$n_{\text{s}}$	0.9668	$0.965^{+0.011}_{-0.012}$ (+0.5 $\sigma$ )	$\sigma_8/h^{0.5}$	1.002	$0.986^{+0.038}_{-0.066}$ (+0.4 $\sigma$ )	$H(0.51)$	89.94	$89.5^{+1.1}_{-2.0}$ (+0.7 $\sigma$ )
$y_{\text{cal}}$	1.0006	$1.0006^{+0.0064}_{-0.0064}$ (+0.0 $\sigma$ )	$r_{\text{drag}}h$	99.82	$98.6^{+3.5}_{-5.8}$ (+0.6 $\sigma$ )	$D_{\text{M}}(0.51)$	1975	$1993^{+81}_{-42}$ (−0.6 $\sigma$ )
$A_{217}^{\text{CIB}}$	44.8	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.454	$2.446^{+0.073}_{-0.075}$ (−0.1 $\sigma$ )	$H(0.61)$	95.55	$95.14^{+0.90}_{-1.7}$ (+0.7 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.79	—	$z_{\text{re}}$	7.76	$7.7^{+2.1}_{-2.2}$ (+0.3 $\sigma$ )	$D_{\text{M}}(0.61)$	2298	$2318^{+79}_{-50}$ (−0.6 $\sigma$ )
$A_{143}^{\text{tSZ}}$	6.98	$5.5^{+4.3}_{-4.8}$ (+0.3 $\sigma$ )	$10^9 A_{\text{s}}$	2.105	$2.102^{+0.094}_{-0.087}$ (+0.3 $\sigma$ )	$H(2.33)$	236.28	$236.9^{+3.2}_{-2.3}$ (−0.4 $\sigma$ )
$A_{100}^{\text{PS}}$	246	$259^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_{\text{s}}e^{-2\tau}$	1.8851	$1.884^{+0.030}_{-0.030}$ (−0.1 $\sigma$ )	$D_{\text{M}}(2.33)$	5750	$5770^{+87}_{-43}$ (−0.7 $\sigma$ )
$A_{143}^{\text{PS}}$	51.9	$46^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{40}$	1228.3	$1232^{+33}_{-31}$ (−0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4633	$0.460^{+0.022}_{-0.022}$ (−0.0 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	56.3	$43^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5730	$5732^{+100}_{-98}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.7632	$0.745^{+0.029}_{-0.067}$ (+0.5 $\sigma$ )
$A_{217}^{\text{PS}}$	123.6	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{810}$	2542.2	$2540^{+35}_{-35}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4823	$0.477^{+0.019}_{-0.026}$ (+0.3 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	818.9	$817^{+12}_{-12}$ (+0.6 $\sigma$ )	$\sigma_8(0.38)$	0.6766	$0.660^{+0.029}_{-0.057}$ (+0.5 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.82	$8.9^{+4.8}_{-4.7}$ (−0.0 $\sigma$ )	$D_{2000}$	231.68	$230.9^{+4.0}_{-3.9}$ (+0.9 $\sigma$ )	$f\sigma_8(0.51)$	0.4811	$0.475^{+0.018}_{-0.028}$ (+0.3 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.02	$10.9^{+4.6}_{-4.5}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9668	$0.965^{+0.011}_{-0.012}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6332	$0.617^{+0.027}_{-0.054}$ (+0.5 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.2	$18.6^{+8.4}_{-8.7}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.245405	$0.24539^{+0.00015}_{-0.00016}$ (+1.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4761	$0.469^{+0.017}_{-0.030}$ (+0.4 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.7	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.246732	$0.24671^{+0.00015}_{-0.00016}$ (+1.2 $\sigma$ )	$\sigma_8(0.61)$	0.6025	$0.587^{+0.026}_{-0.052}$ (+0.5 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.098}_{-0.096}$	$10^5 \text{D/H}$	2.581	$2.590^{+0.073}_{-0.071}$ (−1.2 $\sigma$ )	$f\sigma_8(2.33)$	0.3029	$0.296^{+0.012}_{-0.024}$ (+0.5 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.077}_{-0.075}$	Age/Gyr	13.766	$13.81^{+0.18}_{-0.10}$ (−0.7 $\sigma$ )	$\sigma_8(2.33)$	0.3128	$0.305^{+0.014}_{-0.028}$ (+0.5 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.480	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.89	$1089.97^{+0.76}_{-0.70}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	28.2	$30^{+7}_{-7}$ (−0.7 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.225	$0.23^{+0.14}_{-0.14}$	$r_*$	144.41	$144.38^{+0.77}_{-0.78}$ (−0.0 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.68	$32^{+5}_{-5}$ (−0.8 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.666	$0.67^{+0.20}_{-0.21}$	$100\theta_*$	1.04110	$1.04110^{+0.00077}_{-0.00080}$ (+0.4 $\sigma$ )	$f_{2000}^{217}$	106.25	$107.1^{+4.6}_{-4.4}$ (−0.8 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.08	$2.09^{+0.69}_{-0.70}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.871	$13.868^{+0.072}_{-0.075}$ (−0.1 $\sigma$ )	$\chi_{\text{simall}}^2$	396.20	$397.2$ ( $\nu$ : 2.0) (+0.1 $\sigma$ )
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1060.01	$1059.91^{+0.79}_{-0.78}$ (+1.3 $\sigma$ )	$\chi_{\text{lowl}}^2$	23.24	$23.56$ ( $\nu$ : 0.5) (−0.3 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	147.06	$147.05^{+0.77}_{-0.78}$ (−0.2 $\sigma$ )	$\chi_{\text{plik}}^2$	2343.8	$2360.2$ ( $\nu$ : 18.0) (+278.3 $\sigma$ )
$H_0$	67.88	$67.0^{+2.1}_{-3.7}$ (+0.6 $\sigma$ )	$k_{\text{D}}$	0.14091	$0.14090^{+0.00086}_{-0.00084}$ (+0.6 $\sigma$ )	$\chi_{\text{prior}}^2$	1.5	$11.5$ ( $\nu$ : 10.2) (+1.1 $\sigma$ )
$\Omega_{\Lambda}$	0.6909	$0.680^{+0.027}_{-0.052}$ (+0.6 $\sigma$ )	$100\theta_{\text{D}}$	0.160729	$0.16078^{+0.00044}_{-0.00045}$ (−1.3 $\sigma$ )	$\chi_{\text{CMB}}^2$	2763.2	$2780.9$ ( $\nu$ : 18.3) (+273.2 $\sigma$ )
$\Omega_{\text{m}}$	0.3091	$0.320^{+0.052}_{-0.027}$ (−0.6 $\sigma$ )	$z_{\text{eq}}$	3404	$3408^{+82}_{-78}$ (−0.2 $\sigma$ )			
$\Omega_{\text{m}}h^2$	0.14244	$0.1436^{+0.0056}_{-0.0038}$ (−0.4 $\sigma$ )	$k_{\text{eq}}$	0.010388	$0.01040^{+0.00025}_{-0.00024}$ (−0.2 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 2764.74$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.79$ ;  $\bar{\chi}_{\text{eff}}^2 = 2792.41$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.67$ ;  $R - 1 = 0.01278$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.20 ( $\Delta$  0.33) commander\_dx12\_v3.2.29: 23.24 ( $\Delta$  -0.42) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.80



## 6.4 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022502	$0.02250^{+0.00034}_{-0.00038}$	$\Omega_\nu h^2$	0.00001	$< 0.00154$	$100\theta_{\text{eq}}$	0.8194	$0.819^{+0.011}_{-0.014}$
$\Omega_c h^2$	0.11856	$0.1186^{+0.0033}_{-0.0029}$	$\Omega_m h^3$	0.09671	$0.09662^{+0.00082}_{-0.0010}$	$100\theta_{\text{s,eq}}$	0.4525	$0.4524^{+0.0058}_{-0.0072}$
$100\theta_{\text{MC}}$	1.04112	$1.04114^{+0.00079}_{-0.00075}$	$\sigma_8$	0.8207	$0.815^{+0.022}_{-0.033}$	$H(0.15)$	73.72	$73.5^{+1.2}_{-1.5}$
$\tau$	0.0561	$0.057^{+0.021}_{-0.022}$	$S_8$	0.8209	$0.820^{+0.039}_{-0.038}$	$D_{\text{M}}(0.15)$	633.2	$635^{+15}_{-11}$
$\Sigma m_\nu$ [eV]	0.001	$< 0.144$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4496	$0.449^{+0.021}_{-0.021}$	$H(0.38)$	83.65	$83.48^{+0.83}_{-1.2}$
$\ln(10^{10} A_{\text{s}})$	3.0451	$3.047^{+0.043}_{-0.046}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6075	$0.605^{+0.021}_{-0.026}$	$D_{\text{M}}(0.38)$	1512.9	$1517^{+31}_{-22}$
$n_{\text{s}}$	0.9695	$0.9686^{+0.0093}_{-0.011}$	$\sigma_8/h^{0.5}$	0.9912	$0.987^{+0.030}_{-0.038}$	$H(0.51)$	90.26	$90.13^{+0.74}_{-0.90}$
$y_{\text{cal}}$	1.0006	$1.0006^{+0.0062}_{-0.0064}$	$r_{\text{drag}} h$	101.00	$100.6^{+2.3}_{-2.9}$	$D_{\text{M}}(0.51)$	1961.6	$1967^{+36}_{-26}$
$A_{217}^{\text{CIB}}$	45.7	$47^{+20}_{-20}$	$\langle d^2 \rangle^{1/2}$	2.431	$2.431^{+0.070}_{-0.074}$	$H(0.61)$	95.80	$95.69^{+0.61}_{-0.76}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.65	—	$z_{\text{re}}$	7.80	$7.9^{+1.9}_{-2.3}$	$D_{\text{M}}(0.61)$	2284.0	$2290^{+39}_{-28}$
$A_{143}^{\text{tSZ}}$	7.17	$> 0.909$	$10^9 A_{\text{s}}$	2.101	$2.105^{+0.092}_{-0.095}$	$H(2.33)$	235.43	$235.6^{+2.1}_{-1.7}$
$A_{100}^{\text{PS}}$	247	$257^{+70}_{-70}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8782	$1.878^{+0.031}_{-0.032}$	$D_{\text{M}}(2.33)$	5739.4	$5745^{+38}_{-26}$
$A_{143}^{\text{PS}}$	49.5	$45^{+20}_{-20}$	$D_{40}$	1222.5	$1225^{+32}_{-28}$	$f\sigma_8(0.15)$	0.4544	$0.454^{+0.020}_{-0.019}$
$A_{143 \times 217}^{\text{PS}}$	52.6	$42^{+20}_{-20}$	$D_{220}$	5740	$5742^{+95}_{-99}$	$\sigma_8(0.15)$	0.7593	$0.754^{+0.020}_{-0.031}$
$A_{217}^{\text{PS}}$	121.7	$115^{+20}_{-30}$	$D_{810}$	2540.1	$2539^{+35}_{-36}$	$f\sigma_8(0.38)$	0.4754	$0.474^{+0.016}_{-0.020}$
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	819.1	$818^{+12}_{-13}$	$\sigma_8(0.38)$	0.6741	$0.669^{+0.018}_{-0.028}$
$A_{100}^{\text{dustTT}}$	8.84	$8.9^{+4.5}_{-4.4}$	$D_{2000}$	231.79	$231.5^{+3.8}_{-4.1}$	$f\sigma_8(0.51)$	0.4752	$0.474^{+0.015}_{-0.019}$
$A_{143}^{\text{dustTT}}$	11.08	$10.9^{+4.3}_{-4.3}$	$n_{\text{s},0.002}$	0.9695	$0.9686^{+0.0093}_{-0.011}$	$\sigma_8(0.51)$	0.6313	$0.627^{+0.017}_{-0.026}$
$A_{143 \times 217}^{\text{dustTT}}$	20.2	$18.4^{+8.3}_{-8.6}$	$Y_{\text{P}}$	0.245445	$0.24544^{+0.00013}_{-0.00015}$	$f\sigma_8(0.61)$	0.4711	$0.469^{+0.014}_{-0.017}$
$A_{217}^{\text{dustTT}}$	95.6	$93^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246772	$0.24677^{+0.00013}_{-0.00015}$	$\sigma_8(0.61)$	0.6010	$0.597^{+0.016}_{-0.025}$
$A_{100}^{\text{dustTE}}$	0.113	$0.114^{+0.099}_{-0.087}$	$10^5 D/\text{H}$	2.562	$2.563^{+0.071}_{-0.061}$	$f\sigma_8(2.33)$	0.3025	$0.3008^{+0.0075}_{-0.011}$
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.134^{+0.076}_{-0.080}$	Age/Gyr	13.743	$13.756^{+0.086}_{-0.059}$	$\sigma_8(2.33)$	0.3128	$0.3106^{+0.0077}_{-0.013}$
$A_{100 \times 217}^{\text{dustTE}}$	0.484	$0.48^{+0.23}_{-0.22}$	$z_*$	1089.62	$1089.64^{+0.67}_{-0.52}$	$f_{2000}^{143}$	28.1	$29^{+7}_{-6}$
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.16}_{-0.13}$	$r_*$	144.71	$144.70^{+0.66}_{-0.74}$	$f_{2000}^{143 \times 217}$	31.58	$32^{+4}_{-4}$
$A_{143 \times 217}^{\text{dustTE}}$	0.664	$0.67^{+0.19}_{-0.20}$	$100\theta_*$	1.04127	$1.04130^{+0.00078}_{-0.00072}$	$f_{2000}^{217}$	106.14	$106.6^{+4.4}_{-4.1}$
$A_{217}^{\text{dustTE}}$	2.07	$2.08^{+0.68}_{-0.68}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.897	$13.896^{+0.063}_{-0.069}$	$\chi_{\text{simall}}^2$	396.2	$397.5 (\nu: 2.4)$
$c_{100}$	0.99974	$0.9997^{+0.0015}_{-0.0015}$	$z_{\text{drag}}$	1060.12	$1060.12^{+0.69}_{-0.76}$	$\chi_{\text{lowl}}^2$	22.73	$22.98 (\nu: 0.4)$
$c_{217}$	0.99817	$0.9982^{+0.0015}_{-0.0015}$	$r_{\text{drag}}$	147.33	$147.33^{+0.70}_{-0.74}$	$\chi_{\text{plik}}^2$	2345.3	$2360.3 (\nu: 17.5)$
$H_0$	68.55	$68.3^{+1.3}_{-1.8}$	$k_{\text{D}}$	0.14071	$0.14071^{+0.00080}_{-0.00077}$	$\chi_{\text{H073p45}}^2$	8.7	$9.8 (\nu: 2.8)$
$\Omega_\Lambda$	0.6998	$0.697^{+0.017}_{-0.023}$	$100\theta_{\text{D}}$	0.160656	$0.16067^{+0.00044}_{-0.00040}$	$\chi_{\text{prior}}^2$	1.7	$11.3 (\nu: 10.2)$
$\Omega_{\text{m}}$	0.3002	$0.303^{+0.023}_{-0.017}$	$z_{\text{eq}}$	3371	$3372^{+75}_{-58}$	$\chi_{\text{CMB}}^2$	2764.2	$2780.7 (\nu: 17.6)$
$\Omega_{\text{m}} h^2$	0.14107	$0.1415^{+0.0033}_{-0.0028}$	$k_{\text{eq}}$	0.010288	$0.01029^{+0.00023}_{-0.00018}$			

Best-fit  $\chi_{\text{eff}}^2 = 2774.59$ ;  $\bar{\chi}_{\text{eff}}^2 = 2801.83$ ;  $R - 1 = 0.06998$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.23 commander\_dx12\_v3.2\_29: 22.73 plik\_rd12\_HM\_v22b\_TTTEEE: 2345.26 Hubble - H073p45: 8.71



## 6.5 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02235^{+0.00039}_{-0.00038} \quad (+1.2\sigma)$	$\Omega_{\nu}h^2$	$< 0.00394 \quad (-0.5\sigma)$	$100\theta_{\text{eq}}$	$0.812^{+0.015}_{-0.015} \quad (+0.3\sigma)$
$\Omega_{\text{c}}h^2$	$0.1202^{+0.0037}_{-0.0034} \quad (-0.3\sigma)$	$\Omega_{\text{m}}h^3$	$0.0962^{+0.0011}_{-0.0021} \quad (+0.8\sigma)$	$100\theta_{\text{s,eq}}$	$0.4490^{+0.0076}_{-0.0078} \quad (+0.2\sigma)$
$100\theta_{\text{MC}}$	$1.04090^{+0.00080}_{-0.00084} \quad (+0.5\sigma)$	$\sigma_8$	$0.808^{+0.034}_{-0.063} \quad (+0.5\sigma)$	$H(0.15)$	$72.4^{+1.8}_{-3.2} \quad (+0.6\sigma)$
$\tau$	$0.056^{+0.020}_{-0.014} \quad (+0.3\sigma)$	$S_8$	$0.833^{+0.042}_{-0.042} \quad (-0.1\sigma)$	$D_{\text{M}}(0.15)$	$646^{+33}_{-18} \quad (-0.6\sigma)$
$\Sigma m_{\nu} [\text{eV}]$	$< 0.367 \quad (-0.5\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.456^{+0.023}_{-0.023} \quad (-0.1\sigma)$	$H(0.38)$	$82.7^{+1.3}_{-2.4} \quad (+0.7\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.047^{+0.043}_{-0.030} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.607^{+0.025}_{-0.038} \quad (+0.3\sigma)$	$D_{\text{M}}(0.38)$	$1539^{+68}_{-36} \quad (-0.6\sigma)$
$n_{\text{s}}$	$0.965^{+0.011}_{-0.012} \quad (+0.5\sigma)$	$\sigma_8/h^{0.5}$	$0.986^{+0.038}_{-0.065} \quad (+0.4\sigma)$	$H(0.51)$	$89.5^{+1.1}_{-2.0} \quad (+0.7\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0064}_{-0.0064} \quad (+0.0\sigma)$	$r_{\text{drag}}h$	$98.6^{+3.4}_{-5.7} \quad (+0.6\sigma)$	$D_{\text{M}}(0.51)$	$1993^{+80}_{-42} \quad (-0.6\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.072}_{-0.074} \quad (-0.1\sigma)$	$H(0.61)$	$95.15^{+0.91}_{-1.7} \quad (+0.7\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 9.60 \quad (+0.2\sigma)$	$D_{\text{M}}(0.61)$	$2318^{+86}_{-46} \quad (-0.6\sigma)$
$A_{143}^{\text{tSZ}}$	$5.5^{+4.3}_{-4.9} \quad (+0.3\sigma)$	$10^9 A_{\text{s}}$	$2.106^{+0.091}_{-0.063} \quad (+0.3\sigma)$	$H(2.33)$	$236.8^{+3.2}_{-2.3} \quad (-0.3\sigma)$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.884^{+0.030}_{-0.030} \quad (-0.1\sigma)$	$D_{\text{M}}(2.33)$	$5770^{+77}_{-47} \quad (-0.7\sigma)$
$A_{143}^{\text{PS}}$	$46^{+20}_{-20} \quad (-0.5\sigma)$	$D_{40}$	$1232^{+33}_{-31} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.461^{+0.022}_{-0.022} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5732^{+99}_{-98} \quad (+0.5\sigma)$	$\sigma_8(0.15)$	$0.746^{+0.029}_{-0.067} \quad (+0.5\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{810}$	$2540^{+35}_{-34} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.019}_{-0.026} \quad (+0.3\sigma)$
$A^{\text{kSZ}}$	—	$D_{1420}$	$817^{+12}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	$0.660^{+0.028}_{-0.057} \quad (+0.5\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.8}_{-4.7} \quad (-0.0\sigma)$	$D_{2000}$	$230.9^{+4.0}_{-3.9} \quad (+0.9\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.018}_{-0.028} \quad (+0.3\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$n_{\text{s},0.002}$	$0.965^{+0.011}_{-0.012} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.617^{+0.027}_{-0.054} \quad (+0.5\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.3}_{-8.7} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.24539^{+0.00015}_{-0.00016} \quad (+1.2\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.017}_{-0.030} \quad (+0.4\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+1.2\sigma)$	$\sigma_8(0.61)$	$0.587^{+0.025}_{-0.052} \quad (+0.5\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.098}_{-0.096}$	$10^5 \text{D/H}$	$2.589^{+0.073}_{-0.071} \quad (-1.2\sigma)$	$f\sigma_8(2.33)$	$0.296^{+0.011}_{-0.027} \quad (+0.5\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.077}_{-0.074}$	Age/Gyr	$13.81^{+0.20}_{-0.096} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.305^{+0.013}_{-0.031} \quad (+0.5\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.96^{+0.76}_{-0.70} \quad (-1.0\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.7\sigma)$
$A_{143}^{\text{dustTE}}$	$0.23^{+0.14}_{-0.14}$	$r_*$	$144.39^{+0.77}_{-0.79} \quad (-0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.8\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.67^{+0.20}_{-0.21}$	$100\theta_*$	$1.04110^{+0.00077}_{-0.00081} \quad (+0.4\sigma)$	$f_{2000}^{217}$	$107.1^{+4.6}_{-4.4} \quad (-0.7\sigma)$
$A_{217}^{\text{dustTE}}$	$2.09^{+0.69}_{-0.69}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.869^{+0.072}_{-0.075} \quad (-0.1\sigma)$	$\chi_{\text{simall}}^2$	$397.2 \quad (\nu: 2.1) \quad (+0.2\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1059.91^{+0.78}_{-0.74} \quad (+1.3\sigma)$	$\chi_{\text{lowl}}^2$	$23.57 \quad (\nu: 0.5) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\text{drag}}$	$147.05^{+0.77}_{-0.78} \quad (-0.2\sigma)$	$\chi_{\text{plik}}^2$	$2360.0 \quad (\nu: 17.8) \quad (+278.8\sigma)$
$H_0$	$67.0^{+2.1}_{-3.7} \quad (+0.6\sigma)$	$k_{\text{D}}$	$0.14090^{+0.00086}_{-0.00084} \quad (+0.6\sigma)$	$\chi_{\text{prior}}^2$	$11.5 \quad (\nu: 10.2) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.680^{+0.027}_{-0.051} \quad (+0.5\sigma)$	$100\theta_{\text{D}}$	$0.16077^{+0.00044}_{-0.00045} \quad (-1.3\sigma)$	$\chi_{\text{CMB}}^2$	$2780.7 \quad (\nu: 18.0) \quad (+276.2\sigma)$
$\Omega_{\text{m}}$	$0.320^{+0.051}_{-0.027} \quad (-0.5\sigma)$	$z_{\text{eq}}$	$3407^{+83}_{-78} \quad (-0.2\sigma)$		
$\Omega_{\text{m}}h^2$	$0.1435^{+0.0055}_{-0.0037} \quad (-0.4\sigma)$	$k_{\text{eq}}$	$0.01040^{+0.00025}_{-0.00024} \quad (-0.2\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2792.20; \Delta\bar{\chi}_{\text{eff}}^2 = 1591.71; R - 1 = 0.01347$$



## 6.6 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02250^{+0.00034}_{-0.00038}$	$\Omega_{\nu}h^2$	$< 0.00155$	$100\theta_{\text{eq}}$	$0.819^{+0.011}_{-0.014}$
$\Omega_{\text{c}}h^2$	$0.1186^{+0.0033}_{-0.0029}$	$\Omega_{\text{m}}h^3$	$0.09662^{+0.00082}_{-0.0010}$	$100\theta_{\text{s,eq}}$	$0.4525^{+0.0057}_{-0.0072}$
$100\theta_{\text{MC}}$	$1.04114^{+0.00079}_{-0.00075}$	$\sigma_8$	$0.816^{+0.022}_{-0.033}$	$H(0.15)$	$73.5^{+1.1}_{-1.5}$
$\tau$	$0.058^{+0.020}_{-0.016}$	$S_8$	$0.820^{+0.039}_{-0.038}$	$D_{\text{M}}(0.15)$	$635^{+15}_{-11}$
$\Sigma m_{\nu} [\text{eV}]$	$< 0.144$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.449^{+0.021}_{-0.021}$	$H(0.38)$	$83.49^{+0.91}_{-1.1}$
$\ln(10^{10}A_{\text{s}})$	$3.048^{+0.042}_{-0.033}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.605^{+0.021}_{-0.027}$	$D_{\text{M}}(0.38)$	$1517^{+31}_{-22}$
$n_{\text{s}}$	$0.9687^{+0.0092}_{-0.011}$	$\sigma_8/h^{0.5}$	$0.987^{+0.030}_{-0.038}$	$H(0.51)$	$90.13^{+0.74}_{-0.90}$
$y_{\text{cal}}$	$1.0006^{+0.0062}_{-0.0064}$	$r_{\text{drag}}h$	$100.7^{+2.3}_{-2.9}$	$D_{\text{M}}(0.51)$	$1966^{+36}_{-26}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.069}_{-0.075}$	$H(0.61)$	$95.69^{+0.61}_{-0.76}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 9.66$	$D_{\text{M}}(0.61)$	$2289^{+39}_{-28}$
$A_{143}^{\text{tSZ}}$	$> 0.936$	$10^9 A_{\text{s}}$	$2.108^{+0.091}_{-0.070}$	$H(2.33)$	$235.6^{+2.1}_{-1.7}$
$A_{100}^{\text{PS}}$	$257^{+70}_{-70}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.878^{+0.030}_{-0.032}$	$D_{\text{M}}(2.33)$	$5745^{+38}_{-26}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$D_{40}$	$1225^{+32}_{-28}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.019}$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20}$	$D_{220}$	$5742^{+95}_{-99}$	$\sigma_8(0.15)$	$0.755^{+0.020}_{-0.031}$
$A_{217}^{\text{PS}}$	$115^{+20}_{-30}$	$D_{810}$	$2539^{+35}_{-36}$	$f\sigma_8(0.38)$	$0.474^{+0.016}_{-0.020}$
$A^{\text{kSZ}}$	—	$D_{1420}$	$818^{+12}_{-13}$	$\sigma_8(0.38)$	$0.670^{+0.018}_{-0.028}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.5}_{-4.4}$	$D_{2000}$	$231.5^{+3.8}_{-4.1}$	$f\sigma_8(0.51)$	$0.474^{+0.015}_{-0.019}$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.4}_{-4.3}$	$n_{\text{s},0.002}$	$0.9687^{+0.0092}_{-0.011}$	$\sigma_8(0.51)$	$0.627^{+0.017}_{-0.026}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.4^{+8.2}_{-8.6}$	$Y_{\text{P}}$	$0.24544^{+0.00013}_{-0.00015}$	$f\sigma_8(0.61)$	$0.470^{+0.014}_{-0.018}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00013}_{-0.00015}$	$\sigma_8(0.61)$	$0.597^{+0.016}_{-0.025}$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.099}_{-0.088}$	$10^5 \text{D}/\text{H}$	$2.562^{+0.070}_{-0.061}$	$f\sigma_8(2.33)$	$0.3009^{+0.0073}_{-0.011}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.077}_{-0.082}$	Age/Gyr	$13.756^{+0.087}_{-0.059}$	$\sigma_8(2.33)$	$0.3108^{+0.0076}_{-0.013}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.23}_{-0.22}$	$z_*$	$1089.63^{+0.64}_{-0.56}$	$f_{2000}^{143}$	$29^{+7}_{-6}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.16}_{-0.13}$	$r_*$	$144.71^{+0.66}_{-0.74}$	$f_{2000}^{143 \times 217}$	$32^{+4}_{-4}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.67^{+0.19}_{-0.20}$	$100\theta_*$	$1.04130^{+0.00078}_{-0.00072}$	$f_{2000}^{217}$	$106.5^{+4.5}_{-4.0}$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.64}_{-0.68}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.897^{+0.063}_{-0.069}$	$\chi_{\text{simall}}^2$	$397.5 (\nu: 2.5)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0015}$	$z_{\text{drag}}$	$1060.13^{+0.68}_{-0.73}$	$\chi_{\text{lowl}}^2$	$22.98 (\nu: 0.4)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0015}$	$r_{\text{drag}}$	$147.33^{+0.70}_{-0.74}$	$\chi_{\text{plik}}^2$	$2360.1 (\nu: 17.2)$
$H_0$	$68.3^{+1.3}_{-1.8}$	$k_{\text{D}}$	$0.14071^{+0.00080}_{-0.00077}$	$\chi_{\text{H073p45}}^2$	$9.7 (\nu: 2.7)$
$\Omega_{\Lambda}$	$0.697^{+0.017}_{-0.023}$	$100\theta_{\text{D}}$	$0.16067^{+0.00044}_{-0.00039}$	$\chi_{\text{prior}}^2$	$11.3 (\nu: 10.2)$
$\Omega_{\text{m}}$	$0.303^{+0.023}_{-0.017}$	$z_{\text{eq}}$	$3371^{+74}_{-66}$	$\chi_{\text{CMB}}^2$	$2780.6 (\nu: 17.3)$
$\Omega_{\text{m}}h^2$	$0.1414^{+0.0033}_{-0.0028}$	$k_{\text{eq}}$	$0.01029^{+0.00023}_{-0.00020}$		

$$\bar{\chi}_{\text{eff}}^2 = 2801.63; R - 1 = 0.07310$$



## 6.7 base\_mnu\_CamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02214	$0.02205^{+0.00063}_{-0.00067}$	$S_8$	0.841	$0.833^{+0.067}_{-0.068}$	$100\theta_{s,eq}$	0.4485	$0.448^{+0.013}_{-0.012}$
$\Omega_c h^2$	0.1205	$0.1210^{+0.0059}_{-0.0057}$	$\sigma_8 \Omega_m^{0.5}$	0.4607	$0.456^{+0.037}_{-0.037}$	$H(0.15)$	72.8	$71.2^{+3.1}_{-6.8}$
$100\theta_{MC}$	1.04085	$1.0407^{+0.0013}_{-0.0014}$	$\sigma_8 \Omega_m^{0.25}$	0.616	$0.599^{+0.041}_{-0.073}$	$D_M(0.15)$	642	$659^{+70}_{-35}$
$\tau$	0.0507	$0.052^{+0.023}_{-0.021}$	$\sigma_8/h^{0.5}$	1.002	$0.971^{+0.062}_{-0.13}$	$H(0.38)$	82.92	$81.7^{+2.3}_{-5.1}$
$\Sigma m_\nu$ [eV]	0.001	< 0.856	$r_{drag} h$	99.3	$96.7^{+6.0}_{-12}$	$D_M(0.38)$	1532	$1564^{+140}_{-71}$
$\ln(10^{10} A_s)$	3.0361	$3.039^{+0.045}_{-0.042}$	$\langle d^2 \rangle^{1/2}$	2.454	$2.444^{+0.099}_{-0.097}$	$H(0.51)$	89.66	$88.7^{+1.9}_{-4.1}$
$n_s$	0.9637	$0.962^{+0.016}_{-0.017}$	$z_{re}$	7.36	$7.5^{+2.2}_{-2.4}$	$D_M(0.51)$	1984	$2022^{+180}_{-75}$
$y_{cal}$	1.0003	$1.0005^{+0.0064}_{-0.0066}$	$10^9 A_s$	2.082	$2.088^{+0.096}_{-0.087}$	$H(0.61)$	95.30	$94.5^{+1.6}_{-3.4}$
$A_{100}^{PS}$	239	$244^{+60}_{-70}$	$10^9 A_s e^{-2\tau}$	1.8816	$1.883^{+0.036}_{-0.034}$	$D_M(0.61)$	2308	$2350^{+200}_{-82}$
$A_{143}^{PS}$	39	$42^{+20}_{-20}$	$D_{40}$	1229.4	$1230^{+39}_{-38}$	$H(2.33)$	236.3	$237.6^{+6.8}_{-4.0}$
$A_{217}^{PS}$	99.7	$101^{+30}_{-40}$	$D_{220}$	5703	$5701^{+110}_{-110}$	$D_M(2.33)$	5763	$5806^{+170}_{-85}$
$A_{217}^{CIB}$	44.5	$41^{+20}_{-20}$	$D_{810}$	2533.4	$2535^{+35}_{-37}$	$f\sigma_8(0.15)$	0.4644	$0.460^{+0.034}_{-0.038}$
$A_{143}^{tSZ}$	5.47	< 8.55	$D_{1420}$	813.9	$814^{+14}_{-13}$	$\sigma_8(0.15)$	0.760	$0.725^{+0.053}_{-0.13}$
$r_{143 \times 217}^{PS}$	0.578	$0.65^{+0.31}_{-0.32}$	$D_{2000}$	229.6	$229.1^{+5.0}_{-5.1}$	$f\sigma_8(0.38)$	0.4824	$0.472^{+0.030}_{-0.054}$
$r_{143 \times 217}^{CIB}$	0.71	—	$n_{s,0.002}$	0.9637	$0.962^{+0.016}_{-0.017}$	$\sigma_8(0.38)$	0.673	$0.641^{+0.048}_{-0.12}$
$\xi^{tSZ \times CIB}$	0.04	—	$Y_P$	0.245303	$0.24526^{+0.00025}_{-0.00031}$	$f\sigma_8(0.51)$	0.4807	$0.468^{+0.029}_{-0.061}$
$A^{kSZ}$	1.8	—	$Y_P^{BBN}$	0.246629	$0.24658^{+0.00025}_{-0.00031}$	$\sigma_8(0.51)$	0.630	$0.599^{+0.045}_{-0.11}$
$A_{100}^{dust}$	1.014	$1.01^{+0.50}_{-0.49}$	$10^5 D/H$	2.629	$2.65^{+0.13}_{-0.12}$	$f\sigma_8(0.61)$	0.4755	$0.462^{+0.028}_{-0.066}$
$A_{143}^{dust}$	0.980	$0.98^{+0.44}_{-0.45}$	Age/Gyr	13.796	$13.90^{+0.40}_{-0.19}$	$\sigma_8(0.61)$	0.599	$0.569^{+0.043}_{-0.11}$
$A_{217}^{dust}$	0.965	$0.97^{+0.26}_{-0.27}$	$z_*$	1090.25	$1090.4^{+1.5}_{-1.1}$	$f\sigma_8(2.33)$	0.3011	$0.288^{+0.020}_{-0.053}$
$A_{143 \times 217}^{dust}$	1.011	$1.03^{+0.42}_{-0.41}$	$r_*$	144.48	$144.4^{+1.3}_{-1.4}$	$\sigma_8(2.33)$	0.3108	$0.295^{+0.023}_{-0.060}$
$c_{100}$	0.99748	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_*$	1.04102	$1.0410^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	30.8	$31^{+8}_{-8}$
$c_{217}$	1.00139	$1.0013^{+0.0041}_{-0.0041}$	$D_M(z_*)/\text{Gpc}$	13.878	$13.87^{+0.12}_{-0.13}$	$f_{2000}^{217}$	107.4	$108.0^{+5.9}_{-5.5}$
$H_0$	67.5	$65.7^{+3.6}_{-8.0}$	$z_{drag}$	1059.44	$1059.3^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	32.9	$34^{+6}_{-6}$
$\Omega_\Lambda$	0.687	$0.662^{+0.055}_{-0.11}$	$r_{drag}$	147.22	$147.2^{+1.3}_{-1.3}$	$\chi_{simall}^2$	395.71	$397.0 (\nu: 1.6)$
$\Omega_m$	0.313	$0.338^{+0.11}_{-0.055}$	$k_D$	0.14056	$0.1406^{+0.0014}_{-0.0013}$	$\chi_{lowl}^2$	23.54	$23.6 (\nu: 0.8)$
$\Omega_m h^2$	0.1427	$0.145^{+0.012}_{-0.0065}$	$100\theta_D$	0.16105	$0.16112^{+0.00072}_{-0.00071}$	$\chi_{CamSpec}^2$	7049.7	$7064.5 (\nu: 16.3)$
$\Omega_\nu h^2$	0.00001	< 0.00921	$z_{eq}$	3409	$3418^{+130}_{-130}$	$\chi_{prior}^2$	2.3	$7.7 (\nu: 6.1)$
$\Omega_m h^3$	0.09626	$0.0952^{+0.0020}_{-0.0050}$	$k_{eq}$	0.010405	$0.01043^{+0.00041}_{-0.00039}$	$\chi_{CMB}^2$	7469.0	$7485.1 (\nu: 16.9)$
$\sigma_8$	0.823	$0.787^{+0.057}_{-0.13}$	$100\theta_{eq}$	0.8113	$0.810^{+0.025}_{-0.024}$			

Best-fit  $\chi_{eff}^2 = 7471.23$ ;  $\bar{\chi}_{eff}^2 = 7492.77$ ;  $R - 1 = 0.00611$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.71 commander\_dx12\_v3.2\_29: 23.54 CamSpec like\_10.7HM: 7049.70



## 6.8 base\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02206^{+0.00062}_{-0.00069}$	$S_8$	$0.833^{+0.068}_{-0.067}$	$100\theta_{s,eq}$	$0.448^{+0.012}_{-0.012}$
$\Omega_c h^2$	$0.1209^{+0.0059}_{-0.0056}$	$\sigma_8 \Omega_m^{0.5}$	$0.456^{+0.037}_{-0.036}$	$H(0.15)$	$71.3^{+3.1}_{-6.9}$
$100\theta_{MC}$	$1.0407^{+0.0013}_{-0.0014}$	$\sigma_8 \Omega_m^{0.25}$	$0.599^{+0.041}_{-0.073}$	$D_M(0.15)$	$658^{+71}_{-35}$
$\tau$	$0.053^{+0.020}_{-0.013}$	$\sigma_8/h^{0.5}$	$0.972^{+0.062}_{-0.13}$	$H(0.38)$	$81.8^{+2.4}_{-5.1}$
$\Sigma m_\nu$ [eV]	$< 0.856$	$r_{drag} h$	$96.7^{+6.0}_{-12}$	$D_M(0.38)$	$1564^{+160}_{-64}$
$\ln(10^{10} A_s)$	$3.042^{+0.043}_{-0.029}$	$\langle d^2 \rangle^{1/2}$	$2.446^{+0.098}_{-0.095}$	$H(0.51)$	$88.7^{+1.9}_{-4.1}$
$n_s$	$0.962^{+0.016}_{-0.017}$	$z_{re}$	$< 9.53$	$D_M(0.51)$	$2022^{+180}_{-76}$
$y_{cal}$	$1.0005^{+0.0064}_{-0.0066}$	$10^9 A_s$	$2.095^{+0.092}_{-0.061}$	$H(0.61)$	$94.5^{+1.6}_{-3.4}$
$A_{100}^{PS}$	$244^{+60}_{-70}$	$10^9 A_s e^{-2\tau}$	$1.882^{+0.036}_{-0.034}$	$D_M(0.61)$	$2349^{+200}_{-82}$
$A_{143}^{PS}$	$42^{+20}_{-20}$	$D_{40}$	$1230^{+38}_{-38}$	$H(2.33)$	$237.5^{+6.8}_{-4.0}$
$A_{217}^{PS}$	$101^{+30}_{-40}$	$D_{220}$	$5701^{+110}_{-110}$	$D_M(2.33)$	$5806^{+170}_{-85}$
$A_{217}^{CIB}$	$41^{+20}_{-20}$	$D_{810}$	$2535^{+36}_{-37}$	$f\sigma_8(0.15)$	$0.460^{+0.034}_{-0.037}$
$A_{143}^{tSZ}$	$< 8.55$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.15)$	$0.726^{+0.052}_{-0.13}$
$r_{143 \times 217}^{PS}$	$0.65^{+0.31}_{-0.32}$	$D_{2000}$	$229.2^{+5.0}_{-5.1}$	$f\sigma_8(0.38)$	$0.473^{+0.031}_{-0.053}$
$r_{143 \times 217}^{CIB}$	—	$n_{s,0.002}$	$0.962^{+0.016}_{-0.017}$	$\sigma_8(0.38)$	$0.642^{+0.047}_{-0.12}$
$\xi^{tSZ \times CIB}$	—	$Y_P$	$0.24526^{+0.00025}_{-0.00031}$	$f\sigma_8(0.51)$	$0.469^{+0.029}_{-0.061}$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.24659^{+0.00025}_{-0.00032}$	$\sigma_8(0.51)$	$0.600^{+0.044}_{-0.12}$
$A_{100}^{dust}$	$1.01^{+0.50}_{-0.50}$	$10^5 D/H$	$2.64^{+0.14}_{-0.12}$	$f\sigma_8(0.61)$	$0.462^{+0.028}_{-0.066}$
$A_{143}^{dust}$	$0.98^{+0.44}_{-0.45}$	Age/Gyr	$13.90^{+0.40}_{-0.19}$	$\sigma_8(0.61)$	$0.570^{+0.042}_{-0.11}$
$A_{217}^{dust}$	$0.97^{+0.26}_{-0.27}$	$z_*$	$1090.4^{+1.5}_{-1.1}$	$f\sigma_8(2.33)$	$0.288^{+0.020}_{-0.053}$
$A_{143 \times 217}^{dust}$	$1.03^{+0.42}_{-0.41}$	$r_*$	$144.4^{+1.3}_{-1.4}$	$\sigma_8(2.33)$	$0.295^{+0.023}_{-0.060}$
$c_{100}$	$0.9974^{+0.0028}_{-0.0027}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{217}$	$1.0013^{+0.0041}_{-0.0040}$	$D_M(z_*)/\text{Gpc}$	$13.87^{+0.12}_{-0.13}$	$f_{2000}^{217}$	$108.0^{+5.7}_{-5.5}$
$H_0$	$65.7^{+3.6}_{-8.0}$	$z_{drag}$	$1059.3^{+1.2}_{-1.3}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$\Omega_\Lambda$	$0.663^{+0.055}_{-0.11}$	$r_{drag}$	$147.2^{+1.3}_{-1.3}$	$\chi_{simall}^2$	$396.9 (\nu: 1.6)$
$\Omega_m$	$0.337^{+0.11}_{-0.055}$	$k_D$	$0.1406^{+0.0014}_{-0.0013}$	$\chi_{lowl}^2$	$23.6 (\nu: 0.8)$
$\Omega_m h^2$	$0.145^{+0.012}_{-0.0065}$	$100\theta_D$	$0.16112^{+0.00071}_{-0.00071}$	$\chi_{CamSpec}^2$	$7064.4 (\nu: 16.1)$
$\Omega_\nu h^2$	$< 0.00921$	$z_{eq}$	$3416^{+130}_{-130}$	$\chi_{prior}^2$	$7.7 (\nu: 6.1)$
$\Omega_m h^3$	$0.0952^{+0.0020}_{-0.0050}$	$k_{eq}$	$0.01043^{+0.00041}_{-0.00039}$	$\chi_{CMB}^2$	$7484.8 (\nu: 16.4)$
$\sigma_8$	$0.788^{+0.056}_{-0.13}$	$100\theta_{eq}$	$0.810^{+0.024}_{-0.024}$		

$$\bar{\chi}_{\text{eff}}^2 = 7492.51; R - 1 = 0.00841$$



## 6.9 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022312	$0.02227^{+0.00045}_{-0.00044}$ (+0.8 $\sigma$ )	$\sigma_8$	0.821	$0.795^{+0.044}_{-0.096}$ (+0.2 $\sigma$ )	$100\theta_{s,eq}$	0.4505	$0.4502^{+0.0079}_{-0.0077}$ (+0.5 $\sigma$ )
$\Omega_c h^2$	0.11951	$0.1197^{+0.0036}_{-0.0036}$ (−0.6 $\sigma$ )	$S_8$	0.8298	$0.822^{+0.043}_{-0.050}$ (−0.4 $\sigma$ )	$H(0.15)$	73.22	$72.2^{+2.1}_{-4.7}$ (+0.5 $\sigma$ )
$100\theta_{MC}$	1.04093	$1.04082^{+0.00088}_{-0.00089}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4545	$0.450^{+0.024}_{-0.027}$ (−0.4 $\sigma$ )	$D_M(0.15)$	638.0	$649^{+44}_{-24}$ (−0.5 $\sigma$ )
$\tau$	0.0522	$0.053^{+0.021}_{-0.022}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6107	$0.598^{+0.029}_{-0.057}$ (−0.0 $\sigma$ )	$H(0.38)$	83.26	$82.4^{+1.6}_{-3.5}$ (+0.5 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.001	< 0.570 (−0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.995	$0.972^{+0.045}_{-0.10}$ (+0.0 $\sigma$ )	$D_M(0.38)$	1523	$1544^{+89}_{-48}$ (−0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0374	$3.039^{+0.043}_{-0.043}$ (+0.0 $\sigma$ )	$r_{drag} h$	100.1	$98.4^{+4.0}_{-8.2}$ (+0.5 $\sigma$ )	$H(0.51)$	89.94	$89.2^{+1.3}_{-2.9}$ (+0.5 $\sigma$ )
$n_s$	0.9667	$0.965^{+0.012}_{-0.013}$ (+0.5 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.439	$2.428^{+0.073}_{-0.074}$ (−0.4 $\sigma$ )	$D_M(0.51)$	1973	$1999^{+110}_{-57}$ (−0.5 $\sigma$ )
$y_{cal}$	1.0003	$1.0006^{+0.0062}_{-0.0064}$ (+0.0 $\sigma$ )	$z_{re}$	7.46	$7.5^{+2.1}_{-2.4}$ (+0.0 $\sigma$ )	$H(0.61)$	95.53	$94.9^{+1.1}_{-2.5}$ (+0.5 $\sigma$ )
$A_{100}^{PS}$	231	$241^{+60}_{-60}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.085	$2.088^{+0.093}_{-0.088}$ (+0.0 $\sigma$ )	$D_M(0.61)$	2297	$2325^{+110}_{-61}$ (−0.5 $\sigma$ )
$A_{143}^{PS}$	45.8	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8786	$1.879^{+0.029}_{-0.029}$ (−0.3 $\sigma$ )	$H(2.33)$	235.85	$236.6^{+4.0}_{-2.6}$ (−0.5 $\sigma$ )
$A_{217}^{PS}$	103.5	$102^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{40}$	1224.5	$1227^{+33}_{-33}$ (−0.2 $\sigma$ )	$D_M(2.33)$	5753	$5782^{+130}_{-53}$ (−0.5 $\sigma$ )
$A_{217}^{CIB}$	43.3	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5717	$5720^{+98}_{-99}$ (+0.4 $\sigma$ )	$f\sigma_8(0.15)$	0.4587	$0.455^{+0.022}_{-0.028}$ (−0.4 $\sigma$ )
$A_{143}^{tSZ}$	6.55	< 8.87 (+0.1 $\sigma$ )	$D_{810}$	2535.3	$2536^{+33}_{-34}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.759	$0.733^{+0.041}_{-0.093}$ (+0.2 $\sigma$ )
$r_{143 \times 217}^{PS}$	0.674	$0.65^{+0.31}_{-0.33}$ (+0.1 $\sigma$ )	$D_{1420}$	816.0	$816^{+12}_{-12}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4782	$0.471^{+0.021}_{-0.039}$ (−0.1 $\sigma$ )
$r_{143 \times 217}^{CIB}$	0.85	—	$D_{2000}$	230.50	$230.1^{+4.2}_{-4.4}$ (+0.5 $\sigma$ )	$\sigma_8(0.38)$	0.673	$0.649^{+0.037}_{-0.086}$ (+0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.49	—	$n_{s,0.002}$	0.9667	$0.965^{+0.012}_{-0.013}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4772	$0.468^{+0.021}_{-0.045}$ (+0.0 $\sigma$ )
$A^{kSZ}$	0.0	—	$Y_P$	0.245372	$0.24535^{+0.00017}_{-0.00020}$ (+0.8 $\sigma$ )	$\sigma_8(0.51)$	0.630	$0.607^{+0.035}_{-0.083}$ (+0.2 $\sigma$ )
$A_{100}^{dust}$	1.01	$1.01^{+0.51}_{-0.50}$ (+0.0 $\sigma$ )	$Y_P^{BBN}$	0.246698	$0.24668^{+0.00017}_{-0.00020}$ (+0.8 $\sigma$ )	$f\sigma_8(0.61)$	0.4725	$0.463^{+0.020}_{-0.048}$ (+0.1 $\sigma$ )
$A_{143}^{dust}$	0.981	$0.97^{+0.46}_{-0.46}$ (−0.1 $\sigma$ )	$10^5 D/H$	2.597	$2.606^{+0.085}_{-0.081}$ (−0.8 $\sigma$ )	$\sigma_8(0.61)$	0.599	$0.578^{+0.034}_{-0.080}$ (+0.3 $\sigma$ )
$A_{217}^{dust}$	0.976	$0.97^{+0.26}_{-0.26}$ (+0.1 $\sigma$ )	Age/Gyr	13.773	$13.84^{+0.30}_{-0.12}$ (−0.5 $\sigma$ )	$f\sigma_8(2.33)$	0.3013	$0.292^{+0.016}_{-0.037}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{dust}$	1.005	$1.03^{+0.41}_{-0.40}$ (−0.0 $\sigma$ )	$z_*$	1089.95	$1090.04^{+0.86}_{-0.77}$ (−0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3113	$0.300^{+0.018}_{-0.043}$ (+0.3 $\sigma$ )
$c_{100}$	0.99774	$0.9975^{+0.0027}_{-0.0027}$ (+0.1 $\sigma$ )	$r_*$	144.61	$144.57^{+0.81}_{-0.83}$ (+0.4 $\sigma$ )	$f_{2000}^{143}$	29.8	$30^{+8}_{-7}$ (−0.4 $\sigma$ )
$c_{217}$	1.00133	$1.0011^{+0.0040}_{-0.0041}$ (−0.1 $\sigma$ )	$100\theta_*$	1.04108	$1.04105^{+0.00084}_{-0.00083}$ (+0.2 $\sigma$ )	$f_{2000}^{217}$	106.5	$107.2^{+5.1}_{-5.1}$ (−0.4 $\sigma$ )
$c_{TE}$	0.9964	$0.997^{+0.013}_{-0.013}$	$D_M(z_*)/\text{Gpc}$	13.890	$13.887^{+0.075}_{-0.077}$ (+0.4 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.9	$32^{+5}_{-5}$ (−0.5 $\sigma$ )
$c_{EE}$	0.9923	$0.992^{+0.013}_{-0.013}$	$z_{drag}$	1059.78	$1059.68^{+0.90}_{-0.89}$ (+0.8 $\sigma$ )	$\chi_{small}^2$	395.78	396.9 ( $\nu$ : 1.5) (−0.0 $\sigma$ )
$H_0$	67.99	$66.8^{+2.4}_{-5.3}$ (+0.5 $\sigma$ )	$r_{drag}$	147.29	$147.27^{+0.81}_{-0.82}$ (+0.2 $\sigma$ )	$\chi_{lowl}^2$	23.03	23.13 ( $\nu$ : 0.4) (−0.4 $\sigma$ )
$\Omega_\Lambda$	0.693	$0.678^{+0.032}_{-0.077}$ (+0.5 $\sigma$ )	$k_D$	0.14061	$0.14061^{+0.00090}_{-0.00091}$ (+0.1 $\sigma$ )	$\chi_{CamSpec}^2$	11499.2	11515.5 ( $\nu$ : 18.2) (+779.7 $\sigma$ )
$\Omega_m$	0.307	$0.322^{+0.077}_{-0.032}$ (−0.5 $\sigma$ )	$100\theta_D$	0.16086	$0.16089^{+0.00050}_{-0.00052}$ (−0.8 $\sigma$ )	$\chi_{prior}^2$	2.1	7.8 ( $\nu$ : 5.8) (+0.0 $\sigma$ )
$\Omega_m h^2$	0.1418	$0.1434^{+0.0072}_{-0.0043}$ (−0.5 $\sigma$ )	$z_{eq}$	3389	$3393^{+81}_{-80}$ (−0.5 $\sigma$ )	$\chi_{CMB}^2$	11918.0	11935.6 ( $\nu$ : 18.8) (+765.6 $\sigma$ )
$\Omega_\nu h^2$	0.00001	< 0.00613 (−0.3 $\sigma$ )	$k_{eq}$	0.010344	$0.01036^{+0.00025}_{-0.00024}$ (−0.5 $\sigma$ )			
$\Omega_m h^3$	0.09642	$0.0957^{+0.0014}_{-0.0034}$ (+0.4 $\sigma$ )	$100\theta_{eq}$	0.8154	$0.815^{+0.015}_{-0.015}$ (+0.5 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 11920.07$ ;  $\Delta\chi_{eff}^2 = 4448.84$ ;  $\bar{\chi}_{eff}^2 = 11943.39$ ;  $\Delta\bar{\chi}_{eff}^2 = 4450.62$ ;  $R - 1 = 0.01661$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.78 ( $\Delta$  0.06) commander\_dx12\_v3.2.29: 23.03 ( $\Delta$  -0.50) CamSpec like\_10.7HM\_1400\_unified: 11499.19



## 6.10 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02243^{+0.00040}_{-0.00039}$	$\sigma_8$	$0.810^{+0.023}_{-0.033}$	$100\theta_{s,eq}$	$0.4539^{+0.0067}_{-0.0073}$
$\Omega_c h^2$	$0.1180^{+0.0033}_{-0.0028}$	$S_8$	$0.811^{+0.040}_{-0.035}$	$H(0.15)$	$73.6^{+1.5}_{-1.6}$
$100\theta_{MC}$	$1.04110^{+0.00090}_{-0.00079}$	$\sigma_8 \Omega_m^{0.5}$	$0.444^{+0.022}_{-0.019}$	$D_M(0.15)$	$634^{+16}_{-14}$
$\tau$	$0.055^{+0.023}_{-0.024}$	$\sigma_8 \Omega_m^{0.25}$	$0.600^{+0.022}_{-0.022}$	$H(0.38)$	$83.5^{+1.1}_{-1.2}$
$\Sigma m_\nu$ [eV]	$< 0.157$	$\sigma_8/h^{0.5}$	$0.979^{+0.032}_{-0.035}$	$D_M(0.38)$	$1516^{+32}_{-28}$
$\ln(10^{10} A_s)$	$3.040^{+0.044}_{-0.044}$	$r_{drag} h$	$101.0^{+2.7}_{-3.0}$	$H(0.51)$	$90.13^{+0.91}_{-1.0}$
$n_s$	$0.970^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	$2.414^{+0.072}_{-0.071}$	$D_M(0.51)$	$1965^{+38}_{-34}$
$y_{cal}$	$1.0007^{+0.0059}_{-0.0067}$	$z_{re}$	$7.7^{+2.2}_{-2.6}$	$H(0.61)$	$95.67^{+0.75}_{-0.85}$
$A_{100}^{PS}$	$239^{+60}_{-60}$	$10^9 A_s$	$2.091^{+0.095}_{-0.091}$	$D_M(0.61)$	$2288^{+41}_{-37}$
$A_{143}^{PS}$	$38^{+20}_{-20}$	$10^9 A_s e^{-2\tau}$	$1.873^{+0.028}_{-0.028}$	$H(2.33)$	$235.2^{+2.1}_{-1.7}$
$A_{217}^{PS}$	$102^{+40}_{-30}$	$D_{40}$	$1220^{+32}_{-31}$	$D_M(2.33)$	$5747^{+41}_{-33}$
$A_{217}^{CIB}$	$39^{+20}_{-20}$	$D_{220}$	$5730^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.450^{+0.020}_{-0.018}$
$A_{143}^{tSZ}$	$< 8.66$	$D_{810}$	$2535^{+32}_{-35}$	$\sigma_8(0.15)$	$0.750^{+0.021}_{-0.032}$
$r_{143 \times 217}^{PS}$	$0.66^{+0.31}_{-0.34}$	$D_{1420}$	$817^{+12}_{-12}$	$f\sigma_8(0.38)$	$0.470^{+0.017}_{-0.017}$
$r_{143 \times 217}^{CIB}$	—	$D_{2000}$	$230.9^{+3.9}_{-4.3}$	$\sigma_8(0.38)$	$0.666^{+0.018}_{-0.029}$
$\xi^{tSZ \times CIB}$	—	$n_{s,0.002}$	$0.970^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	$0.470^{+0.016}_{-0.016}$
$A^{kSZ}$	—	$Y_P$	$0.24542^{+0.00015}_{-0.00016}$	$\sigma_8(0.51)$	$0.623^{+0.018}_{-0.028}$
$A_{100}^{dust}$	$1.01^{+0.48}_{-0.48}$	$Y_P^{BBN}$	$0.24674^{+0.00015}_{-0.00016}$	$f\sigma_8(0.61)$	$0.466^{+0.015}_{-0.016}$
$A_{143}^{dust}$	$0.97^{+0.50}_{-0.48}$	$10^5 D/H$	$2.575^{+0.074}_{-0.072}$	$\sigma_8(0.61)$	$0.593^{+0.018}_{-0.027}$
$A_{217}^{dust}$	$0.98^{+0.26}_{-0.25}$	Age/Gyr	$13.763^{+0.093}_{-0.072}$	$f\sigma_8(2.33)$	$0.2993^{+0.0091}_{-0.012}$
$A_{143 \times 217}^{dust}$	$1.02^{+0.40}_{-0.37}$	$z_*$	$1089.67^{+0.69}_{-0.70}$	$\sigma_8(2.33)$	$0.309^{+0.010}_{-0.014}$
$c_{100}$	$0.9976^{+0.0027}_{-0.0025}$	$r_*$	$144.91^{+0.64}_{-0.77}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040}$	$100\theta_*$	$1.04127^{+0.00085}_{-0.00079}$	$f_{2000}^{217}$	$106.5^{+4.9}_{-4.9}$
$c_{TE}$	$0.997^{+0.012}_{-0.013}$	$D_M(z_*)/\text{Gpc}$	$13.917^{+0.063}_{-0.072}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-6}$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$z_{drag}$	$1059.93^{+0.81}_{-0.83}$	$\chi_{simall}^2$	$397.1 (\nu: 1.6)$
$H_0$	$68.4^{+1.7}_{-1.9}$	$r_{drag}$	$147.57^{+0.70}_{-0.78}$	$\chi_{lowl}^2$	$22.56 (\nu: 0.4)$
$\Omega_\Lambda$	$0.699^{+0.020}_{-0.024}$	$k_D$	$0.14041^{+0.00091}_{-0.00081}$	$\chi_{CamSpec}^2$	$11516.2 (\nu: 17.8)$
$\Omega_m$	$0.301^{+0.024}_{-0.020}$	$100\theta_D$	$0.16077^{+0.00047}_{-0.00051}$	$\chi_{H073p45}^2$	$9.3 (\nu: 3.1)$
$\Omega_m h^2$	$0.1408^{+0.0034}_{-0.0029}$	$z_{eq}$	$3355^{+76}_{-63}$	$\chi_{prior}^2$	$7.5 (\nu: 5.3)$
$\Omega_\nu h^2$	$< 0.00169$	$k_{eq}$	$0.01024^{+0.00023}_{-0.00019}$	$\chi_{CMB}^2$	$11935.8 (\nu: 18.2)$
$\Omega_m h^3$	$0.0963^{+0.0010}_{-0.0012}$	$100\theta_{eq}$	$0.822^{+0.012}_{-0.014}$		

$$\bar{\chi}_{\text{eff}}^2 = 11952.66; R - 1 = 0.05737$$



## 6.11 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02227^{+0.00044}_{-0.00045} \quad (+0.8\sigma)$	$\sigma_8$	$0.795^{+0.043}_{-0.096} \quad (+0.2\sigma)$	$100\theta_{s,eq}$	$0.4503^{+0.0078}_{-0.0075} \quad (+0.5\sigma)$
$\Omega_c h^2$	$0.1197^{+0.0036}_{-0.0035} \quad (-0.6\sigma)$	$S_8$	$0.823^{+0.043}_{-0.051} \quad (-0.4\sigma)$	$H(0.15)$	$72.2^{+2.4}_{-4.2} \quad (+0.5\sigma)$
$100\theta_{MC}$	$1.04083^{+0.00090}_{-0.00089} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.023}_{-0.028} \quad (-0.4\sigma)$	$D_M(0.15)$	$649^{+44}_{-24} \quad (-0.5\sigma)$
$\tau$	$0.054^{+0.019}_{-0.013} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.599^{+0.028}_{-0.057} \quad (-0.0\sigma)$	$H(0.38)$	$82.4^{+1.6}_{-3.6} \quad (+0.5\sigma)$
$\Sigma m_\nu$ [eV]	$< 0.571 \quad (-0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.973^{+0.045}_{-0.10} \quad (+0.0\sigma)$	$D_M(0.38)$	$1544^{+89}_{-48} \quad (-0.5\sigma)$
$\ln(10^{10} A_s)$	$3.042^{+0.041}_{-0.029} \quad (-0.0\sigma)$	$r_{drag} h$	$98.4^{+4.0}_{-8.2} \quad (+0.5\sigma)$	$H(0.51)$	$89.3^{+1.3}_{-2.9} \quad (+0.5\sigma)$
$n_s$	$0.965^{+0.012}_{-0.012} \quad (+0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.072}_{-0.070} \quad (-0.4\sigma)$	$D_M(0.51)$	$1999^{+110}_{-57} \quad (-0.5\sigma)$
$y_{cal}$	$1.0006^{+0.0062}_{-0.0064} \quad (+0.0\sigma)$	$z_{re}$	$< 9.46 \quad (+0.0\sigma)$	$H(0.61)$	$94.9^{+1.1}_{-2.5} \quad (+0.5\sigma)$
$A_{100}^{PS}$	$241^{+60}_{-60} \quad (-0.1\sigma)$	$10^9 A_s$	$2.094^{+0.088}_{-0.061} \quad (-0.0\sigma)$	$D_M(0.61)$	$2324^{+110}_{-61} \quad (-0.5\sigma)$
$A_{143}^{PS}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s e^{-2\tau}$	$1.879^{+0.029}_{-0.029} \quad (-0.3\sigma)$	$H(2.33)$	$236.6^{+4.0}_{-2.6} \quad (-0.5\sigma)$
$A_{217}^{PS}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{40}$	$1227^{+33}_{-33} \quad (-0.2\sigma)$	$D_M(2.33)$	$5782^{+130}_{-53} \quad (-0.5\sigma)$
$A_{217}^{CIB}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5719^{+99}_{-98} \quad (+0.4\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.022}_{-0.028} \quad (-0.3\sigma)$
$A_{143}^{tSZ}$	$< 8.85 \quad (+0.1\sigma)$	$D_{810}$	$2535^{+33}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.734^{+0.040}_{-0.093} \quad (+0.2\sigma)$
$r_{143 \times 217}^{PS}$	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.471^{+0.021}_{-0.039} \quad (-0.1\sigma)$
$r_{143 \times 217}^{CIB}$	—	$D_{2000}$	$230.1^{+4.2}_{-4.3} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.650^{+0.036}_{-0.087} \quad (+0.2\sigma)$
$\xi^{tSZ \times CIB}$	—	$n_{s,0.002}$	$0.965^{+0.012}_{-0.012} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.469^{+0.020}_{-0.045} \quad (+0.0\sigma)$
$A^{kSZ}$	—	$Y_P$	$0.24535^{+0.00017}_{-0.00021} \quad (+0.8\sigma)$	$\sigma_8(0.51)$	$0.608^{+0.034}_{-0.083} \quad (+0.2\sigma)$
$A_{100}^{dust}$	$1.01^{+0.50}_{-0.50} \quad (+0.0\sigma)$	$Y_P^{BBN}$	$0.24668^{+0.00017}_{-0.00021} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.463^{+0.020}_{-0.048} \quad (+0.1\sigma)$
$A_{143}^{dust}$	$0.97^{+0.46}_{-0.46} \quad (-0.1\sigma)$	$10^5 D/H$	$2.605^{+0.086}_{-0.080} \quad (-0.8\sigma)$	$\sigma_8(0.61)$	$0.578^{+0.033}_{-0.080} \quad (+0.3\sigma)$
$A_{217}^{dust}$	$0.97^{+0.26}_{-0.26} \quad (+0.1\sigma)$	$Age/Gyr$	$13.84^{+0.30}_{-0.12} \quad (-0.5\sigma)$	$f\sigma_8(2.33)$	$0.292^{+0.015}_{-0.038} \quad (+0.3\sigma)$
$A_{143 \times 217}^{dust}$	$1.03^{+0.41}_{-0.40} \quad (-0.0\sigma)$	$z_*$	$1090.03^{+0.87}_{-0.76} \quad (-0.8\sigma)$	$\sigma_8(2.33)$	$0.300^{+0.018}_{-0.043} \quad (+0.3\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$r_*$	$144.58^{+0.81}_{-0.81} \quad (+0.3\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-7} \quad (-0.4\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041} \quad (-0.1\sigma)$	$100\theta_*$	$1.04106^{+0.00085}_{-0.00083} \quad (+0.2\sigma)$	$f_{2000}^{217}$	$107.1^{+5.1}_{-5.1} \quad (-0.4\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$D_M(z_*)/Gpc$	$13.888^{+0.077}_{-0.076} \quad (+0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$z_{drag}$	$1059.69^{+0.89}_{-0.90} \quad (+0.8\sigma)$	$\chi_{small}^2$	$396.9 \quad (\nu: 1.5) \quad (-0.0\sigma)$
$H_0$	$66.8^{+2.7}_{-4.8} \quad (+0.5\sigma)$	$r_{drag}$	$147.28^{+0.81}_{-0.80} \quad (+0.2\sigma)$	$\chi_{lowl}^2$	$23.14 \quad (\nu: 0.4) \quad (-0.4\sigma)$
$\Omega_\Lambda$	$0.678^{+0.032}_{-0.077} \quad (+0.5\sigma)$	$k_D$	$0.14060^{+0.00088}_{-0.00091} \quad (+0.1\sigma)$	$\chi_{CamSpec}^2$	$11515.4 \quad (\nu: 18.0) \quad (+785.6\sigma)$
$\Omega_m$	$0.322^{+0.077}_{-0.032} \quad (-0.5\sigma)$	$100\theta_D$	$0.16089^{+0.00050}_{-0.00051} \quad (-0.8\sigma)$	$\chi_{prior}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.0\sigma)$
$\Omega_m h^2$	$0.1433^{+0.0072}_{-0.0043} \quad (-0.5\sigma)$	$z_{eq}$	$3392^{+79}_{-79} \quad (-0.5\sigma)$	$\chi_{CMB}^2$	$11935.4 \quad (\nu: 18.3) \quad (+777.2\sigma)$
$\Omega_\nu h^2$	$< 0.00614 \quad (-0.3\sigma)$	$k_{eq}$	$0.01035^{+0.00024}_{-0.00024} \quad (-0.5\sigma)$		
$\Omega_m h^3$	$0.0957^{+0.0014}_{-0.0034} \quad (+0.4\sigma)$	$100\theta_{eq}$	$0.815^{+0.015}_{-0.015} \quad (+0.5\sigma)$		

$$\bar{\chi}_{eff}^2 = 11943.12; \Delta\bar{\chi}_{eff}^2 = 4450.61; R - 1 = 0.01799$$



## 6.12 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02243^{+0.00040}_{-0.00039}$	$\sigma_8$	$0.811^{+0.022}_{-0.033}$	$100\theta_{s,eq}$	$0.4540^{+0.0067}_{-0.0072}$
$\Omega_c h^2$	$0.1180^{+0.0033}_{-0.0028}$	$S_8$	$0.812^{+0.040}_{-0.034}$	$H(0.15)$	$73.6^{+1.5}_{-1.6}$
$100\theta_{MC}$	$1.04111^{+0.00089}_{-0.00080}$	$\sigma_8 \Omega_m^{0.5}$	$0.445^{+0.022}_{-0.019}$	$D_M(0.15)$	$634^{+16}_{-14}$
$\tau$	$0.056^{+0.019}_{-0.015}$	$\sigma_8 \Omega_m^{0.25}$	$0.600^{+0.022}_{-0.021}$	$H(0.38)$	$83.5^{+1.1}_{-1.2}$
$\Sigma m_\nu$ [eV]	$< 0.158$	$\sigma_8/h^{0.5}$	$0.980^{+0.032}_{-0.034}$	$D_M(0.38)$	$1515^{+32}_{-28}$
$\ln(10^{10} A_s)$	$3.042^{+0.042}_{-0.030}$	$r_{drag} h$	$101.0^{+2.7}_{-3.0}$	$H(0.51)$	$90.14^{+0.90}_{-1.0}$
$n_s$	$0.970^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	$2.416^{+0.068}_{-0.063}$	$D_M(0.51)$	$1965^{+38}_{-33}$
$y_{cal}$	$1.0007^{+0.0059}_{-0.0068}$	$z_{re}$	$< 9.45$	$H(0.61)$	$95.68^{+0.74}_{-0.86}$
$A_{100}^{PS}$	$239^{+60}_{-60}$	$10^9 A_s$	$2.095^{+0.090}_{-0.063}$	$D_M(0.61)$	$2288^{+41}_{-36}$
$A_{143}^{PS}$	$38^{+20}_{-20}$	$10^9 A_s e^{-2\tau}$	$1.873^{+0.028}_{-0.028}$	$H(2.33)$	$235.2^{+2.0}_{-1.9}$
$A_{217}^{PS}$	$102^{+40}_{-30}$	$D_{40}$	$1220^{+32}_{-32}$	$D_M(2.33)$	$5747^{+41}_{-32}$
$A_{217}^{CIB}$	$39^{+20}_{-20}$	$D_{220}$	$5730^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.450^{+0.020}_{-0.018}$
$A_{143}^{tSZ}$	$< 8.76$	$D_{810}$	$2535^{+32}_{-35}$	$\sigma_8(0.15)$	$0.750^{+0.021}_{-0.031}$
$r_{143 \times 217}^{PS}$	$0.66^{+0.32}_{-0.32}$	$D_{1420}$	$817^{+12}_{-12}$	$f\sigma_8(0.38)$	$0.471^{+0.017}_{-0.017}$
$r_{143 \times 217}^{CIB}$	—	$D_{2000}$	$230.9^{+3.9}_{-4.4}$	$\sigma_8(0.38)$	$0.666^{+0.018}_{-0.029}$
$\xi^{tSZ \times CIB}$	—	$n_{s,0.002}$	$0.970^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	$0.470^{+0.016}_{-0.016}$
$A^{kSZ}$	—	$Y_P$	$0.24542^{+0.00015}_{-0.00016}$	$\sigma_8(0.51)$	$0.624^{+0.017}_{-0.027}$
$A_{100}^{dust}$	$1.02^{+0.46}_{-0.49}$	$Y_P^{BBN}$	$0.24674^{+0.00015}_{-0.00016}$	$f\sigma_8(0.61)$	$0.466^{+0.015}_{-0.015}$
$A_{143}^{dust}$	$0.97^{+0.50}_{-0.48}$	$10^5 D/H$	$2.574^{+0.074}_{-0.071}$	$\sigma_8(0.61)$	$0.594^{+0.017}_{-0.026}$
$A_{217}^{dust}$	$0.98^{+0.26}_{-0.25}$	Age/Gyr	$13.762^{+0.094}_{-0.071}$	$f\sigma_8(2.33)$	$0.2996^{+0.0087}_{-0.012}$
$A_{143 \times 217}^{dust}$	$1.02^{+0.40}_{-0.37}$	$z_*$	$1089.66^{+0.69}_{-0.69}$	$\sigma_8(2.33)$	$0.3095^{+0.0097}_{-0.014}$
$c_{100}$	$0.9976^{+0.0027}_{-0.0025}$	$r_*$	$144.92^{+0.63}_{-0.77}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040}$	$100\theta_*$	$1.04128^{+0.00085}_{-0.00079}$	$f_{2000}^{217}$	$106.5^{+4.9}_{-4.9}$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$D_M(z_*)/\text{Gpc}$	$13.917^{+0.063}_{-0.072}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-6}$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$z_{drag}$	$1059.93^{+0.80}_{-0.84}$	$\chi_{simall}^2$	$397.0 (\nu: 1.6)$
$H_0$	$68.4^{+1.7}_{-1.9}$	$r_{drag}$	$147.57^{+0.69}_{-0.78}$	$\chi_{lowl}^2$	$22.57 (\nu: 0.4)$
$\Omega_\Lambda$	$0.699^{+0.020}_{-0.024}$	$k_D$	$0.14041^{+0.00091}_{-0.00079}$	$\chi_{CamSpec}^2$	$11516.1 (\nu: 17.9)$
$\Omega_m$	$0.301^{+0.024}_{-0.020}$	$100\theta_D$	$0.16077^{+0.00047}_{-0.00051}$	$\chi_{H073p45}^2$	$9.3 (\nu: 3.1)$
$\Omega_m h^2$	$0.1408^{+0.0034}_{-0.0028}$	$z_{eq}$	$3355^{+75}_{-62}$	$\chi_{prior}^2$	$7.5 (\nu: 5.2)$
$\Omega_\nu h^2$	$< 0.00170$	$k_{eq}$	$0.01024^{+0.00023}_{-0.00019}$	$\chi_{CMB}^2$	$11935.7 (\nu: 18.1)$
$\Omega_m h^3$	$0.0964^{+0.0010}_{-0.0012}$	$100\theta_{eq}$	$0.822^{+0.012}_{-0.014}$		

$$\bar{\chi}_{\text{eff}}^2 = 11952.44; R - 1 = 0.06967$$



### 6.13 base\_mnu\_plikHM\_TE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02239	$0.02232^{+0.00074}_{-0.00073}$	$\sigma_8/h^{0.5}$	0.907	$0.86^{+0.14}_{-0.17}$	$100\theta_{\text{eq}}$	0.8228	$0.823^{+0.023}_{-0.023}$
$\Omega_c h^2$	0.1179	$0.1181^{+0.0054}_{-0.0052}$	$r_{\text{drag}} h$	97.4	$94^{+10}_{-14}$	$100\theta_{\text{s,eq}}$	0.4544	$0.455^{+0.012}_{-0.012}$
$100\theta_{\text{MC}}$	1.04122	$1.0411^{+0.0014}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	2.362	$2.36^{+0.11}_{-0.11}$	$H(0.15)$	71.4	$69.5^{+5.8}_{-7.5}$
$\tau$	0.0493	$0.048^{+0.022}_{-0.026}$	$z_{\text{re}}$	7.16	$7.1^{+2.2}_{-3.1}$	$D_{\text{M}}(0.15)$	656	$678^{+90}_{-60}$
$\Sigma m_\nu$ [eV]	0.31	$< 1.67$	$10^9 A_{\text{s}}$	2.037	$2.03^{+0.11}_{-0.12}$	$H(0.38)$	81.82	$80.4^{+4.3}_{-5.6}$
$\ln(10^{10} A_{\text{s}})$	3.014	$3.009^{+0.052}_{-0.060}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8458	$1.841^{+0.049}_{-0.050}$	$D_{\text{M}}(0.38)$	1559	$1603^{+180}_{-120}$
$n_{\text{s}}$	0.9623	$0.958^{+0.033}_{-0.036}$	$D_{40}$	1215	$1210^{+69}_{-68}$	$H(0.51)$	88.69	$87.5^{+3.6}_{-4.5}$
$A_{100}^{\text{dustTE}}$	0.113	$0.113^{+0.10}_{-0.096}$	$D_{220}$	5694	$5705^{+150}_{-150}$	$D_{\text{M}}(0.51)$	2017	$2068^{+210}_{-150}$
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.076}_{-0.076}$	$D_{810}$	2498	$2494^{+66}_{-66}$	$H(0.61)$	94.42	$93.4^{+3.0}_{-3.6}$
$A_{100 \times 217}^{\text{dustTE}}$	0.477	$0.48^{+0.22}_{-0.22}$	$D_{1420}$	802.9	$801^{+32}_{-31}$	$D_{\text{M}}(0.61)$	2344	$2399^{+220}_{-160}$
$A_{143}^{\text{dustTE}}$	0.219	$0.22^{+0.14}_{-0.14}$	$D_{2000}$	225.5	$224^{+12}_{-12}$	$H(2.33)$	236.6	$238.3^{+8.0}_{-5.3}$
$A_{143 \times 217}^{\text{dustTE}}$	0.654	$0.66^{+0.20}_{-0.21}$	$n_{\text{s},0.002}$	0.9623	$0.958^{+0.033}_{-0.036}$	$D_{\text{M}}(2.33)$	5809	$5864^{+210}_{-160}$
$A_{217}^{\text{dustTE}}$	2.02	$2.04^{+0.69}_{-0.69}$	$Y_{\text{P}}$	0.245402	$0.24537^{+0.00031}_{-0.00034}$	$f\sigma_8(0.15)$	0.429	$0.416^{+0.047}_{-0.057}$
$c_{100}$	1.00018	$1.0002^{+0.0018}_{-0.0018}$	$Y_{\text{P}}^{\text{BBN}}$	0.246729	$0.24670^{+0.00031}_{-0.00034}$	$\sigma_8(0.15)$	0.680	$0.63^{+0.13}_{-0.17}$
$c_{217}$	0.99800	$0.9980^{+0.0017}_{-0.0017}$	$10^5 \text{D}/\text{H}$	2.582	$2.60^{+0.14}_{-0.13}$	$f\sigma_8(0.38)$	0.442	$0.423^{+0.056}_{-0.078}$
$y_{\text{cal}}$	1.0000	$1.0000^{+0.0064}_{-0.0065}$	Age/Gyr	13.904	$14.03^{+0.50}_{-0.37}$	$\sigma_8(0.38)$	0.601	$0.56^{+0.12}_{-0.15}$
$H_0$	66.0	$63.8^{+6.7}_{-8.8}$	$z_*$	1089.76	$1090.0^{+1.6}_{-1.3}$	$f\sigma_8(0.51)$	0.440	$0.418^{+0.062}_{-0.084}$
$\Omega_{\Lambda}$	0.670	$0.635^{+0.093}_{-0.16}$	$r_*$	144.90	$144.7^{+1.3}_{-1.5}$	$\sigma_8(0.51)$	0.562	$0.52^{+0.11}_{-0.15}$
$\Omega_{\text{m}}$	0.330	$0.365^{+0.16}_{-0.093}$	$100\theta_*$	1.04153	$1.0415^{+0.0013}_{-0.0013}$	$f\sigma_8(0.61)$	0.434	$0.411^{+0.064}_{-0.088}$
$\Omega_{\text{m}} h^2$	0.1437	$0.147^{+0.014}_{-0.0091}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.912	$13.89^{+0.13}_{-0.14}$	$\sigma_8(0.61)$	0.535	$0.50^{+0.11}_{-0.14}$
$\Omega_{\nu} h^2$	0.0033	$< 0.0180$	$z_{\text{drag}}$	1059.86	$1059.8^{+1.5}_{-1.4}$	$f\sigma_8(2.33)$	0.273	$0.253^{+0.051}_{-0.071}$
$\Omega_{\text{m}} h^3$	0.0948	$0.0934^{+0.0043}_{-0.0058}$	$r_{\text{drag}}$	147.57	$147.4^{+1.4}_{-1.5}$	$\sigma_8(2.33)$	0.278	$0.257^{+0.058}_{-0.076}$
$\sigma_8$	0.737	$0.69^{+0.13}_{-0.17}$	$k_{\text{D}}$	0.14041	$0.1407^{+0.0018}_{-0.0016}$	$\chi_{\text{simall}}^2$	395.65	$396.9 (\nu: 1.3)$
$S_8$	0.773	$0.753^{+0.086}_{-0.094}$	$100\theta_{\text{D}}$	0.16082	$0.16075^{+0.00083}_{-0.00085}$	$\chi_{\text{plikTE}}^2$	852.6	$860.3 (\nu: 7.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4233	$0.412^{+0.047}_{-0.052}$	$z_{\text{eq}}$	3353	$3356^{+120}_{-120}$	$\chi_{\text{prior}}^2$	0.4	$7.4 (\nu: 6.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.558	$0.533^{+0.077}_{-0.099}$	$k_{\text{eq}}$	0.010236	$0.01025^{+0.00037}_{-0.00036}$	$\chi_{\text{CMB}}^2$	1248.3	$1257.2 (\nu: 8.8)$

Best-fit  $\chi_{\text{eff}}^2 = 1248.70$ ;  $\bar{\chi}_{\text{eff}}^2 = 1264.56$ ;  $R - 1 = 0.00834$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.65 plik\_rd12\_HM\_v22\_TE: 852.62



## 6.14 base\_mnu\_plikHM\_TE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02233^{+0.00074}_{-0.00074}$	$\sigma_8/h^{0.5}$	$0.87^{+0.13}_{-0.17}$	$100\theta_{\text{eq}}$	$0.823^{+0.023}_{-0.023}$
$\Omega_{\text{c}} h^2$	$0.1180^{+0.0054}_{-0.0052}$	$r_{\text{drag}} h$	$94^{+10}_{-14}$	$100\theta_{\text{s,eq}}$	$0.455^{+0.012}_{-0.012}$
$100\theta_{\text{MC}}$	$1.0411^{+0.0014}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	$2.37^{+0.11}_{-0.11}$	$H(0.15)$	$69.6^{+5.8}_{-7.5}$
$\tau$	$0.052^{+0.018}_{-0.011}$	$z_{\text{re}}$	$< 9.12$	$D_{\text{M}}(0.15)$	$677^{+90}_{-60}$
$\Sigma m_{\nu} [\text{eV}]$	$< 1.66$	$10^9 A_{\text{s}}$	$2.042^{+0.098}_{-0.077}$	$H(0.38)$	$80.5^{+4.4}_{-5.5}$
$\ln(10^{10} A_{\text{s}})$	$3.016^{+0.047}_{-0.038}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.842^{+0.049}_{-0.051}$	$D_{\text{M}}(0.38)$	$1601^{+200}_{-100}$
$n_{\text{s}}$	$0.959^{+0.033}_{-0.036}$	$D_{40}$	$1210^{+69}_{-68}$	$H(0.51)$	$87.6^{+3.7}_{-4.4}$
$A_{100}^{\text{dustTE}}$	$0.113^{+0.099}_{-0.096}$	$D_{220}$	$5704^{+160}_{-150}$	$D_{\text{M}}(0.51)$	$2065^{+210}_{-150}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.077}_{-0.076}$	$D_{810}$	$2496^{+66}_{-67}$	$H(0.61)$	$93.5^{+3.0}_{-3.7}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$D_{1420}$	$802^{+32}_{-31}$	$D_{\text{M}}(0.61)$	$2397^{+220}_{-160}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{2000}$	$225^{+12}_{-12}$	$H(2.33)$	$238.2^{+8.0}_{-5.2}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$n_{\text{s},0.002}$	$0.959^{+0.033}_{-0.036}$	$D_{\text{M}}(2.33)$	$5861^{+210}_{-160}$
$A_{217}^{\text{dustTE}}$	$2.04^{+0.69}_{-0.69}$	$Y_{\text{P}}$	$0.24537^{+0.00031}_{-0.00034}$	$f\sigma_8(0.15)$	$0.417^{+0.047}_{-0.058}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0018}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24670^{+0.00031}_{-0.00034}$	$\sigma_8(0.15)$	$0.64^{+0.13}_{-0.17}$
$c_{217}$	$0.9980^{+0.0017}_{-0.0017}$	$10^5 \text{D}/\text{H}$	$2.59^{+0.14}_{-0.13}$	$f\sigma_8(0.38)$	$0.425^{+0.055}_{-0.079}$
$y_{\text{cal}}$	$1.0000^{+0.0064}_{-0.0064}$	$\text{Age}/\text{Gyr}$	$14.03^{+0.50}_{-0.37}$	$\sigma_8(0.38)$	$0.56^{+0.12}_{-0.15}$
$H_0$	$63.9^{+6.7}_{-8.8}$	$z_*$	$1090.0^{+1.6}_{-1.3}$	$f\sigma_8(0.51)$	$0.419^{+0.061}_{-0.084}$
$\Omega_{\Lambda}$	$0.637^{+0.092}_{-0.16}$	$r_*$	$144.7^{+1.3}_{-1.5}$	$\sigma_8(0.51)$	$0.52^{+0.11}_{-0.15}$
$\Omega_{\text{m}}$	$0.363^{+0.16}_{-0.092}$	$100\theta_*$	$1.0415^{+0.0013}_{-0.0012}$	$f\sigma_8(0.61)$	$0.413^{+0.063}_{-0.088}$
$\Omega_{\text{m}} h^2$	$0.146^{+0.013}_{-0.0096}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.90^{+0.13}_{-0.14}$	$\sigma_8(0.61)$	$0.50^{+0.11}_{-0.14}$
$\Omega_{\nu} h^2$	$< 0.0179$	$z_{\text{drag}}$	$1059.8^{+1.5}_{-1.4}$	$f\sigma_8(2.33)$	$0.255^{+0.051}_{-0.071}$
$\Omega_{\text{m}} h^3$	$0.0934^{+0.0042}_{-0.0058}$	$r_{\text{drag}}$	$147.4^{+1.4}_{-1.5}$	$\sigma_8(2.33)$	$0.259^{+0.057}_{-0.077}$
$\sigma_8$	$0.69^{+0.13}_{-0.17}$	$k_{\text{D}}$	$0.1407^{+0.0018}_{-0.0016}$	$\chi_{\text{simall}}^2$	$396.5 (\nu: 0.8)$
$S_8$	$0.755^{+0.085}_{-0.094}$	$100\theta_{\text{D}}$	$0.16074^{+0.00082}_{-0.00086}$	$\chi_{\text{plikTE}}^2$	$860.3 (\nu: 7.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.414^{+0.047}_{-0.052}$	$z_{\text{eq}}$	$3354^{+120}_{-120}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.535^{+0.075}_{-0.10}$	$k_{\text{eq}}$	$0.01025^{+0.00038}_{-0.00036}$	$\chi_{\text{CMB}}^2$	$1256.8 (\nu: 8.4)$

$\bar{\chi}_{\text{eff}}^2 = 1264.17$ ;  $R - 1 = 0.01053$



## 6.15 base\_mnu\_plikHM\_EE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02046	$0.0218^{+0.0044}_{-0.0036}$	$D_{40}$	1167	$1186^{+99}_{-90}$	$H(0.38)$	69.6	$74^{+10}_{-6}$
$\Omega_c h^2$	0.1181	$0.119^{+0.016}_{-0.015}$	$D_{220}$	5357	$5638^{+700}_{-700}$	$D_M(0.38)$	2079	$1889^{+300}_{-500}$
$100\theta_{MC}$	1.04062	$1.0401^{+0.0025}_{-0.0025}$	$D_{810}$	2545	$2569^{+110}_{-120}$	$H(0.51)$	79.7	$83^{+10}_{-4}$
$\tau$	0.0411	$0.044^{+0.025}_{-0.024}$	$D_{1420}$	820	$832^{+55}_{-60}$	$D_M(0.51)$	2602	$2390^{+400}_{-500}$
$\Sigma m_\nu$ [eV]	4.27	—	$D_{2000}$	226.3	$232^{+22}_{-25}$	$H(0.61)$	87.7	$89.8^{+8.2}_{-2.9}$
$\ln(10^{10} A_s)$	3.012	$3.027^{+0.065}_{-0.064}$	$n_{s,0.002}$	0.928	$0.947^{+0.057}_{-0.045}$	$D_M(0.61)$	2961	$2739^{+400}_{-600}$
$n_s$	0.928	$0.947^{+0.057}_{-0.045}$	$Y_P$	0.24454	$0.2451^{+0.0018}_{-0.0017}$	$H(2.33)$	261.1	$252^{+16}_{-20}$
$y_{cal}$	1.0000	$1.0001^{+0.0064}_{-0.0063}$	$Y_P^{BBN}$	0.24586	$0.2464^{+0.0018}_{-0.0018}$	$D_M(2.33)$	6313	$6134^{+280}_{-510}$
$H_0$	42.9	$51^{+20}_{-10}$	$10^5 D/H$	2.98	$2.73^{+0.86}_{-0.73}$	$f\sigma_8(0.15)$	0.348	$0.374^{+0.11}_{-0.082}$
$\Omega_\Lambda$	0.00	$0.27^{+0.51}_{-0.58}$	Age/Gyr	15.18	$14.72^{+0.73}_{-1.3}$	$\sigma_8(0.15)$	0.344	$0.45^{+0.31}_{-0.15}$
$\Omega_m$	1.00	$0.73^{+0.58}_{-0.51}$	$z_*$	1095.4	$1092.5^{+8.2}_{-7.4}$	$f\sigma_8(0.38)$	0.290	$0.340^{+0.15}_{-0.092}$
$\Omega_m h^2$	0.1845	$0.170^{+0.027}_{-0.034}$	$r_*$	140.72	$141.9^{+3.5}_{-3.0}$	$\sigma_8(0.38)$	0.287	$0.38^{+0.29}_{-0.13}$
$\Omega_\nu h^2$	0.0459	$< 0.0534$	$100\theta_*$	1.04154	$1.0408^{+0.0028}_{-0.0026}$	$f\sigma_8(0.51)$	0.265	$0.322^{+0.16}_{-0.093}$
$\Omega_m h^3$	0.0791	$0.085^{+0.015}_{-0.011}$	$D_M(z_*)/\text{Gpc}$	13.511	$13.64^{+0.34}_{-0.30}$	$\sigma_8(0.51)$	0.263	$0.35^{+0.27}_{-0.12}$
$\sigma_8$	0.395	$0.50^{+0.32}_{-0.16}$	$z_{drag}$	1057.6	$1059.8^{+7.8}_{-7.1}$	$f\sigma_8(0.61)$	0.249	$0.309^{+0.17}_{-0.093}$
$S_8$	0.723	$0.73^{+0.18}_{-0.15}$	$r_{drag}$	143.89	$144.7^{+3.0}_{-2.4}$	$\sigma_8(0.61)$	0.246	$0.33^{+0.26}_{-0.12}$
$\sigma_8 \Omega_m^{0.5}$	0.396	$0.401^{+0.097}_{-0.085}$	$k_D$	0.14437	$0.1439^{+0.0039}_{-0.0039}$	$f\sigma_8(2.33)$	0.122	$0.169^{+0.13}_{-0.061}$
$\sigma_8 \Omega_m^{0.25}$	0.396	$0.44^{+0.18}_{-0.11}$	$100\theta_D$	0.16105	$0.1601^{+0.0052}_{-0.0039}$	$\sigma_8(2.33)$	0.120	$0.169^{+0.14}_{-0.063}$
$\sigma_8/h^{0.5}$	0.604	$0.70^{+0.31}_{-0.18}$	$z_{eq}$	3312	$3366^{+310}_{-340}$	$\chi_{simall}^2$	396.30	$397.2 (\nu: 1.3)$
$r_{drag} h$	61.7	$74^{+30}_{-20}$	$k_{eq}$	0.01044	$0.01046^{+0.00096}_{-0.00083}$	$\chi_{plikEE}^2$	738.0	$743.7 (\nu: 5.2)$
$\langle d^2 \rangle^{1/2}$	2.623	$2.51^{+0.28}_{-0.29}$	$100\theta_{eq}$	0.847	$0.831^{+0.082}_{-0.062}$	$\chi_{prior}^2$	0.00	$0.98 (\nu: 1.0)$
$z_{re}$	7.16	$7.0^{+2.3}_{-2.9}$	$100\theta_{s,eq}$	0.4691	$0.460^{+0.043}_{-0.031}$	$\chi_{CMB}^2$	1134.3	$1140.9 (\nu: 6.4)$
$10^9 A_s$	2.032	$2.06^{+0.14}_{-0.13}$	$H(0.15)$	52.9	$59^{+20}_{-10}$			
$10^9 A_s e^{-2\tau}$	1.872	$1.889^{+0.068}_{-0.069}$	$D_M(0.15)$	944	$836^{+200}_{-200}$			

Best-fit  $\chi_{\text{eff}}^2 = 1134.30$ ;  $\bar{\chi}_{\text{eff}}^2 = 1141.86$ ;  $R - 1 = 0.00789$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.30 plik\_rd12\_HM\_v22\_EE: 738.00



## 6.16 base\_mnu\_plikHM\_EE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0218^{+0.0044}_{-0.0036}$	$D_{40}$	$1186^{+98}_{-90}$	$H(0.38)$	$74^{+10}_{-6}$
$\Omega_{\mathrm{c}}h^2$	$0.119^{+0.016}_{-0.014}$	$D_{220}$	$5634^{+700}_{-700}$	$D_{\mathrm{M}}(0.38)$	$1886^{+300}_{-500}$
$100\theta_{\mathrm{MC}}$	$1.0401^{+0.0025}_{-0.0025}$	$D_{810}$	$2568^{+110}_{-120}$	$H(0.51)$	$83^{+10}_{-4}$
$\tau$	$0.048^{+0.021}_{-0.015}$	$D_{1420}$	$832^{+56}_{-59}$	$D_{\mathrm{M}}(0.51)$	$2387^{+400}_{-500}$
$\Sigma m_{\nu}$ [eV]	—	$D_{2000}$	$232^{+23}_{-25}$	$H(0.61)$	$89.9^{+8.3}_{-3.0}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.033^{+0.061}_{-0.052}$	$n_{\mathrm{s},0.002}$	$0.948^{+0.058}_{-0.046}$	$D_{\mathrm{M}}(0.61)$	$2735^{+400}_{-600}$
$n_{\mathrm{s}}$	$0.948^{+0.058}_{-0.046}$	$Y_{\mathrm{P}}$	$0.2451^{+0.0018}_{-0.0017}$	$H(2.33)$	$252^{+16}_{-20}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0065}_{-0.0063}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2464^{+0.0018}_{-0.0017}$	$D_{\mathrm{M}}(2.33)$	$6131^{+280}_{-510}$
$H_0$	$51^{+20}_{-10}$	$10^5\mathrm{D}/\mathrm{H}$	$2.73^{+0.86}_{-0.73}$	$f\sigma_8(0.15)$	$0.376^{+0.11}_{-0.082}$
$\Omega_{\Lambda}$	$0.27^{+0.51}_{-0.59}$	Age/Gyr	$14.71^{+0.74}_{-1.3}$	$\sigma_8(0.15)$	$0.45^{+0.31}_{-0.15}$
$\Omega_{\mathrm{m}}$	$0.73^{+0.59}_{-0.51}$	$z_{*}$	$1092.5^{+8.2}_{-7.5}$	$f\sigma_8(0.38)$	$0.343^{+0.15}_{-0.093}$
$\Omega_{\mathrm{m}}h^2$	$0.170^{+0.027}_{-0.035}$	$r_{*}$	$142.0^{+3.5}_{-3.1}$	$\sigma_8(0.38)$	$0.39^{+0.28}_{-0.13}$
$\Omega_{\nu}h^2$	$< 0.0534$	$100\theta_{*}$	$1.0408^{+0.0028}_{-0.0026}$	$f\sigma_8(0.51)$	$0.325^{+0.16}_{-0.094}$
$\Omega_{\mathrm{m}}h^3$	$0.085^{+0.015}_{-0.011}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.64^{+0.35}_{-0.31}$	$\sigma_8(0.51)$	$0.36^{+0.27}_{-0.13}$
$\sigma_8$	$0.50^{+0.31}_{-0.16}$	$z_{\mathrm{drag}}$	$1059.8^{+7.8}_{-7.1}$	$f\sigma_8(0.61)$	$0.312^{+0.16}_{-0.094}$
$S_8$	$0.74^{+0.18}_{-0.16}$	$r_{\mathrm{drag}}$	$144.8^{+3.0}_{-2.4}$	$\sigma_8(0.61)$	$0.34^{+0.26}_{-0.12}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.403^{+0.097}_{-0.085}$	$k_{\mathrm{D}}$	$0.1438^{+0.0039}_{-0.0039}$	$f\sigma_8(2.33)$	$0.171^{+0.13}_{-0.063}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.45^{+0.18}_{-0.11}$	$100\theta_{\mathrm{D}}$	$0.1601^{+0.0052}_{-0.0039}$	$\sigma_8(2.33)$	$0.170^{+0.14}_{-0.064}$
$\sigma_8/h^{0.5}$	$0.70^{+0.31}_{-0.18}$	$z_{\mathrm{eq}}$	$3368^{+320}_{-330}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.0)$
$r_{\mathrm{drag}}h$	$74^{+30}_{-20}$	$k_{\mathrm{eq}}$	$0.01046^{+0.00096}_{-0.00084}$	$\chi_{\mathrm{plikEE}}^2$	$743.6 (\nu: 5.2)$
$\langle d^2 \rangle^{1/2}$	$2.52^{+0.28}_{-0.30}$	$100\theta_{\mathrm{eq}}$	$0.831^{+0.081}_{-0.063}$	$\chi_{\mathrm{prior}}^2$	$0.98 (\nu: 0.9)$
$z_{\mathrm{re}}$	$< 9.18$	$100\theta_{\mathrm{s,eq}}$	$0.459^{+0.043}_{-0.032}$	$\chi_{\mathrm{CMB}}^2$	$1140.5 (\nu: 5.9)$
$10^9 A_{\mathrm{s}}$	$2.08^{+0.13}_{-0.11}$	$H(0.15)$	$59^{+20}_{-10}$		
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.889^{+0.068}_{-0.069}$	$D_{\mathrm{M}}(0.15)$	$834^{+200}_{-200}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1141.50$ ;  $R - 1 = 0.01065$



## 6.17 base\_mnu\_plikHM\_TE\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02246	$0.02249^{+0.00061}_{-0.00059}$	$\langle d^2 \rangle^{1/2}$	2.378	$2.36^{+0.11}_{-0.11}$	$H(0.38)$	83.18	$83.1^{+1.2}_{-1.4}$
$\Omega_c h^2$	0.11756	$0.1171^{+0.0041}_{-0.0043}$	$z_{\text{re}}$	7.25	$7.1^{+2.1}_{-3.2}$	$D_{\text{M}}(0.38)$	1523.8	$1527^{+36}_{-29}$
$100\theta_{\text{MC}}$	1.04133	$1.0414^{+0.0012}_{-0.0012}$	$10^9 A_{\text{s}}$	2.047	$2.04^{+0.11}_{-0.12}$	$H(0.51)$	89.84	$89.7^{+1.0}_{-1.2}$
$\tau$	0.0506	$0.049^{+0.021}_{-0.028}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8495	$1.846^{+0.049}_{-0.048}$	$D_{\text{M}}(0.51)$	1974.8	$1978^{+43}_{-35}$
$\Sigma m_{\nu} [\text{eV}]$	0.120	$< 0.422$	$D_{40}$	1214	$1211^{+64}_{-60}$	$H(0.61)$	95.42	$95.31^{+0.91}_{-1.1}$
$\ln(10^{10} A_{\text{s}})$	3.019	$3.014^{+0.052}_{-0.059}$	$D_{220}$	5694	$5695^{+150}_{-150}$	$D_{\text{M}}(0.61)$	2298.6	$2302^{+47}_{-38}$
$n_{\text{s}}$	0.9659	$0.967^{+0.026}_{-0.026}$	$D_{810}$	2504	$2502^{+66}_{-65}$	$H(2.33)$	235.41	$235.4^{+2.1}_{-2.1}$
$y_{\text{cal}}$	1.0000	$0.99999^{+0.0066}_{-0.0064}$	$D_{1420}$	805.7	$806^{+30}_{-30}$	$D_{\text{M}}(2.33)$	5760	$5766^{+61}_{-47}$
$A_{100}^{\text{dustTE}}$	0.112	$0.113^{+0.099}_{-0.096}$	$D_{2000}$	227.0	$227^{+11}_{-11}$	$f\sigma_8(0.15)$	0.4381	$0.433^{+0.032}_{-0.038}$
$A_{100 \times 143}^{\text{dustTE}}$	0.133	$0.136^{+0.077}_{-0.078}$	$n_{\text{s},0.002}$	0.9659	$0.967^{+0.026}_{-0.026}$	$\sigma_8(0.15)$	0.723	$0.712^{+0.050}_{-0.074}$
$A_{100 \times 217}^{\text{dustTE}}$	0.477	$0.48^{+0.22}_{-0.22}$	$Y_{\text{P}}$	0.245430	$0.24544^{+0.00026}_{-0.00025}$	$f\sigma_8(0.38)$	0.4572	$0.451^{+0.031}_{-0.041}$
$A_{143}^{\text{dustTE}}$	0.216	$0.22^{+0.14}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	0.246757	$0.24677^{+0.00026}_{-0.00025}$	$\sigma_8(0.38)$	0.642	$0.632^{+0.048}_{-0.064}$
$A_{143 \times 217}^{\text{dustTE}}$	0.658	$0.66^{+0.21}_{-0.21}$	$10^5 \text{D/H}$	2.569	$2.56^{+0.11}_{-0.11}$	$f\sigma_8(0.51)$	0.4565	$0.450^{+0.030}_{-0.042}$
$A_{217}^{\text{dustTE}}$	2.05	$2.03^{+0.71}_{-0.70}$	Age/Gyr	13.791	$13.80^{+0.14}_{-0.11}$	$\sigma_8(0.51)$	0.601	$0.592^{+0.045}_{-0.060}$
$c_{100}$	1.00017	$1.0002^{+0.0018}_{-0.0018}$	$z_*$	1089.60	$1089.53^{+0.88}_{-0.90}$	$f\sigma_8(0.61)$	0.4522	$0.446^{+0.030}_{-0.041}$
$c_{217}$	0.99800	$0.9980^{+0.0016}_{-0.0016}$	$r_*$	144.99	$145.1^{+1.1}_{-1.0}$	$\sigma_8(0.61)$	0.5719	$0.563^{+0.043}_{-0.057}$
$H_0$	67.96	$67.8^{+1.7}_{-1.9}$	$100\theta_*$	1.04155	$1.0416^{+0.0012}_{-0.0012}$	$f\sigma_8(2.33)$	0.2896	$0.286^{+0.019}_{-0.026}$
$\Omega_{\Lambda}$	0.6940	$0.693^{+0.020}_{-0.023}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.921	$13.93^{+0.10}_{-0.098}$	$\sigma_8(2.33)$	0.2982	$0.294^{+0.021}_{-0.029}$
$\Omega_{\text{m}}$	0.3060	$0.307^{+0.023}_{-0.020}$	$z_{\text{drag}}$	1059.97	$1060.0^{+1.3}_{-1.3}$	$\chi_{\text{small}}^2$	395.67	$396.8 (\nu: 1.2)$
$\Omega_{\text{m}} h^2$	0.14132	$0.1413^{+0.0031}_{-0.0031}$	$r_{\text{drag}}$	147.64	$147.7^{+1.1}_{-1.1}$	$\chi_{\text{plikTE}}^2$	852.8	$859.6 (\nu: 6.5)$
$\Omega_{\nu} h^2$	0.00129	$< 0.00454$	$k_{\text{D}}$	0.14036	$0.1403^{+0.0013}_{-0.0014}$	$\chi_{6\text{DF}}^2$	0.001	$0.052 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	0.09603	$0.0958^{+0.0018}_{-0.0022}$	$100\theta_{\text{D}}$	0.16078	$0.16076^{+0.00079}_{-0.00077}$	$\chi_{\text{MGS}}^2$	1.61	$1.59 (\nu: 0.2)$
$\sigma_8$	0.782	$0.770^{+0.055}_{-0.080}$	$z_{\text{eq}}$	3346	$3336^{+94}_{-100}$	$\chi_{\text{DR12BAO}}^2$	3.54	$4.4 (\nu: 1.1)$
$S_8$	0.789	$0.779^{+0.063}_{-0.073}$	$k_{\text{eq}}$	0.010213	$0.01018^{+0.00028}_{-0.00030}$	$\chi_{\text{prior}}^2$	0.4	$7.5 (\nu: 6.9)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4324	$0.427^{+0.034}_{-0.040}$	$100\theta_{\text{eq}}$	0.8241	$0.826^{+0.020}_{-0.018}$	$\chi_{\text{BAO}}^2$	5.15	$6.1 (\nu: 0.8)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5813	$0.573^{+0.042}_{-0.057}$	$100\theta_{\text{s,eq}}$	0.4550	$0.456^{+0.010}_{-0.0090}$	$\chi_{\text{CMB}}^2$	1248.5	$1256.4 (\nu: 8.0)$
$\sigma_8/h^{0.5}$	0.948	$0.935^{+0.065}_{-0.091}$	$H(0.15)$	73.18	$73.0^{+1.5}_{-1.7}$			
$r_{\text{drag}} h$	100.33	$100.2^{+2.7}_{-2.8}$	$D_{\text{M}}(0.15)$	638.3	$640^{+17}_{-14}$			

Best-fit  $\chi_{\text{eff}}^2 = 1254.08$ ;  $\bar{\chi}_{\text{eff}}^2 = 1269.93$ ;  $R - 1 = 0.00751$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.61 DR12BAO: 3.54 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.67 plik\_rd12\_HM\_v22\_TE: 852.84



## 6.18 base\_mnu\_plikHM\_TE\_lowE\_BAO\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02250^{+0.00058}_{-0.00055}$	$\langle d^2 \rangle^{1/2}$	$2.420^{+0.067}_{-0.074}$	$H(0.38)$	$83.30^{+0.96}_{-0.99}$
$\Omega_{\mathrm{c}}h^2$	$0.1189^{+0.0032}_{-0.0029}$	$z_{\mathrm{re}}$	$7.6^{+1.8}_{-2.1}$	$D_{\mathrm{M}}(0.38)$	$1522^{+26}_{-25}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0011}_{-0.0012}$	$10^9 A_{\mathrm{s}}$	$2.085^{+0.078}_{-0.082}$	$H(0.51)$	$89.99^{+0.79}_{-0.87}$
$\tau$	$0.054^{+0.019}_{-0.020}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.871^{+0.037}_{-0.035}$	$D_{\mathrm{M}}(0.51)$	$1972^{+30}_{-29}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.198$	$D_{40}$	$1222^{+57}_{-67}$	$H(0.61)$	$95.58^{+0.71}_{-0.80}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.037^{+0.037}_{-0.040}$	$D_{220}$	$5722^{+150}_{-150}$	$D_{\mathrm{M}}(0.61)$	$2296^{+33}_{-32}$
$n_{\mathrm{s}}$	$0.967^{+0.028}_{-0.023}$	$D_{810}$	$2529^{+57}_{-56}$	$H(2.33)$	$236.0^{+2.1}_{-1.7}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0082}_{-0.0071}$	$D_{1420}$	$815^{+29}_{-26}$	$D_{\mathrm{M}}(2.33)$	$5749^{+42}_{-36}$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.095}_{-0.095}$	$D_{2000}$	$230^{+10}_{-9.1}$	$f\sigma_8(0.15)$	$0.452^{+0.017}_{-0.018}$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.136^{+0.074}_{-0.079}$	$n_{\mathrm{s},0.002}$	$0.967^{+0.028}_{-0.023}$	$\sigma_8(0.15)$	$0.745^{+0.023}_{-0.033}$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.47^{+0.22}_{-0.21}$	$Y_{\mathrm{P}}$	$0.24544^{+0.00024}_{-0.00023}$	$f\sigma_8(0.38)$	$0.471^{+0.015}_{-0.017}$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.13}_{-0.13}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24677^{+0.00025}_{-0.00023}$	$\sigma_8(0.38)$	$0.661^{+0.021}_{-0.029}$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.56^{+0.10}_{-0.10}$	$f\sigma_8(0.51)$	$0.470^{+0.014}_{-0.017}$
$A_{217}^{\mathrm{dustTE}}$	$2.05^{+0.74}_{-0.65}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.766^{+0.098}_{-0.084}$	$\sigma_8(0.51)$	$0.619^{+0.020}_{-0.027}$
$c_{100}$	$1.0002^{+0.0020}_{-0.0018}$	$z_{*}$	$1089.66^{+0.79}_{-0.83}$	$f\sigma_8(0.61)$	$0.466^{+0.013}_{-0.017}$
$c_{217}$	$0.9980^{+0.0017}_{-0.0016}$	$r_{*}$	$144.62^{+0.75}_{-0.88}$	$\sigma_8(0.61)$	$0.589^{+0.019}_{-0.026}$
$H_0$	$68.0^{+1.4}_{-1.5}$	$100\theta_{*}$	$1.0415^{+0.0011}_{-0.0012}$	$f\sigma_8(2.33)$	$0.2973^{+0.0084}_{-0.012}$
$\Omega_{\Lambda}$	$0.693^{+0.018}_{-0.019}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.886^{+0.072}_{-0.085}$	$\sigma_8(2.33)$	$0.3066^{+0.0093}_{-0.014}$
$\Omega_{\mathrm{m}}$	$0.307^{+0.019}_{-0.018}$	$z_{\mathrm{drag}}$	$1060.2^{+1.3}_{-1.3}$	$\chi_{\mathrm{lensing}}^2$	$10.6 (\nu: 1.9)$
$\Omega_{\mathrm{m}}h^2$	$0.1421^{+0.0032}_{-0.0026}$	$r_{\mathrm{drag}}$	$147.24^{+0.82}_{-0.90}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.3)$
$\Omega_{\nu}h^2$	$< 0.00213$	$k_{\mathrm{D}}$	$0.1408^{+0.0011}_{-0.0012}$	$\chi_{\mathrm{plikTE}}^2$	$860.0 (\nu: 6.4)$
$\Omega_{\mathrm{m}}h^3$	$0.0966^{+0.0012}_{-0.0016}$	$100\theta_{\mathrm{D}}$	$0.16068^{+0.00077}_{-0.00072}$	$\chi_{6\mathrm{DF}}^2$	$0.045 (\nu: 0.0)$
$\sigma_8$	$0.806^{+0.024}_{-0.036}$	$z_{\mathrm{eq}}$	$3379^{+75}_{-63}$	$\chi_{\mathrm{MGS}}^2$	$1.56 (\nu: 0.2)$
$S_8$	$0.816^{+0.033}_{-0.035}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00023}_{-0.00019}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 0.9)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.018}_{-0.019}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.013}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 7.9)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.020}_{-0.024}$	$100\theta_{\mathrm{s,eq}}$	$0.4518^{+0.0062}_{-0.0068}$	$\chi_{\mathrm{CMB}}^2$	$1267.5 (\nu: 7.5)$
$\sigma_8/h^{0.5}$	$0.978^{+0.029}_{-0.040}$	$H(0.15)$	$73.3^{+1.3}_{-1.3}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.6)$
$r_{\mathrm{drag}}h$	$100.1^{+2.3}_{-2.4}$	$D_{\mathrm{M}}(0.15)$	$638^{+13}_{-12}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1280.97$ ;  $R - 1 = 0.04268$



## 6.19 base\_mnu\_plikHM\_TE\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02250^{+0.00060}_{-0.00059}$	$\langle d^2 \rangle^{1/2}$	$2.37^{+0.10}_{-0.11}$	$H(0.38)$	$83.1^{+1.2}_{-1.4}$
$\Omega_{\mathrm{c}} h^2$	$0.1171^{+0.0041}_{-0.0043}$	$z_{\mathrm{re}}$	$< 9.05$	$D_{\mathrm{M}}(0.38)$	$1527^{+36}_{-29}$
$100\theta_{\mathrm{MC}}$	$1.0414^{+0.0012}_{-0.0012}$	$10^9 A_{\mathrm{s}}$	$2.051^{+0.098}_{-0.074}$	$H(0.51)$	$89.7^{+1.0}_{-1.3}$
$\tau$	$0.053^{+0.017}_{-0.010}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.846^{+0.049}_{-0.048}$	$D_{\mathrm{M}}(0.51)$	$1978^{+43}_{-35}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.428$	$D_{40}$	$1209^{+64}_{-61}$	$H(0.61)$	$95.31^{+0.92}_{-1.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.021^{+0.047}_{-0.037}$	$D_{220}$	$5693^{+150}_{-150}$	$D_{\mathrm{M}}(0.61)$	$2302^{+47}_{-38}$
$n_{\mathrm{s}}$	$0.968^{+0.026}_{-0.025}$	$D_{810}$	$2504^{+66}_{-64}$	$H(2.33)$	$235.4^{+2.1}_{-2.1}$
$y_{\mathrm{cal}}$	$0.9999^{+0.0066}_{-0.0064}$	$D_{1420}$	$806^{+30}_{-28}$	$D_{\mathrm{M}}(2.33)$	$5766^{+62}_{-47}$
$A_{100}^{\mathrm{dustTE}}$	$0.113^{+0.099}_{-0.096}$	$D_{2000}$	$227^{+11}_{-10}$	$f\sigma_8(0.15)$	$0.434^{+0.033}_{-0.038}$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.077}_{-0.078}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.026}_{-0.025}$	$\sigma_8(0.15)$	$0.714^{+0.050}_{-0.075}$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$Y_{\mathrm{P}}$	$0.24544^{+0.00026}_{-0.00025}$	$f\sigma_8(0.38)$	$0.452^{+0.031}_{-0.041}$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24677^{+0.00026}_{-0.00025}$	$\sigma_8(0.38)$	$0.633^{+0.047}_{-0.064}$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.65^{+0.21}_{-0.21}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.56^{+0.11}_{-0.11}$	$f\sigma_8(0.51)$	$0.452^{+0.030}_{-0.041}$
$A_{217}^{\mathrm{dustTE}}$	$2.03^{+0.71}_{-0.70}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.80^{+0.15}_{-0.11}$	$\sigma_8(0.51)$	$0.593^{+0.044}_{-0.060}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0018}$	$z_{*}$	$1089.51^{+0.89}_{-0.89}$	$f\sigma_8(0.61)$	$0.447^{+0.030}_{-0.041}$
$c_{217}$	$0.9980^{+0.0016}_{-0.0016}$	$r_{*}$	$145.1^{+1.0}_{-1.0}$	$\sigma_8(0.61)$	$0.564^{+0.042}_{-0.057}$
$H_0$	$67.8^{+1.7}_{-1.9}$	$100\theta_{*}$	$1.0417^{+0.0012}_{-0.0012}$	$f\sigma_8(2.33)$	$0.286^{+0.019}_{-0.026}$
$\Omega_{\Lambda}$	$0.693^{+0.020}_{-0.023}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.93^{+0.10}_{-0.098}$	$\sigma_8(2.33)$	$0.295^{+0.021}_{-0.029}$
$\Omega_{\mathrm{m}}$	$0.307^{+0.023}_{-0.020}$	$z_{\mathrm{drag}}$	$1060.0^{+1.3}_{-1.3}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.6)$
$\Omega_{\mathrm{m}} h^2$	$0.1413^{+0.0032}_{-0.0031}$	$r_{\mathrm{drag}}$	$147.7^{+1.1}_{-1.1}$	$\chi_{\mathrm{plikTE}}^2$	$859.6 (\nu: 6.4)$
$\Omega_{\nu} h^2$	$< 0.00460$	$k_{\mathrm{D}}$	$0.1403^{+0.0013}_{-0.0014}$	$\chi_{6\mathrm{DF}}^2$	$0.052 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^3$	$0.0958^{+0.0018}_{-0.0023}$	$100\theta_{\mathrm{D}}$	$0.16075^{+0.00078}_{-0.00076}$	$\chi_{\mathrm{MGS}}^2$	$1.59 (\nu: 0.2)$
$\sigma_8$	$0.772^{+0.055}_{-0.081}$	$z_{\mathrm{eq}}$	$3335^{+95}_{-100}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 1.1)$
$S_8$	$0.781^{+0.063}_{-0.072}$	$k_{\mathrm{eq}}$	$0.01018^{+0.00029}_{-0.00030}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 7.0)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.428^{+0.035}_{-0.040}$	$100\theta_{\mathrm{eq}}$	$0.826^{+0.020}_{-0.018}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.9)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.574^{+0.042}_{-0.056}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.010}_{-0.0092}$	$\chi_{\mathrm{CMB}}^2$	$1256.0 (\nu: 7.2)$
$\sigma_8/h^{0.5}$	$0.937^{+0.066}_{-0.090}$	$H(0.15)$	$73.0^{+1.5}_{-1.7}$		
$r_{\mathrm{drag}} h$	$100.2^{+2.7}_{-2.8}$	$D_{\mathrm{M}}(0.15)$	$640^{+17}_{-14}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1269.50$ ;  $R - 1 = 0.00760$



## 6.20 base\_mnu\_plikHM\_TE\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02251^{+0.00057}_{-0.00057}$	$\langle d^2 \rangle^{1/2}$	$2.421^{+0.066}_{-0.076}$	$H(0.38)$	$83.31^{+0.96}_{-1.0}$
$\Omega_{\mathrm{c}}h^2$	$0.1188^{+0.0032}_{-0.0029}$	$z_{\mathrm{re}}$	$< 9.26$	$D_{\mathrm{M}}(0.38)$	$1522^{+26}_{-24}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0011}_{-0.0012}$	$10^9 A_{\mathrm{s}}$	$2.090^{+0.073}_{-0.064}$	$H(0.51)$	$89.99^{+0.80}_{-0.89}$
$\tau$	$0.055^{+0.018}_{-0.014}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.871^{+0.037}_{-0.036}$	$D_{\mathrm{M}}(0.51)$	$1972^{+30}_{-29}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.198$	$D_{40}$	$1222^{+58}_{-66}$	$H(0.61)$	$95.58^{+0.71}_{-0.81}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.040^{+0.035}_{-0.031}$	$D_{220}$	$5721^{+150}_{-150}$	$D_{\mathrm{M}}(0.61)$	$2296^{+33}_{-32}$
$n_{\mathrm{s}}$	$0.968^{+0.027}_{-0.022}$	$D_{810}$	$2529^{+58}_{-57}$	$H(2.33)$	$236.0^{+2.0}_{-1.8}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0082}_{-0.0071}$	$D_{1420}$	$815^{+29}_{-26}$	$D_{\mathrm{M}}(2.33)$	$5749^{+43}_{-36}$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.095}_{-0.095}$	$D_{2000}$	$230.4^{+9.9}_{-9.1}$	$f\sigma_8(0.15)$	$0.452^{+0.018}_{-0.017}$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.136^{+0.073}_{-0.079}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.027}_{-0.022}$	$\sigma_8(0.15)$	$0.746^{+0.023}_{-0.034}$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.47^{+0.20}_{-0.21}$	$Y_{\mathrm{P}}$	$0.24545^{+0.00024}_{-0.00024}$	$f\sigma_8(0.38)$	$0.471^{+0.015}_{-0.017}$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.13}_{-0.13}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24677^{+0.00024}_{-0.00024}$	$\sigma_8(0.38)$	$0.662^{+0.020}_{-0.031}$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.56^{+0.11}_{-0.10}$	$f\sigma_8(0.51)$	$0.470^{+0.014}_{-0.017}$
$A_{217}^{\mathrm{dustTE}}$	$2.04^{+0.75}_{-0.67}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.77^{+0.10}_{-0.084}$	$\sigma_8(0.51)$	$0.619^{+0.018}_{-0.029}$
$c_{100}$	$1.0002^{+0.0020}_{-0.0018}$	$z_{*}$	$1089.65^{+0.81}_{-0.82}$	$f\sigma_8(0.61)$	$0.466^{+0.013}_{-0.017}$
$c_{217}$	$0.9980^{+0.0017}_{-0.0016}$	$r_{*}$	$144.63^{+0.74}_{-0.89}$	$\sigma_8(0.61)$	$0.590^{+0.019}_{-0.026}$
$H_0$	$68.0^{+1.4}_{-1.5}$	$100\theta_{*}$	$1.0415^{+0.0011}_{-0.0011}$	$f\sigma_8(2.33)$	$0.2975^{+0.0081}_{-0.012}$
$\Omega_{\Lambda}$	$0.693^{+0.018}_{-0.021}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.887^{+0.072}_{-0.086}$	$\sigma_8(2.33)$	$0.307^{+0.010}_{-0.014}$
$\Omega_{\mathrm{m}}$	$0.307^{+0.021}_{-0.018}$	$z_{\mathrm{drag}}$	$1060.2^{+1.3}_{-1.3}$	$\chi_{\mathrm{lensing}}^2$	$10.5 (\nu: 1.8)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0032}_{-0.0026}$	$r_{\mathrm{drag}}$	$147.25^{+0.83}_{-0.90}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.3)$
$\Omega_{\nu}h^2$	$< 0.00213$	$k_{\mathrm{D}}$	$0.1408^{+0.0011}_{-0.0012}$	$\chi_{\mathrm{plikTE}}^2$	$860.0 (\nu: 6.3)$
$\Omega_{\mathrm{m}}h^3$	$0.0966^{+0.0013}_{-0.0016}$	$100\theta_{\mathrm{D}}$	$0.16067^{+0.00077}_{-0.00071}$	$\chi_{6\mathrm{DF}}^2$	$0.045 (\nu: 0.0)$
$\sigma_8$	$0.807^{+0.024}_{-0.037}$	$z_{\mathrm{eq}}$	$3378^{+77}_{-63}$	$\chi_{\mathrm{MGS}}^2$	$1.58 (\nu: 0.2)$
$S_8$	$0.816^{+0.035}_{-0.034}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00024}_{-0.00019}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 0.9)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.019}_{-0.019}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.013}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 7.7)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.019}_{-0.024}$	$100\theta_{\mathrm{s,eq}}$	$0.4519^{+0.0061}_{-0.0070}$	$\chi_{\mathrm{CMB}}^2$	$1267.3 (\nu: 7.1)$
$\sigma_8/h^{0.5}$	$0.978^{+0.029}_{-0.040}$	$H(0.15)$	$73.3^{+1.3}_{-1.3}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.6)$
$r_{\mathrm{drag}}h$	$100.2^{+2.4}_{-2.5}$	$D_{\mathrm{M}}(0.15)$	$638^{+13}_{-12}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1280.75$ ;  $R - 1 = 0.05310$



## 6.21 base\_mnu\_plikHM\_EE\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02346	$0.0241^{+0.0027}_{-0.0021}$	$D_{220}$	5888	$5988^{+450}_{-420}$	$H(0.51)$	90.50	$90.4^{+1.6}_{-1.6}$
$\Omega_c h^2$	0.1176	$0.1150^{+0.0060}_{-0.0091}$	$D_{810}$	2579	$2595^{+94}_{-90}$	$D_M(0.51)$	1956.4	$1959^{+50}_{-49}$
$100\theta_{MC}$	1.03983	$1.0401^{+0.0021}_{-0.0021}$	$D_{1420}$	837.7	$847^{+45}_{-41}$	$H(0.61)$	96.05	$96.0^{+1.5}_{-1.5}$
$\tau$	0.0519	$0.053^{+0.022}_{-0.025}$	$D_{2000}$	238.8	$242^{+16}_{-15}$	$D_M(0.61)$	2278	$2281^{+55}_{-54}$
$\Sigma m_\nu$ [eV]	0.069	< 0.764	$n_{s,0.002}$	0.9751	$0.981^{+0.031}_{-0.028}$	$H(2.33)$	236.00	$236.0^{+2.6}_{-2.5}$
$\ln(10^{10} A_s)$	3.049	$3.051^{+0.055}_{-0.059}$	$Y_P$	0.24585	$0.2461^{+0.0010}_{-0.00084}$	$D_M(2.33)$	5725	$5729^{+83}_{-80}$
$n_s$	0.9751	$0.981^{+0.031}_{-0.028}$	$Y_P^{BBN}$	0.24718	$0.2474^{+0.0010}_{-0.00084}$	$f\sigma_8(0.15)$	0.445	$0.420^{+0.049}_{-0.078}$
$y_{cal}$	0.9999	$0.9999^{+0.0065}_{-0.0063}$	$10^5 D/H$	2.394	$2.30^{+0.36}_{-0.37}$	$\sigma_8(0.15)$	0.743	$0.697^{+0.080}_{-0.13}$
$H_0$	68.74	$68.6^{+2.3}_{-2.3}$	Age/Gyr	13.709	$13.72^{+0.19}_{-0.18}$	$f\sigma_8(0.38)$	0.466	$0.440^{+0.051}_{-0.076}$
$\Omega_\Lambda$	0.6999	$0.699^{+0.022}_{-0.025}$	$z_*$	1088.40	$1087.5^{+2.7}_{-3.1}$	$\sigma_8(0.38)$	0.660	$0.619^{+0.070}_{-0.11}$
$\Omega_m$	0.3001	$0.301^{+0.025}_{-0.022}$	$r_*$	144.22	$144.3^{+1.4}_{-1.4}$	$f\sigma_8(0.51)$	0.466	$0.440^{+0.050}_{-0.076}$
$\Omega_m h^2$	0.14180	$0.1418^{+0.0037}_{-0.0037}$	$100\theta_*$	1.03991	$1.0402^{+0.0022}_{-0.0021}$	$\sigma_8(0.51)$	0.618	$0.580^{+0.065}_{-0.10}$
$\Omega_\nu h^2$	0.00074	< 0.00821	$D_M(z_*)/\text{Gpc}$	13.869	$13.88^{+0.14}_{-0.14}$	$f\sigma_8(0.61)$	0.462	$0.436^{+0.048}_{-0.075}$
$\Omega_m h^3$	0.09747	$0.0973^{+0.0032}_{-0.0032}$	$z_{drag}$	1062.26	$1063.5^{+5.3}_{-4.5}$	$\sigma_8(0.61)$	0.588	$0.552^{+0.062}_{-0.099}$
$\sigma_8$	0.802	$0.753^{+0.087}_{-0.14}$	$r_{drag}$	146.53	$146.5^{+1.8}_{-1.8}$	$f\sigma_8(2.33)$	0.2972	$0.281^{+0.028}_{-0.045}$
$S_8$	0.802	$0.754^{+0.094}_{-0.15}$	$k_D$	0.14225	$0.1428^{+0.0031}_{-0.0032}$	$\sigma_8(2.33)$	0.3068	$0.289^{+0.031}_{-0.050}$
$\sigma_8 \Omega_m^{0.5}$	0.440	$0.413^{+0.052}_{-0.080}$	$100\theta_D$	0.15924	$0.1586^{+0.0026}_{-0.0026}$	$\chi^2_{small}$	395.62	$396.7 (\nu: 1.1)$
$\sigma_8 \Omega_m^{0.25}$	0.594	$0.557^{+0.069}_{-0.10}$	$z_{eq}$	3371	$3324^{+130}_{-170}$	$\chi^2_{plikEE}$	739.0	$744.0 (\nu: 5.0)$
$\sigma_8/h^{0.5}$	0.968	$0.91^{+0.11}_{-0.17}$	$k_{eq}$	0.010287	$0.01015^{+0.00039}_{-0.00051}$	$\chi^2_{6DF}$	0.002	$0.058 (\nu: 0.0)$
$r_{drag} h$	100.72	$100.5^{+3.0}_{-3.0}$	$100\theta_{eq}$	0.8212	$0.832^{+0.041}_{-0.025}$	$\chi^2_{MGS}$	1.82	$1.77 (\nu: 0.3)$
$\langle d^2 \rangle^{1/2}$	2.401	$2.34^{+0.14}_{-0.18}$	$100\theta_{s,eq}$	0.4526	$0.458^{+0.019}_{-0.012}$	$\chi^2_{DR12BAO}$	3.62	$4.7 (\nu: 1.2)$
$z_{re}$	7.17	$7.1^{+2.0}_{-2.7}$	$H(0.15)$	73.92	$73.8^{+2.1}_{-2.0}$	$\chi^2_{prior}$	0.00	$0.99 (\nu: 1.0)$
$10^9 A_s$	2.109	$2.11^{+0.12}_{-0.12}$	$D_M(0.15)$	631.5	$633^{+20}_{-19}$	$\chi^2_{BAO}$	5.44	$6.5 (\nu: 1.0)$
$10^9 A_s e^{-2\tau}$	1.901	$1.902^{+0.062}_{-0.062}$	$H(0.38)$	83.87	$83.8^{+1.8}_{-1.7}$	$\chi^2_{CMB}$	1134.7	$1140.7 (\nu: 6.1)$
$D_{40}$	1232	$1226^{+78}_{-80}$	$D_M(0.38)$	1508.8	$1511^{+41}_{-40}$			

Best-fit  $\chi^2_{eff} = 1140.11$ ;  $\bar{\chi}^2_{eff} = 1148.18$ ;  $R - 1 = 0.00933$

$\chi^2_{eff}$ : BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 3.62 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.62 plik\_rd12\_HM\_v22\_EE: 739.05



## 6.22 base\_mnu\_plikHM\_EE\_lowE\_BAO\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.0239^{+0.0020}_{-0.0017}$	$D_{220}$	$5959^{+360}_{-340}$	$H(0.51)$	$90.5^{+1.6}_{-1.5}$
$\Omega_{\text{c}}h^2$	$0.1164^{+0.0043}_{-0.0047}$	$D_{810}$	$2593^{+86}_{-75}$	$D_{\text{M}}(0.51)$	$1957^{+48}_{-48}$
$100\theta_{\text{MC}}$	$1.0400^{+0.0020}_{-0.0019}$	$D_{1420}$	$845^{+40}_{-35}$	$H(0.61)$	$96.1^{+1.5}_{-1.4}$
$\tau$	$0.053^{+0.022}_{-0.023}$	$D_{2000}$	$241^{+15}_{-13}$	$D_{\text{M}}(0.61)$	$2278^{+53}_{-53}$
$\Sigma m_{\nu} [\text{eV}]$	$< 0.424$	$n_{\text{s},0.002}$	$0.978^{+0.028}_{-0.027}$	$H(2.33)$	$236.2^{+2.3}_{-2.2}$
$\ln(10^{10}A_{\text{s}})$	$3.054^{+0.049}_{-0.046}$	$Y_{\text{P}}$	$0.24600^{+0.00077}_{-0.00069}$	$D_{\text{M}}(2.33)$	$5723^{+71}_{-74}$
$n_{\text{s}}$	$0.978^{+0.028}_{-0.027}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24733^{+0.00077}_{-0.00069}$	$f\sigma_8(0.15)$	$0.433^{+0.031}_{-0.038}$
$y_{\text{cal}}$	$0.99999^{+0.0064}_{-0.0063}$	$10^5\text{D}/\text{H}$	$2.33^{+0.29}_{-0.29}$	$\sigma_8(0.15)$	$0.720^{+0.045}_{-0.061}$
$H_0$	$68.7^{+2.2}_{-2.2}$	$\text{Age}/\text{Gyr}$	$13.70^{+0.16}_{-0.17}$	$f\sigma_8(0.38)$	$0.454^{+0.028}_{-0.038}$
$\Omega_{\Lambda}$	$0.699^{+0.022}_{-0.026}$	$z_*$	$1087.9^{+2.2}_{-2.3}$	$\sigma_8(0.38)$	$0.640^{+0.040}_{-0.054}$
$\Omega_{\text{m}}$	$0.301^{+0.026}_{-0.022}$	$r_*$	$144.2^{+1.0}_{-1.1}$	$f\sigma_8(0.51)$	$0.454^{+0.026}_{-0.038}$
$\Omega_{\text{m}}h^2$	$0.1420^{+0.0033}_{-0.0033}$	$100\theta_*$	$1.0400^{+0.0021}_{-0.0019}$	$\sigma_8(0.51)$	$0.600^{+0.037}_{-0.050}$
$\Omega_{\nu}h^2$	$< 0.00456$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.86^{+0.10}_{-0.11}$	$f\sigma_8(0.61)$	$0.450^{+0.025}_{-0.037}$
$\Omega_{\text{m}}h^3$	$0.0976^{+0.0029}_{-0.0026}$	$z_{\text{drag}}$	$1063.1^{+4.1}_{-3.7}$	$\sigma_8(0.61)$	$0.571^{+0.035}_{-0.048}$
$\sigma_8$	$0.778^{+0.050}_{-0.067}$	$r_{\text{drag}}$	$146.4^{+1.5}_{-1.5}$	$f\sigma_8(2.33)$	$0.290^{+0.015}_{-0.021}$
$S_8$	$0.779^{+0.061}_{-0.075}$	$k_{\text{D}}$	$0.1427^{+0.0027}_{-0.0026}$	$\sigma_8(2.33)$	$0.298^{+0.018}_{-0.024}$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.427^{+0.033}_{-0.041}$	$100\theta_{\text{D}}$	$0.1588^{+0.0022}_{-0.0021}$	$\chi^2_{\text{lensing}}$	$9.2 (\nu: 0.8)$
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.576^{+0.038}_{-0.052}$	$z_{\text{eq}}$	$3353^{+78}_{-82}$	$\chi^2_{\text{simall}}$	$396.7 (\nu: 1.0)$
$\sigma_8/h^{0.5}$	$0.939^{+0.060}_{-0.086}$	$k_{\text{eq}}$	$0.01023^{+0.00024}_{-0.00025}$	$\chi^2_{\text{plikEE}}$	$742.9 (\nu: 3.5)$
$r_{\text{drag}}h$	$100.6^{+3.0}_{-3.2}$	$100\theta_{\text{eq}}$	$0.826^{+0.019}_{-0.016}$	$\chi^2_{6\text{DF}}$	$0.059 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.375^{+0.087}_{-0.098}$	$100\theta_{\text{s,eq}}$	$0.4548^{+0.0088}_{-0.0077}$	$\chi^2_{\text{MGS}}$	$1.80 (\nu: 0.3)$
$z_{\text{re}}$	$7.2^{+2.1}_{-2.4}$	$H(0.15)$	$73.9^{+2.1}_{-2.0}$	$\chi^2_{\text{DR12BAO}}$	$4.7 (\nu: 1.2)$
$10^9A_{\text{s}}$	$2.12^{+0.11}_{-0.096}$	$D_{\text{M}}(0.15)$	$632^{+19}_{-19}$	$\chi^2_{\text{prior}}$	$0.96 (\nu: 0.9)$
$10^9A_{\text{s}}e^{-2\tau}$	$1.907^{+0.050}_{-0.046}$	$H(0.38)$	$83.9^{+1.8}_{-1.6}$	$\chi^2_{\text{CMB}}$	$1148.8 (\nu: 5.7)$
$D_{40}$	$1233^{+70}_{-72}$	$D_{\text{M}}(0.38)$	$1509^{+40}_{-39}$	$\chi^2_{\text{BAO}}$	$6.5 (\nu: 1.1)$

$\bar{\chi}^2_{\text{eff}} = 1156.24$ ;  $R - 1 = 0.01129$



### 6.23 base\_mnu\_plikHM\_EE\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0241^{+0.0027}_{-0.0021}$	$D_{220}$	$5981^{+460}_{-420}$	$H(0.51)$	$90.4^{+1.6}_{-1.6}$
$\Omega_{\mathrm{c}} h^2$	$0.1150^{+0.0060}_{-0.0092}$	$D_{810}$	$2594^{+94}_{-89}$	$D_{\mathrm{M}}(0.51)$	$1960^{+50}_{-49}$
$100\theta_{\mathrm{MC}}$	$1.0401^{+0.0021}_{-0.0021}$	$D_{1420}$	$846^{+46}_{-41}$	$H(0.61)$	$96.0^{+1.5}_{-1.5}$
$\tau$	$0.056^{+0.018}_{-0.012}$	$D_{2000}$	$242^{+17}_{-15}$	$D_{\mathrm{M}}(0.61)$	$2282^{+55}_{-54}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.762$	$n_{\mathrm{s},0.002}$	$0.981^{+0.031}_{-0.028}$	$H(2.33)$	$236.0^{+2.6}_{-2.5}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.057^{+0.051}_{-0.046}$	$Y_{\mathrm{P}}$	$0.2461^{+0.0010}_{-0.00083}$	$D_{\mathrm{M}}(2.33)$	$5730^{+83}_{-81}$
$n_{\mathrm{s}}$	$0.981^{+0.031}_{-0.028}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2474^{+0.0010}_{-0.00083}$	$f\sigma_8(0.15)$	$0.422^{+0.048}_{-0.078}$
$y_{\mathrm{cal}}$	$0.9999^{+0.0066}_{-0.0063}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.30^{+0.35}_{-0.38}$	$\sigma_8(0.15)$	$0.699^{+0.078}_{-0.13}$
$H_0$	$68.6^{+2.3}_{-2.3}$	Age/Gyr	$13.72^{+0.19}_{-0.19}$	$f\sigma_8(0.38)$	$0.441^{+0.050}_{-0.077}$
$\Omega_{\Lambda}$	$0.699^{+0.022}_{-0.026}$	$z_*$	$1087.6^{+2.7}_{-3.1}$	$\sigma_8(0.38)$	$0.621^{+0.068}_{-0.11}$
$\Omega_{\mathrm{m}}$	$0.301^{+0.026}_{-0.022}$	$r_*$	$144.4^{+1.4}_{-1.4}$	$f\sigma_8(0.51)$	$0.441^{+0.049}_{-0.076}$
$\Omega_{\mathrm{m}} h^2$	$0.1418^{+0.0036}_{-0.0036}$	$100\theta_*$	$1.0402^{+0.0022}_{-0.0021}$	$\sigma_8(0.51)$	$0.582^{+0.064}_{-0.10}$
$\Omega_{\nu} h^2$	$< 0.00819$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.88^{+0.14}_{-0.14}$	$f\sigma_8(0.61)$	$0.438^{+0.047}_{-0.075}$
$\Omega_{\mathrm{m}} h^3$	$0.0973^{+0.0033}_{-0.0032}$	$z_{\mathrm{drag}}$	$1063.5^{+5.4}_{-4.5}$	$\sigma_8(0.61)$	$0.554^{+0.060}_{-0.098}$
$\sigma_8$	$0.755^{+0.085}_{-0.14}$	$r_{\mathrm{drag}}$	$146.5^{+1.8}_{-1.8}$	$f\sigma_8(2.33)$	$0.283^{+0.027}_{-0.045}$
$S_8$	$0.757^{+0.093}_{-0.15}$	$k_{\mathrm{D}}$	$0.1427^{+0.0032}_{-0.0032}$	$\sigma_8(2.33)$	$0.290^{+0.030}_{-0.049}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.415^{+0.051}_{-0.081}$	$100\theta_{\mathrm{D}}$	$0.1586^{+0.0025}_{-0.0027}$	$\chi_{\mathrm{small}}^2$	$396.4 (\nu: 0.9)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.560^{+0.068}_{-0.10}$	$z_{\mathrm{eq}}$	$3324^{+130}_{-170}$	$\chi_{\mathrm{plikEE}}^2$	$743.9 (\nu: 5.0)$
$\sigma_8/h^{0.5}$	$0.91^{+0.11}_{-0.17}$	$k_{\mathrm{eq}}$	$0.01015^{+0.00039}_{-0.00050}$	$\chi_{6\mathrm{DF}}^2$	$0.057 (\nu: 0.0)$
$r_{\mathrm{drag}} h$	$100.5^{+3.0}_{-3.0}$	$100\theta_{\mathrm{eq}}$	$0.832^{+0.041}_{-0.025}$	$\chi_{\mathrm{MGS}}^2$	$1.75 (\nu: 0.2)$
$\langle d^2 \rangle^{1/2}$	$2.35^{+0.14}_{-0.18}$	$100\theta_{\mathrm{s,eq}}$	$0.458^{+0.019}_{-0.013}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.2)$
$z_{\mathrm{re}}$	$< 9.02$	$H(0.15)$	$73.8^{+2.1}_{-2.0}$	$\chi_{\mathrm{prior}}^2$	$0.99 (\nu: 1.0)$
$10^9 A_{\mathrm{s}}$	$2.13^{+0.11}_{-0.097}$	$D_{\mathrm{M}}(0.15)$	$633^{+20}_{-19}$	$\chi_{\mathrm{BAO}}^2$	$6.5 (\nu: 1.0)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.901^{+0.062}_{-0.062}$	$H(0.38)$	$83.8^{+1.8}_{-1.8}$	$\chi_{\mathrm{CMB}}^2$	$1140.3 (\nu: 5.7)$
$D_{40}$	$1226^{+78}_{-81}$	$D_{\mathrm{M}}(0.38)$	$1511^{+41}_{-40}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1147.83; R - 1 = 0.01081$



## 6.24 base\_mnu\_plikHM\_EE\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0239^{+0.0020}_{-0.0017}$	$D_{220}$	$5954^{+360}_{-340}$	$H(0.51)$	$90.5^{+1.5}_{-1.4}$
$\Omega_{\mathrm{c}} h^2$	$0.1163^{+0.0043}_{-0.0046}$	$D_{810}$	$2592^{+84}_{-75}$	$D_{\mathrm{M}}(0.51)$	$1958^{+48}_{-47}$
$100\theta_{\mathrm{MC}}$	$1.0400^{+0.0020}_{-0.0019}$	$D_{1420}$	$844^{+39}_{-34}$	$H(0.61)$	$96.0^{+1.4}_{-1.3}$
$\tau$	$0.056^{+0.018}_{-0.013}$	$D_{2000}$	$241^{+14}_{-13}$	$D_{\mathrm{M}}(0.61)$	$2279^{+52}_{-53}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.425$	$n_{\mathrm{s},0.002}$	$0.978^{+0.028}_{-0.027}$	$H(2.33)$	$236.1^{+2.3}_{-2.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.059^{+0.045}_{-0.038}$	$Y_{\mathrm{P}}$	$0.24599^{+0.00078}_{-0.00069}$	$D_{\mathrm{M}}(2.33)$	$5725^{+69}_{-71}$
$n_{\mathrm{s}}$	$0.978^{+0.028}_{-0.027}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24732^{+0.00078}_{-0.00069}$	$f\sigma_8(0.15)$	$0.434^{+0.031}_{-0.039}$
$y_{\mathrm{cal}}$	$0.99999^{+0.0066}_{-0.0064}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.33^{+0.30}_{-0.30}$	$\sigma_8(0.15)$	$0.721^{+0.047}_{-0.062}$
$H_0$	$68.7^{+2.2}_{-2.3}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.71^{+0.16}_{-0.17}$	$f\sigma_8(0.38)$	$0.454^{+0.028}_{-0.039}$
$\Omega_{\Lambda}$	$0.699^{+0.022}_{-0.026}$	$z_*$	$1087.9^{+2.2}_{-2.4}$	$\sigma_8(0.38)$	$0.640^{+0.041}_{-0.054}$
$\Omega_{\mathrm{m}}$	$0.301^{+0.026}_{-0.022}$	$r_*$	$144.2^{+1.0}_{-1.1}$	$f\sigma_8(0.51)$	$0.454^{+0.026}_{-0.038}$
$\Omega_{\mathrm{m}} h^2$	$0.1420^{+0.0033}_{-0.0032}$	$100\theta_*$	$1.0400^{+0.0021}_{-0.0019}$	$\sigma_8(0.51)$	$0.600^{+0.038}_{-0.051}$
$\Omega_{\nu} h^2$	$< 0.00457$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.87^{+0.10}_{-0.11}$	$f\sigma_8(0.61)$	$0.450^{+0.026}_{-0.037}$
$\Omega_{\mathrm{m}} h^3$	$0.0975^{+0.0030}_{-0.0026}$	$z_{\mathrm{drag}}$	$1063.1^{+4.1}_{-3.6}$	$\sigma_8(0.61)$	$0.571^{+0.036}_{-0.048}$
$\sigma_8$	$0.779^{+0.051}_{-0.067}$	$r_{\mathrm{drag}}$	$146.4^{+1.4}_{-1.5}$	$f\sigma_8(2.33)$	$0.290^{+0.016}_{-0.021}$
$S_8$	$0.780^{+0.061}_{-0.075}$	$k_{\mathrm{D}}$	$0.1426^{+0.0028}_{-0.0026}$	$\sigma_8(2.33)$	$0.299^{+0.018}_{-0.024}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.427^{+0.033}_{-0.041}$	$100\theta_{\mathrm{D}}$	$0.1588^{+0.0022}_{-0.0021}$	$\chi^2_{\mathrm{lensing}}$	$9.2 (\nu: 0.8)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.577^{+0.038}_{-0.053}$	$z_{\mathrm{eq}}$	$3350^{+78}_{-83}$	$\chi^2_{\mathrm{simall}}$	$396.5 (\nu: 0.9)$
$\sigma_8/h^{0.5}$	$0.940^{+0.060}_{-0.086}$	$k_{\mathrm{eq}}$	$0.01023^{+0.00024}_{-0.00025}$	$\chi^2_{\mathrm{plikEE}}$	$742.8 (\nu: 3.4)$
$r_{\mathrm{drag}} h$	$100.5^{+2.9}_{-3.2}$	$100\theta_{\mathrm{eq}}$	$0.826^{+0.019}_{-0.016}$	$\chi^2_{6\mathrm{DF}}$	$0.058 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.378^{+0.088}_{-0.099}$	$100\theta_{\mathrm{s,eq}}$	$0.4550^{+0.0090}_{-0.0079}$	$\chi^2_{\mathrm{MGS}}$	$1.79 (\nu: 0.3)$
$z_{\mathrm{re}}$	$< 9.10$	$H(0.15)$	$73.9^{+2.0}_{-2.0}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.7 (\nu: 1.3)$
$10^9 A_{\mathrm{s}}$	$2.131^{+0.099}_{-0.080}$	$D_{\mathrm{M}}(0.15)$	$632^{+20}_{-18}$	$\chi^2_{\mathrm{prior}}$	$0.97 (\nu: 1.0)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.905^{+0.050}_{-0.046}$	$H(0.38)$	$83.8^{+1.7}_{-1.6}$	$\chi^2_{\mathrm{CMB}}$	$1148.5 (\nu: 5.5)$
$D_{40}$	$1233^{+71}_{-71}$	$D_{\mathrm{M}}(0.38)$	$1510^{+40}_{-39}$	$\chi^2_{\mathrm{BAO}}$	$6.5 (\nu: 1.1)$

$\bar{\chi}^2_{\mathrm{eff}} = 1155.99; R - 1 = 0.01388$



## 6.25 base\_mnu\_plikHM\_TT\_lowl\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02229	$0.02218^{+0.00071}_{-0.00070}$	$S_8$	0.8262	$0.827^{+0.046}_{-0.043}$	$100\theta_{\text{eq}}$	0.8235	$0.820^{+0.028}_{-0.028}$
$\Omega_c h^2$	0.1178	$0.1186^{+0.0068}_{-0.0064}$	$\sigma_8 \Omega_m^{0.5}$	0.4525	$0.453^{+0.025}_{-0.024}$	$100\theta_{\text{s,eq}}$	0.4548	$0.453^{+0.014}_{-0.014}$
$100\theta_{\text{MC}}$	1.04092	$1.0408^{+0.0014}_{-0.0014}$	$\sigma_8 \Omega_m^{0.25}$	0.5933	$0.590^{+0.037}_{-0.047}$	$H(0.15)$	70.8	$70.3^{+5.0}_{-5.7}$
$\tau$	0.114	$0.107^{+0.069}_{-0.074}$	$\sigma_8/h^{0.5}$	0.963	$0.956^{+0.067}_{-0.086}$	$D_{\text{M}}(0.15)$	662	$669^{+67}_{-50}$
$\Sigma m_\nu [\text{eV}]$	0.38	$< 1.03$	$r_{\text{drag}} h$	96.4	$95.4^{+9.1}_{-10}$	$H(0.38)$	81.29	$80.9^{+3.8}_{-4.2}$
$\ln(10^{10} A_s)$	3.156	$3.14^{+0.13}_{-0.14}$	$\langle d^2 \rangle^{1/2}$	2.509	$2.51^{+0.12}_{-0.11}$	$D_{\text{M}}(0.38)$	1573	$1585^{+130}_{-100}$
$n_s$	0.9724	$0.968^{+0.020}_{-0.020}$	$z_{\text{re}}$	13.1	$12.4^{+5.3}_{-7.0}$	$H(0.51)$	88.22	$88.0^{+3.1}_{-3.4}$
$y_{\text{cal}}$	1.0002	$1.0002^{+0.0064}_{-0.0064}$	$10^9 A_s$	2.348	$2.32^{+0.31}_{-0.30}$	$D_{\text{M}}(0.51)$	2033	$2047^{+150}_{-120}$
$A_{217}^{\text{CIB}}$	44.9	$47^{+20}_{-20}$	$10^9 A_s e^{-2\tau}$	1.8687	$1.871^{+0.041}_{-0.038}$	$H(0.61)$	94.00	$93.8^{+2.6}_{-2.8}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.83	—	$D_{40}$	1228.8	$1233^{+35}_{-33}$	$D_{\text{M}}(0.61)$	2362	$2378^{+160}_{-130}$
$A_{143}^{\text{tSZ}}$	6.9	—	$D_{220}$	5711	$5714^{+110}_{-110}$	$H(2.33)$	236.8	$237.5^{+6.2}_{-5.2}$
$A_{100}^{\text{PS}}$	245	$260^{+70}_{-70}$	$D_{810}$	2533.1	$2531^{+37}_{-36}$	$D_{\text{M}}(2.33)$	5832	$5844^{+150}_{-130}$
$A_{143}^{\text{PS}}$	53.4	$47^{+20}_{-20}$	$D_{1420}$	816.9	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	0.4584	$0.458^{+0.023}_{-0.022}$
$A_{143 \times 217}^{\text{PS}}$	58.1	$43^{+20}_{-20}$	$D_{2000}$	231.2	$230.1^{+5.0}_{-5.1}$	$\sigma_8(0.15)$	0.717	$0.708^{+0.081}_{-0.10}$
$A_{217}^{\text{PS}}$	123.9	$115^{+30}_{-30}$	$n_{\text{s},0.002}$	0.9724	$0.968^{+0.020}_{-0.020}$	$f\sigma_8(0.38)$	0.4710	$0.468^{+0.025}_{-0.034}$
$A^{\text{kSZ}}$	0.0	—	$Y_{\text{P}}$	0.245365	$0.24531^{+0.00028}_{-0.00032}$	$\sigma_8(0.38)$	0.634	$0.625^{+0.078}_{-0.097}$
$A_{100}^{\text{dustTT}}$	8.88	$8.9^{+4.8}_{-4.7}$	$Y_{\text{P}}^{\text{BBN}}$	0.246692	$0.24664^{+0.00029}_{-0.00032}$	$f\sigma_8(0.51)$	0.4670	$0.463^{+0.028}_{-0.041}$
$A_{143}^{\text{dustTT}}$	10.85	$10.7^{+4.7}_{-4.6}$	$10^5 \text{D}/\text{H}$	2.600	$2.62^{+0.14}_{-0.13}$	$\sigma_8(0.51)$	0.592	$0.584^{+0.075}_{-0.093}$
$A_{143 \times 217}^{\text{dustTT}}$	20.1	$18.2^{+8.5}_{-8.5}$	$\text{Age}/\text{Gyr}$	13.957	$13.99^{+0.36}_{-0.31}$	$f\sigma_8(0.61)$	0.4605	$0.456^{+0.031}_{-0.045}$
$A_{217}^{\text{dustTT}}$	95.9	$93^{+20}_{-20}$	$z_*$	1089.88	$1090.1^{+1.5}_{-1.4}$	$\sigma_8(0.61)$	0.563	$0.555^{+0.073}_{-0.090}$
$c_{100}$	0.99968	$0.9996^{+0.0016}_{-0.0016}$	$r_*$	144.98	$144.8^{+1.4}_{-1.5}$	$f\sigma_8(2.33)$	0.2876	$0.283^{+0.035}_{-0.045}$
$c_{217}$	0.99821	$0.9982^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04126	$1.0412^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	0.2929	$0.288^{+0.041}_{-0.050}$
$H_0$	65.3	$64.7^{+5.7}_{-6.7}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.924	$13.91^{+0.13}_{-0.14}$	$\chi^2_{\text{lensing}}$	8.04	$9.1 (\nu: 1.2)$
$\Omega_\Lambda$	0.662	$0.650^{+0.079}_{-0.11}$	$z_{\text{drag}}$	1059.67	$1059.5^{+1.3}_{-1.3}$	$\chi^2_{\text{lowl}}$	23.65	$24.4 (\nu: 0.8)$
$\Omega_{\text{m}}$	0.338	$0.350^{+0.11}_{-0.079}$	$r_{\text{drag}}$	147.68	$147.5^{+1.4}_{-1.5}$	$\chi^2_{\text{plik}}$	757.8	$770.2 (\nu: 14.9)$
$\Omega_{\text{m}} h^2$	0.1441	$0.145^{+0.010}_{-0.0088}$	$k_{\text{D}}$	0.14024	$0.1403^{+0.0014}_{-0.0014}$	$\chi^2_{\text{prior}}$	1.1	$7.3 (\nu: 6.7)$
$\Omega_\nu h^2$	0.0041	$< 0.0111$	$100\theta_{\text{D}}$	0.16088	$0.16097^{+0.00073}_{-0.00070}$	$\chi^2_{\text{CMB}}$	789.5	$803.7 (\nu: 15.4)$
$\Omega_{\text{m}} h^3$	0.09409	$0.0938^{+0.0033}_{-0.0039}$	$z_{\text{eq}}$	3347	$3365^{+150}_{-140}$			
$\sigma_8$	0.778	$0.769^{+0.082}_{-0.10}$	$k_{\text{eq}}$	0.010220	$0.01027^{+0.00046}_{-0.00043}$			

Best-fit  $\chi^2_{\text{eff}} = 790.68$ ;  $\bar{\chi}^2_{\text{eff}} = 811.02$ ;  $R - 1 = 0.01418$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.04 commander\_dx12\_v3\_2\_29: 23.65 plik\_rd12\_HM\_v22\_TT: 757.84



## 6.26 base\_mnu\_plikHM\_TT\_lowl\_lensing\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02237^{+0.00054}_{-0.00060}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.024}_{-0.031}$	$H(0.38)$	$82.9^{+1.3}_{-1.4}$
$\Omega_{\mathrm{c}} h^2$	$0.1169^{+0.0043}_{-0.0048}$	$\sigma_8/h^{0.5}$	$0.987^{+0.039}_{-0.050}$	$D_{\mathrm{M}}(0.38)$	$1529^{+34}_{-31}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	$100.1^{+2.7}_{-2.8}$	$H(0.51)$	$89.6^{+1.1}_{-1.2}$
$\tau$	$0.097^{+0.070}_{-0.060}$	$\langle d^2 \rangle^{1/2}$	$2.479^{+0.083}_{-0.080}$	$D_{\mathrm{M}}(0.51)$	$1981^{+41}_{-37}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.438$	$z_{\mathrm{re}}$	$11.5^{+5.3}_{-5.6}$	$H(0.61)$	$95.18^{+0.95}_{-1.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.12^{+0.13}_{-0.11}$	$10^9 A_{\mathrm{s}}$	$2.27^{+0.30}_{-0.24}$	$D_{\mathrm{M}}(0.61)$	$2306^{+44}_{-40}$
$n_{\mathrm{s}}$	$0.973^{+0.017}_{-0.014}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.865^{+0.034}_{-0.035}$	$H(2.33)$	$235.1^{+2.1}_{-2.0}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0062}_{-0.0069}$	$D_{40}$	$1228^{+30}_{-29}$	$D_{\mathrm{M}}(2.33)$	$5773^{+57}_{-47}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{220}$	$5720^{+100}_{-94}$	$f\sigma_8(0.15)$	$0.457^{+0.019}_{-0.020}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2529^{+36}_{-38}$	$\sigma_8(0.15)$	$0.751^{+0.034}_{-0.043}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.476^{+0.018}_{-0.021}$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70}$	$D_{2000}$	$230.7^{+5.0}_{-4.8}$	$\sigma_8(0.38)$	$0.667^{+0.031}_{-0.039}$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.973^{+0.017}_{-0.014}$	$f\sigma_8(0.51)$	$0.475^{+0.018}_{-0.022}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24539^{+0.00022}_{-0.00027}$	$\sigma_8(0.51)$	$0.624^{+0.029}_{-0.037}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00022}_{-0.00027}$	$f\sigma_8(0.61)$	$0.471^{+0.017}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.59^{+0.12}_{-0.098}$	$\sigma_8(0.61)$	$0.594^{+0.028}_{-0.035}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.7}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.82^{+0.13}_{-0.11}$	$f\sigma_8(2.33)$	$0.301^{+0.013}_{-0.015}$
$A_{143}^{\mathrm{dust}TT}$	$10.6^{+4.3}_{-4.5}$	$z_{*}$	$1089.7^{+1.0}_{-0.87}$	$\sigma_8(2.33)$	$0.310^{+0.016}_{-0.018}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.2^{+8.3}_{-8.3}$	$r_{*}$	$145.23^{+0.96}_{-0.99}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$100\theta_{*}$	$1.0414^{+0.0013}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0017}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.945^{+0.097}_{-0.094}$	$f_{2000}^{217}$	$106.8^{+5.1}_{-5.3}$
$c_{217}$	$0.9982^{+0.0015}_{-0.0017}$	$z_{\mathrm{drag}}$	$1059.7^{+1.2}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$9.3 (\nu: 1.3)$
$H_0$	$67.7^{+1.8}_{-1.9}$	$r_{\mathrm{drag}}$	$147.9^{+1.0}_{-1.0}$	$\chi_{\mathrm{lowl}}^2$	$23.54 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.692^{+0.021}_{-0.023}$	$k_{\mathrm{D}}$	$0.1400^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{plik}}^2$	$770.4 (\nu: 15.2)$
$\Omega_{\mathrm{m}}$	$0.308^{+0.023}_{-0.021}$	$100\theta_{\mathrm{D}}$	$0.16089^{+0.00072}_{-0.00065}$	$\chi_{6\mathrm{DF}}^2$	$0.053 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1410^{+0.0032}_{-0.0030}$	$z_{\mathrm{eq}}$	$3328^{+96}_{-110}$	$\chi_{\mathrm{MGS}}^2$	$1.58 (\nu: 0.2)$
$\Omega_{\nu} h^2$	$< 0.00470$	$k_{\mathrm{eq}}$	$0.01016^{+0.00029}_{-0.00032}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 (\nu: 1.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0954^{+0.0017}_{-0.0021}$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.022}_{-0.019}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.7)$
$\sigma_8$	$0.812^{+0.036}_{-0.047}$	$100\theta_{\mathrm{s,eq}}$	$0.457^{+0.011}_{-0.0096}$	$\chi_{\mathrm{CMB}}^2$	$803.2 (\nu: 14.6)$
$S_8$	$0.822^{+0.036}_{-0.040}$	$H(0.15)$	$72.9^{+1.6}_{-1.7}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.9)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.020}_{-0.022}$	$D_{\mathrm{M}}(0.15)$	$641^{+16}_{-15}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 816.62; R - 1 = 0.05945$



## 6.27 base\_mnu\_plikHM\_TT\_lowl\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02219^{+0.00070}_{-0.00070}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.025}_{-0.023}$	$H(0.15)$	$70.3^{+5.0}_{-5.7}$
$\Omega_{\mathrm{c}} h^2$	$0.1186^{+0.0066}_{-0.0063}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.590^{+0.037}_{-0.046}$	$D_{\mathrm{M}}(0.15)$	$669^{+67}_{-50}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0014}_{-0.0014}$	$\sigma_8/h^{0.5}$	$0.956^{+0.067}_{-0.086}$	$H(0.38)$	$80.9^{+3.8}_{-4.2}$
$\tau$	$0.108^{+0.069}_{-0.062}$	$r_{\mathrm{drag}} h$	$95.4^{+9.1}_{-10}$	$D_{\mathrm{M}}(0.38)$	$1585^{+130}_{-100}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 1.03$	$\langle d^2 \rangle^{1/2}$	$2.52^{+0.12}_{-0.10}$	$H(0.51)$	$87.9^{+3.1}_{-3.4}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.14^{+0.13}_{-0.12}$	$z_{\mathrm{re}}$	$12.5^{+5.2}_{-5.7}$	$D_{\mathrm{M}}(0.51)$	$2048^{+150}_{-120}$
$n_{\mathrm{s}}$	$0.968^{+0.019}_{-0.020}$	$10^9 A_{\mathrm{s}}$	$2.32^{+0.31}_{-0.26}$	$H(0.61)$	$93.8^{+2.6}_{-2.7}$
$y_{\mathrm{cal}}$	$1.0002^{+0.0064}_{-0.0064}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.871^{+0.040}_{-0.038}$	$D_{\mathrm{M}}(0.61)$	$2378^{+160}_{-130}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{40}$	$1233^{+35}_{-33}$	$H(2.33)$	$237.5^{+6.2}_{-5.1}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{220}$	$5714^{+110}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5845^{+150}_{-130}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{810}$	$2531^{+37}_{-36}$	$f\sigma_8(0.15)$	$0.458^{+0.023}_{-0.022}$
$A_{100}^{\mathrm{PS}}$	$260^{+70}_{-70}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.708^{+0.081}_{-0.10}$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20}$	$D_{2000}$	$230.1^{+5.0}_{-5.1}$	$f\sigma_8(0.38)$	$0.468^{+0.025}_{-0.034}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.019}_{-0.020}$	$\sigma_8(0.38)$	$0.625^{+0.078}_{-0.097}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00028}_{-0.00032}$	$f\sigma_8(0.51)$	$0.463^{+0.028}_{-0.041}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00028}_{-0.00032}$	$\sigma_8(0.51)$	$0.584^{+0.076}_{-0.093}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.7}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.14}_{-0.13}$	$f\sigma_8(0.61)$	$0.456^{+0.031}_{-0.045}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.7}_{-4.6}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.99^{+0.36}_{-0.31}$	$\sigma_8(0.61)$	$0.555^{+0.073}_{-0.090}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.2^{+8.5}_{-8.5}$	$z_{*}$	$1090.1^{+1.5}_{-1.4}$	$f\sigma_8(2.33)$	$0.283^{+0.035}_{-0.045}$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$	$r_{*}$	$144.8^{+1.4}_{-1.5}$	$\sigma_8(2.33)$	$0.288^{+0.041}_{-0.050}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_{*}$	$1.0412^{+0.0013}_{-0.0013}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.91^{+0.13}_{-0.14}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$H_0$	$64.7^{+5.7}_{-6.7}$	$z_{\mathrm{drag}}$	$1059.5^{+1.3}_{-1.3}$	$f_{2000}^{217}$	$107.4^{+5.6}_{-5.5}$
$\Omega_{\Lambda}$	$0.650^{+0.079}_{-0.11}$	$r_{\mathrm{drag}}$	$147.5^{+1.4}_{-1.4}$	$\chi_{\mathrm{lensing}}^2$	$9.1 (\nu: 1.2)$
$\Omega_{\mathrm{m}}$	$0.350^{+0.11}_{-0.079}$	$k_{\mathrm{D}}$	$0.1403^{+0.0014}_{-0.0014}$	$\chi_{\mathrm{lowl}}^2$	$24.4 (\nu: 0.8)$
$\Omega_{\mathrm{m}} h^2$	$0.145^{+0.011}_{-0.0088}$	$100\theta_{\mathrm{D}}$	$0.16096^{+0.00073}_{-0.00070}$	$\chi_{\mathrm{plik}}^2$	$770.2 (\nu: 14.8)$
$\Omega_{\nu} h^2$	$< 0.0111$	$z_{\mathrm{eq}}$	$3363^{+150}_{-140}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.7)$
$\Omega_{\mathrm{m}} h^3$	$0.0938^{+0.0031}_{-0.0040}$	$k_{\mathrm{eq}}$	$0.01027^{+0.00045}_{-0.00043}$	$\chi_{\mathrm{CMB}}^2$	$803.7 (\nu: 15.2)$
$\sigma_8$	$0.769^{+0.082}_{-0.10}$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.028}_{-0.027}$		
$S_8$	$0.827^{+0.046}_{-0.043}$	$100\theta_{\mathrm{s,eq}}$	$0.453^{+0.014}_{-0.014}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 810.97; R - 1 = 0.01413$$



## 6.28 base\_mnu\_plikHM\_TT\_lowl\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02237^{+0.00054}_{-0.00060}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.024}_{-0.031}$	$H(0.38)$	$82.9^{+1.3}_{-1.4}$
$\Omega_{\mathrm{c}} h^2$	$0.1168^{+0.0041}_{-0.0047}$	$\sigma_8/h^{0.5}$	$0.987^{+0.039}_{-0.050}$	$D_{\mathrm{M}}(0.38)$	$1529^{+34}_{-31}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	$100.1^{+2.7}_{-2.8}$	$H(0.51)$	$89.6^{+1.1}_{-1.2}$
$\tau$	$0.098^{+0.067}_{-0.057}$	$\langle d^2 \rangle^{1/2}$	$2.480^{+0.082}_{-0.074}$	$D_{\mathrm{M}}(0.51)$	$1981^{+41}_{-37}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.438$	$z_{\mathrm{re}}$	$< 16.5$	$H(0.61)$	$95.18^{+0.95}_{-1.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.12^{+0.13}_{-0.098}$	$10^9 A_{\mathrm{s}}$	$2.27^{+0.29}_{-0.23}$	$D_{\mathrm{M}}(0.61)$	$2306^{+45}_{-41}$
$n_{\mathrm{s}}$	$0.973^{+0.016}_{-0.014}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.865^{+0.034}_{-0.034}$	$H(2.33)$	$235.1^{+2.0}_{-2.0}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0062}_{-0.0069}$	$D_{40}$	$1228^{+30}_{-29}$	$D_{\mathrm{M}}(2.33)$	$5774^{+57}_{-48}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{220}$	$5720^{+100}_{-94}$	$f\sigma_8(0.15)$	$0.457^{+0.019}_{-0.020}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2529^{+36}_{-38}$	$\sigma_8(0.15)$	$0.751^{+0.034}_{-0.043}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.476^{+0.018}_{-0.021}$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70}$	$D_{2000}$	$230.7^{+4.9}_{-4.8}$	$\sigma_8(0.38)$	$0.667^{+0.030}_{-0.039}$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.973^{+0.016}_{-0.014}$	$f\sigma_8(0.51)$	$0.476^{+0.017}_{-0.022}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24539^{+0.00021}_{-0.00027}$	$\sigma_8(0.51)$	$0.624^{+0.029}_{-0.037}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00022}_{-0.00027}$	$f\sigma_8(0.61)$	$0.471^{+0.017}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.59^{+0.11}_{-0.098}$	$\sigma_8(0.61)$	$0.594^{+0.028}_{-0.035}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.7}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.82^{+0.13}_{-0.11}$	$f\sigma_8(2.33)$	$0.302^{+0.013}_{-0.015}$
$A_{143}^{\mathrm{dust}TT}$	$10.6^{+4.3}_{-4.4}$	$z_*$	$1089.7^{+1.0}_{-0.87}$	$\sigma_8(2.33)$	$0.310^{+0.016}_{-0.018}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.2^{+8.3}_{-8.4}$	$r_*$	$145.23^{+0.95}_{-0.99}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$100\theta_*$	$1.0414^{+0.0013}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$c_{100}$	$0.9996^{+0.0017}_{-0.0017}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.946^{+0.096}_{-0.094}$	$f_{2000}^{217}$	$106.8^{+5.2}_{-5.3}$
$c_{217}$	$0.9982^{+0.0015}_{-0.0017}$	$z_{\mathrm{drag}}$	$1059.7^{+1.2}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$9.3 (\nu: 1.3)$
$H_0$	$67.7^{+1.8}_{-1.9}$	$r_{\mathrm{drag}}$	$147.9^{+1.0}_{-1.0}$	$\chi_{\mathrm{lowl}}^2$	$23.54 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.692^{+0.021}_{-0.023}$	$k_{\mathrm{D}}$	$0.1400^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{plik}}^2$	$770.3 (\nu: 15.1)$
$\Omega_{\mathrm{m}}$	$0.308^{+0.023}_{-0.021}$	$100\theta_{\mathrm{D}}$	$0.16089^{+0.00069}_{-0.00065}$	$\chi_{6\mathrm{DF}}^2$	$0.053 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1409^{+0.0032}_{-0.0030}$	$z_{\mathrm{eq}}$	$3327^{+94}_{-110}$	$\chi_{\mathrm{MGS}}^2$	$1.58 (\nu: 0.2)$
$\Omega_{\nu} h^2$	$< 0.00470$	$k_{\mathrm{eq}}$	$0.01015^{+0.00029}_{-0.00032}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 1.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0954^{+0.0017}_{-0.0021}$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.021}_{-0.018}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.7)$
$\sigma_8$	$0.812^{+0.036}_{-0.047}$	$100\theta_{\mathrm{s,eq}}$	$0.457^{+0.011}_{-0.0091}$	$\chi_{\mathrm{CMB}}^2$	$803.2 (\nu: 14.5)$
$S_8$	$0.822^{+0.036}_{-0.040}$	$H(0.15)$	$72.9^{+1.6}_{-1.7}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.9)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.020}_{-0.022}$	$D_{\mathrm{M}}(0.15)$	$641^{+16}_{-15}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 816.56; R - 1 = 0.05884$



## 6.29 base\_mnu\_plikHM\_TTTEEE\_lowl\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022505	$0.02241^{+0.00047}_{-0.00045}$ (+0.8 $\sigma$ )	$\Omega_m h^2$	0.1410	$0.1448^{+0.0080}_{-0.0061}$ (−0.1 $\sigma$ )	$z_{\text{eq}}$	3369	$3376^{+91}_{-100}$ (+0.2 $\sigma$ )
$\Omega_c h^2$	0.11848	$0.1189^{+0.0041}_{-0.0046}$ (+0.1 $\sigma$ )	$\Omega_\nu h^2$	0.00001	< 0.00965 (−0.3 $\sigma$ )	$k_{\text{eq}}$	0.010282	$0.01031^{+0.00028}_{-0.00031}$ (+0.2 $\sigma$ )
$100\theta_{\text{MC}}$	1.04112	$1.04091^{+0.00089}_{-0.00091}$ (+0.2 $\sigma$ )	$\Omega_m h^3$	0.09670	$0.0948^{+0.0025}_{-0.0035}$ (+0.6 $\sigma$ )	$100\theta_{\text{eq}}$	0.8197	$0.819^{+0.020}_{-0.017}$ (−0.2 $\sigma$ )
$\tau$	0.073	$0.101^{+0.061}_{-0.058}$ (−0.2 $\sigma$ )	$\sigma_8$	0.833	$0.783^{+0.069}_{-0.093}$ (+0.3 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4526	$0.452^{+0.010}_{-0.0088}$ (−0.2 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.001	< 0.898 (−0.3 $\sigma$ )	$S_8$	0.8332	$0.831^{+0.034}_{-0.035}$ (+0.2 $\sigma$ )	$H(0.15)$	73.75	$71.0^{+3.8}_{-4.8}$ (+0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.076	$3.13^{+0.11}_{-0.11}$ (−0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4564	$0.455^{+0.019}_{-0.019}$ (+0.2 $\sigma$ )	$D_M(0.15)$	633.0	$661^{+53}_{-39}$ (−0.3 $\sigma$ )
$n_s$	0.9702	$0.969^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6167	$0.597^{+0.031}_{-0.045}$ (+0.4 $\sigma$ )	$H(0.38)$	83.67	$81.5^{+2.9}_{-3.6}$ (+0.3 $\sigma$ )
$y_{\text{cal}}$	1.0001	$1.0002^{+0.0064}_{-0.0064}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	1.006	$0.968^{+0.060}_{-0.080}$ (+0.4 $\sigma$ )	$D_M(0.38)$	1512	$1569^{+110}_{-79}$ (−0.3 $\sigma$ )
$A_{217}^{\text{CIB}}$	46.8	$46^{+20}_{-20}$ (−0.1 $\sigma$ )	$r_{\text{drag}} h$	101.1	$96.4^{+6.4}_{-8.7}$ (+0.2 $\sigma$ )	$H(0.51)$	90.28	$88.5^{+2.4}_{-3.0}$ (+0.4 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.40	—	$\langle d^2 \rangle^{1/2}$	2.467	$2.51^{+0.11}_{-0.10}$ (−0.2 $\sigma$ )	$D_M(0.51)$	1961	$2028^{+120}_{-93}$ (−0.3 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.31	$5.6^{+4.4}_{-4.6}$ (+0.2 $\sigma$ )	$z_{\text{re}}$	9.4	$11.9^{+4.8}_{-5.4}$ (−0.2 $\sigma$ )	$H(0.61)$	95.81	$94.3^{+2.0}_{-2.5}$ (+0.4 $\sigma$ )
$A_{100}^{\text{PS}}$	248	$256^{+70}_{-70}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.168	$2.30^{+0.27}_{-0.25}$ (−0.2 $\sigma$ )	$D_M(0.61)$	2283	$2356^{+130}_{-100}$ (−0.3 $\sigma$ )
$A_{143}^{\text{PS}}$	44.7	$45^{+20}_{-20}$ (−0.3 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8753	$1.874^{+0.032}_{-0.032}$ (+0.2 $\sigma$ )	$H(2.33)$	235.38	$237.4^{+4.5}_{-3.6}$ (−0.0 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	45.3	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{40}$	1225.2	$1235^{+31}_{-31}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5739	$5817^{+130}_{-100}$ (−0.4 $\sigma$ )
$A_{217}^{\text{PS}}$	118.8	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{220}$	5730	$5731^{+96}_{-110}$ (+0.4 $\sigma$ )	$f\sigma_8(0.15)$	0.4612	$0.460^{+0.018}_{-0.019}$ (+0.3 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{810}$	2535.6	$2534^{+35}_{-36}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.771	$0.722^{+0.067}_{-0.091}$ (+0.3 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.81	$8.9^{+4.6}_{-4.8}$ (−0.0 $\sigma$ )	$D_{1420}$	817.6	$817^{+12}_{-13}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4826	$0.472^{+0.021}_{-0.031}$ (+0.4 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.96	$10.8^{+4.6}_{-4.5}$ (+0.1 $\sigma$ )	$D_{2000}$	231.70	$231.2^{+4.3}_{-4.2}$ (+0.6 $\sigma$ )	$\sigma_8(0.38)$	0.685	$0.638^{+0.064}_{-0.086}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.5	$18.5^{+8.6}_{-8.1}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9702	$0.969^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4825	$0.468^{+0.023}_{-0.038}$ (+0.4 $\sigma$ )
$A_{217}^{\text{dustTT}}$	94.8	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\text{P}}$	0.245446	$0.24541^{+0.00018}_{-0.00019}$ (+0.8 $\sigma$ )	$\sigma_8(0.51)$	0.641	$0.596^{+0.061}_{-0.082}$ (+0.3 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.113^{+0.098}_{-0.096}$	$Y_{\text{P}}^{\text{BBN}}$	0.246773	$0.24674^{+0.00018}_{-0.00019}$ (+0.8 $\sigma$ )	$f\sigma_8(0.61)$	0.4783	$0.462^{+0.027}_{-0.039}$ (+0.4 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.134^{+0.075}_{-0.076}$	$10^5 \text{D/H}$	2.561	$2.579^{+0.085}_{-0.084}$ (−0.8 $\sigma$ )	$\sigma_8(0.61)$	0.610	$0.567^{+0.059}_{-0.080}$ (+0.3 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.483	$0.48^{+0.22}_{-0.22}$	Age/Gyr	13.743	$13.92^{+0.31}_{-0.23}$ (−0.4 $\sigma$ )	$f\sigma_8(2.33)$	0.3073	$0.288^{+0.028}_{-0.038}$ (+0.3 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.222	$0.22^{+0.14}_{-0.13}$	$z_*$	1089.61	$1089.83^{+0.96}_{-0.91}$ (−0.5 $\sigma$ )	$\sigma_8(2.33)$	0.3178	$0.294^{+0.033}_{-0.044}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.661	$0.66^{+0.21}_{-0.20}$	$r_*$	144.73	$144.61^{+0.97}_{-0.96}$ (−0.3 $\sigma$ )	$\chi^2_{\text{lensing}}$	9.71	$9.4 (\nu: 1.4)$ (+0.2 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.07	$2.08^{+0.70}_{-0.69}$	$100\theta_*$	1.04126	$1.04121^{+0.00082}_{-0.00083}$ (+0.1 $\sigma$ )	$\chi^2_{\text{lowl}}$	23.17	$24.2 (\nu: 0.7)$ (−0.1 $\sigma$ )
$c_{100}$	0.99970	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$D_M(z_*)/\text{Gpc}$	13.899	$13.889^{+0.090}_{-0.088}$ (−0.4 $\sigma$ )	$\chi^2_{\text{plik}}$	2342.0	$2358.3 (\nu: 18.2)$ (+291.0 $\sigma$ )
$c_{217}$	0.99815	$0.9982^{+0.0016}_{-0.0015}$ (−0.1 $\sigma$ )	$z_{\text{drag}}$	1060.12	$1060.00^{+0.85}_{-0.79}$ (+1.0 $\sigma$ )	$\chi^2_{\text{prior}}$	1.8	$11.5 (\nu: 10.3)$ (+1.2 $\sigma$ )
$H_0$	68.58	$65.5^{+4.4}_{-5.5}$ (+0.3 $\sigma$ )	$r_{\text{drag}}$	147.35	$147.26^{+0.92}_{-0.90}$ (−0.5 $\sigma$ )	$\chi^2_{\text{CMB}}$	2374.8	$2391.9 (\nu: 17.5)$ (+286.4 $\sigma$ )
$\Omega_\Lambda$	0.700	$0.661^{+0.058}_{-0.082}$ (+0.3 $\sigma$ )	$k_{\text{D}}$	0.14069	$0.14077^{+0.00095}_{-0.00093}$ (+0.8 $\sigma$ )			
$\Omega_{\text{m}}$	0.300	$0.339^{+0.082}_{-0.058}$ (−0.3 $\sigma$ )	$100\theta_{\text{D}}$	0.160654	$0.16068^{+0.00046}_{-0.00048}$ (−1.0 $\sigma$ )			

Best-fit  $\chi^2_{\text{eff}} = 2376.63$ ;  $\Delta\chi^2_{\text{eff}} = 1585.95$ ;  $\bar{\chi}^2_{\text{eff}} = 2403.40$ ;  $\Delta\bar{\chi}^2_{\text{eff}} = 1592.37$ ;  $R - 1 = 0.01886$

$\chi^2_{\text{eff}}$ : CMB - smicadx12.Dec5\_ftl\_mv2\_ndclpp-p.teb.consext8: 9.71 ( $\Delta$  1.66) commander\_dx12.v3.2.29: 23.17 ( $\Delta$  -0.49) plik\_rd12\_HM.v22b\_TTTEEE: 2341.97



### 6.30 base\_mnu\_plikHM\_TTTEEE\_lowl\_lensing\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02251^{+0.00040}_{-0.00038} \quad (+0.7\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0011}_{-0.0017} \quad (+0.9\sigma)$	$H(0.15)$	$73.0^{+1.3}_{-1.5} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1180^{+0.0031}_{-0.0038} \quad (+0.6\sigma)$	$\sigma_8$	$0.819^{+0.034}_{-0.041} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+15}_{-13} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04110^{+0.00076}_{-0.00075} \quad (-0.1\sigma)$	$S_8$	$0.830^{+0.032}_{-0.035} \quad (+0.6\sigma)$	$H(0.38)$	$83.1^{+1.0}_{-1.2} \quad (+0.3\sigma)$
$\tau$	$0.088^{+0.059}_{-0.049} \quad (-0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.018}_{-0.019} \quad (+0.6\sigma)$	$D_{\mathrm{M}}(0.38)$	$1527^{+31}_{-26} \quad (-0.2\sigma)$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.341 \quad (-0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.021}_{-0.027} \quad (+0.5\sigma)$	$H(0.51)$	$89.78^{+0.87}_{-1.1} \quad (+0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.10^{+0.11}_{-0.085} \quad (-0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.994^{+0.036}_{-0.043} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1978^{+37}_{-31} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.971^{+0.013}_{-0.012} \quad (-0.3\sigma)$	$r_{\mathrm{drag}}h$	$99.96^{+2.4}_{-2.6} \quad (-0.2\sigma)$	$H(0.61)$	$95.38^{+0.75}_{-0.96} \quad (+0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0002^{+0.0064}_{-0.0060} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.478^{+0.083}_{-0.084} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2302^{+41}_{-34} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$10.6^{+4.7}_{-4.1} \quad (-0.4\sigma)$	$H(2.33)$	$235.7^{+1.7}_{-1.7} \quad (+0.8\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.23^{+0.25}_{-0.18} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5761^{+50}_{-35} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.18 \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.030}_{-0.032} \quad (+0.5\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.017}_{-0.018} \quad (+0.5\sigma)$
$A_{100}^{\mathrm{PS}}$	$255^{+80}_{-70} \quad (-0.1\sigma)$	$D_{40}$	$1230^{+31}_{-28} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.757^{+0.032}_{-0.039} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$44^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5731^{+92}_{-93} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.480^{+0.016}_{-0.020} \quad (+0.5\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.0\sigma)$	$D_{810}$	$2533^{+35}_{-34} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.672^{+0.028}_{-0.036} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{1420}$	$817^{+13}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.479^{+0.016}_{-0.020} \quad (+0.5\sigma)$
$A^{\mathrm{kSZ}}$	$< 9.13 \quad (-0.2\sigma)$	$D_{2000}$	$231.6^{+4.3}_{-4.2} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.629^{+0.026}_{-0.034} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.5} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.971^{+0.013}_{-0.012} \quad (-0.3\sigma)$	$f\sigma_8(0.61)$	$0.474^{+0.017}_{-0.019} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.5}_{-5.0} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24545^{+0.00016}_{-0.00015} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.598^{+0.025}_{-0.033} \quad (+0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.4^{+7.8}_{-7.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24678^{+0.00016}_{-0.00015} \quad (+0.7\sigma)$	$f\sigma_8(2.33)$	$0.303^{+0.012}_{-0.014} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.560^{+0.071}_{-0.071} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.312^{+0.014}_{-0.017} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.113^{+0.097}_{-0.099}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.79^{+0.12}_{-0.080} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$28^{+8}_{-7} \quad (-0.4\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.076}_{-0.078}$	$z_*$	$1089.57^{+0.67}_{-0.67} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.4\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.23}_{-0.21}$	$r_*$	$144.83^{+0.78}_{-0.68} \quad (-1.0\sigma)$	$f_{2000}^{217}$	$105.9^{+4.9}_{-4.9} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$100\theta_*$	$1.04131^{+0.00076}_{-0.00075} \quad (-0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.99 \quad (\nu: 1.8) \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.909^{+0.074}_{-0.063} \quad (-1.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.55 \quad (\nu: 0.4) \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.07^{+0.71}_{-0.68}$	$z_{\mathrm{drag}}$	$1060.13^{+0.80}_{-0.81} \quad (+0.9\sigma)$	$\chi_{\mathrm{plik}}^2$	$2357.9 \quad (\nu: 19.2) \quad (+288.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0014} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.46^{+0.78}_{-0.68} \quad (-1.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.053 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14059^{+0.00073}_{-0.00081} \quad (+1.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.46 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$H_0$	$67.8^{+1.5}_{-1.7} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16065^{+0.00045}_{-0.00046} \quad (-0.9\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.691^{+0.018}_{-0.021} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3358^{+69}_{-85} \quad (+0.8\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 9.7) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.021}_{-0.018} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01025^{+0.00021}_{-0.00026} \quad (+0.8\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2391.4 \quad (\nu: 17.2) \quad (+294.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1418^{+0.0027}_{-0.0027} \quad (+0.7\sigma)$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.017}_{-0.013} \quad (-0.7\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.1 \quad (\nu: 0.8) \quad (+0.0\sigma)$
$\Omega_{\nu}h^2$	$< 0.00366 \quad (-0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4538^{+0.0086}_{-0.0068} \quad (-0.7\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2409.01; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.39; R - 1 = 0.06296$$



### 6.31 base\_mnu\_plikHM\_TTTEEE\_lowl\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02241^{+0.00047}_{-0.00045} \quad (+0.8\sigma)$	$\Omega_{\nu} h^2$	$< 0.00965 \quad (-0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.020}_{-0.017} \quad (-0.2\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1188^{+0.0040}_{-0.0045} \quad (+0.1\sigma)$	$\Omega_{\mathrm{m}} h^3$	$0.0948^{+0.0025}_{-0.0035} \quad (+0.6\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.452^{+0.010}_{-0.0086} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00089}_{-0.00091} \quad (+0.2\sigma)$	$\sigma_8$	$0.783^{+0.069}_{-0.093} \quad (+0.4\sigma)$	$H(0.15)$	$71.0^{+3.8}_{-4.8} \quad (+0.3\sigma)$
$\tau$	$0.101^{+0.060}_{-0.054} \quad (-0.2\sigma)$	$S_8$	$0.831^{+0.034}_{-0.035} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$661^{+53}_{-39} \quad (-0.3\sigma)$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.898 \quad (-0.3\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.019}_{-0.019} \quad (+0.2\sigma)$	$H(0.38)$	$81.5^{+2.9}_{-3.6} \quad (+0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.13^{+0.11}_{-0.10} \quad (-0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.597^{+0.031}_{-0.045} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1569^{+110}_{-79} \quad (-0.3\sigma)$
$n_{\mathrm{s}}$	$0.969^{+0.015}_{-0.013} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.968^{+0.060}_{-0.080} \quad (+0.4\sigma)$	$H(0.51)$	$88.5^{+2.4}_{-3.0} \quad (+0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0002^{+0.0064}_{-0.0064} \quad (+0.0\sigma)$	$r_{\mathrm{drag}} h$	$96.4^{+6.4}_{-8.7} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$2028^{+120}_{-93} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.51^{+0.11}_{-0.098} \quad (-0.2\sigma)$	$H(0.61)$	$94.3^{+2.0}_{-2.5} \quad (+0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_{\mathrm{re}}$	$11.9^{+4.8}_{-4.9} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	$2357^{+130}_{-100} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.6^{+4.4}_{-4.6} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.30^{+0.27}_{-0.23} \quad (-0.2\sigma)$	$H(2.33)$	$237.4^{+4.6}_{-3.6} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$256^{+70}_{-70} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.874^{+0.031}_{-0.032} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5817^{+130}_{-100} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.3\sigma)$	$D_{40}$	$1235^{+31}_{-31} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.018}_{-0.019} \quad (+0.3\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5731^{+96}_{-110} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.722^{+0.067}_{-0.091} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{810}$	$2534^{+34}_{-36} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.021}_{-0.031} \quad (+0.4\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{1420}$	$817^{+12}_{-13} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.638^{+0.064}_{-0.086} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.6}_{-4.8} \quad (-0.0\sigma)$	$D_{2000}$	$231.2^{+4.3}_{-4.2} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.468^{+0.023}_{-0.038} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.6}_{-4.5} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.969^{+0.015}_{-0.013} \quad (+0.0\sigma)$	$\sigma_8(0.51)$	$0.596^{+0.061}_{-0.082} \quad (+0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.5^{+8.6}_{-8.1} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24541^{+0.00018}_{-0.00019} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.462^{+0.027}_{-0.039} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00018}_{-0.00019} \quad (+0.8\sigma)$	$\sigma_8(0.61)$	$0.567^{+0.059}_{-0.080} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.113^{+0.099}_{-0.096}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.578^{+0.085}_{-0.084} \quad (-0.8\sigma)$	$f\sigma_8(2.33)$	$0.288^{+0.028}_{-0.038} \quad (+0.3\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.075}_{-0.076}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.92^{+0.31}_{-0.23} \quad (-0.4\sigma)$	$\sigma_8(2.33)$	$0.294^{+0.033}_{-0.044} \quad (+0.3\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.83^{+0.96}_{-0.91} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$r_*$	$144.62^{+0.97}_{-0.95} \quad (-0.4\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.20}$	$100\theta_*$	$1.04121^{+0.00082}_{-0.00083} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$106.4^{+4.8}_{-4.9} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.70}_{-0.69}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.889^{+0.090}_{-0.088} \quad (-0.4\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.4 \quad (\nu: 1.4) \quad (+0.2\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1060.00^{+0.85}_{-0.79} \quad (+1.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.2 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}$	$147.26^{+0.92}_{-0.91} \quad (-0.5\sigma)$	$\chi_{\mathrm{plik}}^2$	$2358.2 \quad (\nu: 18.2) \quad (+292.0\sigma)$
$H_0$	$65.5^{+4.4}_{-5.5} \quad (+0.3\sigma)$	$k_{\mathrm{D}}$	$0.14077^{+0.00096}_{-0.00093} \quad (+0.8\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.661^{+0.058}_{-0.082} \quad (+0.3\sigma)$	$100\theta_{\mathrm{D}}$	$0.16068^{+0.00046}_{-0.00048} \quad (-1.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2391.9 \quad (\nu: 17.5) \quad (+288.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.339^{+0.082}_{-0.058} \quad (-0.3\sigma)$	$z_{\mathrm{eq}}$	$3375^{+90}_{-100} \quad (+0.2\sigma)$		
$\Omega_{\mathrm{m}} h^2$	$0.1448^{+0.0080}_{-0.0061} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01031^{+0.00028}_{-0.00031} \quad (+0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2403.37; \Delta \bar{\chi}_{\mathrm{eff}}^2 = 1592.40; R - 1 = 0.01980$$



### 6.32 base\_mnu\_plikHM\_TTTEEE\_lowl\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02252^{+0.00040}_{-0.00038} \quad (+0.7\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0011}_{-0.0017} \quad (+0.9\sigma)$	$H(0.15)$	$73.0^{+1.3}_{-1.5} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1180^{+0.0031}_{-0.0038} \quad (+0.7\sigma)$	$\sigma_8$	$0.819^{+0.034}_{-0.041} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+15}_{-13} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04110^{+0.00076}_{-0.00075} \quad (-0.1\sigma)$	$S_8$	$0.830^{+0.032}_{-0.035} \quad (+0.6\sigma)$	$H(0.38)$	$83.1^{+1.0}_{-1.2} \quad (+0.3\sigma)$
$\tau$	$0.088^{+0.058}_{-0.047} \quad (-0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.018}_{-0.019} \quad (+0.6\sigma)$	$D_{\mathrm{M}}(0.38)$	$1526^{+31}_{-26} \quad (-0.2\sigma)$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.341 \quad (-0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.021}_{-0.027} \quad (+0.5\sigma)$	$H(0.51)$	$89.78^{+0.87}_{-1.1} \quad (+0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.11^{+0.11}_{-0.080} \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.995^{+0.036}_{-0.043} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1978^{+37}_{-31} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.971^{+0.013}_{-0.011} \quad (-0.3\sigma)$	$r_{\mathrm{drag}}h$	$99.97^{+2.4}_{-2.6} \quad (-0.2\sigma)$	$H(0.61)$	$95.38^{+0.75}_{-0.96} \quad (+0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0002^{+0.0064}_{-0.0060} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.479^{+0.083}_{-0.083} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2302^{+41}_{-34} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$10.7^{+4.3}_{-4.2} \quad (-0.4\sigma)$	$H(2.33)$	$235.7^{+1.7}_{-1.7} \quad (+0.8\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.23^{+0.25}_{-0.19} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(2.33)$	$5761^{+50}_{-36} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.18 \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.030}_{-0.032} \quad (+0.5\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.017}_{-0.018} \quad (+0.5\sigma)$
$A_{100}^{\mathrm{PS}}$	$255^{+80}_{-60} \quad (-0.1\sigma)$	$D_{40}$	$1230^{+31}_{-28} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.757^{+0.032}_{-0.039} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$44^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5731^{+92}_{-93} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.480^{+0.016}_{-0.020} \quad (+0.5\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.0\sigma)$	$D_{810}$	$2533^{+35}_{-34} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.672^{+0.028}_{-0.036} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{1420}$	$817^{+13}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.479^{+0.016}_{-0.020} \quad (+0.5\sigma)$
$A^{\mathrm{kSZ}}$	$< 9.13 \quad (-0.2\sigma)$	$D_{2000}$	$231.6^{+4.3}_{-4.2} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.629^{+0.026}_{-0.034} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.5} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.971^{+0.013}_{-0.011} \quad (-0.3\sigma)$	$f\sigma_8(0.61)$	$0.474^{+0.017}_{-0.020} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.5}_{-5.0} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24545^{+0.00016}_{-0.00015} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.598^{+0.025}_{-0.033} \quad (+0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.4^{+7.8}_{-7.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24678^{+0.00016}_{-0.00015} \quad (+0.7\sigma)$	$f\sigma_8(2.33)$	$0.303^{+0.012}_{-0.014} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.560^{+0.071}_{-0.071} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.312^{+0.014}_{-0.017} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.113^{+0.097}_{-0.099}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.79^{+0.12}_{-0.080} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$28^{+8}_{-7} \quad (-0.4\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.076}_{-0.078}$	$z_*$	$1089.57^{+0.66}_{-0.67} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.4\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.23}_{-0.21}$	$r_*$	$144.84^{+0.78}_{-0.68} \quad (-1.0\sigma)$	$f_{2000}^{217}$	$105.9^{+5.0}_{-4.9} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$100\theta_*$	$1.04131^{+0.00076}_{-0.00075} \quad (-0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.99 \quad (\nu: 1.8) \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.909^{+0.074}_{-0.063} \quad (-1.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.55 \quad (\nu: 0.4) \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.07^{+0.71}_{-0.68}$	$z_{\mathrm{drag}}$	$1060.13^{+0.80}_{-0.81} \quad (+0.9\sigma)$	$\chi_{\mathrm{plik}}^2$	$2357.8 \quad (\nu: 19.2) \quad (+288.9\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0014} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.46^{+0.78}_{-0.68} \quad (-1.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.053 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14059^{+0.00073}_{-0.00081} \quad (+1.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.47 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$H_0$	$67.8^{+1.5}_{-1.7} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16065^{+0.00043}_{-0.00046} \quad (-0.9\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.691^{+0.018}_{-0.021} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3358^{+68}_{-84} \quad (+0.8\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 9.7) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.021}_{-0.018} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01025^{+0.00021}_{-0.00026} \quad (+0.8\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2391.4 \quad (\nu: 17.2) \quad (+295.2\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1418^{+0.0026}_{-0.0027} \quad (+0.7\sigma)$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.017}_{-0.013} \quad (-0.7\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.1 \quad (\nu: 0.8) \quad (+0.0\sigma)$
$\Omega_{\nu}h^2$	$< 0.00366 \quad (-0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4538^{+0.0085}_{-0.0068} \quad (-0.7\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2408.99; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.43; R - 1 = 0.06301$$



### 6.33 base\_mnu\_plikHM\_TT\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.02206^{+0.00058}_{-0.00068}$	$\sigma_8 \Omega_m^{0.5}$	0.4564	$0.458^{+0.023}_{-0.023}$	$H(0.15)$	73.09	$71.4^{+2.8}_{-5.8}$
$\Omega_c h^2$	0.1197	$0.1210^{+0.0062}_{-0.0048}$	$\sigma_8 \Omega_m^{0.25}$	0.6125	$0.603^{+0.024}_{-0.040}$	$D_M(0.15)$	639.3	$656^{+66}_{-29}$
$100\theta_{MC}$	1.04091	$1.0407^{+0.0013}_{-0.0014}$	$\sigma_8/h^{0.5}$	0.998	$0.978^{+0.038}_{-0.077}$	$H(0.38)$	83.15	$81.9^{+2.1}_{-4.2}$
$\tau$	0.0529	$0.052^{+0.022}_{-0.020}$	$r_{drag} h$	99.98	$97.0^{+5.4}_{-11}$	$D_M(0.38)$	1525	$1560^{+130}_{-58}$
$\Sigma m_\nu$ [eV]	0.000	< 0.618	$\langle d^2 \rangle^{1/2}$	2.445	$2.451^{+0.078}_{-0.067}$	$H(0.51)$	89.84	$88.8^{+1.7}_{-3.4}$
$\ln(10^{10} A_s)$	3.0395	$3.042^{+0.043}_{-0.040}$	$z_{re}$	7.56	$7.6^{+2.1}_{-2.2}$	$D_M(0.51)$	1976	$2017^{+150}_{-68}$
$n_s$	0.9657	$0.961^{+0.015}_{-0.018}$	$10^9 A_s$	2.089	$2.095^{+0.091}_{-0.082}$	$H(0.61)$	95.43	$94.6^{+1.4}_{-2.8}$
$y_{cal}$	1.0002	$1.0006^{+0.0065}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	1.8797	$1.886^{+0.033}_{-0.031}$	$D_M(0.61)$	2300	$2345^{+160}_{-73}$
$A_{217}^{CIB}$	49.3	$48^{+20}_{-20}$	$D_{40}$	1226.5	$1235^{+36}_{-36}$	$H(2.33)$	235.85	$237.4^{+6.4}_{-3.5}$
$\xi^{tSZ \times CIB}$	0.22	—	$D_{220}$	5712	$5714^{+100}_{-110}$	$D_M(2.33)$	5757	$5800^{+150}_{-70}$
$A_{143}^{tSZ}$	7.2	—	$D_{810}$	2535.2	$2538^{+36}_{-35}$	$f\sigma_8(0.15)$	0.4606	$0.462^{+0.021}_{-0.021}$
$A_{100}^{PS}$	254	$265^{+70}_{-70}$	$D_{1420}$	815.2	$814^{+13}_{-13}$	$\sigma_8(0.15)$	0.760	$0.732^{+0.041}_{-0.087}$
$A_{143}^{PS}$	47.3	$50^{+20}_{-20}$	$D_{2000}$	230.06	$229.3^{+4.7}_{-5.0}$	$f\sigma_8(0.38)$	0.4797	$0.475^{+0.017}_{-0.027}$
$A_{143 \times 217}^{PS}$	44.0	$44^{+20}_{-20}$	$n_{s,0.002}$	0.9657	$0.961^{+0.015}_{-0.018}$	$\sigma_8(0.38)$	0.674	$0.647^{+0.038}_{-0.084}$
$A_{217}^{PS}$	117.8	$115^{+30}_{-30}$	$Y_P$	0.245329	$0.24526^{+0.00024}_{-0.00031}$	$f\sigma_8(0.51)$	0.4786	$0.471^{+0.017}_{-0.034}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246655	$0.24659^{+0.00024}_{-0.00031}$	$\sigma_8(0.51)$	0.630	$0.605^{+0.037}_{-0.081}$
$A_{100}^{dustTT}$	8.90	$8.9^{+4.7}_{-4.8}$	$10^5 D/H$	2.617	$2.64^{+0.13}_{-0.11}$	$f\sigma_8(0.61)$	0.4738	$0.465^{+0.017}_{-0.039}$
$A_{143}^{dustTT}$	10.79	$10.7^{+4.5}_{-4.6}$	Age/Gyr	13.784	$13.88^{+0.35}_{-0.16}$	$\sigma_8(0.61)$	0.600	$0.575^{+0.036}_{-0.079}$
$A_{143 \times 217}^{dustTT}$	19.2	$18.3^{+8.4}_{-8.5}$	$z_*$	1090.09	$1090.4^{+1.5}_{-1.1}$	$f\sigma_8(2.33)$	0.3016	$0.290^{+0.017}_{-0.038}$
$A_{217}^{dustTT}$	94.3	$93^{+20}_{-20}$	$r_*$	144.65	$144.4^{+1.1}_{-1.4}$	$\sigma_8(2.33)$	0.3116	$0.298^{+0.020}_{-0.044}$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04109	$1.0409^{+0.0012}_{-0.0013}$	$f_{2000}^{143}$	30.2	$32^{+8}_{-8}$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.894	$13.87^{+0.10}_{-0.13}$	$f_{2000}^{143 \times 217}$	33.0	$34^{+6}_{-5}$
$H_0$	67.8	$65.9^{+3.3}_{-6.8}$	$z_{drag}$	1059.51	$1059.3^{+1.2}_{-1.3}$	$f_{2000}^{217}$	107.5	$108.5^{+5.2}_{-5.0}$
$\Omega_\Lambda$	0.692	$0.666^{+0.043}_{-0.11}$	$r_{drag}$	147.37	$147.2^{+1.1}_{-1.3}$	$\chi^2_{lensing}$	9.04	$9.43 (\nu: 0.5)$
$\Omega_m$	0.308	$0.334^{+0.11}_{-0.043}$	$k_D$	0.14044	$0.1406^{+0.0013}_{-0.0012}$	$\chi^2_{small}$	395.86	$397.0 (\nu: 1.5)$
$\Omega_m h^2$	0.1419	$0.145^{+0.011}_{-0.0057}$	$100\theta_D$	0.16100	$0.16111^{+0.00072}_{-0.00067}$	$\chi^2_{lowl}$	23.26	$24.0 (\nu: 0.7)$
$\Omega_\nu h^2$	0.00000	< 0.00664	$z_{eq}$	3390	$3419^{+140}_{-110}$	$\chi^2_{plik}$	758.5	$771.9 (\nu: 14.4)$
$\Omega_m h^3$	0.09625	$0.0953^{+0.0018}_{-0.0036}$	$k_{eq}$	0.010348	$0.01044^{+0.00042}_{-0.00033}$	$\chi^2_{prior}$	1.5	$7.3 (\nu: 6.8)$
$\sigma_8$	0.822	$0.794^{+0.042}_{-0.088}$	$100\theta_{eq}$	0.8149	$0.810^{+0.021}_{-0.024}$	$\chi^2_{CMB}$	1186.6	$1202.3 (\nu: 16.6)$
$S_8$	0.8333	$0.836^{+0.043}_{-0.042}$	$100\theta_{s,eq}$	0.4503	$0.448^{+0.011}_{-0.012}$			

Best-fit  $\chi^2_{eff} = 1188.10$ ;  $\bar{\chi}^2_{eff} = 1209.58$ ;  $R - 1 = 0.00659$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 9.04 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3.2\_29: 23.26 plik\_rd12\_HM.v22\_TT: 758.46



### 6.34 base\_mnu\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02207^{+0.00058}_{-0.00068}$	$\sigma_8 \Omega_m^{0.5}$	$0.458^{+0.023}_{-0.023}$	$H(0.15)$	$71.4^{+2.8}_{-5.9}$
$\Omega_c h^2$	$0.1209^{+0.0062}_{-0.0048}$	$\sigma_8 \Omega_m^{0.25}$	$0.603^{+0.024}_{-0.040}$	$D_M(0.15)$	$656^{+67}_{-29}$
$100\theta_{MC}$	$1.0407^{+0.0013}_{-0.0014}$	$\sigma_8/h^{0.5}$	$0.978^{+0.039}_{-0.078}$	$H(0.38)$	$81.9^{+2.1}_{-4.3}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$r_{\text{drag}} h$	$97.1^{+5.4}_{-11}$	$D_M(0.38)$	$1560^{+130}_{-58}$
$\Sigma m_\nu [\text{eV}]$	$< 0.626$	$\langle d^2 \rangle^{1/2}$	$2.452^{+0.078}_{-0.067}$	$H(0.51)$	$88.8^{+1.7}_{-3.4}$
$\ln(10^{10} A_s)$	$3.044^{+0.041}_{-0.028}$	$z_{\text{re}}$	$< 9.47$	$D_M(0.51)$	$2017^{+150}_{-68}$
$n_s$	$0.962^{+0.014}_{-0.018}$	$10^9 A_s$	$2.100^{+0.087}_{-0.059}$	$H(0.61)$	$94.6^{+1.5}_{-2.8}$
$y_{\text{cal}}$	$1.0005^{+0.0065}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	$1.886^{+0.034}_{-0.031}$	$D_M(0.61)$	$2344^{+170}_{-74}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{40}$	$1235^{+36}_{-36}$	$H(2.33)$	$237.4^{+6.5}_{-3.5}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{220}$	$5714^{+110}_{-110}$	$D_M(2.33)$	$5800^{+150}_{-70}$
$A_{143}^{\text{tSZ}}$	—	$D_{810}$	$2537^{+36}_{-35}$	$f\sigma_8(0.15)$	$0.462^{+0.021}_{-0.021}$
$A_{100}^{\text{PS}}$	$265^{+70}_{-70}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.15)$	$0.732^{+0.041}_{-0.089}$
$A_{143}^{\text{PS}}$	$50^{+20}_{-20}$	$D_{2000}$	$229.3^{+4.7}_{-5.0}$	$f\sigma_8(0.38)$	$0.475^{+0.018}_{-0.027}$
$A_{143 \times 217}^{\text{PS}}$	$44^{+20}_{-20}$	$n_{s,0.002}$	$0.962^{+0.014}_{-0.018}$	$\sigma_8(0.38)$	$0.647^{+0.038}_{-0.085}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$Y_P$	$0.24526^{+0.00024}_{-0.00031}$	$f\sigma_8(0.51)$	$0.471^{+0.017}_{-0.035}$
$A^{\text{kSZ}}$	—	$Y_P^{\text{BBN}}$	$0.24659^{+0.00024}_{-0.00031}$	$\sigma_8(0.51)$	$0.605^{+0.037}_{-0.083}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.8}$	$10^5 D/H$	$2.64^{+0.13}_{-0.11}$	$f\sigma_8(0.61)$	$0.465^{+0.017}_{-0.039}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.5}_{-4.6}$	Age/Gyr	$13.88^{+0.32}_{-0.17}$	$\sigma_8(0.61)$	$0.575^{+0.036}_{-0.080}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.5}_{-8.5}$	$z_*$	$1090.4^{+1.5}_{-1.1}$	$f\sigma_8(2.33)$	$0.291^{+0.017}_{-0.039}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$r_*$	$144.4^{+1.1}_{-1.4}$	$\sigma_8(2.33)$	$0.298^{+0.020}_{-0.045}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0409^{+0.0012}_{-0.0013}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	$13.87^{+0.10}_{-0.13}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-5}$
$H_0$	$65.9^{+3.3}_{-6.8}$	$z_{\text{drag}}$	$1059.3^{+1.2}_{-1.3}$	$f_{2000}^{217}$	$108.5^{+5.1}_{-5.0}$
$\Omega_\Lambda$	$0.666^{+0.044}_{-0.11}$	$r_{\text{drag}}$	$147.2^{+1.1}_{-1.3}$	$\chi_{\text{lensing}}^2$	$9.40 (\nu: 0.5)$
$\Omega_m$	$0.334^{+0.11}_{-0.044}$	$k_D$	$0.1406^{+0.0013}_{-0.0012}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.6)$
$\Omega_m h^2$	$0.145^{+0.011}_{-0.0057}$	$100\theta_D$	$0.16111^{+0.00073}_{-0.00067}$	$\chi_{\text{lowl}}^2$	$23.9 (\nu: 0.7)$
$\Omega_\nu h^2$	$< 0.00673$	$z_{\text{eq}}$	$3417^{+140}_{-110}$	$\chi_{\text{plik}}^2$	$771.8 (\nu: 14.5)$
$\Omega_m h^3$	$0.0953^{+0.0018}_{-0.0036}$	$k_{\text{eq}}$	$0.01043^{+0.00043}_{-0.00033}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.8)$
$\sigma_8$	$0.794^{+0.042}_{-0.089}$	$100\theta_{\text{eq}}$	$0.810^{+0.020}_{-0.024}$	$\chi_{\text{CMB}}^2$	$1202.1 (\nu: 16.6)$
$S_8$	$0.836^{+0.043}_{-0.042}$	$100\theta_{s,\text{eq}}$	$0.448^{+0.010}_{-0.012}$		

$\bar{\chi}_{\text{eff}}^2 = 1209.38$ ;  $R - 1 = 0.00698$



### 6.35 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022421	$0.02236^{+0.00041}_{-0.00041}$ (+1.2 $\sigma$ )	$\Omega_\nu h^2$	0.00000	< 0.00376 (−0.5 $\sigma$ )	$100\theta_{\text{eq}}$	0.8145	$0.813^{+0.013}_{-0.015}$ (+0.4 $\sigma$ )
$\Omega_c h^2$	0.11969	$0.1201^{+0.0036}_{-0.0031}$ (−0.4 $\sigma$ )	$\Omega_m h^3$	0.09668	$0.0962^{+0.0010}_{-0.0020}$ (+0.9 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4500	$0.4491^{+0.0068}_{-0.0075}$ (+0.3 $\sigma$ )
$100\theta_{\text{MC}}$	1.04098	$1.04088^{+0.00082}_{-0.00080}$ (+0.4 $\sigma$ )	$\sigma_8$	0.8224	$0.807^{+0.029}_{-0.053}$ (+0.5 $\sigma$ )	$H(0.15)$	73.28	$72.4^{+1.7}_{-3.2}$ (+0.6 $\sigma$ )
$\tau$	0.0532	$0.055^{+0.020}_{-0.019}$ (+0.3 $\sigma$ )	$S_8$	0.8320	$0.832^{+0.032}_{-0.032}$ (−0.3 $\sigma$ )	$D_{\text{M}}(0.15)$	637.6	$646^{+33}_{-17}$ (−0.6 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.000	< 0.350 (−0.5 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4557	$0.456^{+0.018}_{-0.017}$ (−0.3 $\sigma$ )	$H(0.38)$	83.33	$82.7^{+1.3}_{-2.4}$ (+0.6 $\sigma$ )
$\ln(10^{10} A_{\text{s}})$	3.0417	$3.046^{+0.039}_{-0.037}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6122	$0.606^{+0.019}_{-0.028}$ (+0.3 $\sigma$ )	$D_{\text{M}}(0.38)$	1522	$1538^{+67}_{-34}$ (−0.6 $\sigma$ )
$n_{\text{s}}$	0.9664	$0.965^{+0.011}_{-0.011}$ (+0.6 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9970	$0.985^{+0.029}_{-0.050}$ (+0.3 $\sigma$ )	$H(0.51)$	90.01	$89.5^{+1.1}_{-2.0}$ (+0.7 $\sigma$ )
$y_{\text{cal}}$	1.0005	$1.0007^{+0.0063}_{-0.0061}$ (+0.1 $\sigma$ )	$r_{\text{drag}} h$	100.09	$98.7^{+3.2}_{-5.7}$ (+0.5 $\sigma$ )	$D_{\text{M}}(0.51)$	1972	$1992^{+80}_{-40}$ (−0.6 $\sigma$ )
$A_{217}^{\text{CIB}}$	47.0	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.445	$2.445^{+0.056}_{-0.054}$ (−0.2 $\sigma$ )	$H(0.61)$	95.61	$95.16^{+0.88}_{-1.7}$ (+0.7 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.48	—	$z_{\text{re}}$	7.54	$7.7^{+1.9}_{-2.0}$ (+0.2 $\sigma$ )	$D_{\text{M}}(0.61)$	2295	$2317^{+86}_{-44}$ (−0.6 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.15	$5.5^{+4.5}_{-4.6}$ (+0.2 $\sigma$ )	$10^9 A_{\text{s}}$	2.094	$2.103^{+0.084}_{-0.076}$ (+0.2 $\sigma$ )	$H(2.33)$	236.08	$236.8^{+3.2}_{-2.1}$ (−0.3 $\sigma$ )
$A_{100}^{\text{PS}}$	250	$259^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_{\text{s}} e^{-2\tau}$	1.8828	$1.884^{+0.028}_{-0.028}$ (−0.1 $\sigma$ )	$D_{\text{M}}(2.33)$	5748	$5769^{+83}_{-42}$ (−0.7 $\sigma$ )
$A_{143}^{\text{PS}}$	48.2	$46^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{40}$	1228.6	$1233^{+31}_{-30}$ (−0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4599	$0.460^{+0.016}_{-0.016}$ (−0.2 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	48.6	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5736	$5736^{+98}_{-99}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.7602	$0.745^{+0.028}_{-0.052}$ (+0.5 $\sigma$ )
$A_{217}^{\text{PS}}$	119.9	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{810}$	2540.2	$2540^{+35}_{-33}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4794	$0.477^{+0.014}_{-0.018}$ (+0.2 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	818.1	$818^{+12}_{-12}$ (+0.6 $\sigma$ )	$\sigma_8(0.38)$	0.6741	$0.660^{+0.026}_{-0.049}$ (+0.5 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.76	$8.9^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	$D_{2000}$	231.33	$230.9^{+4.1}_{-4.0}$ (+0.9 $\sigma$ )	$f\sigma_8(0.51)$	0.4784	$0.474^{+0.013}_{-0.021}$ (+0.3 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.99	$10.9^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9664	$0.965^{+0.011}_{-0.011}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6310	$0.617^{+0.025}_{-0.047}$ (+0.5 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.9	$18.6^{+8.4}_{-8.3}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.245415	$0.24539^{+0.00015}_{-0.00017}$ (+1.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4736	$0.469^{+0.013}_{-0.023}$ (+0.4 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.2	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.246742	$0.24672^{+0.00015}_{-0.00017}$ (+1.2 $\sigma$ )	$\sigma_8(0.61)$	0.6004	$0.587^{+0.024}_{-0.045}$ (+0.5 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.097}_{-0.095}$	$10^5 \text{D/H}$	2.576	$2.587^{+0.078}_{-0.073}$ (−1.2 $\sigma$ )	$f\sigma_8(2.33)$	0.3019	$0.296^{+0.010}_{-0.024}$ (+0.5 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.076}_{-0.075}$	Age/Gyr	13.761	$13.81^{+0.19}_{-0.094}$ (−0.7 $\sigma$ )	$\sigma_8(2.33)$	0.3119	$0.305^{+0.012}_{-0.028}$ (+0.5 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.483	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.82	$1089.94^{+0.77}_{-0.71}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	28.7	$30^{+7}_{-7}$ (−0.7 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.225	$0.23^{+0.14}_{-0.14}$	$r_*$	144.48	$144.40^{+0.69}_{-0.77}$ (+0.0 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.89	$32^{+5}_{-5}$ (−0.8 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.664	$0.67^{+0.20}_{-0.21}$	$100\theta_*$	1.04112	$1.04108^{+0.00079}_{-0.00076}$ (+0.3 $\sigma$ )	$f_{2000}^{217}$	106.51	$107.1^{+4.7}_{-4.6}$ (−0.7 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.08	$2.09^{+0.70}_{-0.68}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.877	$13.870^{+0.064}_{-0.071}$ (−0.0 $\sigma$ )	$\chi_{\text{lensing}}^2$	9.02	$9.29$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0015}_{-0.0015}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1060.01	$1059.93^{+0.80}_{-0.80}$ (+1.3 $\sigma$ )	$\chi_{\text{small}}^2$	395.85	$397.1$ ( $\nu$ : 1.7) (+0.1 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	147.13	$147.06^{+0.69}_{-0.74}$ (−0.2 $\sigma$ )	$\chi_{\text{lowl}}^2$	23.26	$23.55$ ( $\nu$ : 0.4) (−0.4 $\sigma$ )
$H_0$	68.03	$67.1^{+2.0}_{-3.7}$ (+0.6 $\sigma$ )	$k_{\text{D}}$	0.14087	$0.14089^{+0.00079}_{-0.00076}$ (+0.7 $\sigma$ )	$\chi_{\text{plik}}^2$	2344.0	$2359.8$ ( $\nu$ : 17.3) (+295.6 $\sigma$ )
$\Omega_\Lambda$	0.6929	$0.681^{+0.026}_{-0.051}$ (+0.5 $\sigma$ )	$100\theta_{\text{D}}$	0.160709	$0.16076^{+0.00047}_{-0.00046}$ (−1.3 $\sigma$ )	$\chi_{\text{prior}}^2$	1.7	$11.5$ ( $\nu$ : 10.4) (+1.1 $\sigma$ )
$\Omega_{\text{m}}$	0.3071	$0.319^{+0.051}_{-0.026}$ (−0.5 $\sigma$ )	$z_{\text{eq}}$	3396	$3405^{+79}_{-69}$ (−0.3 $\sigma$ )	$\chi_{\text{CMB}}^2$	2772.2	$2789.8$ ( $\nu$ : 18.5) (+275.2 $\sigma$ )
$\Omega_{\text{m}} h^2$	0.14211	$0.1435^{+0.0056}_{-0.0035}$ (−0.4 $\sigma$ )	$k_{\text{eq}}$	0.010365	$0.01039^{+0.00024}_{-0.00021}$ (−0.3 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 2773.86$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.76$ ;  $\bar{\chi}_{\text{eff}}^2 = 2801.35$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.77$ ;  $R - 1 = 0.01138$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp-p.teb.consext8: 9.02 ( $\Delta$  -0.02) simall.100x143\_offlike5\_EE\_Aplanck\_B: 395.85 ( $\Delta$  -0.01) commander\_dx12.v3.2.29: 23.26 ( $\Delta$  0.00) plik\_rd12\_HM.v22b\_TTTEEE: 2344.04



### 6.36 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02237^{+0.00041}_{-0.00041} \quad (+1.2\sigma)$	$\Omega_{\nu} h^2$	$< 0.00379 \quad (-0.5\sigma)$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.013}_{-0.014} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1201^{+0.0035}_{-0.0031} \quad (-0.4\sigma)$	$\Omega_{\mathrm{m}} h^3$	$0.0962^{+0.0010}_{-0.0020} \quad (+0.9\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4492^{+0.0067}_{-0.0074} \quad (+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04089^{+0.00081}_{-0.00080} \quad (+0.4\sigma)$	$\sigma_8$	$0.807^{+0.029}_{-0.054} \quad (+0.5\sigma)$	$H(0.15)$	$72.5^{+1.7}_{-3.2} \quad (+0.6\sigma)$
$\tau$	$0.056^{+0.018}_{-0.014} \quad (+0.3\sigma)$	$S_8$	$0.832^{+0.032}_{-0.032} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$646^{+34}_{-17} \quad (-0.6\sigma)$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.352 \quad (-0.5\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.018}_{-0.018} \quad (-0.3\sigma)$	$H(0.38)$	$82.7^{+1.3}_{-2.4} \quad (+0.6\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.038}_{-0.029} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.019}_{-0.028} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1538^{+68}_{-34} \quad (-0.6\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.011} \quad (+0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.029}_{-0.051} \quad (+0.3\sigma)$	$H(0.51)$	$89.5^{+1.1}_{-2.0} \quad (+0.7\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0061} \quad (+0.1\sigma)$	$r_{\mathrm{drag}} h$	$98.7^{+3.2}_{-5.8} \quad (+0.5\sigma)$	$D_{\mathrm{M}}(0.51)$	$1991^{+80}_{-40} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.446^{+0.055}_{-0.052} \quad (-0.2\sigma)$	$H(0.61)$	$95.16^{+0.89}_{-1.7} \quad (+0.7\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_{\mathrm{re}}$	$< 9.47 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2316^{+87}_{-44} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.5}_{-4.6} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.106^{+0.081}_{-0.060} \quad (+0.2\sigma)$	$H(2.33)$	$236.8^{+3.2}_{-2.1} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.884^{+0.028}_{-0.028} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5769^{+85}_{-42} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.5\sigma)$	$D_{40}$	$1232^{+31}_{-30} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.016}_{-0.016} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5736^{+98}_{-99} \quad (+0.5\sigma)$	$\sigma_8(0.15)$	$0.745^{+0.028}_{-0.053} \quad (+0.5\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{810}$	$2540^{+34}_{-33} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.014}_{-0.018} \quad (+0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{1420}$	$818^{+12}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	$0.660^{+0.026}_{-0.050} \quad (+0.5\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$D_{2000}$	$230.9^{+4.1}_{-4.0} \quad (+0.9\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.013}_{-0.021} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.965^{+0.011}_{-0.011} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.617^{+0.025}_{-0.048} \quad (+0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.4}_{-8.3} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24539^{+0.00015}_{-0.00017} \quad (+1.2\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.013}_{-0.023} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00015}_{-0.00017} \quad (+1.2\sigma)$	$\sigma_8(0.61)$	$0.587^{+0.024}_{-0.046} \quad (+0.5\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.097}_{-0.095}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.587^{+0.077}_{-0.073} \quad (-1.2\sigma)$	$f\sigma_8(2.33)$	$0.296^{+0.010}_{-0.024} \quad (+0.5\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.076}_{-0.075}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.81^{+0.19}_{-0.094} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.305^{+0.012}_{-0.029} \quad (+0.5\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.93^{+0.77}_{-0.71} \quad (-1.0\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.23^{+0.14}_{-0.14}$	$r_*$	$144.41^{+0.68}_{-0.76} \quad (+0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.8\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.20}_{-0.21}$	$100\theta_*$	$1.04109^{+0.00079}_{-0.00077} \quad (+0.3\sigma)$	$f_{2000}^{217}$	$107.1^{+4.7}_{-4.6} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.09^{+0.70}_{-0.67}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.871^{+0.064}_{-0.071} \quad (-0.0\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.28 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0015} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.93^{+0.80}_{-0.76} \quad (+1.3\sigma)$	$\chi_{\mathrm{simall}}^2$	$397.1 \quad (\nu: 1.7) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}$	$147.07^{+0.68}_{-0.74} \quad (-0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.54 \quad (\nu: 0.4) \quad (-0.3\sigma)$
$H_0$	$67.1^{+2.0}_{-3.7} \quad (+0.6\sigma)$	$k_{\mathrm{D}}$	$0.14088^{+0.00079}_{-0.00076} \quad (+0.7\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.7 \quad (\nu: 17.3) \quad (+295.0\sigma)$
$\Omega_{\Lambda}$	$0.681^{+0.025}_{-0.052} \quad (+0.5\sigma)$	$100\theta_{\mathrm{D}}$	$0.16076^{+0.00047}_{-0.00046} \quad (-1.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.4) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.319^{+0.052}_{-0.025} \quad (-0.5\sigma)$	$z_{\mathrm{eq}}$	$3404^{+78}_{-68} \quad (-0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.7 \quad (\nu: 18.3) \quad (+275.8\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1434^{+0.0057}_{-0.0035} \quad (-0.4\sigma)$	$k_{\mathrm{eq}}$	$0.01039^{+0.00024}_{-0.00021} \quad (-0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2801.19; \Delta \bar{\chi}_{\mathrm{eff}}^2 = 1591.80; R - 1 = 0.01124$$



### 6.37 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022343	$0.02227^{+0.00042}_{-0.00041}$	$\sigma_8$	0.8210	$0.802^{+0.030}_{-0.063}$	$100\theta_{s,eq}$	0.4508	$0.4499^{+0.0075}_{-0.0074}$
$\Omega_c h^2$	0.11938	$0.1199^{+0.0035}_{-0.0034}$	$S_8$	0.8292	$0.827^{+0.033}_{-0.032}$	$H(0.15)$	73.29	$72.3^{+1.9}_{-3.3}$
$100\theta_{MC}$	1.04091	$1.04083^{+0.00087}_{-0.00084}$	$\sigma_8 \Omega_m^{0.5}$	0.4541	$0.453^{+0.018}_{-0.018}$	$D_M(0.15)$	637.4	$647^{+35}_{-19}$
$\tau$	0.0532	$0.054^{+0.022}_{-0.020}$	$\sigma_8 \Omega_m^{0.25}$	0.6106	$0.603^{+0.021}_{-0.028}$	$H(0.38)$	83.31	$82.6^{+1.4}_{-2.5}$
$\Sigma m_\nu$ [eV]	0.000	< 0.379	$\sigma_8/h^{0.5}$	0.9952	$0.980^{+0.033}_{-0.052}$	$D_M(0.38)$	1521	$1541^{+70}_{-38}$
$\ln(10^{10} A_s)$	3.0396	$3.042^{+0.043}_{-0.039}$	$r_{drag} h$	100.24	$98.6^{+3.6}_{-6.0}$	$H(0.51)$	89.98	$89.4^{+1.2}_{-2.1}$
$n_s$	0.9673	$0.965^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	2.438	$2.437^{+0.059}_{-0.058}$	$D_M(0.51)$	1972	$1995^{+82}_{-45}$
$y_{cal}$	1.0005	$1.0006^{+0.0066}_{-0.0065}$	$z_{re}$	7.56	$7.7^{+2.1}_{-2.1}$	$H(0.61)$	95.56	$95.04^{+0.98}_{-1.8}$
$A_{100}^{PS}$	233	$241^{+60}_{-60}$	$10^9 A_s$	2.090	$2.095^{+0.092}_{-0.081}$	$D_M(0.61)$	2295	$2320^{+90}_{-48}$
$A_{143}^{PS}$	42.3	$40^{+20}_{-20}$	$10^9 A_s e^{-2\tau}$	1.8786	$1.880^{+0.029}_{-0.027}$	$H(2.33)$	235.79	$236.6^{+3.3}_{-2.4}$
$A_{217}^{PS}$	103.7	$103^{+30}_{-30}$	$D_{40}$	1223.7	$1229^{+30}_{-31}$	$D_M(2.33)$	5751	$5776^{+90}_{-46}$
$A_{217}^{CIB}$	42.7	$40^{+20}_{-20}$	$D_{220}$	5719	$5721^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4585	$0.458^{+0.017}_{-0.017}$
$A_{143}^{tSZ}$	6.19	< 8.79	$D_{810}$	2536.0	$2536^{+35}_{-34}$	$\sigma_8(0.15)$	0.7591	$0.740^{+0.028}_{-0.062}$
$r_{143 \times 217}^{PS}$	0.665	$0.66^{+0.32}_{-0.33}$	$D_{1420}$	816.6	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4781	$0.474^{+0.015}_{-0.018}$
$r_{143 \times 217}^{CIB}$	0.75	—	$D_{2000}$	230.77	$230.2^{+4.4}_{-4.2}$	$\sigma_8(0.38)$	0.6733	$0.656^{+0.026}_{-0.059}$
$\xi^{tSZ \times CIB}$	0.36	—	$n_{s,0.002}$	0.9673	$0.965^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	0.4773	$0.472^{+0.015}_{-0.021}$
$A^{kSZ}$	0.5	—	$Y_P$	0.245385	$0.24535^{+0.00016}_{-0.00018}$	$\sigma_8(0.51)$	0.6302	$0.613^{+0.025}_{-0.057}$
$A_{100}^{dust}$	1.009	$1.01^{+0.49}_{-0.49}$	$Y_P^{BBN}$	0.246711	$0.24668^{+0.00016}_{-0.00018}$	$f\sigma_8(0.61)$	0.4726	$0.466^{+0.015}_{-0.024}$
$A_{143}^{dust}$	0.972	$0.96^{+0.45}_{-0.45}$	$10^5 D/H$	2.590	$2.604^{+0.078}_{-0.076}$	$\sigma_8(0.61)$	0.5997	$0.583^{+0.024}_{-0.055}$
$A_{217}^{dust}$	0.973	$0.97^{+0.27}_{-0.27}$	Age/Gyr	13.769	$13.83^{+0.21}_{-0.10}$	$f\sigma_8(2.33)$	0.3016	$0.295^{+0.011}_{-0.025}$
$A_{143 \times 217}^{dust}$	1.018	$1.02^{+0.42}_{-0.42}$	$z_*$	1089.89	$1090.04^{+0.79}_{-0.72}$	$\sigma_8(2.33)$	0.3117	$0.303^{+0.013}_{-0.030}$
$c_{100}$	0.99772	$0.9976^{+0.0027}_{-0.0027}$	$r_*$	144.62	$144.54^{+0.78}_{-0.78}$	$f_{2000}^{143}$	29.3	$30^{+8}_{-7}$
$c_{217}$	1.00120	$1.0011^{+0.0041}_{-0.0041}$	$100\theta_*$	1.04107	$1.04104^{+0.00083}_{-0.00079}$	$f_{2000}^{217}$	106.3	$107.0^{+5.0}_{-5.0}$
$c_{TE}$	0.9961	$0.997^{+0.013}_{-0.012}$	$D_M(z_*)/\text{Gpc}$	13.891	$13.884^{+0.073}_{-0.073}$	$f_{2000}^{143 \times 217}$	31.7	$32^{+5}_{-5}$
$c_{EE}$	0.9917	$0.992^{+0.013}_{-0.013}$	$z_{drag}$	1059.82	$1059.70^{+0.88}_{-0.84}$	$\chi_{lensing}^2$	8.92	9.44 ( $\nu$ : 0.4)
$H_0$	68.06	$67.0^{+2.2}_{-3.8}$	$r_{drag}$	147.29	$147.24^{+0.79}_{-0.77}$	$\chi_{small}^2$	395.86	397.1 ( $\nu$ : 1.8)
$\Omega_\Lambda$	0.6940	$0.680^{+0.028}_{-0.054}$	$k_D$	0.14063	$0.14064^{+0.00087}_{-0.00090}$	$\chi_{lowl}^2$	22.92	23.30 ( $\nu$ : 0.4)
$\Omega_m$	0.3060	$0.320^{+0.054}_{-0.028}$	$100\theta_D$	0.160816	$0.16089^{+0.00048}_{-0.00050}$	$\chi_{CamSpec}^2$	11499.3	11514.7 ( $\nu$ : 15.9)
$\Omega_m h^2$	0.14172	$0.1432^{+0.0057}_{-0.0040}$	$z_{eq}$	3387	$3396^{+78}_{-77}$	$\chi_{prior}^2$	2.1	7.8 ( $\nu$ : 6.0)
$\Omega_\nu h^2$	0.00000	< 0.00408	$k_{eq}$	0.010336	$0.01037^{+0.00024}_{-0.00023}$	$\chi_{CMB}^2$	11927.0	11944.5 ( $\nu$ : 18.0)
$\Omega_m h^3$	0.09645	$0.0959^{+0.0012}_{-0.0022}$	$100\theta_{eq}$	0.8159	$0.814^{+0.015}_{-0.014}$			

Best-fit  $\chi_{eff}^2 = 11929.03$ ;  $\bar{\chi}_{eff}^2 = 11952.30$ ;  $R - 1 = 0.01307$

$\chi_{eff}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.92 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3.2\_29: 22.93 CamSpec like\_10.7HM\_1400\_unified: 11499.28



### 6.38 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02228^{+0.00042}_{-0.00041}$	$\sigma_8$	$0.802^{+0.030}_{-0.064}$	$100\theta_{s,eq}$	$0.4500^{+0.0074}_{-0.0074}$
$\Omega_c h^2$	$0.1198^{+0.0035}_{-0.0033}$	$S_8$	$0.827^{+0.034}_{-0.032}$	$H(0.15)$	$72.3^{+1.9}_{-3.4}$
$100\theta_{MC}$	$1.04083^{+0.00087}_{-0.00083}$	$\sigma_8 \Omega_m^{0.5}$	$0.453^{+0.018}_{-0.018}$	$D_M(0.15)$	$647^{+35}_{-19}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$\sigma_8 \Omega_m^{0.25}$	$0.603^{+0.021}_{-0.028}$	$H(0.38)$	$82.6^{+1.4}_{-2.6}$
$\Sigma m_\nu$ [eV]	$< 0.383$	$\sigma_8/h^{0.5}$	$0.980^{+0.033}_{-0.053}$	$D_M(0.38)$	$1541^{+71}_{-38}$
$\ln(10^{10} A_s)$	$3.044^{+0.042}_{-0.029}$	$r_{drag} h$	$98.6^{+3.6}_{-6.1}$	$H(0.51)$	$89.4^{+1.2}_{-2.1}$
$n_s$	$0.965^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.058}_{-0.057}$	$D_M(0.51)$	$1995^{+84}_{-45}$
$y_{cal}$	$1.0006^{+0.0066}_{-0.0065}$	$z_{re}$	$< 9.59$	$H(0.61)$	$95.04^{+0.98}_{-1.8}$
$A_{100}^{PS}$	$241^{+60}_{-60}$	$10^9 A_s$	$2.100^{+0.089}_{-0.060}$	$D_M(0.61)$	$2320^{+91}_{-48}$
$A_{143}^{PS}$	$40^{+20}_{-20}$	$10^9 A_s e^{-2\tau}$	$1.880^{+0.029}_{-0.027}$	$H(2.33)$	$236.6^{+3.4}_{-2.4}$
$A_{217}^{PS}$	$103^{+30}_{-30}$	$D_{40}$	$1229^{+30}_{-31}$	$D_M(2.33)$	$5776^{+91}_{-47}$
$A_{217}^{CIB}$	$40^{+20}_{-20}$	$D_{220}$	$5721^{+99}_{-99}$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.017}$
$A_{143}^{tSZ}$	$< 8.80$	$D_{810}$	$2536^{+35}_{-35}$	$\sigma_8(0.15)$	$0.741^{+0.028}_{-0.063}$
$r_{143 \times 217}^{PS}$	$0.66^{+0.32}_{-0.33}$	$D_{1420}$	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.015}_{-0.018}$
$r_{143 \times 217}^{CIB}$	—	$D_{2000}$	$230.2^{+4.4}_{-4.3}$	$\sigma_8(0.38)$	$0.656^{+0.026}_{-0.059}$
$\xi^{tSZ \times CIB}$	—	$n_{s,0.002}$	$0.965^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	$0.472^{+0.015}_{-0.022}$
$A^{kSZ}$	—	$Y_P$	$0.24536^{+0.00016}_{-0.00018}$	$\sigma_8(0.51)$	$0.614^{+0.025}_{-0.057}$
$A_{100}^{dust}$	$1.01^{+0.50}_{-0.49}$	$Y_P^{BBN}$	$0.24668^{+0.00016}_{-0.00019}$	$f\sigma_8(0.61)$	$0.467^{+0.015}_{-0.024}$
$A_{143}^{dust}$	$0.96^{+0.46}_{-0.45}$	$10^5 D/H$	$2.604^{+0.079}_{-0.076}$	$\sigma_8(0.61)$	$0.584^{+0.024}_{-0.055}$
$A_{217}^{dust}$	$0.97^{+0.27}_{-0.27}$	Age/Gyr	$13.83^{+0.21}_{-0.10}$	$f\sigma_8(2.33)$	$0.295^{+0.011}_{-0.026}$
$A_{143 \times 217}^{dust}$	$1.02^{+0.42}_{-0.42}$	$z_*$	$1090.03^{+0.80}_{-0.72}$	$\sigma_8(2.33)$	$0.303^{+0.013}_{-0.030}$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027}$	$r_*$	$144.55^{+0.78}_{-0.79}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041}$	$100\theta_*$	$1.04105^{+0.00084}_{-0.00079}$	$f_{2000}^{217}$	$107.0^{+5.0}_{-5.0}$
$c_{TE}$	$0.997^{+0.013}_{-0.012}$	$D_M(z_*)/\text{Gpc}$	$13.885^{+0.072}_{-0.074}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$z_{drag}$	$1059.71^{+0.88}_{-0.84}$	$\chi^2_{lensing}$	$9.39 (\nu: 0.3)$
$H_0$	$67.0^{+2.2}_{-3.9}$	$r_{drag}$	$147.25^{+0.79}_{-0.77}$	$\chi^2_{simall}$	$397.0 (\nu: 1.8)$
$\Omega_\Lambda$	$0.680^{+0.028}_{-0.054}$	$k_D$	$0.14063^{+0.00088}_{-0.00090}$	$\chi^2_{lowl}$	$23.29 (\nu: 0.4)$
$\Omega_m$	$0.320^{+0.054}_{-0.028}$	$100\theta_D$	$0.16088^{+0.00048}_{-0.00049}$	$\chi^2_{CamSpec}$	$11514.6 (\nu: 15.7)$
$\Omega_m h^2$	$0.1432^{+0.0058}_{-0.0039}$	$z_{eq}$	$3395^{+79}_{-76}$	$\chi^2_{prior}$	$7.8 (\nu: 6.0)$
$\Omega_\nu h^2$	$< 0.00412$	$k_{eq}$	$0.01036^{+0.00024}_{-0.00023}$	$\chi^2_{CMB}$	$11944.4 (\nu: 17.7)$
$\Omega_m h^3$	$0.0959^{+0.0012}_{-0.0022}$	$100\theta_{eq}$	$0.814^{+0.015}_{-0.015}$		

$$\bar{\chi}^2_{eff} = 11952.13; R - 1 = 0.01210$$



### 6.39 base\_mnu\_plikHM\_TT\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022202	$0.02222^{+0.00049}_{-0.00050}$	$\sigma_8 \Omega_m^{0.25}$	0.6127	$0.603^{+0.025}_{-0.034}$	$H(0.38)$	83.15	$83.00^{+0.94}_{-1.1}$
$\Omega_c h^2$	0.11966	$0.1190^{+0.0033}_{-0.0033}$	$\sigma_8/h^{0.5}$	0.9983	$0.983^{+0.037}_{-0.053}$	$D_M(0.38)$	1525.2	$1529^{+29}_{-24}$
$100\theta_{MC}$	1.04094	$1.0410^{+0.0010}_{-0.0011}$	$r_{drag}h$	99.99	$99.8^{+2.4}_{-2.6}$	$H(0.51)$	89.84	$89.70^{+0.79}_{-0.95}$
$\tau$	0.0529	$0.053^{+0.023}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.446	$2.428^{+0.075}_{-0.081}$	$D_M(0.51)$	1976.3	$1981^{+34}_{-28}$
$\Sigma m_\nu$ [eV]	0.003	< 0.211	$z_{re}$	7.56	$7.6^{+2.2}_{-2.4}$	$H(0.61)$	95.44	$95.30^{+0.68}_{-0.83}$
$\ln(10^{10} A_s)$	3.0404	$3.039^{+0.048}_{-0.045}$	$10^9 A_s$	2.091	$2.09^{+0.10}_{-0.091}$	$D_M(0.61)$	2300.1	$2305^{+37}_{-31}$
$n_s$	0.9659	$0.966^{+0.011}_{-0.011}$	$10^9 A_s e^{-2\tau}$	1.8812	$1.878^{+0.029}_{-0.030}$	$H(2.33)$	235.84	$235.8^{+2.0}_{-2.0}$
$y_{cal}$	1.0005	$1.0005^{+0.0064}_{-0.0067}$	$D_{40}$	1227.2	$1226^{+33}_{-33}$	$D_M(2.33)$	5757.3	$5765^{+43}_{-34}$
$A_{217}^{CIB}$	48.7	$48^{+20}_{-20}$	$D_{220}$	5716	$5720^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4607	$0.455^{+0.021}_{-0.025}$
$\xi^{tSZ \times CIB}$	0.30	—	$D_{810}$	2537.4	$2536^{+36}_{-36}$	$\sigma_8(0.15)$	0.7601	$0.748^{+0.026}_{-0.043}$
$A_{143}^{tSZ}$	7.0	—	$D_{1420}$	815.9	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4799	$0.474^{+0.019}_{-0.024}$
$A_{100}^{PS}$	254	$262^{+70}_{-70}$	$D_{2000}$	230.27	$230.0^{+4.7}_{-4.6}$	$\sigma_8(0.38)$	0.6739	$0.663^{+0.022}_{-0.039}$
$A_{143}^{PS}$	48.7	$48^{+20}_{-20}$	$n_{s,0.002}$	0.9659	$0.966^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	0.4788	$0.472^{+0.018}_{-0.024}$
$A_{143 \times 217}^{PS}$	46.0	$43^{+20}_{-20}$	$Y_P$	0.245327	$0.24533^{+0.00019}_{-0.00024}$	$\sigma_8(0.51)$	0.6307	$0.620^{+0.021}_{-0.037}$
$A_{217}^{PS}$	118.9	$115^{+30}_{-30}$	$Y_P^{BBN}$	0.246653	$0.24666^{+0.00019}_{-0.00024}$	$f\sigma_8(0.61)$	0.4739	$0.468^{+0.017}_{-0.024}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.618	$2.614^{+0.096}_{-0.089}$	$\sigma_8(0.61)$	0.6002	$0.590^{+0.020}_{-0.035}$
$A_{100}^{dustTT}$	8.85	$9.0^{+4.8}_{-4.8}$	Age/Gyr	13.784	$13.80^{+0.10}_{-0.077}$	$f\sigma_8(2.33)$	0.3018	$0.2977^{+0.0094}_{-0.016}$
$A_{143}^{dustTT}$	10.83	$10.7^{+4.6}_{-4.6}$	$z_*$	1090.10	$1090.02^{+0.75}_{-0.74}$	$\sigma_8(2.33)$	0.3117	$0.307^{+0.010}_{-0.018}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.3^{+8.3}_{-8.4}$	$r_*$	144.66	$144.80^{+0.89}_{-0.82}$	$f_{2000}^{143}$	30.1	$31^{+8}_{-8}$
$A_{217}^{dustTT}$	94.6	$93^{+20}_{-20}$	$100\theta_*$	1.04112	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+5}_{-5}$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.894	$13.907^{+0.083}_{-0.078}$	$f_{2000}^{217}$	107.49	$107.8^{+4.8}_{-4.9}$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.51	$1059.5^{+1.1}_{-1.1}$	$\chi_{small}^2$	395.9	$397.0 (\nu: 1.7)$
$H_0$	67.85	$67.7^{+1.4}_{-1.6}$	$r_{drag}$	147.38	$147.52^{+0.95}_{-0.87}$	$\chi_{lowl}^2$	23.25	$23.11 (\nu: 0.4)$
$\Omega_\Lambda$	0.6918	$0.690^{+0.018}_{-0.021}$	$k_D$	0.14043	$0.1403^{+0.0011}_{-0.0012}$	$\chi_{plik}^2$	758.6	$772.0 (\nu: 15.4)$
$\Omega_m$	0.3082	$0.310^{+0.021}_{-0.018}$	$100\theta_D$	0.16101	$0.16101^{+0.00068}_{-0.00065}$	$\chi_{6DF}^2$	0.010	$0.059 (\nu: 0.0)$
$\Omega_m h^2$	0.14189	$0.1419^{+0.0031}_{-0.0030}$	$z_{eq}$	3390	$3375^{+77}_{-80}$	$\chi_{MGS}^2$	1.41	$1.39 (\nu: 0.1)$
$\Omega_\nu h^2$	0.00003	< 0.00226	$k_{eq}$	0.010346	$0.01030^{+0.00023}_{-0.00024}$	$\chi_{DR12BAO}^2$	3.90	$4.7 (\nu: 1.4)$
$\Omega_m h^3$	0.09627	$0.0960^{+0.0012}_{-0.0015}$	$100\theta_{eq}$	0.8150	$0.818^{+0.015}_{-0.014}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.9)$
$\sigma_8$	0.8223	$0.809^{+0.028}_{-0.047}$	$100\theta_{s,eq}$	0.4504	$0.4519^{+0.0077}_{-0.0072}$	$\chi_{BAO}^2$	5.32	$6.2 (\nu: 1.0)$
$S_8$	0.8335	$0.822^{+0.042}_{-0.048}$	$H(0.15)$	73.10	$72.9^{+1.2}_{-1.4}$	$\chi_{CMB}^2$	1177.7	$1192.1 (\nu: 15.4)$
$\sigma_8 \Omega_m^{0.5}$	0.4565	$0.450^{+0.023}_{-0.026}$	$D_M(0.15)$	639.2	$641^{+14}_{-12}$			

Best-fit  $\chi_{eff}^2 = 1184.39$ ;  $\bar{\chi}_{eff}^2 = 1205.62$ ;  $R - 1 = 0.00712$

$\chi_{eff}^2$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.90 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2.29: 23.25 plik\_rd12\_HM\_v22.TT: 758.61



## 6.40 base\_mnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022194	$0.02223^{+0.00048}_{-0.00048}$	$\sigma_8 \Omega_m^{0.25}$	0.6118	$0.603^{+0.024}_{-0.035}$	$H(0.38)$	83.18	$83.06^{+0.89}_{-1.0}$
$\Omega_c h^2$	0.11950	$0.1189^{+0.0032}_{-0.0034}$	$\sigma_8/h^{0.5}$	0.9971	$0.983^{+0.036}_{-0.054}$	$D_M(0.38)$	1524.4	$1527^{+26}_{-23}$
$100\theta_{MC}$	1.04096	$1.0410^{+0.0011}_{-0.0011}$	$r_{drag}h$	100.11	$99.98^{+2.2}_{-2.4}$	$H(0.51)$	89.86	$89.75^{+0.75}_{-0.86}$
$\tau$	0.0529	$0.054^{+0.023}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.443	$2.426^{+0.074}_{-0.081}$	$D_M(0.51)$	1975.3	$1979^{+31}_{-27}$
$\Sigma m_\nu$ [eV]	0.001	< 0.202	$z_{re}$	7.56	$7.6^{+2.3}_{-2.3}$	$H(0.61)$	95.45	$95.34^{+0.66}_{-0.77}$
$\ln(10^{10} A_s)$	3.0395	$3.039^{+0.048}_{-0.044}$	$10^9 A_s$	2.090	$2.09^{+0.10}_{-0.089}$	$D_M(0.61)$	2299.1	$2303^{+34}_{-29}$
$n_s$	0.9660	$0.967^{+0.011}_{-0.010}$	$10^9 A_s e^{-2\tau}$	1.8797	$1.877^{+0.029}_{-0.030}$	$H(2.33)$	235.73	$235.7^{+1.9}_{-1.9}$
$y_{cal}$	1.0003	$1.0005^{+0.0064}_{-0.0067}$	$D_{40}$	1226.2	$1225^{+32}_{-33}$	$D_M(2.33)$	5757.1	$5763^{+40}_{-32}$
$A_{217}^{CIB}$	49.0	$48^{+20}_{-20}$	$D_{220}$	5713	$5720^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4597	$0.454^{+0.021}_{-0.025}$
$\xi^{tSZ \times CIB}$	0.28	—	$D_{810}$	2535.9	$2535^{+36}_{-36}$	$\sigma_8(0.15)$	0.7595	$0.748^{+0.025}_{-0.043}$
$A_{143}^{tSZ}$	7.0	—	$D_{1420}$	815.4	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4791	$0.473^{+0.019}_{-0.025}$
$A_{100}^{PS}$	256	$262^{+70}_{-80}$	$D_{2000}$	230.08	$230.0^{+4.7}_{-4.5}$	$\sigma_8(0.38)$	0.6735	$0.663^{+0.022}_{-0.039}$
$A_{143}^{PS}$	48.6	$48^{+20}_{-20}$	$n_{s,0.002}$	0.9660	$0.967^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	0.4781	$0.472^{+0.017}_{-0.025}$
$A_{143 \times 217}^{PS}$	45.5	$43^{+20}_{-20}$	$Y_P$	0.245323	$0.24534^{+0.00018}_{-0.00022}$	$\sigma_8(0.51)$	0.6304	$0.621^{+0.021}_{-0.036}$
$A_{217}^{PS}$	118.5	$115^{+30}_{-30}$	$Y_P^{BBN}$	0.246650	$0.24666^{+0.00018}_{-0.00022}$	$f\sigma_8(0.61)$	0.4733	$0.467^{+0.017}_{-0.024}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.619	$2.612^{+0.092}_{-0.087}$	$\sigma_8(0.61)$	0.5999	$0.591^{+0.020}_{-0.035}$
$A_{100}^{dustTT}$	8.87	$9.0^{+5.0}_{-4.8}$	Age/Gyr	13.784	$13.798^{+0.093}_{-0.075}$	$f\sigma_8(2.33)$	0.3017	$0.2980^{+0.0094}_{-0.015}$
$A_{143}^{dustTT}$	10.81	$10.7^{+4.7}_{-4.8}$	$z_*$	1090.09	$1089.99^{+0.75}_{-0.72}$	$\sigma_8(2.33)$	0.3116	$0.307^{+0.010}_{-0.017}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.3^{+8.2}_{-8.4}$	$r_*$	144.70	$144.84^{+0.92}_{-0.80}$	$f_{2000}^{143}$	30.3	$31^{+8}_{-7}$
$A_{217}^{dustTT}$	94.5	$94^{+20}_{-20}$	$100\theta_*$	1.04113	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.1	$33^{+5}_{-5}$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.898	$13.910^{+0.085}_{-0.077}$	$f_{2000}^{217}$	107.54	$107.8^{+4.9}_{-4.9}$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0017}$	$z_{drag}$	1059.47	$1059.5^{+1.1}_{-1.1}$	$\chi_{small}^2$	395.9	$397.0 (\nu: 1.7)$
$H_0$	67.90	$67.8^{+1.3}_{-1.5}$	$r_{drag}$	147.43	$147.55^{+0.98}_{-0.85}$	$\chi_{lowl}^2$	23.21	$23.05 (\nu: 0.4)$
$\Omega_\Lambda$	0.6927	$0.691^{+0.017}_{-0.019}$	$k_D$	0.14037	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{plik}^2$	758.7	$772.1 (\nu: 15.4)$
$\Omega_m$	0.3073	$0.309^{+0.019}_{-0.017}$	$100\theta_D$	0.16103	$0.16101^{+0.00065}_{-0.00062}$	$\chi_{JLA}^2$	1034.88	$1035.03 (\nu: 0.1)$
$\Omega_m h^2$	0.14171	$0.1417^{+0.0030}_{-0.0029}$	$z_{eq}$	3386	$3372^{+74}_{-82}$	$\chi_{6DF}^2$	0.006	$0.047 (\nu: 0.0)$
$\Omega_\nu h^2$	0.00001	< 0.00218	$k_{eq}$	0.010335	$0.01029^{+0.00023}_{-0.00025}$	$\chi_{MGS}^2$	1.47	$1.47 (\nu: 0.1)$
$\Omega_m h^3$	0.09623	$0.0960^{+0.0012}_{-0.0015}$	$100\theta_{eq}$	0.8157	$0.818^{+0.015}_{-0.014}$	$\chi_{DR12BAO}^2$	3.77	$4.5 (\nu: 1.0)$
$\sigma_8$	0.8217	$0.809^{+0.027}_{-0.047}$	$100\theta_{s,eq}$	0.4507	$0.4522^{+0.0080}_{-0.0071}$	$\chi_{prior}^2$	1.4	$7.4 (\nu: 7.0)$
$S_8$	0.8317	$0.821^{+0.041}_{-0.049}$	$H(0.15)$	73.14	$73.0^{+1.2}_{-1.3}$	$\chi_{BAO}^2$	5.25	$6.0 (\nu: 0.6)$
$\sigma_8 \Omega_m^{0.5}$	0.4555	$0.449^{+0.022}_{-0.027}$	$D_M(0.15)$	638.8	$640^{+13}_{-11}$	$\chi_{CMB}^2$	1177.8	$1192.2 (\nu: 15.3)$

Best-fit  $\chi_{eff}^2 = 2219.29$ ;  $\bar{\chi}_{eff}^2 = 2240.54$ ;  $R - 1 = 0.00739$

$\chi_{eff}^2$ : BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 3.77 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.88 commander\_dx12\_v3.2.29: 23.21 plik\_rd12\_HM\_v22.TT: 758.69  
SN - JLA Pantheon18: 1034.88



# 6.41 base\_mnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02222^{+0.00049}_{-0.00050}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.024}_{-0.034}$	$H(0.38)$	$83.01^{+0.94}_{-1.1}$
$\Omega_{\mathrm{c}} h^2$	$0.1190^{+0.0033}_{-0.0033}$	$\sigma_8/h^{0.5}$	$0.984^{+0.036}_{-0.054}$	$D_{\mathrm{M}}(0.38)$	$1529^{+28}_{-24}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	$99.8^{+2.4}_{-2.5}$	$H(0.51)$	$89.70^{+0.79}_{-0.95}$
$\tau$	$0.055^{+0.020}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.073}_{-0.078}$	$D_{\mathrm{M}}(0.51)$	$1981^{+33}_{-28}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.210$	$z_{\mathrm{re}}$	$< 9.58$	$H(0.61)$	$95.30^{+0.68}_{-0.83}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.047}_{-0.031}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.10}_{-0.063}$	$D_{\mathrm{M}}(0.61)$	$2305^{+36}_{-31}$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.011}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.029}_{-0.030}$	$H(2.33)$	$235.8^{+2.0}_{-2.0}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0067}$	$D_{40}$	$1226^{+33}_{-33}$	$D_{\mathrm{M}}(2.33)$	$5765^{+43}_{-34}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5719^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.455^{+0.021}_{-0.025}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2535^{+36}_{-36}$	$\sigma_8(0.15)$	$0.748^{+0.025}_{-0.043}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.019}_{-0.024}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$D_{2000}$	$230.0^{+4.7}_{-4.6}$	$\sigma_8(0.38)$	$0.663^{+0.022}_{-0.038}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.967^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	$0.473^{+0.018}_{-0.024}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24533^{+0.00019}_{-0.00024}$	$\sigma_8(0.51)$	$0.621^{+0.020}_{-0.036}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00019}_{-0.00024}$	$f\sigma_8(0.61)$	$0.468^{+0.017}_{-0.024}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.614^{+0.096}_{-0.089}$	$\sigma_8(0.61)$	$0.591^{+0.020}_{-0.034}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.8}_{-4.8}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.80^{+0.10}_{-0.077}$	$f\sigma_8(2.33)$	$0.2981^{+0.0092}_{-0.015}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.6}_{-4.6}$	$z_*$	$1090.02^{+0.76}_{-0.75}$	$\sigma_8(2.33)$	$0.307^{+0.010}_{-0.017}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.3}_{-8.4}$	$r_*$	$144.81^{+0.90}_{-0.81}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.908^{+0.083}_{-0.078}$	$f_{2000}^{217}$	$107.8^{+4.9}_{-4.9}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.7)$
$H_0$	$67.7^{+1.4}_{-1.6}$	$r_{\mathrm{drag}}$	$147.53^{+0.96}_{-0.86}$	$\chi_{\mathrm{lowl}}^2$	$23.13 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.690^{+0.018}_{-0.021}$	$k_{\mathrm{D}}$	$0.1403^{+0.0011}_{-0.0012}$	$\chi_{\mathrm{plik}}^2$	$771.8 (\nu: 15.1)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.021}_{-0.018}$	$100\theta_{\mathrm{D}}$	$0.16101^{+0.00068}_{-0.00065}$	$\chi_{6\mathrm{DF}}^2$	$0.058 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1419^{+0.0030}_{-0.0030}$	$z_{\mathrm{eq}}$	$3375^{+76}_{-80}$	$\chi_{\mathrm{MGS}}^2$	$1.39 (\nu: 0.2)$
$\Omega_{\nu} h^2$	$< 0.00226$	$k_{\mathrm{eq}}$	$0.01030^{+0.00023}_{-0.00024}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.4)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0012}_{-0.0015}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.015}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$\sigma_8$	$0.810^{+0.028}_{-0.047}$	$100\theta_{\mathrm{s,eq}}$	$0.4519^{+0.0077}_{-0.0072}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.9)$
$S_8$	$0.823^{+0.041}_{-0.048}$	$H(0.15)$	$72.9^{+1.2}_{-1.4}$	$\chi_{\mathrm{CMB}}^2$	$1191.9 (\nu: 15.0)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.023}_{-0.027}$	$D_{\mathrm{M}}(0.15)$	$641^{+14}_{-12}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1205.36; R - 1 = 0.00940$



## 6.42 base\_mnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02223^{+0.00048}_{-0.00047}$	$\sigma_8 \Omega_m^{0.25}$	$0.604^{+0.024}_{-0.035}$	$H(0.38)$	$83.06^{+0.90}_{-1.0}$
$\Omega_c h^2$	$0.1188^{+0.0032}_{-0.0033}$	$\sigma_8/h^{0.5}$	$0.984^{+0.036}_{-0.054}$	$D_M(0.38)$	$1527^{+26}_{-23}$
$100\theta_{MC}$	$1.0410^{+0.0011}_{-0.0011}$	$r_{drag}h$	$99.99^{+2.3}_{-2.4}$	$H(0.51)$	$89.75^{+0.75}_{-0.86}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.073}_{-0.079}$	$D_M(0.51)$	$1979^{+31}_{-27}$
$\Sigma m_\nu$ [eV]	$< 0.203$	$z_{re}$	$< 9.57$	$H(0.61)$	$95.34^{+0.66}_{-0.77}$
$\ln(10^{10} A_s)$	$3.042^{+0.046}_{-0.030}$	$10^9 A_s$	$2.095^{+0.099}_{-0.063}$	$D_M(0.61)$	$2303^{+34}_{-29}$
$n_s$	$0.967^{+0.010}_{-0.010}$	$10^9 A_s e^{-2\tau}$	$1.877^{+0.029}_{-0.030}$	$H(2.33)$	$235.6^{+1.9}_{-1.9}$
$y_{cal}$	$1.0005^{+0.0064}_{-0.0067}$	$D_{40}$	$1225^{+32}_{-33}$	$D_M(2.33)$	$5763^{+40}_{-33}$
$A_{217}^{CIB}$	$48^{+20}_{-20}$	$D_{220}$	$5720^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.455^{+0.021}_{-0.025}$
$\xi^{tSZ \times CIB}$	—	$D_{810}$	$2535^{+36}_{-36}$	$\sigma_8(0.15)$	$0.749^{+0.025}_{-0.043}$
$A_{143}^{tSZ}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.018}_{-0.025}$
$A_{100}^{PS}$	$262^{+70}_{-80}$	$D_{2000}$	$230.0^{+4.7}_{-4.5}$	$\sigma_8(0.38)$	$0.664^{+0.022}_{-0.038}$
$A_{143}^{PS}$	$48^{+20}_{-20}$	$n_{s,0.002}$	$0.967^{+0.010}_{-0.010}$	$f\sigma_8(0.51)$	$0.473^{+0.017}_{-0.024}$
$A_{143 \times 217}^{PS}$	$43^{+20}_{-20}$	$Y_P$	$0.24534^{+0.00018}_{-0.00022}$	$\sigma_8(0.51)$	$0.621^{+0.020}_{-0.036}$
$A_{217}^{PS}$	$115^{+30}_{-30}$	$Y_P^{BBN}$	$0.24666^{+0.00018}_{-0.00022}$	$f\sigma_8(0.61)$	$0.468^{+0.016}_{-0.024}$
$A^{kSZ}$	—	$10^5 D/H$	$2.612^{+0.091}_{-0.087}$	$\sigma_8(0.61)$	$0.591^{+0.019}_{-0.035}$
$A_{100}^{dustTT}$	$9.0^{+4.9}_{-4.8}$	Age/Gyr	$13.798^{+0.093}_{-0.076}$	$f\sigma_8(2.33)$	$0.2983^{+0.0092}_{-0.015}$
$A_{143}^{dustTT}$	$10.7^{+4.7}_{-4.8}$	$z_*$	$1089.99^{+0.74}_{-0.72}$	$\sigma_8(2.33)$	$0.3076^{+0.0099}_{-0.017}$
$A_{143 \times 217}^{dustTT}$	$18.4^{+8.2}_{-8.4}$	$r_*$	$144.84^{+0.92}_{-0.80}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{217}^{dustTT}$	$94^{+20}_{-20}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0017}$	$D_M(z_*)/\text{Gpc}$	$13.911^{+0.084}_{-0.077}$	$f_{2000}^{217}$	$107.8^{+4.9}_{-4.9}$
$c_{217}$	$0.9983^{+0.0017}_{-0.0017}$	$z_{drag}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{simall}^2$	$396.9 (\nu: 1.7)$
$H_0$	$67.8^{+1.3}_{-1.5}$	$r_{drag}$	$147.56^{+0.97}_{-0.85}$	$\chi_{lowl}^2$	$23.06 (\nu: 0.4)$
$\Omega_\Lambda$	$0.691^{+0.017}_{-0.019}$	$k_D$	$0.1403^{+0.0011}_{-0.0012}$	$\chi_{plik}^2$	$771.9 (\nu: 15.1)$
$\Omega_m$	$0.309^{+0.019}_{-0.017}$	$100\theta_D$	$0.16101^{+0.00065}_{-0.00063}$	$\chi_{JLA}^2$	$1035.03 (\nu: 0.1)$
$\Omega_m h^2$	$0.1417^{+0.0030}_{-0.0029}$	$z_{eq}$	$3371^{+73}_{-80}$	$\chi_{6DF}^2$	$0.046 (\nu: 0.0)$
$\Omega_\nu h^2$	$< 0.00219$	$k_{eq}$	$0.01029^{+0.00022}_{-0.00024}$	$\chi_{MGS}^2$	$1.48 (\nu: 0.1)$
$\Omega_m h^3$	$0.0960^{+0.0012}_{-0.0015}$	$100\theta_{eq}$	$0.819^{+0.015}_{-0.014}$	$\chi_{DR12BAO}^2$	$4.4 (\nu: 1.0)$
$\sigma_8$	$0.810^{+0.027}_{-0.047}$	$100\theta_{s,eq}$	$0.4523^{+0.0079}_{-0.0071}$	$\chi_{prior}^2$	$7.3 (\nu: 7.0)$
$S_8$	$0.821^{+0.041}_{-0.048}$	$H(0.15)$	$73.0^{+1.2}_{-1.3}$	$\chi_{BAO}^2$	$6.0 (\nu: 0.6)$
$\sigma_8 \Omega_m^{0.5}$	$0.450^{+0.022}_{-0.026}$	$D_M(0.15)$	$640^{+13}_{-11}$	$\chi_{CMB}^2$	$1191.9 (\nu: 14.9)$

$$\bar{\chi}_{\text{eff}}^2 = 2240.29; R - 1 = 0.00886$$



### 6.43 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022420	$0.02241^{+0.00036}_{-0.00034}$ (+1.0 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09670	$0.09648^{+0.00085}_{-0.0011}$ (+0.9 $\sigma$ )	$H(0.15)$	73.29	$73.0^{+1.1}_{-1.2}$ (+0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11968	$0.1195^{+0.0025}_{-0.0027}$ (+0.3 $\sigma$ )	$\sigma_8$	0.8236	$0.814^{+0.024}_{-0.038}$ (+0.4 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	637.4	$640^{+12}_{-11}$ (−0.2 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04100	$1.04100^{+0.00077}_{-0.00075}$ (+0.0 $\sigma$ )	$S_8$	0.8331	$0.828^{+0.034}_{-0.037}$ (+0.3 $\sigma$ )	$H(0.38)$	83.34	$83.13^{+0.81}_{-0.95}$ (+0.3 $\sigma$ )
$\tau$	0.0546	$0.055^{+0.021}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4563	$0.453^{+0.019}_{-0.020}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1521.4	$1526^{+25}_{-21}$ (−0.2 $\sigma$ )
$\Sigma m_{\nu}$ [eV]	0.001	< 0.173 (−0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6130	$0.607^{+0.020}_{-0.026}$ (+0.4 $\sigma$ )	$H(0.51)$	90.02	$89.84^{+0.67}_{-0.79}$ (+0.4 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0444	$3.045^{+0.043}_{-0.041}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9985	$0.989^{+0.031}_{-0.042}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1971.5	$1978^{+30}_{-25}$ (−0.3 $\sigma$ )
$n_{\mathrm{s}}$	0.9669	$0.9666^{+0.0098}_{-0.0096}$ (+0.0 $\sigma$ )	$r_{\mathrm{drag}}h$	100.11	$99.7^{+2.1}_{-2.3}$ (−0.1 $\sigma$ )	$H(0.61)$	95.61	$95.46^{+0.57}_{-0.69}$ (+0.5 $\sigma$ )
$y_{\mathrm{cal}}$	1.0004	$1.0008^{+0.0063}_{-0.0065}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.447	$2.439^{+0.069}_{-0.068}$ (+0.4 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2294.7	$2301^{+32}_{-27}$ (−0.3 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	46.5	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$z_{\mathrm{re}}$	7.69	$7.7^{+2.0}_{-2.1}$ (+0.1 $\sigma$ )	$H(2.33)$	236.08	$236.2^{+1.6}_{-1.6}$ (+0.5 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.57	—	$10^9 A_{\mathrm{s}}$	2.100	$2.101^{+0.092}_{-0.084}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5747.2	$5755^{+35}_{-27}$ (−0.7 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.12	$5.5^{+4.4}_{-4.6}$ (+0.2 $\sigma$ )	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8826	$1.882^{+0.028}_{-0.028}$ (+0.4 $\sigma$ )	$f\sigma_8(0.15)$	0.4605	$0.458^{+0.018}_{-0.019}$ (+0.3 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	248	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{40}$	1227.6	$1229^{+30}_{-30}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7614	$0.752^{+0.022}_{-0.036}$ (+0.4 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	49.1	$46^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{220}$	5732	$5737^{+95}_{-98}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4800	$0.477^{+0.016}_{-0.019}$ (+0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	50.7	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2540.2	$2540^{+34}_{-35}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6752	$0.667^{+0.020}_{-0.032}$ (+0.4 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	120.9	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{1420}$	818.2	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4791	$0.475^{+0.015}_{-0.019}$ (+0.4 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	231.43	$231.2^{+3.9}_{-4.0}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6320	$0.624^{+0.018}_{-0.030}$ (+0.4 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.78	$8.9^{+4.7}_{-4.8}$ (−0.0 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9669	$0.9666^{+0.0098}_{-0.0096}$ (+0.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4743	$0.470^{+0.014}_{-0.018}$ (+0.4 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.02	$10.9^{+4.5}_{-4.6}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.245415	$0.24541^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.6014	$0.594^{+0.018}_{-0.029}$ (+0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.9	$18.6^{+8.5}_{-8.6}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246742	$0.24674^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3024	$0.2994^{+0.0083}_{-0.013}$ (+0.4 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.1	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$10^5 \mathrm{D}/\mathrm{H}$	2.576	$2.579^{+0.065}_{-0.064}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3124	$0.3088^{+0.0090}_{-0.015}$ (+0.4 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.114^{+0.10}_{-0.096}$	Age/Gyr	13.760	$13.779^{+0.079}_{-0.062}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	28.5	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.134	$0.135^{+0.073}_{-0.075}$	$z_*$	1089.82	$1089.82^{+0.56}_{-0.58}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.83	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.481	$0.48^{+0.21}_{-0.22}$	$r_*$	144.48	$144.55^{+0.62}_{-0.60}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	106.42	$106.9^{+4.5}_{-4.6}$ (−0.5 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.226	$0.22^{+0.15}_{-0.14}$	$100\theta_*$	1.04116	$1.04118^{+0.00075}_{-0.00074}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.08	$397.1$ ( $\nu$ : 1.8) (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.667	$0.66^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.877	$13.883^{+0.060}_{-0.058}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.21	$23.25$ ( $\nu$ : 0.4) (+0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.08	$2.08^{+0.68}_{-0.68}$	$z_{\mathrm{drag}}$	1060.01	$1059.99^{+0.75}_{-0.74}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2343.8	$2359.3$ ( $\nu$ : 17.4) (+286.2 $\sigma$ )
$c_{100}$	0.99970	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}$	147.13	$147.20^{+0.65}_{-0.63}$ (−0.9 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.006	$0.051$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.14086	$0.14078^{+0.00076}_{-0.00077}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	1.47	$1.33$ ( $\nu$ : 0.1) (−0.1 $\sigma$ )
$H_0$	68.04	$67.8^{+1.3}_{-1.4}$ (+0.2 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.160716	$0.16074^{+0.00044}_{-0.00044}$ (−1.1 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	3.82	$4.7$ ( $\nu$ : 1.1) (−0.0 $\sigma$ )
$\Omega_{\Lambda}$	0.6931	$0.690^{+0.016}_{-0.019}$ (−0.0 $\sigma$ )	$z_{\mathrm{eq}}$	3396	$3390^{+58}_{-60}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.7	$11.6$ ( $\nu$ : 10.4) (+1.1 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3069	$0.310^{+0.019}_{-0.016}$ (+0.0 $\sigma$ )	$k_{\mathrm{eq}}$	0.010364	$0.01035^{+0.00018}_{-0.00018}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	5.30	$6.1$ ( $\nu$ : 0.7) (−0.1 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.14211	$0.1424^{+0.0025}_{-0.0025}$ (+0.4 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8146	$0.816^{+0.011}_{-0.011}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2763.1	$2779.7$ ( $\nu$ : 17.0) (+285.7 $\sigma$ )
$\Omega_{\nu}h^2$	0.00001	< 0.00186 (−0.2 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4500	$0.4506^{+0.0059}_{-0.0055}$ (−0.4 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2770.08$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.70$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2797.32$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.70$ ;  $R - 1 = 0.00869$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.01 ( $\Delta$  -0.00) MGS: 1.47 ( $\Delta$  0.07) DR12BAO: 3.82 ( $\Delta$  -0.09) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.08 ( $\Delta$  0.21) commander\_dx12\_v3\_2\_29: 23.21 ( $\Delta$  -0.05) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.84



# 6.44 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022432	$0.02242^{+0.00035}_{-0.00034}$ (+1.0 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09670	$0.09649^{+0.00086}_{-0.0011}$ (+0.9 $\sigma$ )	$H(0.15)$	73.34	$73.1^{+1.0}_{-1.2}$ (+0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11954	$0.1193^{+0.0025}_{-0.0026}$ (+0.4 $\sigma$ )	$\sigma_8$	0.8238	$0.814^{+0.024}_{-0.037}$ (+0.4 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	636.9	$639^{+11}_{-10}$ (−0.2 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04101	$1.04102^{+0.00076}_{-0.00073}$ (−0.0 $\sigma$ )	$S_8$	0.8321	$0.827^{+0.034}_{-0.037}$ (+0.4 $\sigma$ )	$H(0.38)$	83.38	$83.18^{+0.77}_{-0.89}$ (+0.3 $\sigma$ )
$\tau$	0.0554	$0.055^{+0.020}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4558	$0.453^{+0.018}_{-0.020}$ (+0.4 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1520.3	$1525^{+24}_{-20}$ (−0.2 $\sigma$ )
$\Sigma m_{\nu}$ [eV]	0.001	< 0.163 (−0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6128	$0.607^{+0.020}_{-0.025}$ (+0.4 $\sigma$ )	$H(0.51)$	90.05	$89.88^{+0.65}_{-0.75}$ (+0.4 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0457	$3.045^{+0.043}_{-0.040}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9982	$0.989^{+0.031}_{-0.041}$ (+0.4 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1970.3	$1976^{+28}_{-24}$ (−0.2 $\sigma$ )
$n_{\mathrm{s}}$	0.9676	$0.967^{+0.010}_{-0.0095}$ (+0.0 $\sigma$ )	$r_{\mathrm{drag}}h$	100.22	$99.9^{+2.0}_{-2.1}$ (−0.1 $\sigma$ )	$H(0.61)$	95.64	$95.49^{+0.55}_{-0.64}$ (+0.5 $\sigma$ )
$y_{\mathrm{cal}}$	1.0004	$1.0008^{+0.0063}_{-0.0066}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.446	$2.438^{+0.069}_{-0.068}$ (+0.4 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2293.4	$2300^{+30}_{-26}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	45.6	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$z_{\mathrm{re}}$	7.76	$7.7^{+2.0}_{-2.1}$ (+0.1 $\sigma$ )	$H(2.33)$	236.00	$236.1^{+1.5}_{-1.5}$ (+0.6 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.66	—	$10^9 A_{\mathrm{s}}$	2.102	$2.101^{+0.092}_{-0.083}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5746.3	$5754^{+32}_{-26}$ (−0.7 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.09	$5.5^{+4.5}_{-4.5}$ (+0.2 $\sigma$ )	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8819	$1.881^{+0.028}_{-0.028}$ (+0.4 $\sigma$ )	$f\sigma_8(0.15)$	0.4601	$0.457^{+0.017}_{-0.019}$ (+0.4 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	247	$257^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{40}$	1226.1	$1228^{+30}_{-30}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7616	$0.753^{+0.022}_{-0.034}$ (+0.4 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	50.1	$45^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{220}$	5731	$5737^{+95}_{-99}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4798	$0.476^{+0.016}_{-0.018}$ (+0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	52.8	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2540.3	$2540^{+34}_{-35}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6755	$0.667^{+0.019}_{-0.031}$ (+0.4 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	122.0	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{1420}$	818.6	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4789	$0.475^{+0.015}_{-0.018}$ (+0.4 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	231.58	$231.2^{+4.0}_{-4.0}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6323	$0.625^{+0.018}_{-0.029}$ (+0.4 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.81	$8.9^{+4.8}_{-4.8}$ (−0.0 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9676	$0.967^{+0.010}_{-0.0095}$ (+0.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4743	$0.470^{+0.014}_{-0.018}$ (+0.4 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.05	$10.9^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.245420	$0.24541^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.6017	$0.594^{+0.017}_{-0.028}$ (+0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.2	$18.6^{+8.6}_{-8.4}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246746	$0.24674^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3026	$0.2996^{+0.0081}_{-0.012}$ (+0.4 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.5	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$10^5 \mathrm{D}/\mathrm{H}$	2.574	$2.577^{+0.064}_{-0.063}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3127	$0.3091^{+0.0087}_{-0.014}$ (+0.4 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.115	$0.115^{+0.099}_{-0.094}$	Age/Gyr	13.758	$13.776^{+0.074}_{-0.060}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	28.3	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.134	$0.135^{+0.073}_{-0.076}$	$z_*$	1089.80	$1089.80^{+0.57}_{-0.57}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.63	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$r_*$	144.51	$144.57^{+0.62}_{-0.59}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	106.22	$106.8^{+4.5}_{-4.7}$ (−0.5 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.224	$0.22^{+0.15}_{-0.14}$	$100\theta_*$	1.04116	$1.04119^{+0.00075}_{-0.00073}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.22	$397.2$ ( $\nu$ : 1.9) (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.665	$0.66^{+0.20}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.880	$13.885^{+0.059}_{-0.057}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.08	$23.20$ ( $\nu$ : 0.3) (+0.2 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.08	$2.08^{+0.66}_{-0.69}$	$z_{\mathrm{drag}}$	1060.05	$1060.00^{+0.74}_{-0.75}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2344.0	$2359.3$ ( $\nu$ : 17.4) (+286.3 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}$	147.15	$147.22^{+0.64}_{-0.62}$ (−1.0 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	1034.84	$1035.02$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.14085	$0.14077^{+0.00076}_{-0.00077}$ (+1.1 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.003	$0.042$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$H_0$	68.11	$67.8^{+1.2}_{-1.3}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.160704	$0.16073^{+0.00044}_{-0.00044}$ (−1.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	1.54	$1.39$ ( $\nu$ : 0.1) (−0.1 $\sigma$ )
$\Omega_{\Lambda}$	0.6939	$0.691^{+0.016}_{-0.017}$ (−0.1 $\sigma$ )	$z_{\mathrm{eq}}$	3393	$3388^{+56}_{-60}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	3.71	$4.5$ ( $\nu$ : 0.8) (+0.0 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3061	$0.309^{+0.017}_{-0.016}$ (+0.1 $\sigma$ )	$k_{\mathrm{eq}}$	0.010354	$0.01034^{+0.00017}_{-0.00018}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.6	$11.5$ ( $\nu$ : 10.6) (+1.1 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.14198	$0.1423^{+0.0024}_{-0.0024}$ (+0.5 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8152	$0.816^{+0.011}_{-0.010}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	5.25	$5.93$ ( $\nu$ : 0.5) (−0.0 $\sigma$ )
$\Omega_{\nu}h^2$	0.00001	< 0.00175 (−0.2 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4503	$0.4508^{+0.0058}_{-0.0053}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2763.3	$2779.7$ ( $\nu$ : 17.0) (+286.6 $\sigma$ )

Best-fit  $\chi_{\mathrm{eff}}^2 = 3804.95$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.66$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 3832.15$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.61$ ;  $R - 1 = 0.01154$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.00 ( $\Delta$  -0.00) MGS: 1.54 ( $\Delta$  0.07) DR12BAO: 3.71 ( $\Delta$  -0.06) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.22 ( $\Delta$  0.34) commander\_dx12\_v3\_2\_29: 23.08 ( $\Delta$  -0.13) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.99 SN - JLA Pantheon18: 1034.84 ( $\Delta$  -0.04)



# 6.45 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02241^{+0.00036}_{-0.00034} \quad (+1.0\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09648^{+0.00085}_{-0.0011} \quad (+0.9\sigma)$	$H(0.15)$	$73.0^{+1.1}_{-1.2} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1194^{+0.0025}_{-0.0026} \quad (+0.3\sigma)$	$\sigma_8$	$0.815^{+0.024}_{-0.039} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+12}_{-10} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04101^{+0.00077}_{-0.00075} \quad (+0.0\sigma)$	$S_8$	$0.828^{+0.034}_{-0.037} \quad (+0.3\sigma)$	$H(0.38)$	$83.14^{+0.81}_{-0.94} \quad (+0.3\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.454^{+0.019}_{-0.020} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1526^{+25}_{-21} \quad (-0.2\sigma)$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.175 \quad (-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.020}_{-0.026} \quad (+0.4\sigma)$	$H(0.51)$	$89.85^{+0.67}_{-0.79} \quad (+0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.041}_{-0.031} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.990^{+0.031}_{-0.042} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.51)$	$1977^{+29}_{-25} \quad (-0.3\sigma)$
$n_{\mathrm{s}}$	$0.9667^{+0.0098}_{-0.0096} \quad (+0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.8^{+2.1}_{-2.3} \quad (-0.1\sigma)$	$H(0.61)$	$95.46^{+0.57}_{-0.69} \quad (+0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0008^{+0.0063}_{-0.0065} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.067}_{-0.066} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	$2301^{+32}_{-27} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.56 \quad (+0.1\sigma)$	$H(2.33)$	$236.2^{+1.6}_{-1.6} \quad (+0.5\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.104^{+0.088}_{-0.065} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5755^{+35}_{-27} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.4}_{-4.6} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.028}_{-0.028} \quad (+0.4\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.019} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1229^{+30}_{-30} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.753^{+0.022}_{-0.036} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.3\sigma)$	$D_{220}$	$5737^{+95}_{-98} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.016}_{-0.019} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2540^{+34}_{-35} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.668^{+0.019}_{-0.033} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.476^{+0.015}_{-0.018} \quad (+0.4\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.2^{+3.9}_{-4.0} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.625^{+0.018}_{-0.031} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.8} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.9667^{+0.0098}_{-0.0096} \quad (+0.0\sigma)$	$f\sigma_8(0.61)$	$0.471^{+0.014}_{-0.018} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.5}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00014} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.595^{+0.017}_{-0.030} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.5}_{-8.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00013}_{-0.00014} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.2997^{+0.0081}_{-0.013} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.578^{+0.063}_{-0.064} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	$0.3091^{+0.0087}_{-0.015} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.10}_{-0.096}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.779^{+0.079}_{-0.062} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.073}_{-0.075}$	$z_*$	$1089.82^{+0.56}_{-0.57} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$144.55^{+0.62}_{-0.61} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.8^{+4.4}_{-4.6} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.04118^{+0.00076}_{-0.00074} \quad (-0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.9) \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.883^{+0.059}_{-0.058} \quad (-0.8\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.25 \quad (\nu: 0.4) \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.68}_{-0.68}$	$z_{\mathrm{drag}}$	$1059.99^{+0.75}_{-0.74} \quad (+1.1\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.1 \quad (\nu: 17.3) \quad (+288.6\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.20^{+0.65}_{-0.63} \quad (-0.9\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.051 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14078^{+0.00075}_{-0.00077} \quad (+1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.34 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$H_0$	$67.8^{+1.2}_{-1.4} \quad (+0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00044}_{-0.00044} \quad (-1.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 \quad (\nu: 1.1) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.016}_{-0.018} \quad (-0.0\sigma)$	$z_{\mathrm{eq}}$	$3390^{+58}_{-60} \quad (+0.5\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.4) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.018}_{-0.016} \quad (+0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01035^{+0.00018}_{-0.00018} \quad (+0.5\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.1 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1424^{+0.0025}_{-0.0025} \quad (+0.4\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.011}_{-0.011} \quad (-0.4\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2779.5 \quad (\nu: 16.8) \quad (+289.9\sigma)$
$\Omega_{\nu}h^2$	$< 0.00188 \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4506^{+0.0059}_{-0.0055} \quad (-0.4\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 2797.12$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.77$ ;  $R - 1 = 0.00800$



# 6.46 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02242^{+0.00035}_{-0.00034} \quad (+1.0\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09649^{+0.00084}_{-0.0011} \quad (+0.9\sigma)$	$H(0.15)$	$73.1^{+1.0}_{-1.2} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1193^{+0.0025}_{-0.0026} \quad (+0.4\sigma)$	$\sigma_8$	$0.815^{+0.024}_{-0.036} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$639^{+11}_{-9.9} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04102^{+0.00075}_{-0.00073} \quad (-0.0\sigma)$	$S_8$	$0.827^{+0.033}_{-0.036} \quad (+0.4\sigma)$	$H(0.38)$	$83.18^{+0.77}_{-0.88} \quad (+0.3\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.018}_{-0.020} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1525^{+23}_{-20} \quad (-0.2\sigma)$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.163 \quad (-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.020}_{-0.025} \quad (+0.4\sigma)$	$H(0.51)$	$89.88^{+0.65}_{-0.74} \quad (+0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.042}_{-0.032} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.990^{+0.030}_{-0.040} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1976^{+28}_{-24} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.9669^{+0.0099}_{-0.0095} \quad (+0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.9^{+2.0}_{-2.1} \quad (-0.1\sigma)$	$H(0.61)$	$95.49^{+0.54}_{-0.64} \quad (+0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0066} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.440^{+0.067}_{-0.067} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	$2300^{+30}_{-26} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.54 \quad (+0.1\sigma)$	$H(2.33)$	$236.1^{+1.5}_{-1.5} \quad (+0.6\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.105^{+0.090}_{-0.066} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5754^{+32}_{-26} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.4}_{-4.5} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.881^{+0.028}_{-0.029} \quad (+0.4\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.018} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1228^{+30}_{-30} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.753^{+0.022}_{-0.034} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5737^{+96}_{-99} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.015}_{-0.018} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2540^{+34}_{-35} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.668^{+0.019}_{-0.030} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.476^{+0.014}_{-0.018} \quad (+0.4\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.2^{+4.0}_{-4.0} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.625^{+0.018}_{-0.028} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.8} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.9669^{+0.0099}_{-0.0095} \quad (+0.0\sigma)$	$f\sigma_8(0.61)$	$0.471^{+0.014}_{-0.018} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.5}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00014} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.595^{+0.017}_{-0.027} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.7}_{-8.4} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00013}_{-0.00014} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.2999^{+0.0079}_{-0.012} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.577^{+0.064}_{-0.063} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	$0.3093^{+0.0085}_{-0.014} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.099}_{-0.093}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.776^{+0.074}_{-0.060} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.072}_{-0.076}$	$z_*$	$1089.80^{+0.55}_{-0.57} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-4} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$144.57^{+0.62}_{-0.59} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.8^{+4.4}_{-4.6} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.15}_{-0.14}$	$100\theta_*$	$1.04119^{+0.00075}_{-0.00073} \quad (-0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.9) \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.885^{+0.059}_{-0.057} \quad (-0.8\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.22 \quad (\nu: 0.4) \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.66}_{-0.69}$	$z_{\mathrm{drag}}$	$1060.00^{+0.73}_{-0.75} \quad (+1.1\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.1 \quad (\nu: 17.4) \quad (+288.4\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0015} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.22^{+0.63}_{-0.62} \quad (-1.0\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.02 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14077^{+0.00074}_{-0.00077} \quad (+1.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.041 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$H_0$	$67.8^{+1.2}_{-1.3} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16073^{+0.00044}_{-0.00043} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.40 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.691^{+0.015}_{-0.017} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3387^{+56}_{-59} \quad (+0.6\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 \quad (\nu: 0.8) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.017}_{-0.015} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01034^{+0.00017}_{-0.00018} \quad (+0.6\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.6) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1422^{+0.0024}_{-0.0024} \quad (+0.5\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.011}_{-0.010} \quad (-0.4\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.92 \quad (\nu: 0.5) \quad (-0.0\sigma)$
$\Omega_{\nu}h^2$	$< 0.00176 \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4509^{+0.0057}_{-0.0053} \quad (-0.5\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2779.5 \quad (\nu: 16.9) \quad (+290.6\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 3831.97; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.68; R - 1 = 0.01168$$



# 6.47 base\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}} h^2$	0.02222	$0.02222^{+0.00050}_{-0.00050}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4545	$0.450^{+0.023}_{-0.028}$	$D_{\text{M}}(0.15)$	638.1	$641^{+14}_{-13}$
$\Omega_{\text{c}} h^2$	0.11938	$0.1189^{+0.0032}_{-0.0036}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6109	$0.603^{+0.025}_{-0.036}$	$H(0.38)$	83.23	$83.02^{+0.99}_{-1.1}$
$100\theta_{\text{MC}}$	1.04101	$1.0411^{+0.0011}_{-0.0011}$	$\sigma_8/h^{0.5}$	0.9958	$0.982^{+0.037}_{-0.057}$	$D_{\text{M}}(0.38)$	1523.1	$1528^{+28}_{-26}$
$\tau$	0.0531	$0.054^{+0.022}_{-0.021}$	$r_{\text{drag}} h$	100.22	$99.9^{+2.5}_{-2.5}$	$H(0.51)$	89.90	$89.71^{+0.83}_{-0.92}$
$\Sigma m_{\nu} [\text{eV}]$	0.003	$< 0.220$	$\langle d^2 \rangle^{1/2}$	2.439	$2.424^{+0.075}_{-0.087}$	$D_{\text{M}}(0.51)$	1973.8	$1980^{+33}_{-30}$
$\ln(10^{10} A_{\text{s}})$	3.0387	$3.038^{+0.045}_{-0.045}$	$z_{\text{re}}$	7.57	$7.6^{+2.1}_{-2.3}$	$H(0.61)$	95.49	$95.31^{+0.71}_{-0.82}$
$n_{\text{s}}$	0.9670	$0.967^{+0.012}_{-0.011}$	$10^9 A_{\text{s}}$	2.088	$2.088^{+0.096}_{-0.091}$	$D_{\text{M}}(0.61)$	2297.4	$2304^{+36}_{-33}$
$y_{\text{cal}}$	1.0005	$1.0005^{+0.0065}_{-0.0065}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8776	$1.875^{+0.030}_{-0.030}$	$H(2.33)$	235.69	$235.7^{+2.0}_{-2.0}$
$A_{100}^{\text{PS}}$	234	$242^{+60}_{-60}$	$D_{40}$	1223.0	$1222^{+34}_{-34}$	$D_{\text{M}}(2.33)$	5755.3	$5764^{+43}_{-35}$
$A_{143}^{\text{PS}}$	43.5	$40^{+20}_{-20}$	$D_{220}$	5707	$5709^{+110}_{-99}$	$f\sigma_8(0.15)$	0.4588	$0.454^{+0.021}_{-0.026}$
$A_{217}^{\text{PS}}$	101.9	$101^{+30}_{-30}$	$D_{810}$	2534.3	$2533^{+36}_{-36}$	$\sigma_8(0.15)$	0.7590	$0.747^{+0.026}_{-0.046}$
$A_{217}^{\text{CIB}}$	44.6	$41^{+20}_{-20}$	$D_{1420}$	815.3	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4784	$0.473^{+0.019}_{-0.026}$
$A_{143}^{\text{tSZ}}$	6.47	$< 8.73$	$D_{2000}$	230.14	$229.9^{+4.7}_{-4.6}$	$\sigma_8(0.38)$	0.6731	$0.662^{+0.022}_{-0.041}$
$r_{143 \times 217}^{\text{PS}}$	0.626	$0.65^{+0.32}_{-0.33}$	$n_{\text{s},0.002}$	0.9670	$0.967^{+0.012}_{-0.011}$	$f\sigma_8(0.51)$	0.4775	$0.472^{+0.018}_{-0.026}$
$r_{143 \times 217}^{\text{CIB}}$	0.84	—	$Y_{\text{P}}$	0.245333	$0.24533^{+0.00019}_{-0.00024}$	$\sigma_8(0.51)$	0.6301	$0.620^{+0.021}_{-0.038}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.29	—	$Y_{\text{P}}^{\text{BBN}}$	0.246659	$0.24666^{+0.00019}_{-0.00024}$	$f\sigma_8(0.61)$	0.4728	$0.467^{+0.017}_{-0.025}$
$A^{\text{kSZ}}$	0.3	—	$10^5 \text{D}/\text{H}$	2.615	$2.615^{+0.097}_{-0.091}$	$\sigma_8(0.61)$	0.5996	$0.590^{+0.020}_{-0.037}$
$A_{100}^{\text{dust}}$	1.01	$1.01^{+0.51}_{-0.50}$	$\text{Age}/\text{Gyr}$	13.779	$13.80^{+0.10}_{-0.080}$	$f\sigma_8(2.33)$	0.3016	$0.2976^{+0.0093}_{-0.016}$
$A_{143}^{\text{dust}}$	0.992	$0.98^{+0.45}_{-0.44}$	$z_*$	1090.06	$1090.02^{+0.77}_{-0.75}$	$\sigma_8(2.33)$	0.3116	$0.307^{+0.010}_{-0.018}$
$A_{217}^{\text{dust}}$	0.969	$0.97^{+0.27}_{-0.26}$	$r_*$	144.71	$144.83^{+0.89}_{-0.84}$	$f_{2000}^{143}$	30.5	$30^{+8}_{-8}$
$A_{143 \times 217}^{\text{dust}}$	0.996	$1.03^{+0.41}_{-0.41}$	$100\theta_*$	1.04118	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	107.1	$107.4^{+5.2}_{-5.1}$
$c_{100}$	0.99764	$0.9975^{+0.0027}_{-0.0027}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.899	$13.909^{+0.083}_{-0.080}$	$f_{2000}^{143 \times 217}$	32.5	$33^{+5}_{-5}$
$c_{217}$	1.00136	$1.0012^{+0.0041}_{-0.0040}$	$z_{\text{drag}}$	1059.51	$1059.5^{+1.1}_{-1.1}$	$\chi_{\text{simall}}^2$	395.87	$397.0 (\nu: 1.6)$
$H_0$	67.98	$67.7^{+1.5}_{-1.6}$	$r_{\text{drag}}$	147.43	$147.55^{+0.94}_{-0.91}$	$\chi_{\text{lowl}}^2$	22.93	$22.85 (\nu: 0.4)$
$\Omega_{\Lambda}$	0.6935	$0.690^{+0.019}_{-0.020}$	$k_{\text{D}}$	0.14038	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\text{CamSpec}}^2$	7050.5	$7063.9 (\nu: 15.9)$
$\Omega_{\text{m}}$	0.3065	$0.310^{+0.020}_{-0.019}$	$100\theta_{\text{D}}$	0.16101	$0.16103^{+0.00068}_{-0.00064}$	$\chi_{6\text{DF}}^2$	0.003	$0.054 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.14164	$0.1418^{+0.0030}_{-0.0030}$	$z_{\text{eq}}$	3384	$3373^{+75}_{-82}$	$\chi_{\text{MGS}}^2$	1.54	$1.42 (\nu: 0.1)$
$\Omega_{\nu} h^2$	0.00004	$< 0.00237$	$k_{\text{eq}}$	0.010327	$0.01029^{+0.00023}_{-0.00025}$	$\chi_{\text{DR12BAO}}^2$	3.66	$4.6 (\nu: 1.2)$
$\Omega_{\text{m}} h^3$	0.09628	$0.0960^{+0.0013}_{-0.0015}$	$100\theta_{\text{eq}}$	0.8162	$0.818^{+0.016}_{-0.014}$	$\chi_{\text{prior}}^2$	2.1	$7.6 (\nu: 6.0)$
$\sigma_8$	0.8210	$0.808^{+0.028}_{-0.050}$	$100\theta_{\text{s,eq}}$	0.4510	$0.4521^{+0.0082}_{-0.0071}$	$\chi_{\text{BAO}}^2$	5.21	$6.1 (\nu: 0.8)$
$S_8$	0.8299	$0.821^{+0.042}_{-0.051}$	$H(0.15)$	73.21	$73.0^{+1.3}_{-1.4}$	$\chi_{\text{CMB}}^2$	7469.3	$7483.8 (\nu: 15.6)$

Best-fit  $\chi_{\text{eff}}^2 = 7476.59$ ;  $\bar{\chi}_{\text{eff}}^2 = 7497.48$ ;  $R - 1 = 0.00749$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.54 DR12BAO: 3.66 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2.29: 22.93 CamSpec like\_10.7HM: 7050.52



# 6.48 base\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02220	$0.02223^{+0.00051}_{-0.00049}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6099	$0.602^{+0.024}_{-0.036}$	$D_{\mathrm{M}}(0.38)$	1523.3	$1527^{+26}_{-24}$
$\Omega_{\mathrm{c}} h^2$	0.11938	$0.1188^{+0.0031}_{-0.0036}$	$\sigma_8/h^{0.5}$	0.9942	$0.982^{+0.036}_{-0.057}$	$H(0.51)$	89.89	$89.75^{+0.79}_{-0.87}$
$100\theta_{\mathrm{MC}}$	1.04100	$1.0411^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	100.22	$100.0^{+2.4}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	1974.1	$1978^{+31}_{-29}$
$\tau$	0.0517	$0.054^{+0.023}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.436	$2.422^{+0.074}_{-0.089}$	$H(0.61)$	95.47	$95.35^{+0.68}_{-0.76}$
$\Sigma m_{\nu} [\mathrm{eV}]$	0.001	$< 0.214$	$z_{\mathrm{re}}$	7.43	$7.6^{+2.2}_{-2.3}$	$D_{\mathrm{M}}(0.61)$	2297.7	$2303^{+34}_{-31}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0354	$3.038^{+0.045}_{-0.043}$	$10^9 A_{\mathrm{s}}$	2.081	$2.088^{+0.096}_{-0.089}$	$H(2.33)$	235.66	$235.6^{+1.9}_{-1.9}$
$n_{\mathrm{s}}$	0.9662	$0.968^{+0.012}_{-0.011}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8765	$1.874^{+0.030}_{-0.031}$	$D_{\mathrm{M}}(2.33)$	5756.0	$5763^{+40}_{-34}$
$y_{\mathrm{cal}}$	1.0003	$1.0005^{+0.0065}_{-0.0066}$	$D_{40}$	1223.7	$1222^{+34}_{-33}$	$f\sigma_8(0.15)$	0.4581	$0.454^{+0.021}_{-0.026}$
$A_{100}^{\mathrm{PS}}$	237	$243^{+70}_{-60}$	$D_{220}$	5706	$5710^{+110}_{-100}$	$\sigma_8(0.15)$	0.7578	$0.747^{+0.025}_{-0.046}$
$A_{143}^{\mathrm{PS}}$	39.2	$40^{+20}_{-20}$	$D_{810}$	2532.5	$2533^{+36}_{-36}$	$f\sigma_8(0.38)$	0.4775	$0.473^{+0.019}_{-0.026}$
$A_{217}^{\mathrm{PS}}$	99.97	$101^{+30}_{-30}$	$D_{1420}$	814.4	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6720	$0.663^{+0.022}_{-0.041}$
$A_{217}^{\mathrm{CIB}}$	46.1	$41^{+20}_{-20}$	$D_{2000}$	229.76	$229.9^{+4.6}_{-4.6}$	$f\sigma_8(0.51)$	0.4766	$0.472^{+0.017}_{-0.026}$
$A_{143}^{\mathrm{tSZ}}$	6.64	$< 8.73$	$n_{\mathrm{s},0.002}$	0.9662	$0.968^{+0.012}_{-0.011}$	$\sigma_8(0.51)$	0.6290	$0.620^{+0.021}_{-0.038}$
$r_{143 \times 217}^{\mathrm{PS}}$	0.559	$0.65^{+0.32}_{-0.33}$	$Y_{\mathrm{P}}$	0.245326	$0.24534^{+0.00019}_{-0.00023}$	$f\sigma_8(0.61)$	0.4720	$0.467^{+0.016}_{-0.025}$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.81	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246652	$0.24666^{+0.00020}_{-0.00023}$	$\sigma_8(0.61)$	0.5986	$0.590^{+0.020}_{-0.036}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.00	—	$10^5 \mathrm{D}/\mathrm{H}$	2.618	$2.613^{+0.095}_{-0.092}$	$f\sigma_8(2.33)$	0.3010	$0.2977^{+0.0093}_{-0.016}$
$A^{\mathrm{kSZ}}$	0.2	—	$\mathrm{Age}/\mathrm{Gyr}$	13.781	$13.798^{+0.094}_{-0.078}$	$\sigma_8(2.33)$	0.3110	$0.307^{+0.010}_{-0.018}$
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.51}_{-0.50}$	$z_*$	1090.08	$1089.99^{+0.77}_{-0.75}$	$f_{2000}^{143}$	30.9	$30^{+8}_{-7}$
$A_{143}^{\mathrm{dust}}$	0.988	$0.98^{+0.44}_{-0.45}$	$r_*$	144.73	$144.86^{+0.87}_{-0.80}$	$f_{2000}^{217}$	107.4	$107.3^{+5.1}_{-5.3}$
$A_{217}^{\mathrm{dust}}$	0.963	$0.97^{+0.26}_{-0.26}$	$100\theta_*$	1.04117	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	32.7	$33^{+6}_{-6}$
$A_{143 \times 217}^{\mathrm{dust}}$	0.996	$1.03^{+0.41}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.900	$13.911^{+0.081}_{-0.079}$	$\chi_{\mathrm{small}}^2$	395.76	$397.0 (\nu: 1.7)$
$c_{100}$	0.99759	$0.9975^{+0.0027}_{-0.0027}$	$z_{\mathrm{drag}}$	1059.47	$1059.5^{+1.2}_{-1.1}$	$\chi_{\mathrm{lowl}}^2$	23.01	$22.80 (\nu: 0.4)$
$c_{217}$	1.00140	$1.0012^{+0.0040}_{-0.0040}$	$r_{\mathrm{drag}}$	147.45	$147.57^{+0.93}_{-0.89}$	$\chi_{\mathrm{CamSpec}}^2$	7050.4	$7064.0 (\nu: 16.1)$
$H_0$	67.97	$67.8^{+1.4}_{-1.5}$	$k_{\mathrm{D}}$	0.14035	$0.1402^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{JLA}}^2$	1034.85	$1035.02 (\nu: 0.0)$
$\Omega_{\Lambda}$	0.6935	$0.692^{+0.018}_{-0.019}$	$100\theta_{\mathrm{D}}$	0.16103	$0.16102^{+0.00067}_{-0.00065}$	$\chi_{6\mathrm{DF}}^2$	0.003	$0.044 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	0.3065	$0.308^{+0.019}_{-0.018}$	$z_{\mathrm{eq}}$	3383	$3370^{+73}_{-81}$	$\chi_{\mathrm{MGS}}^2$	1.54	$1.49 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^2$	0.14159	$0.1417^{+0.0029}_{-0.0029}$	$k_{\mathrm{eq}}$	0.010326	$0.01029^{+0.00022}_{-0.00025}$	$\chi_{\mathrm{DR12BAO}}^2$	3.66	$4.4 (\nu: 0.8)$
$\Omega_{\nu} h^2$	0.00001	$< 0.00230$	$100\theta_{\mathrm{eq}}$	0.8162	$0.819^{+0.016}_{-0.013}$	$\chi_{\mathrm{prior}}^2$	2.2	$7.6 (\nu: 5.9)$
$\Omega_{\mathrm{m}} h^3$	0.09623	$0.0960^{+0.0013}_{-0.0015}$	$100\theta_{\mathrm{s,eq}}$	0.4510	$0.4524^{+0.0081}_{-0.0069}$	$\chi_{\mathrm{BAO}}^2$	5.21	$5.9 (\nu: 0.5)$
$\sigma_8$	0.8197	$0.808^{+0.028}_{-0.050}$	$H(0.15)$	73.20	$73.0^{+1.2}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	7469.2	$7483.8 (\nu: 15.7)$
$S_8$	0.8285	$0.819^{+0.040}_{-0.050}$	$D_{\mathrm{M}}(0.15)$	638.2	$640^{+13}_{-12}$			
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4538	$0.449^{+0.022}_{-0.027}$	$H(0.38)$	83.22	$83.07^{+0.95}_{-1.0}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 8511.39$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 8532.36$ ;  $R - 1 = 0.00853$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.54 DR12BAO: 3.66 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.76 commander\_dx12\_v3.2.29: 23.01 CamSpec like\_10.7HM: 7050.38  
SN - JLA Pantheon18: 1034.85



## 6.49 base\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02222^{+0.00050}_{-0.00050}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.023}_{-0.028}$	$D_{\mathrm{M}}(0.15)$	$641^{+14}_{-12}$
$\Omega_{\mathrm{c}} h^2$	$0.1189^{+0.0032}_{-0.0036}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.024}_{-0.036}$	$H(0.38)$	$83.03^{+0.99}_{-1.1}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$\sigma_8/h^{0.5}$	$0.983^{+0.036}_{-0.058}$	$D_{\mathrm{M}}(0.38)$	$1528^{+28}_{-25}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$r_{\mathrm{drag}} h$	$99.9^{+2.5}_{-2.5}$	$H(0.51)$	$89.72^{+0.82}_{-0.93}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.221$	$\langle d^2 \rangle^{1/2}$	$2.426^{+0.073}_{-0.083}$	$D_{\mathrm{M}}(0.51)$	$1980^{+34}_{-30}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.043}_{-0.030}$	$z_{\mathrm{re}}$	$< 9.54$	$H(0.61)$	$95.32^{+0.71}_{-0.82}$
$n_{\mathrm{s}}$	$0.968^{+0.012}_{-0.011}$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.093}_{-0.063}$	$D_{\mathrm{M}}(0.61)$	$2304^{+37}_{-33}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0065}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.875^{+0.030}_{-0.031}$	$H(2.33)$	$235.7^{+2.0}_{-2.0}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{40}$	$1222^{+35}_{-34}$	$D_{\mathrm{M}}(2.33)$	$5764^{+43}_{-35}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5709^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.455^{+0.021}_{-0.026}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{810}$	$2533^{+36}_{-36}$	$\sigma_8(0.15)$	$0.748^{+0.025}_{-0.046}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.473^{+0.019}_{-0.026}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.73$	$D_{2000}$	$229.9^{+4.7}_{-4.6}$	$\sigma_8(0.38)$	$0.663^{+0.022}_{-0.041}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.012}_{-0.011}$	$f\sigma_8(0.51)$	$0.472^{+0.017}_{-0.026}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24533^{+0.00019}_{-0.00024}$	$\sigma_8(0.51)$	$0.621^{+0.020}_{-0.039}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00019}_{-0.00024}$	$f\sigma_8(0.61)$	$0.468^{+0.016}_{-0.025}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.614^{+0.097}_{-0.091}$	$\sigma_8(0.61)$	$0.591^{+0.019}_{-0.037}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.80^{+0.10}_{-0.080}$	$f\sigma_8(2.33)$	$0.2979^{+0.0090}_{-0.016}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.44}$	$z_{*}$	$1090.01^{+0.78}_{-0.75}$	$\sigma_8(2.33)$	$0.307^{+0.010}_{-0.018}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$	$r_{*}$	$144.83^{+0.89}_{-0.83}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41}$	$100\theta_{*}$	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.3^{+5.2}_{-5.2}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.909^{+0.084}_{-0.079}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-6}$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.7)$
$H_0$	$67.7^{+1.5}_{-1.6}$	$r_{\mathrm{drag}}$	$147.55^{+0.94}_{-0.91}$	$\chi_{\mathrm{lowl}}^2$	$22.86 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.691^{+0.019}_{-0.020}$	$k_{\mathrm{D}}$	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.8 (\nu: 15.8)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.020}_{-0.019}$	$100\theta_{\mathrm{D}}$	$0.16102^{+0.00068}_{-0.00064}$	$\chi_{6\mathrm{DF}}^2$	$0.053 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1418^{+0.0030}_{-0.0030}$	$z_{\mathrm{eq}}$	$3372^{+75}_{-82}$	$\chi_{\mathrm{MGS}}^2$	$1.43 (\nu: 0.2)$
$\Omega_{\nu} h^2$	$< 0.00237$	$k_{\mathrm{eq}}$	$0.01029^{+0.00023}_{-0.00025}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 (\nu: 1.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0013}_{-0.0016}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.016}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 6.1)$
$\sigma_8$	$0.809^{+0.027}_{-0.050}$	$100\theta_{\mathrm{s,eq}}$	$0.4522^{+0.0083}_{-0.0071}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.8)$
$S_8$	$0.821^{+0.041}_{-0.051}$	$H(0.15)$	$73.0^{+1.3}_{-1.4}$	$\chi_{\mathrm{CMB}}^2$	$7483.6 (\nu: 15.3)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 7497.29; R - 1 = 0.00759$$



# 6.50 base\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02223^{+0.00050}_{-0.00049}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.024}_{-0.037}$	$D_{\mathrm{M}}(0.38)$	$1527^{+27}_{-24}$
$\Omega_{\mathrm{c}}h^2$	$0.1188^{+0.0032}_{-0.0037}$	$\sigma_8/h^{0.5}$	$0.983^{+0.035}_{-0.058}$	$H(0.51)$	$89.76^{+0.79}_{-0.87}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}}h$	$100.0^{+2.4}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	$1978^{+32}_{-29}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.072}_{-0.082}$	$H(0.61)$	$95.35^{+0.68}_{-0.77}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.215$	$z_{\mathrm{re}}$	$< 9.58$	$D_{\mathrm{M}}(0.61)$	$2302^{+34}_{-31}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.043}_{-0.031}$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.093}_{-0.063}$	$H(2.33)$	$235.6^{+1.9}_{-1.9}$
$n_{\mathrm{s}}$	$0.968^{+0.012}_{-0.011}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.874^{+0.030}_{-0.031}$	$D_{\mathrm{M}}(2.33)$	$5763^{+40}_{-34}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0066}$	$D_{40}$	$1222^{+34}_{-34}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.026}$
$A_{100}^{\mathrm{PS}}$	$242^{+70}_{-60}$	$D_{220}$	$5710^{+110}_{-100}$	$\sigma_8(0.15)$	$0.748^{+0.025}_{-0.046}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2533^{+36}_{-36}$	$f\sigma_8(0.38)$	$0.473^{+0.018}_{-0.027}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.663^{+0.022}_{-0.040}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$230.0^{+4.6}_{-4.6}$	$f\sigma_8(0.51)$	$0.472^{+0.017}_{-0.026}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.73$	$n_{\mathrm{s},0.002}$	$0.968^{+0.012}_{-0.011}$	$\sigma_8(0.51)$	$0.621^{+0.020}_{-0.038}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.32}$	$Y_{\mathrm{P}}$	$0.24534^{+0.00019}_{-0.00023}$	$f\sigma_8(0.61)$	$0.467^{+0.016}_{-0.025}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00019}_{-0.00023}$	$\sigma_8(0.61)$	$0.591^{+0.019}_{-0.036}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.612^{+0.094}_{-0.092}$	$f\sigma_8(2.33)$	$0.2981^{+0.0091}_{-0.016}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.797^{+0.095}_{-0.078}$	$\sigma_8(2.33)$	$0.307^{+0.010}_{-0.018}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50}$	$z_{*}$	$1089.98^{+0.78}_{-0.74}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.45}$	$r_{*}$	$144.86^{+0.87}_{-0.80}$	$f_{2000}^{217}$	$107.3^{+5.0}_{-5.3}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$	$100\theta_{*}$	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-5}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.912^{+0.081}_{-0.078}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.7)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.1}$	$\chi_{\mathrm{lowl}}^2$	$22.81 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.57^{+0.93}_{-0.89}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.9 (\nu: 16.0)$
$H_0$	$67.8^{+1.4}_{-1.5}$	$k_{\mathrm{D}}$	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{JLA}}^2$	$1035.02 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.692^{+0.018}_{-0.019}$	$100\theta_{\mathrm{D}}$	$0.16102^{+0.00067}_{-0.00066}$	$\chi_{6\mathrm{DF}}^2$	$0.044 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.308^{+0.019}_{-0.018}$	$z_{\mathrm{eq}}$	$3369^{+73}_{-82}$	$\chi_{\mathrm{MGS}}^2$	$1.50 (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^2$	$0.1416^{+0.0029}_{-0.0029}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00022}_{-0.00025}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 0.8)$
$\Omega_{\nu}h^2$	$< 0.00231$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.016}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.9)$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0013}_{-0.0015}$	$100\theta_{\mathrm{s,eq}}$	$0.4524^{+0.0082}_{-0.0069}$	$\chi_{\mathrm{BAO}}^2$	$5.9 (\nu: 0.5)$
$\sigma_8$	$0.809^{+0.027}_{-0.050}$	$H(0.15)$	$73.0^{+1.2}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$7483.6 (\nu: 15.5)$
$S_8$	$0.820^{+0.040}_{-0.051}$	$D_{\mathrm{M}}(0.15)$	$640^{+13}_{-12}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.022}_{-0.028}$	$H(0.38)$	$83.08^{+0.94}_{-1.0}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 8532.17$ ;  $R - 1 = 0.00943$



## 6.51 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022331	$0.02234^{+0.00039}_{-0.00038}$ $(+0.6\sigma)$	$S_8$	0.8271	$0.820^{+0.036}_{-0.041}$ $(-0.1\sigma)$	$D_M(0.15)$	637.1	$640^{+14}_{-11}$ $(-0.1\sigma)$
$\Omega_c h^2$	0.11924	$0.1189^{+0.0027}_{-0.0028}$ $(+0.0\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4530	$0.449^{+0.020}_{-0.022}$ $(-0.1\sigma)$	$H(0.38)$	83.33	$83.08^{+0.88}_{-1.1}$ $(+0.2\sigma)$
$100\theta_{MC}$	1.04096	$1.04095^{+0.00076}_{-0.00077}$ $(-0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6094	$0.602^{+0.023}_{-0.030}$ $(-0.1\sigma)$	$D_M(0.38)$	1520.8	$1527^{+28}_{-23}$ $(-0.1\sigma)$
$\tau$	0.0530	$0.053^{+0.022}_{-0.020}$ $(-0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9933	$0.981^{+0.035}_{-0.049}$ $(-0.1\sigma)$	$H(0.51)$	89.99	$89.77^{+0.72}_{-0.93}$ $(+0.2\sigma)$
$\Sigma m_\nu$ [eV]	0.005	$< 0.217$ $(+0.0\sigma)$	$r_{drag} h$	100.34	$99.9^{+2.2}_{-2.4}$ $(-0.0\sigma)$	$D_M(0.51)$	1971.1	$1979^{+33}_{-27}$ $(-0.1\sigma)$
$\ln(10^{10} A_s)$	3.0382	$3.038^{+0.044}_{-0.043}$ $(-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	2.435	$2.423^{+0.070}_{-0.073}$ $(-0.0\sigma)$	$H(0.61)$	95.57	$95.38^{+0.62}_{-0.81}$ $(+0.2\sigma)$
$n_s$	0.9673	$0.968^{+0.011}_{-0.0098}$ $(+0.0\sigma)$	$z_{re}$	7.54	$7.6^{+2.1}_{-2.1}$ $(-0.1\sigma)$	$D_M(0.61)$	2294.4	$2303^{+36}_{-29}$ $(-0.1\sigma)$
$y_{cal}$	1.0003	$1.0005^{+0.0066}_{-0.0064}$ $(-0.0\sigma)$	$10^9 A_s$	2.087	$2.087^{+0.095}_{-0.088}$ $(-0.0\sigma)$	$H(2.33)$	235.71	$235.8^{+1.6}_{-1.7}$ $(+0.1\sigma)$
$A_{100}^{PS}$	232	$239^{+60}_{-60}$ $(-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	1.8768	$1.876^{+0.029}_{-0.029}$ $(+0.1\sigma)$	$D_M(2.33)$	5750.8	$5761^{+41}_{-31}$ $(-0.2\sigma)$
$A_{143}^{PS}$	41.7	$39^{+20}_{-20}$ $(-0.2\sigma)$	$D_{40}$	1222.9	$1223^{+31}_{-32}$ $(+0.1\sigma)$	$f\sigma_8(0.15)$	0.4574	$0.454^{+0.019}_{-0.021}$ $(-0.1\sigma)$
$A_{217}^{PS}$	102.5	$103^{+30}_{-30}$ $(+0.1\sigma)$	$D_{220}$	5716	$5720^{+98}_{-100}$ $(+0.3\sigma)$	$\sigma_8(0.15)$	0.7579	$0.746^{+0.025}_{-0.043}$ $(-0.0\sigma)$
$A_{217}^{CIB}$	43.9	$39^{+20}_{-20}$ $(-0.2\sigma)$	$D_{810}$	2534.1	$2534^{+36}_{-35}$ $(+0.1\sigma)$	$f\sigma_8(0.38)$	0.4771	$0.473^{+0.017}_{-0.021}$ $(-0.1\sigma)$
$A_{143}^{tSZ}$	6.59	$< 8.79$ $(+0.1\sigma)$	$D_{1420}$	815.9	$816^{+13}_{-12}$ $(+0.2\sigma)$	$\sigma_8(0.38)$	0.6723	$0.662^{+0.022}_{-0.039}$ $(-0.0\sigma)$
$r_{143 \times 217}^{PS}$	0.630	$0.66^{+0.31}_{-0.33}$ $(+0.1\sigma)$	$D_{2000}$	230.49	$230.4^{+4.3}_{-4.2}$ $(+0.3\sigma)$	$f\sigma_8(0.51)$	0.4764	$0.471^{+0.017}_{-0.022}$ $(-0.1\sigma)$
$r_{143 \times 217}^{CIB}$	0.80	—	$n_{s,0.002}$	0.9673	$0.968^{+0.011}_{-0.0098}$ $(+0.0\sigma)$	$\sigma_8(0.51)$	0.6294	$0.619^{+0.020}_{-0.036}$ $(-0.0\sigma)$
$\xi^{tSZ \times CIB}$	0.26	—	$Y_P$	0.245380	$0.24538^{+0.00015}_{-0.00016}$ $(+0.6\sigma)$	$f\sigma_8(0.61)$	0.4718	$0.467^{+0.016}_{-0.022}$ $(-0.1\sigma)$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246706	$0.24671^{+0.00015}_{-0.00016}$ $(+0.6\sigma)$	$\sigma_8(0.61)$	0.5990	$0.589^{+0.020}_{-0.034}$ $(-0.0\sigma)$
$A_{100}^{dust}$	1.011	$1.01^{+0.49}_{-0.50}$ $(+0.0\sigma)$	$10^5 D/H$	2.593	$2.592^{+0.072}_{-0.071}$ $(-0.6\sigma)$	$f\sigma_8(2.33)$	0.3013	$0.2974^{+0.0092}_{-0.016}$ $(-0.0\sigma)$
$A_{143}^{dust}$	0.975	$0.96^{+0.45}_{-0.46}$ $(-0.1\sigma)$	Age/Gyr	13.769	$13.792^{+0.095}_{-0.069}$ $(-0.3\sigma)$	$\sigma_8(2.33)$	0.3114	$0.307^{+0.010}_{-0.018}$ $(-0.0\sigma)$
$A_{217}^{dust}$	0.973	$0.98^{+0.26}_{-0.26}$ $(+0.1\sigma)$	$z_*$	1089.90	$1089.87^{+0.60}_{-0.61}$ $(-0.5\sigma)$	$f_{2000}^{143}$	29.7	$30^{+7}_{-7}$ $(-0.3\sigma)$
$A_{143 \times 217}^{dust}$	1.006	$1.03^{+0.43}_{-0.42}$ $(-0.0\sigma)$	$r_*$	144.66	$144.74^{+0.70}_{-0.63}$ $(-0.3\sigma)$	$f_{2000}^{217}$	106.53	$106.8^{+4.9}_{-4.9}$ $(-0.3\sigma)$
$c_{100}$	0.99768	$0.9975^{+0.0027}_{-0.0027}$ $(+0.0\sigma)$	$100\theta_*$	1.04112	$1.04114^{+0.00076}_{-0.00077}$ $(-0.3\sigma)$	$f_{2000}^{143 \times 217}$	31.9	$32^{+5}_{-5}$ $(-0.3\sigma)$
$c_{217}$	1.00130	$1.0011^{+0.0040}_{-0.0040}$ $(-0.1\sigma)$	$D_M(z_*)/\text{Gpc}$	13.895	$13.902^{+0.067}_{-0.061}$ $(-0.2\sigma)$	$\chi_{small}^2$	395.85	$396.9 (\nu: 1.5)$ $(-0.0\sigma)$
$c_{TE}$	0.9964	$0.997^{+0.013}_{-0.012}$	$z_{drag}$	1059.78	$1059.78^{+0.88}_{-0.84}$ $(+0.6\sigma)$	$\chi_{lowl}^2$	22.91	$22.85 (\nu: 0.3)$ $(-0.0\sigma)$
$c_{EE}$	0.9921	$0.992^{+0.013}_{-0.013}$	$r_{drag}$	147.34	$147.41^{+0.73}_{-0.67}$ $(-0.4\sigma)$	$\chi_{CamSpec}^2$	11499.2	$11514.8 (\nu: 16.6)$ $(+788.2\sigma)$
$H_0$	68.10	$67.8^{+1.3}_{-1.5}$ $(+0.1\sigma)$	$k_D$	0.14057	$0.14050^{+0.00084}_{-0.00088}$ $(+0.5\sigma)$	$\chi_{6DF}^2$	0.001	$0.049 (\nu: 0.0)$ $(-0.1\sigma)$
$\Omega_\Lambda$	0.6946	$0.691^{+0.017}_{-0.019}$ $(+0.0\sigma)$	$100\theta_D$	0.160845	$0.16085^{+0.00049}_{-0.00050}$ $(-0.7\sigma)$	$\chi_{MGS}^2$	1.61	$1.41 (\nu: 0.1)$ $(-0.0\sigma)$
$\Omega_m$	0.3054	$0.309^{+0.019}_{-0.017}$ $(-0.0\sigma)$	$z_{eq}$	3383	$3376^{+61}_{-65}$ $(+0.1\sigma)$	$\chi_{DR12BAO}^2$	3.59	$4.6 (\nu: 1.1)$ $(-0.0\sigma)$
$\Omega_m h^2$	0.14162	$0.1419^{+0.0026}_{-0.0027}$ $(+0.1\sigma)$	$k_{eq}$	0.010325	$0.01030^{+0.00019}_{-0.00020}$ $(+0.1\sigma)$	$\chi_{prior}^2$	2.1	$7.8 (\nu: 5.9)$ $(+0.1\sigma)$
$\Omega_\nu h^2$	0.00005	$< 0.00233$ $(+0.0\sigma)$	$100\theta_{eq}$	0.8166	$0.818^{+0.012}_{-0.011}$ $(-0.1\sigma)$	$\chi_{BAO}^2$	5.20	$6.0 (\nu: 0.7)$ $(-0.0\sigma)$
$\Omega_m h^3$	0.09644	$0.09616^{+0.00099}_{-0.0013}$ $(+0.3\sigma)$	$100\theta_{s,eq}$	0.4511	$0.4518^{+0.0063}_{-0.0058}$ $(-0.1\sigma)$	$\chi_{CMB}^2$	11917.9	$11934.6 (\nu: 16.8)$ $(+797.2\sigma)$
$\sigma_8$	0.8197	$0.807^{+0.027}_{-0.045}$ $(-0.0\sigma)$	$H(0.15)$	73.32	$73.0^{+1.2}_{-1.4}$ $(+0.1\sigma)$			

Best-fit  $\chi_{eff}^2 = 11925.28$ ;  $\Delta\chi_{eff}^2 = 4448.69$ ;  $\bar{\chi}_{eff}^2 = 11948.38$ ;  $\Delta\bar{\chi}_{eff}^2 = 4450.90$ ;  $R - 1 = 0.01113$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  -0.00) MGS: 1.61 ( $\Delta$  0.07) DR12BAO: 3.59 ( $\Delta$  -0.07) CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 ( $\Delta$  -0.02) commander\_dx12\_v3\_2\_29: 22.91 ( $\Delta$  -0.01) CamSpec like\_10.7HM\_1400\_unified: 11499.17



## 6.52 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022328	$0.02234^{+0.00039}_{-0.00038}$ (+0.6 $\sigma$ )	$S_8$	0.8278	$0.819^{+0.035}_{-0.039}$ (−0.0 $\sigma$ )	$D_M(0.15)$	637.1	$639^{+13}_{-10}$ (−0.1 $\sigma$ )
$\Omega_c h^2$	0.11927	$0.1188^{+0.0026}_{-0.0028}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4534	$0.449^{+0.019}_{-0.022}$ (−0.0 $\sigma$ )	$H(0.38)$	83.33	$83.13^{+0.85}_{-1.0}$ (+0.2 $\sigma$ )
$100\theta_{MC}$	1.04097	$1.04096^{+0.00075}_{-0.00076}$ (−0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6099	$0.602^{+0.022}_{-0.030}$ (−0.0 $\sigma$ )	$D_M(0.38)$	1520.8	$1526^{+26}_{-22}$ (−0.1 $\sigma$ )
$\tau$	0.0533	$0.053^{+0.022}_{-0.020}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9943	$0.981^{+0.034}_{-0.048}$ (−0.0 $\sigma$ )	$H(0.51)$	89.99	$89.81^{+0.70}_{-0.87}$ (+0.2 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.001	< 0.208 (−0.0 $\sigma$ )	$r_{drag} h$	100.33	$100.0^{+2.1}_{-2.3}$ (−0.0 $\sigma$ )	$D_M(0.51)$	1971.0	$1977^{+31}_{-26}$ (−0.1 $\sigma$ )
$\ln(10^{10} A_s)$	3.0390	$3.038^{+0.044}_{-0.043}$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.437	$2.422^{+0.069}_{-0.072}$ (−0.0 $\sigma$ )	$H(0.61)$	95.57	$95.41^{+0.60}_{-0.76}$ (+0.2 $\sigma$ )
$n_s$	0.9673	$0.968^{+0.011}_{-0.0099}$ (+0.0 $\sigma$ )	$z_{re}$	7.56	$7.6^{+2.1}_{-2.2}$ (−0.1 $\sigma$ )	$D_M(0.61)$	2294.4	$2301^{+34}_{-28}$ (−0.1 $\sigma$ )
$y_{cal}$	1.0003	$1.0005^{+0.0065}_{-0.0063}$ (−0.0 $\sigma$ )	$10^9 A_s$	2.088	$2.087^{+0.095}_{-0.089}$ (−0.0 $\sigma$ )	$H(2.33)$	235.71	$235.8^{+1.6}_{-1.7}$ (+0.2 $\sigma$ )
$A_{100}^{PS}$	231	$239^{+60}_{-70}$ (−0.1 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8775	$1.875^{+0.029}_{-0.030}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5750.8	$5759^{+39}_{-29}$ (−0.3 $\sigma$ )
$A_{143}^{PS}$	46.2	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{40}$	1223.3	$1223^{+30}_{-31}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4578	$0.453^{+0.018}_{-0.020}$ (−0.0 $\sigma$ )
$A_{217}^{PS}$	103.8	$103^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{220}$	5717	$5721^{+96}_{-99}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7587	$0.747^{+0.024}_{-0.041}$ (−0.0 $\sigma$ )
$A_{217}^{CIB}$	43.2	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{810}$	2534.9	$2534^{+36}_{-36}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4775	$0.472^{+0.017}_{-0.021}$ (−0.0 $\sigma$ )
$A_{143}^{tSZ}$	6.53	< 8.73 (+0.1 $\sigma$ )	$D_{1420}$	816.1	$816^{+12}_{-12}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6730	$0.662^{+0.021}_{-0.036}$ (−0.0 $\sigma$ )
$r_{143 \times 217}^{PS}$	0.679	$0.66^{+0.31}_{-0.34}$ (+0.1 $\sigma$ )	$D_{2000}$	230.57	$230.4^{+4.2}_{-4.2}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4768	$0.471^{+0.016}_{-0.021}$ (−0.0 $\sigma$ )
$r_{143 \times 217}^{CIB}$	0.85	—	$n_{s,0.002}$	0.9673	$0.968^{+0.011}_{-0.0099}$ (+0.0 $\sigma$ )	$\sigma_8(0.51)$	0.6300	$0.620^{+0.020}_{-0.034}$ (−0.0 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.52	—	$Y_P$	0.245379	$0.24538^{+0.00015}_{-0.00016}$ (+0.6 $\sigma$ )	$f\sigma_8(0.61)$	0.4722	$0.467^{+0.016}_{-0.021}$ (−0.0 $\sigma$ )
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246705	$0.24671^{+0.00015}_{-0.00016}$ (+0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5995	$0.590^{+0.019}_{-0.033}$ (−0.0 $\sigma$ )
$A_{100}^{dust}$	1.01	$1.01^{+0.51}_{-0.51}$ (+0.0 $\sigma$ )	$10^5 D/H$	2.593	$2.591^{+0.073}_{-0.070}$ (−0.6 $\sigma$ )	$f\sigma_8(2.33)$	0.3016	$0.2977^{+0.0090}_{-0.014}$ (−0.0 $\sigma$ )
$A_{143}^{dust}$	0.983	$0.96^{+0.46}_{-0.48}$ (−0.1 $\sigma$ )	Age/Gyr	13.769	$13.789^{+0.090}_{-0.066}$ (−0.3 $\sigma$ )	$\sigma_8(2.33)$	0.3116	$0.3070^{+0.0098}_{-0.017}$ (−0.0 $\sigma$ )
$A_{217}^{dust}$	0.978	$0.98^{+0.27}_{-0.26}$ (+0.1 $\sigma$ )	$z_*$	1089.90	$1089.85^{+0.61}_{-0.60}$ (−0.5 $\sigma$ )	$f_{2000}^{143}$	29.8	$29^{+7}_{-7}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{dust}$	1.004	$1.03^{+0.42}_{-0.42}$ (−0.0 $\sigma$ )	$r_*$	144.66	$144.76^{+0.69}_{-0.63}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	106.51	$106.7^{+4.9}_{-5.0}$ (−0.3 $\sigma$ )
$c_{100}$	0.99774	$0.9975^{+0.0026}_{-0.0026}$ (+0.0 $\sigma$ )	$100\theta_*$	1.04112	$1.04115^{+0.00076}_{-0.00075}$ (−0.3 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.9	$32^{+5}_{-5}$ (−0.4 $\sigma$ )
$c_{217}$	1.00133	$1.0011^{+0.0039}_{-0.0040}$ (−0.1 $\sigma$ )	$D_M(z_*)/\text{Gpc}$	13.895	$13.903^{+0.067}_{-0.060}$ (−0.3 $\sigma$ )	$\chi_{simall}^2$	395.86	$397.0$ ( $\nu$ : 1.5) (−0.0 $\sigma$ )
$c_{TE}$	0.9964	$0.997^{+0.013}_{-0.012}$	$z_{drag}$	1059.78	$1059.79^{+0.87}_{-0.85}$ (+0.6 $\sigma$ )	$\chi_{lowl}^2$	22.93	$22.82$ ( $\nu$ : 0.3) (+0.0 $\sigma$ )
$c_{EE}$	0.9924	$0.992^{+0.013}_{-0.012}$	$r_{drag}$	147.34	$147.43^{+0.72}_{-0.66}$ (−0.4 $\sigma$ )	$\chi_{CamSpec}^2$	11499.3	$11514.7$ ( $\nu$ : 17.0) (+785.4 $\sigma$ )
$H_0$	68.10	$67.8^{+1.2}_{-1.5}$ (+0.1 $\sigma$ )	$k_D$	0.14057	$0.14049^{+0.00084}_{-0.00090}$ (+0.5 $\sigma$ )	$\chi_{JLA}^2$	1034.82	$1035.00$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$\Omega_\Lambda$	0.6946	$0.692^{+0.016}_{-0.019}$ (+0.0 $\sigma$ )	$100\theta_D$	0.160847	$0.16084^{+0.00050}_{-0.00049}$ (−0.7 $\sigma$ )	$\chi_{6DF}^2$	0.001	$0.040$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$\Omega_m$	0.3054	$0.308^{+0.019}_{-0.016}$ (−0.0 $\sigma$ )	$z_{eq}$	3384	$3374^{+60}_{-65}$ (+0.1 $\sigma$ )	$\chi_{MGS}^2$	1.61	$1.47$ ( $\nu$ : 0.1) (−0.0 $\sigma$ )
$\Omega_m h^2$	0.14160	$0.1418^{+0.0025}_{-0.0026}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010327	$0.01030^{+0.00018}_{-0.00020}$ (+0.1 $\sigma$ )	$\chi_{DR12BAO}^2$	3.60	$4.4$ ( $\nu$ : 0.8) (−0.0 $\sigma$ )
$\Omega_\nu h^2$	0.00001	< 0.00223 (−0.0 $\sigma$ )	$100\theta_{eq}$	0.8165	$0.818^{+0.012}_{-0.011}$ (−0.1 $\sigma$ )	$\chi_{prior}^2$	2.0	$7.8$ ( $\nu$ : 5.9) (+0.1 $\sigma$ )
$\Omega_m h^3$	0.09643	$0.09618^{+0.00097}_{-0.0013}$ (+0.3 $\sigma$ )	$100\theta_{s,eq}$	0.4511	$0.4521^{+0.0062}_{-0.0058}$ (−0.1 $\sigma$ )	$\chi_{BAO}^2$	5.21	$5.89$ ( $\nu$ : 0.5) (−0.0 $\sigma$ )
$\sigma_8$	0.8205	$0.808^{+0.027}_{-0.043}$ (−0.0 $\sigma$ )	$H(0.15)$	73.32	$73.1^{+1.1}_{-1.3}$ (+0.1 $\sigma$ )	$\chi_{CMB}^2$	11918.0	$11934.5$ ( $\nu$ : 17.2) (+794.3 $\sigma$ )

Best-fit  $\chi_{eff}^2 = 12960.09$ ;  $\Delta\chi_{eff}^2 = 4448.70$ ;  $\bar{\chi}_{eff}^2 = 12983.16$ ;  $\Delta\bar{\chi}_{eff}^2 = 4450.80$ ;  $R - 1 = 0.01385$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  -0.00) MGS: 1.61 ( $\Delta$  0.07) DR12BAO: 3.60 ( $\Delta$  -0.06) CMB - simall\_100x143\_offlike5\_EE\_Aplanck.B: 395.86 ( $\Delta$  0.10) commander\_dx12\_v3\_2\_29: 22.93 ( $\Delta$  -0.08) CamSpec like\_10.7HM\_1400\_unified: 11499.25 SN - JLA Pantheon18: 1034.82 ( $\Delta$  -0.03)



### 6.53 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02234^{+0.00039}_{-0.00038} \quad (+0.6\sigma)$	$S_8$	$0.820^{+0.035}_{-0.040} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+14}_{-11} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1189^{+0.0027}_{-0.0028} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.019}_{-0.022} \quad (-0.1\sigma)$	$H(0.38)$	$83.08^{+0.88}_{-1.1} \quad (+0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04096^{+0.00076}_{-0.00077} \quad (-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.023}_{-0.030} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1527^{+28}_{-23} \quad (-0.1\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.982^{+0.034}_{-0.049} \quad (-0.1\sigma)$	$H(0.51)$	$89.78^{+0.73}_{-0.92} \quad (+0.2\sigma)$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.218 \quad (+0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.9^{+2.2}_{-2.4} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1978^{+33}_{-27} \quad (-0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.042}_{-0.029} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.426^{+0.069}_{-0.072} \quad (-0.0\sigma)$	$H(0.61)$	$95.38^{+0.62}_{-0.81} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.011}_{-0.0099} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.49 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2302^{+36}_{-29} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0066}_{-0.0063} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.090}_{-0.061} \quad (+0.0\sigma)$	$H(2.33)$	$235.8^{+1.7}_{-1.7} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.876^{+0.029}_{-0.029} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5761^{+41}_{-31} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1223^{+31}_{-32} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.454^{+0.019}_{-0.021} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5720^{+98}_{-100} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.024}_{-0.042} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2534^{+36}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.473^{+0.017}_{-0.022} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.79 \quad (+0.1\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.021}_{-0.038} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$D_{2000}$	$230.4^{+4.2}_{-4.1} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.016}_{-0.022} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.968^{+0.011}_{-0.0099} \quad (+0.0\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.020}_{-0.036} \quad (-0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.016}_{-0.022} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.019}_{-0.035} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.49} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.592^{+0.073}_{-0.071} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.2977^{+0.0089}_{-0.015} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.46} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.792^{+0.095}_{-0.070} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.3070^{+0.0098}_{-0.018} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.26}_{-0.26} \quad (+0.0\sigma)$	$z_*$	$1089.86^{+0.60}_{-0.61} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42} \quad (-0.0\sigma)$	$r_*$	$144.74^{+0.70}_{-0.64} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$106.7^{+4.9}_{-4.9} \quad (-0.3\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.04115^{+0.00076}_{-0.00076} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.902^{+0.067}_{-0.061} \quad (-0.2\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.6) \quad (-0.0\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.012}$	$z_{\mathrm{drag}}$	$1059.79^{+0.87}_{-0.85} \quad (+0.6\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.86 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.42^{+0.72}_{-0.68} \quad (-0.4\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.6 \quad (\nu: 16.6) \quad (+791.0\sigma)$
$H_0$	$67.8^{+1.3}_{-1.6} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14050^{+0.00084}_{-0.00088} \quad (+0.5\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.048 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.691^{+0.017}_{-0.019} \quad (+0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00050}_{-0.00049} \quad (-0.7\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.42 \quad (\nu: 0.1) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.019}_{-0.017} \quad (-0.0\sigma)$	$z_{\mathrm{eq}}$	$3375^{+61}_{-65} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 1.1) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1419^{+0.0026}_{-0.0026} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01030^{+0.00019}_{-0.00020} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\Omega_{\nu}h^2$	$< 0.00235 \quad (+0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.011} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.0 \quad (\nu: 0.7) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09616^{+0.00099}_{-0.0013} \quad (+0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4519^{+0.0063}_{-0.0058} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11934.4 \quad (\nu: 16.7) \quad (+804.3\sigma)$
$\sigma_8$	$0.808^{+0.027}_{-0.045} \quad (-0.0\sigma)$	$H(0.15)$	$73.0^{+1.2}_{-1.4} \quad (+0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11948.19; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.90; R - 1 = 0.01072$$



### 6.54 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02235^{+0.00039}_{-0.00038} \quad (+0.6\sigma)$	$S_8$	$0.820^{+0.035}_{-0.039} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$639^{+13}_{-11} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1188^{+0.0027}_{-0.0028} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.019}_{-0.021} \quad (-0.0\sigma)$	$H(0.38)$	$83.13^{+0.85}_{-1.0} \quad (+0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04097^{+0.00075}_{-0.00076} \quad (-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.022}_{-0.030} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1526^{+26}_{-21} \quad (-0.1\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.982^{+0.034}_{-0.048} \quad (-0.0\sigma)$	$H(0.51)$	$89.82^{+0.70}_{-0.87} \quad (+0.2\sigma)$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.209 \quad (-0.0\sigma)$	$r_{\mathrm{drag}}h$	$100.0^{+2.1}_{-2.3} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1977^{+31}_{-26} \quad (-0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.042}_{-0.029} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.067}_{-0.071} \quad (+0.0\sigma)$	$H(0.61)$	$95.41^{+0.61}_{-0.77} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.011}_{-0.0096} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.50 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2301^{+34}_{-28} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0063} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.090}_{-0.060} \quad (+0.0\sigma)$	$H(2.33)$	$235.7^{+1.6}_{-1.7} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-70} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.875^{+0.029}_{-0.030} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5759^{+39}_{-30} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1223^{+30}_{-31} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.454^{+0.018}_{-0.020} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5721^{+97}_{-99} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.024}_{-0.041} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2534^{+36}_{-36} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.473^{+0.017}_{-0.021} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.70 \quad (+0.1\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.021}_{-0.037} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$D_{2000}$	$230.5^{+4.2}_{-4.3} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.016}_{-0.021} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.968^{+0.011}_{-0.0096} \quad (+0.0\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.020}_{-0.035} \quad (-0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00014}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.015}_{-0.021} \quad (-0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.019}_{-0.033} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.51} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.590^{+0.073}_{-0.070} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0087}_{-0.015} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.46}_{-0.48} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.789^{+0.091}_{-0.068} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.3073^{+0.0095}_{-0.017} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.26}_{-0.26} \quad (+0.1\sigma)$	$z_*$	$1089.84^{+0.61}_{-0.61} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42} \quad (-0.0\sigma)$	$r_*$	$144.76^{+0.68}_{-0.63} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$106.7^{+4.9}_{-5.0} \quad (-0.3\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0026} \quad (+0.0\sigma)$	$100\theta_*$	$1.04116^{+0.00076}_{-0.00075} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0039}_{-0.0040} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.904^{+0.066}_{-0.059} \quad (-0.3\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.6) \quad (-0.0\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.012}$	$z_{\mathrm{drag}}$	$1059.80^{+0.86}_{-0.82} \quad (+0.6\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.83 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	$147.44^{+0.71}_{-0.67} \quad (-0.4\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.6 \quad (\nu: 16.8) \quad (+786.4\sigma)$
$H_0$	$67.8^{+1.2}_{-1.5} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14048^{+0.00084}_{-0.00088} \quad (+0.5\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.00 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.692^{+0.016}_{-0.019} \quad (+0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00050}_{-0.00049} \quad (-0.7\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.040 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.308^{+0.019}_{-0.016} \quad (-0.0\sigma)$	$z_{\mathrm{eq}}$	$3373^{+61}_{-64} \quad (+0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.48 \quad (\nu: 0.1) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1418^{+0.0025}_{-0.0026} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01030^{+0.00019}_{-0.00020} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 \quad (\nu: 0.8) \quad (-0.0\sigma)$
$\Omega_{\nu}h^2$	$< 0.00224 \quad (-0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.011} \quad (-0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09618^{+0.00097}_{-0.0013} \quad (+0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4521^{+0.0062}_{-0.0058} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.88 \quad (\nu: 0.5) \quad (-0.0\sigma)$
$\sigma_8$	$0.809^{+0.026}_{-0.044} \quad (-0.0\sigma)$	$H(0.15)$	$73.1^{+1.1}_{-1.3} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11934.3 \quad (\nu: 17.0) \quad (+798.6\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 12982.95; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.78; R - 1 = 0.01405$$



## 6.55 base\_mnu\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02223	$0.02222^{+0.00050}_{-0.00049}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6115	$0.606^{+0.018}_{-0.023}$	$H(0.38)$	83.24	$83.01^{+0.98}_{-1.0}$
$\Omega_{\mathrm{c}} h^2$	0.11936	$0.1192^{+0.0027}_{-0.0027}$	$\sigma_8/h^{0.5}$	0.9967	$0.987^{+0.027}_{-0.037}$	$D_{\mathrm{M}}(0.38)$	1523.0	$1529^{+27}_{-25}$
$100\theta_{\mathrm{MC}}$	1.04096	$1.0410^{+0.0011}_{-0.0010}$	$r_{\mathrm{drag}} h$	100.22	$99.8^{+2.3}_{-2.4}$	$H(0.51)$	89.90	$89.71^{+0.82}_{-0.86}$
$\tau$	0.0542	$0.054^{+0.021}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	2.444	$2.435^{+0.056}_{-0.058}$	$D_{\mathrm{M}}(0.51)$	1973.7	$1980^{+32}_{-29}$
$\Sigma m_{\nu} [\mathrm{eV}]$	0.004	$< 0.177$	$z_{\mathrm{re}}$	7.68	$7.7^{+2.0}_{-2.0}$	$H(0.61)$	95.49	$95.32^{+0.71}_{-0.76}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0419	$3.042^{+0.040}_{-0.037}$	$10^9 A_{\mathrm{s}}$	2.094	$2.095^{+0.086}_{-0.077}$	$D_{\mathrm{M}}(0.61)$	2297.3	$2305^{+34}_{-32}$
$n_{\mathrm{s}}$	0.9662	$0.966^{+0.011}_{-0.010}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8794	$1.879^{+0.028}_{-0.028}$	$H(2.33)$	235.68	$235.8^{+1.8}_{-1.7}$
$y_{\mathrm{cal}}$	1.0002	$1.0006^{+0.0063}_{-0.0065}$	$D_{40}$	1226.6	$1228^{+30}_{-31}$	$D_{\mathrm{M}}(2.33)$	5755.2	$5764^{+39}_{-35}$
$A_{217}^{\mathrm{CIB}}$	48.3	$48^{+20}_{-20}$	$D_{220}$	5718	$5723^{+100}_{-110}$	$f\sigma_8(0.15)$	0.4593	$0.457^{+0.016}_{-0.017}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.36	—	$D_{810}$	2536.1	$2536^{+35}_{-35}$	$\sigma_8(0.15)$	0.7598	$0.750^{+0.019}_{-0.032}$
$A_{143}^{\mathrm{tSZ}}$	7.0	—	$D_{1420}$	815.6	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4788	$0.475^{+0.014}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	253	$263^{+70}_{-70}$	$D_{2000}$	230.22	$230.0^{+4.5}_{-4.4}$	$\sigma_8(0.38)$	0.6738	$0.665^{+0.018}_{-0.029}$
$A_{143}^{\mathrm{PS}}$	49.3	$48^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	0.9662	$0.966^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	0.4779	$0.474^{+0.013}_{-0.016}$
$A_{143 \times 217}^{\mathrm{PS}}$	47.5	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	0.245339	$0.24533^{+0.00019}_{-0.00023}$	$\sigma_8(0.51)$	0.6307	$0.623^{+0.016}_{-0.027}$
$A_{217}^{\mathrm{PS}}$	119.5	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246666	$0.24666^{+0.00019}_{-0.00023}$	$f\sigma_8(0.61)$	0.4732	$0.469^{+0.012}_{-0.016}$
$A^{\mathrm{kSZ}}$	0.0	—	$10^5 \mathrm{D}/\mathrm{H}$	2.612	$2.615^{+0.095}_{-0.092}$	$\sigma_8(0.61)$	0.6002	$0.592^{+0.016}_{-0.026}$
$A_{100}^{\mathrm{dustTT}}$	8.88	$8.9^{+4.8}_{-4.7}$	Age/Gyr	13.779	$13.800^{+0.089}_{-0.079}$	$f\sigma_8(2.33)$	0.3019	$0.2987^{+0.0075}_{-0.011}$
$A_{143}^{\mathrm{dustTT}}$	10.78	$10.7^{+4.6}_{-4.7}$	$z_*$	1090.04	$1090.04^{+0.74}_{-0.74}$	$\sigma_8(2.33)$	0.3119	$0.3080^{+0.0084}_{-0.013}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.5	$18.3^{+8.4}_{-8.6}$	$r_*$	144.71	$144.77^{+0.72}_{-0.71}$	$f_{2000}^{143}$	30.0	$31^{+7}_{-7}$
$A_{217}^{\mathrm{dustTT}}$	94.7	$93^{+20}_{-20}$	$100\theta_*$	1.04113	$1.0412^{+0.0011}_{-0.0010}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+5}_{-5}$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.899	$13.905^{+0.071}_{-0.069}$	$f_{2000}^{217}$	107.38	$107.9^{+5.0}_{-4.9}$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	1059.55	$1059.5^{+1.1}_{-1.1}$	$\chi_{\mathrm{lensing}}^2$	8.96	$9.41 (\nu: 0.3)$
$H_0$	67.98	$67.7^{+1.4}_{-1.5}$	$r_{\mathrm{drag}}$	147.42	$147.49^{+0.81}_{-0.77}$	$\chi_{\mathrm{small}}^2$	396.04	$397.0 (\nu: 1.4)$
$\Omega_{\Lambda}$	0.6935	$0.690^{+0.018}_{-0.020}$	$k_{\mathrm{D}}$	0.14041	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{lowl}}^2$	23.24	$23.28 (\nu: 0.4)$
$\Omega_{\mathrm{m}}$	0.3065	$0.310^{+0.020}_{-0.018}$	$100\theta_{\mathrm{D}}$	0.16098	$0.16101^{+0.00068}_{-0.00064}$	$\chi_{\mathrm{plik}}^2$	758.7	$771.4 (\nu: 14.1)$
$\Omega_{\mathrm{m}} h^2$	0.14163	$0.1419^{+0.0028}_{-0.0027}$	$z_{\mathrm{eq}}$	3384	$3379^{+64}_{-63}$	$\chi_{6\mathrm{DF}}^2$	0.003	$0.055 (\nu: 0.0)$
$\Omega_{\nu} h^2$	0.00004	$< 0.00191$	$k_{\mathrm{eq}}$	0.010327	$0.01031^{+0.00019}_{-0.00019}$	$\chi_{\mathrm{MGS}}^2$	1.54	$1.37 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^3$	0.09628	$0.0960^{+0.0012}_{-0.0013}$	$100\theta_{\mathrm{eq}}$	0.8162	$0.817^{+0.012}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	3.67	$4.7 (\nu: 1.2)$
$\sigma_8$	0.8218	$0.812^{+0.021}_{-0.034}$	$100\theta_{\mathrm{s,eq}}$	0.4510	$0.4515^{+0.0062}_{-0.0061}$	$\chi_{\mathrm{prior}}^2$	1.3	$7.3 (\nu: 6.8)$
$S_8$	0.8306	$0.825^{+0.031}_{-0.032}$	$H(0.15)$	73.21	$72.9^{+1.3}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	1186.9	$1201.0 (\nu: 15.2)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4550	$0.452^{+0.017}_{-0.018}$	$D_{\mathrm{M}}(0.15)$	638.1	$641^{+13}_{-12}$	$\chi_{\mathrm{BAO}}^2$	5.21	$6.1 (\nu: 0.8)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 1193.44$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 1214.40$ ;  $R - 1 = 0.00805$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.54 DR12BAO: 3.67 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.96 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.04 comman-  
der\_dx12.v3.2.29: 23.24 plik\_rd12\_HM.v22\_TT: 758.68



# 6.56 base\_mnu\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022235	$0.02223^{+0.00050}_{-0.00049}$	$\sigma_8 \Omega_m^{0.25}$	0.6103	$0.606^{+0.017}_{-0.022}$	$H(0.38)$	83.27	$83.07^{+0.94}_{-0.98}$
$\Omega_c h^2$	0.11922	$0.1190^{+0.0027}_{-0.0026}$	$\sigma_8/h^{0.5}$	0.9952	$0.987^{+0.026}_{-0.036}$	$D_M(0.38)$	1522.0	$1527^{+25}_{-24}$
$100\theta_{MC}$	1.04097	$1.0410^{+0.0011}_{-0.0011}$	$r_{drag}h$	100.33	$99.9^{+2.2}_{-2.3}$	$H(0.51)$	89.93	$89.75^{+0.79}_{-0.83}$
$\tau$	0.0531	$0.054^{+0.021}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	2.439	$2.434^{+0.056}_{-0.056}$	$D_M(0.51)$	1972.5	$1979^{+30}_{-29}$
$\Sigma m_\nu$ [eV]	0.000	< 0.169	$z_{re}$	7.57	$7.7^{+2.0}_{-2.0}$	$H(0.61)$	95.51	$95.35^{+0.69}_{-0.73}$
$\ln(10^{10} A_s)$	3.0397	$3.042^{+0.040}_{-0.037}$	$10^9 A_s$	2.090	$2.095^{+0.085}_{-0.076}$	$D_M(0.61)$	2296.1	$2303^{+33}_{-31}$
$n_s$	0.9668	$0.966^{+0.011}_{-0.0099}$	$10^9 A_s e^{-2\tau}$	1.8792	$1.879^{+0.028}_{-0.028}$	$H(2.33)$	235.59	$235.7^{+1.7}_{-1.7}$
$y_{cal}$	1.0004	$1.0007^{+0.0064}_{-0.0065}$	$D_{40}$	1225.3	$1228^{+30}_{-31}$	$D_M(2.33)$	5754.5	$5762^{+38}_{-34}$
$A_{217}^{CIB}$	48.7	$48^{+20}_{-20}$	$D_{220}$	5718	$5724^{+100}_{-110}$	$f\sigma_8(0.15)$	0.4581	$0.456^{+0.016}_{-0.016}$
$\xi^{tSZ \times CIB}$	0.29	—	$D_{810}$	2536.8	$2537^{+35}_{-35}$	$\sigma_8(0.15)$	0.7590	$0.751^{+0.019}_{-0.031}$
$A_{143}^{tSZ}$	7.0	—	$D_{1420}$	816.0	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4778	$0.475^{+0.013}_{-0.016}$
$A_{100}^{PS}$	254	$262^{+70}_{-70}$	$D_{2000}$	230.33	$230.1^{+4.5}_{-4.3}$	$\sigma_8(0.38)$	0.6732	$0.666^{+0.017}_{-0.028}$
$A_{143}^{PS}$	48.2	$48^{+20}_{-20}$	$n_{s,0.002}$	0.9668	$0.966^{+0.011}_{-0.0099}$	$f\sigma_8(0.51)$	0.4770	$0.474^{+0.012}_{-0.016}$
$A_{143 \times 217}^{PS}$	45.7	$43^{+20}_{-20}$	$Y_P$	0.245340	$0.24533^{+0.00019}_{-0.00023}$	$\sigma_8(0.51)$	0.6302	$0.623^{+0.016}_{-0.026}$
$A_{217}^{PS}$	118.8	$115^{+30}_{-30}$	$Y_P^{BBN}$	0.246667	$0.24666^{+0.00019}_{-0.00023}$	$f\sigma_8(0.61)$	0.4724	$0.469^{+0.012}_{-0.016}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.611	$2.613^{+0.095}_{-0.091}$	$\sigma_8(0.61)$	0.5997	$0.593^{+0.015}_{-0.025}$
$A_{100}^{dustTT}$	8.91	$8.9^{+4.8}_{-4.8}$	Age/Gyr	13.778	$13.796^{+0.087}_{-0.078}$	$f\sigma_8(2.33)$	0.3017	$0.2990^{+0.0073}_{-0.011}$
$A_{143}^{dustTT}$	10.76	$10.7^{+4.5}_{-4.8}$	$z_*$	1090.02	$1090.02^{+0.73}_{-0.73}$	$\sigma_8(2.33)$	0.3117	$0.3084^{+0.0082}_{-0.013}$
$A_{143 \times 217}^{dustTT}$	19.2	$18.2^{+8.5}_{-8.7}$	$r_*$	144.74	$144.80^{+0.71}_{-0.69}$	$\chi^2_{lensing}$	8.91	9.40 ( $\nu$ : 0.3)
$A_{217}^{dustTT}$	94.4	$93^{+20}_{-20}$	$100\theta_*$	1.04113	$1.0412^{+0.0010}_{-0.0010}$	$\chi^2_{small}$	395.89	397.0 ( $\nu$ : 1.4)
$c_{100}$	0.99966	$0.9996^{+0.0015}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.902	$13.907^{+0.069}_{-0.069}$	$\chi^2_{lowl}$	23.08	23.23 ( $\nu$ : 0.4)
$c_{217}$	0.99824	$0.9983^{+0.0016}_{-0.0015}$	$z_{drag}$	1059.55	$1059.5^{+1.1}_{-1.1}$	$\chi^2_{plik}$	758.9	771.4 ( $\nu$ : 14.2)
$H_0$	68.04	$67.8^{+1.4}_{-1.4}$	$r_{drag}$	147.46	$147.51^{+0.80}_{-0.78}$	$\chi^2_{JLA}$	1034.82	1035.03 ( $\nu$ : 0.0)
$\Omega_\Lambda$	0.6945	$0.691^{+0.017}_{-0.019}$	$k_D$	0.14037	$0.1403^{+0.0011}_{-0.0011}$	$\chi^2_{6DF}$	0.001	0.044 ( $\nu$ : 0.0)
$\Omega_m$	0.3055	$0.309^{+0.019}_{-0.017}$	$100\theta_D$	0.16098	$0.16100^{+0.00067}_{-0.00064}$	$\chi^2_{MGS}$	1.61	1.45 ( $\nu$ : 0.1)
$\Omega_m h^2$	0.14146	$0.1418^{+0.0026}_{-0.0026}$	$z_{eq}$	3380	$3376^{+62}_{-61}$	$\chi^2_{DR12BAO}$	3.58	4.4 ( $\nu$ : 0.9)
$\Omega_\nu h^2$	0.00000	< 0.00182	$k_{eq}$	0.010317	$0.01030^{+0.00019}_{-0.00019}$	$\chi^2_{prior}$	1.4	7.3 ( $\nu$ : 6.9)
$\Omega_m h^3$	0.09625	$0.0961^{+0.0012}_{-0.0013}$	$100\theta_{eq}$	0.8168	$0.818^{+0.012}_{-0.011}$	$\chi^2_{CMB}$	1186.8	1201.1 ( $\nu$ : 15.2)
$\sigma_8$	0.8209	$0.812^{+0.021}_{-0.033}$	$100\theta_{s,eq}$	0.4513	$0.4518^{+0.0060}_{-0.0059}$	$\chi^2_{BAO}$	5.19	5.9 ( $\nu$ : 0.5)
$S_8$	0.8284	$0.824^{+0.030}_{-0.031}$	$H(0.15)$	73.26	$73.0^{+1.2}_{-1.3}$			
$\sigma_8 \Omega_m^{0.5}$	0.4538	$0.451^{+0.017}_{-0.017}$	$D_M(0.15)$	637.6	$640^{+12}_{-12}$			

Best-fit  $\chi^2_{eff} = 2228.19$ ;  $\bar{\chi}^2_{eff} = 2249.31$ ;  $R - 1 = 0.00867$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.00 MGS: 1.61 DR12BAO: 3.58 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.91 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.89 comman-  
der\_dx12.v3.2.29: 23.08 plik\_rd12\_HM.v22\_TT: 758.94 SN - JLA Pantheon18: 1034.82



# 6.57 base\_mnu\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02222^{+0.00050}_{-0.00049}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.018}_{-0.023}$	$H(0.38)$	$83.02^{+0.98}_{-1.0}$
$\Omega_{\mathrm{c}} h^2$	$0.1191^{+0.0027}_{-0.0027}$	$\sigma_8/h^{0.5}$	$0.987^{+0.026}_{-0.037}$	$D_{\mathrm{M}}(0.38)$	$1528^{+27}_{-25}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	$99.8^{+2.3}_{-2.5}$	$H(0.51)$	$89.72^{+0.82}_{-0.87}$
$\tau$	$0.055^{+0.018}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.436^{+0.056}_{-0.056}$	$D_{\mathrm{M}}(0.51)$	$1980^{+32}_{-29}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.178$	$z_{\mathrm{re}}$	$< 9.46$	$H(0.61)$	$95.32^{+0.71}_{-0.77}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.039}_{-0.029}$	$10^9 A_{\mathrm{s}}$	$2.098^{+0.084}_{-0.059}$	$D_{\mathrm{M}}(0.61)$	$2304^{+35}_{-32}$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.010}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.028}_{-0.028}$	$H(2.33)$	$235.8^{+1.8}_{-1.7}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0063}_{-0.0065}$	$D_{40}$	$1228^{+30}_{-31}$	$D_{\mathrm{M}}(2.33)$	$5764^{+39}_{-35}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5723^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.457^{+0.016}_{-0.017}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2536^{+35}_{-35}$	$\sigma_8(0.15)$	$0.751^{+0.019}_{-0.032}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.476^{+0.014}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$D_{2000}$	$230.0^{+4.5}_{-4.4}$	$\sigma_8(0.38)$	$0.666^{+0.017}_{-0.029}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	$0.474^{+0.013}_{-0.016}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24533^{+0.00019}_{-0.00023}$	$\sigma_8(0.51)$	$0.623^{+0.016}_{-0.027}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00019}_{-0.00023}$	$f\sigma_8(0.61)$	$0.469^{+0.012}_{-0.016}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.614^{+0.095}_{-0.092}$	$\sigma_8(0.61)$	$0.593^{+0.016}_{-0.026}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.7}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.800^{+0.090}_{-0.079}$	$f\sigma_8(2.33)$	$0.2989^{+0.0073}_{-0.011}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.6}_{-4.7}$	$z_*$	$1090.03^{+0.74}_{-0.74}$	$\sigma_8(2.33)$	$0.3082^{+0.0082}_{-0.013}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.4}_{-8.6}$	$r_*$	$144.78^{+0.72}_{-0.71}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.905^{+0.070}_{-0.069}$	$f_{2000}^{217}$	$107.8^{+5.0}_{-4.9}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$9.38 (\nu: 0.3)$
$H_0$	$67.7^{+1.4}_{-1.5}$	$r_{\mathrm{drag}}$	$147.50^{+0.81}_{-0.78}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.5)$
$\Omega_{\Lambda}$	$0.690^{+0.018}_{-0.020}$	$k_{\mathrm{D}}$	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{lowl}}^2$	$23.27 (\nu: 0.4)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.020}_{-0.018}$	$100\theta_{\mathrm{D}}$	$0.16101^{+0.00068}_{-0.00064}$	$\chi_{\mathrm{plik}}^2$	$771.3 (\nu: 14.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1419^{+0.0028}_{-0.0027}$	$z_{\mathrm{eq}}$	$3378^{+63}_{-63}$	$\chi_{6\mathrm{DF}}^2$	$0.054 (\nu: 0.0)$
$\Omega_{\nu} h^2$	$< 0.00192$	$k_{\mathrm{eq}}$	$0.01031^{+0.00019}_{-0.00019}$	$\chi_{\mathrm{MGS}}^2$	$1.39 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0012}_{-0.0013}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.2)$
$\sigma_8$	$0.812^{+0.021}_{-0.034}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0062}_{-0.0060}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.8)$
$S_8$	$0.825^{+0.031}_{-0.032}$	$H(0.15)$	$72.9^{+1.3}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$1200.9 (\nu: 15.0)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.017}_{-0.018}$	$D_{\mathrm{M}}(0.15)$	$641^{+13}_{-12}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.8)$

$\bar{\chi}_{\mathrm{eff}}^2 = 1214.24; R - 1 = 0.00889$



# 6.58 base\_mnu\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02223^{+0.00050}_{-0.00049}$	$\sigma_8/h^{0.5}$	$0.987^{+0.026}_{-0.036}$	$H(0.51)$	$89.76^{+0.80}_{-0.84}$
$\Omega_{\mathrm{c}} h^2$	$0.1190^{+0.0026}_{-0.0026}$	$r_{\mathrm{drag}} h$	$99.97^{+2.2}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	$1979^{+30}_{-28}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.055}_{-0.055}$	$H(0.61)$	$95.35^{+0.69}_{-0.73}$
$\tau$	$0.055^{+0.018}_{-0.014}$	$z_{\mathrm{re}}$	$< 9.46$	$D_{\mathrm{M}}(0.61)$	$2303^{+33}_{-31}$
$\Sigma m_{\nu}$ [eV]	$< 0.171$	$10^9 A_{\mathrm{s}}$	$2.098^{+0.083}_{-0.061}$	$H(2.33)$	$235.7^{+1.7}_{-1.7}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.039}_{-0.029}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.028}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5762^{+38}_{-34}$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.0098}$	$D_{40}$	$1227^{+30}_{-31}$	$f\sigma_8(0.15)$	$0.456^{+0.015}_{-0.016}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0066}$	$D_{220}$	$5724^{+100}_{-100}$	$\sigma_8(0.15)$	$0.751^{+0.019}_{-0.031}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2536^{+35}_{-35}$	$f\sigma_8(0.38)$	$0.475^{+0.013}_{-0.016}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$816^{+13}_{-13}$	$\sigma_8(0.38)$	$0.666^{+0.017}_{-0.028}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$230.1^{+4.5}_{-4.3}$	$f\sigma_8(0.51)$	$0.474^{+0.012}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.0098}$	$\sigma_8(0.51)$	$0.624^{+0.016}_{-0.026}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24534^{+0.00019}_{-0.00023}$	$f\sigma_8(0.61)$	$0.469^{+0.012}_{-0.016}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00019}_{-0.00023}$	$\sigma_8(0.61)$	$0.593^{+0.015}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.613^{+0.095}_{-0.091}$	$f\sigma_8(2.33)$	$0.2991^{+0.0072}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.796^{+0.088}_{-0.078}$	$\sigma_8(2.33)$	$0.3086^{+0.0081}_{-0.013}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.7}$	$z_*$	$1090.01^{+0.72}_{-0.73}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.5}_{-4.8}$	$r_*$	$144.80^{+0.70}_{-0.69}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.2^{+8.5}_{-8.7}$	$100\theta_*$	$1.0412^{+0.0010}_{-0.0011}$	$f_{2000}^{217}$	$107.8^{+4.9}_{-5.0}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.907^{+0.069}_{-0.069}$	$\chi_{\mathrm{lensing}}^2$	$9.37 (\nu: 0.3)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.5)$
$c_{217}$	$0.9983^{+0.0017}_{-0.0015}$	$r_{\mathrm{drag}}$	$147.52^{+0.80}_{-0.78}$	$\chi_{\mathrm{lowl}}^2$	$23.22 (\nu: 0.4)$
$H_0$	$67.8^{+1.4}_{-1.4}$	$k_{\mathrm{D}}$	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{plik}}^2$	$771.4 (\nu: 14.2)$
$\Omega_{\Lambda}$	$0.691^{+0.017}_{-0.019}$	$100\theta_{\mathrm{D}}$	$0.16100^{+0.00068}_{-0.00064}$	$\chi_{\mathrm{JLA}}^2$	$1035.02 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.019}_{-0.017}$	$z_{\mathrm{eq}}$	$3375^{+61}_{-60}$	$\chi_{6\mathrm{DF}}^2$	$0.043 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1418^{+0.0027}_{-0.0025}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00019}_{-0.00018}$	$\chi_{\mathrm{MGS}}^2$	$1.46 (\nu: 0.1)$
$\Omega_{\nu} h^2$	$< 0.00183$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.011}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 0.9)$
$\Omega_{\mathrm{m}} h^3$	$0.0961^{+0.0012}_{-0.0013}$	$100\theta_{\mathrm{s,eq}}$	$0.4519^{+0.0059}_{-0.0058}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$\sigma_8$	$0.813^{+0.021}_{-0.033}$	$H(0.15)$	$73.0^{+1.2}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$1200.9 (\nu: 15.0)$
$S_8$	$0.824^{+0.031}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$640^{+13}_{-12}$	$\chi_{\mathrm{BAO}}^2$	$5.9 (\nu: 0.5)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.017}_{-0.017}$	$H(0.38)$	$83.07^{+0.94}_{-0.98}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.017}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1527^{+26}_{-24}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2249.16; R - 1 = 0.00928$$



## 6.59 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022417	$0.02242^{+0.00035}_{-0.00035}$ (+1.1 $\sigma$ )	$\Omega_m h^3$	0.09666	$0.09649^{+0.00087}_{-0.0010}$ (+0.9 $\sigma$ )	$H(0.15)$	73.33	$73.1^{+1.1}_{-1.3}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.11952	$0.1193^{+0.0024}_{-0.0024}$ (+0.2 $\sigma$ )	$\sigma_8$	0.8220	$0.814^{+0.021}_{-0.031}$ (+0.2 $\sigma$ )	$D_M(0.15)$	637.0	$639^{+13}_{-10}$ (−0.3 $\sigma$ )
$100\theta_{MC}$	1.04100	$1.04100^{+0.00076}_{-0.00075}$ (+0.1 $\sigma$ )	$S_8$	0.8303	$0.826^{+0.028}_{-0.029}$ (+0.1 $\sigma$ )	$H(0.38)$	83.36	$83.17^{+0.81}_{-0.99}$ (+0.4 $\sigma$ )
$\tau$	0.0533	$0.055^{+0.020}_{-0.018}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4548	$0.453^{+0.015}_{-0.016}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1520.5	$1525^{+26}_{-21}$ (−0.3 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.001	< 0.161 (−0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6114	$0.607^{+0.016}_{-0.020}$ (+0.2 $\sigma$ )	$H(0.51)$	90.04	$89.87^{+0.66}_{-0.83}$ (+0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0415	$3.045^{+0.039}_{-0.036}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9961	$0.988^{+0.025}_{-0.032}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1970.6	$1976^{+31}_{-25}$ (−0.3 $\sigma$ )
$n_s$	0.9672	$0.9666^{+0.0095}_{-0.0095}$ (+0.2 $\sigma$ )	$r_{drag} h$	100.22	$99.9^{+2.1}_{-2.4}$ (+0.0 $\sigma$ )	$H(0.61)$	95.62	$95.48^{+0.56}_{-0.70}$ (+0.6 $\sigma$ )
$y_{cal}$	1.0006	$1.0006^{+0.0064}_{-0.0062}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.442	$2.438^{+0.054}_{-0.053}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2293.7	$2300^{+33}_{-27}$ (−0.4 $\sigma$ )
$A_{217}^{CIB}$	46.5	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$z_{re}$	7.55	$7.7^{+1.9}_{-1.9}$ (+0.1 $\sigma$ )	$H(2.33)$	235.97	$236.1^{+1.6}_{-1.5}$ (+0.4 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.50	—	$10^9 A_s$	2.094	$2.101^{+0.083}_{-0.075}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5747.0	$5754^{+35}_{-26}$ (−0.7 $\sigma$ )
$A_{143}^{tSZ}$	7.23	$5.5^{+4.5}_{-4.5}$ (+0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8820	$1.881^{+0.027}_{-0.026}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4591	$0.457^{+0.014}_{-0.015}$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	249	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{40}$	1226.5	$1229^{+30}_{-28}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7599	$0.752^{+0.019}_{-0.029}$ (+0.2 $\sigma$ )
$A_{143}^{PS}$	48.1	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{220}$	5733	$5738^{+98}_{-93}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4787	$0.476^{+0.013}_{-0.014}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	49.2	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2540.3	$2539^{+35}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6740	$0.667^{+0.017}_{-0.026}$ (+0.2 $\sigma$ )
$A_{217}^{PS}$	120.4	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{1420}$	818.3	$818^{+13}_{-12}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4779	$0.475^{+0.012}_{-0.014}$ (+0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$D_{2000}$	231.42	$231.1^{+4.1}_{-3.9}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6309	$0.624^{+0.016}_{-0.025}$ (+0.2 $\sigma$ )
$A_{100}^{dustTT}$	8.86	$8.9^{+4.8}_{-4.7}$ (+0.0 $\sigma$ )	$n_{s,0.002}$	0.9672	$0.9666^{+0.0095}_{-0.0095}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4732	$0.470^{+0.011}_{-0.014}$ (+0.2 $\sigma$ )
$A_{143}^{dustTT}$	11.04	$10.9^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$Y_P$	0.245414	$0.24541^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.6004	$0.594^{+0.015}_{-0.024}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.0	$18.6^{+8.6}_{-8.6}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246741	$0.24674^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3020	$0.2995^{+0.0073}_{-0.010}$ (+0.2 $\sigma$ )
$A_{217}^{dustTT}$	95.5	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$10^5 D/H$	2.577	$2.576^{+0.065}_{-0.062}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3120	$0.3090^{+0.0081}_{-0.012}$ (+0.2 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.099}_{-0.096}$	Age/Gyr	13.760	$13.777^{+0.080}_{-0.060}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	28.6	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.075}_{-0.076}$	$z_*$	1089.81	$1089.79^{+0.56}_{-0.53}$ (−0.9 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.85	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.481	$0.48^{+0.22}_{-0.22}$	$r_*$	144.53	$144.57^{+0.57}_{-0.57}$ (−0.7 $\sigma$ )	$f_{2000}^{217}$	106.44	$106.8^{+4.6}_{-4.6}$ (−0.5 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.22^{+0.14}_{-0.13}$	$100\theta_*$	1.04115	$1.04117^{+0.00076}_{-0.00074}$ (+0.0 $\sigma$ )	$\chi^2_{lensing}$	8.97	$9.24$ ( $\nu$ : 0.2) (−0.2 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.664	$0.66^{+0.21}_{-0.21}$	$D_M(z_*)/\text{Gpc}$	13.881	$13.885^{+0.056}_{-0.054}$ (−0.7 $\sigma$ )	$\chi^2_{small}$	395.88	$397.1$ ( $\nu$ : 1.7) (+0.1 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.71}_{-0.70}$	$z_{drag}$	1060.01	$1060.00^{+0.77}_{-0.76}$ (+1.1 $\sigma$ )	$\chi^2_{lowl}$	23.09	$23.25$ ( $\nu$ : 0.3) (−0.0 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{drag}$	147.17	$147.22^{+0.60}_{-0.60}$ (−0.9 $\sigma$ )	$\chi^2_{plik}$	2344.2	$2359.3$ ( $\nu$ : 16.7) (+298.7 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$k_D$	0.14081	$0.14077^{+0.00076}_{-0.00072}$ (+1.1 $\sigma$ )	$\chi^2_{6DF}$	0.003	$0.046$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$H_0$	68.10	$67.8^{+1.2}_{-1.5}$ (+0.3 $\sigma$ )	$100\theta_D$	0.160723	$0.16073^{+0.00047}_{-0.00043}$ (−1.1 $\sigma$ )	$\chi^2_{MGS}$	1.54	$1.39$ ( $\nu$ : 0.1) (+0.0 $\sigma$ )
$\Omega_\Lambda$	0.6939	$0.691^{+0.016}_{-0.019}$ (+0.1 $\sigma$ )	$z_{eq}$	3392	$3388^{+55}_{-54}$ (+0.4 $\sigma$ )	$\chi^2_{DR12BAO}$	3.71	$4.6$ ( $\nu$ : 1.0) (−0.1 $\sigma$ )
$\Omega_m$	0.3061	$0.309^{+0.019}_{-0.016}$ (−0.1 $\sigma$ )	$k_{eq}$	0.010352	$0.01034^{+0.00017}_{-0.00017}$ (+0.4 $\sigma$ )	$\chi^2_{prior}$	1.7	$11.6$ ( $\nu$ : 10.3) (+1.2 $\sigma$ )
$\Omega_m h^2$	0.14194	$0.1423^{+0.0026}_{-0.0024}$ (+0.3 $\sigma$ )	$100\theta_{eq}$	0.8153	$0.816^{+0.010}_{-0.010}$ (−0.2 $\sigma$ )	$\chi^2_{CMB}$	2772.2	$2788.9$ ( $\nu$ : 17.5) (+287.7 $\sigma$ )
$\Omega_\nu h^2$	0.00001	< 0.00174 (−0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4504	$0.4508^{+0.0054}_{-0.0052}$ (−0.3 $\sigma$ )	$\chi^2_{BAO}$	5.25	$6.0$ ( $\nu$ : 0.6) (−0.1 $\sigma$ )

Best-fit  $\chi^2_{eff} = 2779.13$ ;  $\Delta\chi^2_{eff} = 1585.70$ ;  $\bar{\chi}^2_{eff} = 2806.44$ ;  $\Delta\bar{\chi}^2_{eff} = 1592.04$ ;  $R - 1 = 0.01008$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.00 ( $\Delta$  0.00) MGS: 1.54 ( $\Delta$  0.00) DR12BAO: 3.71 ( $\Delta$  0.04) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.97 ( $\Delta$  0.00) small\_100x143\_offlike5\_EE\_Aplanck.L  
395.88 ( $\Delta$  -0.15) commander\_dx12\_v3.2\_29: 23.09 ( $\Delta$  -0.15) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.24



# 6.60 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022419	$0.02243^{+0.00035}_{-0.00034}$ (+1.0 $\sigma$ )	$\sigma_8$	0.8217	$0.814^{+0.020}_{-0.029}$ (+0.2 $\sigma$ )	$H(0.38)$	83.36	$83.22^{+0.77}_{-0.92}$ (+0.4 $\sigma$ )
$\Omega_c h^2$	0.11950	$0.1192^{+0.0023}_{-0.0023}$ (+0.2 $\sigma$ )	$S_8$	0.8300	$0.826^{+0.027}_{-0.028}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1520.5	$1524^{+24}_{-20}$ (−0.3 $\sigma$ )
$100\theta_{MC}$	1.04100	$1.04101^{+0.00076}_{-0.00075}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4546	$0.452^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )	$H(0.51)$	90.04	$89.91^{+0.63}_{-0.76}$ (+0.5 $\sigma$ )
$\tau$	0.0533	$0.055^{+0.021}_{-0.018}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6112	$0.607^{+0.016}_{-0.019}$ (+0.2 $\sigma$ )	$D_M(0.51)$	1970.6	$1975^{+28}_{-23}$ (−0.3 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.004	< 0.154 (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9957	$0.988^{+0.025}_{-0.031}$ (+0.1 $\sigma$ )	$H(0.61)$	95.62	$95.51^{+0.54}_{-0.66}$ (+0.6 $\sigma$ )
$\ln(10^{10} A_s)$	3.0414	$3.045^{+0.039}_{-0.036}$ (+0.2 $\sigma$ )	$r_{drag} h$	100.22	$99.96^{+2.0}_{-2.1}$ (+0.0 $\sigma$ )	$D_M(0.61)$	2293.7	$2299^{+31}_{-25}$ (−0.4 $\sigma$ )
$n_s$	0.9674	$0.9668^{+0.0094}_{-0.0094}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.441	$2.438^{+0.053}_{-0.053}$ (+0.2 $\sigma$ )	$H(2.33)$	235.96	$236.0^{+1.5}_{-1.4}$ (+0.5 $\sigma$ )
$y_{cal}$	1.0005	$1.0007^{+0.0067}_{-0.0065}$ (+0.0 $\sigma$ )	$z_{re}$	7.55	$7.8^{+2.0}_{-1.9}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5747.1	$5753^{+33}_{-25}$ (−0.7 $\sigma$ )
$A_{217}^{CIB}$	46.4	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.093	$2.101^{+0.083}_{-0.074}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4590	$0.457^{+0.014}_{-0.015}$ (+0.1 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.55	—	$10^9 A_s e^{-2\tau}$	1.8820	$1.880^{+0.027}_{-0.026}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7597	$0.753^{+0.019}_{-0.027}$ (+0.2 $\sigma$ )
$A_{143}^{tSZ}$	7.12	> 0.953 (+0.2 $\sigma$ )	$D_{40}$	1226.1	$1228^{+30}_{-28}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4786	$0.476^{+0.012}_{-0.014}$ (+0.2 $\sigma$ )
$A_{100}^{PS}$	248	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5732	$5738^{+96}_{-94}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6738	$0.668^{+0.016}_{-0.025}$ (+0.2 $\sigma$ )
$A_{143}^{PS}$	48.8	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2540.4	$2539^{+36}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(0.51)$	0.4777	$0.475^{+0.012}_{-0.014}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	50.3	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	818.4	$818^{+13}_{-12}$ (+0.4 $\sigma$ )	$\sigma_8(0.51)$	0.6307	$0.625^{+0.015}_{-0.024}$ (+0.2 $\sigma$ )
$A_{217}^{PS}$	120.8	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{2000}$	231.46	$231.1^{+4.1}_{-4.0}$ (+0.6 $\sigma$ )	$f\sigma_8(0.61)$	0.4731	$0.470^{+0.011}_{-0.013}$ (+0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9674	$0.9668^{+0.0094}_{-0.0094}$ (+0.2 $\sigma$ )	$\sigma_8(0.61)$	0.6002	$0.595^{+0.015}_{-0.023}$ (+0.2 $\sigma$ )
$A_{100}^{dustTT}$	8.91	$8.9^{+4.8}_{-4.7}$ (−0.0 $\sigma$ )	$Y_P$	0.245415	$0.24542^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3019	$0.2998^{+0.0070}_{-0.0099}$ (+0.2 $\sigma$ )
$A_{143}^{dustTT}$	11.04	$10.9^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246741	$0.24674^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3119	$0.3093^{+0.0077}_{-0.011}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.0	$18.6^{+8.6}_{-8.5}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.576	$2.575^{+0.064}_{-0.062}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	28.5	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{217}^{dustTT}$	95.4	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.760	$13.774^{+0.075}_{-0.057}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.79	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.115^{+0.099}_{-0.097}$	$z_*$	1089.81	$1089.78^{+0.54}_{-0.54}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	106.39	$106.8^{+4.8}_{-4.5}$ (−0.5 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.075}_{-0.073}$	$r_*$	144.53	$144.59^{+0.56}_{-0.54}$ (−0.7 $\sigma$ )	$\chi_{lensing}^2$	8.96	9.22 ( $\nu$ : 0.2) (−0.2 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.483	$0.48^{+0.22}_{-0.23}$	$100\theta_*$	1.04115	$1.04118^{+0.00075}_{-0.00075}$ (+0.0 $\sigma$ )	$\chi_{small}^2$	395.88	397.1 ( $\nu$ : 1.7) (+0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.226	$0.22^{+0.14}_{-0.13}$	$D_M(z_*)/\text{Gpc}$	13.882	$13.887^{+0.055}_{-0.053}$ (−0.7 $\sigma$ )	$\chi_{lowl}^2$	23.05	23.22 ( $\nu$ : 0.3) (−0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.666	$0.66^{+0.21}_{-0.20}$	$z_{drag}$	1060.01	$1060.02^{+0.72}_{-0.77}$ (+1.1 $\sigma$ )	$\chi_{plik}^2$	2344.3	2359.2 ( $\nu$ : 16.8) (+298.3 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.67}_{-0.69}$	$r_{drag}$	147.18	$147.23^{+0.59}_{-0.59}$ (−0.9 $\sigma$ )	$\chi_{JLA}^2$	1034.84	1034.99 ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14081	$0.14076^{+0.00075}_{-0.00071}$ (+1.1 $\sigma$ )	$\chi_{6DF}^2$	0.003	0.037 ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160721	$0.16072^{+0.00045}_{-0.00043}$ (−1.1 $\sigma$ )	$\chi_{MGS}^2$	1.54	1.45 ( $\nu$ : 0.1) (−0.0 $\sigma$ )
$H_0$	68.10	$67.9^{+1.2}_{-1.4}$ (+0.3 $\sigma$ )	$z_{eq}$	3391	$3386^{+53}_{-53}$ (+0.4 $\sigma$ )	$\chi_{DR12BAO}^2$	3.71	4.4 ( $\nu$ : 0.7) (−0.1 $\sigma$ )
$\Omega_\Lambda$	0.6939	$0.692^{+0.015}_{-0.017}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010351	$0.01033^{+0.00016}_{-0.00016}$ (+0.4 $\sigma$ )	$\chi_{prior}^2$	1.7	11.6 ( $\nu$ : 10.8) (+1.2 $\sigma$ )
$\Omega_m$	0.3061	$0.308^{+0.017}_{-0.015}$ (−0.1 $\sigma$ )	$100\theta_{eq}$	0.8154	$0.817^{+0.010}_{-0.0099}$ (−0.3 $\sigma$ )	$\chi_{CMB}^2$	2772.2	2788.7 ( $\nu$ : 17.5) (+288.4 $\sigma$ )
$\Omega_m h^2$	0.14196	$0.1421^{+0.0024}_{-0.0022}$ (+0.4 $\sigma$ )	$100\theta_{s,eq}$	0.4504	$0.4510^{+0.0053}_{-0.0051}$ (−0.3 $\sigma$ )	$\chi_{BAO}^2$	5.25	5.86 ( $\nu$ : 0.4) (−0.1 $\sigma$ )
$\Omega_\nu h^2$	0.00004	< 0.00165 (−0.1 $\sigma$ )	$H(0.15)$	73.33	$73.1^{+1.0}_{-1.2}$ (+0.3 $\sigma$ )			
$\Omega_m h^3$	0.09667	$0.09650^{+0.00085}_{-0.00098}$ (+0.9 $\sigma$ )	$D_M(0.15)$	637.0	$639^{+12}_{-9.7}$ (−0.3 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 3813.97$ ;  $\Delta\chi_{eff}^2 = 1585.78$ ;  $\bar{\chi}_{eff}^2 = 3841.20$ ;  $\Delta\bar{\chi}_{eff}^2 = 1591.89$ ;  $R - 1 = 0.01317$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  0.00) MGS: 1.54 ( $\Delta$  -0.07) DR12BAO: 3.71 ( $\Delta$  0.13) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.96 ( $\Delta$  0.05) small\_100x143\_offlike5\_EE\_Aplanck: 395.88 ( $\Delta$  -0.01) commander\_dx12\_v3.2.29: 23.05 ( $\Delta$  -0.03) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.32 SN - JLA Pantheon18: 1034.84 ( $\Delta$  0.02)



6.61 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02242^{+0.00034}_{-0.00034} \quad (+1.1\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09648^{+0.00087}_{-0.0010} \quad (+0.9\sigma)$	$H(0.15)$	$73.1^{+1.1}_{-1.3} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1193^{+0.0024}_{-0.0024} \quad (+0.2\sigma)$	$\sigma_8$	$0.814^{+0.020}_{-0.031} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$639^{+13}_{-10} \quad (-0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04100^{+0.00075}_{-0.00075} \quad (+0.1\sigma)$	$S_8$	$0.827^{+0.028}_{-0.029} \quad (+0.1\sigma)$	$H(0.38)$	$83.18^{+0.81}_{-0.98} \quad (+0.4\sigma)$
$\tau$	$0.056^{+0.018}_{-0.014} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.015}_{-0.016} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1525^{+26}_{-21} \quad (-0.3\sigma)$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.162 \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.016}_{-0.020} \quad (+0.2\sigma)$	$H(0.51)$	$89.88^{+0.66}_{-0.83} \quad (+0.5\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.038}_{-0.029} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.025}_{-0.032} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1976^{+31}_{-25} \quad (-0.3\sigma)$
$n_{\mathrm{s}}$	$0.9667^{+0.0095}_{-0.0094} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$99.9^{+2.1}_{-2.4} \quad (+0.0\sigma)$	$H(0.61)$	$95.48^{+0.56}_{-0.70} \quad (+0.6\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0063} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.053}_{-0.051} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2300^{+33}_{-27} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.49 \quad (+0.1\sigma)$	$H(2.33)$	$236.1^{+1.6}_{-1.5} \quad (+0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.104^{+0.081}_{-0.061} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5754^{+35}_{-26} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.4}_{-4.6} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.881^{+0.027}_{-0.026} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.014}_{-0.015} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1229^{+30}_{-28} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.753^{+0.019}_{-0.029} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5737^{+98}_{-93} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.012}_{-0.014} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2539^{+34}_{-34} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.667^{+0.017}_{-0.026} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$818^{+13}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.012}_{-0.014} \quad (+0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.1^{+4.1}_{-3.9} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.625^{+0.016}_{-0.025} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.7} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.9667^{+0.0095}_{-0.0094} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.014} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.7} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00014} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.595^{+0.015}_{-0.024} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.6}_{-8.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00013}_{-0.00014} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.2997^{+0.0072}_{-0.011} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.576^{+0.065}_{-0.062} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	$0.3091^{+0.0080}_{-0.012} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.099}_{-0.096}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.777^{+0.080}_{-0.060} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.075}_{-0.076}$	$z_*$	$1089.79^{+0.55}_{-0.53} \quad (-0.8\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$144.57^{+0.57}_{-0.56} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$106.8^{+4.7}_{-4.6} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$100\theta_*$	$1.04118^{+0.00075}_{-0.00074} \quad (+0.0\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.22 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.886^{+0.056}_{-0.054} \quad (-0.7\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.7) \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.71}_{-0.70}$	$z_{\mathrm{drag}}$	$1060.01^{+0.73}_{-0.76} \quad (+1.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.25 \quad (\nu: 0.3) \quad (-0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.22^{+0.60}_{-0.60} \quad (-0.9\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.1 \quad (\nu: 16.5) \quad (+298.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14077^{+0.00076}_{-0.00072} \quad (+1.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.045 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$H_0$	$67.8^{+1.2}_{-1.5} \quad (+0.3\sigma)$	$100\theta_{\mathrm{D}}$	$0.16072^{+0.00046}_{-0.00043} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.39 \quad (\nu: 0.1) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.691^{+0.016}_{-0.019} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3387^{+53}_{-54} \quad (+0.4\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 \quad (\nu: 1.0) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.019}_{-0.016} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01034^{+0.00016}_{-0.00017} \quad (+0.4\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1422^{+0.0025}_{-0.0023} \quad (+0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.010}_{-0.010} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2788.7 \quad (\nu: 17.2) \quad (+289.5\sigma)$
$\Omega_{\nu}h^2$	$< 0.00174 \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4509^{+0.0054}_{-0.0051} \quad (-0.3\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.0 \quad (\nu: 0.6) \quad (-0.1\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2806.28; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.04; R - 1 = 0.01177$$



# 6.62 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02243^{+0.00035}_{-0.00034} \quad (+1.0\sigma)$	$\sigma_8$	$0.815^{+0.020}_{-0.030} \quad (+0.2\sigma)$	$H(0.38)$	$83.22^{+0.77}_{-0.92} \quad (+0.4\sigma)$
$\Omega_c h^2$	$0.1192^{+0.0023}_{-0.0023} \quad (+0.2\sigma)$	$S_8$	$0.826^{+0.027}_{-0.028} \quad (+0.1\sigma)$	$D_M(0.38)$	$1524^{+24}_{-20} \quad (-0.3\sigma)$
$100\theta_{MC}$	$1.04102^{+0.00075}_{-0.00075} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.452^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$H(0.51)$	$89.91^{+0.63}_{-0.76} \quad (+0.5\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.607^{+0.016}_{-0.020} \quad (+0.2\sigma)$	$D_M(0.51)$	$1975^{+28}_{-23} \quad (-0.3\sigma)$
$\Sigma m_\nu$ [eV]	$< 0.154 \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.025}_{-0.031} \quad (+0.1\sigma)$	$H(0.61)$	$95.51^{+0.54}_{-0.66} \quad (+0.6\sigma)$
$\ln(10^{10} A_s)$	$3.046^{+0.038}_{-0.030} \quad (+0.2\sigma)$	$r_{drag} h$	$99.97^{+2.0}_{-2.1} \quad (+0.0\sigma)$	$D_M(0.61)$	$2298^{+31}_{-25} \quad (-0.3\sigma)$
$n_s$	$0.9669^{+0.0094}_{-0.0094} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.052}_{-0.051} \quad (+0.2\sigma)$	$H(2.33)$	$236.0^{+1.5}_{-1.4} \quad (+0.5\sigma)$
$y_{cal}$	$1.0006^{+0.0066}_{-0.0065} \quad (+0.0\sigma)$	$z_{re}$	$< 9.54 \quad (+0.1\sigma)$	$D_M(2.33)$	$5753^{+33}_{-25} \quad (-0.7\sigma)$
$A_{217}^{CIB}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_s$	$2.104^{+0.081}_{-0.062} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.014}_{-0.014} \quad (+0.1\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s e^{-2\tau}$	$1.880^{+0.027}_{-0.027} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.753^{+0.019}_{-0.028} \quad (+0.2\sigma)$
$A_{143}^{tSZ}$	$> 0.961 \quad (+0.2\sigma)$	$D_{40}$	$1228^{+29}_{-28} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.012}_{-0.014} \quad (+0.2\sigma)$
$A_{100}^{PS}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5738^{+96}_{-94} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.668^{+0.016}_{-0.025} \quad (+0.2\sigma)$
$A_{143}^{PS}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2539^{+36}_{-34} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.012}_{-0.014} \quad (+0.2\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+13}_{-12} \quad (+0.4\sigma)$	$\sigma_8(0.51)$	$0.625^{+0.015}_{-0.024} \quad (+0.2\sigma)$
$A_{217}^{PS}$	$115^{+20}_{-30} \quad (-0.0\sigma)$	$D_{2000}$	$231.1^{+4.1}_{-4.0} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.013} \quad (+0.2\sigma)$
$A^{kSZ}$	—	$n_{s,0.002}$	$0.9669^{+0.0094}_{-0.0094} \quad (+0.2\sigma)$	$\sigma_8(0.61)$	$0.595^{+0.015}_{-0.023} \quad (+0.2\sigma)$
$A_{100}^{dustTT}$	$8.9^{+4.8}_{-4.7} \quad (-0.0\sigma)$	$Y_P$	$0.24542^{+0.00013}_{-0.00014} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.2999^{+0.0068}_{-0.010} \quad (+0.2\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_P^{BBN}$	$0.24674^{+0.00013}_{-0.00014} \quad (+1.0\sigma)$	$\sigma_8(2.33)$	$0.3094^{+0.0075}_{-0.012} \quad (+0.2\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.6^{+8.6}_{-8.5} \quad (+0.1\sigma)$	$10^5 D/H$	$2.575^{+0.065}_{-0.062} \quad (-1.0\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	Age/Gyr	$13.774^{+0.074}_{-0.057} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100}^{dustTE}$	$0.115^{+0.099}_{-0.097}$	$z_*$	$1089.77^{+0.52}_{-0.54} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.8^{+4.7}_{-4.5} \quad (-0.5\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.075}_{-0.073}$	$r_*$	$144.59^{+0.56}_{-0.54} \quad (-0.8\sigma)$	$\chi_{lensing}^2$	$9.20 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.23}$	$100\theta_*$	$1.04119^{+0.00074}_{-0.00075} \quad (+0.0\sigma)$	$\chi_{small}^2$	$397.1 \quad (\nu: 1.8) \quad (+0.1\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.13}$	$D_M(z_*)/\text{Gpc}$	$13.887^{+0.054}_{-0.053} \quad (-0.7\sigma)$	$\chi_{lowl}^2$	$23.22 \quad (\nu: 0.3) \quad (-0.0\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.21}_{-0.20}$	$z_{drag}$	$1060.02^{+0.72}_{-0.73} \quad (+1.1\sigma)$	$\chi_{plik}^2$	$2359.0 \quad (\nu: 16.6) \quad (+298.0\sigma)$
$A_{217}^{dustTE}$	$2.08^{+0.68}_{-0.69}$	$r_{drag}$	$147.24^{+0.58}_{-0.59} \quad (-0.9\sigma)$	$\chi_{JLA}^2$	$1034.99 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_D$	$0.14076^{+0.00074}_{-0.00070} \quad (+1.1\sigma)$	$\chi_{6DF}^2$	$0.037 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_D$	$0.16072^{+0.00045}_{-0.00043} \quad (-1.1\sigma)$	$\chi_{MGS}^2$	$1.45 \quad (\nu: 0.1) \quad (-0.0\sigma)$
$H_0$	$67.9^{+1.2}_{-1.4} \quad (+0.2\sigma)$	$z_{eq}$	$3385^{+52}_{-52} \quad (+0.4\sigma)$	$\chi_{DR12BAO}^2$	$4.4 \quad (\nu: 0.7) \quad (-0.0\sigma)$
$\Omega_\Lambda$	$0.692^{+0.015}_{-0.017} \quad (+0.1\sigma)$	$k_{eq}$	$0.01033^{+0.00016}_{-0.00016} \quad (+0.4\sigma)$	$\chi_{prior}^2$	$11.6 \quad (\nu: 10.7) \quad (+1.2\sigma)$
$\Omega_m$	$0.308^{+0.017}_{-0.015} \quad (-0.1\sigma)$	$100\theta_{eq}$	$0.817^{+0.010}_{-0.0097} \quad (-0.3\sigma)$	$\chi_{CMB}^2$	$2788.6 \quad (\nu: 17.2) \quad (+290.3\sigma)$
$\Omega_m h^2$	$0.1421^{+0.0024}_{-0.0022} \quad (+0.4\sigma)$	$100\theta_{s,eq}$	$0.4511^{+0.0052}_{-0.0049} \quad (-0.3\sigma)$	$\chi_{BAO}^2$	$5.84 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$\Omega_\nu h^2$	$< 0.00166 \quad (-0.1\sigma)$	$H(0.15)$	$73.2^{+1.0}_{-1.2} \quad (+0.3\sigma)$		
$\Omega_m h^3$	$0.09650^{+0.00086}_{-0.00097} \quad (+0.9\sigma)$	$D_M(0.15)$	$639^{+12}_{-9.7} \quad (-0.3\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 3841.03; \Delta\bar{\chi}_{\text{eff}}^2 = 1591.87; R - 1 = 0.01560$$



### 6.63 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022335	$0.02233^{+0.00036}_{-0.00037}$	$S_8$	0.8275	$0.824^{+0.028}_{-0.029}$	$D_M(0.15)$	637.1	$640^{+13}_{-11}$
$\Omega_c h^2$	0.11925	$0.1191^{+0.0024}_{-0.0025}$	$\sigma_8 \Omega_m^{0.5}$	0.4532	$0.451^{+0.015}_{-0.016}$	$H(0.38)$	83.33	$83.10^{+0.85}_{-0.99}$
$100\theta_{MC}$	1.04093	$1.04094^{+0.00077}_{-0.00077}$	$\sigma_8 \Omega_m^{0.25}$	0.6097	$0.605^{+0.016}_{-0.020}$	$D_M(0.38)$	1520.8	$1527^{+26}_{-22}$
$\tau$	0.0533	$0.054^{+0.019}_{-0.020}$	$\sigma_8/h^{0.5}$	0.9938	$0.985^{+0.025}_{-0.033}$	$H(0.51)$	89.99	$89.80^{+0.69}_{-0.84}$
$\Sigma m_\nu$ [eV]	0.004	< 0.174	$r_{\text{drag}} h$	100.33	$99.9^{+2.2}_{-2.3}$	$D_M(0.51)$	1971.1	$1978^{+31}_{-26}$
$\ln(10^{10} A_s)$	3.0391	$3.041^{+0.038}_{-0.038}$	$\langle d^2 \rangle^{1/2}$	2.437	$2.431^{+0.052}_{-0.054}$	$H(0.61)$	95.57	$95.40^{+0.57}_{-0.73}$
$n_s$	0.9671	$0.9670^{+0.0098}_{-0.0098}$	$z_{\text{re}}$	7.56	$7.7^{+1.9}_{-2.1}$	$D_M(0.61)$	2294.4	$2302^{+33}_{-28}$
$y_{\text{cal}}$	1.0005	$1.0006^{+0.0065}_{-0.0064}$	$10^9 A_s$	2.089	$2.094^{+0.081}_{-0.079}$	$H(2.33)$	235.71	$235.9^{+1.6}_{-1.6}$
$A_{100}^{\text{PS}}$	235	$239^{+60}_{-60}$	$10^9 A_s e^{-2\tau}$	1.8776	$1.877^{+0.026}_{-0.027}$	$D_M(2.33)$	5750.8	$5759^{+37}_{-27}$
$A_{143}^{\text{PS}}$	41.4	$39^{+20}_{-20}$	$D_{40}$	1224.1	$1225^{+29}_{-29}$	$f\sigma_8(0.15)$	0.4576	$0.456^{+0.014}_{-0.015}$
$A_{217}^{\text{PS}}$	103.7	$103^{+30}_{-40}$	$D_{220}$	5720	$5724^{+100}_{-96}$	$\sigma_8(0.15)$	0.7583	$0.750^{+0.019}_{-0.030}$
$A_{217}^{\text{CIB}}$	42.1	$39^{+20}_{-20}$	$D_{810}$	2535.1	$2535^{+36}_{-34}$	$f\sigma_8(0.38)$	0.4774	$0.475^{+0.013}_{-0.015}$
$A_{143}^{\text{tSZ}}$	5.60	< 8.73	$D_{1420}$	816.1	$816^{+13}_{-13}$	$\sigma_8(0.38)$	0.6727	$0.665^{+0.017}_{-0.027}$
$r_{143 \times 217}^{\text{PS}}$	0.641	$0.66^{+0.31}_{-0.34}$	$D_{2000}$	230.55	$230.5^{+4.2}_{-4.2}$	$f\sigma_8(0.51)$	0.4766	$0.474^{+0.012}_{-0.015}$
$r_{143 \times 217}^{\text{CIB}}$	0.74	—	$n_{s,0.002}$	0.9671	$0.9670^{+0.0098}_{-0.0098}$	$\sigma_8(0.51)$	0.6297	$0.622^{+0.016}_{-0.026}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.33	—	$Y_P$	0.245382	$0.24538^{+0.00013}_{-0.00016}$	$f\sigma_8(0.61)$	0.4720	$0.469^{+0.011}_{-0.015}$
$A^{\text{kSZ}}$	1.5	—	$Y_P^{\text{BBN}}$	0.246708	$0.24671^{+0.00013}_{-0.00016}$	$\sigma_8(0.61)$	0.5993	$0.592^{+0.015}_{-0.025}$
$A_{100}^{\text{dust}}$	1.010	$1.01^{+0.50}_{-0.50}$	$10^5 D/H$	2.592	$2.593^{+0.070}_{-0.065}$	$f\sigma_8(2.33)$	0.3015	$0.2986^{+0.0073}_{-0.011}$
$A_{143}^{\text{dust}}$	0.987	$0.96^{+0.45}_{-0.45}$	Age/Gyr	13.769	$13.789^{+0.085}_{-0.063}$	$\sigma_8(2.33)$	0.3115	$0.3080^{+0.0082}_{-0.013}$
$A_{217}^{\text{dust}}$	0.968	$0.98^{+0.27}_{-0.26}$	$z_*$	1089.89	$1089.89^{+0.57}_{-0.56}$	$f_{2000}^{143}$	29.6	$30^{+7}_{-7}$
$A_{143 \times 217}^{\text{dust}}$	0.995	$1.03^{+0.43}_{-0.42}$	$r_*$	144.66	$144.70^{+0.60}_{-0.58}$	$f_{2000}^{217}$	106.61	$106.7^{+4.9}_{-4.8}$
$c_{100}$	0.99756	$0.9976^{+0.0027}_{-0.0027}$	$100\theta_*$	1.04110	$1.04112^{+0.00076}_{-0.00075}$	$f_{2000}^{143 \times 217}$	31.9	$32^{+5}_{-5}$
$c_{217}$	1.00108	$1.0011^{+0.0040}_{-0.0040}$	$D_M(z_*)/\text{Gpc}$	13.895	$13.898^{+0.060}_{-0.056}$	$\chi_{\text{lensing}}^2$	8.89	$9.39 (\nu: 0.3)$
$c_{TE}$	0.9965	$0.997^{+0.013}_{-0.012}$	$z_{\text{drag}}$	1059.78	$1059.78^{+0.80}_{-0.80}$	$\chi_{\text{small}}^2$	395.87	$397.0 (\nu: 1.4)$
$c_{EE}$	0.9921	$0.992^{+0.013}_{-0.013}$	$r_{\text{drag}}$	147.34	$147.37^{+0.65}_{-0.62}$	$\chi_{\text{lowl}}^2$	22.96	$23.02 (\nu: 0.3)$
$H_0$	68.10	$67.8^{+1.3}_{-1.5}$	$k_D$	0.14058	$0.14054^{+0.00077}_{-0.00081}$	$\chi_{\text{CamSpec}}^2$	11499.2	$11514.0 (\nu: 15.2)$
$\Omega_\Lambda$	0.6946	$0.691^{+0.016}_{-0.019}$	$100\theta_D$	0.160835	$0.16085^{+0.00047}_{-0.00046}$	$\chi_{6\text{DF}}^2$	0.001	$0.045 (\nu: 0.0)$
$\Omega_m$	0.3054	$0.309^{+0.019}_{-0.016}$	$z_{\text{eq}}$	3383	$3380^{+55}_{-58}$	$\chi_{\text{MGS}}^2$	1.61	$1.40 (\nu: 0.1)$
$\Omega_m h^2$	0.14162	$0.1420^{+0.0025}_{-0.0025}$	$k_{\text{eq}}$	0.010326	$0.01032^{+0.00017}_{-0.00018}$	$\chi_{\text{DR12BAO}}^2$	3.60	$4.5 (\nu: 1.0)$
$\Omega_\nu h^2$	0.00004	< 0.00187	$100\theta_{\text{eq}}$	0.8165	$0.817^{+0.011}_{-0.010}$	$\chi_{\text{prior}}^2$	2.1	$7.7 (\nu: 5.9)$
$\Omega_m h^3$	0.09644	$0.09623^{+0.00091}_{-0.0011}$	$100\theta_{s,\text{eq}}$	0.4511	$0.4514^{+0.0056}_{-0.0052}$	$\chi_{\text{CMB}}^2$	11926.9	$11943.4 (\nu: 16.6)$
$\sigma_8$	0.8201	$0.811^{+0.020}_{-0.032}$	$H(0.15)$	73.32	$73.0^{+1.1}_{-1.3}$	$\chi_{\text{BAO}}^2$	5.21	$6.0 (\nu: 0.6)$

Best-fit  $\chi_{\text{eff}}^2 = 11934.26$ ;  $\bar{\chi}_{\text{eff}}^2 = 11957.14$ ;  $R - 1 = 0.00745$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.61 DR12BAO: 3.60 CMB - smicadx12\_Dec5.ftl\_mv2.ndclpp\_p.teb\_consext8: 8.89 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 comman-  
der\_dx12\_v3\_2\_29: 22.96 CamSpec like\_10.7HM\_1400\_unified: 11499.19



# 6.64 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022346	$0.02234^{+0.00036}_{-0.00037}$	$\sigma_8 \Omega_m^{0.5}$	0.4525	$0.451^{+0.015}_{-0.016}$	$D_M(0.38)$	1519.6	$1525^{+25}_{-21}$
$\Omega_c h^2$	0.11912	$0.1190^{+0.0024}_{-0.0025}$	$\sigma_8 \Omega_m^{0.25}$	0.6091	$0.605^{+0.016}_{-0.020}$	$H(0.51)$	90.03	$89.83^{+0.66}_{-0.81}$
$100\theta_{MC}$	1.04097	$1.04095^{+0.00076}_{-0.00076}$	$\sigma_8/h^{0.5}$	0.9932	$0.986^{+0.025}_{-0.032}$	$D_M(0.51)$	1969.7	$1977^{+30}_{-25}$
$\tau$	0.0533	$0.055^{+0.019}_{-0.019}$	$r_{drag}h$	100.45	$99.99^{+2.1}_{-2.2}$	$H(0.61)$	95.60	$95.43^{+0.57}_{-0.70}$
$\Sigma m_\nu$ [eV]	0.001	< 0.164	$\langle d^2 \rangle^{1/2}$	2.435	$2.430^{+0.052}_{-0.054}$	$D_M(0.61)$	2292.9	$2300^{+33}_{-27}$
$\ln(10^{10} A_s)$	3.0391	$3.042^{+0.038}_{-0.038}$	$z_{re}$	7.56	$7.7^{+1.8}_{-2.0}$	$H(2.33)$	235.63	$235.8^{+1.5}_{-1.5}$
$n_s$	0.9675	$0.9672^{+0.0097}_{-0.0098}$	$10^9 A_s$	2.089	$2.094^{+0.080}_{-0.078}$	$D_M(2.33)$	5749.6	$5758^{+35}_{-27}$
$y_{cal}$	1.0004	$1.0006^{+0.0066}_{-0.0063}$	$10^9 A_s e^{-2\tau}$	1.8774	$1.877^{+0.026}_{-0.026}$	$f\sigma_8(0.15)$	0.4569	$0.455^{+0.014}_{-0.015}$
$A_{100}^{PS}$	232	$239^{+60}_{-60}$	$D_{40}$	1223.3	$1225^{+28}_{-29}$	$\sigma_8(0.15)$	0.7583	$0.750^{+0.018}_{-0.029}$
$A_{143}^{PS}$	44.3	$39^{+20}_{-20}$	$D_{220}$	5721	$5724^{+99}_{-96}$	$f\sigma_8(0.38)$	0.4769	$0.475^{+0.012}_{-0.014}$
$A_{217}^{PS}$	103.3	$103^{+30}_{-30}$	$D_{810}$	2535.5	$2536^{+36}_{-34}$	$\sigma_8(0.38)$	0.6728	$0.665^{+0.016}_{-0.026}$
$A_{217}^{CIB}$	43.3	$39^{+20}_{-20}$	$D_{1420}$	816.4	$816^{+13}_{-12}$	$f\sigma_8(0.51)$	0.4762	$0.473^{+0.012}_{-0.014}$
$A_{143}^{tSZ}$	6.49	< 8.77	$D_{2000}$	230.66	$230.5^{+4.3}_{-4.1}$	$\sigma_8(0.51)$	0.6298	$0.623^{+0.015}_{-0.025}$
$r_{143 \times 217}^{PS}$	0.662	$0.66^{+0.31}_{-0.34}$	$n_{s,0.002}$	0.9675	$0.9672^{+0.0097}_{-0.0098}$	$f\sigma_8(0.61)$	0.4717	$0.469^{+0.011}_{-0.014}$
$r_{143 \times 217}^{CIB}$	0.83	—	$Y_P$	0.245386	$0.24538^{+0.00013}_{-0.00016}$	$\sigma_8(0.61)$	0.5994	$0.593^{+0.015}_{-0.024}$
$\xi^{tSZ \times CIB}$	0.42	—	$Y_P^{BBN}$	0.246712	$0.24671^{+0.00014}_{-0.00016}$	$f\sigma_8(2.33)$	0.3015	$0.2989^{+0.0070}_{-0.011}$
$A^{kSZ}$	0.1	—	$10^5 D/H$	2.590	$2.592^{+0.070}_{-0.065}$	$\sigma_8(2.33)$	0.3116	$0.3083^{+0.0080}_{-0.012}$
$A_{100}^{dust}$	1.014	$1.01^{+0.49}_{-0.50}$	Age/Gyr	13.766	$13.786^{+0.079}_{-0.061}$	$f_{2000}^{143}$	29.6	$29^{+7}_{-7}$
$A_{143}^{dust}$	0.977	$0.96^{+0.44}_{-0.46}$	$z_*$	1089.87	$1089.87^{+0.57}_{-0.55}$	$f_{2000}^{217}$	106.43	$106.7^{+5.0}_{-4.7}$
$A_{217}^{dust}$	0.975	$0.98^{+0.27}_{-0.26}$	$r_*$	144.68	$144.71^{+0.58}_{-0.57}$	$f_{2000}^{143 \times 217}$	31.8	$32^{+5}_{-5}$
$A_{143 \times 217}^{dust}$	1.004	$1.03^{+0.43}_{-0.41}$	$100\theta_*$	1.04112	$1.04113^{+0.00075}_{-0.00075}$	$\chi^2_{lensing}$	8.88	$9.38 (\nu: 0.3)$
$c_{100}$	0.99773	$0.9976^{+0.0028}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	13.897	$13.899^{+0.059}_{-0.055}$	$\chi^2_{small}$	395.86	$397.0 (\nu: 1.4)$
$c_{217}$	1.00128	$1.0011^{+0.0040}_{-0.0040}$	$z_{drag}$	1059.82	$1059.79^{+0.79}_{-0.81}$	$\chi^2_{lowl}$	22.90	$22.99 (\nu: 0.3)$
$c_{TE}$	0.9964	$0.997^{+0.013}_{-0.012}$	$r_{drag}$	147.36	$147.39^{+0.64}_{-0.61}$	$\chi^2_{CamSpec}$	11499.3	$11514.0 (\nu: 15.0)$
$c_{EE}$	0.9922	$0.992^{+0.012}_{-0.012}$	$k_D$	0.14056	$0.14053^{+0.00076}_{-0.00081}$	$\chi^2_{JLA}$	1034.80	$1034.99 (\nu: 0.0)$
$H_0$	68.17	$67.8^{+1.2}_{-1.4}$	$100\theta_D$	0.160829	$0.16084^{+0.00047}_{-0.00046}$	$\chi^2_{6DF}$	0.000	$0.037 (\nu: 0.0)$
$\Omega_\Lambda$	0.6955	$0.692^{+0.015}_{-0.018}$	$z_{eq}$	3381	$3378^{+53}_{-56}$	$\chi^2_{MGS}$	1.68	$1.46 (\nu: 0.1)$
$\Omega_m$	0.3045	$0.308^{+0.018}_{-0.015}$	$k_{eq}$	0.010318	$0.01031^{+0.00016}_{-0.00017}$	$\chi^2_{DR12BAO}$	3.52	$4.3 (\nu: 0.7)$
$\Omega_m h^2$	0.14148	$0.1419^{+0.0024}_{-0.0024}$	$100\theta_{eq}$	0.8171	$0.818^{+0.011}_{-0.010}$	$\chi^2_{prior}$	2.1	$7.7 (\nu: 5.8)$
$\Omega_\nu h^2$	0.00001	< 0.00177	$100\theta_{s,eq}$	0.4514	$0.4516^{+0.0055}_{-0.0052}$	$\chi^2_{CMB}$	11926.9	$11943.4 (\nu: 16.3)$
$\Omega_m h^3$	0.09644	$0.09625^{+0.00089}_{-0.0011}$	$H(0.15)$	73.38	$73.1^{+1.1}_{-1.2}$	$\chi^2_{BAO}$	5.20	$5.84 (\nu: 0.4)$
$\sigma_8$	0.8200	$0.812^{+0.020}_{-0.031}$	$D_M(0.15)$	636.5	$639^{+12}_{-10}$			
$S_8$	0.8261	$0.823^{+0.027}_{-0.029}$	$H(0.38)$	83.38	$83.15^{+0.82}_{-0.96}$			

Best-fit  $\chi^2_{eff} = 12968.97$ ;  $\bar{\chi}^2_{eff} = 12991.94$ ;  $R - 1 = 0.00817$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.52 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.88 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3\_2\_29: 22.90 CamSpec like\_10.7HM\_1400\_unified: 11499.28 SN - JLA Pantheon18: 1034.80



6.65 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02234^{+0.00036}_{-0.00036}$	$S_8$	$0.824^{+0.028}_{-0.029}$	$D_M(0.15)$	$640^{+13}_{-11}$
$\Omega_c h^2$	$0.1191^{+0.0024}_{-0.0025}$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.015}_{-0.016}$	$H(0.38)$	$83.11^{+0.85}_{-0.99}$
$100\theta_{MC}$	$1.04094^{+0.00077}_{-0.00077}$	$\sigma_8 \Omega_m^{0.25}$	$0.605^{+0.016}_{-0.021}$	$D_M(0.38)$	$1527^{+26}_{-22}$
$\tau$	$0.055^{+0.017}_{-0.013}$	$\sigma_8/h^{0.5}$	$0.986^{+0.025}_{-0.034}$	$H(0.51)$	$89.80^{+0.69}_{-0.85}$
$\Sigma m_\nu$ [eV]	$< 0.175$	$r_{\text{drag}} h$	$99.9^{+2.2}_{-2.3}$	$D_M(0.51)$	$1978^{+31}_{-26}$
$\ln(10^{10} A_s)$	$3.043^{+0.036}_{-0.028}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.051}_{-0.051}$	$H(0.61)$	$95.40^{+0.58}_{-0.74}$
$n_s$	$0.9671^{+0.0098}_{-0.0098}$	$z_{\text{re}}$	$< 9.38$	$D_M(0.61)$	$2302^{+33}_{-28}$
$y_{\text{cal}}$	$1.0006^{+0.0064}_{-0.0065}$	$10^9 A_s$	$2.097^{+0.078}_{-0.058}$	$H(2.33)$	$235.9^{+1.6}_{-1.6}$
$A_{100}^{\text{PS}}$	$239^{+60}_{-70}$	$10^9 A_s e^{-2\tau}$	$1.877^{+0.026}_{-0.027}$	$D_M(2.33)$	$5759^{+37}_{-28}$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20}$	$D_{40}$	$1225^{+28}_{-28}$	$f\sigma_8(0.15)$	$0.456^{+0.014}_{-0.015}$
$A_{217}^{\text{PS}}$	$103^{+30}_{-40}$	$D_{220}$	$5723^{+100}_{-96}$	$\sigma_8(0.15)$	$0.750^{+0.019}_{-0.031}$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20}$	$D_{810}$	$2535^{+36}_{-34}$	$f\sigma_8(0.38)$	$0.475^{+0.013}_{-0.014}$
$A_{143}^{\text{tSZ}}$	$< 8.75$	$D_{1420}$	$816^{+13}_{-13}$	$\sigma_8(0.38)$	$0.665^{+0.017}_{-0.028}$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.34}$	$D_{2000}$	$230.5^{+4.2}_{-4.2}$	$f\sigma_8(0.51)$	$0.474^{+0.012}_{-0.015}$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{s,0.002}$	$0.9671^{+0.0098}_{-0.0098}$	$\sigma_8(0.51)$	$0.623^{+0.016}_{-0.026}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P$	$0.24538^{+0.00013}_{-0.00015}$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.015}$
$A^{\text{kSZ}}$	—	$Y_P^{\text{BBN}}$	$0.24671^{+0.00013}_{-0.00015}$	$\sigma_8(0.61)$	$0.593^{+0.015}_{-0.025}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.50}$	$10^5 D/H$	$2.592^{+0.069}_{-0.064}$	$f\sigma_8(2.33)$	$0.2988^{+0.0072}_{-0.011}$
$A_{143}^{\text{dust}}$	$0.96^{+0.44}_{-0.45}$	Age/Gyr	$13.789^{+0.085}_{-0.063}$	$\sigma_8(2.33)$	$0.3082^{+0.0081}_{-0.013}$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.26}$	$z_*$	$1089.88^{+0.57}_{-0.56}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.42}$	$r_*$	$144.70^{+0.60}_{-0.58}$	$f_{2000}^{217}$	$106.7^{+5.0}_{-4.9}$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027}$	$100\theta_*$	$1.04113^{+0.00076}_{-0.00075}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040}$	$D_M(z_*)/\text{Gpc}$	$13.898^{+0.060}_{-0.056}$	$\chi^2_{\text{lensing}}$	$9.34 (\nu: 0.3)$
$c_{TE}$	$0.997^{+0.013}_{-0.012}$	$z_{\text{drag}}$	$1059.79^{+0.79}_{-0.81}$	$\chi^2_{\text{simall}}$	$396.9 (\nu: 1.4)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$147.38^{+0.65}_{-0.62}$	$\chi^2_{\text{lowl}}$	$23.02 (\nu: 0.3)$
$H_0$	$67.8^{+1.3}_{-1.5}$	$k_D$	$0.14053^{+0.00077}_{-0.00082}$	$\chi^2_{\text{CamSpec}}$	$11513.9 (\nu: 15.1)$
$\Omega_\Lambda$	$0.691^{+0.016}_{-0.019}$	$100\theta_D$	$0.16084^{+0.00047}_{-0.00046}$	$\chi^2_{6\text{DF}}$	$0.044 (\nu: 0.0)$
$\Omega_m$	$0.309^{+0.019}_{-0.016}$	$z_{\text{eq}}$	$3379^{+55}_{-58}$	$\chi^2_{\text{MGS}}$	$1.41 (\nu: 0.1)$
$\Omega_m h^2$	$0.1420^{+0.0025}_{-0.0025}$	$k_{\text{eq}}$	$0.01031^{+0.00017}_{-0.00018}$	$\chi^2_{\text{DR12BAO}}$	$4.5 (\nu: 1.0)$
$\Omega_\nu h^2$	$< 0.00188$	$100\theta_{\text{eq}}$	$0.817^{+0.011}_{-0.010}$	$\chi^2_{\text{prior}}$	$7.7 (\nu: 5.9)$
$\Omega_m h^3$	$0.09623^{+0.00091}_{-0.0011}$	$100\theta_{s,\text{eq}}$	$0.4515^{+0.0056}_{-0.0053}$	$\chi^2_{\text{CMB}}$	$11943.2 (\nu: 16.3)$
$\sigma_8$	$0.812^{+0.020}_{-0.032}$	$H(0.15)$	$73.0^{+1.1}_{-1.3}$	$\chi^2_{\text{BAO}}$	$6.0 (\nu: 0.6)$

$$\bar{\chi}^2_{\text{eff}} = 11956.94; R - 1 = 0.00819$$



6.66 base\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02234^{+0.00036}_{-0.00036}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.015}_{-0.016}$	$D_{\mathrm{M}}(0.38)$	$1525^{+25}_{-21}$
$\Omega_{\mathrm{c}} h^2$	$0.1190^{+0.0023}_{-0.0025}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.016}_{-0.020}$	$H(0.51)$	$89.84^{+0.67}_{-0.82}$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00077}_{-0.00076}$	$\sigma_8/h^{0.5}$	$0.986^{+0.024}_{-0.033}$	$D_{\mathrm{M}}(0.51)$	$1976^{+30}_{-25}$
$\tau$	$0.055^{+0.017}_{-0.013}$	$r_{\mathrm{drag}} h$	$100.0^{+2.0}_{-2.2}$	$H(0.61)$	$95.43^{+0.57}_{-0.70}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.166$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.051}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	$2300^{+32}_{-27}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.036}_{-0.028}$	$z_{\mathrm{re}}$	$< 9.36$	$H(2.33)$	$235.8^{+1.5}_{-1.5}$
$n_{\mathrm{s}}$	$0.9673^{+0.0098}_{-0.0097}$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.077}_{-0.058}$	$D_{\mathrm{M}}(2.33)$	$5758^{+35}_{-27}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0065}_{-0.0063}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.026}_{-0.026}$	$f\sigma_8(0.15)$	$0.456^{+0.014}_{-0.014}$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60}$	$D_{40}$	$1225^{+28}_{-29}$	$\sigma_8(0.15)$	$0.751^{+0.018}_{-0.030}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{220}$	$5724^{+100}_{-97}$	$f\sigma_8(0.38)$	$0.475^{+0.012}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30}$	$D_{810}$	$2535^{+36}_{-34}$	$\sigma_8(0.38)$	$0.666^{+0.016}_{-0.027}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.474^{+0.011}_{-0.014}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.81$	$D_{2000}$	$230.5^{+4.2}_{-4.0}$	$\sigma_8(0.51)$	$0.623^{+0.015}_{-0.025}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.35}$	$n_{\mathrm{s},0.002}$	$0.9673^{+0.0098}_{-0.0097}$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.014}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00013}_{-0.00015}$	$\sigma_8(0.61)$	$0.593^{+0.014}_{-0.024}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00013}_{-0.00015}$	$f\sigma_8(2.33)$	$0.2991^{+0.0069}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.591^{+0.069}_{-0.065}$	$\sigma_8(2.33)$	$0.3085^{+0.0078}_{-0.013}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.786^{+0.080}_{-0.062}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.44}_{-0.46}$	$z_*$	$1089.86^{+0.56}_{-0.55}$	$f_{2000}^{217}$	$106.7^{+5.0}_{-4.8}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.26}_{-0.26}$	$r_*$	$144.72^{+0.59}_{-0.57}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.41}$	$100\theta_*$	$1.04114^{+0.00075}_{-0.00075}$	$\chi_{\mathrm{lensing}}^2$	$9.33 (\nu: 0.3)$
$c_{100}$	$0.9976^{+0.0028}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.900^{+0.059}_{-0.055}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.4)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.80^{+0.78}_{-0.82}$	$\chi_{\mathrm{lowl}}^2$	$22.99 (\nu: 0.3)$
$c_{TE}$	$0.996^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	$147.39^{+0.64}_{-0.61}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.0 (\nu: 15.0)$
$c_{EE}$	$0.992^{+0.012}_{-0.012}$	$k_{\mathrm{D}}$	$0.14052^{+0.00077}_{-0.00081}$	$\chi_{\mathrm{JLA}}^2$	$1034.99 (\nu: 0.0)$
$H_0$	$67.8^{+1.2}_{-1.4}$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00048}_{-0.00046}$	$\chi_{6\mathrm{DF}}^2$	$0.036 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.692^{+0.016}_{-0.018}$	$z_{\mathrm{eq}}$	$3378^{+53}_{-56}$	$\chi_{\mathrm{MGS}}^2$	$1.47 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.308^{+0.018}_{-0.016}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00016}_{-0.00017}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.3 (\nu: 0.7)$
$\Omega_{\mathrm{m}} h^2$	$0.1419^{+0.0024}_{-0.0023}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.011}_{-0.010}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 5.8)$
$\Omega_{\nu} h^2$	$< 0.00179$	$100\theta_{\mathrm{s,eq}}$	$0.4517^{+0.0055}_{-0.0051}$	$\chi_{\mathrm{CMB}}^2$	$11943.2 (\nu: 16.0)$
$\Omega_{\mathrm{m}} h^3$	$0.09625^{+0.00089}_{-0.0011}$	$H(0.15)$	$73.1^{+1.1}_{-1.2}$	$\chi_{\mathrm{BAO}}^2$	$5.83 (\nu: 0.4)$
$\sigma_8$	$0.812^{+0.019}_{-0.032}$	$D_{\mathrm{M}}(0.15)$	$639^{+12}_{-10}$		
$S_8$	$0.823^{+0.027}_{-0.028}$	$H(0.38)$	$83.15^{+0.82}_{-0.97}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12991.75; R - 1 = 0.00951$$



## 6.67 base\_mnu\_CleanedCamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02213	$0.02203^{+0.00061}_{-0.00071}$	$\sigma_8 \Omega_m^{0.25}$	0.614	$0.598^{+0.041}_{-0.074}$	$H(0.15)$	72.9	$71.2^{+3.2}_{-6.9}$
$\Omega_c h^2$	0.1201	$0.1209^{+0.0060}_{-0.0054}$	$\sigma_8/h^{0.5}$	0.9998	$0.969^{+0.064}_{-0.13}$	$D_M(0.15)$	641	$658^{+80}_{-30}$
$100\theta_{MC}$	1.04085	$1.0406^{+0.0013}_{-0.0014}$	$r_{drag} h$	99.6	$96.8^{+6.0}_{-12}$	$H(0.38)$	82.99	$81.7^{+2.4}_{-5.1}$
$\tau$	0.0518	$0.051^{+0.021}_{-0.023}$	$\langle d^2 \rangle^{1/2}$	2.453	$2.44^{+0.10}_{-0.10}$	$D_M(0.38)$	1530	$1564^{+160}_{-65}$
$\Sigma m_\nu$ [eV]	0.000	< 0.873	$z_{re}$	7.47	$7.4^{+2.1}_{-2.5}$	$H(0.51)$	89.70	$88.7^{+1.9}_{-4.1}$
$\ln(10^{10} A_s)$	3.0372	$3.037^{+0.042}_{-0.046}$	$10^9 A_s$	2.085	$2.085^{+0.090}_{-0.094}$	$D_M(0.51)$	1981	$2022^{+180}_{-76}$
$n_s$	0.9630	$0.961^{+0.016}_{-0.018}$	$10^9 A_s e^{-2\tau}$	1.8794	$1.881^{+0.036}_{-0.034}$	$H(0.61)$	95.32	$94.5^{+1.6}_{-3.4}$
$y_{cal}$	1.0004	$1.0004^{+0.0064}_{-0.0066}$	$D_{40}$	1231.1	$1233^{+40}_{-38}$	$D_M(0.61)$	2306	$2350^{+200}_{-83}$
$A_{100}^{PS}$	255	$258^{+70}_{-70}$	$D_{220}$	5708	$5706^{+110}_{-110}$	$H(2.33)$	236.1	$237.5^{+6.9}_{-3.9}$
$A_{143}^{tSZ}$	4.81	< 8.77	$D_{810}$	2531.2	$2532^{+35}_{-36}$	$D_M(2.33)$	5763	$5807^{+190}_{-78}$
$A^{kSZ}$	2.7	—	$D_{1420}$	812.6	$812^{+13}_{-14}$	$f\sigma_8(0.15)$	0.4625	$0.458^{+0.034}_{-0.036}$
$A_{100}^{dust}$	0.995	$1.00^{+0.51}_{-0.51}$	$D_{2000}$	229.1	$228.5^{+4.9}_{-5.4}$	$\sigma_8(0.15)$	0.759	$0.724^{+0.053}_{-0.13}$
$A_{143}^{power}$	11.4	$10.9^{+7.0}_{-5.7}$	$n_{s,0.002}$	0.9630	$0.961^{+0.016}_{-0.018}$	$f\sigma_8(0.38)$	0.4809	$0.471^{+0.031}_{-0.054}$
$A_{217}^{power}$	9.6	$8.5^{+7.7}_{-5.2}$	$Y_P$	0.245296	$0.24525^{+0.00025}_{-0.00032}$	$\sigma_8(0.38)$	0.673	$0.640^{+0.048}_{-0.12}$
$A_{143 \times 217}^{power}$	6.0	< 11.6	$Y_P^{BBN}$	0.246622	$0.24657^{+0.00025}_{-0.00032}$	$f\sigma_8(0.51)$	0.4795	$0.467^{+0.030}_{-0.062}$
$\gamma_{143}^{power}$	1.29	> 0.385	$10^5 D/H$	2.632	$2.65^{+0.14}_{-0.11}$	$\sigma_8(0.51)$	0.630	$0.598^{+0.045}_{-0.12}$
$\gamma_{217}^{power}$	1.41	—	Age/Gyr	13.796	$13.90^{+0.45}_{-0.18}$	$f\sigma_8(0.61)$	0.4744	$0.461^{+0.028}_{-0.067}$
$\gamma_{143 \times 217}^{power}$	1.32	—	$z_*$	1090.23	$1090.5^{+1.6}_{-1.1}$	$\sigma_8(0.61)$	0.599	$0.569^{+0.043}_{-0.11}$
$c_{100}$	0.99792	$0.9978^{+0.0027}_{-0.0029}$	$r_*$	144.60	$144.4^{+1.2}_{-1.4}$	$f\sigma_8(2.33)$	0.3011	$0.287^{+0.020}_{-0.055}$
$c_{217}$	0.99896	$0.9994^{+0.0044}_{-0.0035}$	$100\theta_*$	1.04102	$1.0409^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.3109	$0.295^{+0.023}_{-0.062}$
$H_0$	67.6	$65.7^{+3.7}_{-8.1}$	$D_M(z_*)/\text{Gpc}$	13.890	$13.88^{+0.11}_{-0.12}$	$f_{2000}^{143}$	23.3	$24^{+9}_{-8}$
$\Omega_\Lambda$	0.689	$0.663^{+0.056}_{-0.12}$	$z_{drag}$	1059.36	$1059.2^{+1.2}_{-1.3}$	$f_{2000}^{217}$	17.0	$17.4^{+5.9}_{-5.3}$
$\Omega_m$	0.311	$0.337^{+0.12}_{-0.056}$	$r_{drag}$	147.34	$147.2^{+1.2}_{-1.3}$	$f_{2000}^{143 \times 217}$	11.2	$11.7^{+6.5}_{-5.8}$
$\Omega_m h^2$	0.1422	$0.145^{+0.012}_{-0.0065}$	$k_D$	0.14041	$0.1405^{+0.0014}_{-0.0013}$	$\chi_{simall}^2$	395.81	$396.9 (\nu: 1.3)$
$\Omega_\nu h^2$	0.00000	< 0.00938	$100\theta_D$	0.16108	$0.16115^{+0.00074}_{-0.00068}$	$\chi_{lowl}^2$	23.69	$23.9 (\nu: 0.9)$
$\Omega_m h^3$	0.09615	$0.0951^{+0.0020}_{-0.0050}$	$z_{eq}$	3399	$3415^{+130}_{-120}$	$\chi_{CamSpec}^2$	6703.6	$6717.4 (\nu: 14.8)$
$\sigma_8$	0.822	$0.786^{+0.057}_{-0.14}$	$k_{eq}$	0.010374	$0.01042^{+0.00041}_{-0.00037}$	$\chi_{prior}^2$	1.5	$5.3 (\nu: 4.2)$
$S_8$	0.837	$0.831^{+0.066}_{-0.065}$	$100\theta_{eq}$	0.8131	$0.810^{+0.023}_{-0.024}$	$\chi_{CMB}^2$	7123.1	$7138.2 (\nu: 15.1)$
$\sigma_8 \Omega_m^{0.5}$	0.4586	$0.455^{+0.036}_{-0.036}$	$100\theta_{s,eq}$	0.4495	$0.448^{+0.012}_{-0.012}$			

Best-fit  $\chi_{\text{eff}}^2 = 7124.58$ ;  $\bar{\chi}_{\text{eff}}^2 = 7143.49$ ;  $R - 1 = 0.00791$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.81 commander\_dx12\_v3.2\_29: 23.69 CamSpec like\_10.7cleaned: 6703.61



## 6.68 base\_mnu\_lensing\_lenspriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	1540	$1082^{+700}_{-500}$	$H(0.15)$	92.1	$77^{+30}_{-30}$
$\Omega_c h^2$	0.127	$0.168^{+0.083}_{-0.074}$	$D_{220}$	6680	$4588^{+4000}_{-3000}$	$D_M(0.15)$	501	$655^{+300}_{-200}$
$100\theta_{MC}$	1.118	$1.11^{+0.14}_{-0.16}$	$D_{810}$	2684	$1908^{+2000}_{-1000}$	$H(0.38)$	101.0	$91^{+30}_{-30}$
$\Sigma m_\nu$ [eV]	0.55	—	$D_{1420}$	733	$564^{+500}_{-300}$	$D_M(0.38)$	1217	$1509^{+700}_{-500}$
$\ln(10^{10} A_s)$	3.238	$2.96^{+0.46}_{-0.45}$	$D_{2000}$	210	$167^{+200}_{-100}$	$H(0.51)$	107.1	$100^{+30}_{-30}$
$n_s$	0.961	$0.960^{+0.052}_{-0.053}$	$n_{s,0.002}$	0.961	$0.960^{+0.052}_{-0.053}$	$D_M(0.51)$	1592	$1927^{+800}_{-600}$
$H_0$	87.6	—	$Y_P$	0.24533	$0.24531^{+0.00055}_{-0.00056}$	$H(0.61)$	112.3	$108^{+30}_{-30}$
$\Omega_\Lambda$	0.80	$0.45^{+0.43}_{-0.98}$	$Y_P^{BBN}$	0.24666	$0.24664^{+0.00055}_{-0.00056}$	$D_M(0.61)$	1866	$2221^{+1000}_{-700}$
$\Omega_m$	0.20	$0.55^{+0.98}_{-0.43}$	$10^5 D/H$	2.616	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	252	$284^{+70}_{-70}$
$\Omega_m h^2$	0.155	$0.213^{+0.11}_{-0.096}$	Age/Gyr	11.97	$12.5^{+4.4}_{-3.1}$	$D_M(2.33)$	4976	$5207^{+2000}_{-1000}$
$\Omega_\nu h^2$	0.0059	$< 0.0526$	$z_*$	1090.9	$1094.9^{+7.8}_{-7.0}$	$f\sigma_8(0.15)$	0.406	$0.457^{+0.065}_{-0.098}$
$\Omega_m h^3$	0.136	$0.147^{+0.14}_{-0.097}$	$r_*$	142.6	$133^{+20}_{-20}$	$\sigma_8(0.15)$	0.816	$0.63^{+0.26}_{-0.23}$
$\sigma_8$	0.868	$0.70^{+0.24}_{-0.22}$	$100\theta_*$	1.118	$1.11^{+0.14}_{-0.16}$	$f\sigma_8(0.38)$	0.451	$0.440^{+0.055}_{-0.081}$
$S_8$	0.713	$0.87^{+0.27}_{-0.23}$	$D_M(z_*)/\text{Gpc}$	12.75	$12.0^{+3.6}_{-2.6}$	$\sigma_8(0.38)$	0.739	$0.55^{+0.26}_{-0.22}$
$\sigma_8 \Omega_m^{0.5}$	0.390	$0.47^{+0.15}_{-0.13}$	$z_{\text{drag}}$	1060.2	$1063.4^{+6.7}_{-6.9}$	$f\sigma_8(0.51)$	0.465	$0.427^{+0.069}_{-0.11}$
$\sigma_8 \Omega_m^{0.25}$	0.582	$0.569^{+0.059}_{-0.056}$	$r_{\text{drag}}$	145.3	$135^{+20}_{-20}$	$\sigma_8(0.51)$	0.699	$0.51^{+0.26}_{-0.22}$
$\sigma_8/h^{0.5}$	0.927	$0.85^{+0.15}_{-0.13}$	$k_D$	0.1428	$0.155^{+0.023}_{-0.022}$	$f\sigma_8(0.61)$	0.470	$0.416^{+0.081}_{-0.12}$
$r_{\text{drag}} h$	127.2	$93^{+50}_{-40}$	$100\theta_D$	0.1726	$0.170^{+0.019}_{-0.023}$	$\sigma_8(0.61)$	0.670	$0.49^{+0.25}_{-0.22}$
$\langle d^2 \rangle^{1/2}$	2.516	$2.50^{+0.15}_{-0.15}$	$z_{\text{eq}}$	3569	$4534^{+2000}_{-2000}$	$f\sigma_8(2.33)$	0.351	$0.25^{+0.14}_{-0.12}$
$z_{\text{re}}$	8.12	$8.9^{+1.6}_{-1.6}$	$k_{\text{eq}}$	0.0109	$0.0139^{+0.0062}_{-0.0055}$	$\sigma_8(2.33)$	0.366	$0.25^{+0.16}_{-0.12}$
$10^9 A_s$	2.55	$1.96^{+1.1}_{-0.73}$	$100\theta_{\text{eq}}$	0.843	$0.72^{+0.21}_{-0.15}$	$\chi^2_{\text{lensing}}$	7.4	$10.3 (\nu: 2.4)$
$10^9 A_s e^{-2\tau}$	2.28	$1.76^{+0.98}_{-0.66}$	$100\theta_{s,\text{eq}}$	0.467	$0.403^{+0.11}_{-0.080}$	$\chi^2_{\text{prior}}$	0.00	$2.0 (\nu: 2.1)$

Best-fit  $\chi^2_{\text{eff}} = 7.40$ ;  $\bar{\chi}^2_{\text{eff}} = 12.38$ ;  $R - 1 = 0.00245$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.40



## 6.69 base\_mnu\_lensing\_lenspriors\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02225	$0.0222^{+0.0013}_{-0.0014}$	$D_{220}$	6603	$4854^{+3000}_{-2000}$	$H(0.38)$	84.0	$102^{+20}_{-20}$
$\Omega_c h^2$	0.116	$0.168^{+0.073}_{-0.072}$	$D_{810}$	2872	$1826^{+2000}_{-1000}$	$D_M(0.38)$	1506	$1255^{+400}_{-200}$
$100\theta_{MC}$	1.048	$1.16^{+0.10}_{-0.15}$	$D_{1420}$	916	$527^{+600}_{-300}$	$H(0.51)$	90.6	$110^{+20}_{-30}$
$\Sigma m_\nu$ [eV]	0.31	—	$D_{2000}$	258	$152^{+200}_{-80}$	$D_M(0.51)$	1952	$1627^{+500}_{-300}$
$\ln(10^{10} A_s)$	3.166	$3.05^{+0.32}_{-0.28}$	$n_{s,0.002}$	0.959	$0.960^{+0.055}_{-0.051}$	$H(0.61)$	96.2	$117^{+20}_{-30}$
$n_s$	0.959	$0.960^{+0.055}_{-0.051}$	$Y_P$	0.24535	$0.24532^{+0.00056}_{-0.00059}$	$D_M(0.61)$	2274	$1895^{+600}_{-400}$
$H_0$	68.9	$> 63.5$	$Y_P^{BBN}$	0.24667	$0.24664^{+0.00056}_{-0.00059}$	$H(2.33)$	236	$287^{+60}_{-70}$
$\Omega_\Lambda$	0.702	$0.700^{+0.053}_{-0.058}$	$10^5 D/H$	2.607	$2.62^{+0.27}_{-0.23}$	$D_M(2.33)$	5719	$4765^{+1000}_{-900}$
$\Omega_m$	0.298	$0.300^{+0.058}_{-0.053}$	Age/Gyr	13.69	$11.4^{+3.3}_{-2.2}$	$f\sigma_8(0.15)$	0.4427	$0.433^{+0.047}_{-0.049}$
$\Omega_m h^2$	0.142	$0.212^{+0.098}_{-0.096}$	$z_*$	1089.8	$1094.9^{+7.2}_{-7.0}$	$\sigma_8(0.15)$	0.736	$0.717^{+0.086}_{-0.083}$
$\Omega_\nu h^2$	0.0033	$< 0.0513$	$r_*$	145.5	$133^{+20}_{-10}$	$f\sigma_8(0.38)$	0.4643	$0.455^{+0.046}_{-0.049}$
$\Omega_m h^3$	0.098	$0.18^{+0.12}_{-0.11}$	$100\theta_*$	1.049	$1.16^{+0.10}_{-0.15}$	$\sigma_8(0.38)$	0.655	$0.638^{+0.080}_{-0.076}$
$\sigma_8$	0.795	$0.774^{+0.090}_{-0.087}$	$D_M(z_*)/\text{Gpc}$	13.87	$11.6^{+3.3}_{-2.2}$	$f\sigma_8(0.51)$	0.4647	$0.456^{+0.047}_{-0.048}$
$S_8$	0.793	$0.772^{+0.090}_{-0.090}$	$z_{\text{drag}}$	1059.4	$1063.4^{+6.0}_{-6.7}$	$\sigma_8(0.51)$	0.614	$0.598^{+0.077}_{-0.073}$
$\sigma_8 \Omega_m^{0.5}$	0.4341	$0.423^{+0.049}_{-0.049}$	$r_{\text{drag}}$	148.2	$135^{+20}_{-10}$	$f\sigma_8(0.61)$	0.4611	$0.452^{+0.046}_{-0.048}$
$\sigma_8 \Omega_m^{0.25}$	0.587	$0.572^{+0.060}_{-0.061}$	$k_D$	0.1397	$0.155^{+0.020}_{-0.022}$	$\sigma_8(0.61)$	0.585	$0.570^{+0.075}_{-0.070}$
$\sigma_8/h^{0.5}$	0.957	$0.85^{+0.15}_{-0.14}$	$100\theta_D$	0.1622	$0.177^{+0.015}_{-0.020}$	$f\sigma_8(2.33)$	0.2992	$0.296^{+0.039}_{-0.037}$
$r_{\text{drag}} h$	102.1	$113^{+10}_{-20}$	$z_{\text{eq}}$	3307	$4555^{+2000}_{-2000}$	$\sigma_8(2.33)$	0.3069	$0.301^{+0.043}_{-0.040}$
$\langle d^2 \rangle^{1/2}$	2.517	$2.49^{+0.15}_{-0.14}$	$k_{\text{eq}}$	0.0101	$0.0140^{+0.0055}_{-0.0053}$	$\chi^2_{\text{lensing}}$	7.5	$10.2 (\nu: 2.2)$
$z_{\text{re}}$	7.77	$8.9^{+1.5}_{-1.6}$	$100\theta_{\text{eq}}$	0.837	$0.75^{+0.15}_{-0.11}$	$\chi^2_{\text{JLA}}$	1034.73	$1035.7 (\nu: 0.9)$
$10^9 A_s$	2.37	$2.12^{+0.77}_{-0.52}$	$100\theta_{s,\text{eq}}$	0.462	$0.416^{+0.078}_{-0.058}$	$\chi^2_{\text{prior}}$	0.01	$2.0 (\nu: 2.1)$
$10^9 A_s e^{-2\tau}$	2.12	$1.90^{+0.69}_{-0.47}$	$H(0.15)$	74.1	$90^{+20}_{-20}$			
$D_{40}$	1421	$1182^{+500}_{-400}$	$D_M(0.15)$	630	$525^{+200}_{-100}$			

Best-fit  $\chi^2_{\text{eff}} = 1042.24$ ;  $\bar{\chi}^2_{\text{eff}} = 1047.91$ ;  $R - 1 = 0.00847$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.49 SN - JLA Pantheon18: 1034.73



## 6.70 base\_mnu\_lensing\_lenspriors\_post\_agr2

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1101^{+800}_{-500}$	$H(0.15)$	$77^{+30}_{-30}$
$\Omega_{\mathrm{c}} h^2$	$0.166^{+0.080}_{-0.074}$	$D_{220}$	$4687^{+4000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$653^{+300}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.11^{+0.14}_{-0.16}$	$D_{810}$	$1939^{+2000}_{-1000}$	$H(0.38)$	$91^{+30}_{-30}$
$\Sigma m_{\nu}$ [eV]	—	$D_{1420}$	$572^{+500}_{-400}$	$D_{\mathrm{M}}(0.38)$	$1505^{+700}_{-500}$
$\ln(10^{10} A_{\mathrm{s}})$	$2.97^{+0.47}_{-0.45}$	$D_{2000}$	$169^{+200}_{-100}$	$H(0.51)$	$100^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.054}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.054}$	$D_{\mathrm{M}}(0.51)$	$1921^{+800}_{-600}$
$H_0$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00057}$	$H(0.61)$	$108^{+30}_{-30}$
$\Omega_{\Lambda}$	$0.46^{+0.44}_{-0.99}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00058}$	$D_{\mathrm{M}}(0.61)$	$2215^{+1000}_{-700}$
$\Omega_{\mathrm{m}}$	$0.54^{+0.99}_{-0.44}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.27}_{-0.23}$	$H(2.33)$	$283^{+70}_{-70}$
$\Omega_{\mathrm{m}} h^2$	$0.212^{+0.11}_{-0.098}$	Age/Gyr	$12.5^{+4.4}_{-3.1}$	$D_{\mathrm{M}}(2.33)$	$5203^{+2000}_{-1000}$
$\Omega_{\nu} h^2$	$< 0.0527$	$z_{*}$	$1094.8^{+7.5}_{-7.4}$	$f\sigma_8(0.15)$	$0.449^{+0.058}_{-0.094}$
$\Omega_{\mathrm{m}} h^3$	$0.146^{+0.14}_{-0.097}$	$r_{*}$	$133^{+20}_{-20}$	$\sigma_8(0.15)$	$0.62^{+0.25}_{-0.22}$
$\sigma_8$	$0.69^{+0.24}_{-0.21}$	$100\theta_{*}$	$1.11^{+0.14}_{-0.16}$	$f\sigma_8(0.38)$	$0.433^{+0.046}_{-0.076}$
$S_8$	$0.85^{+0.27}_{-0.23}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.0^{+3.6}_{-2.7}$	$\sigma_8(0.38)$	$0.55^{+0.26}_{-0.22}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.47^{+0.15}_{-0.12}$	$z_{\mathrm{drag}}$	$1063.3^{+6.6}_{-7.0}$	$f\sigma_8(0.51)$	$0.420^{+0.060}_{-0.10}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.559^{+0.047}_{-0.044}$	$r_{\mathrm{drag}}$	$136^{+20}_{-20}$	$\sigma_8(0.51)$	$0.51^{+0.25}_{-0.22}$
$\sigma_8/h^{0.5}$	$0.83^{+0.15}_{-0.11}$	$k_{\mathrm{D}}$	$0.155^{+0.022}_{-0.022}$	$f\sigma_8(0.61)$	$0.410^{+0.073}_{-0.12}$
$r_{\mathrm{drag}} h$	$93^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.019}_{-0.023}$	$\sigma_8(0.61)$	$0.48^{+0.25}_{-0.21}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.15}_{-0.15}$	$z_{\mathrm{eq}}$	$4494^{+2000}_{-2000}$	$f\sigma_8(2.33)$	$0.25^{+0.14}_{-0.12}$
$z_{\mathrm{re}}$	$8.9^{+1.6}_{-1.6}$	$k_{\mathrm{eq}}$	$0.0138^{+0.0060}_{-0.0055}$	$\sigma_8(2.33)$	$0.25^{+0.16}_{-0.12}$
$10^9 A_{\mathrm{s}}$	$1.99^{+1.1}_{-0.79}$	$100\theta_{\mathrm{eq}}$	$0.73^{+0.21}_{-0.15}$	$\chi^2_{\mathrm{lensing}}$	$12.6 (\nu: 2.3)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.78^{+0.95}_{-0.70}$	$100\theta_{\mathrm{s,eq}}$	$0.407^{+0.11}_{-0.078}$	$\chi^2_{\mathrm{prior}}$	$2.1 (\nu: 2.2)$

$\bar{\chi}^2_{\mathrm{eff}} = 14.65$ ;  $R - 1 = 0.00247$



# 6.71 base\_mnu\_lensing\_lenspriors\_post\_conslmin40

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1089^{+800}_{-500}$	$H(0.15)$	$77^{+30}_{-30}$
$\Omega_{\mathrm{c}} h^2$	$0.168^{+0.092}_{-0.078}$	$D_{220}$	$4631^{+4000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$655^{+300}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.11^{+0.14}_{-0.16}$	$D_{810}$	$1919^{+2000}_{-1000}$	$H(0.38)$	$91^{+30}_{-30}$
$\Sigma m_{\nu}$ [eV]	—	$D_{1420}$	$568^{+500}_{-400}$	$D_{\mathrm{M}}(0.38)$	$1509^{+700}_{-500}$
$\ln(10^{10} A_{\mathrm{s}})$	$2.96^{+0.49}_{-0.50}$	$D_{2000}$	$169^{+200}_{-100}$	$H(0.51)$	$100^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.053}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.053}$	$D_{\mathrm{M}}(0.51)$	$1926^{+900}_{-600}$
$H_0$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00056}$	$H(0.61)$	$108^{+30}_{-30}$
$\Omega_{\Lambda}$	$0.45^{+0.44}_{-1.0}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00057}$	$D_{\mathrm{M}}(0.61)$	$2220^{+1000}_{-700}$
$\Omega_{\mathrm{m}}$	$0.55^{+1.0}_{-0.44}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$284^{+70}_{-70}$
$\Omega_{\mathrm{m}} h^2$	$0.21^{+0.12}_{-0.10}$	Age/Gyr	$12.5^{+4.5}_{-3.2}$	$D_{\mathrm{M}}(2.33)$	$5208^{+2000}_{-1000}$
$\Omega_{\nu} h^2$	$< 0.0527$	$z_{*}$	$1094.9^{+8.4}_{-7.4}$	$f\sigma_8(0.15)$	$0.457^{+0.067}_{-0.10}$
$\Omega_{\mathrm{m}} h^3$	$0.15^{+0.15}_{-0.10}$	$r_{*}$	$133^{+20}_{-20}$	$\sigma_8(0.15)$	$0.63^{+0.26}_{-0.23}$
$\sigma_8$	$0.70^{+0.25}_{-0.22}$	$100\theta_{*}$	$1.11^{+0.14}_{-0.16}$	$f\sigma_8(0.38)$	$0.440^{+0.059}_{-0.081}$
$S_8$	$0.87^{+0.28}_{-0.24}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.0^{+3.7}_{-2.8}$	$\sigma_8(0.38)$	$0.55^{+0.26}_{-0.23}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.47^{+0.15}_{-0.13}$	$z_{\mathrm{drag}}$	$1063.4^{+7.1}_{-7.1}$	$f\sigma_8(0.51)$	$0.427^{+0.071}_{-0.11}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.569^{+0.064}_{-0.058}$	$r_{\mathrm{drag}}$	$135^{+20}_{-20}$	$\sigma_8(0.51)$	$0.51^{+0.26}_{-0.22}$
$\sigma_8/h^{0.5}$	$0.85^{+0.15}_{-0.13}$	$k_{\mathrm{D}}$	$0.155^{+0.024}_{-0.023}$	$f\sigma_8(0.61)$	$0.416^{+0.083}_{-0.12}$
$r_{\mathrm{drag}} h$	$93^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.020}_{-0.023}$	$\sigma_8(0.61)$	$0.49^{+0.25}_{-0.22}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.19}_{-0.19}$	$z_{\mathrm{eq}}$	$4547^{+2000}_{-2000}$	$f\sigma_8(2.33)$	$0.25^{+0.14}_{-0.11}$
$z_{\mathrm{re}}$	$8.9^{+1.7}_{-1.7}$	$k_{\mathrm{eq}}$	$0.0140^{+0.0069}_{-0.0058}$	$\sigma_8(2.33)$	$0.25^{+0.16}_{-0.12}$
$10^9 A_{\mathrm{s}}$	$1.97^{+1.2}_{-0.80}$	$100\theta_{\mathrm{eq}}$	$0.72^{+0.22}_{-0.16}$	$\chi^2_{\mathrm{lensing}}$	$10.3 (\nu: 2.3)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.77^{+1.1}_{-0.72}$	$100\theta_{\mathrm{s,eq}}$	$0.404^{+0.11}_{-0.088}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.1)$

$\bar{\chi}^2_{\mathrm{eff}} = 12.33$ ;  $R - 1 = 0.00626$



## 6.72 base\_mnu\_lensing\_lenspriors\_post\_agrlmax425

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1090^{+700}_{-500}$	$H(0.15)$	$76^{+30}_{-30}$
$\Omega_{\mathrm{c}}h^2$	$0.166^{+0.086}_{-0.072}$	$D_{220}$	$4639^{+4000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$658^{+300}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.11^{+0.14}_{-0.16}$	$D_{810}$	$1937^{+2000}_{-1000}$	$H(0.38)$	$90^{+30}_{-30}$
$\Sigma m_{\nu}$ [eV]	—	$D_{1420}$	$573^{+500}_{-400}$	$D_{\mathrm{M}}(0.38)$	$1517^{+700}_{-500}$
$\ln(10^{10}A_{\mathrm{s}})$	$2.96^{+0.45}_{-0.46}$	$D_{2000}$	$170^{+200}_{-100}$	$H(0.51)$	$100^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.053}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.053}$	$D_{\mathrm{M}}(0.51)$	$1937^{+800}_{-600}$
$H_0$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00057}$	$H(0.61)$	$107^{+30}_{-30}$
$\Omega_{\Lambda}$	$0.46^{+0.43}_{-0.98}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00057}$	$D_{\mathrm{M}}(0.61)$	$2233^{+900}_{-700}$
$\Omega_{\mathrm{m}}$	$0.54^{+0.98}_{-0.43}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$281^{+70}_{-70}$
$\Omega_{\mathrm{m}}h^2$	$0.209^{+0.11}_{-0.092}$	Age/Gyr	$12.6^{+4.3}_{-3.2}$	$D_{\mathrm{M}}(2.33)$	$5241^{+2000}_{-1000}$
$\Omega_{\nu}h^2$	$< 0.0523$	$z_{*}$	$1094.6^{+8.1}_{-6.8}$	$f\sigma_8(0.15)$	$0.460^{+0.065}_{-0.097}$
$\Omega_{\mathrm{m}}h^3$	$0.143^{+0.14}_{-0.094}$	$r_{*}$	$134^{+20}_{-20}$	$\sigma_8(0.15)$	$0.64^{+0.25}_{-0.23}$
$\sigma_8$	$0.70^{+0.24}_{-0.22}$	$100\theta_{*}$	$1.11^{+0.14}_{-0.16}$	$f\sigma_8(0.38)$	$0.443^{+0.055}_{-0.082}$
$S_8$	$0.87^{+0.27}_{-0.23}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.1^{+3.6}_{-2.6}$	$\sigma_8(0.38)$	$0.56^{+0.26}_{-0.23}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.48^{+0.15}_{-0.13}$	$z_{\mathrm{drag}}$	$1063.2^{+6.9}_{-6.7}$	$f\sigma_8(0.51)$	$0.431^{+0.068}_{-0.11}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.573^{+0.059}_{-0.056}$	$r_{\mathrm{drag}}$	$136^{+20}_{-20}$	$\sigma_8(0.51)$	$0.52^{+0.25}_{-0.22}$
$\sigma_8/h^{0.5}$	$0.85^{+0.15}_{-0.13}$	$k_{\mathrm{D}}$	$0.154^{+0.023}_{-0.021}$	$f\sigma_8(0.61)$	$0.420^{+0.080}_{-0.12}$
$r_{\mathrm{drag}}h$	$93^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.020}_{-0.022}$	$\sigma_8(0.61)$	$0.49^{+0.25}_{-0.21}$
$\langle d^2 \rangle^{1/2}$	$2.49^{+0.15}_{-0.15}$	$z_{\mathrm{eq}}$	$4487^{+2000}_{-2000}$	$f\sigma_8(2.33)$	$0.25^{+0.14}_{-0.12}$
$z_{\mathrm{re}}$	$8.8^{+1.7}_{-1.5}$	$k_{\mathrm{eq}}$	$0.0138^{+0.0064}_{-0.0053}$	$\sigma_8(2.33)$	$0.26^{+0.16}_{-0.13}$
$10^9A_{\mathrm{s}}$	$1.97^{+1.1}_{-0.75}$	$100\theta_{\mathrm{eq}}$	$0.73^{+0.20}_{-0.15}$	$\chi^2_{\mathrm{lensing}}$	$8.2 (\nu: 2.6)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.77^{+0.96}_{-0.67}$	$100\theta_{\mathrm{s,eq}}$	$0.404^{+0.10}_{-0.083}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.1)$

$\bar{\chi}^2_{\mathrm{eff}} = 10.23$ ;  $R - 1 = 0.00322$



### 6.73 base\_mnu\_lensing\_lenspriors\_post\_ptt

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1245^{+800}_{-600}$	$H(0.15)$	$76^{+30}_{-30}$
$\Omega_{\mathrm{c}}h^2$	$0.153^{+0.082}_{-0.077}$	$D_{220}$	$5459^{+5000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$660^{+300}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.10^{+0.14}_{-0.16}$	$D_{810}$	$2219^{+2000}_{-1000}$	$H(0.38)$	$90^{+30}_{-30}$
$\Sigma m_{\nu}$ [eV]	—	$D_{1420}$	$659^{+500}_{-400}$	$D_{\mathrm{M}}(0.38)$	$1528^{+700}_{-500}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.08^{+0.44}_{-0.47}$	$D_{2000}$	$200^{+300}_{-100}$	$H(0.51)$	$98^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.959^{+0.051}_{-0.054}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.051}_{-0.054}$	$D_{\mathrm{M}}(0.51)$	$1954^{+900}_{-600}$
$H_0$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00057}$	$H(0.61)$	$105^{+30}_{-30}$
$\Omega_{\Lambda}$	$0.49^{+0.43}_{-0.93}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00057}$	$D_{\mathrm{M}}(0.61)$	$2255^{+1000}_{-700}$
$\Omega_{\mathrm{m}}$	$0.51^{+0.92}_{-0.43}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$274^{+70}_{-70}$
$\Omega_{\mathrm{m}}h^2$	$0.20^{+0.11}_{-0.10}$	Age/Gyr	$12.8^{+4.7}_{-3.5}$	$D_{\mathrm{M}}(2.33)$	$5336^{+2000}_{-1000}$
$\Omega_{\nu}h^2$	$< 0.0524$	$z_{*}$	$1093.8^{+7.9}_{-7.7}$	$f\sigma_8(0.15)$	$0.441^{+0.076}_{-0.099}$
$\Omega_{\mathrm{m}}h^3$	$0.14^{+0.14}_{-0.10}$	$r_{*}$	$136^{+20}_{-20}$	$\sigma_8(0.15)$	$0.63^{+0.25}_{-0.22}$
$\sigma_8$	$0.69^{+0.24}_{-0.21}$	$100\theta_{*}$	$1.10^{+0.14}_{-0.16}$	$f\sigma_8(0.38)$	$0.429^{+0.055}_{-0.072}$
$S_8$	$0.83^{+0.28}_{-0.24}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.4^{+3.9}_{-2.7}$	$\sigma_8(0.38)$	$0.55^{+0.26}_{-0.24}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.45^{+0.15}_{-0.13}$	$z_{\mathrm{drag}}$	$1062.5^{+7.0}_{-7.2}$	$f\sigma_8(0.51)$	$0.419^{+0.066}_{-0.098}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.553^{+0.060}_{-0.059}$	$r_{\mathrm{drag}}$	$138^{+20}_{-20}$	$\sigma_8(0.51)$	$0.51^{+0.26}_{-0.24}$
$\sigma_8/h^{0.5}$	$0.84^{+0.16}_{-0.12}$	$k_{\mathrm{D}}$	$0.152^{+0.024}_{-0.024}$	$f\sigma_8(0.61)$	$0.409^{+0.078}_{-0.11}$
$r_{\mathrm{drag}}h$	$95^{+50}_{-50}$	$100\theta_{\mathrm{D}}$	$0.169^{+0.020}_{-0.024}$	$\sigma_8(0.61)$	$0.49^{+0.26}_{-0.23}$
$\langle d^2 \rangle^{1/2}$	$2.57^{+0.19}_{-0.18}$	$z_{\mathrm{eq}}$	$4185^{+2000}_{-2000}$	$f\sigma_8(2.33)$	$0.25^{+0.14}_{-0.13}$
$z_{\mathrm{re}}$	$8.7^{+1.6}_{-1.6}$	$k_{\mathrm{eq}}$	$0.0129^{+0.0061}_{-0.0057}$	$\sigma_8(2.33)$	$0.25^{+0.16}_{-0.13}$
$10^9A_{\mathrm{s}}$	$2.22^{+1.2}_{-0.86}$	$100\theta_{\mathrm{eq}}$	$0.76^{+0.21}_{-0.16}$	$\chi^2_{\mathrm{lensing}}$	$11.5 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.99^{+1.0}_{-0.77}$	$100\theta_{\mathrm{s,eq}}$	$0.423^{+0.11}_{-0.085}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.1)$

$\bar{\chi}^2_{\mathrm{eff}} = 13.44$ ;  $R - 1 = 0.08205$



## 6.74 base\_mnu\_lensing\_lenspriors\_post\_bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1055^{+700}_{-500}$	$H(0.15)$	$77^{+30}_{-30}$
$\Omega_{\mathrm{c}} h^2$	$0.169^{+0.085}_{-0.075}$	$D_{220}$	$4463^{+4000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$654^{+300}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.11^{+0.14}_{-0.16}$	$D_{810}$	$1859^{+1000}_{-1000}$	$H(0.38)$	$91^{+30}_{-30}$
$\Sigma m_{\nu}$ [eV]	—	$D_{1420}$	$549^{+500}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1507^{+700}_{-500}$
$\ln(10^{10} A_{\mathrm{s}})$	$2.94^{+0.45}_{-0.45}$	$D_{2000}$	$163^{+200}_{-100}$	$H(0.51)$	$100^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.053}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.053}$	$D_{\mathrm{M}}(0.51)$	$1924^{+800}_{-600}$
$H_0$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00059}$	$H(0.61)$	$108^{+30}_{-30}$
$\Omega_{\Lambda}$	$0.45^{+0.44}_{-1.0}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00059}$	$D_{\mathrm{M}}(0.61)$	$2218^{+900}_{-700}$
$\Omega_{\mathrm{m}}$	$0.55^{+1.0}_{-0.44}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.27}_{-0.23}$	$H(2.33)$	$284^{+70}_{-70}$
$\Omega_{\mathrm{m}} h^2$	$0.213^{+0.11}_{-0.097}$	Age/Gyr	$12.5^{+4.3}_{-3.2}$	$D_{\mathrm{M}}(2.33)$	$5199^{+2000}_{-1000}$
$\Omega_{\nu} h^2$	$< 0.0526$	$z_{*}$	$1094.9^{+7.8}_{-7.3}$	$f\sigma_8(0.15)$	$0.455^{+0.065}_{-0.096}$
$\Omega_{\mathrm{m}} h^3$	$0.147^{+0.14}_{-0.098}$	$r_{*}$	$133^{+20}_{-20}$	$\sigma_8(0.15)$	$0.63^{+0.25}_{-0.23}$
$\sigma_8$	$0.69^{+0.24}_{-0.22}$	$100\theta_{*}$	$1.11^{+0.14}_{-0.16}$	$f\sigma_8(0.38)$	$0.438^{+0.055}_{-0.082}$
$S_8$	$0.86^{+0.27}_{-0.23}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.0^{+3.5}_{-2.7}$	$\sigma_8(0.38)$	$0.55^{+0.26}_{-0.22}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.47^{+0.15}_{-0.13}$	$z_{\mathrm{drag}}$	$1063.5^{+6.8}_{-6.9}$	$f\sigma_8(0.51)$	$0.425^{+0.069}_{-0.11}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.566^{+0.060}_{-0.055}$	$r_{\mathrm{drag}}$	$135^{+20}_{-20}$	$\sigma_8(0.51)$	$0.51^{+0.26}_{-0.22}$
$\sigma_8/h^{0.5}$	$0.84^{+0.15}_{-0.13}$	$k_{\mathrm{D}}$	$0.155^{+0.023}_{-0.022}$	$f\sigma_8(0.61)$	$0.414^{+0.081}_{-0.12}$
$r_{\mathrm{drag}} h$	$93^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.019}_{-0.023}$	$\sigma_8(0.61)$	$0.49^{+0.25}_{-0.22}$
$\langle d^2 \rangle^{1/2}$	$2.47^{+0.15}_{-0.14}$	$z_{\mathrm{eq}}$	$4559^{+2000}_{-2000}$	$f\sigma_8(2.33)$	$0.25^{+0.14}_{-0.12}$
$z_{\mathrm{re}}$	$8.9^{+1.6}_{-1.6}$	$k_{\mathrm{eq}}$	$0.0140^{+0.0063}_{-0.0055}$	$\sigma_8(2.33)$	$0.25^{+0.16}_{-0.12}$
$10^9 A_{\mathrm{s}}$	$1.92^{+1.0}_{-0.72}$	$100\theta_{\mathrm{eq}}$	$0.72^{+0.20}_{-0.15}$	$\chi^2_{\mathrm{lensing}}$	$10.5 (\nu: 2.4)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.72^{+0.93}_{-0.64}$	$100\theta_{\mathrm{s,eq}}$	$0.402^{+0.10}_{-0.081}$	$\chi^2_{\mathrm{prior}}$	$2.1 (\nu: 2.1)$

$\bar{\chi}^2_{\mathrm{eff}} = 12.60$ ;  $R - 1 = 0.00308$



## 6.75 base\_mnu\_lensing\_lenspriors\_post\_agr2bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1077^{+700}_{-500}$	$H(0.15)$	$77^{+30}_{-30}$
$\Omega_{\mathrm{c}}h^2$	$0.166^{+0.082}_{-0.075}$	$D_{220}$	$4579^{+4000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$652^{+300}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.11^{+0.14}_{-0.16}$	$D_{810}$	$1896^{+2000}_{-1000}$	$H(0.38)$	$91^{+30}_{-30}$
$\Sigma m_{\nu}$ [eV]	—	$D_{1420}$	$559^{+500}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1505^{+700}_{-500}$
$\ln(10^{10}A_{\mathrm{s}})$	$2.95^{+0.46}_{-0.45}$	$D_{2000}$	$166^{+200}_{-100}$	$H(0.51)$	$100^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.055}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.055}$	$D_{\mathrm{M}}(0.51)$	$1921^{+800}_{-600}$
$H_0$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00059}$	$H(0.61)$	$108^{+30}_{-30}$
$\Omega_{\Lambda}$	$0.46^{+0.44}_{-1.0}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00059}$	$D_{\mathrm{M}}(0.61)$	$2215^{+900}_{-700}$
$\Omega_{\mathrm{m}}$	$0.54^{+1.0}_{-0.44}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.27}_{-0.23}$	$H(2.33)$	$283^{+70}_{-70}$
$\Omega_{\mathrm{m}}h^2$	$0.212^{+0.11}_{-0.097}$	Age/Gyr	$12.5^{+4.4}_{-3.2}$	$D_{\mathrm{M}}(2.33)$	$5205^{+2000}_{-1000}$
$\Omega_{\nu}h^2$	$< 0.0526$	$z_{*}$	$1094.8^{+7.7}_{-7.4}$	$f\sigma_8(0.15)$	$0.447^{+0.057}_{-0.092}$
$\Omega_{\mathrm{m}}h^3$	$0.146^{+0.14}_{-0.098}$	$r_{*}$	$133^{+20}_{-20}$	$\sigma_8(0.15)$	$0.62^{+0.25}_{-0.22}$
$\sigma_8$	$0.68^{+0.24}_{-0.21}$	$100\theta_{*}$	$1.11^{+0.14}_{-0.16}$	$f\sigma_8(0.38)$	$0.431^{+0.046}_{-0.077}$
$S_8$	$0.85^{+0.26}_{-0.22}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.1^{+3.6}_{-2.7}$	$\sigma_8(0.38)$	$0.54^{+0.25}_{-0.22}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.46^{+0.15}_{-0.12}$	$z_{\mathrm{drag}}$	$1063.3^{+6.7}_{-7.0}$	$f\sigma_8(0.51)$	$0.419^{+0.060}_{-0.10}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.557^{+0.047}_{-0.044}$	$r_{\mathrm{drag}}$	$136^{+20}_{-20}$	$\sigma_8(0.51)$	$0.51^{+0.25}_{-0.21}$
$\sigma_8/h^{0.5}$	$0.83^{+0.15}_{-0.11}$	$k_{\mathrm{D}}$	$0.155^{+0.023}_{-0.022}$	$f\sigma_8(0.61)$	$0.408^{+0.072}_{-0.12}$
$r_{\mathrm{drag}}h$	$93^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.019}_{-0.023}$	$\sigma_8(0.61)$	$0.48^{+0.25}_{-0.21}$
$\langle d^2 \rangle^{1/2}$	$2.47^{+0.15}_{-0.15}$	$z_{\mathrm{eq}}$	$4504^{+2000}_{-2000}$	$f\sigma_8(2.33)$	$0.25^{+0.14}_{-0.11}$
$z_{\mathrm{re}}$	$8.9^{+1.6}_{-1.6}$	$k_{\mathrm{eq}}$	$0.0138^{+0.0062}_{-0.0055}$	$\sigma_8(2.33)$	$0.25^{+0.16}_{-0.12}$
$10^9A_{\mathrm{s}}$	$1.95^{+1.0}_{-0.78}$	$100\theta_{\mathrm{eq}}$	$0.73^{+0.20}_{-0.15}$	$\chi^2_{\mathrm{lensing}}$	$12.8 (\nu: 2.3)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.74^{+0.90}_{-0.70}$	$100\theta_{\mathrm{s,eq}}$	$0.406^{+0.11}_{-0.079}$	$\chi^2_{\mathrm{prior}}$	$2.1 (\nu: 2.2)$

$\bar{\chi}^2_{\mathrm{eff}} = 14.86$ ;  $R - 1 = 0.00267$



## 6.76 base\_mnu\_lensing\_lenspriors\_post\_linear

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1050^{+700}_{-500}$	$H(0.15)$	$77^{+30}_{-30}$
$\Omega_{\mathrm{c}} h^2$	$0.172^{+0.085}_{-0.076}$	$D_{220}$	$4412^{+4000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$657^{+300}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.11^{+0.14}_{-0.16}$	$D_{810}$	$1847^{+2000}_{-1000}$	$H(0.38)$	$91^{+30}_{-30}$
$\Sigma m_{\nu}$ [eV]	—	$D_{1420}$	$545^{+500}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1510^{+700}_{-500}$
$\ln(10^{10} A_{\mathrm{s}})$	$2.94^{+0.46}_{-0.46}$	$D_{2000}$	$161^{+200}_{-100}$	$H(0.51)$	$100^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.052}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(0.51)$	$1926^{+800}_{-600}$
$H_0$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00056}$	$H(0.61)$	$108^{+30}_{-30}$
$\Omega_{\Lambda}$	$0.43^{+0.45}_{-1.0}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2219^{+900}_{-700}$
$\Omega_{\mathrm{m}}$	$0.57^{+1.0}_{-0.45}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$286^{+70}_{-70}$
$\Omega_{\mathrm{m}} h^2$	$0.217^{+0.11}_{-0.098}$	Age/Gyr	$12.4^{+4.3}_{-3.1}$	$D_{\mathrm{M}}(2.33)$	$5182^{+2000}_{-1000}$
$\Omega_{\nu} h^2$	$< 0.0527$	$z_{*}$	$1095.2^{+7.8}_{-7.1}$	$f\sigma_8(0.15)$	$0.466^{+0.067}_{-0.10}$
$\Omega_{\mathrm{m}} h^3$	$0.149^{+0.14}_{-0.099}$	$r_{*}$	$132^{+20}_{-20}$	$\sigma_8(0.15)$	$0.64^{+0.26}_{-0.23}$
$\sigma_8$	$0.70^{+0.25}_{-0.22}$	$100\theta_{*}$	$1.11^{+0.14}_{-0.16}$	$f\sigma_8(0.38)$	$0.447^{+0.060}_{-0.085}$
$S_8$	$0.89^{+0.28}_{-0.24}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$11.9^{+3.5}_{-2.6}$	$\sigma_8(0.38)$	$0.56^{+0.26}_{-0.22}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.49^{+0.16}_{-0.13}$	$z_{\mathrm{drag}}$	$1063.7^{+6.7}_{-6.9}$	$f\sigma_8(0.51)$	$0.432^{+0.074}_{-0.11}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.578^{+0.064}_{-0.060}$	$r_{\mathrm{drag}}$	$135^{+20}_{-20}$	$\sigma_8(0.51)$	$0.52^{+0.26}_{-0.23}$
$\sigma_8/h^{0.5}$	$0.85^{+0.15}_{-0.13}$	$k_{\mathrm{D}}$	$0.156^{+0.023}_{-0.022}$	$f\sigma_8(0.61)$	$0.420^{+0.085}_{-0.12}$
$r_{\mathrm{drag}} h$	$92^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.019}_{-0.023}$	$\sigma_8(0.61)$	$0.49^{+0.25}_{-0.22}$
$\langle d^2 \rangle^{1/2}$	$2.49^{+0.16}_{-0.15}$	$z_{\mathrm{eq}}$	$4647^{+2000}_{-2000}$	$f\sigma_8(2.33)$	$0.25^{+0.14}_{-0.12}$
$z_{\mathrm{re}}$	$8.9^{+1.6}_{-1.6}$	$k_{\mathrm{eq}}$	$0.0143^{+0.0063}_{-0.0056}$	$\sigma_8(2.33)$	$0.25^{+0.16}_{-0.12}$
$10^9 A_{\mathrm{s}}$	$1.92^{+1.1}_{-0.73}$	$100\theta_{\mathrm{eq}}$	$0.71^{+0.20}_{-0.15}$	$\chi^2_{\mathrm{lensing}}$	$10.8 (\nu: 2.4)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.72^{+0.95}_{-0.65}$	$100\theta_{\mathrm{s,eq}}$	$0.397^{+0.11}_{-0.081}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.1)$

$\bar{\chi}^2_{\mathrm{eff}} = 12.85$ ;  $R - 1 = 0.00368$



## 6.77 base\_mnu\_lensing\_lenspriors\_post\_acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1084^{+700}_{-500}$	$H(0.15)$	$77^{+30}_{-30}$
$\Omega_{\mathrm{c}} h^2$	$0.167^{+0.083}_{-0.074}$	$D_{220}$	$4594^{+4000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$655^{+300}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.11^{+0.14}_{-0.16}$	$D_{810}$	$1913^{+2000}_{-1000}$	$H(0.38)$	$91^{+30}_{-30}$
$\Sigma m_{\nu}$ [eV]	—	$D_{1420}$	$565^{+500}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1509^{+700}_{-500}$
$\ln(10^{10} A_{\mathrm{s}})$	$2.96^{+0.46}_{-0.45}$	$D_{2000}$	$168^{+200}_{-100}$	$H(0.51)$	$100^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.959^{+0.051}_{-0.052}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.051}_{-0.052}$	$D_{\mathrm{M}}(0.51)$	$1927^{+800}_{-600}$
$H_0$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00058}$	$H(0.61)$	$108^{+30}_{-30}$
$\Omega_{\Lambda}$	$0.45^{+0.43}_{-0.98}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00058}$	$D_{\mathrm{M}}(0.61)$	$2221^{+900}_{-700}$
$\Omega_{\mathrm{m}}$	$0.55^{+0.98}_{-0.43}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.27}_{-0.23}$	$H(2.33)$	$283^{+70}_{-70}$
$\Omega_{\mathrm{m}} h^2$	$0.212^{+0.11}_{-0.096}$	Age/Gyr	$12.5^{+4.3}_{-3.2}$	$D_{\mathrm{M}}(2.33)$	$5209^{+2000}_{-1000}$
$\Omega_{\nu} h^2$	$< 0.0526$	$z_{*}$	$1094.8^{+7.9}_{-7.1}$	$f\sigma_8(0.15)$	$0.457^{+0.065}_{-0.097}$
$\Omega_{\mathrm{m}} h^3$	$0.146^{+0.14}_{-0.097}$	$r_{*}$	$133^{+20}_{-20}$	$\sigma_8(0.15)$	$0.63^{+0.26}_{-0.23}$
$\sigma_8$	$0.70^{+0.24}_{-0.22}$	$100\theta_{*}$	$1.11^{+0.14}_{-0.16}$	$f\sigma_8(0.38)$	$0.440^{+0.055}_{-0.081}$
$S_8$	$0.86^{+0.27}_{-0.23}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.0^{+3.6}_{-2.7}$	$\sigma_8(0.38)$	$0.55^{+0.26}_{-0.23}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.47^{+0.15}_{-0.13}$	$z_{\mathrm{drag}}$	$1063.4^{+6.7}_{-6.8}$	$f\sigma_8(0.51)$	$0.427^{+0.068}_{-0.11}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.568^{+0.058}_{-0.055}$	$r_{\mathrm{drag}}$	$136^{+20}_{-20}$	$\sigma_8(0.51)$	$0.51^{+0.26}_{-0.22}$
$\sigma_8/h^{0.5}$	$0.85^{+0.15}_{-0.13}$	$k_{\mathrm{D}}$	$0.155^{+0.022}_{-0.022}$	$f\sigma_8(0.61)$	$0.416^{+0.080}_{-0.12}$
$r_{\mathrm{drag}} h$	$93^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.020}_{-0.023}$	$\sigma_8(0.61)$	$0.49^{+0.25}_{-0.22}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.15}_{-0.15}$	$z_{\mathrm{eq}}$	$4526^{+2000}_{-2000}$	$f\sigma_8(2.33)$	$0.25^{+0.14}_{-0.12}$
$z_{\mathrm{re}}$	$8.9^{+1.6}_{-1.6}$	$k_{\mathrm{eq}}$	$0.0139^{+0.0062}_{-0.0055}$	$\sigma_8(2.33)$	$0.25^{+0.16}_{-0.12}$
$10^9 A_{\mathrm{s}}$	$1.97^{+1.1}_{-0.73}$	$100\theta_{\mathrm{eq}}$	$0.72^{+0.21}_{-0.15}$	$\chi^2_{\mathrm{lensing}}$	$10.3 (\nu: 2.3)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.76^{+0.98}_{-0.66}$	$100\theta_{\mathrm{s,eq}}$	$0.404^{+0.11}_{-0.079}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.1)$

$\bar{\chi}^2_{\mathrm{eff}} = 12.32$ ;  $R - 1 = 0.00185$



# 6.78 base\_mnu\_lensing\_lenspriors\_post\_agr2acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1101^{+800}_{-500}$	$H(0.15)$	$77^{+30}_{-30}$
$\Omega_{\mathrm{c}}h^2$	$0.166^{+0.080}_{-0.075}$	$D_{220}$	$4682^{+4000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$652^{+300}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.11^{+0.14}_{-0.16}$	$D_{810}$	$1938^{+2000}_{-1000}$	$H(0.38)$	$91^{+30}_{-30}$
$\Sigma m_{\nu}$ [eV]	—	$D_{1420}$	$570^{+500}_{-400}$	$D_{\mathrm{M}}(0.38)$	$1504^{+700}_{-500}$
$\ln(10^{10}A_{\mathrm{s}})$	$2.97^{+0.47}_{-0.44}$	$D_{2000}$	$169^{+200}_{-100}$	$H(0.51)$	$100^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.054}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.054}$	$D_{\mathrm{M}}(0.51)$	$1920^{+800}_{-600}$
$H_0$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00059}$	$H(0.61)$	$108^{+30}_{-30}$
$\Omega_{\Lambda}$	$0.46^{+0.44}_{-0.99}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00059}$	$D_{\mathrm{M}}(0.61)$	$2214^{+900}_{-700}$
$\Omega_{\mathrm{m}}$	$0.54^{+0.99}_{-0.44}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.27}_{-0.23}$	$H(2.33)$	$283^{+70}_{-70}$
$\Omega_{\mathrm{m}}h^2$	$0.212^{+0.11}_{-0.099}$	Age/Gyr	$12.5^{+4.4}_{-3.1}$	$D_{\mathrm{M}}(2.33)$	$5199^{+2000}_{-1000}$
$\Omega_{\nu}h^2$	$< 0.0527$	$z_{*}$	$1094.8^{+7.7}_{-7.3}$	$f\sigma_8(0.15)$	$0.448^{+0.057}_{-0.094}$
$\Omega_{\mathrm{m}}h^3$	$0.147^{+0.14}_{-0.098}$	$r_{*}$	$133^{+20}_{-20}$	$\sigma_8(0.15)$	$0.62^{+0.25}_{-0.22}$
$\sigma_8$	$0.68^{+0.24}_{-0.22}$	$100\theta_{*}$	$1.11^{+0.14}_{-0.16}$	$f\sigma_8(0.38)$	$0.432^{+0.045}_{-0.076}$
$S_8$	$0.85^{+0.26}_{-0.23}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.0^{+3.7}_{-2.6}$	$\sigma_8(0.38)$	$0.54^{+0.26}_{-0.23}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.46^{+0.14}_{-0.12}$	$z_{\mathrm{drag}}$	$1063.4^{+6.6}_{-7.0}$	$f\sigma_8(0.51)$	$0.419^{+0.059}_{-0.10}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.558^{+0.046}_{-0.043}$	$r_{\mathrm{drag}}$	$136^{+20}_{-20}$	$\sigma_8(0.51)$	$0.51^{+0.25}_{-0.22}$
$\sigma_8/h^{0.5}$	$0.83^{+0.15}_{-0.11}$	$k_{\mathrm{D}}$	$0.155^{+0.022}_{-0.022}$	$f\sigma_8(0.61)$	$0.409^{+0.072}_{-0.12}$
$r_{\mathrm{drag}}h$	$94^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.019}_{-0.023}$	$\sigma_8(0.61)$	$0.48^{+0.25}_{-0.21}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.15}_{-0.15}$	$z_{\mathrm{eq}}$	$4496^{+2000}_{-2000}$	$f\sigma_8(2.33)$	$0.25^{+0.14}_{-0.12}$
$z_{\mathrm{re}}$	$8.9^{+1.6}_{-1.6}$	$k_{\mathrm{eq}}$	$0.0138^{+0.0059}_{-0.0056}$	$\sigma_8(2.33)$	$0.25^{+0.16}_{-0.12}$
$10^9A_{\mathrm{s}}$	$1.99^{+1.1}_{-0.79}$	$100\theta_{\mathrm{eq}}$	$0.73^{+0.21}_{-0.15}$	$\chi^2_{\mathrm{lensing}}$	$12.6 (\nu: 2.2)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.78^{+0.96}_{-0.71}$	$100\theta_{\mathrm{s,eq}}$	$0.407^{+0.11}_{-0.077}$	$\chi^2_{\mathrm{prior}}$	$2.1 (\nu: 2.2)$

$\bar{\chi}^2_{\mathrm{eff}} = 14.67$ ;  $R - 1 = 0.00159$



6.79    base\_mnu\_lensing\_lenspriors\_post\_takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\rm b} h^2$	$0.0222^{+0.0013}_{-0.0014}$	$D_{40}$	$1095^{+700}_{-500}$	$H(0.15)$	$77^{+30}_{-30}$
$\Omega_{\rm c} h^2$	$0.164^{+0.077}_{-0.071}$	$D_{220}$	$4668^{+4000}_{-3000}$	$D_{\rm M}(0.15)$	$655^{+300}_{-200}$
$100\theta_{\rm MC}$	$1.11^{+0.13}_{-0.16}$	$D_{810}$	$1939^{+2000}_{-1000}$	$H(0.38)$	$91^{+30}_{-30}$
$\Sigma m_\nu$ [eV]	—	$D_{1420}$	$572^{+500}_{-400}$	$D_{\rm M}(0.38)$	$1510^{+700}_{-500}$
$\ln(10^{10} A_{\rm s})$	$2.97^{+0.45}_{-0.44}$	$D_{2000}$	$170^{+200}_{-100}$	$H(0.51)$	$100^{+30}_{-30}$
$n_{\rm s}$	$0.959^{+0.052}_{-0.053}$	$n_{\rm s,0.002}$	$0.959^{+0.052}_{-0.053}$	$D_{\rm M}(0.51)$	$1929^{+900}_{-600}$
$H_0$	—	$Y_{\rm P}$	$0.24531^{+0.00054}_{-0.00059}$	$H(0.61)$	$107^{+30}_{-30}$
$\Omega_{\Lambda}$	$0.46^{+0.43}_{-0.95}$	$Y_{\rm P}^{\rm BBN}$	$0.24664^{+0.00055}_{-0.00059}$	$D_{\rm M}(0.61)$	$2225^{+1000}_{-700}$
$\Omega_{\rm m}$	$0.54^{+0.95}_{-0.43}$	$10^5 {\rm D/H}$	$2.62^{+0.27}_{-0.23}$	$H(2.33)$	$281^{+60}_{-70}$
$\Omega_{\rm m} h^2$	$0.209^{+0.10}_{-0.093}$	Age/Gyr	$12.5^{+4.3}_{-3.2}$	$D_{\rm M}(2.33)$	$5228^{+2000}_{-1000}$
$\Omega_{\nu} h^2$	$< 0.0527$	$z_*$	$1094.6^{+7.5}_{-6.9}$	$f\sigma_8(0.15)$	$0.449^{+0.070}_{-0.093}$
$\Omega_{\rm m} h^3$	$0.144^{+0.14}_{-0.096}$	$r_*$	$134^{+20}_{-20}$	$\sigma_8(0.15)$	$0.63^{+0.26}_{-0.23}$
$\sigma_8$	$0.69^{+0.25}_{-0.22}$	$100\theta_*$	$1.11^{+0.13}_{-0.16}$	$f\sigma_8(0.38)$	$0.434^{+0.058}_{-0.083}$
$S_8$	$0.85^{+0.25}_{-0.22}$	$D_{\rm M}(z_*)/{\rm Gpc}$	$12.1^{+3.5}_{-2.6}$	$\sigma_8(0.38)$	$0.55^{+0.26}_{-0.23}$
$\sigma_8 \Omega_{\rm m}^{0.5}$	$0.46^{+0.14}_{-0.12}$	$z_{\rm drag}$	$1063.2^{+6.5}_{-6.7}$	$f\sigma_8(0.51)$	$0.422^{+0.072}_{-0.11}$
$\sigma_8 \Omega_{\rm m}^{0.25}$	$0.560^{+0.065}_{-0.059}$	$r_{\rm drag}$	$136^{+20}_{-20}$	$\sigma_8(0.51)$	$0.51^{+0.26}_{-0.22}$
$\sigma_8/h^{0.5}$	$0.84^{+0.16}_{-0.13}$	$k_{\rm D}$	$0.154^{+0.021}_{-0.021}$	$f\sigma_8(0.61)$	$0.411^{+0.083}_{-0.12}$
$r_{\rm drag} h$	$93^{+50}_{-40}$	$100\theta_{\rm D}$	$0.170^{+0.020}_{-0.022}$	$\sigma_8(0.61)$	$0.48^{+0.26}_{-0.21}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.15}_{-0.15}$	$z_{\rm eq}$	$4448^{+2000}_{-2000}$	$f\sigma_8(2.33)$	$0.25^{+0.14}_{-0.11}$
$z_{\rm re}$	$8.8^{+1.5}_{-1.6}$	$k_{\rm eq}$	$0.0137^{+0.0058}_{-0.0053}$	$\sigma_8(2.33)$	$0.25^{+0.16}_{-0.13}$
$10^9 A_{\rm s}$	$1.98^{+1.1}_{-0.73}$	$100\theta_{\rm eq}$	$0.73^{+0.20}_{-0.14}$	$\chi^2_{\rm lensing}$	$10.1 (\nu: 2.2)$
$10^9 A_{\rm s} e^{-2\tau}$	$1.77^{+0.97}_{-0.65}$	$100\theta_{\rm s,eq}$	$0.408^{+0.11}_{-0.075}$	$\chi^2_{\rm prior}$	$2.1 (\nu: 2.1)$

$\bar{\chi}^2_{\rm eff} = 12.19; R - 1 = 0.00405$



## 6.80 base\_mnu\_lensing\_lenspriors\_post\_agr2takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0014}$	$D_{40}$	$1124^{+800}_{-500}$	$H(0.15)$	$77^{+30}_{-30}$
$\Omega_{\mathrm{c}}h^2$	$0.161^{+0.074}_{-0.071}$	$D_{220}$	$4816^{+4000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$649^{+300}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.11^{+0.14}_{-0.16}$	$D_{810}$	$1982^{+2000}_{-1000}$	$H(0.38)$	$91^{+30}_{-30}$
$\Sigma m_{\nu}$ [eV]	—	$D_{1420}$	$583^{+500}_{-400}$	$D_{\mathrm{M}}(0.38)$	$1499^{+700}_{-500}$
$\ln(10^{10}A_{\mathrm{s}})$	$2.99^{+0.46}_{-0.42}$	$D_{2000}$	$173^{+200}_{-100}$	$H(0.51)$	$100^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.055}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.055}$	$D_{\mathrm{M}}(0.51)$	$1917^{+900}_{-600}$
$H_0$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00060}$	$H(0.61)$	$107^{+30}_{-30}$
$\Omega_{\Lambda}$	$0.48^{+0.43}_{-0.94}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00054}_{-0.00060}$	$D_{\mathrm{M}}(0.61)$	$2211^{+1000}_{-700}$
$\Omega_{\mathrm{m}}$	$0.52^{+0.94}_{-0.42}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.28}_{-0.23}$	$H(2.33)$	$281^{+60}_{-70}$
$\Omega_{\mathrm{m}}h^2$	$0.207^{+0.099}_{-0.094}$	Age/Gyr	$12.5^{+4.4}_{-3.2}$	$D_{\mathrm{M}}(2.33)$	$5219^{+2000}_{-1000}$
$\Omega_{\nu}h^2$	$< 0.0530$	$z_{*}$	$1094.5^{+7.2}_{-7.0}$	$f\sigma_8(0.15)$	$0.438^{+0.061}_{-0.090}$
$\Omega_{\mathrm{m}}h^3$	$0.145^{+0.14}_{-0.097}$	$r_{*}$	$134^{+20}_{-20}$	$\sigma_8(0.15)$	$0.62^{+0.25}_{-0.23}$
$\sigma_8$	$0.68^{+0.24}_{-0.22}$	$100\theta_{*}$	$1.11^{+0.14}_{-0.16}$	$f\sigma_8(0.38)$	$0.425^{+0.048}_{-0.080}$
$S_8$	$0.82^{+0.25}_{-0.22}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.1^{+3.6}_{-2.6}$	$\sigma_8(0.38)$	$0.54^{+0.26}_{-0.22}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.45^{+0.14}_{-0.12}$	$z_{\mathrm{drag}}$	$1063.1^{+6.3}_{-6.9}$	$f\sigma_8(0.51)$	$0.414^{+0.061}_{-0.11}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.548^{+0.053}_{-0.047}$	$r_{\mathrm{drag}}$	$137^{+20}_{-20}$	$\sigma_8(0.51)$	$0.50^{+0.25}_{-0.21}$
$\sigma_8/h^{0.5}$	$0.82^{+0.16}_{-0.12}$	$k_{\mathrm{D}}$	$0.154^{+0.021}_{-0.021}$	$f\sigma_8(0.61)$	$0.404^{+0.074}_{-0.12}$
$r_{\mathrm{drag}}h$	$95^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.020}_{-0.023}$	$\sigma_8(0.61)$	$0.48^{+0.25}_{-0.21}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.15}_{-0.16}$	$z_{\mathrm{eq}}$	$4381^{+2000}_{-2000}$	$f\sigma_8(2.33)$	$0.25^{+0.14}_{-0.11}$
$z_{\mathrm{re}}$	$8.8^{+1.5}_{-1.6}$	$k_{\mathrm{eq}}$	$0.0135^{+0.0055}_{-0.0053}$	$\sigma_8(2.33)$	$0.25^{+0.16}_{-0.13}$
$10^9A_{\mathrm{s}}$	$2.02^{+1.1}_{-0.78}$	$100\theta_{\mathrm{eq}}$	$0.74^{+0.21}_{-0.14}$	$\chi^2_{\mathrm{lensing}}$	$12.5 (\nu: 2.1)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.81^{+0.95}_{-0.69}$	$100\theta_{\mathrm{s,eq}}$	$0.413^{+0.11}_{-0.074}$	$\chi^2_{\mathrm{prior}}$	$2.1 (\nu: 2.2)$

$\bar{\chi}^2_{\mathrm{eff}} = 14.57$ ;  $R - 1 = 0.00607$



## 6.81 base\_mnu\_lensing\_lenspriors\_post\_Apr6

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1076^{+700}_{-500}$	$H(0.15)$	$76^{+30}_{-30}$
$\Omega_{\mathrm{c}}h^2$	$0.167^{+0.086}_{-0.072}$	$D_{220}$	$4571^{+4000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$658^{+300}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.11^{+0.14}_{-0.16}$	$D_{810}$	$1910^{+1000}_{-1000}$	$H(0.38)$	$91^{+30}_{-30}$
$\Sigma m_{\nu}$ [eV]	—	$D_{1420}$	$565^{+500}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1516^{+700}_{-500}$
$\ln(10^{10}A_{\mathrm{s}})$	$2.95^{+0.44}_{-0.46}$	$D_{2000}$	$168^{+200}_{-100}$	$H(0.51)$	$100^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.053}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.053}$	$D_{\mathrm{M}}(0.51)$	$1935^{+800}_{-600}$
$H_0$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00055}_{-0.00057}$	$H(0.61)$	$107^{+30}_{-30}$
$\Omega_{\Lambda}$	$0.45^{+0.43}_{-0.98}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00057}$	$D_{\mathrm{M}}(0.61)$	$2231^{+900}_{-700}$
$\Omega_{\mathrm{m}}$	$0.55^{+0.98}_{-0.43}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$282^{+70}_{-70}$
$\Omega_{\mathrm{m}}h^2$	$0.210^{+0.11}_{-0.093}$	Age/Gyr	$12.6^{+4.3}_{-3.2}$	$D_{\mathrm{M}}(2.33)$	$5233^{+2000}_{-1000}$
$\Omega_{\nu}h^2$	$< 0.0523$	$z_{*}$	$1094.7^{+8.1}_{-6.8}$	$f\sigma_8(0.15)$	$0.460^{+0.065}_{-0.097}$
$\Omega_{\mathrm{m}}h^3$	$0.144^{+0.14}_{-0.095}$	$r_{*}$	$133^{+20}_{-20}$	$\sigma_8(0.15)$	$0.64^{+0.25}_{-0.23}$
$\sigma_8$	$0.70^{+0.24}_{-0.22}$	$100\theta_{*}$	$1.11^{+0.14}_{-0.16}$	$f\sigma_8(0.38)$	$0.443^{+0.056}_{-0.083}$
$S_8$	$0.87^{+0.27}_{-0.23}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.1^{+3.5}_{-2.7}$	$\sigma_8(0.38)$	$0.56^{+0.26}_{-0.23}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.48^{+0.15}_{-0.13}$	$z_{\mathrm{drag}}$	$1063.3^{+6.9}_{-6.7}$	$f\sigma_8(0.51)$	$0.430^{+0.069}_{-0.11}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.572^{+0.060}_{-0.057}$	$r_{\mathrm{drag}}$	$136^{+20}_{-20}$	$\sigma_8(0.51)$	$0.52^{+0.26}_{-0.22}$
$\sigma_8/h^{0.5}$	$0.85^{+0.15}_{-0.13}$	$k_{\mathrm{D}}$	$0.155^{+0.023}_{-0.021}$	$f\sigma_8(0.61)$	$0.419^{+0.081}_{-0.12}$
$r_{\mathrm{drag}}h$	$93^{+50}_{-40}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.020}_{-0.022}$	$\sigma_8(0.61)$	$0.49^{+0.25}_{-0.21}$
$\langle d^2 \rangle^{1/2}$	$2.49^{+0.15}_{-0.15}$	$z_{\mathrm{eq}}$	$4512^{+2000}_{-2000}$	$f\sigma_8(2.33)$	$0.25^{+0.14}_{-0.12}$
$z_{\mathrm{re}}$	$8.8^{+1.6}_{-1.5}$	$k_{\mathrm{eq}}$	$0.0139^{+0.0064}_{-0.0054}$	$\sigma_8(2.33)$	$0.25^{+0.16}_{-0.13}$
$10^9A_{\mathrm{s}}$	$1.95^{+1.0}_{-0.74}$	$100\theta_{\mathrm{eq}}$	$0.72^{+0.20}_{-0.15}$	$\chi^2_{\mathrm{lensing}}$	$9.2 (\nu: 2.6)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.75^{+0.93}_{-0.66}$	$100\theta_{\mathrm{s,eq}}$	$0.403^{+0.10}_{-0.082}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.1)$

$\bar{\chi}^2_{\mathrm{eff}} = 11.22$ ;  $R - 1 = 0.00322$



## 6.82 base\_mnu\_lensing\_lenspriors\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	1365	$1107^{+700}_{-400}$	$H(0.15)$	69.8	$62^{+20}_{-10}$
$\Omega_c h^2$	0.1191	$0.142^{+0.043}_{-0.046}$	$D_{220}$	6388	$5103^{+4000}_{-2000}$	$D_M(0.15)$	673	$798^{+200}_{-200}$
$100\theta_{MC}$	1.04089	$1.0409^{+0.0015}_{-0.0015}$	$D_{810}$	2807	$2374^{+1000}_{-900}$	$H(0.38)$	80.5	$76^{+10}_{-5}$
$\Sigma m_\nu$ [eV]	0.46	< 2.84	$D_{1420}$	900	$775^{+400}_{-300}$	$D_M(0.38)$	1595	$1807^{+300}_{-400}$
$\ln(10^{10} A_s)$	3.145	$2.98^{+0.42}_{-0.34}$	$D_{2000}$	254	$220^{+100}_{-80}$	$H(0.51)$	87.6	$85.4^{+7.8}_{-2.9}$
$n_s$	0.960	$0.961^{+0.051}_{-0.051}$	$n_{s,0.002}$	0.960	$0.961^{+0.051}_{-0.051}$	$D_M(0.51)$	2059	$2291^{+300}_{-400}$
$H_0$	64.1	< 74.5	$Y_P$	0.24533	$0.24532^{+0.00055}_{-0.00055}$	$H(0.61)$	93.53	$92.8^{+5.2}_{-2.4}$
$\Omega_\Lambda$	0.64	$0.29^{+0.50}_{-0.70}$	$Y_P^{BBN}$	0.24666	$0.24664^{+0.00055}_{-0.00055}$	$D_M(0.61)$	2390	$2628^{+300}_{-500}$
$\Omega_m$	0.36	$0.71^{+0.70}_{-0.51}$	$10^5 D/H$	2.615	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	238.1	$258^{+30}_{-40}$
$\Omega_m h^2$	0.146	$0.178^{+0.053}_{-0.057}$	Age/Gyr	14.01	$14.25^{+0.41}_{-0.58}$	$D_M(2.33)$	5855	$5940^{+150}_{-250}$
$\Omega_\nu h^2$	0.0049	< 0.0305	$z_*$	1090.12	$1092.5^{+4.3}_{-4.7}$	$f\sigma_8(0.15)$	0.457	$0.477^{+0.049}_{-0.088}$
$\Omega_m h^3$	0.0937	$0.0928^{+0.0056}_{-0.0053}$	$r_*$	144.7	$139^{+12}_{-10}$	$\sigma_8(0.15)$	0.696	$0.58^{+0.21}_{-0.17}$
$\sigma_8$	0.757	$0.65^{+0.20}_{-0.16}$	$100\theta_*$	1.04127	$1.0414^{+0.0016}_{-0.0016}$	$f\sigma_8(0.38)$	0.465	$0.435^{+0.057}_{-0.069}$
$S_8$	0.825	$0.93^{+0.20}_{-0.25}$	$D_M(z_*)/\text{Gpc}$	13.89	$13.3^{+1.2}_{-0.97}$	$\sigma_8(0.38)$	0.614	$0.50^{+0.21}_{-0.16}$
$\sigma_8 \Omega_m^{0.5}$	0.452	$0.51^{+0.11}_{-0.14}$	$z_{\text{drag}}$	1059.59	$1061.5^{+4.8}_{-5.1}$	$f\sigma_8(0.51)$	0.460	$0.413^{+0.072}_{-0.083}$
$\sigma_8 \Omega_m^{0.25}$	0.585	$0.570^{+0.054}_{-0.052}$	$r_{\text{drag}}$	147.4	$141^{+13}_{-10}$	$\sigma_8(0.51)$	0.573	$0.46^{+0.21}_{-0.15}$
$\sigma_8/h^{0.5}$	0.946	$0.88^{+0.13}_{-0.11}$	$k_D$	0.1405	$0.148^{+0.013}_{-0.014}$	$f\sigma_8(0.61)$	0.452	$0.397^{+0.082}_{-0.090}$
$r_{\text{drag}} h$	94.4	$76^{+40}_{-20}$	$100\theta_D$	0.16092	$0.1600^{+0.0028}_{-0.0027}$	$\sigma_8(0.61)$	0.545	$0.43^{+0.20}_{-0.15}$
$\langle d^2 \rangle^{1/2}$	2.529	$2.53^{+0.13}_{-0.13}$	$z_{\text{eq}}$	3376	$3935^{+1000}_{-1000}$	$f\sigma_8(2.33)$	0.278	$0.219^{+0.11}_{-0.078}$
$z_{\text{re}}$	7.83	$8.30^{+0.84}_{-0.93}$	$k_{\text{eq}}$	0.01031	$0.0120^{+0.0032}_{-0.0034}$	$\sigma_8(2.33)$	0.282	$0.220^{+0.12}_{-0.082}$
$10^9 A_s$	2.32	$1.99^{+0.94}_{-0.64}$	$100\theta_{\text{eq}}$	0.818	$0.74^{+0.18}_{-0.13}$	$\chi^2_{\text{lensing}}$	7.47	9.8 ( $\nu$ : 1.9)
$10^9 A_s e^{-2\tau}$	2.08	$1.79^{+0.84}_{-0.58}$	$100\theta_{s,\text{eq}}$	0.452	$0.412^{+0.095}_{-0.067}$	$\chi^2_{\text{prior}}$	0.0	3.0 ( $\nu$ : 2.9)

Best-fit  $\chi^2_{\text{eff}} = 7.48$ ;  $\bar{\chi}^2_{\text{eff}} = 12.80$ ;  $R - 1 = 0.00091$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.47



### 6.83 base\_mnu\_lensing\_lenspriors\_theta\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.0222^{+0.0012}_{-0.0013}$	$D_{220}$	6761	$6806^{+2000}_{-1000}$	$H(0.38)$	82.84	$82.7^{+2.7}_{-2.6}$
$\Omega_c h^2$	0.1130	$0.113^{+0.011}_{-0.011}$	$D_{810}$	2916	$2940^{+800}_{-600}$	$D_M(0.38)$	1527	$1530^{+72}_{-69}$
$100\theta_{MC}$	1.04090	$1.0409^{+0.0015}_{-0.0015}$	$D_{1420}$	930	$939^{+300}_{-200}$	$H(0.51)$	89.37	$89.3^{+2.2}_{-2.2}$
$\Sigma m_\nu$ [eV]	0.261	< 0.716	$D_{2000}$	261	$264^{+70}_{-60}$	$D_M(0.51)$	1980	$1984^{+85}_{-82}$
$\ln(10^{10} A_s)$	3.178	$3.18^{+0.22}_{-0.19}$	$n_{s,0.002}$	0.961	$0.963^{+0.052}_{-0.048}$	$H(0.61)$	94.85	$94.8^{+1.9}_{-2.0}$
$n_s$	0.961	$0.963^{+0.052}_{-0.048}$	$Y_P$	0.24533	$0.24531^{+0.00051}_{-0.00057}$	$D_M(0.61)$	2306	$2310^{+92}_{-89}$
$H_0$	67.93	$67.8^{+4.2}_{-4.1}$	$Y_P^{BBN}$	0.24665	$0.24664^{+0.00051}_{-0.00057}$	$H(2.33)$	232.9	$233.0^{+6.9}_{-6.8}$
$\Omega_\Lambda$	0.701	$0.699^{+0.051}_{-0.057}$	$10^5 D/H$	2.617	$2.62^{+0.27}_{-0.21}$	$D_M(2.33)$	5798	$5802^{+110}_{-89}$
$\Omega_m$	0.299	$0.301^{+0.057}_{-0.051}$	Age/Gyr	13.885	$13.89^{+0.25}_{-0.21}$	$f\sigma_8(0.15)$	0.4418	$0.441^{+0.035}_{-0.038}$
$\Omega_m h^2$	0.1380	$0.138^{+0.010}_{-0.010}$	$z_*$	1089.54	$1089.6^{+1.7}_{-1.7}$	$\sigma_8(0.15)$	0.735	$0.731^{+0.060}_{-0.071}$
$\Omega_\nu h^2$	0.00281	< 0.00770	$r_*$	146.37	$146.4^{+3.3}_{-3.2}$	$f\sigma_8(0.38)$	0.4631	$0.461^{+0.029}_{-0.036}$
$\Omega_m h^3$	0.09375	$0.0936^{+0.0046}_{-0.0047}$	$100\theta_*$	1.04123	$1.0412^{+0.0016}_{-0.0016}$	$\sigma_8(0.38)$	0.653	$0.650^{+0.057}_{-0.064}$
$\sigma_8$	0.793	$0.790^{+0.062}_{-0.075}$	$D_M(z_*)/\text{Gpc}$	14.057	$14.06^{+0.31}_{-0.31}$	$f\sigma_8(0.51)$	0.4634	$0.462^{+0.029}_{-0.036}$
$S_8$	0.792	$0.791^{+0.072}_{-0.075}$	$z_{\text{drag}}$	1059.06	$1059.1^{+3.0}_{-3.2}$	$\sigma_8(0.51)$	0.612	$0.609^{+0.054}_{-0.061}$
$\sigma_8 \Omega_m^{0.5}$	0.4337	$0.433^{+0.039}_{-0.041}$	$r_{\text{drag}}$	149.13	$149.1^{+3.5}_{-3.5}$	$f\sigma_8(0.61)$	0.4597	$0.458^{+0.029}_{-0.035}$
$\sigma_8 \Omega_m^{0.25}$	0.5865	$0.585^{+0.040}_{-0.051}$	$k_D$	0.13863	$0.1386^{+0.0041}_{-0.0041}$	$\sigma_8(0.61)$	0.583	$0.580^{+0.053}_{-0.059}$
$\sigma_8/h^{0.5}$	0.962	$0.959^{+0.063}_{-0.077}$	$100\theta_D$	0.16120	$0.1612^{+0.0019}_{-0.0018}$	$f\sigma_8(2.33)$	0.2978	$0.296^{+0.026}_{-0.028}$
$r_{\text{drag}} h$	101.3	$101.1^{+7.7}_{-6.9}$	$z_{\text{eq}}$	3231	$3230^{+270}_{-270}$	$\sigma_8(2.33)$	0.3057	$0.304^{+0.030}_{-0.033}$
$\langle d^2 \rangle^{1/2}$	2.522	$2.52^{+0.14}_{-0.12}$	$k_{\text{eq}}$	0.00986	$0.00986^{+0.00082}_{-0.00081}$	$\chi^2_{\text{lensing}}$	7.50	9.2 ( $\nu$ : 1.5)
$z_{\text{re}}$	7.704	$7.71^{+0.30}_{-0.30}$	$100\theta_{\text{eq}}$	0.845	$0.846^{+0.056}_{-0.050}$	$\chi^2_{\text{JLA}}$	1034.73	1035.6 ( $\nu$ : 0.9)
$10^9 A_s$	2.40	$2.42^{+0.59}_{-0.43}$	$100\theta_{s,\text{eq}}$	0.4661	$0.467^{+0.030}_{-0.026}$	$\chi^2_{\text{prior}}$	0.0	3.0 ( $\nu$ : 2.8)
$10^9 A_s e^{-2\tau}$	2.149	$2.16^{+0.53}_{-0.38}$	$H(0.15)$	73.04	$72.9^{+3.6}_{-3.5}$			
$D_{40}$	1440	$1441^{+400}_{-300}$	$D_M(0.15)$	639.1	$641^{+36}_{-34}$			

Best-fit  $\chi^2_{\text{eff}} = 1042.24$ ;  $\bar{\chi}^2_{\text{eff}} = 1047.78$ ;  $R - 1 = 0.00923$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.50 SN - JLA Pantheon18: 1034.73



## 6.84 base\_mnu\_lensing\_lenspriors\_theta\_post\_agr2

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1140^{+700}_{-400}$	$H(0.15)$	$62^{+20}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.140^{+0.041}_{-0.045}$	$D_{220}$	$5286^{+4000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$796^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{810}$	$2438^{+1000}_{-900}$	$H(0.38)$	$76^{+10}_{-5}$
$\Sigma m_{\nu}$ [eV]	$< 2.89$	$D_{1420}$	$795^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1805^{+300}_{-400}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.00^{+0.42}_{-0.34}$	$D_{2000}$	$225^{+100}_{-80}$	$H(0.51)$	$85.4^{+7.8}_{-3.1}$
$n_{\mathrm{s}}$	$0.960^{+0.050}_{-0.050}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2288^{+300}_{-500}$
$H_0$	$< 75.4$	$Y_{\mathrm{P}}$	$0.24532^{+0.00056}_{-0.00055}$	$H(0.61)$	$92.7^{+5.3}_{-2.6}$
$\Omega_{\Lambda}$	$0.29^{+0.52}_{-0.70}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00056}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2625^{+300}_{-500}$
$\Omega_{\mathrm{m}}$	$0.71^{+0.70}_{-0.52}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.24}$	$H(2.33)$	$257^{+30}_{-40}$
$\Omega_{\mathrm{m}}h^2$	$0.176^{+0.053}_{-0.058}$	Age/Gyr	$14.28^{+0.40}_{-0.62}$	$D_{\mathrm{M}}(2.33)$	$5949^{+150}_{-270}$
$\Omega_{\nu}h^2$	$< 0.0310$	$z_{*}$	$1092.3^{+4.4}_{-4.7}$	$f\sigma_8(0.15)$	$0.466^{+0.043}_{-0.084}$
$\Omega_{\mathrm{m}}h^3$	$0.0920^{+0.0051}_{-0.0047}$	$r_{*}$	$139^{+12}_{-10}$	$\sigma_8(0.15)$	$0.57^{+0.22}_{-0.16}$
$\sigma_8$	$0.64^{+0.21}_{-0.16}$	$100\theta_{*}$	$1.0414^{+0.0016}_{-0.0016}$	$f\sigma_8(0.38)$	$0.427^{+0.052}_{-0.062}$
$S_8$	$0.91^{+0.20}_{-0.23}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.4^{+1.2}_{-0.98}$	$\sigma_8(0.38)$	$0.49^{+0.22}_{-0.16}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.50^{+0.11}_{-0.13}$	$z_{\mathrm{drag}}$	$1061.3^{+5.1}_{-5.1}$	$f\sigma_8(0.51)$	$0.406^{+0.069}_{-0.077}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.559^{+0.048}_{-0.041}$	$r_{\mathrm{drag}}$	$142^{+13}_{-11}$	$\sigma_8(0.51)$	$0.46^{+0.22}_{-0.15}$
$\sigma_8/h^{0.5}$	$0.87^{+0.12}_{-0.10}$	$k_{\mathrm{D}}$	$0.147^{+0.013}_{-0.014}$	$f\sigma_8(0.61)$	$0.390^{+0.080}_{-0.085}$
$r_{\mathrm{drag}}h$	$77^{+40}_{-30}$	$100\theta_{\mathrm{D}}$	$0.1600^{+0.0028}_{-0.0028}$	$\sigma_8(0.61)$	$0.43^{+0.21}_{-0.15}$
$\langle d^2 \rangle^{1/2}$	$2.53^{+0.13}_{-0.12}$	$z_{\mathrm{eq}}$	$3867^{+1000}_{-1000}$	$f\sigma_8(2.33)$	$0.217^{+0.11}_{-0.078}$
$z_{\mathrm{re}}$	$8.27^{+0.85}_{-0.92}$	$k_{\mathrm{eq}}$	$0.0118^{+0.0031}_{-0.0033}$	$\sigma_8(2.33)$	$0.218^{+0.13}_{-0.081}$
$10^9A_{\mathrm{s}}$	$2.04^{+0.96}_{-0.66}$	$100\theta_{\mathrm{eq}}$	$0.75^{+0.18}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$12.1 (\nu: 1.9)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.83^{+0.86}_{-0.59}$	$100\theta_{\mathrm{s,eq}}$	$0.418^{+0.096}_{-0.067}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.8)$

$\bar{\chi}^2_{\mathrm{eff}} = 15.15$ ;  $R - 1 = 0.00151$



## 6.85 base\_mnu\_lensing\_lenspriors\_theta\_post\_conslmin40

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1131^{+800}_{-500}$	$H(0.15)$	$62^{+20}_{-10}$
$\Omega_{\mathrm{c}} h^2$	$0.141^{+0.046}_{-0.048}$	$D_{220}$	$5233^{+4000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$794^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{810}$	$2421^{+1000}_{-900}$	$H(0.38)$	$76^{+10}_{-5}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 2.89$	$D_{1420}$	$790^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1801^{+300}_{-400}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.00^{+0.46}_{-0.38}$	$D_{2000}$	$224^{+100}_{-80}$	$H(0.51)$	$85.5^{+7.8}_{-3.3}$
$n_{\mathrm{s}}$	$0.961^{+0.050}_{-0.051}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.050}_{-0.051}$	$D_{\mathrm{M}}(0.51)$	$2284^{+300}_{-500}$
$H_0$	$< 75.4$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00055}$	$H(0.61)$	$92.7^{+5.5}_{-2.6}$
$\Omega_{\Lambda}$	$0.30^{+0.50}_{-0.71}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00054}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2621^{+300}_{-500}$
$\Omega_{\mathrm{m}}$	$0.70^{+0.71}_{-0.50}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$257^{+30}_{-40}$
$\Omega_{\mathrm{m}} h^2$	$0.177^{+0.055}_{-0.059}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.25^{+0.43}_{-0.59}$	$D_{\mathrm{M}}(2.33)$	$5940^{+160}_{-260}$
$\Omega_{\nu} h^2$	$< 0.0311$	$z_{*}$	$1092.4^{+4.4}_{-4.8}$	$f\sigma_8(0.15)$	$0.474^{+0.053}_{-0.093}$
$\Omega_{\mathrm{m}} h^3$	$0.0926^{+0.0060}_{-0.0054}$	$r_{*}$	$139^{+13}_{-11}$	$\sigma_8(0.15)$	$0.58^{+0.21}_{-0.17}$
$\sigma_8$	$0.65^{+0.20}_{-0.16}$	$100\theta_{*}$	$1.0414^{+0.0016}_{-0.0016}$	$f\sigma_8(0.38)$	$0.435^{+0.058}_{-0.069}$
$S_8$	$0.93^{+0.21}_{-0.25}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.3^{+1.2}_{-1.0}$	$\sigma_8(0.38)$	$0.50^{+0.21}_{-0.16}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.51^{+0.11}_{-0.14}$	$z_{\mathrm{drag}}$	$1061.4^{+5.0}_{-5.2}$	$f\sigma_8(0.51)$	$0.413^{+0.072}_{-0.084}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.569^{+0.057}_{-0.054}$	$r_{\mathrm{drag}}$	$142^{+13}_{-11}$	$\sigma_8(0.51)$	$0.46^{+0.21}_{-0.16}$
$\sigma_8/h^{0.5}$	$0.88^{+0.13}_{-0.12}$	$k_{\mathrm{D}}$	$0.147^{+0.013}_{-0.015}$	$f\sigma_8(0.61)$	$0.397^{+0.081}_{-0.091}$
$r_{\mathrm{drag}} h$	$77^{+40}_{-30}$	$100\theta_{\mathrm{D}}$	$0.1600^{+0.0028}_{-0.0027}$	$\sigma_8(0.61)$	$0.44^{+0.21}_{-0.15}$
$\langle d^2 \rangle^{1/2}$	$2.53^{+0.15}_{-0.15}$	$z_{\mathrm{eq}}$	$3903^{+1000}_{-1000}$	$f\sigma_8(2.33)$	$0.221^{+0.11}_{-0.081}$
$z_{\mathrm{re}}$	$8.28^{+0.86}_{-0.94}$	$k_{\mathrm{eq}}$	$0.0120^{+0.0034}_{-0.0035}$	$\sigma_8(2.33)$	$0.221^{+0.13}_{-0.084}$
$10^9 A_{\mathrm{s}}$	$2.03^{+1.1}_{-0.71}$	$100\theta_{\mathrm{eq}}$	$0.75^{+0.19}_{-0.14}$	$\chi^2_{\mathrm{lensing}}$	$9.7 (\nu: 1.8)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.82^{+0.96}_{-0.64}$	$100\theta_{\mathrm{s,eq}}$	$0.415^{+0.10}_{-0.072}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.9)$

$\bar{\chi}^2_{\mathrm{eff}} = 12.69$ ;  $R - 1 = 0.00184$



## 6.86 base\_mnu\_lensing\_lenspriors\_theta\_post\_agrlmax425

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{40}$	$1098^{+600}_{-400}$	$H(0.15)$	$62^{+20}_{-10}$
$\Omega_{\mathrm{c}} h^2$	$0.143^{+0.044}_{-0.046}$	$D_{220}$	$5051^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$798^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{810}$	$2353^{+1000}_{-900}$	$H(0.38)$	$76^{+10}_{-5}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 2.79$	$D_{1420}$	$769^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1808^{+300}_{-400}$
$\ln(10^{10} A_{\mathrm{s}})$	$2.97^{+0.42}_{-0.35}$	$D_{2000}$	$218^{+100}_{-80}$	$H(0.51)$	$85.4^{+7.6}_{-2.8}$
$n_{\mathrm{s}}$	$0.960^{+0.050}_{-0.050}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2291^{+300}_{-400}$
$H_0$	$< 74.0$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00054}$	$H(0.61)$	$92.8^{+4.9}_{-2.4}$
$\Omega_{\Lambda}$	$0.29^{+0.50}_{-0.70}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00054}_{-0.00054}$	$D_{\mathrm{M}}(0.61)$	$2628^{+300}_{-500}$
$\Omega_{\mathrm{m}}$	$0.71^{+0.70}_{-0.51}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.23}$	$H(2.33)$	$259^{+30}_{-40}$
$\Omega_{\mathrm{m}} h^2$	$0.179^{+0.053}_{-0.057}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.25^{+0.40}_{-0.57}$	$D_{\mathrm{M}}(2.33)$	$5937^{+150}_{-240}$
$\Omega_{\nu} h^2$	$< 0.0300$	$z_{*}$	$1092.5^{+4.3}_{-4.7}$	$f\sigma_8(0.15)$	$0.479^{+0.049}_{-0.088}$
$\Omega_{\mathrm{m}} h^3$	$0.0930^{+0.0056}_{-0.0053}$	$r_{*}$	$139^{+12}_{-10}$	$\sigma_8(0.15)$	$0.58^{+0.21}_{-0.17}$
$\sigma_8$	$0.65^{+0.20}_{-0.16}$	$100\theta_{*}$	$1.0414^{+0.0016}_{-0.0016}$	$f\sigma_8(0.38)$	$0.438^{+0.056}_{-0.069}$
$S_8$	$0.94^{+0.20}_{-0.25}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.3^{+1.2}_{-0.97}$	$\sigma_8(0.38)$	$0.50^{+0.21}_{-0.16}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.51^{+0.11}_{-0.13}$	$z_{\mathrm{drag}}$	$1061.5^{+4.9}_{-5.0}$	$f\sigma_8(0.51)$	$0.415^{+0.071}_{-0.084}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.573^{+0.054}_{-0.051}$	$r_{\mathrm{drag}}$	$141^{+12}_{-10}$	$\sigma_8(0.51)$	$0.46^{+0.21}_{-0.15}$
$\sigma_8/h^{0.5}$	$0.89^{+0.12}_{-0.11}$	$k_{\mathrm{D}}$	$0.148^{+0.013}_{-0.014}$	$f\sigma_8(0.61)$	$0.399^{+0.081}_{-0.091}$
$r_{\mathrm{drag}} h$	$76^{+40}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1600^{+0.0027}_{-0.0027}$	$\sigma_8(0.61)$	$0.44^{+0.20}_{-0.15}$
$\langle d^2 \rangle^{1/2}$	$2.52^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$3952^{+1000}_{-1000}$	$f\sigma_8(2.33)$	$0.220^{+0.11}_{-0.078}$
$z_{\mathrm{re}}$	$8.31^{+0.83}_{-0.92}$	$k_{\mathrm{eq}}$	$0.0121^{+0.0032}_{-0.0034}$	$\sigma_8(2.33)$	$0.220^{+0.12}_{-0.082}$
$10^9 A_{\mathrm{s}}$	$1.98^{+0.92}_{-0.64}$	$100\theta_{\mathrm{eq}}$	$0.74^{+0.18}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$7.6 (\nu: 1.9)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.77^{+0.83}_{-0.58}$	$100\theta_{\mathrm{s,eq}}$	$0.411^{+0.093}_{-0.068}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.9)$

$\bar{\chi}^2_{\mathrm{eff}} = 10.54$ ;  $R - 1 = 0.00109$



## 6.87 base\_mnu\_lensing\_lenspriors\_theta\_post\_ptt

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1264^{+900}_{-500}$	$H(0.15)$	$63^{+20}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.134^{+0.045}_{-0.046}$	$D_{220}$	$5943^{+5000}_{-3000}$	$D_{\mathrm{M}}(0.15)$	$784^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{810}$	$2695^{+2000}_{-1000}$	$H(0.38)$	$77^{+10}_{-6}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 3.53$	$D_{1420}$	$875^{+500}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1786^{+400}_{-400}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.09^{+0.44}_{-0.38}$	$D_{2000}$	$248^{+100}_{-90}$	$H(0.51)$	$85.5^{+9.3}_{-3.7}$
$n_{\mathrm{s}}$	$0.961^{+0.050}_{-0.052}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.050}_{-0.052}$	$D_{\mathrm{M}}(0.51)$	$2268^{+400}_{-500}$
$H_0$	$< 78.4$	$Y_{\mathrm{P}}$	$0.24531^{+0.00056}_{-0.00059}$	$H(0.61)$	$92.5^{+7.8}_{-2.9}$
$\Omega_{\Lambda}$	$0.33^{+0.54}_{-0.74}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00056}_{-0.00059}$	$D_{\mathrm{M}}(0.61)$	$2605^{+400}_{-500}$
$\Omega_{\mathrm{m}}$	$0.67^{+0.73}_{-0.54}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.27}_{-0.23}$	$H(2.33)$	$254^{+40}_{-40}$
$\Omega_{\mathrm{m}}h^2$	$0.171^{+0.060}_{-0.063}$	Age/Gyr	$14.30^{+0.47}_{-0.75}$	$D_{\mathrm{M}}(2.33)$	$5958^{+190}_{-310}$
$\Omega_{\nu}h^2$	$< 0.0379$	$z_{*}$	$1091.9^{+4.5}_{-5.0}$	$f\sigma_8(0.15)$	$0.459^{+0.060}_{-0.096}$
$\Omega_{\mathrm{m}}h^3$	$0.0911^{+0.0056}_{-0.0055}$	$r_{*}$	$140^{+13}_{-11}$	$\sigma_8(0.15)$	$0.58^{+0.24}_{-0.19}$
$\sigma_8$	$0.64^{+0.22}_{-0.18}$	$100\theta_{*}$	$1.0414^{+0.0015}_{-0.0016}$	$f\sigma_8(0.38)$	$0.426^{+0.059}_{-0.077}$
$S_8$	$0.89^{+0.22}_{-0.25}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.5^{+1.3}_{-1.1}$	$\sigma_8(0.38)$	$0.50^{+0.24}_{-0.19}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.49^{+0.12}_{-0.14}$	$z_{\mathrm{drag}}$	$1061.0^{+5.0}_{-5.1}$	$f\sigma_8(0.51)$	$0.407^{+0.073}_{-0.092}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.555^{+0.058}_{-0.062}$	$r_{\mathrm{drag}}$	$143^{+14}_{-12}$	$\sigma_8(0.51)$	$0.46^{+0.23}_{-0.18}$
$\sigma_8/h^{0.5}$	$0.87^{+0.13}_{-0.14}$	$k_{\mathrm{D}}$	$0.146^{+0.014}_{-0.015}$	$f\sigma_8(0.61)$	$0.392^{+0.084}_{-0.099}$
$r_{\mathrm{drag}}h$	$79^{+40}_{-30}$	$100\theta_{\mathrm{D}}$	$0.1601^{+0.0030}_{-0.0027}$	$\sigma_8(0.61)$	$0.44^{+0.23}_{-0.17}$
$\langle d^2 \rangle^{1/2}$	$2.60^{+0.14}_{-0.16}$	$z_{\mathrm{eq}}$	$3727^{+1000}_{-1000}$	$f\sigma_8(2.33)$	$0.223^{+0.12}_{-0.093}$
$z_{\mathrm{re}}$	$8.20^{+0.88}_{-0.99}$	$k_{\mathrm{eq}}$	$0.0114^{+0.0033}_{-0.0034}$	$\sigma_8(2.33)$	$0.224^{+0.14}_{-0.097}$
$10^9A_{\mathrm{s}}$	$2.24^{+1.2}_{-0.79}$	$100\theta_{\mathrm{eq}}$	$0.77^{+0.21}_{-0.15}$	$\chi^2_{\mathrm{lensing}}$	$11.1 (\nu: 1.7)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.01^{+1.0}_{-0.71}$	$100\theta_{\mathrm{s,eq}}$	$0.429^{+0.11}_{-0.078}$	$\chi^2_{\mathrm{prior}}$	$2.9 (\nu: 2.9)$

$\bar{\chi}^2_{\mathrm{eff}} = 13.98$ ;  $R - 1 = 0.03431$



## 6.88 base\_mnu\_lensing\_lenspriors\_theta\_post\_bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{40}$	$1078^{+600}_{-400}$	$H(0.15)$	$62^{+20}_{-10}$
$\Omega_{\mathrm{c}} h^2$	$0.143^{+0.044}_{-0.046}$	$D_{220}$	$4963^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$798^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{810}$	$2314^{+1000}_{-800}$	$H(0.38)$	$76^{+10}_{-5}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 2.80$	$D_{1420}$	$756^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1808^{+300}_{-400}$
$\ln(10^{10} A_{\mathrm{s}})$	$2.95^{+0.41}_{-0.35}$	$D_{2000}$	$215^{+100}_{-70}$	$H(0.51)$	$85.4^{+7.1}_{-3.0}$
$n_{\mathrm{s}}$	$0.961^{+0.050}_{-0.050}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2292^{+300}_{-400}$
$H_0$	$< 74.0$	$Y_{\mathrm{P}}$	$0.24532^{+0.00056}_{-0.00053}$	$H(0.61)$	$92.8^{+4.9}_{-2.4}$
$\Omega_{\Lambda}$	$0.28^{+0.50}_{-0.70}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00056}_{-0.00054}$	$D_{\mathrm{M}}(0.61)$	$2629^{+300}_{-500}$
$\Omega_{\mathrm{m}}$	$0.72^{+0.70}_{-0.52}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.24}$	$H(2.33)$	$259^{+30}_{-40}$
$\Omega_{\mathrm{m}} h^2$	$0.179^{+0.054}_{-0.057}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.25^{+0.41}_{-0.57}$	$D_{\mathrm{M}}(2.33)$	$5938^{+150}_{-240}$
$\Omega_{\nu} h^2$	$< 0.0301$	$z_{*}$	$1092.5^{+4.3}_{-4.7}$	$f\sigma_8(0.15)$	$0.475^{+0.049}_{-0.087}$
$\Omega_{\mathrm{m}} h^3$	$0.0929^{+0.0055}_{-0.0053}$	$r_{*}$	$139^{+12}_{-10}$	$\sigma_8(0.15)$	$0.57^{+0.21}_{-0.16}$
$\sigma_8$	$0.64^{+0.20}_{-0.16}$	$100\theta_{*}$	$1.0414^{+0.0016}_{-0.0016}$	$f\sigma_8(0.38)$	$0.433^{+0.056}_{-0.068}$
$S_8$	$0.93^{+0.20}_{-0.24}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.3^{+1.2}_{-0.97}$	$\sigma_8(0.38)$	$0.49^{+0.21}_{-0.16}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.51^{+0.11}_{-0.13}$	$z_{\mathrm{drag}}$	$1061.5^{+5.0}_{-5.0}$	$f\sigma_8(0.51)$	$0.411^{+0.071}_{-0.083}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.567^{+0.055}_{-0.052}$	$r_{\mathrm{drag}}$	$141^{+12}_{-11}$	$\sigma_8(0.51)$	$0.46^{+0.20}_{-0.15}$
$\sigma_8/h^{0.5}$	$0.88^{+0.12}_{-0.12}$	$k_{\mathrm{D}}$	$0.148^{+0.013}_{-0.014}$	$f\sigma_8(0.61)$	$0.394^{+0.081}_{-0.089}$
$r_{\mathrm{drag}} h$	$76^{+40}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1600^{+0.0027}_{-0.0028}$	$\sigma_8(0.61)$	$0.43^{+0.20}_{-0.15}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.12}_{-0.12}$	$z_{\mathrm{eq}}$	$3952^{+1000}_{-1000}$	$f\sigma_8(2.33)$	$0.217^{+0.11}_{-0.078}$
$z_{\mathrm{re}}$	$8.31^{+0.83}_{-0.92}$	$k_{\mathrm{eq}}$	$0.0121^{+0.0032}_{-0.0034}$	$\sigma_8(2.33)$	$0.218^{+0.12}_{-0.081}$
$10^9 A_{\mathrm{s}}$	$1.94^{+0.90}_{-0.63}$	$100\theta_{\mathrm{eq}}$	$0.74^{+0.18}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$9.96 (\nu: 1.9)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.74^{+0.81}_{-0.56}$	$100\theta_{\mathrm{s,eq}}$	$0.411^{+0.094}_{-0.068}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.8)$

$$\bar{\chi}^2_{\mathrm{eff}} = 12.95; R - 1 = 0.00197$$



## 6.89 base\_mnu\_lensing\_lenspriors\_theta\_post\_agr2bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1111^{+600}_{-400}$	$H(0.15)$	$62^{+20}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.140^{+0.042}_{-0.044}$	$D_{220}$	$5147^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$795^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{810}$	$2378^{+1000}_{-800}$	$H(0.38)$	$76^{+10}_{-5}$
$\Sigma m_{\nu}$ [eV]	$< 2.83$	$D_{1420}$	$775^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1804^{+300}_{-400}$
$\ln(10^{10}A_{\mathrm{s}})$	$2.98^{+0.41}_{-0.34}$	$D_{2000}$	$220^{+100}_{-70}$	$H(0.51)$	$85.4^{+7.5}_{-3.1}$
$n_{\mathrm{s}}$	$0.960^{+0.049}_{-0.050}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.049}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2287^{+300}_{-400}$
$H_0$	$< 75.0$	$Y_{\mathrm{P}}$	$0.24532^{+0.00056}_{-0.00054}$	$H(0.61)$	$92.7^{+5.0}_{-2.6}$
$\Omega_{\Lambda}$	$0.29^{+0.51}_{-0.71}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00056}_{-0.00054}$	$D_{\mathrm{M}}(0.61)$	$2624^{+300}_{-500}$
$\Omega_{\mathrm{m}}$	$0.71^{+0.71}_{-0.51}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.24}$	$H(2.33)$	$257^{+30}_{-40}$
$\Omega_{\mathrm{m}}h^2$	$0.177^{+0.053}_{-0.056}$	Age/Gyr	$14.27^{+0.40}_{-0.60}$	$D_{\mathrm{M}}(2.33)$	$5946^{+150}_{-260}$
$\Omega_{\nu}h^2$	$< 0.0304$	$z_{*}$	$1092.3^{+4.4}_{-4.6}$	$f\sigma_8(0.15)$	$0.464^{+0.042}_{-0.082}$
$\Omega_{\mathrm{m}}h^3$	$0.0922^{+0.0051}_{-0.0047}$	$r_{*}$	$139^{+12}_{-10}$	$\sigma_8(0.15)$	$0.57^{+0.21}_{-0.16}$
$\sigma_8$	$0.63^{+0.20}_{-0.16}$	$100\theta_{*}$	$1.0414^{+0.0015}_{-0.0015}$	$f\sigma_8(0.38)$	$0.425^{+0.052}_{-0.061}$
$S_8$	$0.91^{+0.20}_{-0.23}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.4^{+1.2}_{-0.99}$	$\sigma_8(0.38)$	$0.49^{+0.21}_{-0.16}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.50^{+0.11}_{-0.12}$	$z_{\mathrm{drag}}$	$1061.4^{+5.2}_{-5.0}$	$f\sigma_8(0.51)$	$0.404^{+0.067}_{-0.077}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.557^{+0.047}_{-0.041}$	$r_{\mathrm{drag}}$	$142^{+13}_{-10}$	$\sigma_8(0.51)$	$0.45^{+0.21}_{-0.15}$
$\sigma_8/h^{0.5}$	$0.86^{+0.12}_{-0.10}$	$k_{\mathrm{D}}$	$0.147^{+0.013}_{-0.014}$	$f\sigma_8(0.61)$	$0.389^{+0.079}_{-0.084}$
$r_{\mathrm{drag}}h$	$77^{+40}_{-30}$	$100\theta_{\mathrm{D}}$	$0.1600^{+0.0028}_{-0.0029}$	$\sigma_8(0.61)$	$0.43^{+0.20}_{-0.15}$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.12}_{-0.12}$	$z_{\mathrm{eq}}$	$3880^{+1000}_{-1000}$	$f\sigma_8(2.33)$	$0.216^{+0.11}_{-0.078}$
$z_{\mathrm{re}}$	$8.28^{+0.86}_{-0.91}$	$k_{\mathrm{eq}}$	$0.0119^{+0.0031}_{-0.0033}$	$\sigma_8(2.33)$	$0.217^{+0.12}_{-0.081}$
$10^9A_{\mathrm{s}}$	$1.99^{+0.91}_{-0.64}$	$100\theta_{\mathrm{eq}}$	$0.75^{+0.18}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$12.3 (\nu: 1.9)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.78^{+0.82}_{-0.57}$	$100\theta_{\mathrm{s,eq}}$	$0.416^{+0.094}_{-0.067}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.8)$

$\bar{\chi}^2_{\mathrm{eff}} = 15.30$ ;  $R - 1 = 0.00207$



## 6.90 base\_mnu\_lensing\_lenspriors\_theta\_post\_linear

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0012}_{-0.0012}$	$D_{40}$	$1075^{+600}_{-400}$	$H(0.15)$	$61^{+20}_{-9}$
$\Omega_{\mathrm{c}}h^2$	$0.146^{+0.042}_{-0.047}$	$D_{220}$	$4920^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$805^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{810}$	$2311^{+1000}_{-800}$	$H(0.38)$	$76^{+10}_{-5}$
$\Sigma m_{\nu}$ [eV]	$< 2.77$	$D_{1420}$	$756^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1819^{+300}_{-400}$
$\ln(10^{10}A_{\mathrm{s}})$	$2.96^{+0.42}_{-0.33}$	$D_{2000}$	$215^{+100}_{-70}$	$H(0.51)$	$85.4^{+7.4}_{-2.7}$
$n_{\mathrm{s}}$	$0.961^{+0.050}_{-0.050}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2302^{+300}_{-400}$
$H_0$	$< 73.5$	$Y_{\mathrm{P}}$	$0.24531^{+0.00053}_{-0.00053}$	$H(0.61)$	$92.9^{+4.7}_{-2.4}$
$\Omega_{\Lambda}$	$0.26^{+0.52}_{-0.68}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00053}_{-0.00053}$	$D_{\mathrm{M}}(0.61)$	$2639^{+300}_{-500}$
$\Omega_{\mathrm{m}}$	$0.74^{+0.68}_{-0.52}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.22}$	$H(2.33)$	$260^{+30}_{-40}$
$\Omega_{\mathrm{m}}h^2$	$0.181^{+0.052}_{-0.058}$	Age/Gyr	$14.24^{+0.40}_{-0.56}$	$D_{\mathrm{M}}(2.33)$	$5934^{+150}_{-240}$
$\Omega_{\nu}h^2$	$< 0.0298$	$z_{*}$	$1092.7^{+4.3}_{-4.8}$	$f\sigma_8(0.15)$	$0.487^{+0.050}_{-0.091}$
$\Omega_{\mathrm{m}}h^3$	$0.0933^{+0.0056}_{-0.0054}$	$r_{*}$	$138^{+12}_{-9.8}$	$\sigma_8(0.15)$	$0.58^{+0.21}_{-0.16}$
$\sigma_8$	$0.65^{+0.20}_{-0.16}$	$100\theta_{*}$	$1.0414^{+0.0016}_{-0.0016}$	$f\sigma_8(0.38)$	$0.441^{+0.058}_{-0.070}$
$S_8$	$0.96^{+0.20}_{-0.26}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.2^{+1.2}_{-0.94}$	$\sigma_8(0.38)$	$0.50^{+0.21}_{-0.16}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.53^{+0.11}_{-0.14}$	$z_{\mathrm{drag}}$	$1061.7^{+4.7}_{-5.1}$	$f\sigma_8(0.51)$	$0.417^{+0.073}_{-0.083}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.580^{+0.054}_{-0.054}$	$r_{\mathrm{drag}}$	$140^{+13}_{-10}$	$\sigma_8(0.51)$	$0.46^{+0.21}_{-0.15}$
$\sigma_8/h^{0.5}$	$0.89^{+0.13}_{-0.12}$	$k_{\mathrm{D}}$	$0.149^{+0.012}_{-0.015}$	$f\sigma_8(0.61)$	$0.400^{+0.083}_{-0.089}$
$r_{\mathrm{drag}}h$	$75^{+40}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1600^{+0.0027}_{-0.0026}$	$\sigma_8(0.61)$	$0.43^{+0.20}_{-0.14}$
$\langle d^2 \rangle^{1/2}$	$2.52^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$4017^{+1000}_{-1000}$	$f\sigma_8(2.33)$	$0.219^{+0.11}_{-0.076}$
$z_{\mathrm{re}}$	$8.35^{+0.82}_{-0.95}$	$k_{\mathrm{eq}}$	$0.0123^{+0.0031}_{-0.0035}$	$\sigma_8(2.33)$	$0.219^{+0.12}_{-0.079}$
$10^9A_{\mathrm{s}}$	$1.95^{+0.91}_{-0.61}$	$100\theta_{\mathrm{eq}}$	$0.73^{+0.18}_{-0.12}$	$\chi^2_{\mathrm{lensing}}$	$10.2 (\nu: 1.9)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.75^{+0.81}_{-0.55}$	$100\theta_{\mathrm{s,eq}}$	$0.406^{+0.094}_{-0.066}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.8)$

$\bar{\chi}^2_{\mathrm{eff}} = 13.20$ ;  $R - 1 = 0.00228$



## 6.91 base\_mnu\_lensing\_lenspriors\_theta\_post\_acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1110^{+700}_{-400}$	$H(0.15)$	$62^{+20}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.142^{+0.043}_{-0.046}$	$D_{220}$	$5116^{+4000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$797^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0016}$	$D_{810}$	$2381^{+1000}_{-900}$	$H(0.38)$	$76^{+10}_{-5}$
$\Sigma m_{\nu}$ [eV]	$< 2.86$	$D_{1420}$	$777^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1806^{+300}_{-400}$
$\ln(10^{10}A_{\mathrm{s}})$	$2.98^{+0.43}_{-0.35}$	$D_{2000}$	$221^{+100}_{-80}$	$H(0.51)$	$85.4^{+7.8}_{-2.9}$
$n_{\mathrm{s}}$	$0.961^{+0.050}_{-0.050}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2289^{+300}_{-400}$
$H_0$	$< 74.5$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00054}$	$H(0.61)$	$92.7^{+5.1}_{-2.5}$
$\Omega_{\Lambda}$	$0.29^{+0.52}_{-0.71}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00054}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2626^{+300}_{-500}$
$\Omega_{\mathrm{m}}$	$0.71^{+0.70}_{-0.52}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.23}$	$H(2.33)$	$258^{+30}_{-40}$
$\Omega_{\mathrm{m}}h^2$	$0.178^{+0.054}_{-0.057}$	Age/Gyr	$14.25^{+0.42}_{-0.59}$	$D_{\mathrm{M}}(2.33)$	$5940^{+160}_{-250}$
$\Omega_{\nu}h^2$	$< 0.0308$	$z_{*}$	$1092.5^{+4.3}_{-4.7}$	$f\sigma_8(0.15)$	$0.476^{+0.049}_{-0.088}$
$\Omega_{\mathrm{m}}h^3$	$0.0927^{+0.0057}_{-0.0053}$	$r_{*}$	$139^{+12}_{-10}$	$\sigma_8(0.15)$	$0.58^{+0.21}_{-0.17}$
$\sigma_8$	$0.65^{+0.20}_{-0.16}$	$100\theta_{*}$	$1.0413^{+0.0016}_{-0.0016}$	$f\sigma_8(0.38)$	$0.435^{+0.057}_{-0.070}$
$S_8$	$0.93^{+0.20}_{-0.24}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.3^{+1.2}_{-0.98}$	$\sigma_8(0.38)$	$0.50^{+0.21}_{-0.16}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.51^{+0.11}_{-0.13}$	$z_{\mathrm{drag}}$	$1061.5^{+4.9}_{-5.1}$	$f\sigma_8(0.51)$	$0.413^{+0.072}_{-0.084}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.570^{+0.055}_{-0.054}$	$r_{\mathrm{drag}}$	$141^{+13}_{-11}$	$\sigma_8(0.51)$	$0.46^{+0.21}_{-0.15}$
$\sigma_8/h^{0.5}$	$0.88^{+0.13}_{-0.12}$	$k_{\mathrm{D}}$	$0.148^{+0.013}_{-0.014}$	$f\sigma_8(0.61)$	$0.397^{+0.082}_{-0.090}$
$r_{\mathrm{drag}}h$	$76^{+40}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1600^{+0.0027}_{-0.0027}$	$\sigma_8(0.61)$	$0.43^{+0.20}_{-0.15}$
$\langle d^2 \rangle^{1/2}$	$2.53^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$3928^{+1000}_{-1000}$	$f\sigma_8(2.33)$	$0.219^{+0.11}_{-0.079}$
$z_{\mathrm{re}}$	$8.30^{+0.83}_{-0.92}$	$k_{\mathrm{eq}}$	$0.0120^{+0.0032}_{-0.0034}$	$\sigma_8(2.33)$	$0.220^{+0.12}_{-0.083}$
$10^9A_{\mathrm{s}}$	$2.00^{+0.95}_{-0.66}$	$100\theta_{\mathrm{eq}}$	$0.74^{+0.18}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$9.8 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.79^{+0.85}_{-0.59}$	$100\theta_{\mathrm{s,eq}}$	$0.412^{+0.095}_{-0.069}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.9)$

$\bar{\chi}^2_{\mathrm{eff}} = 12.75$ ;  $R - 1 = 0.00245$



## 6.92 base\_mnu\_lensing\_lenspriors\_theta\_post\_agr2acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1149^{+700}_{-400}$	$H(0.15)$	$62^{+20}_{-10}$
$\Omega_{\mathrm{c}} h^2$	$0.139^{+0.042}_{-0.044}$	$D_{220}$	$5334^{+4000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$793^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0016}$	$D_{810}$	$2458^{+1000}_{-900}$	$H(0.38)$	$77^{+10}_{-5}$
$\Sigma m_{\nu}$ [eV]	$< 2.91$	$D_{1420}$	$801^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1800^{+300}_{-400}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.01^{+0.43}_{-0.35}$	$D_{2000}$	$227^{+100}_{-80}$	$H(0.51)$	$85.4^{+7.9}_{-3.2}$
$n_{\mathrm{s}}$	$0.960^{+0.050}_{-0.050}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2283^{+300}_{-500}$
$H_0$	$< 75.5$	$Y_{\mathrm{P}}$	$0.24532^{+0.00056}_{-0.00055}$	$H(0.61)$	$92.6^{+5.6}_{-2.5}$
$\Omega_{\Lambda}$	$0.30^{+0.52}_{-0.71}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00056}_{-0.00056}$	$D_{\mathrm{M}}(0.61)$	$2621^{+300}_{-500}$
$\Omega_{\mathrm{m}}$	$0.70^{+0.70}_{-0.52}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$256^{+30}_{-40}$
$\Omega_{\mathrm{m}} h^2$	$0.176^{+0.055}_{-0.058}$	Age/Gyr	$14.28^{+0.40}_{-0.62}$	$D_{\mathrm{M}}(2.33)$	$5949^{+150}_{-270}$
$\Omega_{\nu} h^2$	$< 0.0313$	$z_{*}$	$1092.2^{+4.4}_{-4.6}$	$f\sigma_8(0.15)$	$0.464^{+0.043}_{-0.082}$
$\Omega_{\mathrm{m}} h^3$	$0.0920^{+0.0051}_{-0.0047}$	$r_{*}$	$139^{+12}_{-10}$	$\sigma_8(0.15)$	$0.57^{+0.22}_{-0.16}$
$\sigma_8$	$0.64^{+0.21}_{-0.16}$	$100\theta_{*}$	$1.0414^{+0.0015}_{-0.0016}$	$f\sigma_8(0.38)$	$0.426^{+0.052}_{-0.062}$
$S_8$	$0.91^{+0.20}_{-0.23}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.4^{+1.2}_{-1.0}$	$\sigma_8(0.38)$	$0.49^{+0.22}_{-0.16}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.50^{+0.11}_{-0.13}$	$z_{\mathrm{drag}}$	$1061.3^{+5.0}_{-5.1}$	$f\sigma_8(0.51)$	$0.406^{+0.068}_{-0.077}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.558^{+0.048}_{-0.042}$	$r_{\mathrm{drag}}$	$142^{+13}_{-11}$	$\sigma_8(0.51)$	$0.46^{+0.22}_{-0.15}$
$\sigma_8/h^{0.5}$	$0.87^{+0.12}_{-0.11}$	$k_{\mathrm{D}}$	$0.147^{+0.013}_{-0.014}$	$f\sigma_8(0.61)$	$0.390^{+0.080}_{-0.086}$
$r_{\mathrm{drag}} h$	$77^{+40}_{-30}$	$100\theta_{\mathrm{D}}$	$0.1600^{+0.0028}_{-0.0028}$	$\sigma_8(0.61)$	$0.43^{+0.21}_{-0.15}$
$\langle d^2 \rangle^{1/2}$	$2.53^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$3847^{+1000}_{-1000}$	$f\sigma_8(2.33)$	$0.218^{+0.11}_{-0.079}$
$z_{\mathrm{re}}$	$8.26^{+0.84}_{-0.91}$	$k_{\mathrm{eq}}$	$0.0118^{+0.0031}_{-0.0032}$	$\sigma_8(2.33)$	$0.219^{+0.13}_{-0.083}$
$10^9 A_{\mathrm{s}}$	$2.06^{+0.97}_{-0.67}$	$100\theta_{\mathrm{eq}}$	$0.76^{+0.18}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$12.2 (\nu: 2.0)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.84^{+0.87}_{-0.60}$	$100\theta_{\mathrm{s,eq}}$	$0.419^{+0.095}_{-0.068}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.9)$

$\bar{\chi}^2_{\mathrm{eff}} = 15.21$ ;  $R - 1 = 0.00402$



### 6.93 base\_mnu\_lensing\_lenspriors\_theta\_post\_takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1113^{+700}_{-400}$	$H(0.15)$	$62^{+20}_{-10}$
$\Omega_{\mathrm{c}} h^2$	$0.141^{+0.043}_{-0.045}$	$D_{220}$	$5145^{+4000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$797^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{810}$	$2387^{+1000}_{-900}$	$H(0.38)$	$76^{+10}_{-5}$
$\Sigma m_{\nu}$ [eV]	$< 2.93$	$D_{1420}$	$779^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1808^{+300}_{-400}$
$\ln(10^{10} A_{\mathrm{s}})$	$2.98^{+0.42}_{-0.34}$	$D_{2000}$	$221^{+100}_{-80}$	$H(0.51)$	$85.4^{+7.5}_{-3.2}$
$n_{\mathrm{s}}$	$0.961^{+0.050}_{-0.050}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2291^{+300}_{-400}$
$H_0$	$< 74.7$	$Y_{\mathrm{P}}$	$0.24532^{+0.00056}_{-0.00055}$	$H(0.61)$	$92.7^{+5.4}_{-2.4}$
$\Omega_{\Lambda}$	$0.29^{+0.52}_{-0.70}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00056}_{-0.00055}$	$D_{\mathrm{M}}(0.61)$	$2629^{+300}_{-500}$
$\Omega_{\mathrm{m}}$	$0.71^{+0.70}_{-0.52}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$258^{+30}_{-40}$
$\Omega_{\mathrm{m}} h^2$	$0.178^{+0.053}_{-0.058}$	Age/Gyr	$14.27^{+0.43}_{-0.60}$	$D_{\mathrm{M}}(2.33)$	$5945^{+160}_{-260}$
$\Omega_{\nu} h^2$	$< 0.0315$	$z_{*}$	$1092.4^{+4.3}_{-4.7}$	$f\sigma_8(0.15)$	$0.472^{+0.051}_{-0.088}$
$\Omega_{\mathrm{m}} h^3$	$0.0925^{+0.0058}_{-0.0054}$	$r_{*}$	$139^{+12}_{-10}$	$\sigma_8(0.15)$	$0.57^{+0.22}_{-0.17}$
$\sigma_8$	$0.64^{+0.21}_{-0.17}$	$100\theta_{*}$	$1.0414^{+0.0016}_{-0.0016}$	$f\sigma_8(0.38)$	$0.432^{+0.060}_{-0.072}$
$S_8$	$0.92^{+0.19}_{-0.24}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.3^{+1.2}_{-0.97}$	$\sigma_8(0.38)$	$0.49^{+0.22}_{-0.16}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.51^{+0.11}_{-0.13}$	$z_{\mathrm{drag}}$	$1061.4^{+5.0}_{-5.1}$	$f\sigma_8(0.51)$	$0.410^{+0.075}_{-0.086}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.565^{+0.059}_{-0.059}$	$r_{\mathrm{drag}}$	$141^{+13}_{-10}$	$\sigma_8(0.51)$	$0.46^{+0.21}_{-0.16}$
$\sigma_8/h^{0.5}$	$0.87^{+0.13}_{-0.12}$	$k_{\mathrm{D}}$	$0.148^{+0.013}_{-0.014}$	$f\sigma_8(0.61)$	$0.394^{+0.085}_{-0.093}$
$r_{\mathrm{drag}} h$	$76^{+40}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1600^{+0.0028}_{-0.0028}$	$\sigma_8(0.61)$	$0.43^{+0.21}_{-0.15}$
$\langle d^2 \rangle^{1/2}$	$2.53^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$3907^{+1000}_{-1000}$	$f\sigma_8(2.33)$	$0.218^{+0.11}_{-0.080}$
$z_{\mathrm{re}}$	$8.29^{+0.84}_{-0.92}$	$k_{\mathrm{eq}}$	$0.0120^{+0.0031}_{-0.0034}$	$\sigma_8(2.33)$	$0.218^{+0.12}_{-0.083}$
$10^9 A_{\mathrm{s}}$	$2.00^{+0.94}_{-0.65}$	$100\theta_{\mathrm{eq}}$	$0.75^{+0.18}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$9.7 (\nu: 1.9)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.79^{+0.84}_{-0.58}$	$100\theta_{\mathrm{s,eq}}$	$0.414^{+0.095}_{-0.067}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.9)$

$\bar{\chi}^2_{\mathrm{eff}} = 12.69$ ;  $R - 1 = 0.00149$



## 6.94 base\_mnu\_lensing\_lenspriors\_theta\_post\_agr2takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	$1160^{+700}_{-400}$	$H(0.15)$	$62^{+20}_{-10}$
$\Omega_{\mathrm{c}} h^2$	$0.137^{+0.041}_{-0.043}$	$D_{220}$	$5400^{+4000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$791^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{810}$	$2476^{+1000}_{-900}$	$H(0.38)$	$77^{+10}_{-5}$
$\Sigma m_{\nu}$ [eV]	$< 2.99$	$D_{1420}$	$806^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1797^{+300}_{-400}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.01^{+0.42}_{-0.35}$	$D_{2000}$	$228^{+100}_{-80}$	$H(0.51)$	$85.4^{+8.0}_{-3.3}$
$n_{\mathrm{s}}$	$0.960^{+0.050}_{-0.049}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.050}_{-0.049}$	$D_{\mathrm{M}}(0.51)$	$2280^{+300}_{-500}$
$H_0$	$< 75.8$	$Y_{\mathrm{P}}$	$0.24531^{+0.00056}_{-0.00057}$	$H(0.61)$	$92.6^{+5.9}_{-2.5}$
$\Omega_{\Lambda}$	$0.31^{+0.51}_{-0.71}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00056}_{-0.00057}$	$D_{\mathrm{M}}(0.61)$	$2617^{+300}_{-500}$
$\Omega_{\mathrm{m}}$	$0.69^{+0.71}_{-0.51}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$H(2.33)$	$256^{+30}_{-40}$
$\Omega_{\mathrm{m}} h^2$	$0.174^{+0.055}_{-0.057}$	Age/Gyr	$14.28^{+0.42}_{-0.63}$	$D_{\mathrm{M}}(2.33)$	$5953^{+150}_{-280}$
$\Omega_{\nu} h^2$	$< 0.0322$	$z_{*}$	$1092.1^{+4.5}_{-4.6}$	$f\sigma_8(0.15)$	$0.459^{+0.044}_{-0.080}$
$\Omega_{\mathrm{m}} h^3$	$0.0917^{+0.0052}_{-0.0050}$	$r_{*}$	$140^{+12}_{-10}$	$\sigma_8(0.15)$	$0.57^{+0.22}_{-0.17}$
$\sigma_8$	$0.63^{+0.21}_{-0.17}$	$100\theta_{*}$	$1.0414^{+0.0016}_{-0.0015}$	$f\sigma_8(0.38)$	$0.423^{+0.054}_{-0.065}$
$S_8$	$0.89^{+0.18}_{-0.22}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.4^{+1.2}_{-1.0}$	$\sigma_8(0.38)$	$0.49^{+0.22}_{-0.16}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.49^{+0.10}_{-0.12}$	$z_{\mathrm{drag}}$	$1061.2^{+5.1}_{-5.1}$	$f\sigma_8(0.51)$	$0.403^{+0.070}_{-0.080}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.553^{+0.052}_{-0.047}$	$r_{\mathrm{drag}}$	$142^{+13}_{-11}$	$\sigma_8(0.51)$	$0.46^{+0.22}_{-0.16}$
$\sigma_8/h^{0.5}$	$0.86^{+0.13}_{-0.12}$	$k_{\mathrm{D}}$	$0.147^{+0.013}_{-0.014}$	$f\sigma_8(0.61)$	$0.388^{+0.082}_{-0.088}$
$r_{\mathrm{drag}} h$	$78^{+40}_{-30}$	$100\theta_{\mathrm{D}}$	$0.1601^{+0.0029}_{-0.0029}$	$\sigma_8(0.61)$	$0.43^{+0.21}_{-0.15}$
$\langle d^2 \rangle^{1/2}$	$2.53^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$3809^{+1000}_{-1000}$	$f\sigma_8(2.33)$	$0.218^{+0.11}_{-0.082}$
$z_{\mathrm{re}}$	$8.24^{+0.87}_{-0.90}$	$k_{\mathrm{eq}}$	$0.0117^{+0.0030}_{-0.0032}$	$\sigma_8(2.33)$	$0.218^{+0.13}_{-0.086}$
$10^9 A_{\mathrm{s}}$	$2.07^{+0.96}_{-0.68}$	$100\theta_{\mathrm{eq}}$	$0.76^{+0.18}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$12.2 (\nu: 1.9)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.85^{+0.86}_{-0.61}$	$100\theta_{\mathrm{s,eq}}$	$0.422^{+0.095}_{-0.068}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.8)$

$\bar{\chi}^2_{\mathrm{eff}} = 15.21$ ;  $R - 1 = 0.00352$



## 6.95 base\_mnu\_lensing\_lenspriors\_theta\_post\_Apr6

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0012}$	$D_{40}$	$1087^{+600}_{-400}$	$H(0.15)$	$62^{+20}_{-10}$
$\Omega_{\mathrm{c}} h^2$	$0.144^{+0.044}_{-0.046}$	$D_{220}$	$4995^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.15)$	$798^{+200}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{810}$	$2331^{+1000}_{-800}$	$H(0.38)$	$76^{+10}_{-5}$
$\Sigma m_{\nu}$ [eV]	$< 2.78$	$D_{1420}$	$761^{+400}_{-300}$	$D_{\mathrm{M}}(0.38)$	$1808^{+300}_{-400}$
$\ln(10^{10} A_{\mathrm{s}})$	$2.96^{+0.41}_{-0.35}$	$D_{2000}$	$216^{+100}_{-70}$	$H(0.51)$	$85.4^{+7.5}_{-2.8}$
$n_{\mathrm{s}}$	$0.961^{+0.050}_{-0.050}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(0.51)$	$2291^{+300}_{-400}$
$H_0$	$< 73.7$	$Y_{\mathrm{P}}$	$0.24532^{+0.00055}_{-0.00053}$	$H(0.61)$	$92.8^{+4.9}_{-2.4}$
$\Omega_{\Lambda}$	$0.29^{+0.50}_{-0.70}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00055}_{-0.00054}$	$D_{\mathrm{M}}(0.61)$	$2628^{+300}_{-500}$
$\Omega_{\mathrm{m}}$	$0.71^{+0.70}_{-0.51}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.23}$	$H(2.33)$	$259^{+30}_{-40}$
$\Omega_{\mathrm{m}} h^2$	$0.179^{+0.053}_{-0.056}$	Age/Gyr	$14.24^{+0.41}_{-0.56}$	$D_{\mathrm{M}}(2.33)$	$5936^{+150}_{-240}$
$\Omega_{\nu} h^2$	$< 0.0299$	$z_{*}$	$1092.6^{+4.3}_{-4.7}$	$f\sigma_8(0.15)$	$0.479^{+0.049}_{-0.087}$
$\Omega_{\mathrm{m}} h^3$	$0.0931^{+0.0056}_{-0.0053}$	$r_{*}$	$138^{+12}_{-10}$	$\sigma_8(0.15)$	$0.58^{+0.21}_{-0.17}$
$\sigma_8$	$0.65^{+0.20}_{-0.16}$	$100\theta_{*}$	$1.0414^{+0.0016}_{-0.0016}$	$f\sigma_8(0.38)$	$0.437^{+0.056}_{-0.069}$
$S_8$	$0.94^{+0.20}_{-0.24}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.3^{+1.2}_{-0.97}$	$\sigma_8(0.38)$	$0.50^{+0.21}_{-0.16}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.51^{+0.11}_{-0.13}$	$z_{\mathrm{drag}}$	$1061.5^{+4.9}_{-5.0}$	$f\sigma_8(0.51)$	$0.415^{+0.071}_{-0.084}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.573^{+0.054}_{-0.051}$	$r_{\mathrm{drag}}$	$141^{+12}_{-10}$	$\sigma_8(0.51)$	$0.46^{+0.20}_{-0.15}$
$\sigma_8/h^{0.5}$	$0.88^{+0.12}_{-0.11}$	$k_{\mathrm{D}}$	$0.148^{+0.013}_{-0.014}$	$f\sigma_8(0.61)$	$0.398^{+0.081}_{-0.091}$
$r_{\mathrm{drag}} h$	$76^{+40}_{-20}$	$100\theta_{\mathrm{D}}$	$0.1600^{+0.0027}_{-0.0027}$	$\sigma_8(0.61)$	$0.43^{+0.20}_{-0.15}$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.13}_{-0.12}$	$z_{\mathrm{eq}}$	$3961^{+1000}_{-1000}$	$f\sigma_8(2.33)$	$0.219^{+0.11}_{-0.078}$
$z_{\mathrm{re}}$	$8.31^{+0.84}_{-0.92}$	$k_{\mathrm{eq}}$	$0.0121^{+0.0032}_{-0.0034}$	$\sigma_8(2.33)$	$0.219^{+0.12}_{-0.081}$
$10^9 A_{\mathrm{s}}$	$1.96^{+0.90}_{-0.63}$	$100\theta_{\mathrm{eq}}$	$0.74^{+0.18}_{-0.13}$	$\chi^2_{\mathrm{lensing}}$	$8.5 (\nu: 1.9)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.76^{+0.81}_{-0.57}$	$100\theta_{\mathrm{s,eq}}$	$0.410^{+0.093}_{-0.067}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.8)$

$\bar{\chi}^2_{\mathrm{eff}} = 11.51$ ;  $R - 1 = 0.00127$



## 6.96 base\_mnu\_lensing\_lenspriors\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02216	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	2656	$2165^{+1000}_{-1000}$	$H(0.51)$	93.4	$99^{+10}_{-10}$
$\Omega_c h^2$	0.133	$0.157^{+0.068}_{-0.053}$	$D_{1420}$	829	$629^{+400}_{-400}$	$D_M(0.51)$	1926	$1850^{+180}_{-190}$
$100\theta_{MC}$	1.076	$1.109^{+0.076}_{-0.085}$	$D_{2000}$	240	$182^{+100}_{-100}$	$H(0.61)$	99.6	$106^{+20}_{-10}$
$\Sigma m_\nu$ [eV]	0.83	< 4.36	$n_{s,0.002}$	0.962	$0.960^{+0.052}_{-0.052}$	$D_M(0.61)$	2237	$2144^{+220}_{-230}$
$\ln(10^{10} A_s)$	3.127	$3.03^{+0.28}_{-0.29}$	$Y_P$	0.24531	$0.24532^{+0.00054}_{-0.00056}$	$H(2.33)$	252	$274^{+60}_{-50}$
$n_s$	0.962	$0.960^{+0.052}_{-0.052}$	$Y_P^{BBN}$	0.24664	$0.24665^{+0.00055}_{-0.00056}$	$D_M(2.33)$	5501	$5193^{+800}_{-700}$
$H_0$	68.7	$70.6^{+5.8}_{-4.5}$	$10^5 D/H$	2.625	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.15)$	0.4545	$0.457^{+0.046}_{-0.046}$
$\Omega_\Lambda$	0.653	$0.61^{+0.11}_{-0.12}$	Age/Gyr	13.16	$12.4^{+1.9}_{-1.8}$	$\sigma_8(0.15)$	0.699	$0.669^{+0.097}_{-0.098}$
$\Omega_m$	0.347	$0.39^{+0.12}_{-0.11}$	$z_*$	1091.5	$1093.8^{+6.5}_{-5.4}$	$f\sigma_8(0.38)$	0.4653	$0.459^{+0.044}_{-0.047}$
$\Omega_m h^2$	0.164	$0.196^{+0.093}_{-0.068}$	$r_*$	141.1	$135^{+14}_{-14}$	$\sigma_8(0.38)$	0.617	$0.587^{+0.092}_{-0.092}$
$\Omega_\nu h^2$	0.0089	< 0.0468	$100\theta_*$	1.077	$1.110^{+0.076}_{-0.085}$	$f\sigma_8(0.51)$	0.4607	$0.450^{+0.045}_{-0.051}$
$\Omega_m h^3$	0.113	$0.139^{+0.077}_{-0.057}$	$D_M(z_*)/\text{Gpc}$	13.10	$12.2^{+2.3}_{-2.0}$	$\sigma_8(0.51)$	0.577	$0.548^{+0.088}_{-0.088}$
$\sigma_8$	0.759	$0.730^{+0.099}_{-0.10}$	$z_{\text{drag}}$	1060.5	$1062.6^{+6.0}_{-5.3}$	$f\sigma_8(0.61)$	0.454	$0.441^{+0.047}_{-0.054}$
$S_8$	0.817	$0.830^{+0.093}_{-0.090}$	$r_{\text{drag}}$	143.7	$138^{+14}_{-15}$	$\sigma_8(0.61)$	0.549	$0.520^{+0.085}_{-0.085}$
$\sigma_8 \Omega_m^{0.5}$	0.447	$0.454^{+0.051}_{-0.049}$	$k_D$	0.1446	$0.152^{+0.020}_{-0.016}$	$f\sigma_8(2.33)$	0.2828	$0.267^{+0.040}_{-0.046}$
$\sigma_8 \Omega_m^{0.25}$	0.583	$0.576^{+0.058}_{-0.059}$	$100\theta_D$	0.1659	$0.170^{+0.010}_{-0.011}$	$\sigma_8(2.33)$	0.2859	$0.269^{+0.047}_{-0.048}$
$\sigma_8/h^{0.5}$	0.916	$0.87^{+0.13}_{-0.13}$	$z_{\text{eq}}$	3703	$4271^{+2000}_{-1000}$	$\chi^2_{\text{lensing}}$	7.5	9.96 ( $\nu$ : 2.2)
$r_{\text{drag}} h$	98.72	$97.2^{+5.0}_{-4.8}$	$k_{\text{eq}}$	0.01132	$0.0131^{+0.0051}_{-0.0039}$	$\chi^2_{6\text{DF}}$	0.09	0.40 ( $\nu$ : 0.1)
$\langle d^2 \rangle^{1/2}$	2.526	$2.50^{+0.14}_{-0.14}$	$100\theta_{\text{eq}}$	0.791	$0.75^{+0.13}_{-0.11}$	$\chi^2_{\text{MGS}}$	0.98	0.71 ( $\nu$ : 0.2)
$z_{\text{re}}$	8.17	$8.7^{+1.3}_{-1.2}$	$100\theta_{s,\text{eq}}$	0.439	$0.415^{+0.068}_{-0.059}$	$\chi^2_{\text{DR12BAO}}$	2.28	3.7 ( $\nu$ : 1.3)
$10^9 A_s$	2.28	$2.08^{+0.66}_{-0.54}$	$H(0.15)$	74.7	$77.5^{+8.1}_{-6.3}$	$\chi^2_{\text{prior}}$	0.01	2.0 ( $\nu$ : 2.0)
$10^9 A_s e^{-2\tau}$	2.04	$1.87^{+0.59}_{-0.48}$	$D_M(0.15)$	628.6	$609^{+47}_{-53}$	$\chi^2_{\text{BAO}}$	3.35	4.9 ( $\nu$ : 1.6)
$D_{40}$	1310	$1160^{+500}_{-400}$	$H(0.38)$	86.0	$90^{+10}_{-10}$			
$D_{220}$	5922	$5016^{+3000}_{-2000}$	$D_M(0.38)$	1491	$1436^{+130}_{-140}$			

Best-fit  $\chi^2_{\text{eff}} = 10.86$ ;  $\bar{\chi}^2_{\text{eff}} = 16.83$ ;  $R - 1 = 0.00375$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.09 MGS: 0.98 DR12BAO: 2.28 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.50



## 6.97 base\_mnu\_lensing\_lenspriors\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02230	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	2802	$2828^{+700}_{-700}$	$H(0.51)$	90.3	$90.9^{+6.6}_{-5.4}$
$\Omega_c h^2$	0.1184	$0.120^{+0.028}_{-0.023}$	$D_{1420}$	895	$896^{+200}_{-300}$	$D_M(0.51)$	1969	$1962^{+88}_{-110}$
$100\theta_{MC}$	1.0485	$1.054^{+0.047}_{-0.038}$	$D_{2000}$	253	$255^{+70}_{-70}$	$H(0.61)$	95.9	$96.6^{+7.4}_{-6.0}$
$\Sigma m_\nu$ [eV]	0.33	< 1.34	$n_{s,0.002}$	0.958	$0.961^{+0.049}_{-0.050}$	$D_M(0.61)$	2291	$2282^{+110}_{-140}$
$\ln(10^{10} A_s)$	3.143	$3.16^{+0.20}_{-0.24}$	$Y_P$	0.24537	$0.24532^{+0.00053}_{-0.00054}$	$H(2.33)$	237.6	$240^{+25}_{-21}$
$n_s$	0.958	$0.961^{+0.049}_{-0.050}$	$Y_P^{BBN}$	0.24669	$0.24665^{+0.00054}_{-0.00054}$	$D_M(2.33)$	5726	$5688^{+350}_{-440}$
$H_0$	68.01	$68.1^{+3.4}_{-2.7}$	$10^5 D/H$	2.599	$2.62^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	0.4480	$0.446^{+0.041}_{-0.042}$
$\Omega_\Lambda$	0.6881	$0.682^{+0.041}_{-0.052}$	Age/Gyr	13.71	$13.62^{+0.85}_{-1.1}$	$\sigma_8(0.15)$	0.729	$0.718^{+0.061}_{-0.078}$
$\Omega_m$	0.3119	$0.318^{+0.052}_{-0.041}$	$z_*$	1089.91	$1090.3^{+3.1}_{-2.5}$	$f\sigma_8(0.38)$	0.4665	$0.463^{+0.039}_{-0.041}$
$\Omega_m h^2$	0.1442	$0.148^{+0.034}_{-0.027}$	$r_*$	144.9	$144.3^{+5.8}_{-7.5}$	$\sigma_8(0.38)$	0.647	$0.636^{+0.055}_{-0.070}$
$\Omega_\nu h^2$	0.0036	< 0.0144	$100\theta_*$	1.0488	$1.055^{+0.048}_{-0.039}$	$f\sigma_8(0.51)$	0.4654	$0.461^{+0.037}_{-0.040}$
$\Omega_m h^3$	0.0981	$0.101^{+0.028}_{-0.021}$	$D_M(z_*)/\text{Gpc}$	13.81	$13.7^{+1.0}_{-1.3}$	$\sigma_8(0.51)$	0.606	$0.596^{+0.052}_{-0.066}$
$\sigma_8$	0.788	$0.777^{+0.067}_{-0.082}$	$z_{\text{drag}}$	1059.70	$1059.7^{+3.7}_{-3.4}$	$f\sigma_8(0.61)$	0.4607	$0.456^{+0.036}_{-0.040}$
$S_8$	0.804	$0.799^{+0.081}_{-0.081}$	$r_{\text{drag}}$	147.5	$147.0^{+6.5}_{-7.5}$	$\sigma_8(0.61)$	0.577	$0.567^{+0.049}_{-0.063}$
$\sigma_8 \Omega_m^{0.5}$	0.4403	$0.438^{+0.044}_{-0.045}$	$k_D$	0.1404	$0.1410^{+0.0087}_{-0.0071}$	$f\sigma_8(2.33)$	0.2948	$0.291^{+0.022}_{-0.029}$
$\sigma_8 \Omega_m^{0.25}$	0.589	$0.583^{+0.053}_{-0.055}$	$100\theta_D$	0.1620	$0.1629^{+0.0065}_{-0.0055}$	$\sigma_8(2.33)$	0.3017	$0.297^{+0.025}_{-0.033}$
$\sigma_8/h^{0.5}$	0.956	$0.941^{+0.079}_{-0.10}$	$z_{\text{eq}}$	3361	$3411^{+700}_{-600}$	$\chi^2_{\text{lensing}}$	7.54	9.4 ( $\nu$ : 2.0)
$r_{\text{drag}} h$	100.34	$100.2^{+2.9}_{-2.8}$	$k_{\text{eq}}$	0.01026	$0.0104^{+0.0021}_{-0.0017}$	$\chi^2_{\text{JLA}}$	1035.08	1036.1 ( $\nu$ : 1.6)
$\langle d^2 \rangle^{1/2}$	2.511	$2.52^{+0.14}_{-0.14}$	$100\theta_{\text{eq}}$	0.827	$0.825^{+0.072}_{-0.080}$	$\chi^2_{6\text{DF}}$	0.000	0.052 ( $\nu$ : 0.0)
$z_{\text{re}}$	7.79	$7.88^{+0.66}_{-0.56}$	$100\theta_{s,\text{eq}}$	0.4567	$0.456^{+0.036}_{-0.041}$	$\chi^2_{\text{MGS}}$	1.68	1.69 ( $\nu$ : 0.2)
$10^9 A_s$	2.32	$2.36^{+0.50}_{-0.51}$	$H(0.15)$	73.32	$73.6^{+4.2}_{-3.1}$	$\chi^2_{\text{DR12BAO}}$	3.01	3.8 ( $\nu$ : 1.0)
$10^9 A_s e^{-2\tau}$	2.077	$2.12^{+0.45}_{-0.45}$	$D_M(0.15)$	637.5	$636^{+26}_{-32}$	$\chi^2_{\text{prior}}$	0.04	1.9 ( $\nu$ : 1.8)
$D_{40}$	1384	$1394^{+300}_{-300}$	$H(0.38)$	83.5	$84.0^{+5.6}_{-4.5}$	$\chi^2_{\text{BAO}}$	4.69	5.5 ( $\nu$ : 1.3)
$D_{220}$	6407	$6477^{+2000}_{-2000}$	$D_M(0.38)$	1520	$1515^{+66}_{-84}$			

Best-fit  $\chi^2_{\text{eff}} = 1047.35$ ;  $\bar{\chi}^2_{\text{eff}} = 1053.01$ ;  $R - 1 = 0.03389$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.01 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.54 SN - JLA Pantheon18: 1035.08



## 6.98 base\_mnu\_lensing\_lenspriors\_BAO\_post\_agr2

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2193^{+1000}_{-1000}$	$H(0.51)$	$99^{+10}_{-10}$
$\Omega_{\mathrm{c}} h^2$	$0.155^{+0.068}_{-0.053}$	$D_{1420}$	$636^{+400}_{-400}$	$D_{\mathrm{M}}(0.51)$	$1852^{+180}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.110^{+0.076}_{-0.088}$	$D_{2000}$	$184^{+100}_{-100}$	$H(0.61)$	$106^{+20}_{-10}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 4.35$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2147^{+220}_{-240}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.04^{+0.28}_{-0.30}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00056}$	$H(2.33)$	$274^{+60}_{-50}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00054}_{-0.00056}$	$D_{\mathrm{M}}(2.33)$	$5199^{+800}_{-700}$
$H_0$	$70.5^{+5.9}_{-4.5}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.15)$	$0.448^{+0.037}_{-0.038}$
$\Omega_{\Lambda}$	$0.61^{+0.11}_{-0.12}$	$\mathrm{Age}/\mathrm{Gyr}$	$12.4^{+1.9}_{-1.8}$	$\sigma_8(0.15)$	$0.655^{+0.091}_{-0.080}$
$\Omega_{\mathrm{m}}$	$0.39^{+0.12}_{-0.11}$	$z_{*}$	$1093.7^{+6.6}_{-5.6}$	$f\sigma_8(0.38)$	$0.450^{+0.034}_{-0.036}$
$\Omega_{\mathrm{m}} h^2$	$0.196^{+0.093}_{-0.070}$	$r_{*}$	$136^{+14}_{-15}$	$\sigma_8(0.38)$	$0.575^{+0.088}_{-0.076}$
$\Omega_{\nu} h^2$	$< 0.0468$	$100\theta_{*}$	$1.111^{+0.076}_{-0.089}$	$f\sigma_8(0.51)$	$0.441^{+0.037}_{-0.039}$
$\Omega_{\mathrm{m}} h^3$	$0.139^{+0.079}_{-0.059}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.2^{+2.4}_{-2.0}$	$\sigma_8(0.51)$	$0.536^{+0.085}_{-0.073}$
$\sigma_8$	$0.715^{+0.092}_{-0.080}$	$z_{\mathrm{drag}}$	$1062.5^{+6.1}_{-5.5}$	$f\sigma_8(0.61)$	$0.432^{+0.039}_{-0.042}$
$S_8$	$0.813^{+0.080}_{-0.081}$	$r_{\mathrm{drag}}$	$138^{+14}_{-15}$	$\sigma_8(0.61)$	$0.509^{+0.082}_{-0.071}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.445^{+0.044}_{-0.044}$	$k_{\mathrm{D}}$	$0.152^{+0.020}_{-0.016}$	$f\sigma_8(2.33)$	$0.262^{+0.039}_{-0.039}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.564^{+0.045}_{-0.044}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.010}_{-0.012}$	$\sigma_8(2.33)$	$0.263^{+0.047}_{-0.041}$
$\sigma_8/h^{0.5}$	$0.85^{+0.13}_{-0.11}$	$z_{\mathrm{eq}}$	$4237^{+2000}_{-1000}$	$\chi^2_{\mathrm{lensing}}$	$12.3 (\nu: 2.1)$
$r_{\mathrm{drag}} h$	$97.2^{+5.1}_{-4.8}$	$k_{\mathrm{eq}}$	$0.0130^{+0.0051}_{-0.0039}$	$\chi^2_{6\mathrm{DF}}$	$0.41 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.14}_{-0.14}$	$100\theta_{\mathrm{eq}}$	$0.75^{+0.14}_{-0.12}$	$\chi^2_{\mathrm{MGS}}$	$0.71 (\nu: 0.2)$
$z_{\mathrm{re}}$	$8.7^{+1.3}_{-1.2}$	$100\theta_{\mathrm{s,eq}}$	$0.418^{+0.069}_{-0.061}$	$\chi^2_{\mathrm{DR12BAO}}$	$3.8 (\nu: 1.3)$
$10^9 A_{\mathrm{s}}$	$2.11^{+0.65}_{-0.56}$	$H(0.15)$	$77.4^{+8.2}_{-6.3}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.89^{+0.59}_{-0.50}$	$D_{\mathrm{M}}(0.15)$	$610^{+47}_{-54}$	$\chi^2_{\mathrm{BAO}}$	$4.9 (\nu: 1.6)$
$D_{40}$	$1177^{+500}_{-400}$	$H(0.38)$	$90^{+10}_{-10}$		
$D_{220}$	$5112^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	$1438^{+130}_{-140}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 19.21; R - 1 = 0.00433$$



## 6.99 base\_mnu\_lensing\_lenspriors\_BAO\_post\_conslmin40

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2202^{+1000}_{-1000}$	$H(0.51)$	$99^{+20}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.155^{+0.072}_{-0.052}$	$D_{1420}$	$642^{+500}_{-400}$	$D_{\mathrm{M}}(0.51)$	$1853^{+180}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.108^{+0.078}_{-0.083}$	$D_{2000}$	$186^{+100}_{-100}$	$H(0.61)$	$106^{+20}_{-10}$
$\Sigma m_{\nu}$ [eV]	$< 4.30$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	$2148^{+220}_{-240}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.04^{+0.30}_{-0.35}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00055}_{-0.00056}$	$H(2.33)$	$273^{+60}_{-50}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00055}_{-0.00056}$	$D_{\mathrm{M}}(2.33)$	$5206^{+800}_{-700}$
$H_0$	$70.5^{+6.2}_{-4.4}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.15)$	$0.456^{+0.054}_{-0.051}$
$\Omega_{\Lambda}$	$0.61^{+0.10}_{-0.12}$	Age/Gyr	$12.5^{+1.8}_{-1.8}$	$\sigma_8(0.15)$	$0.668^{+0.10}_{-0.097}$
$\Omega_{\mathrm{m}}$	$0.39^{+0.12}_{-0.10}$	$z_{*}$	$1093.7^{+6.6}_{-5.3}$	$f\sigma_8(0.38)$	$0.458^{+0.050}_{-0.050}$
$\Omega_{\mathrm{m}}h^2$	$0.195^{+0.095}_{-0.067}$	$r_{*}$	$136^{+13}_{-15}$	$\sigma_8(0.38)$	$0.587^{+0.093}_{-0.091}$
$\Omega_{\nu}h^2$	$< 0.0462$	$100\theta_{*}$	$1.109^{+0.078}_{-0.083}$	$f\sigma_8(0.51)$	$0.450^{+0.050}_{-0.054}$
$\Omega_{\mathrm{m}}h^3$	$0.138^{+0.080}_{-0.056}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.3^{+2.2}_{-2.1}$	$\sigma_8(0.51)$	$0.547^{+0.090}_{-0.087}$
$\sigma_8$	$0.73^{+0.10}_{-0.10}$	$z_{\mathrm{drag}}$	$1062.5^{+6.2}_{-5.3}$	$f\sigma_8(0.61)$	$0.441^{+0.051}_{-0.056}$
$S_8$	$0.83^{+0.11}_{-0.10}$	$r_{\mathrm{drag}}$	$138^{+14}_{-15}$	$\sigma_8(0.61)$	$0.520^{+0.086}_{-0.084}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.060}_{-0.056}$	$k_{\mathrm{D}}$	$0.151^{+0.020}_{-0.016}$	$f\sigma_8(2.33)$	$0.267^{+0.040}_{-0.046}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.574^{+0.067}_{-0.063}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.010}_{-0.011}$	$\sigma_8(2.33)$	$0.269^{+0.047}_{-0.048}$
$\sigma_8/h^{0.5}$	$0.87^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$4245^{+2000}_{-1000}$	$\chi^2_{\mathrm{lensing}}$	$9.96 (\nu: 2.4)$
$r_{\mathrm{drag}}h$	$97.3^{+5.0}_{-4.9}$	$k_{\mathrm{eq}}$	$0.0130^{+0.0053}_{-0.0038}$	$\chi^2_{6\mathrm{DF}}$	$0.39 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.19}_{-0.18}$	$100\theta_{\mathrm{eq}}$	$0.75^{+0.13}_{-0.12}$	$\chi^2_{\mathrm{MGS}}$	$0.73 (\nu: 0.2)$
$z_{\mathrm{re}}$	$8.6^{+1.4}_{-1.2}$	$100\theta_{\mathrm{s,eq}}$	$0.417^{+0.069}_{-0.065}$	$\chi^2_{\mathrm{DR12BAO}}$	$3.7 (\nu: 1.3)$
$10^9A_{\mathrm{s}}$	$2.10^{+0.72}_{-0.63}$	$H(0.15)$	$77.4^{+8.4}_{-6.2}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.89^{+0.64}_{-0.56}$	$D_{\mathrm{M}}(0.15)$	$610^{+46}_{-55}$	$\chi^2_{\mathrm{BAO}}$	$4.9 (\nu: 1.6)$
$D_{40}$	$1176^{+500}_{-400}$	$H(0.38)$	$90^{+10}_{-9}$		
$D_{220}$	$5103^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	$1439^{+130}_{-150}$		

$\bar{\chi}^2_{\mathrm{eff}} = 16.84$ ;  $R - 1 = 0.00475$



# 6.100 base\_mnu\_lensing\_lenspriors\_BAO\_post\_agrlmax425

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2177^{+1000}_{-1000}$	$H(0.51)$	$99^{+10}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.156^{+0.068}_{-0.051}$	$D_{1420}$	$635^{+400}_{-400}$	$D_{\mathrm{M}}(0.51)$	$1853^{+180}_{-190}$
$100\theta_{\mathrm{MC}}$	$1.107^{+0.077}_{-0.081}$	$D_{2000}$	$184^{+100}_{-100}$	$H(0.61)$	$105^{+20}_{-10}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 4.17$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2149^{+220}_{-230}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.03^{+0.28}_{-0.30}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00056}$	$H(2.33)$	$273^{+60}_{-50}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00055}_{-0.00056}$	$D_{\mathrm{M}}(2.33)$	$5209^{+700}_{-700}$
$H_0$	$70.6^{+5.8}_{-4.4}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.15)$	$0.459^{+0.046}_{-0.045}$
$\Omega_{\Lambda}$	$0.61^{+0.10}_{-0.12}$	$\mathrm{Age}/\mathrm{Gyr}$	$12.5^{+1.8}_{-1.8}$	$\sigma_8(0.15)$	$0.675^{+0.094}_{-0.097}$
$\Omega_{\mathrm{m}}$	$0.39^{+0.12}_{-0.10}$	$z_{*}$	$1093.7^{+6.5}_{-5.2}$	$f\sigma_8(0.38)$	$0.462^{+0.044}_{-0.046}$
$\Omega_{\mathrm{m}}h^2$	$0.194^{+0.093}_{-0.065}$	$r_{*}$	$136^{+13}_{-14}$	$\sigma_8(0.38)$	$0.592^{+0.089}_{-0.091}$
$\Omega_{\nu}h^2$	$< 0.0448$	$100\theta_{*}$	$1.108^{+0.077}_{-0.082}$	$f\sigma_8(0.51)$	$0.454^{+0.045}_{-0.050}$
$\Omega_{\mathrm{m}}h^3$	$0.138^{+0.077}_{-0.055}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.3^{+2.2}_{-2.0}$	$\sigma_8(0.51)$	$0.552^{+0.086}_{-0.088}$
$\sigma_8$	$0.736^{+0.098}_{-0.099}$	$z_{\mathrm{drag}}$	$1062.5^{+6.1}_{-5.2}$	$f\sigma_8(0.61)$	$0.444^{+0.045}_{-0.053}$
$S_8$	$0.833^{+0.094}_{-0.090}$	$r_{\mathrm{drag}}$	$138^{+13}_{-15}$	$\sigma_8(0.61)$	$0.525^{+0.083}_{-0.085}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.051}_{-0.049}$	$k_{\mathrm{D}}$	$0.151^{+0.020}_{-0.015}$	$f\sigma_8(2.33)$	$0.269^{+0.038}_{-0.046}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.579^{+0.058}_{-0.057}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.010}_{-0.011}$	$\sigma_8(2.33)$	$0.271^{+0.045}_{-0.048}$
$\sigma_8/h^{0.5}$	$0.88^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$4251^{+2000}_{-1000}$	$\chi^2_{\mathrm{lensing}}$	$7.7 (\nu: 2.3)$
$r_{\mathrm{drag}}h$	$97.3^{+4.9}_{-4.8}$	$k_{\mathrm{eq}}$	$0.0130^{+0.0051}_{-0.0038}$	$\chi^2_{6\mathrm{DF}}$	$0.38 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.14}_{-0.14}$	$100\theta_{\mathrm{eq}}$	$0.75^{+0.13}_{-0.11}$	$\chi^2_{\mathrm{MGS}}$	$0.74 (\nu: 0.2)$
$z_{\mathrm{re}}$	$8.6^{+1.3}_{-1.1}$	$100\theta_{\mathrm{s,eq}}$	$0.415^{+0.067}_{-0.060}$	$\chi^2_{\mathrm{DR12BAO}}$	$3.7 (\nu: 1.3)$
$10^9A_{\mathrm{s}}$	$2.08^{+0.65}_{-0.54}$	$H(0.15)$	$77.4^{+8.0}_{-6.1}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.86^{+0.59}_{-0.49}$	$D_{\mathrm{M}}(0.15)$	$610^{+45}_{-52}$	$\chi^2_{\mathrm{BAO}}$	$4.8 (\nu: 1.5)$
$D_{40}$	$1162^{+500}_{-400}$	$H(0.38)$	$90^{+10}_{-9}$		
$D_{220}$	$5028^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	$1438^{+130}_{-140}$		
$\bar{\chi}^2_{\mathrm{eff}} = 14.55; R - 1 = 0.00373$					



# 6.101 base\_mnu\_lensing\_lenspriors\_BAO\_post\_bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2111^{+1000}_{-1000}$	$H(0.51)$	$99^{+10}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.157^{+0.068}_{-0.054}$	$D_{1420}$	$614^{+400}_{-400}$	$D_{\mathrm{M}}(0.51)$	$1848^{+180}_{-190}$
$100\theta_{\mathrm{MC}}$	$1.110^{+0.077}_{-0.085}$	$D_{2000}$	$178^{+100}_{-100}$	$H(0.61)$	$106^{+20}_{-10}$
$\Sigma m_{\nu}$ [eV]	$< 4.30$	$n_{\mathrm{s},0.002}$	$0.960^{+0.053}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2142^{+220}_{-230}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.01^{+0.28}_{-0.29}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00056}$	$H(2.33)$	$274^{+60}_{-50}$
$n_{\mathrm{s}}$	$0.960^{+0.053}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00054}_{-0.00057}$	$D_{\mathrm{M}}(2.33)$	$5189^{+800}_{-700}$
$H_0$	$70.7^{+5.8}_{-4.5}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.15)$	$0.455^{+0.047}_{-0.045}$
$\Omega_{\Lambda}$	$0.61^{+0.11}_{-0.12}$	Age/Gyr	$12.4^{+1.9}_{-1.7}$	$\sigma_8(0.15)$	$0.666^{+0.096}_{-0.096}$
$\Omega_{\mathrm{m}}$	$0.39^{+0.12}_{-0.11}$	$z_{*}$	$1093.8^{+6.5}_{-5.4}$	$f\sigma_8(0.38)$	$0.457^{+0.045}_{-0.048}$
$\Omega_{\mathrm{m}}h^2$	$0.197^{+0.093}_{-0.069}$	$r_{*}$	$135^{+14}_{-14}$	$\sigma_8(0.38)$	$0.584^{+0.090}_{-0.090}$
$\Omega_{\nu}h^2$	$< 0.0462$	$100\theta_{*}$	$1.110^{+0.077}_{-0.085}$	$f\sigma_8(0.51)$	$0.448^{+0.046}_{-0.051}$
$\Omega_{\mathrm{m}}h^3$	$0.140^{+0.080}_{-0.054}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.2^{+2.3}_{-2.0}$	$\sigma_8(0.51)$	$0.545^{+0.086}_{-0.086}$
$\sigma_8$	$0.73^{+0.10}_{-0.10}$	$z_{\mathrm{drag}}$	$1062.6^{+6.1}_{-5.4}$	$f\sigma_8(0.61)$	$0.439^{+0.047}_{-0.054}$
$S_8$	$0.826^{+0.096}_{-0.089}$	$r_{\mathrm{drag}}$	$138^{+14}_{-15}$	$\sigma_8(0.61)$	$0.517^{+0.083}_{-0.083}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.053}_{-0.049}$	$k_{\mathrm{D}}$	$0.152^{+0.020}_{-0.016}$	$f\sigma_8(2.33)$	$0.266^{+0.039}_{-0.045}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.573^{+0.059}_{-0.060}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.010}_{-0.011}$	$\sigma_8(2.33)$	$0.267^{+0.046}_{-0.048}$
$\sigma_8/h^{0.5}$	$0.86^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$4287^{+2000}_{-1000}$	$\chi^2_{\mathrm{lensing}}$	$10.2 (\nu: 2.2)$
$r_{\mathrm{drag}}h$	$97.2^{+5.0}_{-4.8}$	$k_{\mathrm{eq}}$	$0.0131^{+0.0051}_{-0.0040}$	$\chi^2_{6\mathrm{DF}}$	$0.40 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	$2.48^{+0.13}_{-0.14}$	$100\theta_{\mathrm{eq}}$	$0.74^{+0.14}_{-0.11}$	$\chi^2_{\mathrm{MGS}}$	$0.71 (\nu: 0.2)$
$z_{\mathrm{re}}$	$8.7^{+1.3}_{-1.2}$	$100\theta_{\mathrm{s,eq}}$	$0.414^{+0.070}_{-0.060}$	$\chi^2_{\mathrm{DR12BAO}}$	$3.7 (\nu: 1.3)$
$10^9A_{\mathrm{s}}$	$2.03^{+0.65}_{-0.53}$	$H(0.15)$	$77.6^{+8.1}_{-6.3}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.82^{+0.58}_{-0.47}$	$D_{\mathrm{M}}(0.15)$	$609^{+47}_{-53}$	$\chi^2_{\mathrm{BAO}}$	$4.9 (\nu: 1.6)$
$D_{40}$	$1132^{+500}_{-400}$	$H(0.38)$	$90^{+10}_{-10}$		
$D_{220}$	$4887^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	$1435^{+130}_{-140}$		
$\bar{\chi}^2_{\mathrm{eff}} = 17.06; R - 1 = 0.00602$					



## 6.102 base\_mnu\_lensing\_lenspriors\_BAO\_post\_agr2bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2142^{+1000}_{-1000}$	$H(0.51)$	$99^{+10}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.156^{+0.068}_{-0.054}$	$D_{1420}$	$622^{+400}_{-400}$	$D_{\mathrm{M}}(0.51)$	$1852^{+190}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.110^{+0.077}_{-0.088}$	$D_{2000}$	$180^{+100}_{-100}$	$H(0.61)$	$106^{+20}_{-10}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 4.29$	$n_{\mathrm{s},0.002}$	$0.959^{+0.053}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2146^{+230}_{-240}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.02^{+0.28}_{-0.30}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00057}$	$H(2.33)$	$274^{+60}_{-50}$
$n_{\mathrm{s}}$	$0.959^{+0.053}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00054}_{-0.00058}$	$D_{\mathrm{M}}(2.33)$	$5198^{+800}_{-700}$
$H_0$	$70.6^{+5.8}_{-4.6}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.27}_{-0.23}$	$f\sigma_8(0.15)$	$0.446^{+0.037}_{-0.039}$
$\Omega_{\Lambda}$	$0.61^{+0.11}_{-0.12}$	$\mathrm{Age}/\mathrm{Gyr}$	$12.4^{+1.9}_{-1.8}$	$\sigma_8(0.15)$	$0.652^{+0.089}_{-0.080}$
$\Omega_{\mathrm{m}}$	$0.39^{+0.12}_{-0.11}$	$z_{*}$	$1093.7^{+6.6}_{-5.6}$	$f\sigma_8(0.38)$	$0.448^{+0.034}_{-0.035}$
$\Omega_{\mathrm{m}}h^2$	$0.196^{+0.093}_{-0.070}$	$r_{*}$	$136^{+14}_{-15}$	$\sigma_8(0.38)$	$0.573^{+0.086}_{-0.076}$
$\Omega_{\nu}h^2$	$< 0.0461$	$100\theta_{*}$	$1.110^{+0.077}_{-0.088}$	$f\sigma_8(0.51)$	$0.440^{+0.036}_{-0.039}$
$\Omega_{\mathrm{m}}h^3$	$0.139^{+0.079}_{-0.060}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.2^{+2.4}_{-2.0}$	$\sigma_8(0.51)$	$0.534^{+0.083}_{-0.073}$
$\sigma_8$	$0.712^{+0.089}_{-0.080}$	$z_{\mathrm{drag}}$	$1062.6^{+6.2}_{-5.5}$	$f\sigma_8(0.61)$	$0.431^{+0.039}_{-0.042}$
$S_8$	$0.810^{+0.080}_{-0.082}$	$r_{\mathrm{drag}}$	$138^{+14}_{-15}$	$\sigma_8(0.61)$	$0.507^{+0.081}_{-0.071}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.044}_{-0.045}$	$k_{\mathrm{D}}$	$0.152^{+0.020}_{-0.016}$	$f\sigma_8(2.33)$	$0.261^{+0.039}_{-0.039}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.562^{+0.045}_{-0.043}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.010}_{-0.012}$	$\sigma_8(2.33)$	$0.262^{+0.046}_{-0.041}$
$\sigma_8/h^{0.5}$	$0.85^{+0.13}_{-0.11}$	$z_{\mathrm{eq}}$	$4248^{+2000}_{-1000}$	$\chi^2_{\mathrm{lensing}}$	$12.5 (\nu: 2.1)$
$r_{\mathrm{drag}}h$	$97.2^{+5.1}_{-4.8}$	$k_{\mathrm{eq}}$	$0.0130^{+0.0051}_{-0.0041}$	$\chi^2_{6\mathrm{DF}}$	$0.41 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	$2.48^{+0.13}_{-0.13}$	$100\theta_{\mathrm{eq}}$	$0.75^{+0.14}_{-0.12}$	$\chi^2_{\mathrm{MGS}}$	$0.72 (\nu: 0.2)$
$z_{\mathrm{re}}$	$8.7^{+1.3}_{-1.2}$	$100\theta_{\mathrm{s,eq}}$	$0.417^{+0.071}_{-0.060}$	$\chi^2_{\mathrm{DR12BAO}}$	$3.8 (\nu: 1.3)$
$10^9A_{\mathrm{s}}$	$2.06^{+0.65}_{-0.54}$	$H(0.15)$	$77.4^{+8.2}_{-6.5}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.84^{+0.58}_{-0.49}$	$D_{\mathrm{M}}(0.15)$	$610^{+47}_{-53}$	$\chi^2_{\mathrm{BAO}}$	$4.9 (\nu: 1.6)$
$D_{40}$	$1149^{+500}_{-400}$	$H(0.38)$	$90^{+10}_{-10}$		
$D_{220}$	$4987^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	$1438^{+130}_{-140}$		

$\bar{\chi}^2_{\mathrm{eff}} = 19.44; R - 1 = 0.00654$



### 6.103 base\_mnu\_lensing\_lenspriors\_BAO\_post\_linear

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2122^{+1000}_{-1000}$	$H(0.51)$	$99^{+10}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.159^{+0.068}_{-0.053}$	$D_{1420}$	$616^{+400}_{-400}$	$D_{\mathrm{M}}(0.51)$	$1845^{+180}_{-190}$
$100\theta_{\mathrm{MC}}$	$1.110^{+0.076}_{-0.083}$	$D_{2000}$	$178^{+100}_{-100}$	$H(0.61)$	$106^{+20}_{-10}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 4.27$	$n_{\mathrm{s},0.002}$	$0.960^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2138^{+220}_{-230}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.01^{+0.28}_{-0.29}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00055}$	$H(2.33)$	$275^{+60}_{-50}$
$n_{\mathrm{s}}$	$0.960^{+0.052}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00054}_{-0.00056}$	$D_{\mathrm{M}}(2.33)$	$5176^{+800}_{-700}$
$H_0$	$70.8^{+5.7}_{-4.6}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.15)$	$0.465^{+0.050}_{-0.048}$
$\Omega_{\Lambda}$	$0.61^{+0.10}_{-0.12}$	$\mathrm{Age}/\mathrm{Gyr}$	$12.4^{+1.8}_{-1.7}$	$\sigma_8(0.15)$	$0.680^{+0.096}_{-0.10}$
$\Omega_{\mathrm{m}}$	$0.39^{+0.12}_{-0.10}$	$z_{*}$	$1093.9^{+6.4}_{-5.3}$	$f\sigma_8(0.38)$	$0.467^{+0.046}_{-0.050}$
$\Omega_{\mathrm{m}}h^2$	$0.198^{+0.092}_{-0.068}$	$r_{*}$	$135^{+13}_{-14}$	$\sigma_8(0.38)$	$0.597^{+0.091}_{-0.096}$
$\Omega_{\nu}h^2$	$< 0.0459$	$100\theta_{*}$	$1.111^{+0.076}_{-0.083}$	$f\sigma_8(0.51)$	$0.458^{+0.047}_{-0.054}$
$\Omega_{\mathrm{m}}h^3$	$0.141^{+0.081}_{-0.054}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.2^{+2.3}_{-2.0}$	$\sigma_8(0.51)$	$0.556^{+0.087}_{-0.092}$
$\sigma_8$	$0.742^{+0.099}_{-0.11}$	$z_{\mathrm{drag}}$	$1062.7^{+6.0}_{-5.3}$	$f\sigma_8(0.61)$	$0.448^{+0.048}_{-0.057}$
$S_8$	$0.845^{+0.099}_{-0.094}$	$r_{\mathrm{drag}}$	$137^{+14}_{-14}$	$\sigma_8(0.61)$	$0.528^{+0.084}_{-0.089}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.463^{+0.054}_{-0.052}$	$k_{\mathrm{D}}$	$0.152^{+0.020}_{-0.016}$	$f\sigma_8(2.33)$	$0.271^{+0.039}_{-0.048}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.586^{+0.061}_{-0.062}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.010}_{-0.011}$	$\sigma_8(2.33)$	$0.273^{+0.046}_{-0.050}$
$\sigma_8/h^{0.5}$	$0.88^{+0.13}_{-0.14}$	$z_{\mathrm{eq}}$	$4327^{+2000}_{-1000}$	$\chi^2_{\mathrm{lensing}}$	$10.4 (\nu: 2.2)$
$r_{\mathrm{drag}}h$	$97.2^{+4.9}_{-4.8}$	$k_{\mathrm{eq}}$	$0.0133^{+0.0051}_{-0.0039}$	$\chi^2_{6\mathrm{DF}}$	$0.41 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.14}_{-0.14}$	$100\theta_{\mathrm{eq}}$	$0.74^{+0.13}_{-0.11}$	$\chi^2_{\mathrm{MGS}}$	$0.70 (\nu: 0.2)$
$z_{\mathrm{re}}$	$8.7^{+1.3}_{-1.2}$	$100\theta_{\mathrm{s,eq}}$	$0.411^{+0.069}_{-0.058}$	$\chi^2_{\mathrm{DR12BAO}}$	$3.8 (\nu: 1.4)$
$10^9A_{\mathrm{s}}$	$2.05^{+0.65}_{-0.52}$	$H(0.15)$	$77.7^{+7.9}_{-6.3}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.84^{+0.59}_{-0.47}$	$D_{\mathrm{M}}(0.15)$	$608^{+47}_{-52}$	$\chi^2_{\mathrm{BAO}}$	$4.9 (\nu: 1.7)$
$D_{40}$	$1141^{+500}_{-300}$	$H(0.38)$	$91^{+10}_{-10}$		
$D_{220}$	$4903^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	$1432^{+130}_{-140}$		

$\bar{\chi}^2_{\mathrm{eff}} = 17.26$ ;  $R - 1 = 0.00388$



# 6.104 base\_mnu\_lensing\_lenspriors\_BAO\_post\_acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2171^{+1000}_{-1000}$	$H(0.51)$	$99^{+10}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.156^{+0.069}_{-0.053}$	$D_{1420}$	$631^{+400}_{-400}$	$D_{\mathrm{M}}(0.51)$	$1851^{+180}_{-190}$
$100\theta_{\mathrm{MC}}$	$1.109^{+0.077}_{-0.085}$	$D_{2000}$	$183^{+100}_{-100}$	$H(0.61)$	$106^{+20}_{-10}$
$\Sigma m_{\nu}$ [eV]	$< 4.33$	$n_{\mathrm{s},0.002}$	$0.960^{+0.051}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2146^{+220}_{-230}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.03^{+0.28}_{-0.30}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00055}$	$H(2.33)$	$274^{+60}_{-50}$
$n_{\mathrm{s}}$	$0.960^{+0.051}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00054}_{-0.00056}$	$D_{\mathrm{M}}(2.33)$	$5198^{+800}_{-700}$
$H_0$	$70.6^{+5.8}_{-4.5}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.15)$	$0.456^{+0.046}_{-0.045}$
$\Omega_{\Lambda}$	$0.61^{+0.11}_{-0.12}$	Age/Gyr	$12.4^{+1.9}_{-1.8}$	$\sigma_8(0.15)$	$0.668^{+0.098}_{-0.096}$
$\Omega_{\mathrm{m}}$	$0.39^{+0.12}_{-0.11}$	$z_{*}$	$1093.7^{+6.5}_{-5.4}$	$f\sigma_8(0.38)$	$0.458^{+0.045}_{-0.046}$
$\Omega_{\mathrm{m}}h^2$	$0.196^{+0.094}_{-0.068}$	$r_{*}$	$135^{+14}_{-14}$	$\sigma_8(0.38)$	$0.587^{+0.092}_{-0.090}$
$\Omega_{\nu}h^2$	$< 0.0465$	$100\theta_{*}$	$1.109^{+0.077}_{-0.085}$	$f\sigma_8(0.51)$	$0.450^{+0.046}_{-0.050}$
$\Omega_{\mathrm{m}}h^3$	$0.139^{+0.078}_{-0.058}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.2^{+2.3}_{-2.0}$	$\sigma_8(0.51)$	$0.547^{+0.089}_{-0.086}$
$\sigma_8$	$0.729^{+0.10}_{-0.098}$	$z_{\mathrm{drag}}$	$1062.6^{+6.1}_{-5.4}$	$f\sigma_8(0.61)$	$0.441^{+0.047}_{-0.053}$
$S_8$	$0.828^{+0.093}_{-0.089}$	$r_{\mathrm{drag}}$	$138^{+14}_{-15}$	$\sigma_8(0.61)$	$0.519^{+0.086}_{-0.083}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.454^{+0.051}_{-0.049}$	$k_{\mathrm{D}}$	$0.152^{+0.020}_{-0.016}$	$f\sigma_8(2.33)$	$0.267^{+0.040}_{-0.045}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.575^{+0.059}_{-0.058}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.010}_{-0.011}$	$\sigma_8(2.33)$	$0.268^{+0.047}_{-0.047}$
$\sigma_8/h^{0.5}$	$0.87^{+0.13}_{-0.13}$	$z_{\mathrm{eq}}$	$4261^{+2000}_{-1000}$	$\chi^2_{\mathrm{lensing}}$	$9.9 (\nu: 2.2)$
$r_{\mathrm{drag}}h$	$97.3^{+5.0}_{-4.8}$	$k_{\mathrm{eq}}$	$0.0131^{+0.0052}_{-0.0039}$	$\chi^2_{6\mathrm{DF}}$	$0.40 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.14}_{-0.14}$	$100\theta_{\mathrm{eq}}$	$0.75^{+0.13}_{-0.11}$	$\chi^2_{\mathrm{MGS}}$	$0.72 (\nu: 0.2)$
$z_{\mathrm{re}}$	$8.7^{+1.3}_{-1.2}$	$100\theta_{\mathrm{s,eq}}$	$0.416^{+0.069}_{-0.060}$	$\chi^2_{\mathrm{DR12BAO}}$	$3.7 (\nu: 1.3)$
$10^9A_{\mathrm{s}}$	$2.08^{+0.66}_{-0.55}$	$H(0.15)$	$77.5^{+8.1}_{-6.2}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.87^{+0.59}_{-0.49}$	$D_{\mathrm{M}}(0.15)$	$610^{+46}_{-53}$	$\chi^2_{\mathrm{BAO}}$	$4.9 (\nu: 1.6)$
$D_{40}$	$1163^{+500}_{-400}$	$H(0.38)$	$90^{+10}_{-10}$		
$D_{220}$	$5028^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	$1437^{+130}_{-140}$		

$\bar{\chi}^2_{\mathrm{eff}} = 16.78$ ;  $R - 1 = 0.00542$



# 6.105 base\_mnu\_lensing\_lenspriors\_BAO\_post\_agr2acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2198^{+1000}_{-1000}$	$H(0.51)$	$99^{+10}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.155^{+0.070}_{-0.054}$	$D_{1420}$	$637^{+400}_{-400}$	$D_{\mathrm{M}}(0.51)$	$1853^{+180}_{-200}$
$100\theta_{\mathrm{MC}}$	$1.110^{+0.077}_{-0.089}$	$D_{2000}$	$184^{+100}_{-100}$	$H(0.61)$	$106^{+20}_{-10}$
$\Sigma m_{\nu}$ [eV]	$< 4.36$	$n_{\mathrm{s},0.002}$	$0.959^{+0.051}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	$2148^{+230}_{-240}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.04^{+0.27}_{-0.31}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00057}$	$H(2.33)$	$274^{+60}_{-50}$
$n_{\mathrm{s}}$	$0.959^{+0.051}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00054}_{-0.00057}$	$D_{\mathrm{M}}(2.33)$	$5201^{+800}_{-700}$
$H_0$	$70.5^{+5.9}_{-4.5}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.15)$	$0.447^{+0.037}_{-0.038}$
$\Omega_{\Lambda}$	$0.61^{+0.11}_{-0.12}$	Age/Gyr	$12.4^{+1.9}_{-1.8}$	$\sigma_8(0.15)$	$0.653^{+0.093}_{-0.078}$
$\Omega_{\mathrm{m}}$	$0.39^{+0.12}_{-0.11}$	$z_{*}$	$1093.7^{+6.6}_{-5.7}$	$f\sigma_8(0.38)$	$0.448^{+0.034}_{-0.035}$
$\Omega_{\mathrm{m}}h^2$	$0.196^{+0.094}_{-0.071}$	$r_{*}$	$136^{+14}_{-15}$	$\sigma_8(0.38)$	$0.573^{+0.089}_{-0.075}$
$\Omega_{\nu}h^2$	$< 0.0469$	$100\theta_{*}$	$1.111^{+0.077}_{-0.089}$	$f\sigma_8(0.51)$	$0.440^{+0.037}_{-0.038}$
$\Omega_{\mathrm{m}}h^3$	$0.139^{+0.080}_{-0.060}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.2^{+2.4}_{-2.0}$	$\sigma_8(0.51)$	$0.534^{+0.086}_{-0.072}$
$\sigma_8$	$0.712^{+0.094}_{-0.078}$	$z_{\mathrm{drag}}$	$1062.5^{+6.2}_{-5.5}$	$f\sigma_8(0.61)$	$0.431^{+0.039}_{-0.041}$
$S_8$	$0.811^{+0.081}_{-0.080}$	$r_{\mathrm{drag}}$	$138^{+14}_{-15}$	$\sigma_8(0.61)$	$0.507^{+0.083}_{-0.070}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.044}_{-0.044}$	$k_{\mathrm{D}}$	$0.152^{+0.020}_{-0.016}$	$f\sigma_8(2.33)$	$0.261^{+0.040}_{-0.039}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.562^{+0.045}_{-0.043}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.010}_{-0.012}$	$\sigma_8(2.33)$	$0.262^{+0.047}_{-0.041}$
$\sigma_8/h^{0.5}$	$0.85^{+0.13}_{-0.11}$	$z_{\mathrm{eq}}$	$4230^{+2000}_{-1000}$	$\chi^2_{\mathrm{lensing}}$	$12.3 (\nu: 2.1)$
$r_{\mathrm{drag}}h$	$97.2^{+5.2}_{-4.8}$	$k_{\mathrm{eq}}$	$0.0130^{+0.0052}_{-0.0040}$	$\chi^2_{6\mathrm{DF}}$	$0.42 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.14}_{-0.14}$	$100\theta_{\mathrm{eq}}$	$0.75^{+0.14}_{-0.12}$	$\chi^2_{\mathrm{MGS}}$	$0.71 (\nu: 0.2)$
$z_{\mathrm{re}}$	$8.7^{+1.3}_{-1.3}$	$100\theta_{\mathrm{s,eq}}$	$0.419^{+0.069}_{-0.062}$	$\chi^2_{\mathrm{DR12BAO}}$	$3.8 (\nu: 1.4)$
$10^9A_{\mathrm{s}}$	$2.11^{+0.65}_{-0.57}$	$H(0.15)$	$77.4^{+8.3}_{-6.4}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.89^{+0.58}_{-0.51}$	$D_{\mathrm{M}}(0.15)$	$610^{+47}_{-54}$	$\chi^2_{\mathrm{BAO}}$	$4.9 (\nu: 1.7)$
$D_{40}$	$1180^{+500}_{-400}$	$H(0.38)$	$90^{+10}_{-10}$		
$D_{220}$	$5126^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	$1439^{+130}_{-150}$		
$\bar{\chi}^2_{\mathrm{eff}} = 19.27; R - 1 = 0.00616$					



# 6.106 base\_mnu\_lensing\_lenspriors\_BAO\_post\_takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2166^{+1000}_{-1000}$	$H(0.51)$	$99^{+10}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.156^{+0.064}_{-0.052}$	$D_{1420}$	$629^{+400}_{-400}$	$D_{\mathrm{M}}(0.51)$	$1851^{+180}_{-190}$
$100\theta_{\mathrm{MC}}$	$1.110^{+0.075}_{-0.086}$	$D_{2000}$	$182^{+100}_{-100}$	$H(0.61)$	$106^{+20}_{-10}$
$\Sigma m_{\nu}$ [eV]	—	$n_{\mathrm{s},0.002}$	$0.960^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2146^{+220}_{-230}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.03^{+0.28}_{-0.30}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00056}$	$H(2.33)$	$274^{+60}_{-50}$
$n_{\mathrm{s}}$	$0.960^{+0.052}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00054}_{-0.00056}$	$D_{\mathrm{M}}(2.33)$	$5195^{+800}_{-700}$
$H_0$	$70.6^{+5.6}_{-4.5}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.15)$	$0.451^{+0.048}_{-0.045}$
$\Omega_{\Lambda}$	$0.61^{+0.11}_{-0.11}$	Age/Gyr	$12.4^{+1.9}_{-1.7}$	$\sigma_8(0.15)$	$0.66^{+0.10}_{-0.11}$
$\Omega_{\mathrm{m}}$	$0.39^{+0.11}_{-0.11}$	$z_{*}$	$1093.8^{+6.3}_{-5.4}$	$f\sigma_8(0.38)$	$0.453^{+0.048}_{-0.056}$
$\Omega_{\mathrm{m}}h^2$	$0.196^{+0.089}_{-0.069}$	$r_{*}$	$135^{+14}_{-14}$	$\sigma_8(0.38)$	$0.579^{+0.099}_{-0.098}$
$\Omega_{\nu}h^2$	$< 0.0486$	$100\theta_{*}$	$1.110^{+0.075}_{-0.086}$	$f\sigma_8(0.51)$	$0.444^{+0.050}_{-0.060}$
$\Omega_{\mathrm{m}}h^3$	$0.139^{+0.078}_{-0.054}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.2^{+2.3}_{-2.0}$	$\sigma_8(0.51)$	$0.540^{+0.095}_{-0.094}$
$\sigma_8$	$0.72^{+0.11}_{-0.11}$	$z_{\mathrm{drag}}$	$1062.6^{+6.0}_{-5.4}$	$f\sigma_8(0.61)$	$0.435^{+0.051}_{-0.062}$
$S_8$	$0.819^{+0.093}_{-0.088}$	$r_{\mathrm{drag}}$	$138^{+14}_{-14}$	$\sigma_8(0.61)$	$0.513^{+0.091}_{-0.091}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.051}_{-0.048}$	$k_{\mathrm{D}}$	$0.152^{+0.019}_{-0.016}$	$f\sigma_8(2.33)$	$0.263^{+0.043}_{-0.049}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.568^{+0.063}_{-0.068}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.010}_{-0.011}$	$\sigma_8(2.33)$	$0.265^{+0.050}_{-0.051}$
$\sigma_8/h^{0.5}$	$0.86^{+0.14}_{-0.15}$	$z_{\mathrm{eq}}$	$4251^{+2000}_{-1000}$	$\chi^2_{\mathrm{lensing}}$	$9.8 (\nu: 2.1)$
$r_{\mathrm{drag}}h$	$97.2^{+5.0}_{-4.7}$	$k_{\mathrm{eq}}$	$0.0130^{+0.0048}_{-0.0039}$	$\chi^2_{6\mathrm{DF}}$	$0.41 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.14}_{-0.14}$	$100\theta_{\mathrm{eq}}$	$0.75^{+0.13}_{-0.11}$	$\chi^2_{\mathrm{MGS}}$	$0.71 (\nu: 0.2)$
$z_{\mathrm{re}}$	$8.7^{+1.3}_{-1.2}$	$100\theta_{\mathrm{s,eq}}$	$0.417^{+0.068}_{-0.058}$	$\chi^2_{\mathrm{DR12BAO}}$	$3.8 (\nu: 1.3)$
$10^9A_{\mathrm{s}}$	$2.08^{+0.67}_{-0.55}$	$H(0.15)$	$77.4^{+7.8}_{-6.2}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.87^{+0.60}_{-0.49}$	$D_{\mathrm{M}}(0.15)$	$610^{+46}_{-51}$	$\chi^2_{\mathrm{BAO}}$	$4.9 (\nu: 1.6)$
$D_{40}$	$1160^{+500}_{-400}$	$H(0.38)$	$90^{+10}_{-10}$		
$D_{220}$	$5029^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	$1437^{+130}_{-140}$		

$\bar{\chi}^2_{\mathrm{eff}} = 16.75$ ;  $R - 1 = 0.00892$



# 6.107 base\_mnu\_lensing\_lenspriors\_BAO\_post\_agr2takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2199^{+1000}_{-1000}$	$H(0.51)$	$99^{+10}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.154^{+0.063}_{-0.053}$	$D_{1420}$	$637^{+400}_{-400}$	$D_{\mathrm{M}}(0.51)$	$1854^{+180}_{-190}$
$100\theta_{\mathrm{MC}}$	$1.110^{+0.074}_{-0.089}$	$D_{2000}$	$184^{+100}_{-100}$	$H(0.61)$	$106^{+20}_{-10}$
$\Sigma m_{\nu}$ [eV]	$< 4.52$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2149^{+220}_{-230}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.04^{+0.28}_{-0.30}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00057}$	$H(2.33)$	$274^{+60}_{-50}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00054}_{-0.00057}$	$D_{\mathrm{M}}(2.33)$	$5203^{+800}_{-700}$
$H_0$	$70.4^{+5.6}_{-4.5}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.15)$	$0.441^{+0.037}_{-0.037}$
$\Omega_{\Lambda}$	$0.61^{+0.11}_{-0.11}$	Age/Gyr	$12.4^{+1.9}_{-1.7}$	$\sigma_8(0.15)$	$0.644^{+0.099}_{-0.087}$
$\Omega_{\mathrm{m}}$	$0.39^{+0.11}_{-0.11}$	$z_{*}$	$1093.7^{+6.4}_{-5.7}$	$f\sigma_8(0.38)$	$0.442^{+0.038}_{-0.040}$
$\Omega_{\mathrm{m}}h^2$	$0.196^{+0.089}_{-0.071}$	$r_{*}$	$136^{+14}_{-14}$	$\sigma_8(0.38)$	$0.565^{+0.095}_{-0.083}$
$\Omega_{\nu}h^2$	$< 0.0486$	$100\theta_{*}$	$1.111^{+0.074}_{-0.090}$	$f\sigma_8(0.51)$	$0.434^{+0.041}_{-0.044}$
$\Omega_{\mathrm{m}}h^3$	$0.139^{+0.076}_{-0.059}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.2^{+2.4}_{-2.0}$	$\sigma_8(0.51)$	$0.527^{+0.092}_{-0.079}$
$\sigma_8$	$0.703^{+0.099}_{-0.089}$	$z_{\mathrm{drag}}$	$1062.5^{+5.9}_{-5.5}$	$f\sigma_8(0.61)$	$0.425^{+0.043}_{-0.047}$
$S_8$	$0.800^{+0.075}_{-0.076}$	$r_{\mathrm{drag}}$	$138^{+14}_{-14}$	$\sigma_8(0.61)$	$0.500^{+0.089}_{-0.076}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.438^{+0.041}_{-0.041}$	$k_{\mathrm{D}}$	$0.152^{+0.019}_{-0.016}$	$f\sigma_8(2.33)$	$0.257^{+0.043}_{-0.042}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.555^{+0.049}_{-0.050}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.010}_{-0.012}$	$\sigma_8(2.33)$	$0.259^{+0.050}_{-0.044}$
$\sigma_8/h^{0.5}$	$0.84^{+0.14}_{-0.12}$	$z_{\mathrm{eq}}$	$4208^{+2000}_{-1000}$	$\chi^2_{\mathrm{lensing}}$	$12.3 (\nu: 2.0)$
$r_{\mathrm{drag}}h$	$97.2^{+5.2}_{-4.8}$	$k_{\mathrm{eq}}$	$0.0129^{+0.0048}_{-0.0039}$	$\chi^2_{6\mathrm{DF}}$	$0.42 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	$2.51^{+0.14}_{-0.14}$	$100\theta_{\mathrm{eq}}$	$0.76^{+0.14}_{-0.11}$	$\chi^2_{\mathrm{MGS}}$	$0.71 (\nu: 0.2)$
$z_{\mathrm{re}}$	$8.7^{+1.3}_{-1.3}$	$100\theta_{\mathrm{s,eq}}$	$0.420^{+0.069}_{-0.057}$	$\chi^2_{\mathrm{DR12BAO}}$	$3.8 (\nu: 1.3)$
$10^9A_{\mathrm{s}}$	$2.11^{+0.67}_{-0.56}$	$H(0.15)$	$77.3^{+7.8}_{-6.3}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.89^{+0.60}_{-0.50}$	$D_{\mathrm{M}}(0.15)$	$611^{+47}_{-51}$	$\chi^2_{\mathrm{BAO}}$	$5.0 (\nu: 1.6)$
$D_{40}$	$1178^{+500}_{-400}$	$H(0.38)$	$90^{+10}_{-10}$		
$D_{220}$	$5136^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	$1440^{+130}_{-140}$		

$\bar{\chi}^2_{\mathrm{eff}} = 19.28; R - 1 = 0.00629$



# 6.108 base\_mnu\_lensing\_lenspriors\_BAO\_post\_Apr6

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$2153^{+1000}_{-1000}$	$H(0.51)$	$99^{+10}_{-10}$
$\Omega_{\mathrm{c}}h^2$	$0.156^{+0.068}_{-0.052}$	$D_{1420}$	$628^{+400}_{-400}$	$D_{\mathrm{M}}(0.51)$	$1852^{+180}_{-190}$
$100\theta_{\mathrm{MC}}$	$1.108^{+0.077}_{-0.082}$	$D_{2000}$	$182^{+100}_{-100}$	$H(0.61)$	$106^{+20}_{-10}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 4.19$	$n_{\mathrm{s},0.002}$	$0.959^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2147^{+220}_{-230}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.02^{+0.28}_{-0.29}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00054}_{-0.00056}$	$H(2.33)$	$273^{+60}_{-50}$
$n_{\mathrm{s}}$	$0.959^{+0.052}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00054}_{-0.00056}$	$D_{\mathrm{M}}(2.33)$	$5203^{+700}_{-700}$
$H_0$	$70.6^{+5.7}_{-4.4}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.15)$	$0.459^{+0.047}_{-0.046}$
$\Omega_{\Lambda}$	$0.61^{+0.10}_{-0.12}$	$\mathrm{Age}/\mathrm{Gyr}$	$12.4^{+1.8}_{-1.8}$	$\sigma_8(0.15)$	$0.674^{+0.095}_{-0.098}$
$\Omega_{\mathrm{m}}$	$0.39^{+0.12}_{-0.10}$	$z_{*}$	$1093.7^{+6.5}_{-5.2}$	$f\sigma_8(0.38)$	$0.462^{+0.045}_{-0.047}$
$\Omega_{\mathrm{m}}h^2$	$0.195^{+0.093}_{-0.066}$	$r_{*}$	$136^{+13}_{-14}$	$\sigma_8(0.38)$	$0.592^{+0.089}_{-0.092}$
$\Omega_{\nu}h^2$	$< 0.0451$	$100\theta_{*}$	$1.108^{+0.077}_{-0.082}$	$f\sigma_8(0.51)$	$0.453^{+0.045}_{-0.051}$
$\Omega_{\mathrm{m}}h^3$	$0.138^{+0.077}_{-0.055}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$12.3^{+2.2}_{-2.0}$	$\sigma_8(0.51)$	$0.552^{+0.086}_{-0.088}$
$\sigma_8$	$0.735^{+0.098}_{-0.10}$	$z_{\mathrm{drag}}$	$1062.5^{+6.0}_{-5.2}$	$f\sigma_8(0.61)$	$0.444^{+0.046}_{-0.053}$
$S_8$	$0.834^{+0.095}_{-0.091}$	$r_{\mathrm{drag}}$	$138^{+14}_{-15}$	$\sigma_8(0.61)$	$0.524^{+0.083}_{-0.085}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.052}_{-0.050}$	$k_{\mathrm{D}}$	$0.152^{+0.020}_{-0.016}$	$f\sigma_8(2.33)$	$0.269^{+0.038}_{-0.046}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.579^{+0.059}_{-0.058}$	$100\theta_{\mathrm{D}}$	$0.170^{+0.010}_{-0.011}$	$\sigma_8(2.33)$	$0.271^{+0.045}_{-0.048}$
$\sigma_8/h^{0.5}$	$0.88^{+0.13}_{-0.14}$	$z_{\mathrm{eq}}$	$4266^{+2000}_{-1000}$	$\chi^2_{\mathrm{lensing}}$	$8.7 (\nu: 2.3)$
$r_{\mathrm{drag}}h$	$97.3^{+4.9}_{-4.8}$	$k_{\mathrm{eq}}$	$0.0131^{+0.0051}_{-0.0038}$	$\chi^2_{6\mathrm{DF}}$	$0.38 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	$2.49^{+0.14}_{-0.14}$	$100\theta_{\mathrm{eq}}$	$0.74^{+0.13}_{-0.11}$	$\chi^2_{\mathrm{MGS}}$	$0.73 (\nu: 0.2)$
$z_{\mathrm{re}}$	$8.6^{+1.3}_{-1.1}$	$100\theta_{\mathrm{s,eq}}$	$0.414^{+0.068}_{-0.060}$	$\chi^2_{\mathrm{DR12BAO}}$	$3.7 (\nu: 1.3)$
$10^9A_{\mathrm{s}}$	$2.06^{+0.65}_{-0.54}$	$H(0.15)$	$77.4^{+8.0}_{-6.1}$	$\chi^2_{\mathrm{prior}}$	$2.0 (\nu: 2.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.85^{+0.58}_{-0.48}$	$D_{\mathrm{M}}(0.15)$	$609^{+46}_{-52}$	$\chi^2_{\mathrm{BAO}}$	$4.8 (\nu: 1.5)$
$D_{40}$	$1150^{+400}_{-400}$	$H(0.38)$	$90^{+10}_{-9}$		
$D_{220}$	$4970^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	$1437^{+130}_{-140}$		
$\bar{\chi}^2_{\mathrm{eff}} = 15.55; R - 1 = 0.00430$					



# 6.109 base\_mnu\_lensing\_lenspriors\_BAO\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02217	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	2916	$2926^{+700}_{-500}$	$H(0.51)$	89.10	$89.1^{+1.6}_{-1.7}$
$\Omega_c h^2$	0.1136	$0.1136^{+0.0076}_{-0.0091}$	$D_{1420}$	930	$935^{+300}_{-200}$	$D_M(0.51)$	1991.0	$1992^{+50}_{-46}$
$100\theta_{MC}$	1.04088	$1.0409^{+0.0015}_{-0.0015}$	$D_{2000}$	261	$263^{+70}_{-50}$	$H(0.61)$	94.62	$94.6^{+1.5}_{-1.7}$
$\Sigma m_\nu$ [eV]	0.292	< 0.723	$n_{s,0.002}$	0.961	$0.962^{+0.050}_{-0.051}$	$D_M(0.61)$	2318	$2319^{+56}_{-50}$
$\ln(10^{10} A_s)$	3.178	$3.18^{+0.21}_{-0.18}$	$Y_P$	0.24531	$0.24530^{+0.00054}_{-0.00054}$	$H(2.33)$	233.39	$233.4^{+4.2}_{-4.3}$
$n_s$	0.961	$0.962^{+0.050}_{-0.051}$	$Y_P^{BBN}$	0.24664	$0.24663^{+0.00054}_{-0.00054}$	$D_M(2.33)$	5808	$5809^{+100}_{-88}$
$H_0$	67.41	$67.4^{+2.0}_{-2.1}$	$10^5 D/H$	2.623	$2.62^{+0.25}_{-0.23}$	$f\sigma_8(0.15)$	0.4436	$0.443^{+0.031}_{-0.035}$
$\Omega_\Lambda$	0.6944	$0.694^{+0.022}_{-0.023}$	Age/Gyr	13.908	$13.91^{+0.25}_{-0.21}$	$\sigma_8(0.15)$	0.729	$0.727^{+0.053}_{-0.065}$
$\Omega_m$	0.3056	$0.306^{+0.023}_{-0.022}$	$z_*$	1089.63	$1089.6^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	0.4634	$0.462^{+0.030}_{-0.036}$
$\Omega_m h^2$	0.1389	$0.1390^{+0.0055}_{-0.0055}$	$r_*$	146.23	$146.2^{+2.6}_{-2.3}$	$\sigma_8(0.38)$	0.648	$0.646^{+0.047}_{-0.057}$
$\Omega_\nu h^2$	0.00314	< 0.00777	$100\theta_*$	1.04122	$1.0412^{+0.0015}_{-0.0015}$	$f\sigma_8(0.51)$	0.4630	$0.462^{+0.030}_{-0.036}$
$\Omega_m h^3$	0.09362	$0.0936^{+0.0042}_{-0.0047}$	$D_M(z_*)/\text{Gpc}$	14.044	$14.04^{+0.25}_{-0.22}$	$\sigma_8(0.51)$	0.6069	$0.605^{+0.044}_{-0.054}$
$\sigma_8$	0.788	$0.786^{+0.058}_{-0.070}$	$z_{\text{drag}}$	1059.06	$1059.1^{+3.0}_{-3.1}$	$f\sigma_8(0.61)$	0.4588	$0.457^{+0.029}_{-0.035}$
$S_8$	0.796	$0.794^{+0.061}_{-0.069}$	$r_{\text{drag}}$	149.00	$149.0^{+2.9}_{-2.6}$	$\sigma_8(0.61)$	0.5779	$0.576^{+0.042}_{-0.051}$
$\sigma_8 \Omega_m^{0.5}$	0.4357	$0.435^{+0.033}_{-0.038}$	$k_D$	0.13876	$0.1388^{+0.0034}_{-0.0035}$	$f\sigma_8(2.33)$	0.2953	$0.294^{+0.019}_{-0.022}$
$\sigma_8 \Omega_m^{0.25}$	0.5860	$0.585^{+0.042}_{-0.051}$	$100\theta_D$	0.16121	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	0.3027	$0.302^{+0.021}_{-0.025}$
$\sigma_8/h^{0.5}$	0.960	$0.957^{+0.065}_{-0.078}$	$z_{\text{eq}}$	3244	$3244^{+190}_{-220}$	$\chi^2_{\text{lensing}}$	7.50	9.2 ( $\nu$ : 1.6)
$r_{\text{drag}} h$	100.44	$100.4^{+3.0}_{-2.9}$	$k_{\text{eq}}$	0.00990	$0.00990^{+0.00058}_{-0.00067}$	$\chi^2_{6\text{DF}}$	0.000	0.056 ( $\nu$ : 0.0)
$\langle d^2 \rangle^{1/2}$	2.526	$2.52^{+0.14}_{-0.13}$	$100\theta_{\text{eq}}$	0.8425	$0.843^{+0.046}_{-0.035}$	$\chi^2_{\text{MGS}}$	1.68	1.72 ( $\nu$ : 0.2)
$z_{\text{re}}$	7.722	$7.73^{+0.30}_{-0.27}$	$100\theta_{s,\text{eq}}$	0.4648	$0.465^{+0.024}_{-0.018}$	$\chi^2_{\text{DR12BAO}}$	3.43	4.3 ( $\nu$ : 1.0)
$10^9 A_s$	2.400	$2.41^{+0.56}_{-0.40}$	$H(0.15)$	72.58	$72.5^{+1.9}_{-1.9}$	$\chi^2_{\text{prior}}$	0.0	2.9 ( $\nu$ : 2.8)
$10^9 A_s e^{-2\tau}$	2.150	$2.16^{+0.50}_{-0.36}$	$D_M(0.15)$	643.6	$644^{+19}_{-18}$	$\chi^2_{\text{BAO}}$	5.11	6.1 ( $\nu$ : 1.0)
$D_{40}$	1437	$1434^{+300}_{-200}$	$H(0.38)$	82.50	$82.5^{+1.6}_{-1.8}$			
$D_{220}$	6745	$6763^{+2000}_{-1000}$	$D_M(0.38)$	1536.3	$1537^{+41}_{-38}$			

Best-fit  $\chi^2_{\text{eff}} = 12.61$ ;  $\bar{\chi}^2_{\text{eff}} = 18.27$ ;  $R - 1 = 0.00180$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.43 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.50



# 6.110 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.0222^{+0.0012}_{-0.0012}$	$D_{810}$	2910	$2929^{+800}_{-500}$	$H(0.51)$	89.16	$89.1^{+1.5}_{-1.7}$
$\Omega_c h^2$	0.1136	$0.1135^{+0.0075}_{-0.0092}$	$D_{1420}$	929	$935^{+300}_{-200}$	$D_M(0.51)$	1989.1	$1990^{+48}_{-44}$
$100\theta_{MC}$	1.04090	$1.0409^{+0.0015}_{-0.0015}$	$D_{2000}$	261	$263^{+70}_{-50}$	$H(0.61)$	94.67	$94.6^{+1.5}_{-1.7}$
$\Sigma m_\nu$ [eV]	0.284	< 0.714	$n_{s,0.002}$	0.961	$0.962^{+0.049}_{-0.051}$	$D_M(0.61)$	2315	$2317^{+54}_{-49}$
$\ln(10^{10} A_s)$	3.176	$3.18^{+0.21}_{-0.18}$	$Y_P$	0.24532	$0.24531^{+0.00053}_{-0.00054}$	$H(2.33)$	233.38	$233.4^{+4.0}_{-4.3}$
$n_s$	0.961	$0.962^{+0.049}_{-0.051}$	$Y_P^{BBN}$	0.24665	$0.24663^{+0.00053}_{-0.00054}$	$D_M(2.33)$	5806	$5808^{+100}_{-87}$
$H_0$	67.50	$67.4^{+1.9}_{-2.0}$	$10^5 D/H$	2.619	$2.62^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	0.4436	$0.442^{+0.031}_{-0.035}$
$\Omega_\Lambda$	0.6952	$0.695^{+0.021}_{-0.022}$	Age/Gyr	13.901	$13.91^{+0.25}_{-0.21}$	$\sigma_8(0.15)$	0.730	$0.728^{+0.053}_{-0.065}$
$\Omega_m$	0.3048	$0.305^{+0.022}_{-0.021}$	$z_*$	1089.61	$1089.6^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	0.4636	$0.462^{+0.030}_{-0.036}$
$\Omega_m h^2$	0.1388	$0.1388^{+0.0053}_{-0.0054}$	$r_*$	146.21	$146.2^{+2.6}_{-2.3}$	$\sigma_8(0.38)$	0.649	$0.647^{+0.047}_{-0.057}$
$\Omega_\nu h^2$	0.00306	< 0.00768	$100\theta_*$	1.04123	$1.0412^{+0.0016}_{-0.0015}$	$f\sigma_8(0.51)$	0.4633	$0.462^{+0.030}_{-0.036}$
$\Omega_m h^3$	0.09371	$0.0936^{+0.0041}_{-0.0047}$	$D_M(z_*)/\text{Gpc}$	14.042	$14.04^{+0.25}_{-0.22}$	$\sigma_8(0.51)$	0.6079	$0.606^{+0.044}_{-0.053}$
$\sigma_8$	0.789	$0.787^{+0.057}_{-0.070}$	$z_{\text{drag}}$	1059.09	$1059.1^{+3.0}_{-3.1}$	$f\sigma_8(0.61)$	0.4592	$0.458^{+0.029}_{-0.035}$
$S_8$	0.796	$0.793^{+0.059}_{-0.068}$	$r_{\text{drag}}$	148.97	$149.0^{+2.9}_{-2.6}$	$\sigma_8(0.61)$	0.5789	$0.577^{+0.042}_{-0.050}$
$\sigma_8 \Omega_m^{0.5}$	0.4357	$0.435^{+0.033}_{-0.037}$	$k_D$	0.13880	$0.1388^{+0.0034}_{-0.0035}$	$f\sigma_8(2.33)$	0.2958	$0.295^{+0.018}_{-0.022}$
$\sigma_8 \Omega_m^{0.25}$	0.5865	$0.585^{+0.041}_{-0.051}$	$100\theta_D$	0.16119	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	0.3032	$0.302^{+0.021}_{-0.025}$
$\sigma_8/h^{0.5}$	0.961	$0.958^{+0.065}_{-0.078}$	$z_{\text{eq}}$	3245	$3242^{+180}_{-230}$	$\chi^2_{\text{lensing}}$	7.50	9.2 ( $\nu$ : 1.6)
$r_{\text{drag}} h$	100.55	$100.5^{+2.8}_{-2.7}$	$k_{\text{eq}}$	0.00991	$0.00990^{+0.00056}_{-0.00068}$	$\chi^2_{\text{JLA}}$	1034.80	1034.95 ( $\nu$ : 0.0)
$\langle d^2 \rangle^{1/2}$	2.524	$2.52^{+0.14}_{-0.13}$	$100\theta_{\text{eq}}$	0.8424	$0.844^{+0.047}_{-0.034}$	$\chi^2_{6\text{DF}}$	0.000	0.048 ( $\nu$ : 0.0)
$z_{\text{re}}$	7.716	$7.72^{+0.29}_{-0.27}$	$100\theta_{s,\text{eq}}$	0.4647	$0.465^{+0.025}_{-0.018}$	$\chi^2_{\text{MGS}}$	1.75	1.79 ( $\nu$ : 0.2)
$10^9 A_s$	2.395	$2.41^{+0.57}_{-0.40}$	$H(0.15)$	72.66	$72.6^{+1.8}_{-1.9}$	$\chi^2_{\text{DR12BAO}}$	3.38	4.2 ( $\nu$ : 0.7)
$10^9 A_s e^{-2\tau}$	2.146	$2.16^{+0.51}_{-0.36}$	$D_M(0.15)$	642.8	$643^{+18}_{-17}$	$\chi^2_{\text{prior}}$	0.0	2.9 ( $\nu$ : 2.8)
$D_{40}$	1434	$1436^{+300}_{-200}$	$H(0.38)$	82.57	$82.5^{+1.6}_{-1.7}$	$\chi^2_{\text{BAO}}$	5.13	6.0 ( $\nu$ : 0.8)
$D_{220}$	6734	$6771^{+2000}_{-1000}$	$D_M(0.38)$	1534.6	$1536^{+39}_{-36}$			

Best-fit  $\chi^2_{\text{eff}} = 1047.43$ ;  $\bar{\chi}^2_{\text{eff}} = 1053.09$ ;  $R - 1 = 0.00184$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.38 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.50 SN - JLA Pantheon18: 1034.80



# 6.111 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_agr2

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0012}_{-0.0013}$	$D_{810}$	$2967^{+800}_{-600}$	$H(0.51)$	$88.9^{+1.6}_{-1.7}$
$\Omega_{\mathrm{c}} h^2$	$0.1125^{+0.0081}_{-0.0086}$	$D_{1420}$	$946^{+300}_{-200}$	$D_{\mathrm{M}}(0.51)$	$1995^{+49}_{-47}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{2000}$	$266^{+70}_{-60}$	$H(0.61)$	$94.4^{+1.6}_{-1.7}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.759$	$n_{\mathrm{s},0.002}$	$0.960^{+0.051}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2323^{+55}_{-53}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.19^{+0.21}_{-0.20}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00052}_{-0.00054}$	$H(2.33)$	$233.0^{+4.2}_{-4.2}$
$n_{\mathrm{s}}$	$0.960^{+0.051}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00053}_{-0.00055}$	$D_{\mathrm{M}}(2.33)$	$5820^{+100}_{-94}$
$H_0$	$67.3^{+2.1}_{-2.0}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	$0.435^{+0.028}_{-0.032}$
$\Omega_{\Lambda}$	$0.694^{+0.022}_{-0.023}$	Age/Gyr	$13.93^{+0.24}_{-0.22}$	$\sigma_8(0.15)$	$0.715^{+0.052}_{-0.059}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.023}_{-0.022}$	$z_{*}$	$1089.6^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	$0.455^{+0.028}_{-0.032}$
$\Omega_{\mathrm{m}} h^2$	$0.1385^{+0.0054}_{-0.0054}$	$r_{*}$	$146.5^{+2.5}_{-2.4}$	$\sigma_8(0.38)$	$0.635^{+0.046}_{-0.053}$
$\Omega_{\nu} h^2$	$< 0.00816$	$100\theta_{*}$	$1.0413^{+0.0016}_{-0.0016}$	$f\sigma_8(0.51)$	$0.454^{+0.027}_{-0.032}$
$\Omega_{\mathrm{m}} h^3$	$0.0931^{+0.0044}_{-0.0045}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.07^{+0.24}_{-0.23}$	$\sigma_8(0.51)$	$0.595^{+0.043}_{-0.050}$
$\sigma_8$	$0.772^{+0.056}_{-0.063}$	$z_{\mathrm{drag}}$	$1059.0^{+3.0}_{-3.1}$	$f\sigma_8(0.61)$	$0.450^{+0.027}_{-0.032}$
$S_8$	$0.780^{+0.056}_{-0.061}$	$r_{\mathrm{drag}}$	$149.3^{+2.9}_{-2.7}$	$\sigma_8(0.61)$	$0.566^{+0.041}_{-0.047}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.427^{+0.031}_{-0.033}$	$k_{\mathrm{D}}$	$0.1385^{+0.0035}_{-0.0035}$	$f\sigma_8(2.33)$	$0.290^{+0.018}_{-0.021}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.575^{+0.040}_{-0.045}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	$0.297^{+0.021}_{-0.023}$
$\sigma_8/h^{0.5}$	$0.942^{+0.062}_{-0.070}$	$z_{\mathrm{eq}}$	$3217^{+200}_{-210}$	$\chi^2_{\mathrm{lensing}}$	$11.7 (\nu: 1.7)$
$r_{\mathrm{drag}} h$	$100.4^{+3.1}_{-2.8}$	$k_{\mathrm{eq}}$	$0.00982^{+0.00061}_{-0.00064}$	$\chi^2_{6\mathrm{DF}}$	$0.055 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.53^{+0.14}_{-0.14}$	$100\theta_{\mathrm{eq}}$	$0.848^{+0.044}_{-0.037}$	$\chi^2_{\mathrm{MGS}}$	$1.73 (\nu: 0.2)$
$z_{\mathrm{re}}$	$7.71^{+0.30}_{-0.27}$	$100\theta_{\mathrm{s,eq}}$	$0.468^{+0.023}_{-0.020}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3 (\nu: 1.0)$
$10^9 A_{\mathrm{s}}$	$2.44^{+0.56}_{-0.45}$	$H(0.15)$	$72.4^{+1.9}_{-1.9}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.8)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$2.18^{+0.50}_{-0.40}$	$D_{\mathrm{M}}(0.15)$	$645^{+19}_{-18}$	$\chi^2_{\mathrm{BAO}}$	$6.1 (\nu: 0.9)$
$D_{40}$	$1461^{+300}_{-300}$	$H(0.38)$	$82.3^{+1.7}_{-1.7}$		
$D_{220}$	$6900^{+2000}_{-1000}$	$D_{\mathrm{M}}(0.38)$	$1540^{+40}_{-39}$		

$\bar{\chi}^2_{\mathrm{eff}} = 20.82; R - 1 = 0.00190$



# 6.112 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_conslmin40

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0012}_{-0.0013}$	$D_{810}$	$2993^{+800}_{-600}$	$H(0.51)$	$89.0^{+1.6}_{-1.9}$
$\Omega_{\mathrm{c}}h^2$	$0.1128^{+0.0084}_{-0.010}$	$D_{1420}$	$955^{+300}_{-200}$	$D_{\mathrm{M}}(0.51)$	$1995^{+54}_{-47}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0016}$	$D_{2000}$	$268^{+80}_{-60}$	$H(0.61)$	$94.5^{+1.6}_{-1.9}$
$\Sigma m_{\nu}$ [eV]	$< 0.803$	$n_{\mathrm{s},0.002}$	$0.962^{+0.050}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	$2322^{+61}_{-53}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.20^{+0.23}_{-0.20}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00053}_{-0.00055}$	$H(2.33)$	$233.1^{+4.4}_{-4.5}$
$n_{\mathrm{s}}$	$0.962^{+0.050}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00053}_{-0.00055}$	$D_{\mathrm{M}}(2.33)$	$5817^{+110}_{-94}$
$H_0$	$67.3^{+2.1}_{-2.1}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.26}_{-0.22}$	$f\sigma_8(0.15)$	$0.440^{+0.033}_{-0.038}$
$\Omega_{\Lambda}$	$0.694^{+0.022}_{-0.023}$	Age/Gyr	$13.93^{+0.27}_{-0.22}$	$\sigma_8(0.15)$	$0.723^{+0.057}_{-0.072}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.023}_{-0.022}$	$z_{*}$	$1089.6^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	$0.460^{+0.032}_{-0.040}$
$\Omega_{\mathrm{m}}h^2$	$0.1386^{+0.0057}_{-0.0058}$	$r_{*}$	$146.4^{+2.8}_{-2.5}$	$\sigma_8(0.38)$	$0.642^{+0.050}_{-0.064}$
$\Omega_{\nu}h^2$	$< 0.00864$	$100\theta_{*}$	$1.0413^{+0.0016}_{-0.0016}$	$f\sigma_8(0.51)$	$0.459^{+0.031}_{-0.039}$
$\Omega_{\mathrm{m}}h^3$	$0.0933^{+0.0044}_{-0.0049}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.06^{+0.26}_{-0.24}$	$\sigma_8(0.51)$	$0.601^{+0.047}_{-0.060}$
$\sigma_8$	$0.781^{+0.061}_{-0.077}$	$z_{\mathrm{drag}}$	$1059.0^{+3.0}_{-3.2}$	$f\sigma_8(0.61)$	$0.455^{+0.031}_{-0.039}$
$S_8$	$0.789^{+0.064}_{-0.074}$	$r_{\mathrm{drag}}$	$149.2^{+3.1}_{-2.8}$	$\sigma_8(0.61)$	$0.572^{+0.045}_{-0.057}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.432^{+0.035}_{-0.041}$	$k_{\mathrm{D}}$	$0.1386^{+0.0036}_{-0.0037}$	$f\sigma_8(2.33)$	$0.293^{+0.020}_{-0.025}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.581^{+0.045}_{-0.055}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	$0.300^{+0.022}_{-0.028}$
$\sigma_8/h^{0.5}$	$0.952^{+0.069}_{-0.086}$	$z_{\mathrm{eq}}$	$3225^{+210}_{-240}$	$\chi^2_{\mathrm{lensing}}$	$9.1 (\nu: 1.5)$
$r_{\mathrm{drag}}h$	$100.4^{+3.1}_{-2.9}$	$k_{\mathrm{eq}}$	$0.00985^{+0.00062}_{-0.00072}$	$\chi^2_{6\mathrm{DF}}$	$0.056 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.54^{+0.16}_{-0.15}$	$100\theta_{\mathrm{eq}}$	$0.847^{+0.051}_{-0.038}$	$\chi^2_{\mathrm{MGS}}$	$1.71 (\nu: 0.2)$
$z_{\mathrm{re}}$	$7.72^{+0.30}_{-0.28}$	$100\theta_{\mathrm{s,eq}}$	$0.467^{+0.027}_{-0.020}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3 (\nu: 1.0)$
$10^9A_{\mathrm{s}}$	$2.46^{+0.63}_{-0.46}$	$H(0.15)$	$72.4^{+1.9}_{-2.1}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.8)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.20^{+0.56}_{-0.41}$	$D_{\mathrm{M}}(0.15)$	$645^{+20}_{-18}$	$\chi^2_{\mathrm{BAO}}$	$6.1 (\nu: 1.0)$
$D_{40}$	$1468^{+400}_{-300}$	$H(0.38)$	$82.4^{+1.7}_{-2.0}$		
$D_{220}$	$6942^{+2000}_{-1000}$	$D_{\mathrm{M}}(0.38)$	$1539^{+44}_{-39}$		

$\bar{\chi}^2_{\mathrm{eff}} = 18.19$ ;  $R - 1 = 0.00198$



### 6.113 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_agrlmax425

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0012}_{-0.0013}$	$D_{810}$	$2919^{+700}_{-500}$	$H(0.51)$	$89.1^{+1.5}_{-1.7}$
$\Omega_{\mathrm{c}}h^2$	$0.1137^{+0.0076}_{-0.0091}$	$D_{1420}$	$933^{+300}_{-200}$	$D_{\mathrm{M}}(0.51)$	$1992^{+50}_{-45}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{2000}$	$262^{+70}_{-50}$	$H(0.61)$	$94.6^{+1.5}_{-1.7}$
$\Sigma m_{\nu}$ [eV]	$< 0.710$	$n_{\mathrm{s},0.002}$	$0.962^{+0.049}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	$2318^{+56}_{-50}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.17^{+0.21}_{-0.18}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00053}_{-0.00054}$	$H(2.33)$	$233.5^{+4.2}_{-4.3}$
$n_{\mathrm{s}}$	$0.962^{+0.049}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00053}_{-0.00054}$	$D_{\mathrm{M}}(2.33)$	$5808^{+100}_{-87}$
$H_0$	$67.4^{+2.0}_{-2.1}$	$10^5\mathrm{D}/\mathrm{H}$	$2.63^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	$0.443^{+0.030}_{-0.035}$
$\Omega_{\Lambda}$	$0.694^{+0.022}_{-0.023}$	Age/Gyr	$13.91^{+0.25}_{-0.20}$	$\sigma_8(0.15)$	$0.729^{+0.052}_{-0.064}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.023}_{-0.022}$	$z_{*}$	$1089.7^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	$0.463^{+0.030}_{-0.035}$
$\Omega_{\mathrm{m}}h^2$	$0.1390^{+0.0055}_{-0.0056}$	$r_{*}$	$146.2^{+2.6}_{-2.3}$	$\sigma_8(0.38)$	$0.647^{+0.047}_{-0.057}$
$\Omega_{\nu}h^2$	$< 0.00764$	$100\theta_{*}$	$1.0412^{+0.0016}_{-0.0016}$	$f\sigma_8(0.51)$	$0.463^{+0.029}_{-0.035}$
$\Omega_{\mathrm{m}}h^3$	$0.0937^{+0.0041}_{-0.0047}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.04^{+0.25}_{-0.22}$	$\sigma_8(0.51)$	$0.606^{+0.044}_{-0.053}$
$\sigma_8$	$0.788^{+0.056}_{-0.069}$	$z_{\mathrm{drag}}$	$1059.0^{+3.0}_{-3.2}$	$f\sigma_8(0.61)$	$0.458^{+0.029}_{-0.035}$
$S_8$	$0.796^{+0.060}_{-0.068}$	$r_{\mathrm{drag}}$	$148.9^{+3.0}_{-2.6}$	$\sigma_8(0.61)$	$0.577^{+0.041}_{-0.050}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.436^{+0.033}_{-0.037}$	$k_{\mathrm{D}}$	$0.1388^{+0.0034}_{-0.0035}$	$f\sigma_8(2.33)$	$0.295^{+0.018}_{-0.022}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.586^{+0.042}_{-0.050}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	$0.302^{+0.021}_{-0.025}$
$\sigma_8/h^{0.5}$	$0.959^{+0.064}_{-0.078}$	$z_{\mathrm{eq}}$	$3248^{+190}_{-220}$	$\chi^2_{\mathrm{lensing}}$	$7.0 (\nu: 1.6)$
$r_{\mathrm{drag}}h$	$100.4^{+3.0}_{-2.9}$	$k_{\mathrm{eq}}$	$0.00991^{+0.00057}_{-0.00067}$	$\chi^2_{6\mathrm{DF}}$	$0.056 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.52^{+0.14}_{-0.13}$	$100\theta_{\mathrm{eq}}$	$0.842^{+0.046}_{-0.035}$	$\chi^2_{\mathrm{MGS}}$	$1.71 (\nu: 0.2)$
$z_{\mathrm{re}}$	$7.73^{+0.29}_{-0.27}$	$100\theta_{\mathrm{s,eq}}$	$0.465^{+0.024}_{-0.018}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.4 (\nu: 1.0)$
$10^9A_{\mathrm{s}}$	$2.40^{+0.56}_{-0.40}$	$H(0.15)$	$72.6^{+1.9}_{-1.9}$	$\chi^2_{\mathrm{prior}}$	$2.9 (\nu: 2.8)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.15^{+0.50}_{-0.36}$	$D_{\mathrm{M}}(0.15)$	$644^{+19}_{-18}$	$\chi^2_{\mathrm{BAO}}$	$6.1 (\nu: 1.0)$
$D_{40}$	$1430^{+300}_{-200}$	$H(0.38)$	$82.5^{+1.6}_{-1.8}$		
$D_{220}$	$6741^{+2000}_{-1000}$	$D_{\mathrm{M}}(0.38)$	$1537^{+41}_{-37}$		

$\bar{\chi}^2_{\mathrm{eff}} = 16.07$ ;  $R - 1 = 0.00165$



# 6.114 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_ptt

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0013}_{-0.0013}$	$D_{810}$	$3253^{+700}_{-800}$	$H(0.51)$	$88.5^{+1.9}_{-1.8}$
$\Omega_{\mathrm{c}}h^2$	$0.1098^{+0.0098}_{-0.0092}$	$D_{1420}$	$1035^{+200}_{-200}$	$D_{\mathrm{M}}(0.51)$	$2004^{+49}_{-52}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0016}$	$D_{2000}$	$290^{+70}_{-70}$	$H(0.61)$	$94.0^{+1.9}_{-1.8}$
$\Sigma m_{\nu}$ [eV]	$< 0.955$	$n_{\mathrm{s},0.002}$	$0.960^{+0.053}_{-0.049}$	$D_{\mathrm{M}}(0.61)$	$2333^{+55}_{-57}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.28^{+0.19}_{-0.24}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00054}_{-0.00058}$	$H(2.33)$	$232.1^{+4.7}_{-3.9}$
$n_{\mathrm{s}}$	$0.960^{+0.053}_{-0.049}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00054}_{-0.00058}$	$D_{\mathrm{M}}(2.33)$	$5844^{+110}_{-110}$
$H_0$	$67.0^{+2.2}_{-2.0}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.27}_{-0.23}$	$f\sigma_8(0.15)$	$0.432^{+0.037}_{-0.035}$
$\Omega_{\Lambda}$	$0.693^{+0.025}_{-0.022}$	Age/Gyr	$13.99^{+0.26}_{-0.26}$	$\sigma_8(0.15)$	$0.707^{+0.067}_{-0.064}$
$\Omega_{\mathrm{m}}$	$0.307^{+0.022}_{-0.025}$	$z_{*}$	$1089.4^{+1.8}_{-1.5}$	$f\sigma_8(0.38)$	$0.451^{+0.038}_{-0.036}$
$\Omega_{\mathrm{m}}h^2$	$0.1374^{+0.0059}_{-0.0052}$	$r_{*}$	$147.1^{+2.5}_{-2.7}$	$\sigma_8(0.38)$	$0.628^{+0.059}_{-0.058}$
$\Omega_{\nu}h^2$	$< 0.0103$	$100\theta_{*}$	$1.0413^{+0.0016}_{-0.0017}$	$f\sigma_8(0.51)$	$0.451^{+0.037}_{-0.037}$
$\Omega_{\mathrm{m}}h^3$	$0.0920^{+0.0051}_{-0.0045}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.13^{+0.24}_{-0.26}$	$\sigma_8(0.51)$	$0.588^{+0.055}_{-0.055}$
$\sigma_8$	$0.764^{+0.072}_{-0.069}$	$z_{\mathrm{drag}}$	$1058.9^{+3.1}_{-3.2}$	$f\sigma_8(0.61)$	$0.447^{+0.036}_{-0.036}$
$S_8$	$0.772^{+0.073}_{-0.068}$	$r_{\mathrm{drag}}$	$149.9^{+2.7}_{-3.0}$	$\sigma_8(0.61)$	$0.560^{+0.053}_{-0.052}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.423^{+0.040}_{-0.037}$	$k_{\mathrm{D}}$	$0.1379^{+0.0036}_{-0.0034}$	$f\sigma_8(2.33)$	$0.289^{+0.023}_{-0.024}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.568^{+0.053}_{-0.049}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0020}_{-0.0018}$	$\sigma_8(2.33)$	$0.294^{+0.026}_{-0.027}$
$\sigma_8/h^{0.5}$	$0.933^{+0.082}_{-0.078}$	$z_{\mathrm{eq}}$	$3155^{+240}_{-210}$	$\chi^2_{\mathrm{lensing}}$	$10.6\ (\nu: 1.4)$
$r_{\mathrm{drag}}h$	$100.4^{+3.2}_{-2.8}$	$k_{\mathrm{eq}}$	$0.00964^{+0.00073}_{-0.00064}$	$\chi^2_{6\mathrm{DF}}$	$0.058\ (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.61^{+0.15}_{-0.17}$	$100\theta_{\mathrm{eq}}$	$0.862^{+0.049}_{-0.047}$	$\chi^2_{\mathrm{MGS}}$	$1.72\ (\nu: 0.3)$
$z_{\mathrm{re}}$	$7.69^{+0.31}_{-0.27}$	$100\theta_{\mathrm{s,eq}}$	$0.475^{+0.025}_{-0.025}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.4\ (\nu: 1.0)$
$10^9A_{\mathrm{s}}$	$2.66^{+0.54}_{-0.59}$	$H(0.15)$	$72.1^{+2.1}_{-1.8}$	$\chi^2_{\mathrm{prior}}$	$3.0\ (\nu: 2.9)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.39^{+0.48}_{-0.53}$	$D_{\mathrm{M}}(0.15)$	$648^{+19}_{-20}$	$\chi^2_{\mathrm{BAO}}$	$6.1\ (\nu: 1.0)$
$D_{40}$	$1602^{+300}_{-400}$	$H(0.38)$	$82.0^{+1.9}_{-1.8}$		
$D_{220}$	$7646^{+2000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	$1547^{+39}_{-42}$		

$\bar{\chi}^2_{\mathrm{eff}} = 19.79$ ;  $R - 1 = 0.03408$



# 6.115 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0012}_{-0.0012}$	$D_{810}$	$2861^{+700}_{-500}$	$H(0.51)$	$89.1^{+1.5}_{-1.7}$
$\Omega_{\mathrm{c}}h^2$	$0.1138^{+0.0074}_{-0.0090}$	$D_{1420}$	$914^{+200}_{-200}$	$D_{\mathrm{M}}(0.51)$	$1991^{+49}_{-45}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{2000}$	$257^{+70}_{-50}$	$H(0.61)$	$94.6^{+1.5}_{-1.7}$
$\Sigma m_{\nu}$ [eV]	$< 0.713$	$n_{\mathrm{s},0.002}$	$0.963^{+0.049}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	$2318^{+55}_{-50}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.15^{+0.21}_{-0.17}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00053}_{-0.00054}$	$H(2.33)$	$233.5^{+4.1}_{-4.3}$
$n_{\mathrm{s}}$	$0.963^{+0.049}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00053}_{-0.00054}$	$D_{\mathrm{M}}(2.33)$	$5807^{+100}_{-86}$
$H_0$	$67.4^{+2.0}_{-2.0}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	$0.440^{+0.029}_{-0.036}$
$\Omega_{\Lambda}$	$0.694^{+0.023}_{-0.023}$	Age/Gyr	$13.91^{+0.24}_{-0.20}$	$\sigma_8(0.15)$	$0.723^{+0.052}_{-0.066}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.023}_{-0.023}$	$z_{*}$	$1089.7^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	$0.459^{+0.029}_{-0.038}$
$\Omega_{\mathrm{m}}h^2$	$0.1391^{+0.0054}_{-0.0056}$	$r_{*}$	$146.2^{+2.6}_{-2.2}$	$\sigma_8(0.38)$	$0.642^{+0.046}_{-0.059}$
$\Omega_{\nu}h^2$	$< 0.00766$	$100\theta_{*}$	$1.0412^{+0.0016}_{-0.0016}$	$f\sigma_8(0.51)$	$0.459^{+0.029}_{-0.037}$
$\Omega_{\mathrm{m}}h^3$	$0.0937^{+0.0041}_{-0.0047}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.04^{+0.25}_{-0.22}$	$\sigma_8(0.51)$	$0.601^{+0.043}_{-0.055}$
$\sigma_8$	$0.781^{+0.056}_{-0.072}$	$z_{\mathrm{drag}}$	$1059.1^{+3.0}_{-3.1}$	$f\sigma_8(0.61)$	$0.454^{+0.028}_{-0.037}$
$S_8$	$0.789^{+0.058}_{-0.070}$	$r_{\mathrm{drag}}$	$148.9^{+2.9}_{-2.5}$	$\sigma_8(0.61)$	$0.572^{+0.041}_{-0.052}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.432^{+0.032}_{-0.038}$	$k_{\mathrm{D}}$	$0.1388^{+0.0034}_{-0.0035}$	$f\sigma_8(2.33)$	$0.292^{+0.019}_{-0.022}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.581^{+0.040}_{-0.052}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	$0.300^{+0.021}_{-0.026}$
$\sigma_8/h^{0.5}$	$0.951^{+0.064}_{-0.081}$	$z_{\mathrm{eq}}$	$3250^{+190}_{-220}$	$\chi^2_{\mathrm{lensing}}$	$9.4 (\nu: 1.6)$
$r_{\mathrm{drag}}h$	$100.4^{+3.1}_{-2.8}$	$k_{\mathrm{eq}}$	$0.00992^{+0.00056}_{-0.00067}$	$\chi^2_{6\mathrm{DF}}$	$0.055 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.13}_{-0.12}$	$100\theta_{\mathrm{eq}}$	$0.842^{+0.046}_{-0.034}$	$\chi^2_{\mathrm{MGS}}$	$1.71 (\nu: 0.2)$
$z_{\mathrm{re}}$	$7.73^{+0.30}_{-0.27}$	$100\theta_{\mathrm{s,eq}}$	$0.464^{+0.024}_{-0.018}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.4 (\nu: 1.0)$
$10^9A_{\mathrm{s}}$	$2.35^{+0.52}_{-0.40}$	$H(0.15)$	$72.6^{+1.8}_{-1.9}$	$\chi^2_{\mathrm{prior}}$	$2.9 (\nu: 2.7)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.11^{+0.47}_{-0.36}$	$D_{\mathrm{M}}(0.15)$	$644^{+19}_{-17}$	$\chi^2_{\mathrm{BAO}}$	$6.1 (\nu: 1.0)$
$D_{40}$	$1400^{+300}_{-200}$	$H(0.38)$	$82.5^{+1.6}_{-1.8}$		
$D_{220}$	$6599^{+2000}_{-1000}$	$D_{\mathrm{M}}(0.38)$	$1537^{+40}_{-37}$		

$\bar{\chi}^2_{\mathrm{eff}} = 18.46$ ;  $R - 1 = 0.00205$



# 6.116 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_agr2bfcl

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0012}_{-0.0013}$	$D_{810}$	$2894^{+700}_{-600}$	$H(0.51)$	$89.0^{+1.6}_{-1.7}$
$\Omega_{\mathrm{c}}h^2$	$0.1128^{+0.0079}_{-0.0086}$	$D_{1420}$	$924^{+200}_{-200}$	$D_{\mathrm{M}}(0.51)$	$1994^{+49}_{-46}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0016}$	$D_{2000}$	$259^{+70}_{-60}$	$H(0.61)$	$94.5^{+1.6}_{-1.7}$
$\Sigma m_{\nu}$ [eV]	$< 0.751$	$n_{\mathrm{s},0.002}$	$0.961^{+0.050}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	$2321^{+54}_{-51}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.16^{+0.21}_{-0.19}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00052}_{-0.00054}$	$H(2.33)$	$233.2^{+4.0}_{-4.1}$
$n_{\mathrm{s}}$	$0.961^{+0.050}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00053}_{-0.00054}$	$D_{\mathrm{M}}(2.33)$	$5816^{+100}_{-92}$
$H_0$	$67.3^{+2.1}_{-2.0}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	$0.433^{+0.028}_{-0.031}$
$\Omega_{\Lambda}$	$0.694^{+0.023}_{-0.022}$	Age/Gyr	$13.93^{+0.24}_{-0.22}$	$\sigma_8(0.15)$	$0.711^{+0.050}_{-0.060}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.022}_{-0.023}$	$z_*$	$1089.6^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	$0.453^{+0.027}_{-0.033}$
$\Omega_{\mathrm{m}}h^2$	$0.1386^{+0.0053}_{-0.0054}$	$r_*$	$146.4^{+2.5}_{-2.4}$	$\sigma_8(0.38)$	$0.632^{+0.045}_{-0.053}$
$\Omega_{\nu}h^2$	$< 0.00808$	$100\theta_*$	$1.0413^{+0.0016}_{-0.0016}$	$f\sigma_8(0.51)$	$0.452^{+0.027}_{-0.034}$
$\Omega_{\mathrm{m}}h^3$	$0.0933^{+0.0043}_{-0.0044}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.06^{+0.24}_{-0.23}$	$\sigma_8(0.51)$	$0.592^{+0.043}_{-0.050}$
$\sigma_8$	$0.769^{+0.054}_{-0.065}$	$z_{\mathrm{drag}}$	$1059.0^{+3.0}_{-3.1}$	$f\sigma_8(0.61)$	$0.448^{+0.026}_{-0.033}$
$S_8$	$0.777^{+0.055}_{-0.061}$	$r_{\mathrm{drag}}$	$149.2^{+2.8}_{-2.7}$	$\sigma_8(0.61)$	$0.564^{+0.041}_{-0.047}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.425^{+0.030}_{-0.033}$	$k_{\mathrm{D}}$	$0.1386^{+0.0034}_{-0.0034}$	$f\sigma_8(2.33)$	$0.288^{+0.017}_{-0.021}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.572^{+0.039}_{-0.047}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	$0.295^{+0.020}_{-0.023}$
$\sigma_8/h^{0.5}$	$0.937^{+0.060}_{-0.073}$	$z_{\mathrm{eq}}$	$3226^{+190}_{-210}$	$\chi^2_{\mathrm{lensing}}$	$11.9 (\nu: 1.7)$
$r_{\mathrm{drag}}h$	$100.4^{+3.1}_{-2.7}$	$k_{\mathrm{eq}}$	$0.00985^{+0.00059}_{-0.00064}$	$\chi^2_{6\mathrm{DF}}$	$0.055 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.50^{+0.13}_{-0.13}$	$100\theta_{\mathrm{eq}}$	$0.847^{+0.045}_{-0.036}$	$\chi^2_{\mathrm{MGS}}$	$1.72 (\nu: 0.2)$
$z_{\mathrm{re}}$	$7.72^{+0.29}_{-0.27}$	$100\theta_{\mathrm{s,eq}}$	$0.467^{+0.023}_{-0.019}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3 (\nu: 1.0)$
$10^9A_{\mathrm{s}}$	$2.38^{+0.52}_{-0.44}$	$H(0.15)$	$72.5^{+1.9}_{-1.9}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.8)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.13^{+0.47}_{-0.40}$	$D_{\mathrm{M}}(0.15)$	$645^{+19}_{-18}$	$\chi^2_{\mathrm{BAO}}$	$6.1 (\nu: 0.9)$
$D_{40}$	$1422^{+300}_{-300}$	$H(0.38)$	$82.4^{+1.7}_{-1.7}$		
$D_{220}$	$6715^{+2000}_{-1000}$	$D_{\mathrm{M}}(0.38)$	$1539^{+40}_{-38}$		

$\bar{\chi}^2_{\mathrm{eff}} = 20.96$ ;  $R - 1 = 0.00384$



# 6.117 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_linear

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.0222^{+0.0012}_{-0.0012}$	$D_{810}$	$2899^{+700}_{-500}$	$H(0.51)$	$89.2^{+1.5}_{-1.7}$
$\Omega_{\mathrm{c}} h^2$	$0.1143^{+0.0073}_{-0.0090}$	$D_{1420}$	$927^{+200}_{-200}$	$D_{\mathrm{M}}(0.51)$	$1990^{+49}_{-44}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0016}_{-0.0015}$	$D_{2000}$	$260^{+70}_{-50}$	$H(0.61)$	$94.7^{+1.5}_{-1.7}$
$\Sigma m_{\nu}$ [eV]	$< 0.681$	$n_{\mathrm{s},0.002}$	$0.963^{+0.048}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	$2316^{+55}_{-49}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.17^{+0.21}_{-0.17}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00053}_{-0.00054}$	$H(2.33)$	$233.7^{+4.1}_{-4.4}$
$n_{\mathrm{s}}$	$0.963^{+0.048}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00053}_{-0.00054}$	$D_{\mathrm{M}}(2.33)$	$5803^{+100}_{-83}$
$H_0$	$67.4^{+2.0}_{-2.1}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	$0.447^{+0.030}_{-0.036}$
$\Omega_{\Lambda}$	$0.694^{+0.022}_{-0.023}$	Age/Gyr	$13.89^{+0.25}_{-0.20}$	$\sigma_8(0.15)$	$0.735^{+0.050}_{-0.064}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.023}_{-0.022}$	$z_{*}$	$1089.7^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	$0.467^{+0.029}_{-0.036}$
$\Omega_{\mathrm{m}} h^2$	$0.1393^{+0.0055}_{-0.0056}$	$r_{*}$	$146.0^{+2.6}_{-2.2}$	$\sigma_8(0.38)$	$0.653^{+0.046}_{-0.057}$
$\Omega_{\nu} h^2$	$< 0.00732$	$100\theta_{*}$	$1.0412^{+0.0016}_{-0.0015}$	$f\sigma_8(0.51)$	$0.466^{+0.029}_{-0.036}$
$\Omega_{\mathrm{m}} h^3$	$0.0939^{+0.0039}_{-0.0047}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.03^{+0.25}_{-0.22}$	$\sigma_8(0.51)$	$0.611^{+0.043}_{-0.053}$
$\sigma_8$	$0.795^{+0.054}_{-0.070}$	$z_{\mathrm{drag}}$	$1059.1^{+3.0}_{-3.2}$	$f\sigma_8(0.61)$	$0.462^{+0.028}_{-0.035}$
$S_8$	$0.803^{+0.059}_{-0.070}$	$r_{\mathrm{drag}}$	$148.8^{+2.9}_{-2.6}$	$\sigma_8(0.61)$	$0.582^{+0.041}_{-0.051}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.440^{+0.032}_{-0.038}$	$k_{\mathrm{D}}$	$0.1390^{+0.0034}_{-0.0036}$	$f\sigma_8(2.33)$	$0.297^{+0.019}_{-0.022}$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.591^{+0.040}_{-0.051}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	$0.304^{+0.021}_{-0.025}$
$\sigma_8/h^{0.5}$	$0.967^{+0.063}_{-0.078}$	$z_{\mathrm{eq}}$	$3261^{+180}_{-220}$	$\chi^2_{\mathrm{lensing}}$	$9.7 (\nu: 1.6)$
$r_{\mathrm{drag}} h$	$100.3^{+3.0}_{-2.9}$	$k_{\mathrm{eq}}$	$0.00996^{+0.00055}_{-0.00067}$	$\chi^2_{6\mathrm{DF}}$	$0.056 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.52^{+0.14}_{-0.13}$	$100\theta_{\mathrm{eq}}$	$0.840^{+0.046}_{-0.033}$	$\chi^2_{\mathrm{MGS}}$	$1.71 (\nu: 0.2)$
$z_{\mathrm{re}}$	$7.73^{+0.29}_{-0.28}$	$100\theta_{\mathrm{s,eq}}$	$0.463^{+0.024}_{-0.017}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.4 (\nu: 1.1)$
$10^9 A_{\mathrm{s}}$	$2.39^{+0.56}_{-0.37}$	$H(0.15)$	$72.6^{+1.8}_{-1.9}$	$\chi^2_{\mathrm{prior}}$	$2.9 (\nu: 2.8)$
$10^9 A_{\mathrm{s}} e^{-2\tau}$	$2.14^{+0.50}_{-0.33}$	$D_{\mathrm{M}}(0.15)$	$643^{+19}_{-17}$	$\chi^2_{\mathrm{BAO}}$	$6.1 (\nu: 1.0)$
$D_{40}$	$1417^{+300}_{-200}$	$H(0.38)$	$82.6^{+1.6}_{-1.8}$		
$D_{220}$	$6673^{+2000}_{-1000}$	$D_{\mathrm{M}}(0.38)$	$1535^{+40}_{-36}$		

$\bar{\chi}^2_{\mathrm{eff}} = 18.71$ ;  $R - 1 = 0.00239$



# 6.118 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0012}_{-0.0013}$	$D_{810}$	$2928^{+800}_{-500}$	$H(0.51)$	$89.1^{+1.6}_{-1.7}$
$\Omega_{\mathrm{c}}h^2$	$0.1135^{+0.0077}_{-0.0092}$	$D_{1420}$	$935^{+300}_{-200}$	$D_{\mathrm{M}}(0.51)$	$1992^{+50}_{-46}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{2000}$	$263^{+70}_{-50}$	$H(0.61)$	$94.6^{+1.5}_{-1.7}$
$\Sigma m_{\nu}$ [eV]	$< 0.727$	$n_{\mathrm{s},0.002}$	$0.962^{+0.049}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	$2319^{+56}_{-51}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.18^{+0.21}_{-0.18}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00053}_{-0.00054}$	$H(2.33)$	$233.4^{+4.2}_{-4.3}$
$n_{\mathrm{s}}$	$0.962^{+0.049}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00053}_{-0.00054}$	$D_{\mathrm{M}}(2.33)$	$5810^{+110}_{-88}$
$H_0$	$67.4^{+2.0}_{-2.1}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	$0.442^{+0.031}_{-0.035}$
$\Omega_{\Lambda}$	$0.694^{+0.022}_{-0.023}$	Age/Gyr	$13.91^{+0.25}_{-0.21}$	$\sigma_8(0.15)$	$0.727^{+0.053}_{-0.066}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.023}_{-0.022}$	$z_*$	$1089.6^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	$0.462^{+0.030}_{-0.036}$
$\Omega_{\mathrm{m}}h^2$	$0.1389^{+0.0055}_{-0.0056}$	$r_*$	$146.2^{+2.6}_{-2.3}$	$\sigma_8(0.38)$	$0.645^{+0.047}_{-0.058}$
$\Omega_{\nu}h^2$	$< 0.00781$	$100\theta_*$	$1.0412^{+0.0016}_{-0.0015}$	$f\sigma_8(0.51)$	$0.461^{+0.030}_{-0.036}$
$\Omega_{\mathrm{m}}h^3$	$0.0936^{+0.0041}_{-0.0047}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.04^{+0.25}_{-0.22}$	$\sigma_8(0.51)$	$0.604^{+0.044}_{-0.055}$
$\sigma_8$	$0.785^{+0.057}_{-0.071}$	$z_{\mathrm{drag}}$	$1059.0^{+3.0}_{-3.2}$	$f\sigma_8(0.61)$	$0.457^{+0.029}_{-0.036}$
$S_8$	$0.793^{+0.061}_{-0.070}$	$r_{\mathrm{drag}}$	$149.0^{+2.9}_{-2.6}$	$\sigma_8(0.61)$	$0.575^{+0.042}_{-0.052}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.435^{+0.033}_{-0.038}$	$k_{\mathrm{D}}$	$0.1388^{+0.0034}_{-0.0036}$	$f\sigma_8(2.33)$	$0.294^{+0.019}_{-0.022}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.584^{+0.042}_{-0.051}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	$0.301^{+0.021}_{-0.026}$
$\sigma_8/h^{0.5}$	$0.957^{+0.065}_{-0.079}$	$z_{\mathrm{eq}}$	$3243^{+190}_{-230}$	$\chi^2_{\mathrm{lensing}}$	$9.2 (\nu: 1.6)$
$r_{\mathrm{drag}}h$	$100.4^{+3.0}_{-2.9}$	$k_{\mathrm{eq}}$	$0.00990^{+0.00058}_{-0.00068}$	$\chi^2_{6\mathrm{DF}}$	$0.056 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.53^{+0.14}_{-0.13}$	$100\theta_{\mathrm{eq}}$	$0.843^{+0.047}_{-0.035}$	$\chi^2_{\mathrm{MGS}}$	$1.72 (\nu: 0.2)$
$z_{\mathrm{re}}$	$7.73^{+0.29}_{-0.27}$	$100\theta_{\mathrm{s,eq}}$	$0.465^{+0.025}_{-0.018}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3 (\nu: 1.0)$
$10^9A_{\mathrm{s}}$	$2.41^{+0.57}_{-0.40}$	$H(0.15)$	$72.5^{+1.9}_{-2.0}$	$\chi^2_{\mathrm{prior}}$	$2.9 (\nu: 2.8)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.16^{+0.51}_{-0.36}$	$D_{\mathrm{M}}(0.15)$	$644^{+19}_{-18}$	$\chi^2_{\mathrm{BAO}}$	$6.1 (\nu: 1.0)$
$D_{40}$	$1435^{+300}_{-200}$	$H(0.38)$	$82.5^{+1.6}_{-1.8}$		
$D_{220}$	$6766^{+2000}_{-1000}$	$D_{\mathrm{M}}(0.38)$	$1537^{+41}_{-38}$		
$\bar{\chi}^2_{\mathrm{eff}} = 18.25; R - 1 = 0.00162$					



# 6.119 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_agr2acc

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0012}_{-0.0013}$	$D_{810}$	$2975^{+700}_{-600}$	$H(0.51)$	$88.9^{+1.7}_{-1.7}$
$\Omega_{\mathrm{c}}h^2$	$0.1123^{+0.0082}_{-0.0086}$	$D_{1420}$	$948^{+300}_{-200}$	$D_{\mathrm{M}}(0.51)$	$1996^{+49}_{-48}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{2000}$	$266^{+70}_{-60}$	$H(0.61)$	$94.4^{+1.7}_{-1.7}$
$\Sigma m_{\nu}$ [eV]	$< 0.770$	$n_{\mathrm{s},0.002}$	$0.960^{+0.051}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2323^{+55}_{-53}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.19^{+0.21}_{-0.20}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00052}_{-0.00054}$	$H(2.33)$	$233.0^{+4.2}_{-4.2}$
$n_{\mathrm{s}}$	$0.960^{+0.051}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00053}_{-0.00054}$	$D_{\mathrm{M}}(2.33)$	$5821^{+100}_{-95}$
$H_0$	$67.2^{+2.1}_{-2.0}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	$0.435^{+0.028}_{-0.031}$
$\Omega_{\Lambda}$	$0.694^{+0.022}_{-0.023}$	Age/Gyr	$13.94^{+0.24}_{-0.23}$	$\sigma_8(0.15)$	$0.713^{+0.052}_{-0.060}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.023}_{-0.022}$	$z_{*}$	$1089.5^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	$0.454^{+0.028}_{-0.033}$
$\Omega_{\mathrm{m}}h^2$	$0.1384^{+0.0054}_{-0.0054}$	$r_{*}$	$146.5^{+2.5}_{-2.5}$	$\sigma_8(0.38)$	$0.634^{+0.047}_{-0.053}$
$\Omega_{\nu}h^2$	$< 0.00828$	$100\theta_{*}$	$1.0413^{+0.0016}_{-0.0016}$	$f\sigma_8(0.51)$	$0.454^{+0.028}_{-0.033}$
$\Omega_{\mathrm{m}}h^3$	$0.0931^{+0.0045}_{-0.0044}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.07^{+0.24}_{-0.23}$	$\sigma_8(0.51)$	$0.594^{+0.044}_{-0.049}$
$\sigma_8$	$0.771^{+0.056}_{-0.065}$	$z_{\mathrm{drag}}$	$1059.0^{+3.0}_{-3.1}$	$f\sigma_8(0.61)$	$0.449^{+0.027}_{-0.033}$
$S_8$	$0.779^{+0.056}_{-0.060}$	$r_{\mathrm{drag}}$	$149.3^{+2.8}_{-2.8}$	$\sigma_8(0.61)$	$0.565^{+0.042}_{-0.047}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.426^{+0.031}_{-0.033}$	$k_{\mathrm{D}}$	$0.1385^{+0.0035}_{-0.0035}$	$f\sigma_8(2.33)$	$0.290^{+0.018}_{-0.021}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.573^{+0.040}_{-0.046}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	$0.296^{+0.021}_{-0.024}$
$\sigma_8/h^{0.5}$	$0.940^{+0.062}_{-0.071}$	$z_{\mathrm{eq}}$	$3214^{+200}_{-210}$	$\chi^2_{\mathrm{lensing}}$	$11.8\ (\nu: 1.7)$
$r_{\mathrm{drag}}h$	$100.4^{+3.1}_{-2.8}$	$k_{\mathrm{eq}}$	$0.00981^{+0.00061}_{-0.00063}$	$\chi^2_{6\mathrm{DF}}$	$0.055\ (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.53^{+0.14}_{-0.14}$	$100\theta_{\mathrm{eq}}$	$0.849^{+0.044}_{-0.038}$	$\chi^2_{\mathrm{MGS}}$	$1.73\ (\nu: 0.2)$
$z_{\mathrm{re}}$	$7.71^{+0.29}_{-0.27}$	$100\theta_{\mathrm{s,eq}}$	$0.468^{+0.023}_{-0.020}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3\ (\nu: 0.9)$
$10^9A_{\mathrm{s}}$	$2.44^{+0.56}_{-0.45}$	$H(0.15)$	$72.4^{+1.9}_{-1.9}$	$\chi^2_{\mathrm{prior}}$	$3.0\ (\nu: 2.8)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.19^{+0.50}_{-0.40}$	$D_{\mathrm{M}}(0.15)$	$645^{+19}_{-18}$	$\chi^2_{\mathrm{BAO}}$	$6.1\ (\nu: 0.9)$
$D_{40}$	$1465^{+300}_{-300}$	$H(0.38)$	$82.3^{+1.7}_{-1.7}$		
$D_{220}$	$6921^{+2000}_{-1000}$	$D_{\mathrm{M}}(0.38)$	$1540^{+40}_{-39}$		

$\bar{\chi}^2_{\mathrm{eff}} = 20.92$ ;  $R - 1 = 0.00208$



## 6.120 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0012}_{-0.0013}$	$D_{810}$	$2935^{+800}_{-500}$	$H(0.51)$	$89.0^{+1.6}_{-1.8}$
$\Omega_{\mathrm{c}}h^2$	$0.1133^{+0.0078}_{-0.0092}$	$D_{1420}$	$937^{+300}_{-200}$	$D_{\mathrm{M}}(0.51)$	$1993^{+51}_{-46}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{2000}$	$264^{+70}_{-50}$	$H(0.61)$	$94.6^{+1.6}_{-1.8}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.751$	$n_{\mathrm{s},0.002}$	$0.962^{+0.049}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	$2320^{+57}_{-52}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.18^{+0.21}_{-0.18}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00053}_{-0.00054}$	$H(2.33)$	$233.3^{+4.2}_{-4.3}$
$n_{\mathrm{s}}$	$0.962^{+0.049}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00053}_{-0.00054}$	$D_{\mathrm{M}}(2.33)$	$5812^{+110}_{-90}$
$H_0$	$67.3^{+2.0}_{-2.1}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	$0.441^{+0.032}_{-0.037}$
$\Omega_{\Lambda}$	$0.694^{+0.022}_{-0.023}$	Age/Gyr	$13.92^{+0.25}_{-0.21}$	$\sigma_8(0.15)$	$0.724^{+0.056}_{-0.069}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.023}_{-0.022}$	$z_{*}$	$1089.6^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	$0.460^{+0.032}_{-0.039}$
$\Omega_{\mathrm{m}}h^2$	$0.1388^{+0.0055}_{-0.0056}$	$r_{*}$	$146.3^{+2.6}_{-2.4}$	$\sigma_8(0.38)$	$0.643^{+0.050}_{-0.061}$
$\Omega_{\nu}h^2$	$< 0.00808$	$100\theta_{*}$	$1.0412^{+0.0016}_{-0.0016}$	$f\sigma_8(0.51)$	$0.460^{+0.031}_{-0.039}$
$\Omega_{\mathrm{m}}h^3$	$0.0935^{+0.0042}_{-0.0047}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.05^{+0.25}_{-0.23}$	$\sigma_8(0.51)$	$0.602^{+0.047}_{-0.058}$
$\sigma_8$	$0.782^{+0.060}_{-0.074}$	$z_{\mathrm{drag}}$	$1059.0^{+3.0}_{-3.1}$	$f\sigma_8(0.61)$	$0.456^{+0.031}_{-0.038}$
$S_8$	$0.790^{+0.064}_{-0.072}$	$r_{\mathrm{drag}}$	$149.1^{+2.9}_{-2.7}$	$\sigma_8(0.61)$	$0.573^{+0.044}_{-0.055}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.433^{+0.035}_{-0.039}$	$k_{\mathrm{D}}$	$0.1387^{+0.0035}_{-0.0036}$	$f\sigma_8(2.33)$	$0.293^{+0.020}_{-0.024}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.582^{+0.044}_{-0.054}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	$0.300^{+0.022}_{-0.027}$
$\sigma_8/h^{0.5}$	$0.953^{+0.069}_{-0.084}$	$z_{\mathrm{eq}}$	$3237^{+190}_{-230}$	$\chi^2_{\mathrm{lensing}}$	$9.2 (\nu: 1.6)$
$r_{\mathrm{drag}}h$	$100.4^{+3.1}_{-2.8}$	$k_{\mathrm{eq}}$	$0.00988^{+0.00059}_{-0.00068}$	$\chi^2_{6\mathrm{DF}}$	$0.056 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.53^{+0.14}_{-0.13}$	$100\theta_{\mathrm{eq}}$	$0.844^{+0.048}_{-0.036}$	$\chi^2_{\mathrm{MGS}}$	$1.72 (\nu: 0.2)$
$z_{\mathrm{re}}$	$7.72^{+0.30}_{-0.28}$	$100\theta_{\mathrm{s,eq}}$	$0.466^{+0.025}_{-0.019}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3 (\nu: 1.0)$
$10^9A_{\mathrm{s}}$	$2.41^{+0.56}_{-0.41}$	$H(0.15)$	$72.5^{+1.9}_{-1.9}$	$\chi^2_{\mathrm{prior}}$	$3.0 (\nu: 2.8)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.16^{+0.51}_{-0.37}$	$D_{\mathrm{M}}(0.15)$	$644^{+19}_{-18}$	$\chi^2_{\mathrm{BAO}}$	$6.1 (\nu: 1.0)$
$D_{40}$	$1439^{+300}_{-300}$	$H(0.38)$	$82.4^{+1.7}_{-1.8}$		
$D_{220}$	$6792^{+2000}_{-1000}$	$D_{\mathrm{M}}(0.38)$	$1538^{+41}_{-38}$		

$\bar{\chi}^2_{\mathrm{eff}} = 18.22$ ;  $R - 1 = 0.00182$



# 6.121 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_agr2takahashi

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0012}_{-0.0013}$	$D_{810}$	$2984^{+800}_{-600}$	$H(0.51)$	$88.9^{+1.7}_{-1.7}$
$\Omega_{\mathrm{c}}h^2$	$0.1120^{+0.0083}_{-0.0085}$	$D_{1420}$	$951^{+300}_{-200}$	$D_{\mathrm{M}}(0.51)$	$1997^{+49}_{-48}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{2000}$	$267^{+70}_{-60}$	$H(0.61)$	$94.4^{+1.7}_{-1.7}$
$\Sigma m_{\nu}$ [eV]	$< 0.788$	$n_{\mathrm{s},0.002}$	$0.960^{+0.051}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2324^{+55}_{-54}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.19^{+0.21}_{-0.20}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00052}_{-0.00054}$	$H(2.33)$	$232.9^{+4.2}_{-4.2}$
$n_{\mathrm{s}}$	$0.960^{+0.051}_{-0.052}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00053}_{-0.00054}$	$D_{\mathrm{M}}(2.33)$	$5824^{+100}_{-97}$
$H_0$	$67.2^{+2.1}_{-2.0}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	$0.433^{+0.030}_{-0.032}$
$\Omega_{\Lambda}$	$0.694^{+0.023}_{-0.022}$	Age/Gyr	$13.94^{+0.24}_{-0.23}$	$\sigma_8(0.15)$	$0.710^{+0.055}_{-0.061}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.022}_{-0.023}$	$z_{*}$	$1089.5^{+1.7}_{-1.5}$	$f\sigma_8(0.38)$	$0.452^{+0.030}_{-0.033}$
$\Omega_{\mathrm{m}}h^2$	$0.1383^{+0.0055}_{-0.0054}$	$r_{*}$	$146.6^{+2.5}_{-2.5}$	$\sigma_8(0.38)$	$0.631^{+0.049}_{-0.055}$
$\Omega_{\nu}h^2$	$< 0.00847$	$100\theta_{*}$	$1.0413^{+0.0016}_{-0.0016}$	$f\sigma_8(0.51)$	$0.452^{+0.029}_{-0.034}$
$\Omega_{\mathrm{m}}h^3$	$0.0929^{+0.0045}_{-0.0044}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.08^{+0.24}_{-0.24}$	$\sigma_8(0.51)$	$0.591^{+0.046}_{-0.052}$
$\sigma_8$	$0.767^{+0.059}_{-0.066}$	$z_{\mathrm{drag}}$	$1059.0^{+3.0}_{-3.1}$	$f\sigma_8(0.61)$	$0.448^{+0.029}_{-0.033}$
$S_8$	$0.775^{+0.059}_{-0.062}$	$r_{\mathrm{drag}}$	$149.4^{+2.8}_{-2.8}$	$\sigma_8(0.61)$	$0.563^{+0.044}_{-0.049}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.424^{+0.032}_{-0.034}$	$k_{\mathrm{D}}$	$0.1384^{+0.0035}_{-0.0035}$	$f\sigma_8(2.33)$	$0.288^{+0.019}_{-0.022}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.571^{+0.042}_{-0.046}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	$0.295^{+0.022}_{-0.025}$
$\sigma_8/h^{0.5}$	$0.936^{+0.066}_{-0.073}$	$z_{\mathrm{eq}}$	$3207^{+210}_{-210}$	$\chi^2_{\mathrm{lensing}}$	$11.8\ (\nu: 1.7)$
$r_{\mathrm{drag}}h$	$100.4^{+3.1}_{-2.8}$	$k_{\mathrm{eq}}$	$0.00979^{+0.00063}_{-0.00063}$	$\chi^2_{6\mathrm{DF}}$	$0.055\ (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.53^{+0.14}_{-0.14}$	$100\theta_{\mathrm{eq}}$	$0.851^{+0.044}_{-0.039}$	$\chi^2_{\mathrm{MGS}}$	$1.73\ (\nu: 0.2)$
$z_{\mathrm{re}}$	$7.71^{+0.29}_{-0.27}$	$100\theta_{\mathrm{s,eq}}$	$0.469^{+0.023}_{-0.020}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.3\ (\nu: 1.0)$
$10^9A_{\mathrm{s}}$	$2.45^{+0.56}_{-0.46}$	$H(0.15)$	$72.4^{+1.9}_{-1.9}$	$\chi^2_{\mathrm{prior}}$	$3.0\ (\nu: 2.8)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.19^{+0.50}_{-0.41}$	$D_{\mathrm{M}}(0.15)$	$646^{+19}_{-18}$	$\chi^2_{\mathrm{BAO}}$	$6.1\ (\nu: 0.9)$
$D_{40}$	$1469^{+300}_{-300}$	$H(0.38)$	$82.3^{+1.7}_{-1.7}$		
$D_{220}$	$6952^{+2000}_{-1000}$	$D_{\mathrm{M}}(0.38)$	$1541^{+40}_{-39}$		

$\bar{\chi}^2_{\mathrm{eff}} = 20.91$ ;  $R - 1 = 0.00288$



## 6.122 base\_mnu\_lensing\_lenspriors\_BAO\_theta\_post\_Apr6

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0222^{+0.0012}_{-0.0013}$	$D_{810}$	$2893^{+700}_{-500}$	$H(0.51)$	$89.1^{+1.5}_{-1.7}$
$\Omega_{\mathrm{c}}h^2$	$0.1139^{+0.0074}_{-0.0090}$	$D_{1420}$	$925^{+200}_{-200}$	$D_{\mathrm{M}}(0.51)$	$1991^{+49}_{-45}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0015}$	$D_{2000}$	$260^{+70}_{-50}$	$H(0.61)$	$94.7^{+1.5}_{-1.7}$
$\Sigma m_{\nu}$ [eV]	$< 0.700$	$n_{\mathrm{s},0.002}$	$0.963^{+0.049}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	$2318^{+55}_{-50}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.17^{+0.21}_{-0.17}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00053}_{-0.00054}$	$H(2.33)$	$233.6^{+4.2}_{-4.3}$
$n_{\mathrm{s}}$	$0.963^{+0.049}_{-0.051}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00053}_{-0.00054}$	$D_{\mathrm{M}}(2.33)$	$5807^{+100}_{-85}$
$H_0$	$67.4^{+2.0}_{-2.1}$	$10^5\mathrm{D}/\mathrm{H}$	$2.63^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	$0.443^{+0.030}_{-0.035}$
$\Omega_{\Lambda}$	$0.694^{+0.022}_{-0.023}$	Age/Gyr	$13.90^{+0.24}_{-0.20}$	$\sigma_8(0.15)$	$0.728^{+0.051}_{-0.064}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.023}_{-0.022}$	$z_{*}$	$1089.7^{+1.7}_{-1.6}$	$f\sigma_8(0.38)$	$0.463^{+0.029}_{-0.035}$
$\Omega_{\mathrm{m}}h^2$	$0.1391^{+0.0055}_{-0.0055}$	$r_{*}$	$146.1^{+2.6}_{-2.2}$	$\sigma_8(0.38)$	$0.647^{+0.046}_{-0.057}$
$\Omega_{\nu}h^2$	$< 0.00753$	$100\theta_{*}$	$1.0412^{+0.0016}_{-0.0016}$	$f\sigma_8(0.51)$	$0.462^{+0.029}_{-0.035}$
$\Omega_{\mathrm{m}}h^3$	$0.0938^{+0.0040}_{-0.0047}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.03^{+0.25}_{-0.22}$	$\sigma_8(0.51)$	$0.606^{+0.043}_{-0.053}$
$\sigma_8$	$0.787^{+0.055}_{-0.069}$	$z_{\mathrm{drag}}$	$1059.1^{+3.0}_{-3.1}$	$f\sigma_8(0.61)$	$0.458^{+0.029}_{-0.035}$
$S_8$	$0.795^{+0.060}_{-0.069}$	$r_{\mathrm{drag}}$	$148.9^{+2.9}_{-2.6}$	$\sigma_8(0.61)$	$0.577^{+0.041}_{-0.050}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.436^{+0.033}_{-0.038}$	$k_{\mathrm{D}}$	$0.1389^{+0.0034}_{-0.0035}$	$f\sigma_8(2.33)$	$0.294^{+0.018}_{-0.022}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.586^{+0.041}_{-0.050}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	$0.302^{+0.021}_{-0.025}$
$\sigma_8/h^{0.5}$	$0.959^{+0.064}_{-0.078}$	$z_{\mathrm{eq}}$	$3252^{+180}_{-220}$	$\chi^2_{\mathrm{lensing}}$	$8.0 (\nu: 1.6)$
$r_{\mathrm{drag}}h$	$100.3^{+3.0}_{-2.8}$	$k_{\mathrm{eq}}$	$0.00993^{+0.00056}_{-0.00067}$	$\chi^2_{6\mathrm{DF}}$	$0.056 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.52^{+0.14}_{-0.13}$	$100\theta_{\mathrm{eq}}$	$0.841^{+0.046}_{-0.034}$	$\chi^2_{\mathrm{MGS}}$	$1.71 (\nu: 0.2)$
$z_{\mathrm{re}}$	$7.73^{+0.29}_{-0.27}$	$100\theta_{\mathrm{s,eq}}$	$0.464^{+0.024}_{-0.018}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.4 (\nu: 1.0)$
$10^9A_{\mathrm{s}}$	$2.38^{+0.56}_{-0.39}$	$H(0.15)$	$72.6^{+1.9}_{-1.9}$	$\chi^2_{\mathrm{prior}}$	$2.9 (\nu: 2.8)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$2.13^{+0.50}_{-0.35}$	$D_{\mathrm{M}}(0.15)$	$644^{+19}_{-17}$	$\chi^2_{\mathrm{BAO}}$	$6.1 (\nu: 1.0)$
$D_{40}$	$1416^{+300}_{-200}$	$H(0.38)$	$82.5^{+1.6}_{-1.8}$		
$D_{220}$	$6672^{+2000}_{-1000}$	$D_{\mathrm{M}}(0.38)$	$1536^{+40}_{-37}$		

$\bar{\chi}^2_{\mathrm{eff}} = 17.02$ ;  $R - 1 = 0.00149$



### 6.123 base\_mnu\_lensing\_lenspriors\_pttagr2

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.0222^{+0.0013}_{-0.0013}$	$D_{40}$	2016	$1359^{+1000}_{-700}$	$H(0.15)$	92.8	$76^{+30}_{-30}$
$\Omega_c h^2$	0.105	$0.143^{+0.077}_{-0.068}$	$D_{220}$	9220	$6093^{+5000}_{-4000}$	$D_M(0.15)$	495	$658^{+300}_{-200}$
$100\theta_{MC}$	1.096	$1.09^{+0.15}_{-0.17}$	$D_{810}$	3677	$2457^{+2000}_{-2000}$	$H(0.38)$	100.3	$89^{+30}_{-30}$
$\Sigma m_\nu$ [eV]	0.45	—	$D_{1420}$	1066	$733^{+600}_{-500}$	$D_M(0.38)$	1211	$1529^{+700}_{-500}$
$\ln(10^{10} A_s)$	3.458	$3.15^{+0.46}_{-0.50}$	$D_{2000}$	305	$221^{+300}_{-200}$	$H(0.51)$	105.5	$97^{+30}_{-30}$
$n_s$	0.9609	$0.959^{+0.046}_{-0.053}$	$n_{s,0.002}$	0.9609	$0.959^{+0.046}_{-0.053}$	$D_M(0.51)$	1590	$1959^{+900}_{-600}$
$H_0$	89.0	—	$Y_P$	0.24533	$0.24531^{+0.00054}_{-0.00058}$	$H(0.61)$	110.0	$104^{+30}_{-30}$
$\Omega_\Lambda$	0.83	$0.52^{+0.39}_{-0.93}$	$Y_P^{BBN}$	0.24665	$0.24664^{+0.00054}_{-0.00058}$	$D_M(0.61)$	1869	$2264^{+1000}_{-700}$
$\Omega_m$	0.17	$0.48^{+0.93}_{-0.39}$	$10^5 D/H$	2.617	$2.62^{+0.27}_{-0.23}$	$H(2.33)$	235	$267^{+70}_{-70}$
$\Omega_m h^2$	0.132	$0.187^{+0.10}_{-0.089}$	Age/Gyr	12.40	$13.0^{+4.8}_{-3.5}$	$D_M(2.33)$	5134	$5411^{+2000}_{-1000}$
$\Omega_\nu h^2$	0.0048	$< 0.0520$	$z_*$	1088.8	$1092.9^{+7.5}_{-6.7}$	$f\sigma_8(0.15)$	0.362	$0.427^{+0.068}_{-0.096}$
$\Omega_m h^3$	0.117	$0.129^{+0.13}_{-0.090}$	$r_*$	148.6	$138^{+20}_{-20}$	$\sigma_8(0.15)$	0.807	$0.63^{+0.24}_{-0.22}$
$\sigma_8$	0.853	$0.68^{+0.23}_{-0.21}$	$100\theta_*$	1.097	$1.09^{+0.15}_{-0.17}$	$f\sigma_8(0.38)$	0.413	$0.421^{+0.044}_{-0.064}$
$S_8$	0.635	$0.80^{+0.29}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	13.55	$12.7^{+4.1}_{-3.0}$	$\sigma_8(0.38)$	0.738	$0.55^{+0.25}_{-0.22}$
$\sigma_8 \Omega_m^{0.5}$	0.348	$0.44^{+0.16}_{-0.12}$	$z_{\text{drag}}$	1058.5	$1061.8^{+7.1}_{-7.1}$	$f\sigma_8(0.51)$	0.432	$0.412^{+0.052}_{-0.093}$
$\sigma_8 \Omega_m^{0.25}$	0.5445	$0.541^{+0.046}_{-0.048}$	$r_{\text{drag}}$	151.4	$141^{+20}_{-20}$	$\sigma_8(0.51)$	0.701	$0.51^{+0.24}_{-0.21}$
$\sigma_8/h^{0.5}$	0.904	$0.83^{+0.15}_{-0.12}$	$k_D$	0.1363	$0.149^{+0.023}_{-0.021}$	$f\sigma_8(0.61)$	0.441	$0.404^{+0.062}_{-0.11}$
$r_{\text{drag}} h$	134.7	$97^{+50}_{-50}$	$100\theta_D$	0.1701	$0.168^{+0.020}_{-0.024}$	$\sigma_8(0.61)$	0.674	$0.49^{+0.24}_{-0.22}$
$\langle d^2 \rangle^{1/2}$	2.627	$2.60^{+0.19}_{-0.18}$	$z_{\text{eq}}$	3030	$3950^{+2000}_{-2000}$	$f\sigma_8(2.33)$	0.355	$0.25^{+0.13}_{-0.12}$
$z_{\text{re}}$	7.71	$8.5^{+1.6}_{-1.6}$	$k_{\text{eq}}$	0.0093	$0.0121^{+0.0058}_{-0.0050}$	$\sigma_8(2.33)$	0.376	$0.26^{+0.16}_{-0.13}$
$10^9 A_s$	3.17	$2.38^{+1.3}_{-0.97}$	$100\theta_{\text{eq}}$	0.935	$0.79^{+0.22}_{-0.17}$	$\chi^2_{\text{lensing}}$	15.5	$18.6 (\nu: 2.3)$
$10^9 A_s e^{-2\tau}$	2.84	$2.13^{+1.2}_{-0.87}$	$100\theta_{s,\text{eq}}$	0.514	$0.438^{+0.12}_{-0.089}$	$\chi^2_{\text{prior}}$	0.00	$2.0 (\nu: 2.0)$

Best-fit  $\chi^2_{\text{eff}} = 15.50$ ;  $\bar{\chi}^2_{\text{eff}} = 20.55$ ;  $R - 1 = 0.00794$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpttptt\_p\_teb\_agr2\_CMBmargd: 15.50



# 6.124 base\_mnu\_lensing\_lenspriors\_pttagr2\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.0222^{+0.0013}_{-0.0012}$	$D_{40}$	1858	$1373^{+900}_{-600}$	$H(0.15)$	76.7	$64^{+20}_{-10}$
$\Omega_c h^2$	0.0991	$0.128^{+0.044}_{-0.044}$	$D_{220}$	8962	$6521^{+5000}_{-3000}$	$D_M(0.15)$	604	$768^{+200}_{-200}$
$100\theta_{MC}$	1.04090	$1.0409^{+0.0016}_{-0.0015}$	$D_{810}$	3670	$2894^{+2000}_{-1000}$	$H(0.38)$	85.3	$77^{+10}_{-6}$
$\Sigma m_\nu$ [eV]	0.36	< 3.26	$D_{1420}$	1155	$935^{+500}_{-400}$	$D_M(0.38)$	1458	$1758^{+400}_{-400}$
$\ln(10^{10} A_s)$	3.393	$3.15^{+0.46}_{-0.41}$	$D_{2000}$	322	$264^{+100}_{-100}$	$H(0.51)$	91.1	$86^{+10}_{-4}$
$n_s$	0.960	$0.959^{+0.050}_{-0.051}$	$n_{s,0.002}$	0.960	$0.959^{+0.050}_{-0.051}$	$D_M(0.51)$	1900	$2238^{+400}_{-500}$
$H_0$	72.4	< 81.0	$Y_P$	0.24533	$0.24532^{+0.00056}_{-0.00053}$	$H(0.61)$	96.0	$92.6^{+8.3}_{-3.0}$
$\Omega_\Lambda$	0.76	$0.38^{+0.48}_{-0.75}$	$Y_P^{BBN}$	0.24665	$0.24664^{+0.00056}_{-0.00053}$	$D_M(0.61)$	2221	$2574^{+400}_{-500}$
$\Omega_m$	0.24	$0.62^{+0.74}_{-0.48}$	$10^5 D/H$	2.617	$2.62^{+0.25}_{-0.23}$	$H(2.33)$	224.1	$250^{+40}_{-40}$
$\Omega_m h^2$	0.125	$0.166^{+0.057}_{-0.058}$	Age/Gyr	13.86	$14.30^{+0.46}_{-0.76}$	$D_M(2.33)$	5776	$5957^{+180}_{-350}$
$\Omega_\nu h^2$	0.0039	< 0.0350	$z_*$	1088.28	$1091.4^{+4.8}_{-5.0}$	$f\sigma_8(0.15)$	0.398	$0.443^{+0.053}_{-0.099}$
$\Omega_m h^3$	0.09058	$0.0902^{+0.0047}_{-0.0044}$	$r_*$	150.3	$142^{+13}_{-12}$	$\sigma_8(0.15)$	0.736	$0.58^{+0.23}_{-0.18}$
$\sigma_8$	0.788	$0.64^{+0.22}_{-0.17}$	$100\theta_*$	1.04129	$1.0414^{+0.0017}_{-0.0015}$	$f\sigma_8(0.38)$	0.432	$0.417^{+0.049}_{-0.058}$
$S_8$	0.703	$0.85^{+0.22}_{-0.25}$	$D_M(z_*)/\text{Gpc}$	14.43	$13.6^{+1.3}_{-1.1}$	$\sigma_8(0.38)$	0.662	$0.51^{+0.23}_{-0.18}$
$\sigma_8 \Omega_m^{0.5}$	0.385	$0.47^{+0.12}_{-0.14}$	$z_{\text{drag}}$	1058.0	$1060.6^{+5.1}_{-5.5}$	$f\sigma_8(0.51)$	0.440	$0.401^{+0.065}_{-0.078}$
$\sigma_8 \Omega_m^{0.25}$	0.5508	$0.542^{+0.047}_{-0.042}$	$r_{\text{drag}}$	153.1	$145^{+14}_{-12}$	$\sigma_8(0.51)$	0.624	$0.47^{+0.23}_{-0.17}$
$\sigma_8/h^{0.5}$	0.926	$0.86^{+0.13}_{-0.11}$	$k_D$	0.1346	$0.144^{+0.014}_{-0.015}$	$f\sigma_8(0.61)$	0.441	$0.388^{+0.076}_{-0.088}$
$r_{\text{drag}} h$	110.8	$82^{+50}_{-30}$	$100\theta_D$	0.16171	$0.1602^{+0.0032}_{-0.0029}$	$\sigma_8(0.61)$	0.596	$0.45^{+0.23}_{-0.16}$
$\langle d^2 \rangle^{1/2}$	2.632	$2.62^{+0.16}_{-0.16}$	$z_{\text{eq}}$	2898	$3581^{+1000}_{-1000}$	$f\sigma_8(2.33)$	0.309	$0.227^{+0.12}_{-0.090}$
$z_{\text{re}}$	7.49	$8.10^{+0.92}_{-0.96}$	$k_{\text{eq}}$	0.00885	$0.0110^{+0.0033}_{-0.0032}$	$\sigma_8(2.33)$	0.320	$0.229^{+0.14}_{-0.095}$
$10^9 A_s$	2.97	$2.39^{+1.3}_{-0.88}$	$100\theta_{\text{eq}}$	0.918	$0.80^{+0.21}_{-0.15}$	$\chi^2_{\text{lensing}}$	15.72	$18.3 (\nu: 2.1)$
$10^9 A_s e^{-2\tau}$	2.66	$2.14^{+1.1}_{-0.79}$	$100\theta_{s,\text{eq}}$	0.504	$0.442^{+0.11}_{-0.080}$	$\chi^2_{\text{prior}}$	0.0	$3.0 (\nu: 3.0)$

Best-fit  $\chi^2_{\text{eff}} = 15.72$ ;  $\bar{\chi}^2_{\text{eff}} = 21.22$ ;  $R - 1 = 0.00948$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpttptt\_p\_teb\_agr2\_CMBmargd: 15.72



## 6.125 base\_mnu\_lensing\_lenspriors\_pttagr2\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.0222^{+0.0012}_{-0.0013}$	$D_{810}$	2869	$2561^{+1000}_{-1000}$	$H(0.51)$	94.3	$97^{+10}_{-10}$
$\Omega_c h^2$	0.133	$0.144^{+0.059}_{-0.048}$	$D_{1420}$	869	$750^{+500}_{-400}$	$D_M(0.51)$	1918	$1882^{+180}_{-190}$
$100\theta_{MC}$	1.089	$1.103^{+0.074}_{-0.086}$	$D_{2000}$	253	$216^{+100}_{-100}$	$H(0.61)$	100.7	$104^{+20}_{-10}$
$\Sigma m_\nu$ [eV]	1.50	$1.9^{+2.5}_{-1.8}$	$n_{s,0.002}$	0.960	$0.959^{+0.050}_{-0.052}$	$D_M(0.61)$	2225	$2182^{+220}_{-230}$
$\ln(10^{10} A_s)$	3.224	$3.16^{+0.29}_{-0.31}$	$Y_P$	0.24532	$0.24532^{+0.00053}_{-0.00055}$	$H(2.33)$	257	$267^{+50}_{-50}$
$n_s$	0.960	$0.959^{+0.050}_{-0.052}$	$Y_P^{BBN}$	0.24664	$0.24664^{+0.00053}_{-0.00055}$	$D_M(2.33)$	5438	$5300^{+800}_{-700}$
$H_0$	68.6	$69.6^{+5.5}_{-4.5}$	$10^5 D/H$	2.622	$2.62^{+0.25}_{-0.22}$	$f\sigma_8(0.15)$	0.4292	$0.431^{+0.039}_{-0.038}$
$\Omega_\Lambda$	0.637	$0.62^{+0.11}_{-0.11}$	Age/Gyr	13.01	$12.7^{+1.9}_{-1.7}$	$\sigma_8(0.15)$	0.645	$0.635^{+0.094}_{-0.076}$
$\Omega_m$	0.363	$0.38^{+0.11}_{-0.11}$	$z_*$	1091.9	$1093.0^{+6.1}_{-5.1}$	$f\sigma_8(0.38)$	0.4364	$0.434^{+0.036}_{-0.038}$
$\Omega_m h^2$	0.171	$0.187^{+0.084}_{-0.065}$	$r_*$	140.4	$138^{+14}_{-14}$	$\sigma_8(0.38)$	0.568	$0.559^{+0.090}_{-0.072}$
$\Omega_\nu h^2$	0.0161	$0.021^{+0.026}_{-0.020}$	$100\theta_*$	1.090	$1.104^{+0.074}_{-0.086}$	$f\sigma_8(0.51)$	0.4308	$0.427^{+0.039}_{-0.040}$
$\Omega_m h^3$	0.117	$0.130^{+0.072}_{-0.051}$	$D_M(z_*)/\text{Gpc}$	12.89	$12.5^{+2.4}_{-2.0}$	$\sigma_8(0.51)$	0.531	$0.521^{+0.088}_{-0.069}$
$\sigma_8$	0.701	$0.693^{+0.094}_{-0.078}$	$z_{\text{drag}}$	1060.9	$1061.9^{+5.5}_{-5.5}$	$f\sigma_8(0.61)$	0.4236	$0.419^{+0.041}_{-0.042}$
$S_8$	0.771	$0.779^{+0.081}_{-0.078}$	$r_{\text{drag}}$	143.1	$140^{+14}_{-14}$	$\sigma_8(0.61)$	0.504	$0.495^{+0.085}_{-0.067}$
$\sigma_8 \Omega_m^{0.5}$	0.4224	$0.427^{+0.044}_{-0.043}$	$k_D$	0.1456	$0.149^{+0.018}_{-0.016}$	$f\sigma_8(2.33)$	0.2618	$0.256^{+0.042}_{-0.038}$
$\sigma_8 \Omega_m^{0.25}$	0.5443	$0.544^{+0.047}_{-0.047}$	$100\theta_D$	0.1675	$0.1692^{+0.0096}_{-0.011}$	$\sigma_8(2.33)$	0.2627	$0.257^{+0.049}_{-0.039}$
$\sigma_8/h^{0.5}$	0.847	$0.83^{+0.13}_{-0.11}$	$z_{\text{eq}}$	3698	$3964^{+1000}_{-1000}$	$\chi^2_{\text{lensing}}$	16.0	$18.4 (\nu: 2.1)$
$r_{\text{drag}} h$	98.21	$97.5^{+5.1}_{-4.6}$	$k_{\text{eq}}$	0.01134	$0.0122^{+0.0045}_{-0.0036}$	$\chi^2_{6\text{DF}}$	0.14	$0.35 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	2.621	$2.60^{+0.17}_{-0.16}$	$100\theta_{\text{eq}}$	0.804	$0.78^{+0.14}_{-0.11}$	$\chi^2_{\text{MGS}}$	0.82	$0.79 (\nu: 0.2)$
$z_{\text{re}}$	8.29	$8.5^{+1.2}_{-1.2}$	$100\theta_{s,\text{eq}}$	0.446	$0.435^{+0.070}_{-0.058}$	$\chi^2_{\text{DR12BAO}}$	2.09	$3.6 (\nu: 1.2)$
$10^9 A_s$	2.51	$2.38^{+0.78}_{-0.64}$	$H(0.15)$	74.9	$76.2^{+7.6}_{-6.1}$	$\chi^2_{\text{prior}}$	0.00	$2.0 (\nu: 1.9)$
$10^9 A_s e^{-2\tau}$	2.25	$2.13^{+0.70}_{-0.58}$	$D_M(0.15)$	628.0	$619^{+47}_{-51}$	$\chi^2_{\text{BAO}}$	3.05	$4.7 (\nu: 1.4)$
$D_{40}$	1429	$1340^{+500}_{-400}$	$H(0.38)$	86.6	$89^{+10}_{-9}$			
$D_{220}$	6538	$5992^{+3000}_{-3000}$	$D_M(0.38)$	1486	$1460^{+130}_{-140}$			

Best-fit  $\chi^2_{\text{eff}} = 19.07$ ;  $\bar{\chi}^2_{\text{eff}} = 25.07$ ;  $R - 1 = 0.00956$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.14 MGS: 0.82 DR12BAO: 2.10 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpttptt\_p\_teb\_agr2\_CMBmargd: 16.01



## 6.126 base\_mnu\_lensing\_lenspriors\_pttagr2\_BAO\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02219	$0.0222^{+0.0013}_{-0.0012}$	$D_{810}$	3439	$3410^{+800}_{-800}$	$H(0.51)$	88.14	$88.2^{+1.9}_{-1.6}$
$\Omega_c h^2$	0.1069	$0.107^{+0.010}_{-0.0083}$	$D_{1420}$	1092	$1083^{+300}_{-300}$	$D_M(0.51)$	2013	$2013^{+49}_{-51}$
$100\theta_{MC}$	1.04088	$1.0409^{+0.0016}_{-0.0016}$	$D_{2000}$	306	$304^{+80}_{-80}$	$H(0.61)$	93.61	$93.7^{+1.9}_{-1.6}$
$\Sigma m_\nu$ [eV]	0.639	$0.62^{+0.44}_{-0.51}$	$n_{s,0.002}$	0.959	$0.959^{+0.051}_{-0.052}$	$D_M(0.61)$	2343	$2343^{+55}_{-58}$
$\ln(10^{10} A_s)$	3.334	$3.32^{+0.20}_{-0.26}$	$Y_P$	0.24532	$0.24531^{+0.00054}_{-0.00053}$	$H(2.33)$	230.95	$231.2^{+4.6}_{-3.9}$
$n_s$	0.959	$0.959^{+0.051}_{-0.052}$	$Y_P^{BBN}$	0.24665	$0.24663^{+0.00054}_{-0.00053}$	$D_M(2.33)$	5871	$5868^{+99}_{-120}$
$H_0$	66.67	$66.7^{+2.2}_{-2.0}$	$10^5 D/H$	2.620	$2.62^{+0.25}_{-0.23}$	$f\sigma_8(0.15)$	0.4197	$0.420^{+0.033}_{-0.034}$
$\Omega_\Lambda$	0.6940	$0.693^{+0.023}_{-0.024}$	Age/Gyr	14.058	$14.05^{+0.24}_{-0.27}$	$\sigma_8(0.15)$	0.685	$0.686^{+0.061}_{-0.061}$
$\Omega_m$	0.3060	$0.307^{+0.024}_{-0.023}$	$z_*$	1089.14	$1089.2^{+1.7}_{-1.5}$	$f\sigma_8(0.38)$	0.4389	$0.439^{+0.033}_{-0.035}$
$\Omega_m h^2$	0.1360	$0.1363^{+0.0057}_{-0.0050}$	$r_*$	147.83	$147.7^{+2.3}_{-2.8}$	$\sigma_8(0.38)$	0.609	$0.610^{+0.054}_{-0.054}$
$\Omega_\nu h^2$	0.0069	$0.0067^{+0.0048}_{-0.0055}$	$100\theta_*$	1.04136	$1.0414^{+0.0016}_{-0.0016}$	$f\sigma_8(0.51)$	0.4388	$0.439^{+0.033}_{-0.035}$
$\Omega_m h^3$	0.09068	$0.0909^{+0.0053}_{-0.0041}$	$D_M(z_*)/\text{Gpc}$	14.196	$14.19^{+0.22}_{-0.27}$	$\sigma_8(0.51)$	0.571	$0.571^{+0.051}_{-0.051}$
$\sigma_8$	0.740	$0.741^{+0.065}_{-0.065}$	$z_{\text{drag}}$	1058.67	$1058.7^{+3.0}_{-3.1}$	$f\sigma_8(0.61)$	0.4350	$0.435^{+0.032}_{-0.035}$
$S_8$	0.748	$0.749^{+0.066}_{-0.063}$	$r_{\text{drag}}$	150.63	$150.5^{+2.7}_{-3.1}$	$\sigma_8(0.61)$	0.5440	$0.544^{+0.048}_{-0.049}$
$\sigma_8 \Omega_m^{0.5}$	0.4095	$0.410^{+0.036}_{-0.035}$	$k_D$	0.13721	$0.1373^{+0.0036}_{-0.0033}$	$f\sigma_8(2.33)$	0.2820	$0.282^{+0.021}_{-0.023}$
$\sigma_8 \Omega_m^{0.25}$	0.5506	$0.551^{+0.047}_{-0.047}$	$100\theta_D$	0.16129	$0.1613^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	0.2867	$0.287^{+0.024}_{-0.025}$
$\sigma_8/h^{0.5}$	0.907	$0.908^{+0.071}_{-0.073}$	$z_{\text{eq}}$	3086	$3096^{+250}_{-200}$	$\chi^2_{\text{lensing}}$	15.79	$17.8 (\nu: 1.9)$
$r_{\text{drag}} h$	100.43	$100.4^{+3.1}_{-2.9}$	$k_{\text{eq}}$	0.00943	$0.00946^{+0.00076}_{-0.00060}$	$\chi^2_{6\text{DF}}$	0.000	$0.055 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	2.637	$2.63^{+0.16}_{-0.17}$	$100\theta_{\text{eq}}$	0.8758	$0.874^{+0.046}_{-0.051}$	$\chi^2_{\text{MGS}}$	1.68	$1.71 (\nu: 0.2)$
$z_{\text{re}}$	7.661	$7.67^{+0.29}_{-0.28}$	$100\theta_{s,\text{eq}}$	0.4821	$0.481^{+0.024}_{-0.027}$	$\chi^2_{\text{DR12BAO}}$	3.40	$4.3 (\nu: 1.0)$
$10^9 A_s$	2.81	$2.78^{+0.61}_{-0.64}$	$H(0.15)$	71.79	$71.8^{+2.0}_{-1.9}$	$\chi^2_{\text{prior}}$	0.0	$3.0 (\nu: 2.9)$
$10^9 A_s e^{-2\tau}$	2.51	$2.49^{+0.55}_{-0.58}$	$D_M(0.15)$	650.6	$651^{+19}_{-19}$	$\chi^2_{\text{BAO}}$	5.08	$6.1 (\nu: 1.0)$
$D_{40}$	1694	$1677^{+300}_{-300}$	$H(0.38)$	81.61	$81.6^{+1.9}_{-1.7}$			
$D_{220}$	8161	$8082^{+2000}_{-2000}$	$D_M(0.38)$	1553.1	$1553^{+40}_{-42}$			

Best-fit  $\chi^2_{\text{eff}} = 20.88$ ;  $\bar{\chi}^2_{\text{eff}} = 26.80$ ;  $R - 1 = 0.01217$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.40 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpttptt\_p\_teb\_agr2\_CMBmarged: 15.79

## 6.127 base\_mnu\_lensing\_DESpriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_m$	0.311	$0.32^{+0.20}_{-0.14}$	$\Omega_b h^2$	0.0250	$0.026^{+0.026}_{-0.016}$	$S_8$	0.802	$0.80^{+0.14}_{-0.14}$
$\Omega_b$	0.0540	—	$\Omega_c h^2$	0.114	$0.126^{+0.071}_{-0.048}$	$\sigma_8 \Omega_m^{0.5}$	0.439	$0.440^{+0.077}_{-0.076}$
$H_0$	68.1	—	$\Omega_\Lambda$	0.689	$0.68^{+0.14}_{-0.20}$	$\sigma_8 \Omega_m^{0.25}$	0.588	$0.586^{+0.052}_{-0.052}$
$\Sigma m_\nu$ [eV]	0.513	—	$\Omega_\nu h^2$	0.0055	$0.0058^{+0.0050}_{-0.0052}$	$\chi^2_{\text{lensing}}$	7.2	$9.5 (\nu: 2.0)$
$10^9 A_s$	2.68	$2.42^{+1.2}_{-0.86}$	$\ln(10^{10} A_s)$	3.287	$3.17^{+0.42}_{-0.42}$			
$n_s$	1.017	—	$\sigma_8$	0.787	$0.78^{+0.12}_{-0.11}$			

Best-fit  $\chi^2_{\text{eff}} = 7.25$ ;  $\bar{\chi}^2_{\text{eff}} = 9.49$ ;  $R - 1 = 0.00994$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.25



### 6.128 base\_mnu\_lensing\_DESpriors\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.362	$0.334^{+0.083}_{-0.066}$	$\Omega_{\text{c}}h^2$	0.135	$0.133^{+0.068}_{-0.053}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.583	$0.588^{+0.051}_{-0.050}$
$\Omega_{\text{b}}$	0.0445	—	$\Omega_{\Lambda}$	0.638	$0.666^{+0.066}_{-0.083}$	$\chi^2_{\text{lensing}}$	7.59	9.6 ( $\nu$ : 2.0)
$H_0$	67.8	$70^{+20}_{-10}$	$\Omega_{\nu}h^2$	0.0107	$0.0067^{+0.0042}_{-0.0059}$	$\chi^2_{6\text{DF}}$	0.139	0.12 ( $\nu$ : 0.0)
$\Sigma m_{\nu}$ [eV]	0.996	—	$\ln(10^{10}A_{\text{s}})$	3.125	$3.12^{+0.45}_{-0.39}$	$\chi^2_{\text{MGS}}$	0.82	1.34 ( $\nu$ : 0.3)
$10^9 A_{\text{s}}$	2.28	$2.29^{+1.2}_{-0.76}$	$\sigma_8$	0.752	$0.775^{+0.076}_{-0.073}$	$\chi^2_{\text{DR12BAO}}$	2.11	3.7 ( $\nu$ : 1.2)
$n_{\text{s}}$	0.972	—	$S_8$	0.825	$0.816^{+0.094}_{-0.090}$	$\chi^2_{\text{BAO}}$	3.07	5.2 ( $\nu$ : 1.6)
$\Omega_{\text{b}}h^2$	0.0205	$0.024^{+0.028}_{-0.015}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.452	$0.447^{+0.051}_{-0.049}$			

Best-fit  $\chi^2_{\text{eff}} = 10.66$ ;  $\bar{\chi}^2_{\text{eff}} = 14.70$ ;  $R - 1 = 0.01029$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.14 MGS: 0.82 DR12BAO: 2.11 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.59

### 6.129 base\_mnu\_lensing\_DESpriors\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.287	$0.34^{+0.20}_{-0.18}$	$\Omega_{\text{b}}h^2$	0.02219	$0.0222^{+0.0013}_{-0.0013}$	$S_8$	0.788	$0.81^{+0.15}_{-0.15}$
$\Omega_{\text{b}}$	0.0478	—	$\Omega_{\text{c}}h^2$	0.1069	$0.121^{+0.052}_{-0.037}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.432	$0.443^{+0.080}_{-0.082}$
$H_0$	68.2	$68^{+20}_{-10}$	$\Omega_{\Lambda}$	0.713	$0.66^{+0.18}_{-0.21}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.590	$0.586^{+0.053}_{-0.050}$
$\Sigma m_{\nu}$ [eV]	0.412	—	$\Omega_{\nu}h^2$	0.0044	$0.0057^{+0.0050}_{-0.0051}$	$\chi^2_{\text{lensing}}$	7.3	9.4 ( $\nu$ : 1.9)
$10^9 A_{\text{s}}$	2.78	$2.47^{+1.1}_{-0.94}$	$\ln(10^{10}A_{\text{s}})$	3.326	$3.19^{+0.40}_{-0.42}$	$\chi^2_{\text{prior}}$	0.00	1.0 ( $\nu$ : 1.0)
$n_{\text{s}}$	1.021	—	$\sigma_8$	0.805	$0.78^{+0.15}_{-0.11}$			

Best-fit  $\chi^2_{\text{eff}} = 7.26$ ;  $\bar{\chi}^2_{\text{eff}} = 10.46$ ;  $R - 1 = 0.00663$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.26

### 6.130 base\_mnu\_lensing\_DESpriors\_CookeDH\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.364	$0.336^{+0.068}_{-0.069}$	$\Omega_{\text{c}}h^2$	0.1457	$0.129^{+0.047}_{-0.038}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.581	$0.588^{+0.051}_{-0.049}$
$\Omega_{\text{b}}$	0.0455	$0.0473^{+0.0052}_{-0.0056}$	$\Omega_{\Lambda}$	0.636	$0.664^{+0.069}_{-0.068}$	$\chi^2_{\text{lensing}}$	7.65	9.5 ( $\nu$ : 2.0)
$H_0$	69.83	$68.5^{+4.4}_{-3.6}$	$\Omega_{\nu}h^2$	0.0098	$0.0067^{+0.0042}_{-0.0060}$	$\chi^2_{6\text{DF}}$	0.141	0.12 ( $\nu$ : 0.0)
$\Sigma m_{\nu}$ [eV]	0.908	—	$\ln(10^{10}A_{\text{s}})$	3.015	$3.12^{+0.38}_{-0.36}$	$\chi^2_{\text{MGS}}$	0.82	1.30 ( $\nu$ : 0.3)
$10^9 A_{\text{s}}$	2.04	$2.30^{+1.0}_{-0.71}$	$\sigma_8$	0.747	$0.773^{+0.075}_{-0.064}$	$\chi^2_{\text{DR12BAO}}$	2.08	3.6 ( $\nu$ : 1.2)
$n_{\text{s}}$	0.920	—	$S_8$	0.823	$0.817^{+0.094}_{-0.085}$	$\chi^2_{\text{prior}}$	0.00	1.0 ( $\nu$ : 1.0)
$\Omega_{\text{b}}h^2$	0.02220	$0.0222^{+0.0013}_{-0.0013}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4510	$0.447^{+0.051}_{-0.047}$	$\chi^2_{\text{BAO}}$	3.04	5.0 ( $\nu$ : 1.6)

Best-fit  $\chi^2_{\text{eff}} = 10.69$ ;  $\bar{\chi}^2_{\text{eff}} = 15.50$ ;  $R - 1 = 0.01121$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.14 MGS: 0.82 DR12BAO: 2.08 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.65



### 6.131 base\_mnu\_DES\_lenspriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02221	$0.0222^{+0.0013}_{-0.0013}$	$\Omega_{\mathrm{m}}h^2$	0.137	$0.169^{+0.087}_{-0.059}$	$k_{\mathrm{D}}$	0.1381	$0.145^{+0.020}_{-0.014}$
$\Omega_{\mathrm{c}}h^2$	0.110	$0.135^{+0.070}_{-0.045}$	$\Omega_{\nu}h^2$	0.0046	$< 0.0316$	$100\theta_{\mathrm{D}}$	0.1631	$0.170^{+0.018}_{-0.016}$
$100\theta_{\mathrm{MC}}$	1.053	$1.10^{+0.12}_{-0.12}$	$\Omega_{\mathrm{m}}h^3$	0.098	$0.133^{+0.11}_{-0.069}$	$z_{\mathrm{eq}}$	3171	$3766^{+2000}_{-1000}$
$\Sigma m_{\nu}$ [eV]	0.42	$< 2.94$	$\sigma_8$	0.831	$0.81^{+0.24}_{-0.20}$	$k_{\mathrm{eq}}$	0.00968	$0.0115^{+0.0050}_{-0.0035}$
$\ln(10^{10}A_{\mathrm{s}})$	3.372	$3.22^{+0.41}_{-0.45}$	$S_8$	0.787	$0.777^{+0.066}_{-0.064}$	$100\theta_{\mathrm{eq}}$	0.868	$0.81^{+0.12}_{-0.12}$
$n_{\mathrm{s}}$	0.963	$0.962^{+0.052}_{-0.052}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4311	$0.426^{+0.036}_{-0.035}$	$100\theta_{\mathrm{s,eq}}$	0.478	$0.449^{+0.062}_{-0.064}$
$b_{\mathrm{DES}}^1$	1.411	$1.47^{+0.55}_{-0.40}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.599	$0.586^{+0.10}_{-0.095}$	$H(0.15)$	76.3	$83^{+20}_{-20}$
$b_{\mathrm{DES}}^2$	1.615	$1.68^{+0.55}_{-0.41}$	$\sigma_8/h^{0.5}$	0.983	$0.92^{+0.19}_{-0.16}$	$D_{\mathrm{M}}(0.15)$	610	$570^{+200}_{-100}$
$b_{\mathrm{DES}}^3$	1.597	$1.66^{+0.54}_{-0.40}$	$r_{\mathrm{drag}}h$	107.0	$110^{+30}_{-30}$	$H(0.38)$	85.7	$93^{+20}_{-20}$
$b_{\mathrm{DES}}^4$	1.93	$2.00^{+0.63}_{-0.47}$	$\langle d^2 \rangle^{1/2}$	2.695	$2.60^{+0.41}_{-0.39}$	$D_{\mathrm{M}}(0.38)$	1465	$1365^{+400}_{-300}$
$b_{\mathrm{DES}}^5$	1.99	$2.06^{+0.66}_{-0.51}$	$z_{\mathrm{re}}$	7.71	$8.3^{+1.5}_{-1.1}$	$H(0.51)$	92.0	$100^{+30}_{-20}$
$m_{\mathrm{DES}}^1$	0.013	$0.012^{+0.059}_{-0.059}$	$10^9 A_{\mathrm{s}}$	2.91	$2.55^{+1.2}_{-0.94}$	$D_{\mathrm{M}}(0.51)$	1904	$1772^{+500}_{-400}$
$m_{\mathrm{DES}}^2$	0.015	$0.015^{+0.058}_{-0.058}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	2.61	$2.28^{+1.1}_{-0.85}$	$H(0.61)$	97.3	$106^{+30}_{-20}$
$m_{\mathrm{DES}}^3$	0.007	$0.009^{+0.055}_{-0.054}$	$D_{40}$	1760	$1484^{+800}_{-600}$	$D_{\mathrm{M}}(0.61)$	2221	$2066^{+600}_{-500}$
$m_{\mathrm{DES}}^4$	0.009	$0.011^{+0.055}_{-0.054}$	$D_{220}$	8295	$6603^{+4000}_{-3000}$	$H(2.33)$	233	$257^{+60}_{-50}$
$A_{\mathrm{IA,DES}}$	0.48	$0.46^{+0.57}_{-0.45}$	$D_{810}$	3548	$2687^{+2000}_{-2000}$	$D_{\mathrm{M}}(2.33)$	5674	$5236^{+1000}_{-1000}$
$\alpha_{\mathrm{IA,DES}}$	-1.4	—	$D_{1420}$	1124	$790^{+600}_{-500}$	$f\sigma_8(0.15)$	0.4431	$0.437^{+0.041}_{-0.043}$
$\Delta z_{\mathrm{l,DES}}^1$	0.0040	$0.004^{+0.019}_{-0.019}$	$D_{2000}$	318	$228^{+200}_{-100}$	$\sigma_8(0.15)$	0.773	$0.75^{+0.23}_{-0.20}$
$\Delta z_{\mathrm{l,DES}}^2$	0.0018	$0.002^{+0.017}_{-0.017}$	$n_{\mathrm{s},0.002}$	0.963	$0.962^{+0.052}_{-0.052}$	$f\sigma_8(0.38)$	0.473	$0.464^{+0.067}_{-0.072}$
$\Delta z_{\mathrm{l,DES}}^3$	0.0043	$0.004^{+0.017}_{-0.017}$	$Y_{\mathrm{P}}$	0.24533	$0.24531^{+0.00055}_{-0.00057}$	$\sigma_8(0.38)$	0.691	$0.67^{+0.22}_{-0.19}$
$\Delta z_{\mathrm{l,DES}}^4$	0.0029	$0.002^{+0.024}_{-0.023}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.24666	$0.24664^{+0.00055}_{-0.00057}$	$f\sigma_8(0.51)$	0.477	$0.467^{+0.081}_{-0.085}$
$\Delta z_{\mathrm{l,DES}}^5$	0.0010	$0.001^{+0.026}_{-0.026}$	$10^5 \mathrm{D}/\mathrm{H}$	2.616	$2.62^{+0.27}_{-0.23}$	$\sigma_8(0.51)$	0.650	$0.63^{+0.22}_{-0.18}$
$\Delta z_{\mathrm{s,DES}}^1$	-0.0013	$-0.004^{+0.036}_{-0.036}$	Age/Gyr	13.60	$12.5^{+2.9}_{-2.8}$	$f\sigma_8(0.61)$	0.476	$0.465^{+0.090}_{-0.093}$
$\Delta z_{\mathrm{s,DES}}^2$	-0.0286	$-0.030^{+0.027}_{-0.028}$	$z_{*}$	1089.3	$1091.8^{+7.0}_{-4.6}$	$\sigma_8(0.61)$	0.620	$0.60^{+0.21}_{-0.18}$
$\Delta z_{\mathrm{s,DES}}^3$	0.0059	$0.007^{+0.026}_{-0.025}$	$r_{*}$	147.0	$141^{+13}_{-16}$	$f\sigma_8(2.33)$	0.320	$0.312^{+0.11}_{-0.095}$
$\Delta z_{\mathrm{s,DES}}^4$	-0.0254	$-0.023^{+0.049}_{-0.047}$	$100\theta_{*}$	1.053	$1.10^{+0.12}_{-0.12}$	$\sigma_8(2.33)$	0.329	$0.32^{+0.13}_{-0.10}$
$H_0$	71.4	$> 58.2$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	13.95	$12.8^{+2.7}_{-2.6}$	$\chi_{\mathrm{DES}}^2$	500.5	$513.5 (\nu: 13.5)$
$\Omega_{\Lambda}$	0.731	$0.72^{+0.10}_{-0.16}$	$z_{\mathrm{drag}}$	1058.9	$1060.8^{+5.9}_{-5.3}$	$\chi_{\mathrm{prior}}^2$	1.2	$14.3 (\nu: 13.7)$
$\Omega_{\mathrm{m}}$	0.269	$0.28^{+0.16}_{-0.10}$	$r_{\mathrm{drag}}$	149.7	$143^{+13}_{-16}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 501.73$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 527.78$ ;  $R - 1 = 0.00413$   
 $\chi_{\mathrm{eff}}^2$ : WL - DES\_1YR\_final: 500.51



### 6.132 base\_mnu\_DESlens\_lenspriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.0222^{+0.0013}_{-0.0013}$	$\sigma_8/h^{0.5}$	1.006	$0.84^{+0.31}_{-0.26}$	$100\theta_{\text{eq}}$	0.827	$0.70^{+0.24}_{-0.20}$
$\Omega_c h^2$	0.121	$0.19^{+0.14}_{-0.11}$	$r_{\text{drag}} h$	109.1	$112^{+30}_{-40}$	$100\theta_{\text{s,eq}}$	0.457	$0.39^{+0.13}_{-0.10}$
$100\theta_{\text{MC}}$	1.062	$1.16^{+0.11}_{-0.16}$	$\langle d^2 \rangle^{1/2}$	2.51	$2.27^{+1.0}_{-0.80}$	$H(0.15)$	79.1	$92^{+20}_{-30}$
$\Sigma m_\nu$ [eV]	0.08	—	$z_{\text{re}}$	7.84	$9.2^{+2.1}_{-1.9}$	$D_{\text{M}}(0.15)$	588	$519^{+300}_{-90}$
$\ln(10^{10} A_{\text{s}})$	3.13	—	$10^9 A_{\text{s}}$	2.29	$1.8^{+2.8}_{-1.4}$	$H(0.38)$	88.6	$105^{+20}_{-30}$
$n_{\text{s}}$	0.960	$0.961^{+0.052}_{-0.052}$	$10^9 A_{\text{s}} e^{-2\tau}$	2.05	$1.6^{+2.5}_{-1.2}$	$D_{\text{M}}(0.38)$	1413	$1235^{+600}_{-200}$
$m_{\text{DES}}^1$	0.016	$0.013^{+0.058}_{-0.058}$	$D_{40}$	1372	$1002^{+2000}_{-800}$	$H(0.51)$	95.0	$113^{+30}_{-40}$
$m_{\text{DES}}^2$	0.013	$0.013^{+0.057}_{-0.057}$	$D_{220}$	6233	$4059^{+9000}_{-4000}$	$D_{\text{M}}(0.51)$	1838	$1598^{+700}_{-300}$
$m_{\text{DES}}^3$	0.001	$0.003^{+0.056}_{-0.056}$	$D_{810}$	2740	$1519^{+4000}_{-1000}$	$H(0.61)$	100.4	$120^{+30}_{-40}$
$m_{\text{DES}}^4$	0.017	$0.018^{+0.056}_{-0.056}$	$D_{1420}$	866	$429^{+1000}_{-400}$	$D_{\text{M}}(0.61)$	2145	$1858^{+800}_{-400}$
$A_{\text{IA,DES}}$	1.33	$0.8^{+1.7}_{-4.9}$	$D_{2000}$	247	$125^{+300}_{-100}$	$H(2.33)$	239	$298^{+100}_{-80}$
$\alpha_{\text{IA,DES}}$	3.4	—	$n_{\text{s},0.002}$	0.960	$0.961^{+0.052}_{-0.052}$	$D_{\text{M}}(2.33)$	5504	$4634^{+2000}_{-1000}$
$\Delta z_{\text{s,DES}}^1$	0.0032	$0.002^{+0.038}_{-0.039}$	$Y_{\text{P}}$	0.24533	$0.24531^{+0.00055}_{-0.00054}$	$f\sigma_8(0.15)$	0.452	$0.434^{+0.052}_{-0.080}$
$\Delta z_{\text{s,DES}}^2$	-0.0192	$-0.021^{+0.031}_{-0.031}$	$Y_{\text{P}}^{\text{BBN}}$	0.24665	$0.24664^{+0.00056}_{-0.00054}$	$\sigma_8(0.15)$	0.807	$0.71^{+0.32}_{-0.31}$
$\Delta z_{\text{s,DES}}^3$	0.0081	$0.008^{+0.028}_{-0.027}$	$10^5 D/H$	2.617	$2.62^{+0.25}_{-0.23}$	$f\sigma_8(0.38)$	0.483	$0.451^{+0.088}_{-0.13}$
$\Delta z_{\text{s,DES}}^4$	-0.017	$-0.016^{+0.053}_{-0.053}$	Age/Gyr	13.20	$11.1^{+4.0}_{-2.6}$	$\sigma_8(0.38)$	0.721	$0.63^{+0.31}_{-0.30}$
$H_0$	74.2	$> 53.7$	$z_*$	1090.2	$1096^{+11}_{-8.6}$	$f\sigma_8(0.51)$	0.488	$0.45^{+0.11}_{-0.15}$
$\Omega_{\Lambda}$	0.739	$0.67^{+0.20}_{-0.37}$	$r_*$	144.4	$130^{+20}_{-20}$	$\sigma_8(0.51)$	0.678	$0.60^{+0.31}_{-0.28}$
$\Omega_{\text{m}}$	0.261	$0.33^{+0.37}_{-0.20}$	$100\theta_*$	1.063	$1.16^{+0.11}_{-0.16}$	$f\sigma_8(0.61)$	0.488	$0.45^{+0.12}_{-0.16}$
$\Omega_{\text{m}} h^2$	0.144	$0.23^{+0.17}_{-0.12}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.59	$11.2^{+3.8}_{-2.9}$	$\sigma_8(0.61)$	0.647	$0.57^{+0.30}_{-0.27}$
$\Omega_{\nu} h^2$	0.0008	$< 0.0503$	$z_{\text{drag}}$	1059.6	$1064.5^{+9.1}_{-8.1}$	$f\sigma_8(2.33)$	0.329	$0.29^{+0.16}_{-0.15}$
$\Omega_{\text{m}} h^3$	0.107	$0.20^{+0.19}_{-0.13}$	$r_{\text{drag}}$	147.1	$132^{+20}_{-20}$	$\sigma_8(2.33)$	0.342	$0.30^{+0.19}_{-0.15}$
$\sigma_8$	0.867	$0.77^{+0.33}_{-0.32}$	$k_{\text{D}}$	0.1408	$0.159^{+0.032}_{-0.027}$	$\chi_{\text{DES}}^2$	228.7	$233.8 (\nu: 4.3)$
$S_8$	0.809	$0.780^{+0.080}_{-0.12}$	$100\theta_{\text{D}}$	0.1643	$0.178^{+0.017}_{-0.023}$	$\chi_{\text{prior}}^2$	0.4	$9.5 (\nu: 9.0)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.443	$0.427^{+0.044}_{-0.066}$	$z_{\text{eq}}$	3417	$5113^{+3000}_{-3000}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.620	$0.57^{+0.13}_{-0.15}$	$k_{\text{eq}}$	0.0104	$0.0157^{+0.011}_{-0.0078}$			

Best-fit  $\chi_{\text{eff}}^2 = 229.04$ ;  $\bar{\chi}_{\text{eff}}^2 = 243.26$ ;  $R - 1 = 0.00786$   
 $\chi_{\text{eff}}^2$ : WL - DES\_1YR\_final: 228.67



### 6.133 base\_mnu\_DES\_lenspriors\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02222	$0.0222^{+0.0013}_{-0.0013}$	$\Omega_m h^2$	0.147	$0.170^{+0.090}_{-0.056}$	$k_D$	0.1405	$0.146^{+0.020}_{-0.014}$
$\Omega_c h^2$	0.119	$0.137^{+0.069}_{-0.045}$	$\Omega_\nu h^2$	0.0058	$< 0.0327$	$100\theta_D$	0.1645	$0.170^{+0.017}_{-0.014}$
$100\theta_{MC}$	1.064	$1.10^{+0.12}_{-0.10}$	$\Omega_m h^3$	0.105	$0.132^{+0.11}_{-0.063}$	$z_{eq}$	3371	$3810^{+2000}_{-1000}$
$\Sigma m_\nu$ [eV]	0.54	$< 3.04$	$\sigma_8$	0.789	$0.786^{+0.10}_{-0.092}$	$k_{eq}$	0.01029	$0.0117^{+0.0052}_{-0.0033}$
$\ln(10^{10} A_s)$	3.222	$3.16^{+0.22}_{-0.27}$	$S_8$	0.7747	$0.772^{+0.040}_{-0.040}$	$100\theta_{eq}$	0.838	$0.80^{+0.10}_{-0.12}$
$n_s$	0.964	$0.963^{+0.051}_{-0.050}$	$\sigma_8 \Omega_m^{0.5}$	0.4243	$0.423^{+0.022}_{-0.022}$	$100\theta_{s,eq}$	0.463	$0.445^{+0.052}_{-0.064}$
$b_{DES}^1$	1.500	$1.50^{+0.28}_{-0.27}$	$\sigma_8 \Omega_m^{0.25}$	0.5786	$0.576^{+0.040}_{-0.038}$	$H(0.15)$	76.4	$82^{+20}_{-20}$
$b_{DES}^2$	1.713	$1.71^{+0.25}_{-0.23}$	$\sigma_8/h^{0.5}$	0.935	$0.90^{+0.10}_{-0.12}$	$D_M(0.15)$	610	$573^{+100}_{-100}$
$b_{DES}^3$	1.696	$1.70^{+0.22}_{-0.21}$	$r_{drag} h$	105.0	$109^{+20}_{-20}$	$H(0.38)$	86.4	$93^{+20}_{-20}$
$b_{DES}^4$	2.050	$2.04^{+0.26}_{-0.25}$	$\langle d^2 \rangle^{1/2}$	2.547	$2.52^{+0.13}_{-0.13}$	$D_M(0.38)$	1460	$1371^{+300}_{-300}$
$b_{DES}^5$	2.122	$2.12^{+0.29}_{-0.28}$	$z_{re}$	7.88	$8.3^{+1.4}_{-1.1}$	$H(0.51)$	93.1	$100^{+30}_{-20}$
$m_{DES}^1$	0.013	$0.012^{+0.058}_{-0.059}$	$10^9 A_s$	2.51	$2.36^{+0.56}_{-0.57}$	$D_M(0.51)$	1894	$1779^{+400}_{-400}$
$m_{DES}^2$	0.016	$0.015^{+0.057}_{-0.057}$	$10^9 A_s e^{-2\tau}$	2.25	$2.12^{+0.50}_{-0.51}$	$H(0.61)$	98.7	$106^{+30}_{-20}$
$m_{DES}^3$	0.0097	$0.010^{+0.054}_{-0.053}$	$D_{40}$	1482	$1364^{+300}_{-400}$	$D_M(0.61)$	2207	$2073^{+400}_{-400}$
$m_{DES}^4$	0.011	$0.012^{+0.054}_{-0.054}$	$D_{220}$	6876	$6065^{+2000}_{-3000}$	$H(2.33)$	241	$258^{+60}_{-40}$
$A_{IA,DES}$	0.452	$0.44^{+0.51}_{-0.44}$	$D_{810}$	3012	$2521^{+1000}_{-2000}$	$D_M(2.33)$	5577	$5237^{+1000}_{-1000}$
$\alpha_{IA,DES}$	-1.5	—	$D_{1420}$	952	$744^{+400}_{-500}$	$f\sigma_8(0.15)$	0.4352	$0.434^{+0.021}_{-0.021}$
$\Delta z_{l,DES}^1$	0.0038	$0.004^{+0.019}_{-0.019}$	$D_{2000}$	272	$214^{+100}_{-100}$	$\sigma_8(0.15)$	0.732	$0.730^{+0.10}_{-0.091}$
$\Delta z_{l,DES}^2$	0.0013	$0.002^{+0.017}_{-0.017}$	$n_{s,0.002}$	0.964	$0.963^{+0.051}_{-0.050}$	$f\sigma_8(0.38)$	0.4590	$0.458^{+0.027}_{-0.027}$
$\Delta z_{l,DES}^3$	0.0041	$0.004^{+0.017}_{-0.017}$	$Y_P$	0.24533	$0.24531^{+0.00055}_{-0.00056}$	$\sigma_8(0.38)$	0.652	$0.650^{+0.097}_{-0.088}$
$\Delta z_{l,DES}^4$	0.0022	$0.002^{+0.024}_{-0.024}$	$Y_P^{BBN}$	0.24666	$0.24664^{+0.00055}_{-0.00056}$	$f\sigma_8(0.51)$	0.4608	$0.459^{+0.033}_{-0.033}$
$\Delta z_{l,DES}^5$	0.0007	$0.001^{+0.025}_{-0.025}$	$10^5 D/H$	2.614	$2.62^{+0.26}_{-0.23}$	$\sigma_8(0.51)$	0.612	$0.610^{+0.095}_{-0.085}$
$\Delta z_{s,DES}^1$	-0.0015	$-0.004^{+0.036}_{-0.037}$	Age/Gyr	13.36	$12.5^{+2.5}_{-2.6}$	$f\sigma_8(0.61)$	0.4580	$0.457^{+0.037}_{-0.038}$
$\Delta z_{s,DES}^2$	-0.0287	$-0.029^{+0.028}_{-0.028}$	$z_*$	1090.1	$1091.9^{+6.8}_{-4.3}$	$\sigma_8(0.61)$	0.583	$0.582^{+0.093}_{-0.083}$
$\Delta z_{s,DES}^3$	0.0072	$0.008^{+0.025}_{-0.025}$	$r_*$	144.7	$140^{+11}_{-16}$	$f\sigma_8(2.33)$	0.3016	$0.302^{+0.050}_{-0.044}$
$\Delta z_{s,DES}^4$	-0.0222	$-0.021^{+0.048}_{-0.048}$	$100\theta_*$	1.065	$1.10^{+0.12}_{-0.10}$	$\sigma_8(2.33)$	0.308	$0.308^{+0.057}_{-0.049}$
$H_0$	71.3	$77^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.59	$12.8^{+2.3}_{-2.6}$	$\chi_{lensing}^2$	7.63	$9.2 (\nu: 1.3)$
$\Omega_\Lambda$	0.711	$0.709^{+0.067}_{-0.083}$	$z_{drag}$	1059.6	$1061.0^{+6.3}_{-5.0}$	$\chi_{DES}^2$	501.6	$513.1 (\nu: 11.4)$
$\Omega_m$	0.289	$0.291^{+0.083}_{-0.067}$	$r_{drag}$	147.4	$143^{+12}_{-17}$	$\chi_{prior}^2$	1.0	$14.1 (\nu: 13.6)$

Best-fit  $\chi_{eff}^2 = 510.24$ ;  $\bar{\chi}_{eff}^2 = 536.32$ ;  $R - 1 = 0.00963$

$\chi_{eff}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8\_CMBmargd: 7.63 WL - DES\_1YR\_final: 501.56



### 6.134 base\_mnu\_DESlens\_lenspriors\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.0222^{+0.0013}_{-0.0013}$	$\sigma_8/h^{0.5}$	0.940	$0.89^{+0.12}_{-0.13}$	$100\theta_{\text{eq}}$	0.817	$0.76^{+0.14}_{-0.13}$
$\Omega_c h^2$	0.125	$0.157^{+0.083}_{-0.062}$	$r_{\text{drag}} h$	104.4	$113^{+20}_{-20}$	$100\theta_{\text{s,eq}}$	0.452	$0.425^{+0.073}_{-0.066}$
$100\theta_{\text{MC}}$	1.071	$1.14^{+0.12}_{-0.14}$	$\langle d^2 \rangle^{1/2}$	2.512	$2.49^{+0.14}_{-0.14}$	$H(0.15)$	76.9	$88^{+20}_{-20}$
$\Sigma m_\nu$ [eV]	0.53	$< 3.96$	$z_{\text{re}}$	7.99	$8.7^{+1.6}_{-1.4}$	$D_{\text{M}}(0.15)$	607	$536^{+200}_{-100}$
$\ln(10^{10} A_{\text{s}})$	3.159	$3.07^{+0.30}_{-0.30}$	$10^9 A_{\text{s}}$	2.35	$2.17^{+0.73}_{-0.58}$	$H(0.38)$	87.2	$99^{+20}_{-20}$
$n_{\text{s}}$	0.963	$0.960^{+0.052}_{-0.052}$	$10^9 A_{\text{s}} e^{-2\tau}$	2.11	$1.95^{+0.66}_{-0.52}$	$D_{\text{M}}(0.38)$	1450	$1283^{+400}_{-300}$
$m_{\text{DES}}^1$	0.014	$0.013^{+0.058}_{-0.059}$	$D_{40}$	1382	$1240^{+500}_{-400}$	$H(0.51)$	94.1	$107^{+20}_{-30}$
$m_{\text{DES}}^2$	0.015	$0.013^{+0.057}_{-0.058}$	$D_{220}$	6296	$5218^{+3000}_{-3000}$	$D_{\text{M}}(0.51)$	1880	$1665^{+500}_{-300}$
$m_{\text{DES}}^3$	0.002	$0.004^{+0.056}_{-0.056}$	$D_{810}$	2786	$2041^{+1000}_{-1000}$	$H(0.61)$	99.8	$113^{+30}_{-30}$
$m_{\text{DES}}^4$	0.018	$0.017^{+0.054}_{-0.055}$	$D_{1420}$	875	$582^{+500}_{-300}$	$D_{\text{M}}(0.61)$	2190	$1940^{+600}_{-400}$
$A_{\text{IA,DES}}$	1.23	$0.6^{+1.7}_{-4.6}$	$D_{2000}$	252	$169^{+200}_{-100}$	$H(2.33)$	245	$275^{+70}_{-60}$
$\alpha_{\text{IA,DES}}$	2.9	—	$n_{\text{s},0.002}$	0.963	$0.960^{+0.052}_{-0.052}$	$D_{\text{M}}(2.33)$	5508	$4915^{+1000}_{-1000}$
$\Delta z_{\text{s,DES}}^1$	0.0029	$0.001^{+0.039}_{-0.039}$	$Y_{\text{P}}$	0.24533	$0.24532^{+0.00055}_{-0.00056}$	$f\sigma_8(0.15)$	0.4443	$0.439^{+0.030}_{-0.056}$
$\Delta z_{\text{s,DES}}^2$	-0.0196	$-0.020^{+0.030}_{-0.030}$	$Y_{\text{P}}^{\text{BBN}}$	0.24665	$0.24664^{+0.00056}_{-0.00056}$	$\sigma_8(0.15)$	0.737	$0.75^{+0.13}_{-0.11}$
$\Delta z_{\text{s,DES}}^3$	0.0074	$0.008^{+0.027}_{-0.027}$	$10^5 D/\text{H}$	2.618	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.38)$	0.4664	$0.464^{+0.037}_{-0.036}$
$\Delta z_{\text{s,DES}}^4$	-0.017	$-0.016^{+0.053}_{-0.053}$	Age/Gyr	13.19	$11.8^{+3.3}_{-2.5}$	$\sigma_8(0.38)$	0.656	$0.67^{+0.13}_{-0.11}$
$H_0$	71.6	$> 61.0$	$z_*$	1090.7	$1093.6^{+7.8}_{-6.0}$	$f\sigma_8(0.51)$	0.4670	$0.467^{+0.041}_{-0.040}$
$\Omega_{\Lambda}$	0.702	$0.71^{+0.12}_{-0.11}$	$r_*$	143.2	$136^{+20}_{-20}$	$\sigma_8(0.51)$	0.615	$0.63^{+0.13}_{-0.10}$
$\Omega_{\text{m}}$	0.298	$0.29^{+0.11}_{-0.12}$	$100\theta_*$	1.071	$1.14^{+0.12}_{-0.14}$	$f\sigma_8(0.61)$	0.4635	$0.464^{+0.045}_{-0.045}$
$\Omega_{\text{m}} h^2$	0.153	$0.194^{+0.11}_{-0.078}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.37	$12.0^{+3.1}_{-2.6}$	$\sigma_8(0.61)$	0.586	$0.60^{+0.13}_{-0.10}$
$\Omega_{\nu} h^2$	0.0057	$< 0.0426$	$z_{\text{drag}}$	1060.0	$1062.4^{+6.7}_{-5.8}$	$f\sigma_8(2.33)$	0.302	$0.309^{+0.068}_{-0.055}$
$\Omega_{\text{m}} h^3$	0.109	$0.162^{+0.14}_{-0.092}$	$r_{\text{drag}}$	145.9	$138^{+20}_{-20}$	$\sigma_8(2.33)$	0.309	$0.316^{+0.084}_{-0.060}$
$\sigma_8$	0.795	$0.80^{+0.13}_{-0.11}$	$k_{\text{D}}$	0.1421	$0.151^{+0.023}_{-0.018}$	$\chi_{\text{lensing}}^2$	7.48	$9.7 (\nu: 1.9)$
$S_8$	0.793	$0.781^{+0.057}_{-0.11}$	$100\theta_{\text{D}}$	0.1653	$0.174^{+0.016}_{-0.019}$	$\chi_{\text{DES}}^2$	228.8	$232.8 (\nu: 3.2)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4342	$0.428^{+0.031}_{-0.058}$	$z_{\text{eq}}$	3512	$4278^{+2000}_{-1000}$	$\chi_{\text{prior}}^2$	0.4	$9.4 (\nu: 9.0)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5877	$0.586^{+0.050}_{-0.046}$	$k_{\text{eq}}$	0.0107	$0.0131^{+0.0062}_{-0.0045}$			

Best-fit  $\chi_{\text{eff}}^2 = 236.70$ ;  $\bar{\chi}_{\text{eff}}^2 = 251.99$ ;  $R - 1 = 0.00519$

$\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8\_CMBmarged: 7.48 WL - DES\_1YR\_final: 228.82



### 6.135 base\_mnu\_DES\_lenspriors\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.0222^{+0.0013}_{-0.0013}$	$\Omega_\nu h^2$	0.0086	$< 0.0238$	$z_{\text{eq}}$	3377	$3531^{+1000}_{-800}$
$\Omega_c h^2$	0.1191	$0.126^{+0.042}_{-0.031}$	$\Omega_m h^3$	0.1016	$0.108^{+0.046}_{-0.030}$	$k_{\text{eq}}$	0.01032	$0.0108^{+0.0032}_{-0.0023}$
$100\theta_{\text{MC}}$	1.061	$1.070^{+0.062}_{-0.059}$	$\sigma_8$	0.740	$0.720^{+0.11}_{-0.098}$	$100\theta_{\text{eq}}$	0.835	$0.819^{+0.10}_{-0.099}$
$\Sigma m_\nu$ [eV]	0.80	$< 2.22$	$S_8$	0.771	$0.762^{+0.056}_{-0.056}$	$100\theta_{\text{s,eq}}$	0.461	$0.453^{+0.051}_{-0.052}$
$\ln(10^{10} A_s)$	3.237	$3.15^{+0.40}_{-0.42}$	$\sigma_8 \Omega_m^{0.5}$	0.4225	$0.417^{+0.031}_{-0.031}$	$H(0.15)$	73.31	$74.1^{+5.5}_{-4.3}$
$n_s$	0.961	$0.961^{+0.052}_{-0.051}$	$\sigma_8 \Omega_m^{0.25}$	0.559	$0.548^{+0.058}_{-0.055}$	$D_M(0.15)$	638.7	$633^{+35}_{-40}$
$b_{\text{DES}}^1$	1.599	$1.65^{+0.33}_{-0.31}$	$\sigma_8/h^{0.5}$	0.898	$0.87^{+0.15}_{-0.13}$	$H(0.38)$	83.9	$85.1^{+8.1}_{-6.3}$
$b_{\text{DES}}^2$	1.820	$1.87^{+0.32}_{-0.29}$	$r_{\text{drag}} h$	99.71	$99.3^{+3.8}_{-3.8}$	$D_M(0.38)$	1520	$1504^{+95}_{-110}$
$b_{\text{DES}}^3$	1.793	$1.85^{+0.30}_{-0.28}$	$\langle d^2 \rangle^{1/2}$	2.579	$2.51^{+0.37}_{-0.35}$	$H(0.51)$	90.9	$92.3^{+9.8}_{-7.5}$
$b_{\text{DES}}^4$	2.162	$2.22^{+0.37}_{-0.33}$	$z_{\text{re}}$	7.92	$8.06^{+0.91}_{-0.76}$	$D_M(0.51)$	1966	$1945^{+130}_{-150}$
$b_{\text{DES}}^5$	2.224	$2.29^{+0.42}_{-0.38}$	$10^9 A_s$	2.54	$2.37^{+1.1}_{-0.83}$	$H(0.61)$	96.7	$98^{+10}_{-8}$
$m_{\text{DES}}^1$	0.013	$0.011^{+0.058}_{-0.058}$	$10^9 A_s e^{-2\tau}$	2.28	$2.12^{+1.0}_{-0.74}$	$D_M(0.61)$	2286	$2260^{+160}_{-180}$
$m_{\text{DES}}^2$	0.015	$0.014^{+0.058}_{-0.058}$	$D_{40}$	1494	$1376^{+700}_{-500}$	$H(2.33)$	241.8	$248^{+40}_{-30}$
$m_{\text{DES}}^3$	0.005	$0.008^{+0.054}_{-0.054}$	$D_{220}$	7005	$6389^{+4000}_{-3000}$	$D_M(2.33)$	5674	$5585^{+550}_{-590}$
$m_{\text{DES}}^4$	0.0099	$0.012^{+0.055}_{-0.055}$	$D_{810}$	3067	$2781^{+1000}_{-1000}$	$f\sigma_8(0.15)$	0.4316	$0.425^{+0.032}_{-0.033}$
$A_{\text{IA,DES}}$	0.415	$0.40^{+0.48}_{-0.40}$	$D_{1420}$	974	$865^{+500}_{-500}$	$\sigma_8(0.15)$	0.683	$0.664^{+0.11}_{-0.095}$
$\alpha_{\text{IA,DES}}$	-2.0	—	$D_{2000}$	277	$248^{+100}_{-100}$	$f\sigma_8(0.38)$	0.4466	$0.437^{+0.042}_{-0.043}$
$\Delta z_{\text{l,DES}}^1$	0.0032	$0.004^{+0.019}_{-0.019}$	$n_{\text{s},0.002}$	0.961	$0.961^{+0.052}_{-0.051}$	$\sigma_8(0.38)$	0.605	$0.587^{+0.10}_{-0.089}$
$\Delta z_{\text{l,DES}}^2$	0.0008	$0.001^{+0.017}_{-0.017}$	$Y_{\text{P}}$	0.24533	$0.24531^{+0.00055}_{-0.00057}$	$f\sigma_8(0.51)$	0.4443	$0.434^{+0.046}_{-0.047}$
$\Delta z_{\text{l,DES}}^3$	0.0037	$0.004^{+0.017}_{-0.017}$	$Y_{\text{P}}^{\text{BBN}}$	0.24666	$0.24664^{+0.00055}_{-0.00057}$	$\sigma_8(0.51)$	0.566	$0.549^{+0.098}_{-0.085}$
$\Delta z_{\text{l,DES}}^4$	0.0015	$0.001^{+0.024}_{-0.023}$	$10^5 D/H$	2.616	$2.62^{+0.26}_{-0.23}$	$f\sigma_8(0.61)$	0.4391	$0.428^{+0.049}_{-0.050}$
$\Delta z_{\text{l,DES}}^5$	0.0001	$0.000^{+0.026}_{-0.025}$	Age/Gyr	13.58	$13.4^{+1.3}_{-1.4}$	$\sigma_8(0.61)$	0.539	$0.523^{+0.094}_{-0.082}$
$\Delta z_{\text{s,DES}}^1$	-0.0013	$-0.005^{+0.036}_{-0.037}$	$z_*$	1090.28	$1091.0^{+4.2}_{-3.4}$	$f\sigma_8(2.33)$	0.2791	$0.270^{+0.046}_{-0.043}$
$\Delta z_{\text{s,DES}}^2$	-0.0287	$-0.029^{+0.028}_{-0.028}$	$r_*$	144.4	$142.8^{+9.1}_{-11}$	$\sigma_8(2.33)$	0.2826	$0.273^{+0.053}_{-0.046}$
$\Delta z_{\text{s,DES}}^3$	0.0064	$0.008^{+0.025}_{-0.026}$	$100\theta_*$	1.061	$1.070^{+0.062}_{-0.059}$	$\chi_{\text{6DF}}^2$	0.014	0.11 ( $\nu$ : 0.0)
$\Delta z_{\text{s,DES}}^4$	-0.0238	$-0.020^{+0.049}_{-0.048}$	$D_M(z_*)/\text{Gpc}$	13.61	$13.4^{+1.7}_{-1.7}$	$\chi_{\text{MGS}}^2$	1.41	1.34 ( $\nu$ : 0.3)
$H_0$	67.77	$68.3^{+4.1}_{-3.3}$	$z_{\text{drag}}$	1059.70	$1060.2^{+4.6}_{-4.2}$	$\chi_{\text{DR12BAO}}^2$	2.57	3.5 ( $\nu$ : 1.0)
$\Omega_\Lambda$	0.674	$0.662^{+0.065}_{-0.078}$	$r_{\text{drag}}$	147.1	$145.5^{+9.4}_{-11}$	$\chi_{\text{DES}}^2$	502.0	514.1 ( $\nu$ : 13.1)
$\Omega_m$	0.326	$0.338^{+0.078}_{-0.065}$	$k_{\text{D}}$	0.1409	$0.143^{+0.013}_{-0.010}$	$\chi_{\text{prior}}^2$	1.1	14.1 ( $\nu$ : 13.5)
$\Omega_m h^2$	0.1499	$0.158^{+0.055}_{-0.039}$	$100\theta_{\text{D}}$	0.1638	$0.1650^{+0.0080}_{-0.0077}$	$\chi_{\text{BAO}}^2$	3.99	4.9 ( $\nu$ : 1.5)

Best-fit  $\chi_{\text{eff}}^2 = 507.09$ ;  $\bar{\chi}_{\text{eff}}^2 = 533.11$ ;  $R - 1 = 0.00572$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 2.57 WL - DES\_1YR\_final: 502.02



### 6.136 base\_mnu\_DESlens\_lenspriors\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02217	$0.0222^{+0.0013}_{-0.0013}$	$r_{\text{drag}} h$	98.9	$97.4^{+5.1}_{-5.0}$	$H(0.15)$	75.3	$78^{+10}_{-8}$
$\Omega_c h^2$	0.139	$0.165^{+0.10}_{-0.069}$	$\langle d^2 \rangle^{1/2}$	2.25	$2.14^{+0.82}_{-0.60}$	$D_{\text{M}}(0.15)$	623	$604^{+58}_{-64}$
$100\theta_{\text{MC}}$	1.075	$1.107^{+0.083}_{-0.088}$	$z_{\text{re}}$	8.21	$8.7^{+1.5}_{-1.3}$	$H(0.38)$	86.7	$91^{+20}_{-10}$
$\Sigma m_\nu$ [eV]	0.48	< 3.00	$10^9 A_{\text{s}}$	1.71	$1.5^{+2.0}_{-1.1}$	$D_{\text{M}}(0.38)$	1477	$1424^{+200}_{-200}$
$\ln(10^{10} A_{\text{s}})$	2.84	$2.65^{+0.97}_{-0.91}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.53	$1.36^{+1.8}_{-0.96}$	$H(0.51)$	94.2	$100^{+20}_{-10}$
$n_{\text{s}}$	0.961	$0.960^{+0.053}_{-0.050}$	$D_{40}$	981	$854^{+1000}_{-600}$	$D_{\text{M}}(0.51)$	1909	$1835^{+200}_{-200}$
$m_{\text{DES}}^1$	0.014	$0.013^{+0.058}_{-0.059}$	$D_{220}$	4330	$3690^{+7000}_{-3000}$	$H(0.61)$	100.4	$106^{+20}_{-20}$
$m_{\text{DES}}^2$	0.013	$0.012^{+0.058}_{-0.058}$	$D_{810}$	1979	$1618^{+3000}_{-1000}$	$D_{\text{M}}(0.61)$	2217	$2128^{+300}_{-300}$
$m_{\text{DES}}^3$	0.001	$0.002^{+0.055}_{-0.054}$	$D_{1420}$	622	$478^{+900}_{-400}$	$H(2.33)$	254	$275^{+70}_{-60}$
$m_{\text{DES}}^4$	0.019	$0.018^{+0.054}_{-0.056}$	$D_{2000}$	180	$138^{+300}_{-100}$	$D_{\text{M}}(2.33)$	5457	$5162^{+900}_{-900}$
$A_{\text{IA,DES}}$	1.31	$0.96^{+1.4}_{-2.1}$	$n_{\text{s},0.002}$	0.961	$0.960^{+0.053}_{-0.050}$	$f\sigma_8(0.15)$	0.4362	$0.423^{+0.039}_{-0.048}$
$\alpha_{\text{IA,DES}}$	2.7	—	$Y_{\text{P}}$	0.24531	$0.24531^{+0.00054}_{-0.00057}$	$\sigma_8(0.15)$	0.676	$0.62^{+0.14}_{-0.12}$
$\Delta z_{\text{s,DES}}^1$	0.0036	$0.003^{+0.037}_{-0.038}$	$Y_{\text{P}}^{\text{BBN}}$	0.24664	$0.24664^{+0.00054}_{-0.00058}$	$f\sigma_8(0.38)$	0.447	$0.426^{+0.054}_{-0.057}$
$\Delta z_{\text{s,DES}}^2$	-0.0201	$-0.021^{+0.030}_{-0.031}$	$10^5 \text{D/H}$	2.624	$2.62^{+0.27}_{-0.23}$	$\sigma_8(0.38)$	0.597	$0.55^{+0.13}_{-0.11}$
$\Delta z_{\text{s,DES}}^3$	0.0074	$0.008^{+0.028}_{-0.028}$	Age/Gyr	13.06	$12.4^{+2.2}_{-2.0}$	$f\sigma_8(0.51)$	0.442	$0.418^{+0.060}_{-0.062}$
$\Delta z_{\text{s,DES}}^4$	-0.016	$-0.016^{+0.052}_{-0.053}$	$z_*$	1091.9	$1094.1^{+7.4}_{-6.1}$	$\sigma_8(0.51)$	0.557	$0.51^{+0.12}_{-0.10}$
$H_0$	69.4	$71.3^{+7.3}_{-5.7}$	$r_*$	139.9	$134^{+20}_{-20}$	$f\sigma_8(0.61)$	0.436	$0.410^{+0.065}_{-0.065}$
$\Omega_{\Lambda}$	0.655	$0.61^{+0.11}_{-0.13}$	$100\theta_*$	1.076	$1.107^{+0.083}_{-0.088}$	$\sigma_8(0.61)$	0.530	$0.49^{+0.12}_{-0.10}$
$\Omega_{\text{m}}$	0.345	$0.39^{+0.13}_{-0.11}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.01	$12.2^{+2.7}_{-2.3}$	$f\sigma_8(2.33)$	0.271	$0.248^{+0.064}_{-0.054}$
$\Omega_{\text{m}} h^2$	0.166	$0.198^{+0.11}_{-0.076}$	$z_{\text{drag}}$	1060.8	$1062.8^{+6.8}_{-6.0}$	$\sigma_8(2.33)$	0.275	$0.251^{+0.070}_{-0.056}$
$\Omega_{\nu} h^2$	0.0051	< 0.0323	$r_{\text{drag}}$	142.5	$137^{+20}_{-20}$	$\chi_{6\text{DF}}^2$	0.07	0.36 ( $\nu$ : 0.1)
$\Omega_{\text{m}} h^3$	0.115	$0.142^{+0.10}_{-0.062}$	$k_{\text{D}}$	0.1457	$0.153^{+0.024}_{-0.019}$	$\chi_{\text{MGS}}^2$	1.04	0.77 ( $\nu$ : 0.2)
$\sigma_8$	0.734	$0.68^{+0.14}_{-0.12}$	$100\theta_{\text{D}}$	0.1658	$0.170^{+0.011}_{-0.011}$	$\chi_{\text{DR12BAO}}^2$	2.27	3.6 ( $\nu$ : 1.2)
$S_8$	0.787	$0.769^{+0.066}_{-0.084}$	$z_{\text{eq}}$	3846	$4473^{+2000}_{-2000}$	$\chi_{\text{DES}}^2$	229.0	233.7 ( $\nu$ : 4.1)
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4310	$0.421^{+0.036}_{-0.046}$	$k_{\text{eq}}$	0.0117	$0.0137^{+0.0075}_{-0.0051}$	$\chi_{\text{prior}}^2$	0.5	9.4 ( $\nu$ : 9.0)
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.562	$0.535^{+0.070}_{-0.070}$	$100\theta_{\text{eq}}$	0.767	$0.72^{+0.20}_{-0.16}$	$\chi_{\text{BAO}}^2$	3.38	4.8 ( $\nu$ : 1.5)
$\sigma_8/h^{0.5}$	0.881	$0.81^{+0.19}_{-0.17}$	$100\theta_{\text{s,eq}}$	0.426	$0.402^{+0.10}_{-0.085}$			

Best-fit  $\chi_{\text{eff}}^2 = 232.86$ ;  $\bar{\chi}_{\text{eff}}^2 = 247.92$ ;  $R - 1 = 0.00929$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.07 MGS: 1.04 DR12BAO: 2.27 WL - DES\_1YR\_final: 229.02



### 6.137 base\_mnu\_DES\_lenspriors\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02222	$0.0222^{+0.0013}_{-0.0013}$	$\Omega_{\mathrm{m}}h^3$	0.0984	$0.102^{+0.033}_{-0.022}$	$100\theta_{\mathrm{eq}}$	0.840	$0.833^{+0.072}_{-0.074}$
$\Omega_{\mathrm{c}}h^2$	0.1165	$0.120^{+0.030}_{-0.022}$	$\sigma_8$	0.757	$0.748^{+0.070}_{-0.069}$	$100\theta_{\mathrm{s,eq}}$	0.4639	$0.460^{+0.037}_{-0.038}$
$100\theta_{\mathrm{MC}}$	1.053	$1.059^{+0.053}_{-0.046}$	$S_8$	0.7783	$0.776^{+0.037}_{-0.038}$	$H(0.15)$	73.07	$73.5^{+4.4}_{-3.5}$
$\Sigma m_{\nu}$ [eV]	0.63	$< 1.78$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4263	$0.425^{+0.020}_{-0.021}$	$D_{\mathrm{M}}(0.15)$	640.1	$637^{+30}_{-33}$
$\ln(10^{10}A_{\mathrm{s}})$	3.231	$3.21^{+0.18}_{-0.18}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.5680	$0.564^{+0.035}_{-0.033}$	$H(0.38)$	83.4	$84.1^{+6.2}_{-4.9}$
$n_{\mathrm{s}}$	0.964	$0.963^{+0.051}_{-0.053}$	$\sigma_8/h^{0.5}$	0.920	$0.908^{+0.089}_{-0.093}$	$D_{\mathrm{M}}(0.38)$	1525	$1516^{+78}_{-88}$
$b_{\mathrm{DES}}^1$	1.573	$1.59^{+0.25}_{-0.24}$	$r_{\mathrm{drag}}h$	100.16	$99.98^{+3.3}_{-3.5}$	$H(0.51)$	90.2	$91.0^{+7.4}_{-5.8}$
$b_{\mathrm{DES}}^2$	1.787	$1.80^{+0.21}_{-0.21}$	$\langle d^2 \rangle^{1/2}$	2.561	$2.55^{+0.11}_{-0.11}$	$D_{\mathrm{M}}(0.51)$	1975	$1962^{+110}_{-120}$
$b_{\mathrm{DES}}^3$	1.765	$1.78^{+0.19}_{-0.18}$	$z_{\mathrm{re}}$	7.83	$7.92^{+0.75}_{-0.61}$	$H(0.61)$	95.9	$96.9^{+8.4}_{-6.5}$
$b_{\mathrm{DES}}^4$	2.129	$2.14^{+0.22}_{-0.21}$	$10^9 A_{\mathrm{s}}$	2.531	$2.48^{+0.47}_{-0.41}$	$D_{\mathrm{M}}(0.61)$	2297	$2281^{+130}_{-140}$
$b_{\mathrm{DES}}^5$	2.198	$2.21^{+0.26}_{-0.25}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	2.267	$2.22^{+0.43}_{-0.37}$	$H(2.33)$	238.4	$242^{+30}_{-20}$
$m_{\mathrm{DES}}^1$	0.013	$0.011^{+0.059}_{-0.059}$	$D_{40}$	1488	$1450^{+300}_{-300}$	$D_{\mathrm{M}}(2.33)$	5725	$5672^{+430}_{-470}$
$m_{\mathrm{DES}}^2$	0.015	$0.013^{+0.057}_{-0.057}$	$D_{220}$	7020	$6800^{+2000}_{-2000}$	$f\sigma_8(0.15)$	0.4355	$0.434^{+0.020}_{-0.020}$
$m_{\mathrm{DES}}^3$	0.004	$0.004^{+0.052}_{-0.053}$	$D_{810}$	3072	$2960^{+700}_{-700}$	$\sigma_8(0.15)$	0.699	$0.691^{+0.067}_{-0.068}$
$m_{\mathrm{DES}}^4$	0.008	$0.008^{+0.054}_{-0.053}$	$D_{1420}$	981	$932^{+200}_{-300}$	$f\sigma_8(0.38)$	0.4526	$0.449^{+0.022}_{-0.024}$
$A_{\mathrm{IA,DES}}$	0.417	$0.42^{+0.47}_{-0.39}$	$D_{2000}$	278	$266^{+70}_{-80}$	$\sigma_8(0.38)$	0.621	$0.613^{+0.063}_{-0.065}$
$\alpha_{\mathrm{IA,DES}}$	-2.1	—	$n_{\mathrm{s},0.002}$	0.964	$0.963^{+0.051}_{-0.053}$	$f\sigma_8(0.51)$	0.4511	$0.447^{+0.025}_{-0.028}$
$\Delta z_{\mathrm{l,DES}}^1$	0.0034	$0.004^{+0.019}_{-0.019}$	$Y_{\mathrm{P}}$	0.24533	$0.24532^{+0.00055}_{-0.00057}$	$\sigma_8(0.51)$	0.581	$0.574^{+0.061}_{-0.063}$
$\Delta z_{\mathrm{l,DES}}^2$	0.0011	$0.001^{+0.017}_{-0.017}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.24666	$0.24664^{+0.00055}_{-0.00058}$	$f\sigma_8(0.61)$	0.4464	$0.442^{+0.026}_{-0.030}$
$\Delta z_{\mathrm{l,DES}}^3$	0.0037	$0.004^{+0.017}_{-0.017}$	$10^5 \mathrm{D}/\mathrm{H}$	2.614	$2.62^{+0.27}_{-0.23}$	$\sigma_8(0.61)$	0.553	$0.546^{+0.058}_{-0.061}$
$\Delta z_{\mathrm{l,DES}}^4$	0.0014	$0.001^{+0.024}_{-0.024}$	Age/Gyr	13.70	$13.6^{+1.0}_{-1.1}$	$f\sigma_8(2.33)$	0.2857	$0.282^{+0.026}_{-0.030}$
$\Delta z_{\mathrm{l,DES}}^5$	0.0000	$0.000^{+0.026}_{-0.025}$	$z_*$	1089.95	$1090.3^{+3.4}_{-2.7}$	$\sigma_8(2.33)$	0.2903	$0.286^{+0.031}_{-0.035}$
$\Delta z_{\mathrm{s,DES}}^1$	-0.0013	$-0.004^{+0.037}_{-0.037}$	$r_*$	145.2	$144.3^{+6.6}_{-8.1}$	$\chi_{\mathrm{lensing}}^2$	8.22	$9.7 (\nu: 1.6)$
$\Delta z_{\mathrm{s,DES}}^2$	-0.0289	$-0.030^{+0.027}_{-0.028}$	$100\theta_*$	1.054	$1.060^{+0.054}_{-0.046}$	$\chi_{6\mathrm{DF}}^2$	0.002	$0.070 (\nu: 0.0)$
$\Delta z_{\mathrm{s,DES}}^3$	0.0059	$0.006^{+0.025}_{-0.025}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.78	$13.6^{+1.2}_{-1.4}$	$\chi_{\mathrm{MGS}}^2$	1.61	$1.64 (\nu: 0.3)$
$\Delta z_{\mathrm{s,DES}}^4$	-0.0242	$-0.024^{+0.048}_{-0.047}$	$z_{\mathrm{drag}}$	1059.44	$1059.7^{+4.0}_{-3.9}$	$\chi_{\mathrm{DR12BAO}}^2$	2.79	$3.7 (\nu: 1.0)$
$H_0$	67.69	$68.0^{+3.4}_{-2.9}$	$r_{\mathrm{drag}}$	148.0	$147.0^{+7.0}_{-8.4}$	$\chi_{\mathrm{DES}}^2$	501.9	$512.2 (\nu: 10.3)$
$\Omega_{\Lambda}$	0.683	$0.676^{+0.049}_{-0.064}$	$k_{\mathrm{D}}$	0.1400	$0.141^{+0.010}_{-0.0077}$	$\chi_{\mathrm{prior}}^2$	1.2	$14.3 (\nu: 13.7)$
$\Omega_{\mathrm{m}}$	0.317	$0.324^{+0.064}_{-0.049}$	$100\theta_{\mathrm{D}}$	0.1629	$0.1636^{+0.0071}_{-0.0063}$	$\chi_{\mathrm{BAO}}^2$	4.40	$5.4 (\nu: 1.6)$
$\Omega_{\mathrm{m}}h^2$	0.1454	$0.150^{+0.041}_{-0.029}$	$z_{\mathrm{eq}}$	3314	$3395^{+700}_{-500}$			
$\Omega_{\nu}h^2$	0.0067	$< 0.0192$	$k_{\mathrm{eq}}$	0.01012	$0.0104^{+0.0023}_{-0.0017}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 515.71$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 541.63$ ;  $R - 1 = 0.00588$

$\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.61 DR12BAO: 2.79 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8\_CMBmargd: 8.22 WL - DES\_1YR\_final: 501.86



# 6.138 base\_mnu\_DESlens\_lenspriors\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02222	$0.0222^{+0.0013}_{-0.0013}$	$r_{\mathrm{drag}}h$	99.73	$99.5^{+3.6}_{-3.9}$	$H(0.15)$	73.71	$74.2^{+5.4}_{-3.9}$
$\Omega_{\mathrm{c}}h^2$	0.1227	$0.127^{+0.041}_{-0.027}$	$\langle d^2 \rangle^{1/2}$	2.529	$2.53^{+0.12}_{-0.12}$	$D_{\mathrm{M}}(0.15)$	635.1	$631^{+32}_{-39}$
$100\theta_{\mathrm{MC}}$	1.060	$1.067^{+0.067}_{-0.050}$	$z_{\mathrm{re}}$	7.94	$8.04^{+0.96}_{-0.66}$	$H(0.38)$	84.3	$85.1^{+8.2}_{-5.5}$
$\Sigma m_{\nu}$ [eV]	0.61	< 2.26	$10^9 A_{\mathrm{s}}$	2.373	$2.34^{+0.53}_{-0.44}$	$D_{\mathrm{M}}(0.38)$	1511	$1501^{+85}_{-110}$
$\ln(10^{10} A_{\mathrm{s}})$	3.167	$3.15^{+0.21}_{-0.20}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	2.126	$2.10^{+0.47}_{-0.39}$	$H(0.51)$	91.4	$92.3^{+9.9}_{-6.5}$
$n_{\mathrm{s}}$	0.962	$0.961^{+0.051}_{-0.052}$	$D_{40}$	1390	$1361^{+300}_{-300}$	$D_{\mathrm{M}}(0.51)$	1956	$1941^{+120}_{-150}$
$m_{\mathrm{DES}}^1$	0.014	$0.013^{+0.059}_{-0.059}$	$D_{220}$	6422	$6266^{+2000}_{-2000}$	$H(0.61)$	97.2	$98^{+10}_{-7}$
$m_{\mathrm{DES}}^2$	0.013	$0.012^{+0.057}_{-0.058}$	$D_{810}$	2845	$2747^{+800}_{-900}$	$D_{\mathrm{M}}(0.61)$	2274	$2256^{+140}_{-180}$
$m_{\mathrm{DES}}^3$	-0.003	$-0.005^{+0.053}_{-0.054}$	$D_{1420}$	905	$857^{+300}_{-400}$	$H(2.33)$	243.1	$247^{+40}_{-30}$
$m_{\mathrm{DES}}^4$	0.015	$0.013^{+0.054}_{-0.054}$	$D_{2000}$	258	$245^{+80}_{-100}$	$D_{\mathrm{M}}(2.33)$	5644	$5586^{+470}_{-600}$
$A_{\mathrm{IA,DES}}$	1.32	$1.1^{+1.3}_{-1.3}$	$n_{\mathrm{s},0.002}$	0.962	$0.961^{+0.051}_{-0.052}$	$f\sigma_8(0.15)$	0.4452	$0.442^{+0.024}_{-0.026}$
$\alpha_{\mathrm{IA,DES}}$	2.6	—	$Y_{\mathrm{P}}$	0.24534	$0.24532^{+0.00055}_{-0.00055}$	$\sigma_8(0.15)$	0.706	$0.696^{+0.070}_{-0.084}$
$\Delta z_{\mathrm{s,DES}}^1$	0.0039	$0.003^{+0.037}_{-0.038}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.24666	$0.24665^{+0.00056}_{-0.00056}$	$f\sigma_8(0.38)$	0.4605	$0.456^{+0.026}_{-0.031}$
$\Delta z_{\mathrm{s,DES}}^2$	-0.0197	$-0.020^{+0.030}_{-0.030}$	$10^5 \mathrm{D}/\mathrm{H}$	2.614	$2.62^{+0.26}_{-0.23}$	$\sigma_8(0.38)$	0.626	$0.616^{+0.065}_{-0.081}$
$\Delta z_{\mathrm{s,DES}}^3$	0.0060	$0.006^{+0.027}_{-0.027}$	Age/Gyr	13.51	$13.4^{+1.1}_{-1.5}$	$f\sigma_8(0.51)$	0.4581	$0.453^{+0.028}_{-0.035}$
$\Delta z_{\mathrm{s,DES}}^4$	-0.020	$-0.020^{+0.053}_{-0.051}$	$z_*$	1090.48	$1090.9^{+4.4}_{-2.9}$	$\sigma_8(0.51)$	0.586	$0.576^{+0.062}_{-0.078}$
$H_0$	68.15	$68.5^{+3.9}_{-3.1}$	$r_*$	143.7	$142.6^{+7.5}_{-10}$	$f\sigma_8(0.61)$	0.4526	$0.447^{+0.030}_{-0.038}$
$\Omega_{\Lambda}$	0.674	$0.666^{+0.056}_{-0.084}$	$100\theta_*$	1.061	$1.068^{+0.067}_{-0.051}$	$\sigma_8(0.61)$	0.557	$0.548^{+0.060}_{-0.076}$
$\Omega_{\mathrm{m}}$	0.326	$0.334^{+0.084}_{-0.056}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.54	$13.4^{+1.4}_{-1.7}$	$f\sigma_8(2.33)$	0.2870	$0.282^{+0.027}_{-0.039}$
$\Omega_{\mathrm{m}}h^2$	0.1514	$0.157^{+0.053}_{-0.036}$	$z_{\mathrm{drag}}$	1059.89	$1060.2^{+4.5}_{-4.1}$	$\sigma_8(2.33)$	0.2915	$0.286^{+0.032}_{-0.043}$
$\Omega_{\nu}h^2$	0.0065	< 0.0243	$r_{\mathrm{drag}}$	146.3	$145.3^{+7.9}_{-11}$	$\chi_{\mathrm{lensing}}^2$	7.57	9.3 ( $\nu$ : 1.5)
$\Omega_{\mathrm{m}}h^3$	0.1032	$0.108^{+0.043}_{-0.028}$	$k_{\mathrm{D}}$	0.1417	$0.143^{+0.013}_{-0.0088}$	$\chi_{6\mathrm{DF}}^2$	0.014	0.09 ( $\nu$ : 0.0)
$\sigma_8$	0.765	$0.755^{+0.072}_{-0.085}$	$100\theta_{\mathrm{D}}$	0.1638	$0.1646^{+0.0087}_{-0.0067}$	$\chi_{\mathrm{MGS}}^2$	1.41	1.45 ( $\nu$ : 0.3)
$S_8$	0.7977	$0.794^{+0.047}_{-0.051}$	$z_{\mathrm{eq}}$	3463	$3555^{+1000}_{-600}$	$\chi_{\mathrm{DR12BAO}}^2$	2.58	3.5 ( $\nu$ : 1.0)
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4369	$0.435^{+0.026}_{-0.028}$	$k_{\mathrm{eq}}$	0.01058	$0.0109^{+0.0031}_{-0.0020}$	$\chi_{\mathrm{DES}}^2$	229.1	232.7 ( $\nu$ : 3.2)
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.5782	$0.573^{+0.039}_{-0.042}$	$100\theta_{\mathrm{eq}}$	0.818	$0.812^{+0.082}_{-0.088}$	$\chi_{\mathrm{prior}}^2$	0.7	9.6 ( $\nu$ : 9.1)
$\sigma_8/h^{0.5}$	0.927	$0.912^{+0.092}_{-0.12}$	$100\theta_{\mathrm{s,eq}}$	0.4527	$0.449^{+0.041}_{-0.045}$	$\chi_{\mathrm{BAO}}^2$	4.00	5.1 ( $\nu$ : 1.5)

Best-fit  $\chi_{\mathrm{eff}}^2 = 241.37$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 256.69$ ;  $R - 1 = 0.00980$

$\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 2.58 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.57 WL - DES\_1YR\_final: 229.15



### 6.139 base\_mnu\_DES\_DESpriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.258	$0.281^{+0.10}_{-0.075}$	$m_{\text{DES}}^3$	0.007	$0.009^{+0.055}_{-0.054}$	$\Omega_{\text{b}}h^2$	0.0540	$0.029^{+0.025}_{-0.020}$
$\Omega_b$	0.0654	—	$m_{\text{DES}}^4$	0.0099	$0.011^{+0.054}_{-0.055}$	$\Omega_{\text{c}}h^2$	0.149	$0.121^{+0.055}_{-0.047}$
$H_0$	90.8	—	$A_{\text{IA,DES}}$	0.506	$0.46^{+0.53}_{-0.44}$	$\Omega_{\Lambda}$	0.742	$0.719^{+0.075}_{-0.10}$
$\Sigma m_{\nu}$ [eV]	0.877	—	$\alpha_{\text{IA,DES}}$	−1.3	—	$\Omega_{\nu}h^2$	0.0094	$0.0057^{+0.0050}_{-0.0052}$
$10^9 A_{\text{s}}$	2.88	$2.8^{+1.7}_{-1.2}$	$\Delta z_{\text{l,DES}}^1$	0.0039	$0.004^{+0.019}_{-0.019}$	$\ln(10^{10} A_{\text{s}})$	3.36	$3.32^{+0.50}_{-0.52}$
$n_{\text{s}}$	1.069	—	$\Delta z_{\text{l,DES}}^2$	0.0019	$0.002^{+0.017}_{-0.017}$	$\sigma_8$	0.863	$0.81^{+0.17}_{-0.16}$
$b_{\text{DES}}^1$	1.388	$1.46^{+0.41}_{-0.33}$	$\Delta z_{\text{l,DES}}^3$	0.0046	$0.004^{+0.017}_{-0.017}$	$S_8$	0.800	$0.780^{+0.063}_{-0.065}$
$b_{\text{DES}}^2$	1.591	$1.67^{+0.43}_{-0.33}$	$\Delta z_{\text{l,DES}}^4$	0.0029	$0.002^{+0.024}_{-0.023}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4382	$0.427^{+0.035}_{-0.035}$
$b_{\text{DES}}^3$	1.580	$1.66^{+0.40}_{-0.31}$	$\Delta z_{\text{l,DES}}^5$	0.0010	$0.001^{+0.026}_{-0.025}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.615	$0.589^{+0.079}_{-0.080}$
$b_{\text{DES}}^4$	1.907	$2.00^{+0.49}_{-0.38}$	$\Delta z_{\text{s,DES}}^1$	−0.0013	$-0.004^{+0.036}_{-0.037}$	$\chi_{\text{DES}}^2$	498.2	$511.6 (\nu: 12.4)$
$b_{\text{DES}}^5$	1.969	$2.06^{+0.52}_{-0.42}$	$\Delta z_{\text{s,DES}}^2$	−0.0292	$-0.030^{+0.027}_{-0.028}$	$\chi_{\text{prior}}^2$	1.3	$12.2 (\nu: 11.6)$
$m_{\text{DES}}^1$	0.013	$0.012^{+0.059}_{-0.059}$	$\Delta z_{\text{s,DES}}^3$	0.0064	$0.007^{+0.025}_{-0.026}$			
$m_{\text{DES}}^2$	0.015	$0.014^{+0.058}_{-0.057}$	$\Delta z_{\text{s,DES}}^4$	−0.0261	$-0.023^{+0.048}_{-0.048}$			

Best-fit  $\chi_{\text{eff}}^2 = 499.47$ ;  $\bar{\chi}_{\text{eff}}^2 = 523.87$ ;  $R - 1 = 0.00686$

$\chi_{\text{eff}}^2$ : WL - DES\_1YR\_final: 498.18

### 6.140 base\_mnu\_DESlens\_DESpriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.255	$0.31^{+0.23}_{-0.14}$	$m_{\text{DES}}^4$	0.017	$0.017^{+0.056}_{-0.055}$	$\Omega_{\Lambda}$	0.745	$0.69^{+0.14}_{-0.23}$
$\Omega_b$	0.0374	—	$A_{\text{IA,DES}}$	1.36	$0.8^{+1.7}_{-4.4}$	$\Omega_{\nu}h^2$	0.0014	$0.0054^{+0.0053}_{-0.0049}$
$H_0$	73.6	—	$\alpha_{\text{IA,DES}}$	3.5	—	$\ln(10^{10} A_{\text{s}})$	3.20	$3.11^{+0.86}_{-1.2}$
$\Sigma m_{\nu}$ [eV]	0.134	—	$\Delta z_{\text{s,DES}}^1$	0.0029	$0.002^{+0.038}_{-0.039}$	$\sigma_8$	0.878	$0.79^{+0.25}_{-0.25}$
$10^9 A_{\text{s}}$	2.44	—	$\Delta z_{\text{s,DES}}^2$	−0.0192	$-0.020^{+0.031}_{-0.031}$	$S_8$	0.810	$0.780^{+0.075}_{-0.14}$
$n_{\text{s}}$	0.969	—	$\Delta z_{\text{s,DES}}^3$	0.0079	$0.008^{+0.027}_{-0.027}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.444	$0.427^{+0.041}_{-0.075}$
$m_{\text{DES}}^1$	0.015	$0.013^{+0.059}_{-0.058}$	$\Delta z_{\text{s,DES}}^4$	−0.017	$-0.016^{+0.053}_{-0.053}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.624	$0.58^{+0.11}_{-0.12}$
$m_{\text{DES}}^2$	0.014	$0.013^{+0.057}_{-0.057}$	$\Omega_{\text{b}}h^2$	0.0203	$0.027^{+0.026}_{-0.018}$	$\chi_{\text{DES}}^2$	228.7	$233.4 (\nu: 3.8)$
$m_{\text{DES}}^3$	0.002	$0.003^{+0.055}_{-0.054}$	$\Omega_{\text{c}}h^2$	0.117	$0.133^{+0.11}_{-0.065}$	$\chi_{\text{prior}}^2$	0.3	$7.5 (\nu: 7.0)$

Best-fit  $\chi_{\text{eff}}^2 = 229.04$ ;  $\bar{\chi}_{\text{eff}}^2 = 240.82$ ;  $R - 1 = 0.00860$

$\chi_{\text{eff}}^2$ : WL - DES\_1YR\_final: 228.71

### 6.141 base\_mnu\_DESw\_t\_DESpriors

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.312	$0.315^{+0.13}_{-0.099}$	$m_{\text{DES}}^3$	0.019	$0.022^{+0.055}_{-0.056}$	$\Omega_{\text{b}}h^2$	0.0380	$0.025^{+0.027}_{-0.017}$
$\Omega_b$	0.0580	—	$m_{\text{DES}}^4$	0.006	$0.008^{+0.056}_{-0.057}$	$\Omega_{\text{c}}h^2$	0.156	$0.117^{+0.061}_{-0.042}$
$H_0$	80.9	—	$A_{\text{IA,DES}}$	0.323	$0.39^{+0.51}_{-0.42}$	$\Omega_{\Lambda}$	0.688	$0.685^{+0.099}_{-0.13}$
$\Sigma m_{\nu}$ [eV]	0.936	—	$\alpha_{\text{IA,DES}}$	−3.5	—	$\Omega_{\nu}h^2$	0.0101	$0.0065^{+0.0043}_{-0.0058}$
$10^9 A_{\text{s}}$	2.23	$2.7^{+1.9}_{-1.2}$	$\Delta z_{\text{l,DES}}^1$	0.0024	$0.003^{+0.020}_{-0.020}$	$\ln(10^{10} A_{\text{s}})$	3.11	$3.27^{+0.55}_{-0.55}$
$n_{\text{s}}$	0.898	—	$\Delta z_{\text{l,DES}}^2$	0.0017	$0.002^{+0.017}_{-0.018}$	$\sigma_8$	0.766	$0.76^{+0.21}_{-0.16}$
$b_{\text{DES}}^1$	1.495	$1.53^{+0.48}_{-0.38}$	$\Delta z_{\text{l,DES}}^3$	0.0050	$0.005^{+0.017}_{-0.017}$	$S_8$	0.781	$0.771^{+0.091}_{-0.089}$
$b_{\text{DES}}^2$	1.739	$1.78^{+0.50}_{-0.41}$	$\Delta z_{\text{l,DES}}^4$	0.0036	$0.003^{+0.024}_{-0.024}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4279	$0.423^{+0.050}_{-0.049}$
$b_{\text{DES}}^3$	1.720	$1.76^{+0.48}_{-0.39}$	$\Delta z_{\text{l,DES}}^5$	0.0008	$0.000^{+0.025}_{-0.026}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.572	$0.566^{+0.10}_{-0.089}$
$b_{\text{DES}}^4$	2.07	$2.12^{+0.57}_{-0.48}$	$\Delta z_{\text{s,DES}}^1$	0.0005	$-0.004^{+0.038}_{-0.037}$	$\chi_{\text{DES}}^2$	249.3	$260.8 (\nu: 11.8)$
$b_{\text{DES}}^5$	2.13	$2.17^{+0.61}_{-0.49}$	$\Delta z_{\text{s,DES}}^2$	−0.0305	$-0.031^{+0.029}_{-0.028}$	$\chi_{\text{prior}}^2$	1.5	$13.0 (\nu: 12.6)$
$m_{\text{DES}}^1$	0.013	$0.011^{+0.059}_{-0.059}$	$\Delta z_{\text{s,DES}}^3$	0.0067	$0.008^{+0.026}_{-0.025}$			
$m_{\text{DES}}^2$	0.0096	$0.009^{+0.058}_{-0.059}$	$\Delta z_{\text{s,DES}}^4$	−0.0244	$-0.022^{+0.049}_{-0.049}$			



Best-fit  $\chi^2_{\text{eff}} = 250.75$ ;  $\bar{\chi}^2_{\text{eff}} = 273.76$ ;  $R - 1 = 0.00693$   
 $\chi^2_{\text{eff}}$ : WL - DES\_1YR\_final: 249.28

### 6.142 base\_mnu\_DES\_DESpriors\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.278	$0.284^{+0.072}_{-0.054}$	$m_{\text{DES}}^3$	0.011	$0.011^{+0.054}_{-0.053}$	$\Omega_{\text{b}} h^2$	0.0440	$0.030^{+0.024}_{-0.021}$
$\Omega_b$	0.0621	—	$m_{\text{DES}}^4$	0.013	$0.013^{+0.054}_{-0.054}$	$\Omega_{\text{c}} h^2$	0.142	$0.126^{+0.056}_{-0.051}$
$H_0$	84.2	—	$A_{\text{IA,DES}}$	0.471	$0.45^{+0.53}_{-0.44}$	$\Omega_{\Lambda}$	0.722	$0.716^{+0.054}_{-0.072}$
$\Sigma m_{\nu}$ [eV]	0.999	—	$\alpha_{\text{IA,DES}}$	-1.2	—	$\Omega_{\nu} h^2$	0.0107	$0.0061^{+0.0047}_{-0.0055}$
$10^9 A_{\text{s}}$	2.68	$2.60^{+1.1}_{-0.81}$	$\Delta z_{\text{l,DES}}^1$	0.0038	$0.004^{+0.019}_{-0.019}$	$\ln(10^{10} A_{\text{s}})$	3.288	$3.24^{+0.36}_{-0.36}$
$n_{\text{s}}$	1.070	—	$\Delta z_{\text{l,DES}}^2$	0.0018	$0.002^{+0.017}_{-0.017}$	$\sigma_8$	0.812	$0.798^{+0.089}_{-0.088}$
$b_{\text{DES}}^1$	1.479	$1.49^{+0.26}_{-0.24}$	$\Delta z_{\text{l,DES}}^3$	0.0040	$0.004^{+0.017}_{-0.017}$	$S_8$	0.7811	$0.774^{+0.040}_{-0.039}$
$b_{\text{DES}}^2$	1.693	$1.70^{+0.24}_{-0.21}$	$\Delta z_{\text{l,DES}}^4$	0.0021	$0.002^{+0.024}_{-0.023}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4278	$0.424^{+0.022}_{-0.022}$
$b_{\text{DES}}^3$	1.681	$1.69^{+0.21}_{-0.19}$	$\Delta z_{\text{l,DES}}^5$	0.0004	$0.000^{+0.026}_{-0.025}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5894	$0.582^{+0.038}_{-0.038}$
$b_{\text{DES}}^4$	2.029	$2.04^{+0.24}_{-0.22}$	$\Delta z_{\text{s,DES}}^1$	-0.0016	$-0.004^{+0.036}_{-0.035}$	$\chi^2_{\text{lensing}}$	7.44	$9.0 (\nu: 1.2)$
$b_{\text{DES}}^5$	2.105	$2.11^{+0.27}_{-0.25}$	$\Delta z_{\text{s,DES}}^2$	-0.0288	$-0.029^{+0.028}_{-0.028}$	$\chi^2_{\text{DES}}$	499.5	$511.3 (\nu: 10.2)$
$m_{\text{DES}}^1$	0.014	$0.012^{+0.059}_{-0.058}$	$\Delta z_{\text{s,DES}}^3$	0.0077	$0.008^{+0.025}_{-0.025}$	$\chi^2_{\text{prior}}$	0.98	$12.0 (\nu: 11.2)$
$m_{\text{DES}}^2$	0.016	$0.014^{+0.057}_{-0.057}$	$\Delta z_{\text{s,DES}}^4$	-0.0223	$-0.022^{+0.049}_{-0.047}$			

Best-fit  $\chi^2_{\text{eff}} = 507.92$ ;  $\bar{\chi}^2_{\text{eff}} = 532.21$ ;  $R - 1 = 0.00935$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp-p.teb.consext8.CMBmargd: 7.44 WL - DES\_1YR\_final: 499.50

### 6.143 base\_mnu\_DESlens\_DESpriors\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.291	$0.289^{+0.088}_{-0.076}$	$A_{\text{IA,DES}}$	1.30	$0.8^{+1.6}_{-2.9}$	$\ln(10^{10} A_{\text{s}})$	3.381	$3.20^{+0.38}_{-0.37}$
$\Omega_b$	0.0565	—	$\alpha_{\text{IA,DES}}$	3.2	—	$\sigma_8$	0.809	$0.803^{+0.10}_{-0.096}$
$H_0$	71.1	—	$\Delta z_{\text{s,DES}}^1$	0.0027	$0.002^{+0.037}_{-0.038}$	$S_8$	0.796	$0.786^{+0.054}_{-0.073}$
$\Sigma m_{\nu}$ [eV]	0.575	—	$\Delta z_{\text{s,DES}}^2$	-0.0196	$-0.020^{+0.030}_{-0.030}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4362	$0.430^{+0.030}_{-0.040}$
$10^9 A_{\text{s}}$	2.94	$2.49^{+1.1}_{-0.85}$	$\Delta z_{\text{s,DES}}^3$	0.0082	$0.008^{+0.028}_{-0.027}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5939	$0.588^{+0.044}_{-0.042}$
$n_{\text{s}}$	1.069	—	$\Delta z_{\text{s,DES}}^4$	-0.016	$-0.016^{+0.053}_{-0.053}$	$\chi^2_{\text{lensing}}$	7.09	$9.1 (\nu: 1.3)$
$m_{\text{DES}}^1$	0.015	$0.014^{+0.059}_{-0.059}$	$\Omega_{\text{b}} h^2$	0.0286	$0.028^{+0.025}_{-0.018}$	$\chi^2_{\text{DES}}$	228.8	$232.4 (\nu: 2.9)$
$m_{\text{DES}}^2$	0.014	$0.013^{+0.058}_{-0.057}$	$\Omega_{\text{c}} h^2$	0.112	$0.127^{+0.061}_{-0.049}$	$\chi^2_{\text{prior}}$	0.4	$7.4 (\nu: 6.8)$
$m_{\text{DES}}^3$	0.002	$0.003^{+0.055}_{-0.055}$	$\Omega_{\Lambda}$	0.709	$0.711^{+0.076}_{-0.088}$			
$m_{\text{DES}}^4$	0.018	$0.017^{+0.056}_{-0.055}$	$\Omega_{\nu} h^2$	0.0062	$0.0054^{+0.0053}_{-0.0048}$			

Best-fit  $\chi^2_{\text{eff}} = 236.25$ ;  $\bar{\chi}^2_{\text{eff}} = 248.87$ ;  $R - 1 = 0.00676$

$\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp-p.teb.consext8.CMBmargd: 7.09 WL - DES\_1YR\_final: 228.81



### 6.144 base\_mnu\_DESw\_t\_DESpriors\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.290	$0.301^{+0.11}_{-0.074}$	$m_{\text{DES}}^3$	0.022	$0.022^{+0.056}_{-0.055}$	$\Omega_{\text{b}}h^2$	0.0352	$0.027^{+0.026}_{-0.019}$
$\Omega_b$	0.0578	—	$m_{\text{DES}}^4$	0.008	$0.007^{+0.055}_{-0.056}$	$\Omega_{\text{c}}h^2$	0.131	$0.122^{+0.058}_{-0.045}$
$H_0$	78.1	—	$A_{\text{IA,DES}}$	0.382	$0.41^{+0.52}_{-0.41}$	$\Omega_{\Lambda}$	0.710	$0.699^{+0.074}_{-0.11}$
$\Sigma m_{\nu}$ [eV]	0.999	—	$\alpha_{\text{IA,DES}}$	−2.6	—	$\Omega_{\nu}h^2$	0.0107	$0.0062^{+0.0046}_{-0.0056}$
$10^9 A_{\text{s}}$	2.78	$2.58^{+1.1}_{-0.84}$	$\Delta z_{\text{l,DES}}^1$	0.0026	$0.003^{+0.020}_{-0.019}$	$\ln(10^{10} A_{\text{s}})$	3.324	$3.24^{+0.40}_{-0.35}$
$n_{\text{s}}$	1.057	—	$\Delta z_{\text{l,DES}}^2$	0.0016	$0.002^{+0.017}_{-0.017}$	$\sigma_8$	0.792	$0.776^{+0.098}_{-0.099}$
$b_{\text{DES}}^1$	1.478	$1.49^{+0.31}_{-0.27}$	$\Delta z_{\text{l,DES}}^3$	0.0045	$0.005^{+0.017}_{-0.017}$	$S_8$	0.7795	$0.774^{+0.049}_{-0.049}$
$b_{\text{DES}}^2$	1.721	$1.74^{+0.27}_{-0.23}$	$\Delta z_{\text{l,DES}}^4$	0.0029	$0.003^{+0.024}_{-0.024}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4270	$0.424^{+0.027}_{-0.027}$
$b_{\text{DES}}^3$	1.712	$1.73^{+0.25}_{-0.21}$	$\Delta z_{\text{l,DES}}^5$	0.0005	$0.000^{+0.026}_{-0.025}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5816	$0.573^{+0.041}_{-0.040}$
$b_{\text{DES}}^4$	2.066	$2.08^{+0.28}_{-0.25}$	$\Delta z_{\text{s,DES}}^1$	−0.0001	$−0.004^{+0.038}_{-0.038}$	$\chi_{\text{lensing}}^2$	7.47	$9.4 (\nu: 1.7)$
$b_{\text{DES}}^5$	2.135	$2.15^{+0.31}_{-0.28}$	$\Delta z_{\text{s,DES}}^2$	−0.0301	$−0.031^{+0.028}_{-0.028}$	$\chi_{\text{DES}}^2$	250.0	$260.4 (\nu: 10.5)$
$m_{\text{DES}}^1$	0.012	$0.011^{+0.059}_{-0.060}$	$\Delta z_{\text{s,DES}}^3$	0.0081	$0.008^{+0.025}_{-0.025}$	$\chi_{\text{prior}}^2$	1.3	$12.8 (\nu: 12.0)$
$m_{\text{DES}}^2$	0.010	$0.009^{+0.058}_{-0.058}$	$\Delta z_{\text{s,DES}}^4$	−0.0237	$−0.022^{+0.048}_{-0.048}$			

Best-fit  $\chi_{\text{eff}}^2 = 258.84$ ;  $\bar{\chi}_{\text{eff}}^2 = 282.60$ ;  $R - 1 = 0.00944$

$\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmargd: 7.47 WL - DES\_1YR\_final: 250.04

### 6.145 base\_mnu\_DES\_DESpriors\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.315	$0.315^{+0.050}_{-0.053}$	$m_{\text{DES}}^4$	0.0098	$0.011^{+0.055}_{-0.055}$	$\Omega_{\Lambda}$	0.685	$0.685^{+0.053}_{-0.050}$
$\Omega_b$	0.04988	$0.0490^{+0.0048}_{-0.0047}$	$A_{\text{IA,DES}}$	0.423	$0.42^{+0.47}_{-0.42}$	$\Omega_{\nu}h^2$	0.0106	$0.0071^{+0.0038}_{-0.0062}$
$H_0$	66.80	$67.4^{+3.4}_{-3.0}$	$\alpha_{\text{IA,DES}}$	−1.9	—	$\ln(10^{10} A_{\text{s}})$	3.464	$3.26^{+0.48}_{-0.47}$
$\Sigma m_{\nu}$ [eV]	0.987	—	$\Delta z_{\text{l,DES}}^1$	0.0037	$0.004^{+0.019}_{-0.019}$	$\sigma_8$	0.759	$0.751^{+0.11}_{-0.086}$
$10^9 A_{\text{s}}$	3.19	$2.6^{+1.6}_{-1.0}$	$\Delta z_{\text{l,DES}}^2$	0.0014	$0.001^{+0.017}_{-0.017}$	$S_8$	0.778	$0.768^{+0.057}_{-0.056}$
$n_{\text{s}}$	1.070	—	$\Delta z_{\text{l,DES}}^3$	0.0038	$0.004^{+0.017}_{-0.017}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4260	$0.421^{+0.031}_{-0.030}$
$b_{\text{DES}}^1$	1.578	$1.58^{+0.28}_{-0.27}$	$\Delta z_{\text{l,DES}}^4$	0.0016	$0.002^{+0.023}_{-0.024}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.568	$0.562^{+0.058}_{-0.051}$
$b_{\text{DES}}^2$	1.797	$1.80^{+0.27}_{-0.26}$	$\Delta z_{\text{l,DES}}^5$	0.0000	$0.000^{+0.025}_{-0.025}$	$\chi_{\text{6DF}}^2$	0.002	$0.064 (\nu: 0.0)$
$b_{\text{DES}}^3$	1.773	$1.78^{+0.26}_{-0.25}$	$\Delta z_{\text{s,DES}}^1$	−0.0018	$−0.004^{+0.037}_{-0.036}$	$\chi_{\text{MGS}}^2$	1.61	$1.69 (\nu: 0.3)$
$b_{\text{DES}}^4$	2.134	$2.14^{+0.32}_{-0.31}$	$\Delta z_{\text{s,DES}}^2$	−0.0289	$−0.030^{+0.028}_{-0.028}$	$\chi_{\text{DR12BAO}}^2$	2.90	$4.0 (\nu: 1.1)$
$b_{\text{DES}}^5$	2.198	$2.21^{+0.38}_{-0.35}$	$\Delta z_{\text{s,DES}}^3$	0.0064	$0.007^{+0.025}_{-0.026}$	$\chi_{\text{DES}}^2$	500.5	$512.5 (\nu: 11.7)$
$m_{\text{DES}}^1$	0.013	$0.011^{+0.059}_{-0.059}$	$\Delta z_{\text{s,DES}}^4$	−0.0234	$−0.021^{+0.048}_{-0.048}$	$\chi_{\text{prior}}^2$	1.1	$13.1 (\nu: 12.3)$
$m_{\text{DES}}^2$	0.015	$0.014^{+0.056}_{-0.057}$	$\Omega_{\text{b}}h^2$	0.02226	$0.0222^{+0.0013}_{-0.0013}$	$\chi_{\text{BAO}}^2$	4.51	$5.7 (\nu: 1.5)$
$m_{\text{DES}}^3$	0.006	$0.008^{+0.054}_{-0.054}$	$\Omega_{\text{c}}h^2$	0.1078	$0.114^{+0.032}_{-0.027}$			

Best-fit  $\chi_{\text{eff}}^2 = 506.14$ ;  $\bar{\chi}_{\text{eff}}^2 = 531.37$ ;  $R - 1 = 0.00865$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.61 DR12BAO: 2.90 WL - DES\_1YR\_final: 500.53



### 6.146 base\_mnu\_DESlens\_DESpriors\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.354	$0.347^{+0.11}_{-0.081}$	$\alpha_{\text{IA,DES}}$	2.6	—	$S_8$	0.786	$0.776^{+0.065}_{-0.098}$
$\Omega_b$	0.0459	$0.0462^{+0.0075}_{-0.0077}$	$\Delta z_{\text{s,DES}}^1$	0.0034	$0.002^{+0.038}_{-0.038}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4303	$0.425^{+0.036}_{-0.054}$
$H_0$	69.5	$69.5^{+6.8}_{-5.0}$	$\Delta z_{\text{s,DES}}^2$	-0.0207	$-0.020^{+0.030}_{-0.031}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.558	$0.554^{+0.064}_{-0.077}$
$\Sigma m_\nu$ [eV]	0.739	—	$\Delta z_{\text{s,DES}}^3$	0.0074	$0.008^{+0.028}_{-0.028}$	$\chi_{\text{6DF}}^2$	0.09	$0.17$ ( $\nu$ : 0.0)
$10^9 A_{\text{s}}$	1.79	$1.9^{+2.2}_{-1.3}$	$\Delta z_{\text{s,DES}}^4$	-0.016	$-0.016^{+0.053}_{-0.054}$	$\chi_{\text{MGS}}^2$	0.98	$1.19$ ( $\nu$ : 0.3)
$n_{\text{s}}$	0.987	—	$\Omega_{\text{b}} h^2$	0.02220	$0.0222^{+0.0013}_{-0.0013}$	$\chi_{\text{DR12BAO}}^2$	2.12	$3.6$ ( $\nu$ : 1.2)
$m_{\text{DES}}^1$	0.014	$0.014^{+0.058}_{-0.058}$	$\Omega_{\text{c}} h^2$	0.141	$0.140^{+0.081}_{-0.058}$	$\chi_{\text{DES}}^2$	229.0	$233.2$ ( $\nu$ : 3.8)
$m_{\text{DES}}^2$	0.014	$0.013^{+0.056}_{-0.058}$	$\Omega_{\Lambda}$	0.646	$0.653^{+0.081}_{-0.11}$	$\chi_{\text{prior}}^2$	0.5	$8.5$ ( $\nu$ : 8.1)
$m_{\text{DES}}^3$	0.000	$0.001^{+0.057}_{-0.055}$	$\Omega_{\nu} h^2$	0.0079	$0.0061^{+0.0048}_{-0.0055}$	$\chi_{\text{BAO}}^2$	3.19	$4.9$ ( $\nu$ : 1.6)
$m_{\text{DES}}^4$	0.018	$0.018^{+0.056}_{-0.055}$	$\ln(10^{10} A_{\text{s}})$	2.88	$2.85^{+0.91}_{-0.99}$			
$A_{\text{IA,DES}}$	1.29	$0.9^{+1.4}_{-2.8}$	$\sigma_8$	0.724	$0.72^{+0.12}_{-0.13}$			

Best-fit  $\chi_{\text{eff}}^2 = 232.61$ ;  $\bar{\chi}_{\text{eff}}^2 = 246.55$ ;  $R - 1 = 0.00549$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.09 MGS: 0.98 DR12BAO: 2.12 WL - DES\_1YR\_final: 228.96

### 6.147 base\_mnu\_DESwt\_DESpriors\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.354	$0.322^{+0.050}_{-0.056}$	$m_{\text{DES}}^4$	0.005	$0.007^{+0.057}_{-0.056}$	$\Omega_{\Lambda}$	0.646	$0.678^{+0.056}_{-0.050}$
$\Omega_b$	0.04657	$0.0486^{+0.0049}_{-0.0044}$	$A_{\text{IA,DES}}$	0.280	$0.38^{+0.47}_{-0.41}$	$\Omega_{\nu} h^2$	0.01074	$0.0076^{+0.0033}_{-0.0065}$
$H_0$	69.06	$67.6^{+3.4}_{-3.1}$	$\alpha_{\text{IA,DES}}$	-4.1	—	$\ln(10^{10} A_{\text{s}})$	3.097	$3.23^{+0.49}_{-0.47}$
$\Sigma m_\nu$ [eV]	0.999	—	$\Delta z_{\text{i,DES}}^1$	0.0026	$0.003^{+0.020}_{-0.020}$	$\sigma_8$	0.712	$0.74^{+0.12}_{-0.10}$
$10^9 A_{\text{s}}$	2.21	$2.6^{+1.5}_{-1.1}$	$\Delta z_{\text{i,DES}}^2$	0.0018	$0.002^{+0.017}_{-0.018}$	$S_8$	0.773	$0.768^{+0.088}_{-0.086}$
$n_{\text{s}}$	0.878	—	$\Delta z_{\text{i,DES}}^3$	0.0046	$0.005^{+0.017}_{-0.017}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4235	$0.420^{+0.048}_{-0.047}$
$b_{\text{DES}}^1$	1.599	$1.55^{+0.31}_{-0.29}$	$\Delta z_{\text{i,DES}}^4$	0.0032	$0.003^{+0.024}_{-0.024}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.549	$0.559^{+0.074}_{-0.067}$
$b_{\text{DES}}^2$	1.855	$1.80^{+0.32}_{-0.28}$	$\Delta z_{\text{i,DES}}^5$	0.0007	$0.000^{+0.025}_{-0.025}$	$\chi_{\text{6DF}}^2$	0.089	$0.08$ ( $\nu$ : 0.0)
$b_{\text{DES}}^3$	1.830	$1.79^{+0.30}_{-0.28}$	$\Delta z_{\text{s,DES}}^1$	0.0014	$-0.004^{+0.038}_{-0.038}$	$\chi_{\text{MGS}}^2$	0.98	$1.51$ ( $\nu$ : 0.2)
$b_{\text{DES}}^4$	2.200	$2.15^{+0.38}_{-0.33}$	$\Delta z_{\text{s,DES}}^2$	-0.0304	$-0.031^{+0.028}_{-0.028}$	$\chi_{\text{DR12BAO}}^2$	2.11	$3.8$ ( $\nu$ : 1.3)
$b_{\text{DES}}^5$	2.253	$2.21^{+0.42}_{-0.37}$	$\Delta z_{\text{s,DES}}^3$	0.0070	$0.009^{+0.026}_{-0.025}$	$\chi_{\text{DES}}^2$	249.7	$260.3$ ( $\nu$ : 11.5)
$m_{\text{DES}}^1$	0.013	$0.011^{+0.058}_{-0.058}$	$\Delta z_{\text{s,DES}}^4$	-0.023	$-0.022^{+0.052}_{-0.048}$	$\chi_{\text{prior}}^2$	1.4	$13.9$ ( $\nu$ : 13.7)
$m_{\text{DES}}^2$	0.009	$0.009^{+0.059}_{-0.059}$	$\Omega_{\text{b}} h^2$	0.02221	$0.0222^{+0.0013}_{-0.0013}$	$\chi_{\text{BAO}}^2$	3.19	$5.4$ ( $\nu$ : 1.5)
$m_{\text{DES}}^3$	0.019	$0.021^{+0.056}_{-0.056}$	$\Omega_{\text{c}} h^2$	0.1356	$0.117^{+0.029}_{-0.028}$			

Best-fit  $\chi_{\text{eff}}^2 = 254.22$ ;  $\bar{\chi}_{\text{eff}}^2 = 279.70$ ;  $R - 1 = 0.00628$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.09 MGS: 0.98 DR12BAO: 2.12 WL - DES\_1YR\_final: 249.66



### 6.148 base\_mnu\_DES\_DESpriors\_lensing\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.3165	$0.310^{+0.046}_{-0.046}$	$m_{\text{DES}}^4$	0.008	$0.0095^{+0.053}_{-0.053}$	$\Omega_{\Lambda}$	0.6835	$0.690^{+0.046}_{-0.046}$
$\Omega_b$	0.04959	$0.0491^{+0.0043}_{-0.0044}$	$A_{\text{IA,DES}}$	0.421	$0.43^{+0.47}_{-0.40}$	$\Omega_{\nu} h^2$	0.0104	$0.0067^{+0.0042}_{-0.0058}$
$H_0$	66.94	$67.3^{+3.2}_{-2.8}$	$\alpha_{\text{IA,DES}}$	-2.1	—	$\ln(10^{10} A_{\text{s}})$	3.439	$3.29^{+0.25}_{-0.31}$
$\Sigma m_{\nu}$ [eV]	0.965	—	$\Delta z_{\text{l,DES}}^1$	0.0037	$0.004^{+0.019}_{-0.019}$	$\sigma_8$	0.762	$0.765^{+0.068}_{-0.057}$
$10^9 A_{\text{s}}$	3.11	$2.72^{+0.74}_{-0.75}$	$\Delta z_{\text{l,DES}}^2$	0.00099	$0.001^{+0.017}_{-0.017}$	$S_8$	0.7829	$0.777^{+0.038}_{-0.038}$
$n_{\text{s}}$	1.070	—	$\Delta z_{\text{l,DES}}^3$	0.0038	$0.004^{+0.017}_{-0.017}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4288	$0.425^{+0.021}_{-0.021}$
$b_{\text{DES}}^1$	1.578	$1.56^{+0.22}_{-0.23}$	$\Delta z_{\text{l,DES}}^4$	0.0015	$0.002^{+0.024}_{-0.023}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5717	$0.570^{+0.034}_{-0.031}$
$b_{\text{DES}}^2$	1.793	$1.77^{+0.18}_{-0.19}$	$\Delta z_{\text{l,DES}}^5$	0.0002	$0.000^{+0.025}_{-0.025}$	$\chi_{\text{lensing}}^2$	7.78	$9.2 (\nu: 1.3)$
$b_{\text{DES}}^3$	1.773	$1.75^{+0.16}_{-0.17}$	$\Delta z_{\text{s,DES}}^1$	-0.0008	$-0.004^{+0.036}_{-0.037}$	$\chi_{6\text{DF}}^2$	0.002	$0.057 (\nu: 0.0)$
$b_{\text{DES}}^4$	2.135	$2.11^{+0.19}_{-0.19}$	$\Delta z_{\text{s,DES}}^2$	-0.0293	$-0.030^{+0.027}_{-0.028}$	$\chi_{\text{MGS}}^2$	1.61	$1.80 (\nu: 0.2)$
$b_{\text{DES}}^5$	2.206	$2.18^{+0.24}_{-0.23}$	$\Delta z_{\text{s,DES}}^3$	0.0057	$0.007^{+0.025}_{-0.025}$	$\chi_{\text{DR12BAO}}^2$	2.83	$4.1 (\nu: 1.1)$
$m_{\text{DES}}^1$	0.012	$0.011^{+0.059}_{-0.059}$	$\Delta z_{\text{s,DES}}^4$	-0.0242	$-0.023^{+0.048}_{-0.046}$	$\chi_{\text{DES}}^2$	500.6	$511.3 (\nu: 9.9)$
$m_{\text{DES}}^2$	0.015	$0.014^{+0.058}_{-0.057}$	$\Omega_{\text{b}} h^2$	0.02222	$0.0222^{+0.0013}_{-0.0013}$	$\chi_{\text{prior}}^2$	1.3	$13.1 (\nu: 12.1)$
$m_{\text{DES}}^3$	0.005	$0.006^{+0.052}_{-0.052}$	$\Omega_{\text{c}} h^2$	0.1093	$0.112^{+0.027}_{-0.021}$	$\chi_{\text{BAO}}^2$	4.44	$5.9 (\nu: 1.5)$

Best-fit  $\chi_{\text{eff}}^2 = 514.08$ ;  $\bar{\chi}_{\text{eff}}^2 = 539.54$ ;  $R - 1 = 0.00724$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.61 DR12BAO: 2.83 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8\_CMBmarged: 7.78 WL - DES\_1YR\_final: 500.59

### 6.149 base\_mnu\_DESlens\_DESpriors\_lensing\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.3271	$0.318^{+0.051}_{-0.048}$	$\alpha_{\text{IA,DES}}$	2.6	—	$S_8$	0.800	$0.794^{+0.049}_{-0.052}$
$\Omega_b$	0.04896	$0.0484^{+0.0049}_{-0.0047}$	$\Delta z_{\text{s,DES}}^1$	0.0035	$0.003^{+0.036}_{-0.037}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4380	$0.435^{+0.027}_{-0.029}$
$H_0$	67.33	$67.7^{+3.5}_{-3.2}$	$\Delta z_{\text{s,DES}}^2$	-0.0199	$-0.020^{+0.029}_{-0.030}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5792	$0.579^{+0.038}_{-0.038}$
$\Sigma m_{\nu}$ [eV]	0.991	—	$\Delta z_{\text{s,DES}}^3$	0.0062	$0.006^{+0.027}_{-0.028}$	$\chi_{\text{lensing}}^2$	7.38	$9.0 (\nu: 1.3)$
$10^9 A_{\text{s}}$	2.91	$2.51^{+0.86}_{-0.75}$	$\Delta z_{\text{s,DES}}^4$	-0.019	$-0.019^{+0.053}_{-0.052}$	$\chi_{6\text{DF}}^2$	0.020	$0.064 (\nu: 0.0)$
$n_{\text{s}}$	1.063	—	$\Omega_{\text{b}} h^2$	0.02219	$0.0222^{+0.0013}_{-0.0013}$	$\chi_{\text{MGS}}^2$	1.34	$1.62 (\nu: 0.2)$
$m_{\text{DES}}^1$	0.015	$0.014^{+0.058}_{-0.059}$	$\Omega_{\text{c}} h^2$	0.1154	$0.118^{+0.033}_{-0.025}$	$\chi_{\text{DR12BAO}}^2$	2.61	$3.9 (\nu: 1.3)$
$m_{\text{DES}}^2$	0.013	$0.012^{+0.057}_{-0.059}$	$\Omega_{\Lambda}$	0.6729	$0.682^{+0.048}_{-0.051}$	$\chi_{\text{DES}}^2$	229.0	$232.2 (\nu: 2.8)$
$m_{\text{DES}}^3$	-0.003	$-0.003^{+0.053}_{-0.053}$	$\Omega_{\nu} h^2$	0.0107	$0.0061^{+0.0048}_{-0.0055}$	$\chi_{\text{prior}}^2$	0.6	$8.5 (\nu: 8.0)$
$m_{\text{DES}}^4$	0.015	$0.014^{+0.056}_{-0.054}$	$\ln(10^{10} A_{\text{s}})$	3.371	$3.21^{+0.31}_{-0.32}$	$\chi_{\text{BAO}}^2$	3.97	$5.6 (\nu: 1.6)$
$A_{\text{IA,DES}}$	1.31	$1.0^{+1.3}_{-1.4}$	$\sigma_8$	0.766	$0.772^{+0.069}_{-0.061}$			

Best-fit  $\chi_{\text{eff}}^2 = 240.95$ ;  $\bar{\chi}_{\text{eff}}^2 = 255.26$ ;  $R - 1 = 0.00788$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.34 DR12BAO: 2.61 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8\_CMBmarged: 7.38 WL - DES\_1YR\_final: 228.99



# 6.150 base\_mnu\_DESw\_t\_DESpriors\_lensing\_BAO\_CookeDH

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{m}}$	0.3326	$0.320^{+0.048}_{-0.051}$	$m_{\text{DES}}^4$	0.005	$0.006^{+0.055}_{-0.056}$	$\Omega_{\Lambda}$	0.6674	$0.680^{+0.051}_{-0.048}$
$\Omega_b$	0.04819	$0.0486^{+0.0046}_{-0.0045}$	$A_{\text{IA,DES}}$	0.310	$0.39^{+0.47}_{-0.39}$	$\Omega_{\nu} h^2$	0.01075	$0.0072^{+0.0036}_{-0.0063}$
$H_0$	67.85	$67.6^{+3.2}_{-3.0}$	$\alpha_{\text{IA,DES}}$	-3.7	—	$\ln(10^{10} A_{\text{s}})$	3.290	$3.24^{+0.29}_{-0.29}$
$\Sigma m_{\nu}$ [eV]	0.999	—	$\Delta z_{\text{l,DES}}^1$	0.0023	$0.003^{+0.020}_{-0.020}$	$\sigma_8$	0.744	$0.755^{+0.067}_{-0.057}$
$10^9 A_{\text{s}}$	2.69	$2.58^{+0.84}_{-0.67}$	$\Delta z_{\text{l,DES}}^2$	0.0016	$0.002^{+0.017}_{-0.017}$	$S_8$	0.7838	$0.778^{+0.048}_{-0.046}$
$n_{\text{s}}$	1.003	—	$\Delta z_{\text{l,DES}}^3$	0.0046	$0.005^{+0.017}_{-0.017}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4293	$0.426^{+0.026}_{-0.025}$
$b_{\text{DES}}^1$	1.564	$1.53^{+0.23}_{-0.23}$	$\Delta z_{\text{l,DES}}^4$	0.0029	$0.003^{+0.024}_{-0.024}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5653	$0.567^{+0.036}_{-0.033}$
$b_{\text{DES}}^2$	1.814	$1.78^{+0.19}_{-0.19}$	$\Delta z_{\text{l,DES}}^5$	0.0004	$0.000^{+0.025}_{-0.025}$	$\chi_{\text{lensing}}^2$	8.36	$9.6 (\nu: 1.6)$
$b_{\text{DES}}^3$	1.797	$1.77^{+0.16}_{-0.16}$	$\Delta z_{\text{s,DES}}^1$	0.0009	$-0.004^{+0.037}_{-0.037}$	$\chi_{\text{6DF}}^2$	0.022	$0.066 (\nu: 0.0)$
$b_{\text{DES}}^4$	2.163	$2.13^{+0.18}_{-0.19}$	$\Delta z_{\text{s,DES}}^2$	-0.0304	$-0.031^{+0.029}_{-0.029}$	$\chi_{\text{MGS}}^2$	1.34	$1.58 (\nu: 0.2)$
$b_{\text{DES}}^5$	2.232	$2.20^{+0.23}_{-0.25}$	$\Delta z_{\text{s,DES}}^3$	0.0064	$0.008^{+0.025}_{-0.024}$	$\chi_{\text{DR12BAO}}^2$	2.39	$3.8 (\nu: 1.1)$
$m_{\text{DES}}^1$	0.013	$0.011^{+0.059}_{-0.060}$	$\Delta z_{\text{s,DES}}^4$	-0.0245	$-0.024^{+0.048}_{-0.047}$	$\chi_{\text{DES}}^2$	250.1	$259.8 (\nu: 10.3)$
$m_{\text{DES}}^2$	0.0095	$0.009^{+0.057}_{-0.059}$	$\Omega_{\text{b}} h^2$	0.02218	$0.0222^{+0.0013}_{-0.0013}$	$\chi_{\text{prior}}^2$	1.4	$13.8 (\nu: 13.4)$
$m_{\text{DES}}^3$	0.019	$0.020^{+0.055}_{-0.054}$	$\Omega_{\text{c}} h^2$	0.1202	$0.117^{+0.028}_{-0.025}$	$\chi_{\text{BAO}}^2$	3.75	$5.4 (\nu: 1.4)$

Best-fit  $\chi_{\text{eff}}^2 = 263.60$ ;  $\bar{\chi}_{\text{eff}}^2 = 288.63$ ;  $R - 1 = 0.00816$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.34 DR12BAO: 2.39 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8\_CMBmarged: 8.36 WL - DES\_1YR\_final: 250.06



6.151 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DES

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022543	$0.02251^{+0.00039}_{-0.00041}$	$\Delta z_{\text{l,DES}}^1$	0.0034	$0.004^{+0.019}_{-0.019}$	$z_{\text{drag}}$	1060.20	$1060.12^{+0.81}_{-0.80}$
$\Omega_c h^2$	0.11794	$0.1180^{+0.0031}_{-0.0028}$	$\Delta z_{\text{l,DES}}^2$	0.0006	$0.001^{+0.017}_{-0.017}$	$r_{\text{drag}}$	147.45	$147.47^{+0.67}_{-0.69}$
$100\theta_{\text{MC}}$	1.04114	$1.04110^{+0.00078}_{-0.00084}$	$\Delta z_{\text{l,DES}}^3$	0.0036	$0.003^{+0.017}_{-0.017}$	$k_{\text{D}}$	0.14061	$0.14058^{+0.00079}_{-0.00078}$
$\tau$	0.0554	$0.055^{+0.022}_{-0.021}$	$\Delta z_{\text{l,DES}}^4$	0.0007	$0.001^{+0.023}_{-0.023}$	$100\theta_{\text{D}}$	0.160625	$0.16066^{+0.00046}_{-0.00046}$
$\Sigma m_\nu$ [eV]	0.000	< 0.570	$\Delta z_{\text{l,DES}}^5$	-0.0007	$-0.001^{+0.025}_{-0.025}$	$z_{\text{eq}}$	3357	$3357^{+68}_{-64}$
$\ln(10^{10} A_s)$	3.0423	$3.040^{+0.043}_{-0.043}$	$\Delta z_{\text{s,DES}}^1$	0.0000	$-0.004^{+0.036}_{-0.037}$	$k_{\text{eq}}$	0.010246	$0.01025^{+0.00021}_{-0.00019}$
$n_s$	0.9706	$0.969^{+0.011}_{-0.011}$	$\Delta z_{\text{s,DES}}^2$	-0.0300	$-0.031^{+0.028}_{-0.028}$	$100\theta_{\text{eq}}$	0.8221	$0.822^{+0.012}_{-0.013}$
$y_{\text{cal}}$	1.0006	$1.0005^{+0.0063}_{-0.0063}$	$\Delta z_{\text{s,DES}}^3$	0.0035	$0.004^{+0.024}_{-0.025}$	$100\theta_{\text{s,eq}}$	0.4538	$0.4539^{+0.0064}_{-0.0065}$
$A_{217}^{\text{CIB}}$	46.5	$47^{+20}_{-20}$	$\Delta z_{\text{s,DES}}^4$	-0.0307	$-0.029^{+0.048}_{-0.047}$	$H(0.15)$	73.95	$73.1^{+1.8}_{-5.0}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.57	—	$H_0$	68.82	$67.9^{+2.0}_{-5.7}$	$D_{\text{M}}(0.15)$	631.0	$639^{+53}_{-17}$
$A_{143}^{\text{tSZ}}$	7.16	$5.5^{+4.5}_{-4.6}$	$\Omega_\Lambda$	0.703	$0.692^{+0.025}_{-0.078}$	$H(0.38)$	83.81	$83.2^{+1.3}_{-3.8}$
$A_{100}^{\text{PS}}$	248	$259^{+70}_{-70}$	$\Omega_{\text{m}}$	0.297	$0.308^{+0.078}_{-0.025}$	$D_{\text{M}}(0.38)$	1508	$1525^{+110}_{-34}$
$A_{143}^{\text{PS}}$	48.3	$45^{+20}_{-20}$	$\Omega_{\text{m}} h^2$	0.1405	$0.1416^{+0.0076}_{-0.0034}$	$H(0.51)$	90.39	$89.9^{+1.1}_{-3.2}$
$A_{143 \times 217}^{\text{PS}}$	50.1	$41^{+20}_{-20}$	$\Omega_\nu h^2$	0.00000	< 0.00613	$D_{\text{M}}(0.51)$	1956	$1976^{+130}_{-41}$
$A_{217}^{\text{PS}}$	120.0	$114^{+30}_{-30}$	$\Omega_{\text{m}} h^3$	0.09668	$0.0961^{+0.0012}_{-0.0035}$	$H(0.61)$	95.90	$95.44^{+0.93}_{-2.7}$
$A^{\text{kSZ}}$	0.0	—	$\sigma_8$	0.818	$0.795^{+0.034}_{-0.11}$	$D_{\text{M}}(0.61)$	2278	$2300^{+140}_{-44}$
$A_{100}^{\text{dustTT}}$	8.82	$9.0^{+4.7}_{-4.7}$	$S_8$	0.8129	$0.804^{+0.034}_{-0.041}$	$H(2.33)$	235.07	$235.6^{+4.2}_{-2.0}$
$A_{143}^{\text{dustTT}}$	11.07	$11.0^{+4.7}_{-4.7}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4453	$0.440^{+0.019}_{-0.022}$	$D_{\text{M}}(2.33)$	5736	$5759^{+140}_{-44}$
$A_{143 \times 217}^{\text{dustTT}}$	20.0	$18.7^{+8.3}_{-8.5}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6034	$0.591^{+0.024}_{-0.054}$	$f\sigma_8(0.15)$	0.4503	$0.446^{+0.018}_{-0.023}$
$A_{217}^{\text{dustTT}}$	95.2	$94^{+20}_{-20}$	$\sigma_8/h^{0.5}$	0.986	$0.964^{+0.037}_{-0.099}$	$\sigma_8(0.15)$	0.757	$0.735^{+0.032}_{-0.11}$
$A_{100}^{\text{dustTE}}$	0.113	$0.114^{+0.098}_{-0.096}$	$r_{\text{drag}} h$	101.5	$100.2^{+3.3}_{-8.7}$	$f\sigma_8(0.38)$	0.4720	$0.465^{+0.017}_{-0.036}$
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.076}_{-0.075}$	$\langle d^2 \rangle^{1/2}$	2.419	$2.404^{+0.064}_{-0.064}$	$\sigma_8(0.38)$	0.672	$0.652^{+0.029}_{-0.10}$
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$z_{\text{re}}$	7.72	$7.6^{+2.0}_{-2.3}$	$f\sigma_8(0.51)$	0.4722	$0.464^{+0.017}_{-0.043}$
$A_{143}^{\text{dustTE}}$	0.222	$0.22^{+0.14}_{-0.14}$	$10^9 A_s$	2.095	$2.090^{+0.092}_{-0.088}$	$\sigma_8(0.51)$	0.630	$0.611^{+0.028}_{-0.097}$
$A_{143 \times 217}^{\text{dustTE}}$	0.662	$0.66^{+0.20}_{-0.21}$	$10^9 A_s e^{-2\tau}$	1.8754	$1.874^{+0.028}_{-0.028}$	$f\sigma_8(0.61)$	0.4684	$0.459^{+0.017}_{-0.047}$
$A_{217}^{\text{dustTE}}$	2.06	$2.06^{+0.70}_{-0.70}$	$D_{40}$	1220.0	$1221^{+32}_{-30}$	$\sigma_8(0.61)$	0.600	$0.581^{+0.027}_{-0.094}$
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$	$D_{220}$	5744	$5745^{+100}_{-100}$	$f\sigma_8(2.33)$	0.3019	$0.294^{+0.012}_{-0.044}$
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$	$D_{810}$	2539.2	$2537^{+34}_{-34}$	$\sigma_8(2.33)$	0.3124	$0.303^{+0.016}_{-0.045}$
$b_{\text{DES}}^1$	1.484	$1.53^{+0.30}_{-0.21}$	$D_{1420}$	819.2	$818^{+12}_{-12}$	$f_{2000}^{143}$	28.2	$29^{+7}_{-7}$
$b_{\text{DES}}^2$	1.682	$1.73^{+0.29}_{-0.16}$	$D_{2000}$	231.80	$231.2^{+4.1}_{-4.1}$	$f_{2000}^{143 \times 217}$	31.49	$32^{+5}_{-5}$
$b_{\text{DES}}^3$	1.671	$1.72^{+0.27}_{-0.14}$	$n_{\text{s},0.002}$	0.9706	$0.969^{+0.011}_{-0.011}$	$f_{2000}^{217}$	106.03	$106.8^{+4.6}_{-4.6}$
$b_{\text{DES}}^4$	2.026	$2.08^{+0.31}_{-0.16}$	$Y_{\text{P}}$	0.245460	$0.24545^{+0.00016}_{-0.00016}$	$\chi_{\text{small}}^2$	396.08	$397.0 (\nu: 1.6)$
$b_{\text{DES}}^5$	2.130	$2.18^{+0.32}_{-0.23}$	$Y_{\text{P}}^{\text{BBN}}$	0.246786	$0.24677^{+0.00016}_{-0.00016}$	$\chi_{\text{lowl}}^2$	22.51	$22.56 (\nu: 0.3)$
$m_{\text{DES}}^1$	0.014	$0.012^{+0.058}_{-0.058}$	$10^5 \text{D}/\text{H}$	2.554	$2.560^{+0.077}_{-0.070}$	$\chi_{\text{plik}}^2$	2346.9	$2364.5 (\nu: 23.9)$
$m_{\text{DES}}^2$	0.013	$0.013^{+0.058}_{-0.057}$	$\text{Age}/\text{Gyr}$	13.736	$13.79^{+0.32}_{-0.099}$	$\chi_{\text{DES}}^2$	508.9	$518.1 (\nu: 11.9)$
$m_{\text{DES}}^3$	-0.003	$-0.002^{+0.052}_{-0.052}$	$z_*$	1089.52	$1089.57^{+0.82}_{-0.65}$	$\chi_{\text{prior}}^2$	3.9	$25 (\nu: 23.3)$
$m_{\text{DES}}^4$	0.002	$0.003^{+0.054}_{-0.053}$	$r_*$	144.84	$144.85^{+0.66}_{-0.72}$	$\chi_{\text{CMB}}^2$	2765.5	$2784.0 (\nu: 23.5)$
$A_{\text{IA,DES}}$	0.454	$0.46^{+0.47}_{-0.39}$	$100\theta_*$	1.04129	$1.04129^{+0.00077}_{-0.00078}$			
$\alpha_{\text{IA,DES}}$	-2.3	—	$D_{\text{M}}(z_*)/\text{Gpc}$	13.910	$13.910^{+0.062}_{-0.067}$			

Best-fit  $\chi_{\text{eff}}^2 = 3278.36$ ;  $\bar{\chi}_{\text{eff}}^2 = 3326.78$ ;  $R - 1 = 0.00796$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.07 commander\_dx12\_v3.2\_29: 22.51 plik\_rd12\_HM\_v22b\_TTTEE: 2346.89 WL - DES\_1YR\_final: 508.94



6.152 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DES\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022502	$0.02252^{+0.00035}_{-0.00035}$	$\Delta z_{\text{l,DES}}^2$	0.0005	$0.001^{+0.017}_{-0.017}$	$k_D$	0.14065	$0.14058^{+0.00075}_{-0.00075}$
$\Omega_c h^2$	0.11837	$0.1180^{+0.0023}_{-0.0024}$	$\Delta z_{\text{l,DES}}^3$	0.0034	$0.003^{+0.017}_{-0.017}$	$100\theta_D$	0.160663	$0.16066^{+0.00044}_{-0.00043}$
$100\theta_{\text{MC}}$	1.04114	$1.04112^{+0.00073}_{-0.00076}$	$\Delta z_{\text{l,DES}}^4$	0.0009	$0.001^{+0.024}_{-0.023}$	$z_{\text{eq}}$	3366	$3357^{+53}_{-55}$
$\tau$	0.0538	$0.054^{+0.022}_{-0.021}$	$\Delta z_{\text{l,DES}}^5$	-0.0008	$-0.001^{+0.025}_{-0.025}$	$k_{\text{eq}}$	0.010274	$0.01025^{+0.00016}_{-0.00017}$
$\Sigma m_\nu$ [eV]	0.000	< 0.235	$\Delta z_{\text{s,DES}}^1$	0.0009	$-0.003^{+0.037}_{-0.037}$	$100\theta_{\text{eq}}$	0.8202	$0.822^{+0.011}_{-0.010}$
$\ln(10^{10} A_s)$	3.0387	$3.039^{+0.043}_{-0.042}$	$\Delta z_{\text{s,DES}}^2$	-0.0303	$-0.031^{+0.028}_{-0.028}$	$100\theta_{\text{s,eq}}$	0.4529	$0.4538^{+0.0054}_{-0.0051}$
$n_s$	0.9691	$0.9694^{+0.0098}_{-0.010}$	$\Delta z_{\text{s,DES}}^3$	0.0025	$0.004^{+0.025}_{-0.025}$	$H(0.15)$	73.78	$73.4^{+1.1}_{-1.5}$
$y_{\text{cal}}$	0.99999	$1.0005^{+0.0064}_{-0.0064}$	$\Delta z_{\text{s,DES}}^4$	-0.0314	$-0.030^{+0.046}_{-0.047}$	$D_{\text{M}}(0.15)$	632.6	$636^{+14}_{-11}$
$A_{217}^{\text{CIB}}$	47.7	$47^{+20}_{-20}$	$H_0$	68.62	$68.2^{+1.3}_{-1.7}$	$H(0.38)$	83.69	$83.40^{+0.86}_{-1.2}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.40	—	$\Omega_\Lambda$	0.7009	$0.697^{+0.015}_{-0.020}$	$D_{\text{M}}(0.38)$	1511.7	$1519^{+30}_{-22}$
$A_{143}^{\text{tSZ}}$	7.3	—	$\Omega_{\text{m}}$	0.2991	$0.303^{+0.020}_{-0.015}$	$H(0.51)$	90.29	$90.04^{+0.72}_{-1.0}$
$A_{100}^{\text{PS}}$	250	$259^{+70}_{-70}$	$\Omega_{\text{m}} h^2$	0.14087	$0.1412^{+0.0024}_{-0.0023}$	$D_{\text{M}}(0.51)$	1960.2	$1969^{+35}_{-26}$
$A_{143}^{\text{PS}}$	46.2	$45^{+20}_{-20}$	$\Omega_\nu h^2$	0.00000	< 0.00252	$H(0.61)$	95.82	$95.60^{+0.62}_{-0.87}$
$A_{143 \times 217}^{\text{PS}}$	46.2	$41^{+20}_{-20}$	$\Omega_{\text{m}} h^3$	0.09667	$0.09636^{+0.00094}_{-0.0013}$	$D_{\text{M}}(0.61)$	2282.6	$2292^{+39}_{-28}$
$A_{217}^{\text{PS}}$	118.3	$114^{+30}_{-30}$	$\sigma_8$	0.8173	$0.802^{+0.027}_{-0.046}$	$H(2.33)$	235.31	$235.4^{+1.5}_{-1.4}$
$A^{\text{kSZ}}$	0.0	—	$S_8$	0.8161	$0.807^{+0.031}_{-0.034}$	$D_{\text{M}}(2.33)$	5738.8	$5750^{+44}_{-30}$
$A_{100}^{\text{dustTT}}$	8.87	$8.9^{+4.7}_{-4.8}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4470	$0.442^{+0.017}_{-0.019}$	$f\sigma_8(0.15)$	0.4518	$0.447^{+0.016}_{-0.018}$
$A_{143}^{\text{dustTT}}$	11.02	$11.0^{+4.6}_{-4.7}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6044	$0.596^{+0.020}_{-0.028}$	$\sigma_8(0.15)$	0.7563	$0.742^{+0.025}_{-0.043}$
$A_{143 \times 217}^{\text{dustTT}}$	19.7	$18.6^{+8.2}_{-8.3}$	$\sigma_8/h^{0.5}$	0.9866	$0.971^{+0.032}_{-0.046}$	$f\sigma_8(0.38)$	0.4729	$0.467^{+0.015}_{-0.019}$
$A_{217}^{\text{dustTT}}$	94.6	$94^{+20}_{-20}$	$r_{\text{drag}} h$	101.14	$100.6^{+2.1}_{-2.5}$	$\sigma_8(0.38)$	0.6716	$0.659^{+0.023}_{-0.039}$
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.098}_{-0.094}$	$\langle d^2 \rangle^{1/2}$	2.422	$2.408^{+0.061}_{-0.065}$	$f\sigma_8(0.51)$	0.4729	$0.467^{+0.015}_{-0.020}$
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.076}_{-0.074}$	$z_{\text{re}}$	7.56	$7.6^{+2.0}_{-2.3}$	$\sigma_8(0.51)$	0.6290	$0.617^{+0.021}_{-0.037}$
$A_{100 \times 217}^{\text{dustTE}}$	0.479	$0.48^{+0.22}_{-0.21}$	$10^9 A_s$	2.088	$2.089^{+0.091}_{-0.087}$	$f\sigma_8(0.61)$	0.4688	$0.463^{+0.014}_{-0.020}$
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$10^9 A_s e^{-2\tau}$	1.8748	$1.874^{+0.027}_{-0.028}$	$\sigma_8(0.61)$	0.5987	$0.587^{+0.020}_{-0.035}$
$A_{143 \times 217}^{\text{dustTE}}$	0.664	$0.66^{+0.21}_{-0.21}$	$D_{40}$	1221.3	$1222^{+30}_{-30}$	$f\sigma_8(2.33)$	0.3014	$0.2967^{+0.0094}_{-0.016}$
$A_{217}^{\text{dustTE}}$	2.08	$2.06^{+0.71}_{-0.71}$	$D_{220}$	5736	$5744^{+99}_{-100}$	$\sigma_8(2.33)$	0.3118	$0.306^{+0.010}_{-0.018}$
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$	$D_{810}$	2536.1	$2537^{+34}_{-35}$	$f_{2000}^{143}$	28.6	$29^{+7}_{-7}$
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$	$D_{1420}$	817.6	$818^{+12}_{-12}$	$f_{2000}^{143 \times 217}$	31.78	$32^{+5}_{-5}$
$b_{\text{DES}}^1$	1.486	$1.51^{+0.20}_{-0.20}$	$D_{2000}$	231.24	$231.2^{+4.0}_{-4.1}$	$f_{2000}^{217}$	106.33	$106.7^{+4.5}_{-4.6}$
$b_{\text{DES}}^2$	1.684	$1.71^{+0.16}_{-0.15}$	$n_{\text{s},0.002}$	0.9691	$0.9694^{+0.0098}_{-0.010}$	$\chi_{\text{small}}^2$	395.87	$396.9 (\nu: 1.5)$
$b_{\text{DES}}^3$	1.672	$1.70^{+0.14}_{-0.12}$	$Y_{\text{P}}$	0.245445	$0.24545^{+0.00014}_{-0.00014}$	$\chi_{\text{lowl}}^2$	22.73	$22.63 (\nu: 0.3)$
$b_{\text{DES}}^4$	2.029	$2.06^{+0.17}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	0.246772	$0.24678^{+0.00014}_{-0.00014}$	$\chi_{\text{plik}}^2$	2346.2	$2363.3 (\nu: 21.9)$
$b_{\text{DES}}^5$	2.133	$2.16^{+0.21}_{-0.21}$	$10^5 D/H$	2.562	$2.559^{+0.064}_{-0.063}$	$\chi_{6\text{DF}}^2$	0.018	$0.033 (\nu: 0.0)$
$m_{\text{DES}}^1$	0.014	$0.012^{+0.058}_{-0.058}$	Age/Gyr	13.742	$13.77^{+0.10}_{-0.067}$	$\chi_{\text{MGS}}^2$	2.12	$1.84 (\nu: 0.1)$
$m_{\text{DES}}^2$	0.013	$0.013^{+0.057}_{-0.057}$	$z_*$	1089.61	$1089.56^{+0.56}_{-0.54}$	$\chi_{\text{DR12BAO}}^2$	3.42	$3.93 (\nu: 0.4)$
$m_{\text{DES}}^3$	-0.005	$-0.003^{+0.051}_{-0.051}$	$r_*$	144.76	$144.85^{+0.58}_{-0.57}$	$\chi_{\text{DES}}^2$	509.5	$518.3 (\nu: 11.8)$
$m_{\text{DES}}^4$	0.002	$0.003^{+0.052}_{-0.052}$	$100\theta_*$	1.04127	$1.04130^{+0.00074}_{-0.00075}$	$\chi_{\text{prior}}^2$	4.2	$25 (\nu: 22.8)$
$A_{\text{IA,DES}}$	0.444	$0.47^{+0.47}_{-0.39}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.902	$13.910^{+0.056}_{-0.055}$	$\chi_{\text{BAO}}^2$	5.56	$5.81 (\nu: 0.3)$
$\alpha_{\text{IA,DES}}$	-2.6	—	$z_{\text{drag}}$	1060.12	$1060.13^{+0.76}_{-0.73}$	$\chi_{\text{CMB}}^2$	2764.8	$2782.8 (\nu: 21.5)$
$\Delta z_{\text{l,DES}}^1$	0.0033	$0.004^{+0.020}_{-0.019}$	$r_{\text{drag}}$	147.38	$147.47^{+0.61}_{-0.60}$			

Best-fit  $\chi_{\text{eff}}^2 = 3284.12$ ;  $\bar{\chi}_{\text{eff}}^2 = 3331.54$ ;  $R - 1 = 0.01000$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 2.12 DR12BAO: 3.42 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3\_2\_29: 22.73 plik\_rd12\_HM\_v22b\_TTTEE: 2346.19 WL - DES\_1YR\_final: 509.52



### 6.153 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DES\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022566	$0.02252^{+0.00038}_{-0.00037}$	$\alpha_{\text{IA,DES}}$	-2.4	—	$100\theta_*$	1.04131	$1.04128^{+0.00075}_{-0.00077}$
$\Omega_c h^2$	0.11794	$0.1181^{+0.0029}_{-0.0027}$	$\Delta z_{\text{l,DES}}^1$	0.0033	$0.003^{+0.020}_{-0.019}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.908	$13.907^{+0.060}_{-0.061}$
$100\theta_{\text{MC}}$	1.04118	$1.04111^{+0.00076}_{-0.00079}$	$\Delta z_{\text{l,DES}}^2$	0.0007	$0.001^{+0.017}_{-0.017}$	$z_{\text{drag}}$	1060.24	$1060.15^{+0.81}_{-0.75}$
$\tau$	0.0561	$0.057^{+0.021}_{-0.019}$	$\Delta z_{\text{l,DES}}^3$	0.0035	$0.003^{+0.017}_{-0.017}$	$r_{\text{drag}}$	147.43	$147.43^{+0.65}_{-0.65}$
$\Sigma m_\nu [\text{eV}]$	0.000	< 0.287	$\Delta z_{\text{l,DES}}^4$	0.0008	$0.001^{+0.023}_{-0.023}$	$k_{\text{D}}$	0.14066	$0.14062^{+0.00076}_{-0.00076}$
$\ln(10^{10} A_{\text{s}})$	3.0445	$3.045^{+0.040}_{-0.038}$	$\Delta z_{\text{l,DES}}^5$	-0.0007	$-0.001^{+0.025}_{-0.025}$	$100\theta_{\text{D}}$	0.160597	$0.16064^{+0.00044}_{-0.00045}$
$n_{\text{s}}$	0.9707	$0.969^{+0.010}_{-0.010}$	$\Delta z_{\text{s,DES}}^1$	0.0009	$-0.003^{+0.037}_{-0.037}$	$z_{\text{eq}}$	3358	$3360^{+64}_{-60}$
$y_{\text{cal}}$	1.0008	$1.0007^{+0.0063}_{-0.0063}$	$\Delta z_{\text{s,DES}}^2$	-0.0303	$-0.031^{+0.027}_{-0.028}$	$k_{\text{eq}}$	0.010248	$0.01026^{+0.00019}_{-0.00018}$
$A_{217}^{\text{CIB}}$	45.4	$47^{+20}_{-20}$	$\Delta z_{\text{s,DES}}^3$	0.0033	$0.004^{+0.024}_{-0.024}$	$100\theta_{\text{eq}}$	0.8220	$0.821^{+0.012}_{-0.012}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.69	—	$\Delta z_{\text{s,DES}}^4$	-0.0301	$-0.031^{+0.047}_{-0.046}$	$100\theta_{\text{s,eq}}$	0.4538	$0.4535^{+0.0060}_{-0.0061}$
$A_{143}^{\text{tSZ}}$	7.15	$5.5^{+4.4}_{-4.7}$	$H_0$	68.84	$68.2^{+1.6}_{-3.2}$	$H(0.15)$	73.97	$73.4^{+1.4}_{-2.8}$
$A_{100}^{\text{PS}}$	247	$258^{+70}_{-70}$	$\Omega_{\Lambda}$	0.7035	$0.696^{+0.019}_{-0.042}$	$D_{\text{M}}(0.15)$	630.8	$636^{+29}_{-13}$
$A_{143}^{\text{PS}}$	49.7	$45^{+20}_{-20}$	$\Omega_{\text{m}}$	0.2965	$0.304^{+0.042}_{-0.019}$	$H(0.38)$	83.84	$83.4^{+1.1}_{-2.2}$
$A_{143 \times 217}^{\text{PS}}$	53.2	$42^{+20}_{-20}$	$\Omega_{\text{m}} h^2$	0.14051	$0.1413^{+0.0046}_{-0.0029}$	$D_{\text{M}}(0.38)$	1508.0	$1518^{+58}_{-27}$
$A_{217}^{\text{PS}}$	121.9	$115^{+30}_{-30}$	$\Omega_{\nu} h^2$	0.00000	< 0.00309	$H(0.51)$	90.41	$90.06^{+0.89}_{-1.8}$
$A^{\text{kSZ}}$	0.0	—	$\Omega_{\text{m}} h^3$	0.09674	$0.09642^{+0.00094}_{-0.0018}$	$D_{\text{M}}(0.51)$	1956	$1968^{+69}_{-32}$
$A_{100}^{\text{dustTT}}$	8.76	$8.9^{+4.6}_{-4.8}$	$\sigma_8$	0.8185	$0.807^{+0.023}_{-0.055}$	$H(0.61)$	95.92	$95.62^{+0.74}_{-1.5}$
$A_{143}^{\text{dustTT}}$	11.05	$10.9^{+4.7}_{-4.7}$	$S_8$	0.8136	$0.811^{+0.028}_{-0.027}$	$D_{\text{M}}(0.61)$	2278	$2291^{+75}_{-35}$
$A_{143 \times 217}^{\text{dustTT}}$	20.2	$18.6^{+8.2}_{-8.4}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4456	$0.444^{+0.015}_{-0.015}$	$H(2.33)$	235.10	$235.5^{+2.6}_{-1.8}$
$A_{217}^{\text{dustTT}}$	95.8	$94^{+20}_{-20}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6039	$0.599^{+0.017}_{-0.026}$	$D_{\text{M}}(2.33)$	5734	$5749^{+76}_{-34}$
$A_{100}^{\text{dustTE}}$	0.113	$0.114^{+0.098}_{-0.095}$	$\sigma_8/h^{0.5}$	0.9864	$0.977^{+0.026}_{-0.047}$	$f\sigma_8(0.15)$	0.4507	$0.450^{+0.014}_{-0.014}$
$A_{100 \times 143}^{\text{dustTE}}$	0.133	$0.134^{+0.077}_{-0.074}$	$r_{\text{drag}} h$	101.49	$100.6^{+2.7}_{-5.0}$	$\sigma_8(0.15)$	0.7577	$0.746^{+0.022}_{-0.054}$
$A_{100 \times 217}^{\text{dustTE}}$	0.480	$0.48^{+0.22}_{-0.22}$	$\langle d^2 \rangle^{1/2}$	2.421	$2.419^{+0.050}_{-0.050}$	$f\sigma_8(0.38)$	0.4724	$0.470^{+0.013}_{-0.016}$
$A_{143}^{\text{dustTE}}$	0.221	$0.22^{+0.14}_{-0.14}$	$z_{\text{re}}$	7.78	$7.8^{+2.0}_{-2.0}$	$\sigma_8(0.38)$	0.6731	$0.662^{+0.020}_{-0.052}$
$A_{143 \times 217}^{\text{dustTE}}$	0.661	$0.66^{+0.21}_{-0.20}$	$10^9 A_{\text{s}}$	2.100	$2.102^{+0.086}_{-0.079}$	$f\sigma_8(0.51)$	0.4727	$0.469^{+0.012}_{-0.019}$
$A_{217}^{\text{dustTE}}$	2.06	$2.06^{+0.70}_{-0.71}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8771	$1.876^{+0.027}_{-0.027}$	$\sigma_8(0.51)$	0.6305	$0.620^{+0.019}_{-0.050}$
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$	$D_{40}$	1221.1	$1225^{+30}_{-29}$	$f\sigma_8(0.61)$	0.4689	$0.465^{+0.012}_{-0.021}$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$	$D_{220}$	5750	$5750^{+99}_{-99}$	$\sigma_8(0.61)$	0.6003	$0.590^{+0.018}_{-0.048}$
$b_{\text{DES}}^1$	1.483	$1.50^{+0.21}_{-0.20}$	$D_{810}$	2541.4	$2539^{+34}_{-33}$	$f\sigma_8(2.33)$	0.3023	$0.2981^{+0.0087}_{-0.022}$
$b_{\text{DES}}^2$	1.680	$1.70^{+0.17}_{-0.14}$	$D_{1420}$	820.0	$818^{+12}_{-12}$	$\sigma_8(2.33)$	0.3128	$0.308^{+0.010}_{-0.026}$
$b_{\text{DES}}^3$	1.669	$1.69^{+0.15}_{-0.12}$	$D_{2000}$	232.12	$231.4^{+4.1}_{-4.0}$	$\chi_{\text{lensing}}^2$	8.81	$9.5 (\nu: 0.6)$
$b_{\text{DES}}^4$	2.025	$2.05^{+0.18}_{-0.14}$	$n_{\text{s},0.002}$	0.9707	$0.969^{+0.010}_{-0.010}$	$\chi_{\text{small}}^2$	396.20	$397.3 (\nu: 2.2)$
$b_{\text{DES}}^5$	2.128	$2.15^{+0.22}_{-0.21}$	$Y_{\text{P}}$	0.245468	$0.24545^{+0.00015}_{-0.00015}$	$\chi_{\text{lowl}}^2$	22.54	$22.83 (\nu: 0.3)$
$m_{\text{DES}}^1$	0.013	$0.012^{+0.058}_{-0.059}$	$Y_{\text{P}}^{\text{BBN}}$	0.246795	$0.24678^{+0.00015}_{-0.00015}$	$\chi_{\text{plik}}^2$	2346.8	$2362.1 (\nu: 18.8)$
$m_{\text{DES}}^2$	0.014	$0.012^{+0.058}_{-0.057}$	$10^5 \text{D}/\text{H}$	2.550	$2.558^{+0.069}_{-0.068}$	$\chi_{\text{DES}}^2$	509.0	$518.5 (\nu: 12.7)$
$m_{\text{DES}}^3$	-0.003	$-0.004^{+0.052}_{-0.051}$	Age/Gyr	13.733	$13.77^{+0.17}_{-0.076}$	$\chi_{\text{prior}}^2$	3.9	$25 (\nu: 23.1)$
$m_{\text{DES}}^4$	0.002	$0.002^{+0.053}_{-0.053}$	$z_*$	1089.49	$1089.56^{+0.66}_{-0.62}$	$\chi_{\text{CMB}}^2$	2774.3	$2791.8 (\nu: 21.8)$
$A_{\text{IA,DES}}$	0.453	$0.47^{+0.46}_{-0.38}$	$r_*$	144.82	$144.81^{+0.62}_{-0.64}$			

Best-fit  $\chi_{\text{eff}}^2 = 3287.27$ ;  $\bar{\chi}_{\text{eff}}^2 = 3335.12$ ;  $R - 1 = 0.00852$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.81 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.20 commander\_dx12\_v3\_2\_29: 22.54 plik\_rd12\_HM\_v22b\_TTTEEE: 2346.80 WL - DES\_1YR\_final: 508.98



6.154 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DES\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022515	$0.02252^{+0.00035}_{-0.00035}$	$\Delta z_{\text{l,DES}}^2$	0.0005	$0.001^{+0.017}_{-0.017}$	$k_D$	0.14070	$0.14063^{+0.00073}_{-0.00072}$
$\Omega_c h^2$	0.11843	$0.1182^{+0.0022}_{-0.0022}$	$\Delta z_{\text{l,DES}}^3$	0.0034	$0.003^{+0.017}_{-0.017}$	$100\theta_D$	0.160645	$0.16065^{+0.00043}_{-0.00043}$
$100\theta_{\text{MC}}$	1.04116	$1.04110^{+0.00072}_{-0.00075}$	$\Delta z_{\text{l,DES}}^4$	0.0008	$0.000^{+0.024}_{-0.023}$	$z_{\text{eq}}$	3368	$3362^{+50}_{-50}$
$\tau$	0.0558	$0.056^{+0.021}_{-0.019}$	$\Delta z_{\text{l,DES}}^5$	-0.0005	$-0.001^{+0.025}_{-0.025}$	$k_{\text{eq}}$	0.010280	$0.01026^{+0.00015}_{-0.00015}$
$\Sigma m_\nu$ [eV]	0.001	< 0.187	$\Delta z_{\text{s,DES}}^1$	0.00097	$-0.003^{+0.037}_{-0.037}$	$100\theta_{\text{eq}}$	0.8200	$0.8211^{+0.0096}_{-0.0093}$
$\ln(10^{10} A_s)$	3.0430	$3.044^{+0.040}_{-0.037}$	$\Delta z_{\text{s,DES}}^2$	-0.0303	$-0.031^{+0.028}_{-0.028}$	$100\theta_{\text{s,eq}}$	0.45275	$0.4533^{+0.0049}_{-0.0048}$
$n_s$	0.9686	$0.9688^{+0.0095}_{-0.0097}$	$\Delta z_{\text{s,DES}}^3$	0.0024	$0.003^{+0.025}_{-0.024}$	$H(0.15)$	73.78	$73.5^{+1.1}_{-1.3}$
$y_{\text{cal}}$	0.99998	$1.0007^{+0.0063}_{-0.0063}$	$\Delta z_{\text{s,DES}}^4$	-0.0323	$-0.031^{+0.046}_{-0.046}$	$D_M(0.15)$	632.7	$635^{+13}_{-10}$
$A_{217}^{\text{CIB}}$	48.3	$47^{+20}_{-20}$	$H_0$	68.62	$68.3^{+1.2}_{-1.5}$	$H(0.38)$	83.69	$83.45^{+0.81}_{-1.0}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.28	—	$\Omega_\Lambda$	0.7006	$0.697^{+0.015}_{-0.018}$	$D_M(0.38)$	1511.8	$1518^{+27}_{-21}$
$A_{143}^{\text{tSZ}}$	7.38	$5.5^{+4.4}_{-4.7}$	$\Omega_m$	0.2994	$0.303^{+0.018}_{-0.015}$	$H(0.51)$	90.30	$90.09^{+0.67}_{-0.88}$
$A_{100}^{\text{PS}}$	251	$258^{+70}_{-70}$	$\Omega_m h^2$	0.14096	$0.1413^{+0.0024}_{-0.0022}$	$D_M(0.51)$	1960.3	$1967^{+32}_{-24}$
$A_{143}^{\text{PS}}$	44.5	$45^{+20}_{-20}$	$\Omega_\nu h^2$	0.00001	< 0.00201	$H(0.61)$	95.83	$95.65^{+0.57}_{-0.76}$
$A_{143 \times 217}^{\text{PS}}$	42.8	$42^{+20}_{-20}$	$\Omega_m h^3$	0.09672	$0.09647^{+0.00087}_{-0.0011}$	$D_M(0.61)$	2282.6	$2290^{+35}_{-26}$
$A_{217}^{\text{PS}}$	117.0	$115^{+30}_{-30}$	$\sigma_8$	0.8190	$0.809^{+0.021}_{-0.033}$	$H(2.33)$	235.37	$235.5^{+1.5}_{-1.4}$
$A^{\text{kSZ}}$	0.0	—	$S_8$	0.8182	$0.813^{+0.025}_{-0.026}$	$D_M(2.33)$	5738.2	$5748^{+38}_{-28}$
$A_{100}^{\text{dustTT}}$	8.82	$8.9^{+4.6}_{-4.8}$	$\sigma_8 \Omega_m^{0.5}$	0.4481	$0.445^{+0.014}_{-0.014}$	$f\sigma_8(0.15)$	0.4530	$0.450^{+0.013}_{-0.013}$
$A_{143}^{\text{dustTT}}$	11.03	$10.9^{+4.6}_{-4.7}$	$\sigma_8 \Omega_m^{0.25}$	0.6058	$0.600^{+0.016}_{-0.020}$	$\sigma_8(0.15)$	0.7579	$0.748^{+0.020}_{-0.032}$
$A_{143 \times 217}^{\text{dustTT}}$	19.6	$18.6^{+8.2}_{-8.3}$	$\sigma_8/h^{0.5}$	0.9887	$0.978^{+0.025}_{-0.033}$	$f\sigma_8(0.38)$	0.4740	$0.470^{+0.012}_{-0.014}$
$A_{217}^{\text{dustTT}}$	94.5	$94^{+20}_{-20}$	$r_{\text{drag}} h$	101.11	$100.7^{+2.0}_{-2.3}$	$\sigma_8(0.38)$	0.6730	$0.664^{+0.018}_{-0.029}$
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.098}_{-0.094}$	$\langle d^2 \rangle^{1/2}$	2.4288	$2.420^{+0.049}_{-0.050}$	$f\sigma_8(0.51)$	0.4740	$0.470^{+0.012}_{-0.014}$
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.077}_{-0.075}$	$z_{\text{re}}$	7.77	$7.8^{+2.0}_{-2.0}$	$\sigma_8(0.51)$	0.6303	$0.622^{+0.017}_{-0.028}$
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$10^9 A_s$	2.097	$2.099^{+0.085}_{-0.077}$	$f\sigma_8(0.61)$	0.4699	$0.466^{+0.011}_{-0.014}$
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$10^9 A_s e^{-2\tau}$	1.8753	$1.876^{+0.026}_{-0.027}$	$\sigma_8(0.61)$	0.6000	$0.592^{+0.016}_{-0.026}$
$A_{143 \times 217}^{\text{dustTE}}$	0.662	$0.66^{+0.21}_{-0.20}$	$D_{40}$	1223.6	$1225^{+29}_{-29}$	$f\sigma_8(2.33)$	0.3020	$0.2987^{+0.0076}_{-0.012}$
$A_{217}^{\text{dustTE}}$	2.07	$2.06^{+0.71}_{-0.71}$	$D_{220}$	5740	$5749^{+99}_{-99}$	$\sigma_8(2.33)$	0.3124	$0.3083^{+0.0086}_{-0.014}$
$c_{100}$	0.99970	$0.9997^{+0.0016}_{-0.0015}$	$D_{810}$	2535.9	$2539^{+34}_{-34}$	$f_{2000}^{143}$	28.7	$29^{+7}_{-7}$
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$	$D_{1420}$	817.4	$818^{+12}_{-12}$	$f_{2000}^{143 \times 217}$	31.75	$32^{+5}_{-5}$
$b_{\text{DES}}^1$	1.485	$1.50^{+0.19}_{-0.19}$	$D_{2000}$	231.20	$231.3^{+4.0}_{-4.0}$	$f_{2000}^{217}$	106.37	$106.7^{+4.5}_{-4.6}$
$b_{\text{DES}}^2$	1.680	$1.70^{+0.14}_{-0.14}$	$n_{\text{s},0.002}$	0.9686	$0.9688^{+0.0095}_{-0.0097}$	$\chi_{\text{lensing}}^2$	8.76	$9.45 (\nu: 0.5)$
$b_{\text{DES}}^3$	1.669	$1.69^{+0.12}_{-0.12}$	$Y_{\text{P}}$	0.245450	$0.24545^{+0.00014}_{-0.00014}$	$\chi_{\text{small}}^2$	396.19	$397.2 (\nu: 1.9)$
$b_{\text{DES}}^4$	2.025	$2.05^{+0.14}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	0.246777	$0.24678^{+0.00014}_{-0.00014}$	$\chi_{\text{lowl}}^2$	22.92	$22.86 (\nu: 0.3)$
$b_{\text{DES}}^5$	2.127	$2.15^{+0.20}_{-0.21}$	$10^5 D/H$	2.559	$2.559^{+0.064}_{-0.063}$	$\chi_{\text{plik}}^2$	2345.5	$2361.6 (\nu: 18.3)$
$m_{\text{DES}}^1$	0.014	$0.012^{+0.058}_{-0.059}$	Age/Gyr	13.741	$13.763^{+0.087}_{-0.063}$	$\chi_{6\text{DF}}^2$	0.016	$0.029 (\nu: 0.0)$
$m_{\text{DES}}^2$	0.014	$0.012^{+0.058}_{-0.057}$	$z_*$	1089.60	$1089.58^{+0.55}_{-0.54}$	$\chi_{\text{MGS}}^2$	2.12	$1.87 (\nu: 0.1)$
$m_{\text{DES}}^3$	-0.005	$-0.005^{+0.051}_{-0.050}$	$r_*$	144.73	$144.80^{+0.53}_{-0.54}$	$\chi_{\text{DR12BAO}}^2$	3.41	$3.85 (\nu: 0.3)$
$m_{\text{DES}}^4$	0.001	$0.001^{+0.053}_{-0.053}$	$100\theta_*$	1.04129	$1.04127^{+0.00072}_{-0.00075}$	$\chi_{\text{DES}}^2$	509.7	$518.6 (\nu: 12.2)$
$A_{\text{IA,DES}}$	0.443	$0.48^{+0.46}_{-0.38}$	$D_M(z_*)/\text{Gpc}$	13.899	$13.906^{+0.052}_{-0.053}$	$\chi_{\text{prior}}^2$	4.5	$25 (\nu: 23.1)$
$\alpha_{\text{IA,DES}}$	-2.6	—	$z_{\text{drag}}$	1060.16	$1060.14^{+0.78}_{-0.74}$	$\chi_{\text{CMB}}^2$	2773.4	$2791.0 (\nu: 20.7)$
$\Delta z_{\text{l,DES}}^1$	0.0030	$0.003^{+0.020}_{-0.019}$	$r_{\text{drag}}$	147.35	$147.42^{+0.57}_{-0.57}$	$\chi_{\text{BAO}}^2$	5.55	$5.75 (\nu: 0.3)$

Best-fit  $\chi_{\text{eff}}^2 = 3293.06$ ;  $\bar{\chi}_{\text{eff}}^2 = 3340.25$ ;  $R - 1 = 0.00952$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 2.12 DR12BAO: 3.42 CMB - smicadx12.Dec5.ftl.mv2.ndclpp.p.teb.consext8: 8.76 small\_100x143.offlike5.EE\_Aplanck.B: 396.19 commander.dx12.v3.2.29: 22.92 plik\_rd12\_HM\_v22b.TTTEEE: 2345.49 WL - DES.1YR.final: 509.67



6.155 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DES\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02251^{+0.00040}_{-0.00042}$	$\Delta z_{\text{l,DES}}^1$	$0.004^{+0.019}_{-0.019}$	$z_{\text{drag}}$	$1060.12^{+0.84}_{-0.80}$
$\Omega_c h^2$	$0.1179^{+0.0031}_{-0.0028}$	$\Delta z_{\text{l,DES}}^2$	$0.001^{+0.017}_{-0.017}$	$r_{\text{drag}}$	$147.48^{+0.67}_{-0.70}$
$100\theta_{\text{MC}}$	$1.04110^{+0.00078}_{-0.00084}$	$\Delta z_{\text{l,DES}}^3$	$0.003^{+0.017}_{-0.017}$	$k_{\text{D}}$	$0.14057^{+0.00079}_{-0.00078}$
$\tau$	$0.056^{+0.019}_{-0.013}$	$\Delta z_{\text{l,DES}}^4$	$0.001^{+0.023}_{-0.023}$	$100\theta_{\text{D}}$	$0.16065^{+0.00046}_{-0.00046}$
$\Sigma m_\nu$ [eV]	$< 0.575$	$\Delta z_{\text{l,DES}}^5$	$-0.001^{+0.025}_{-0.025}$	$z_{\text{eq}}$	$3356^{+68}_{-63}$
$\ln(10^{10} A_{\text{s}})$	$3.042^{+0.041}_{-0.030}$	$\Delta z_{\text{s,DES}}^1$	$-0.004^{+0.036}_{-0.037}$	$k_{\text{eq}}$	$0.01024^{+0.00021}_{-0.00019}$
$n_{\text{s}}$	$0.970^{+0.011}_{-0.011}$	$\Delta z_{\text{s,DES}}^2$	$-0.031^{+0.028}_{-0.028}$	$100\theta_{\text{eq}}$	$0.822^{+0.012}_{-0.013}$
$y_{\text{cal}}$	$1.0005^{+0.0063}_{-0.0063}$	$\Delta z_{\text{s,DES}}^3$	$0.004^{+0.024}_{-0.025}$	$100\theta_{\text{s,eq}}$	$0.4540^{+0.0063}_{-0.0065}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$\Delta z_{\text{s,DES}}^4$	$-0.029^{+0.048}_{-0.047}$	$H(0.15)$	$73.2^{+1.8}_{-5.1}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$H_0$	$67.9^{+2.0}_{-5.8}$	$D_{\text{M}}(0.15)$	$639^{+53}_{-17}$
$A_{143}^{\text{tSZ}}$	$> 0.899$	$\Omega_{\Lambda}$	$0.693^{+0.025}_{-0.079}$	$H(0.38)$	$83.2^{+1.3}_{-3.9}$
$A_{100}^{\text{PS}}$	$259^{+70}_{-70}$	$\Omega_{\text{m}}$	$0.307^{+0.079}_{-0.025}$	$D_{\text{M}}(0.38)$	$1525^{+110}_{-34}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$\Omega_{\text{m}} h^2$	$0.1416^{+0.0076}_{-0.0034}$	$H(0.51)$	$89.9^{+1.1}_{-3.2}$
$A_{143 \times 217}^{\text{PS}}$	$41^{+20}_{-20}$	$\Omega_{\nu} h^2$	$< 0.00619$	$D_{\text{M}}(0.51)$	$1976^{+130}_{-41}$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30}$	$\Omega_{\text{m}} h^3$	$0.0961^{+0.0012}_{-0.0035}$	$H(0.61)$	$95.44^{+0.93}_{-2.7}$
$A^{\text{kSZ}}$	—	$\sigma_8$	$0.795^{+0.034}_{-0.11}$	$D_{\text{M}}(0.61)$	$2299^{+140}_{-44}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.7}$	$S_8$	$0.804^{+0.034}_{-0.041}$	$H(2.33)$	$235.6^{+4.2}_{-2.0}$
$A_{143}^{\text{dustTT}}$	$11.0^{+4.7}_{-4.7}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.440^{+0.019}_{-0.023}$	$D_{\text{M}}(2.33)$	$5759^{+140}_{-44}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.3}_{-8.5}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.592^{+0.023}_{-0.055}$	$f\sigma_8(0.15)$	$0.446^{+0.018}_{-0.023}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$\sigma_8/h^{0.5}$	$0.965^{+0.037}_{-0.10}$	$\sigma_8(0.15)$	$0.735^{+0.032}_{-0.11}$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.098}_{-0.096}$	$r_{\text{drag}} h$	$100.2^{+3.3}_{-8.8}$	$f\sigma_8(0.38)$	$0.465^{+0.017}_{-0.037}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.076}_{-0.075}$	$\langle d^2 \rangle^{1/2}$	$2.406^{+0.062}_{-0.060}$	$\sigma_8(0.38)$	$0.653^{+0.029}_{-0.10}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_{\text{re}}$	$< 9.50$	$f\sigma_8(0.51)$	$0.464^{+0.017}_{-0.044}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$10^9 A_{\text{s}}$	$2.095^{+0.087}_{-0.063}$	$\sigma_8(0.51)$	$0.611^{+0.027}_{-0.098}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.874^{+0.027}_{-0.027}$	$f\sigma_8(0.61)$	$0.460^{+0.017}_{-0.048}$
$A_{217}^{\text{dustTE}}$	$2.06^{+0.70}_{-0.71}$	$D_{40}$	$1221^{+31}_{-30}$	$\sigma_8(0.61)$	$0.582^{+0.026}_{-0.094}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$D_{220}$	$5745^{+100}_{-100}$	$f\sigma_8(2.33)$	$0.294^{+0.012}_{-0.045}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$D_{810}$	$2537^{+34}_{-34}$	$\sigma_8(2.33)$	$0.303^{+0.014}_{-0.051}$
$b_{\text{DES}}^1$	$1.53^{+0.30}_{-0.21}$	$D_{1420}$	$818^{+12}_{-12}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$b_{\text{DES}}^2$	$1.73^{+0.30}_{-0.16}$	$D_{2000}$	$231.2^{+4.2}_{-4.1}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$b_{\text{DES}}^3$	$1.71^{+0.27}_{-0.14}$	$n_{\text{s},0.002}$	$0.970^{+0.011}_{-0.011}$	$f_{2000}^{217}$	$106.7^{+4.7}_{-4.5}$
$b_{\text{DES}}^4$	$2.08^{+0.31}_{-0.16}$	$Y_{\text{P}}$	$0.24545^{+0.00016}_{-0.00016}$	$\chi_{\text{simall}}^2$	$397.0$ ( $\nu$ : 1.7)
$b_{\text{DES}}^5$	$2.18^{+0.32}_{-0.23}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24678^{+0.00016}_{-0.00017}$	$\chi_{\text{lowl}}^2$	$22.56$ ( $\nu$ : 0.3)
$m_{\text{DES}}^1$	$0.012^{+0.058}_{-0.058}$	$10^5 \text{D/H}$	$2.560^{+0.077}_{-0.071}$	$\chi_{\text{plik}}^2$	$2364.3$ ( $\nu$ : 23.8)
$m_{\text{DES}}^2$	$0.013^{+0.058}_{-0.057}$	$\text{Age/Gyr}$	$13.79^{+0.32}_{-0.099}$	$\chi_{\text{DES}}^2$	$518.1$ ( $\nu$ : 12.0)
$m_{\text{DES}}^3$	$-0.003^{+0.052}_{-0.052}$	$z_*$	$1089.56^{+0.83}_{-0.65}$	$\chi_{\text{prior}}^2$	$25$ ( $\nu$ : 23.3)
$m_{\text{DES}}^4$	$0.003^{+0.054}_{-0.053}$	$r_*$	$144.85^{+0.65}_{-0.73}$	$\chi_{\text{CMB}}^2$	$2783.8$ ( $\nu$ : 23.2)
$A_{\text{IA,DES}}$	$0.46^{+0.47}_{-0.39}$	$100\theta_*$	$1.04130^{+0.00076}_{-0.00079}$		
$\alpha_{\text{IA,DES}}$	—	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.911^{+0.062}_{-0.068}$		

$$\bar{\chi}_{\text{eff}}^2 = 3326.52; R - 1 = 0.00752$$



6.156 base\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_DES\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02252^{+0.00035}_{-0.00035}$	$\Delta z_{\text{l,DES}}^2$	$0.001^{+0.017}_{-0.017}$	$k_{\text{D}}$	$0.14057^{+0.00075}_{-0.00074}$
$\Omega_c h^2$	$0.1179^{+0.0023}_{-0.0024}$	$\Delta z_{\text{l,DES}}^3$	$0.003^{+0.017}_{-0.017}$	$100\theta_{\text{D}}$	$0.16065^{+0.00043}_{-0.00043}$
$100\theta_{\text{MC}}$	$1.04112^{+0.00073}_{-0.00076}$	$\Delta z_{\text{l,DES}}^4$	$0.001^{+0.023}_{-0.023}$	$z_{\text{eq}}$	$3356^{+53}_{-54}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$\Delta z_{\text{l,DES}}^5$	$-0.001^{+0.025}_{-0.025}$	$k_{\text{eq}}$	$0.01024^{+0.00016}_{-0.00017}$
$\Sigma m_\nu$ [eV]	$< 0.236$	$\Delta z_{\text{s,DES}}^1$	$-0.003^{+0.037}_{-0.037}$	$100\theta_{\text{eq}}$	$0.822^{+0.011}_{-0.0098}$
$\ln(10^{10} A_{\text{s}})$	$3.041^{+0.041}_{-0.030}$	$\Delta z_{\text{s,DES}}^2$	$-0.031^{+0.028}_{-0.028}$	$100\theta_{\text{s,eq}}$	$0.4539^{+0.0054}_{-0.0050}$
$n_{\text{s}}$	$0.9695^{+0.0098}_{-0.0099}$	$\Delta z_{\text{s,DES}}^3$	$0.004^{+0.025}_{-0.025}$	$H(0.15)$	$73.4^{+1.1}_{-1.5}$
$y_{\text{cal}}$	$1.0005^{+0.0064}_{-0.0064}$	$\Delta z_{\text{s,DES}}^4$	$-0.030^{+0.046}_{-0.047}$	$D_{\text{M}}(0.15)$	$636^{+15}_{-11}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$H_0$	$68.2^{+1.3}_{-1.7}$	$H(0.38)$	$83.40^{+0.87}_{-1.2}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$\Omega_{\Lambda}$	$0.697^{+0.015}_{-0.020}$	$D_{\text{M}}(0.38)$	$1519^{+30}_{-22}$
$A_{143}^{\text{tSZ}}$	$5.5^{+4.4}_{-4.7}$	$\Omega_{\text{m}}$	$0.303^{+0.020}_{-0.015}$	$H(0.51)$	$90.04^{+0.72}_{-1.0}$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70}$	$\Omega_{\text{m}} h^2$	$0.1412^{+0.0024}_{-0.0023}$	$D_{\text{M}}(0.51)$	$1969^{+36}_{-26}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$\Omega_{\nu} h^2$	$< 0.00254$	$H(0.61)$	$95.60^{+0.62}_{-0.88}$
$A_{143 \times 217}^{\text{PS}}$	$41^{+20}_{-20}$	$\Omega_{\text{m}} h^3$	$0.09635^{+0.00095}_{-0.0013}$	$D_{\text{M}}(0.61)$	$2292^{+39}_{-28}$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30}$	$\sigma_8$	$0.803^{+0.027}_{-0.046}$	$H(2.33)$	$235.4^{+1.5}_{-1.4}$
$A^{\text{kSZ}}$	—	$S_8$	$0.807^{+0.030}_{-0.034}$	$D_{\text{M}}(2.33)$	$5750^{+44}_{-30}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.8}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.442^{+0.017}_{-0.019}$	$f\sigma_8(0.15)$	$0.448^{+0.016}_{-0.018}$
$A_{143}^{\text{dustTT}}$	$11.0^{+4.6}_{-4.7}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.596^{+0.020}_{-0.028}$	$\sigma_8(0.15)$	$0.743^{+0.025}_{-0.043}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.2}_{-8.3}$	$\sigma_8/h^{0.5}$	$0.972^{+0.032}_{-0.047}$	$f\sigma_8(0.38)$	$0.468^{+0.015}_{-0.019}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$r_{\text{drag}} h$	$100.6^{+2.1}_{-2.5}$	$\sigma_8(0.38)$	$0.660^{+0.022}_{-0.040}$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.098}_{-0.094}$	$\langle d^2 \rangle^{1/2}$	$2.410^{+0.059}_{-0.060}$	$f\sigma_8(0.51)$	$0.467^{+0.015}_{-0.020}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.076}_{-0.074}$	$z_{\text{re}}$	$< 9.47$	$\sigma_8(0.51)$	$0.618^{+0.021}_{-0.037}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$10^9 A_{\text{s}}$	$2.094^{+0.087}_{-0.061}$	$f\sigma_8(0.61)$	$0.463^{+0.014}_{-0.020}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.874^{+0.027}_{-0.028}$	$\sigma_8(0.61)$	$0.588^{+0.020}_{-0.036}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$D_{40}$	$1222^{+30}_{-30}$	$f\sigma_8(2.33)$	$0.2970^{+0.0092}_{-0.016}$
$A_{217}^{\text{dustTE}}$	$2.06^{+0.71}_{-0.71}$	$D_{220}$	$5744^{+98}_{-100}$	$\sigma_8(2.33)$	$0.306^{+0.010}_{-0.018}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$D_{810}$	$2537^{+35}_{-35}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$D_{1420}$	$818^{+12}_{-12}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$b_{\text{DES}}^1$	$1.51^{+0.20}_{-0.20}$	$D_{2000}$	$231.2^{+4.0}_{-4.1}$	$f_{2000}^{217}$	$106.7^{+4.5}_{-4.6}$
$b_{\text{DES}}^2$	$1.71^{+0.16}_{-0.15}$	$n_{\text{s},0.002}$	$0.9695^{+0.0098}_{-0.0099}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.5)$
$b_{\text{DES}}^3$	$1.70^{+0.14}_{-0.12}$	$Y_{\text{P}}$	$0.24545^{+0.00014}_{-0.00014}$	$\chi_{\text{lowl}}^2$	$22.64 (\nu: 0.3)$
$b_{\text{DES}}^4$	$2.06^{+0.16}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24678^{+0.00014}_{-0.00014}$	$\chi_{\text{plik}}^2$	$2363.1 (\nu: 21.6)$
$b_{\text{DES}}^5$	$2.16^{+0.21}_{-0.21}$	$10^5 \text{D/H}$	$2.559^{+0.064}_{-0.063}$	$\chi_{6\text{DF}}^2$	$0.033 (\nu: 0.0)$
$m_{\text{DES}}^1$	$0.012^{+0.058}_{-0.058}$	Age/Gyr	$13.77^{+0.10}_{-0.068}$	$\chi_{\text{MGS}}^2$	$1.85 (\nu: 0.1)$
$m_{\text{DES}}^2$	$0.013^{+0.057}_{-0.057}$	$z_*$	$1089.55^{+0.55}_{-0.54}$	$\chi_{\text{DR12BAO}}^2$	$3.93 (\nu: 0.4)$
$m_{\text{DES}}^3$	$-0.003^{+0.051}_{-0.051}$	$r_*$	$144.86^{+0.58}_{-0.56}$	$\chi_{\text{DES}}^2$	$518.3 (\nu: 11.9)$
$m_{\text{DES}}^4$	$0.003^{+0.052}_{-0.053}$	$100\theta_*$	$1.04130^{+0.00074}_{-0.00075}$	$\chi_{\text{prior}}^2$	$25 (\nu: 22.8)$
$A_{\text{IA,DES}}$	$0.47^{+0.47}_{-0.38}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.911^{+0.056}_{-0.055}$	$\chi_{\text{BAO}}^2$	$5.81 (\nu: 0.3)$
$\alpha_{\text{IA,DES}}$	—	$z_{\text{drag}}$	$1060.13^{+0.75}_{-0.73}$	$\chi_{\text{CMB}}^2$	$2782.6 (\nu: 21.0)$
$\Delta z_{\text{l,DES}}^1$	$0.004^{+0.020}_{-0.019}$	$r_{\text{drag}}$	$147.48^{+0.61}_{-0.60}$		

$\bar{\chi}_{\text{eff}}^2 = 3331.28$ ;  $R - 1 = 0.00944$



6.157 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DES\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02252^{+0.00038}_{-0.00037}$	$\Delta z_{\text{l,DES}}^1$	$0.003^{+0.020}_{-0.019}$	$z_{\text{drag}}$	$1060.15^{+0.81}_{-0.75}$
$\Omega_c h^2$	$0.1181^{+0.0029}_{-0.0027}$	$\Delta z_{\text{l,DES}}^2$	$0.001^{+0.017}_{-0.017}$	$r_{\text{drag}}$	$147.44^{+0.64}_{-0.65}$
$100\theta_{\text{MC}}$	$1.04111^{+0.00077}_{-0.00079}$	$\Delta z_{\text{l,DES}}^3$	$0.003^{+0.017}_{-0.017}$	$k_{\text{D}}$	$0.14062^{+0.00076}_{-0.00076}$
$\tau$	$0.057^{+0.020}_{-0.015}$	$\Delta z_{\text{l,DES}}^4$	$0.001^{+0.023}_{-0.023}$	$100\theta_{\text{D}}$	$0.16064^{+0.00044}_{-0.00045}$
$\Sigma m_\nu$ [eV]	$< 0.289$	$\Delta z_{\text{l,DES}}^5$	$-0.001^{+0.025}_{-0.025}$	$z_{\text{eq}}$	$3360^{+63}_{-60}$
$\ln(10^{10} A_{\text{s}})$	$3.046^{+0.039}_{-0.030}$	$\Delta z_{\text{s,DES}}^1$	$-0.003^{+0.037}_{-0.038}$	$k_{\text{eq}}$	$0.01025^{+0.00019}_{-0.00018}$
$n_{\text{s}}$	$0.969^{+0.010}_{-0.010}$	$\Delta z_{\text{s,DES}}^2$	$-0.031^{+0.027}_{-0.028}$	$100\theta_{\text{eq}}$	$0.822^{+0.012}_{-0.012}$
$y_{\text{cal}}$	$1.0007^{+0.0063}_{-0.0063}$	$\Delta z_{\text{s,DES}}^3$	$0.004^{+0.024}_{-0.024}$	$100\theta_{\text{s,eq}}$	$0.4536^{+0.0060}_{-0.0061}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$\Delta z_{\text{s,DES}}^4$	$-0.031^{+0.047}_{-0.046}$	$H(0.15)$	$73.5^{+1.4}_{-2.9}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$H_0$	$68.3^{+1.6}_{-3.3}$	$D_{\text{M}}(0.15)$	$636^{+29}_{-13}$
$A_{143}^{\text{tSZ}}$	$5.5^{+4.4}_{-4.7}$	$\Omega_{\Lambda}$	$0.697^{+0.019}_{-0.042}$	$H(0.38)$	$83.4^{+1.1}_{-2.2}$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70}$	$\Omega_{\text{m}}$	$0.303^{+0.042}_{-0.019}$	$D_{\text{M}}(0.38)$	$1518^{+59}_{-27}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$\Omega_{\text{m}} h^2$	$0.1413^{+0.0047}_{-0.0029}$	$H(0.51)$	$90.07^{+0.89}_{-1.8}$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20}$	$\Omega_{\nu} h^2$	$< 0.00311$	$D_{\text{M}}(0.51)$	$1968^{+69}_{-32}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$\Omega_{\text{m}} h^3$	$0.09642^{+0.00093}_{-0.0018}$	$H(0.61)$	$95.63^{+0.74}_{-1.6}$
$A^{\text{kSZ}}$	—	$\sigma_8$	$0.807^{+0.023}_{-0.056}$	$D_{\text{M}}(0.61)$	$2291^{+75}_{-35}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.8}$	$S_8$	$0.811^{+0.027}_{-0.027}$	$H(2.33)$	$235.5^{+2.7}_{-1.8}$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.7}_{-4.7}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.444^{+0.015}_{-0.015}$	$D_{\text{M}}(2.33)$	$5749^{+76}_{-34}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.2}_{-8.4}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.599^{+0.017}_{-0.026}$	$f\sigma_8(0.15)$	$0.450^{+0.014}_{-0.014}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$\sigma_8/h^{0.5}$	$0.977^{+0.026}_{-0.048}$	$\sigma_8(0.15)$	$0.747^{+0.021}_{-0.055}$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.097}_{-0.095}$	$r_{\text{drag}} h$	$100.6^{+2.7}_{-5.0}$	$f\sigma_8(0.38)$	$0.470^{+0.013}_{-0.016}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.077}_{-0.075}$	$\langle d^2 \rangle^{1/2}$	$2.419^{+0.050}_{-0.049}$	$\sigma_8(0.38)$	$0.663^{+0.020}_{-0.052}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_{\text{re}}$	$< 9.65$	$f\sigma_8(0.51)$	$0.469^{+0.012}_{-0.019}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$10^9 A_{\text{s}}$	$2.104^{+0.084}_{-0.063}$	$\sigma_8(0.51)$	$0.621^{+0.019}_{-0.050}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.20}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.876^{+0.026}_{-0.027}$	$f\sigma_8(0.61)$	$0.465^{+0.012}_{-0.021}$
$A_{217}^{\text{dustTE}}$	$2.06^{+0.70}_{-0.71}$	$D_{40}$	$1225^{+30}_{-29}$	$\sigma_8(0.61)$	$0.591^{+0.018}_{-0.048}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$D_{220}$	$5750^{+98}_{-99}$	$f\sigma_8(2.33)$	$0.2983^{+0.0086}_{-0.022}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$D_{810}$	$2539^{+34}_{-33}$	$\sigma_8(2.33)$	$0.3078^{+0.0099}_{-0.026}$
$b_{\text{DES}}^1$	$1.50^{+0.21}_{-0.20}$	$D_{1420}$	$818^{+12}_{-12}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$b_{\text{DES}}^2$	$1.70^{+0.17}_{-0.14}$	$D_{2000}$	$231.4^{+4.1}_{-4.0}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$b_{\text{DES}}^3$	$1.69^{+0.15}_{-0.12}$	$n_{\text{s},0.002}$	$0.969^{+0.010}_{-0.010}$	$f_{2000}^{217}$	$106.7^{+4.5}_{-4.6}$
$b_{\text{DES}}^4$	$2.05^{+0.18}_{-0.14}$	$Y_{\text{P}}$	$0.24545^{+0.00015}_{-0.00015}$	$\chi_{\text{lensing}}^2$	$9.5 (\nu: 0.5)$
$b_{\text{DES}}^5$	$2.15^{+0.22}_{-0.21}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24678^{+0.00015}_{-0.00015}$	$\chi_{\text{simall}}^2$	$397.3 (\nu: 2.2)$
$m_{\text{DES}}^1$	$0.012^{+0.058}_{-0.059}$	$10^5 \text{D/H}$	$2.558^{+0.070}_{-0.068}$	$\chi_{\text{lowl}}^2$	$22.82 (\nu: 0.3)$
$m_{\text{DES}}^2$	$0.012^{+0.058}_{-0.057}$	$\text{Age/Gyr}$	$13.77^{+0.17}_{-0.077}$	$\chi_{\text{plik}}^2$	$2362.0 (\nu: 18.8)$
$m_{\text{DES}}^3$	$-0.004^{+0.052}_{-0.051}$	$z_*$	$1089.56^{+0.66}_{-0.62}$	$\chi_{\text{DES}}^2$	$518.5 (\nu: 12.7)$
$m_{\text{DES}}^4$	$0.002^{+0.053}_{-0.053}$	$r_*$	$144.82^{+0.62}_{-0.64}$	$\chi_{\text{prior}}^2$	$25 (\nu: 23.1)$
$A_{\text{IA,DES}}$	$0.47^{+0.46}_{-0.38}$	$100\theta_*$	$1.04128^{+0.00074}_{-0.00077}$	$\chi_{\text{CMB}}^2$	$2791.7 (\nu: 21.7)$
$\alpha_{\text{IA,DES}}$	—	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.908^{+0.059}_{-0.061}$		

$$\bar{\chi}_{\text{eff}}^2 = 3334.99; R - 1 = 0.00823$$



6.158 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DES\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02252^{+0.00035}_{-0.00034}$	$\Delta z_{\text{l,DES}}^2$	$0.001^{+0.017}_{-0.017}$	$k_{\text{D}}$	$0.14063^{+0.00072}_{-0.00071}$
$\Omega_c h^2$	$0.1182^{+0.0021}_{-0.0022}$	$\Delta z_{\text{l,DES}}^3$	$0.003^{+0.017}_{-0.017}$	$100\theta_{\text{D}}$	$0.16065^{+0.00043}_{-0.00043}$
$100\theta_{\text{MC}}$	$1.04111^{+0.00072}_{-0.00075}$	$\Delta z_{\text{l,DES}}^4$	$0.000^{+0.024}_{-0.023}$	$z_{\text{eq}}$	$3362^{+49}_{-50}$
$\tau$	$0.057^{+0.019}_{-0.014}$	$\Delta z_{\text{l,DES}}^5$	$-0.001^{+0.025}_{-0.025}$	$k_{\text{eq}}$	$0.01026^{+0.00015}_{-0.00015}$
$\Sigma m_\nu$ [eV]	$< 0.188$	$\Delta z_{\text{s,DES}}^1$	$-0.003^{+0.037}_{-0.038}$	$100\theta_{\text{eq}}$	$0.8212^{+0.0096}_{-0.0092}$
$\ln(10^{10} A_{\text{s}})$	$3.045^{+0.039}_{-0.029}$	$\Delta z_{\text{s,DES}}^2$	$-0.031^{+0.028}_{-0.028}$	$100\theta_{\text{s,eq}}$	$0.4534^{+0.0049}_{-0.0046}$
$n_{\text{s}}$	$0.9688^{+0.0095}_{-0.0097}$	$\Delta z_{\text{s,DES}}^3$	$0.003^{+0.025}_{-0.024}$	$H(0.15)$	$73.5^{+1.1}_{-1.3}$
$y_{\text{cal}}$	$1.0007^{+0.0063}_{-0.0063}$	$\Delta z_{\text{s,DES}}^4$	$-0.031^{+0.046}_{-0.046}$	$D_{\text{M}}(0.15)$	$635^{+13}_{-10}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$H_0$	$68.3^{+1.2}_{-1.5}$	$H(0.38)$	$83.46^{+0.81}_{-1.0}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$\Omega_{\Lambda}$	$0.697^{+0.015}_{-0.018}$	$D_{\text{M}}(0.38)$	$1518^{+27}_{-21}$
$A_{143}^{\text{tSZ}}$	$5.5^{+4.4}_{-4.7}$	$\Omega_{\text{m}}$	$0.303^{+0.018}_{-0.015}$	$H(0.51)$	$90.09^{+0.67}_{-0.89}$
$A_{100}^{\text{PS}}$	$258^{+70}_{-70}$	$\Omega_{\text{m}} h^2$	$0.1413^{+0.0024}_{-0.0022}$	$D_{\text{M}}(0.51)$	$1967^{+32}_{-24}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$\Omega_{\nu} h^2$	$< 0.00202$	$H(0.61)$	$95.65^{+0.58}_{-0.77}$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20}$	$\Omega_{\text{m}} h^3$	$0.09647^{+0.00086}_{-0.0011}$	$D_{\text{M}}(0.61)$	$2290^{+35}_{-26}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$\sigma_8$	$0.809^{+0.021}_{-0.033}$	$H(2.33)$	$235.5^{+1.5}_{-1.4}$
$A^{\text{kSZ}}$	—	$S_8$	$0.813^{+0.025}_{-0.026}$	$D_{\text{M}}(2.33)$	$5748^{+38}_{-28}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.6}_{-4.8}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.445^{+0.014}_{-0.014}$	$f\sigma_8(0.15)$	$0.450^{+0.013}_{-0.013}$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.7}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.600^{+0.016}_{-0.020}$	$\sigma_8(0.15)$	$0.748^{+0.020}_{-0.032}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.1}_{-8.3}$	$\sigma_8/h^{0.5}$	$0.979^{+0.025}_{-0.033}$	$f\sigma_8(0.38)$	$0.471^{+0.012}_{-0.014}$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$r_{\text{drag}} h$	$100.7^{+2.0}_{-2.3}$	$\sigma_8(0.38)$	$0.664^{+0.018}_{-0.029}$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.097}_{-0.094}$	$\langle d^2 \rangle^{1/2}$	$2.420^{+0.049}_{-0.048}$	$f\sigma_8(0.51)$	$0.470^{+0.011}_{-0.014}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.077}_{-0.075}$	$z_{\text{re}}$	$< 9.57$	$\sigma_8(0.51)$	$0.622^{+0.017}_{-0.028}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$10^9 A_{\text{s}}$	$2.102^{+0.083}_{-0.061}$	$f\sigma_8(0.61)$	$0.466^{+0.011}_{-0.014}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.876^{+0.026}_{-0.027}$	$\sigma_8(0.61)$	$0.592^{+0.016}_{-0.027}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$D_{40}$	$1225^{+29}_{-29}$	$f\sigma_8(2.33)$	$0.2988^{+0.0075}_{-0.012}$
$A_{217}^{\text{dustTE}}$	$2.06^{+0.71}_{-0.72}$	$D_{220}$	$5749^{+99}_{-99}$	$\sigma_8(2.33)$	$0.3084^{+0.0085}_{-0.014}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015}$	$D_{810}$	$2538^{+34}_{-34}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$D_{1420}$	$818^{+12}_{-12}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$b_{\text{DES}}^1$	$1.50^{+0.19}_{-0.19}$	$D_{2000}$	$231.3^{+4.1}_{-4.0}$	$f_{2000}^{217}$	$106.7^{+4.4}_{-4.6}$
$b_{\text{DES}}^2$	$1.70^{+0.14}_{-0.14}$	$n_{\text{s},0.002}$	$0.9688^{+0.0095}_{-0.0097}$	$\chi_{\text{lensing}}^2$	$9.40 (\nu: 0.4)$
$b_{\text{DES}}^3$	$1.69^{+0.12}_{-0.12}$	$Y_{\text{P}}$	$0.24545^{+0.00014}_{-0.00014}$	$\chi_{\text{simall}}^2$	$397.2 (\nu: 1.9)$
$b_{\text{DES}}^4$	$2.05^{+0.14}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24678^{+0.00014}_{-0.00014}$	$\chi_{\text{lowl}}^2$	$22.86 (\nu: 0.3)$
$b_{\text{DES}}^5$	$2.15^{+0.20}_{-0.21}$	$10^5 \text{D/H}$	$2.559^{+0.064}_{-0.063}$	$\chi_{\text{plik}}^2$	$2361.5 (\nu: 18.2)$
$m_{\text{DES}}^1$	$0.012^{+0.058}_{-0.059}$	Age/Gyr	$13.763^{+0.087}_{-0.063}$	$\chi_{6\text{DF}}^2$	$0.030 (\nu: 0.0)$
$m_{\text{DES}}^2$	$0.012^{+0.058}_{-0.057}$	$z_*$	$1089.57^{+0.54}_{-0.54}$	$\chi_{\text{MGS}}^2$	$1.88 (\nu: 0.1)$
$m_{\text{DES}}^3$	$-0.005^{+0.051}_{-0.050}$	$r_*$	$144.80^{+0.53}_{-0.53}$	$\chi_{\text{DR12BAO}}^2$	$3.85 (\nu: 0.3)$
$m_{\text{DES}}^4$	$0.001^{+0.053}_{-0.053}$	$100\theta_*$	$1.04128^{+0.00072}_{-0.00075}$	$\chi_{\text{DES}}^2$	$518.6 (\nu: 12.2)$
$A_{\text{IA,DES}}$	$0.48^{+0.47}_{-0.38}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.906^{+0.052}_{-0.052}$	$\chi_{\text{prior}}^2$	$25 (\nu: 23.1)$
$\alpha_{\text{IA,DES}}$	—	$z_{\text{drag}}$	$1060.14^{+0.78}_{-0.74}$	$\chi_{\text{CMB}}^2$	$2790.9 (\nu: 20.4)$
$\Delta z_{\text{l,DES}}^1$	$0.003^{+0.020}_{-0.019}$	$r_{\text{drag}}$	$147.42^{+0.57}_{-0.57}$	$\chi_{\text{BAO}}^2$	$5.76 (\nu: 0.3)$

$\bar{\chi}_{\text{eff}}^2 = 3340.12$ ;  $R - 1 = 0.00912$



6.159 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DESlens

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022462	$0.02243^{+0.00039}_{-0.00037}$	$\Delta z_{s,DES}^2$	-0.0205	$-0.021^{+0.029}_{-0.030}$	$k_D$	0.14076	$0.14072^{+0.00079}_{-0.00078}$
$\Omega_c h^2$	0.11903	$0.1190^{+0.0029}_{-0.0029}$	$\Delta z_{s,DES}^3$	0.0047	$0.004^{+0.027}_{-0.026}$	$100\theta_D$	0.160687	$0.16072^{+0.00044}_{-0.00045}$
$100\theta_{MC}$	1.04107	$1.04100^{+0.00080}_{-0.00079}$	$\Delta z_{s,DES}^4$	-0.021	$-0.022^{+0.052}_{-0.052}$	$z_{eq}$	3381	$3381^{+66}_{-66}$
$\tau$	0.0535	$0.054^{+0.021}_{-0.021}$	$H_0$	68.33	$67.6^{+1.8}_{-3.9}$	$k_{eq}$	0.010320	$0.01032^{+0.00020}_{-0.00020}$
$\Sigma m_\nu$ [eV]	0.002	< 0.390	$\Omega_\Lambda$	0.6969	$0.688^{+0.023}_{-0.052}$	$100\theta_{eq}$	0.8174	$0.817^{+0.013}_{-0.012}$
$\ln(10^{10} A_s)$	3.0406	$3.040^{+0.041}_{-0.043}$	$\Omega_m$	0.3031	$0.312^{+0.052}_{-0.023}$	$100\theta_{s,eq}$	0.4514	$0.4515^{+0.0064}_{-0.0063}$
$n_s$	0.9682	$0.967^{+0.010}_{-0.010}$	$\Omega_m h^2$	0.14152	$0.1424^{+0.0053}_{-0.0032}$	$H(0.15)$	73.53	$72.9^{+1.6}_{-3.4}$
$y_{cal}$	1.0004	$1.0004^{+0.0064}_{-0.0066}$	$\Omega_\nu h^2$	0.00003	< 0.00420	$D_M(0.15)$	635.1	$641^{+35}_{-16}$
$A_{217}^{CIB}$	47.0	$47^{+20}_{-20}$	$\Omega_m h^3$	0.09670	$0.0962^{+0.0011}_{-0.0024}$	$H(0.38)$	83.51	$83.0^{+1.2}_{-2.6}$
$\xi^{tSZ \times CIB}$	0.47	—	$\sigma_8$	0.820	$0.802^{+0.033}_{-0.068}$	$D_M(0.38)$	1517	$1530^{+71}_{-32}$
$A_{143}^{tSZ}$	7.21	> 1.03	$S_8$	0.8243	$0.818^{+0.034}_{-0.036}$	$H(0.51)$	90.15	$89.7^{+1.0}_{-2.2}$
$A_{100}^{PS}$	249	$258^{+70}_{-70}$	$\sigma_8 \Omega_m^{0.5}$	0.4515	$0.448^{+0.018}_{-0.020}$	$D_M(0.51)$	1966	$1982^{+84}_{-37}$
$A_{143}^{PS}$	47.2	$45^{+20}_{-20}$	$\sigma_8 \Omega_m^{0.25}$	0.6085	$0.599^{+0.022}_{-0.038}$	$H(0.61)$	95.72	$95.34^{+0.85}_{-1.8}$
$A_{143 \times 217}^{PS}$	47.9	$42^{+20}_{-20}$	$\sigma_8/h^{0.5}$	0.992	$0.976^{+0.034}_{-0.069}$	$D_M(0.61)$	2289	$2306^{+92}_{-41}$
$A_{217}^{PS}$	119.5	$114^{+30}_{-30}$	$r_{drag} h$	100.61	$99.6^{+3.0}_{-6.0}$	$H(2.33)$	235.70	$236.1^{+2.9}_{-2.0}$
$A^{kSZ}$	0.0	—	$\langle d^2 \rangle^{1/2}$	2.433	$2.423^{+0.062}_{-0.065}$	$D_M(2.33)$	5743	$5762^{+94}_{-40}$
$A_{100}^{dustTT}$	8.86	$8.9^{+4.7}_{-4.8}$	$z_{re}$	7.55	$7.6^{+2.0}_{-2.3}$	$f\sigma_8(0.15)$	0.4560	$0.453^{+0.017}_{-0.019}$
$A_{143}^{dustTT}$	11.01	$11.0^{+4.7}_{-4.6}$	$10^9 A_s$	2.092	$2.091^{+0.088}_{-0.088}$	$\sigma_8(0.15)$	0.7585	$0.741^{+0.031}_{-0.066}$
$A_{143 \times 217}^{dustTT}$	19.8	$18.7^{+8.4}_{-8.4}$	$10^9 A_s e^{-2\tau}$	1.8796	$1.878^{+0.028}_{-0.030}$	$f\sigma_8(0.38)$	0.4763	$0.471^{+0.016}_{-0.025}$
$A_{217}^{dustTT}$	95.0	$94^{+20}_{-20}$	$D_{40}$	1224.2	$1226^{+30}_{-31}$	$\sigma_8(0.38)$	0.6731	$0.657^{+0.029}_{-0.067}$
$A_{100}^{dustTE}$	0.113	$0.114^{+0.10}_{-0.093}$	$D_{220}$	5736	$5736^{+100}_{-100}$	$f\sigma_8(0.51)$	0.4758	$0.470^{+0.016}_{-0.029}$
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.075}_{-0.075}$	$D_{810}$	2539.5	$2537^{+34}_{-36}$	$\sigma_8(0.51)$	0.6302	$0.615^{+0.027}_{-0.064}$
$A_{100 \times 217}^{dustTE}$	0.481	$0.48^{+0.22}_{-0.22}$	$D_{1420}$	818.5	$817^{+12}_{-12}$	$f\sigma_8(0.61)$	0.4714	$0.465^{+0.015}_{-0.031}$
$A_{143}^{dustTE}$	0.226	$0.22^{+0.14}_{-0.14}$	$D_{2000}$	231.50	$230.9^{+4.1}_{-4.1}$	$\sigma_8(0.61)$	0.5998	$0.585^{+0.026}_{-0.062}$
$A_{143 \times 217}^{dustTE}$	0.666	$0.66^{+0.21}_{-0.21}$	$n_{s,0.002}$	0.9682	$0.967^{+0.010}_{-0.010}$	$f\sigma_8(2.33)$	0.3018	$0.296^{+0.011}_{-0.030}$
$A_{217}^{dustTE}$	2.09	$2.07^{+0.70}_{-0.71}$	$Y_P$	0.245431	$0.24542^{+0.00015}_{-0.00015}$	$\sigma_8(2.33)$	0.3120	$0.304^{+0.012}_{-0.035}$
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$	$Y_P^{BBN}$	0.246757	$0.24674^{+0.00015}_{-0.00015}$	$f_{2000}^{143}$	28.4	$29^{+7}_{-7}$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$	$10^5 D/H$	2.569	$2.575^{+0.070}_{-0.070}$	$f_{2000}^{143 \times 217}$	31.67	$32^{+5}_{-5}$
$m_{DES}^1$	0.014	$0.014^{+0.059}_{-0.058}$	Age/Gyr	13.751	$13.79^{+0.22}_{-0.089}$	$f_{2000}^{217}$	106.30	$106.9^{+4.6}_{-4.5}$
$m_{DES}^2$	0.012	$0.012^{+0.057}_{-0.057}$	$z_*$	1089.71	$1089.76^{+0.67}_{-0.65}$	$\chi_{small}^2$	395.86	$397.0 (\nu: 1.4)$
$m_{DES}^3$	-0.007	$-0.008^{+0.052}_{-0.051}$	$r_*$	144.62	$144.63^{+0.67}_{-0.67}$	$\chi_{lowl}^2$	22.90	$22.99 (\nu: 0.3)$
$m_{DES}^4$	0.012	$0.011^{+0.054}_{-0.053}$	$100\theta_*$	1.04121	$1.04119^{+0.00077}_{-0.00076}$	$\chi_{plik}^2$	2344.9	$2361.4 (\nu: 19.6)$
$A_{IA,DES}$	1.43	$1.2^{+1.3}_{-1.2}$	$D_M(z_*)/\text{Gpc}$	13.889	$13.891^{+0.063}_{-0.063}$	$\chi_{DES}^2$	229.2	$232.0 (\nu: 3.2)$
$\alpha_{IA,DES}$	2.4	—	$z_{drag}$	1060.09	$1060.01^{+0.80}_{-0.73}$	$\chi_{prior}^2$	2.7	$19.6 (\nu: 17.8)$
$\Delta z_{s,DES}^1$	0.0045	$0.005^{+0.037}_{-0.038}$	$r_{drag}$	147.25	$147.28^{+0.68}_{-0.68}$	$\chi_{CMB}^2$	2763.6	$2781.4 (\nu: 19.3)$

Best-fit  $\chi_{eff}^2 = 2995.54$ ;  $\bar{\chi}_{eff}^2 = 3033.01$ ;  $R - 1 = 0.00759$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3.2\_29: 22.90 plik\_rd12\_HM\_v22b\_TTTEE: 2344.87 WL - DES\_1YR\_final: 229.21



6.160 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DESlens\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022444	$0.02246^{+0.00036}_{-0.00033}$	$\Delta z_{s,DES}^4$	-0.022	$-0.022^{+0.050}_{-0.050}$	$100\theta_{eq}$	0.8173	$0.819^{+0.011}_{-0.010}$
$\Omega_c h^2$	0.11906	$0.1188^{+0.0024}_{-0.0024}$	$H_0$	68.29	$68.0^{+1.2}_{-1.5}$	$100\theta_{s,eq}$	0.4514	$0.4521^{+0.0054}_{-0.0052}$
$100\theta_{MC}$	1.04104	$1.04105^{+0.00076}_{-0.00074}$	$\Omega_\Lambda$	0.6965	$0.693^{+0.015}_{-0.018}$	$H(0.15)$	73.49	$73.2^{+1.1}_{-1.3}$
$\tau$	0.0532	$0.054^{+0.021}_{-0.021}$	$\Omega_m$	0.3035	$0.307^{+0.018}_{-0.015}$	$D_M(0.15)$	635.4	$638^{+13}_{-10}$
$\Sigma m_\nu$ [eV]	0.002	< 0.192	$\Omega_m h^2$	0.14153	$0.1418^{+0.0024}_{-0.0023}$	$H(0.38)$	83.48	$83.27^{+0.83}_{-1.0}$
$\ln(10^{10} A_s)$	3.0387	$3.040^{+0.042}_{-0.043}$	$\Omega_\nu h^2$	0.00003	< 0.00206	$D_M(0.38)$	1517.3	$1523^{+26}_{-21}$
$n_s$	0.9684	$0.9680^{+0.0093}_{-0.0093}$	$\Omega_m h^3$	0.09665	$0.09643^{+0.00091}_{-0.0012}$	$H(0.51)$	90.13	$89.94^{+0.69}_{-0.86}$
$y_{cal}$	0.9998	$1.0004^{+0.0062}_{-0.0065}$	$\sigma_8$	0.8194	$0.808^{+0.024}_{-0.039}$	$D_M(0.51)$	1966.8	$1973^{+31}_{-25}$
$A_{217}^{CIB}$	46.8	$47^{+20}_{-20}$	$S_8$	0.8242	$0.818^{+0.031}_{-0.033}$	$H(0.61)$	95.69	$95.53^{+0.59}_{-0.75}$
$\xi^{tSZ \times CIB}$	0.48	—	$\sigma_8 \Omega_m^{0.5}$	0.4514	$0.448^{+0.017}_{-0.018}$	$D_M(0.61)$	2289.7	$2297^{+34}_{-27}$
$A_{143}^{tSZ}$	7.30	> 0.899	$\sigma_8 \Omega_m^{0.25}$	0.6082	$0.602^{+0.019}_{-0.025}$	$H(2.33)$	235.70	$235.8^{+1.5}_{-1.5}$
$A_{100}^{PS}$	248	$258^{+70}_{-70}$	$\sigma_8/h^{0.5}$	0.9916	$0.980^{+0.030}_{-0.041}$	$D_M(2.33)$	5744.3	$5753^{+38}_{-28}$
$A_{143}^{PS}$	47.3	$45^{+20}_{-20}$	$r_{drag} h$	100.57	$100.2^{+2.1}_{-2.3}$	$f\sigma_8(0.15)$	0.4559	$0.453^{+0.016}_{-0.017}$
$A_{143 \times 217}^{PS}$	48.3	$42^{+20}_{-20}$	$\langle d^2 \rangle^{1/2}$	2.431	$2.423^{+0.059}_{-0.064}$	$\sigma_8(0.15)$	0.7579	$0.748^{+0.022}_{-0.036}$
$A_{217}^{PS}$	119.7	$115^{+30}_{-30}$	$z_{re}$	7.53	$7.6^{+2.0}_{-2.3}$	$f\sigma_8(0.38)$	0.4761	$0.472^{+0.014}_{-0.017}$
$A^{kSZ}$	0.0	—	$10^9 A_s$	2.088	$2.091^{+0.089}_{-0.088}$	$\sigma_8(0.38)$	0.6725	$0.663^{+0.020}_{-0.033}$
$A_{100}^{dustTT}$	8.89	$8.9^{+4.8}_{-4.8}$	$10^9 A_s e^{-2\tau}$	1.8769	$1.877^{+0.026}_{-0.029}$	$f\sigma_8(0.51)$	0.4756	$0.471^{+0.014}_{-0.018}$
$A_{143}^{dustTT}$	11.07	$10.9^{+4.7}_{-4.5}$	$D_{40}$	1221.9	$1225^{+30}_{-30}$	$\sigma_8(0.51)$	0.6296	$0.621^{+0.019}_{-0.031}$
$A_{143 \times 217}^{dustTT}$	19.9	$18.6^{+8.4}_{-8.3}$	$D_{220}$	5725	$5736^{+99}_{-100}$	$f\sigma_8(0.61)$	0.4712	$0.467^{+0.013}_{-0.018}$
$A_{217}^{dustTT}$	95.0	$94^{+20}_{-20}$	$D_{810}$	2536.0	$2537^{+33}_{-36}$	$\sigma_8(0.61)$	0.5992	$0.591^{+0.018}_{-0.030}$
$A_{100}^{dustTE}$	0.115	$0.114^{+0.099}_{-0.096}$	$D_{1420}$	817.4	$818^{+12}_{-12}$	$f\sigma_8(2.33)$	0.3015	$0.2981^{+0.0084}_{-0.013}$
$A_{100 \times 143}^{dustTE}$	0.134	$0.134^{+0.076}_{-0.074}$	$D_{2000}$	231.15	$231.1^{+4.0}_{-4.1}$	$\sigma_8(2.33)$	0.3116	$0.3075^{+0.0094}_{-0.015}$
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.22}_{-0.22}$	$n_{s,0.002}$	0.9684	$0.9680^{+0.0093}_{-0.0093}$	$f_{2000}^{143}$	28.5	$29^{+7}_{-7}$
$A_{143}^{dustTE}$	0.223	$0.22^{+0.14}_{-0.14}$	$Y_P$	0.245424	$0.24543^{+0.00014}_{-0.00013}$	$f_{2000}^{143 \times 217}$	31.74	$32^{+5}_{-5}$
$A_{143 \times 217}^{dustTE}$	0.663	$0.66^{+0.21}_{-0.21}$	$Y_P^{BBN}$	0.246751	$0.24675^{+0.00014}_{-0.00013}$	$f_{2000}^{217}$	106.27	$106.7^{+4.5}_{-4.5}$
$A_{217}^{dustTE}$	2.07	$2.07^{+0.70}_{-0.69}$	$10^5 D/H$	2.572	$2.570^{+0.062}_{-0.065}$	$\chi_{simall}^2$	395.84	$397.0 (\nu: 1.4)$
$c_{100}$	0.99970	$0.9997^{+0.0016}_{-0.0016}$	Age/Gyr	13.754	$13.774^{+0.087}_{-0.064}$	$\chi_{lowl}^2$	22.84	$22.92 (\nu: 0.3)$
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$	$z_*$	1089.74	$1089.70^{+0.52}_{-0.56}$	$\chi_{plik}^2$	2345.0	$2360.9 (\nu: 18.4)$
$m_{DES}^1$	0.015	$0.014^{+0.059}_{-0.059}$	$r_*$	144.62	$144.69^{+0.59}_{-0.57}$	$\chi_{6DF}^2$	0.000	$0.033 (\nu: 0.0)$
$m_{DES}^2$	0.012	$0.012^{+0.056}_{-0.057}$	$100\theta_*$	1.04119	$1.04123^{+0.00075}_{-0.00074}$	$\chi_{MGS}^2$	1.75	$1.57 (\nu: 0.1)$
$m_{DES}^3$	-0.007	$-0.007^{+0.052}_{-0.052}$	$D_M(z_*)/\text{Gpc}$	13.890	$13.896^{+0.055}_{-0.055}$	$\chi_{DR12BAO}^2$	3.47	$4.2 (\nu: 0.6)$
$m_{DES}^4$	0.012	$0.011^{+0.055}_{-0.054}$	$z_{drag}$	1060.05	$1060.05^{+0.76}_{-0.73}$	$\chi_{DES}^2$	229.2	$231.9 (\nu: 3.0)$
$A_{IA,DES}$	1.45	$1.2^{+1.3}_{-1.2}$	$r_{drag}$	147.26	$147.33^{+0.61}_{-0.61}$	$\chi_{prior}^2$	2.8	$19.4 (\nu: 17.8)$
$\alpha_{IA,DES}$	2.5	—	$k_D$	0.14073	$0.14068^{+0.00075}_{-0.00074}$	$\chi_{BAO}^2$	5.22	$5.78 (\nu: 0.3)$
$\Delta z_{s,DES}^1$	0.0044	$0.004^{+0.037}_{-0.037}$	$100\theta_D$	0.160707	$0.16070^{+0.00044}_{-0.00044}$	$\chi_{CMB}^2$	2763.7	$2780.8 (\nu: 18.0)$
$\Delta z_{s,DES}^2$	-0.0207	$-0.021^{+0.029}_{-0.029}$	$z_{eq}$	3382	$3375^{+55}_{-55}$			
$\Delta z_{s,DES}^3$	0.0050	$0.005^{+0.027}_{-0.025}$	$k_{eq}$	0.010320	$0.01030^{+0.00017}_{-0.00017}$			

Best-fit  $\chi_{eff}^2 = 3000.82$ ;  $\bar{\chi}_{eff}^2 = 3037.89$ ;  $R - 1 = 0.00772$

$\chi_{eff}^2$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.47 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.84 commander\_dx12\_v3\_2\_29: 22.84 plik\_rd12\_HM\_v22b\_TTTEE: 2344.98 WL - DES\_1YR\_final: 229.17



6.161 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DESlens\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022472	$0.02244^{+0.00038}_{-0.00037}$	$\Delta z_{s,DES}^3$	0.0048	$0.004^{+0.026}_{-0.026}$	$z_{eq}$	3381	$3382^{+64}_{-62}$
$\Omega_c h^2$	0.11899	$0.1191^{+0.0029}_{-0.0028}$	$\Delta z_{s,DES}^4$	-0.022	$-0.023^{+0.051}_{-0.050}$	$k_{eq}$	0.010318	$0.01032^{+0.00020}_{-0.00019}$
$100\theta_{MC}$	1.04104	$1.04100^{+0.00079}_{-0.00078}$	$H_0$	68.34	$67.7^{+1.7}_{-3.1}$	$100\theta_{eq}$	0.8175	$0.817^{+0.012}_{-0.012}$
$\tau$	0.0540	$0.055^{+0.021}_{-0.019}$	$\Omega_\Lambda$	0.6971	$0.689^{+0.021}_{-0.041}$	$100\theta_{s,eq}$	0.4515	$0.4513^{+0.0062}_{-0.0061}$
$\Sigma m_\nu$ [eV]	0.001	< 0.284	$\Omega_m$	0.3029	$0.311^{+0.041}_{-0.021}$	$H(0.15)$	73.54	$73.0^{+1.5}_{-2.7}$
$\ln(10^{10} A_s)$	3.0418	$3.043^{+0.039}_{-0.037}$	$\Omega_m h^2$	0.14148	$0.1423^{+0.0045}_{-0.0030}$	$D_M(0.15)$	635.0	$640^{+27}_{-14}$
$n_s$	0.9689	$0.967^{+0.010}_{-0.010}$	$\Omega_\nu h^2$	0.00001	< 0.00305	$H(0.38)$	83.52	$83.1^{+1.1}_{-2.1}$
$y_{cal}$	1.0005	$1.0006^{+0.0062}_{-0.0064}$	$\Omega_m h^3$	0.09669	$0.09635^{+0.00098}_{-0.0017}$	$D_M(0.38)$	1516.4	$1528^{+56}_{-29}$
$A_{217}^{CIB}$	45.1	$47^{+20}_{-20}$	$\sigma_8$	0.8206	$0.807^{+0.023}_{-0.051}$	$H(0.51)$	90.16	$89.80^{+0.92}_{-1.7}$
$\xi^{tSZ \times CIB}$	0.80	—	$S_8$	0.8246	$0.821^{+0.028}_{-0.028}$	$D_M(0.51)$	1966	$1979^{+66}_{-34}$
$A_{143}^{tSZ}$	7.09	> 0.874	$\sigma_8 \Omega_m^{0.5}$	0.4517	$0.450^{+0.015}_{-0.015}$	$H(0.61)$	95.72	$95.41^{+0.78}_{-1.4}$
$A_{100}^{PS}$	246	$258^{+70}_{-70}$	$\sigma_8 \Omega_m^{0.25}$	0.6088	$0.602^{+0.017}_{-0.024}$	$D_M(0.61)$	2288	$2303^{+72}_{-37}$
$A_{143}^{PS}$	51.7	$45^{+20}_{-20}$	$\sigma_8/h^{0.5}$	0.9927	$0.981^{+0.026}_{-0.045}$	$H(2.33)$	235.68	$236.1^{+2.6}_{-1.8}$
$A_{143 \times 217}^{PS}$	56.4	$42^{+20}_{-20}$	$r_{drag} h$	100.64	$99.7^{+2.8}_{-4.8}$	$D_M(2.33)$	5743	$5758^{+72}_{-36}$
$A_{217}^{PS}$	122.9	$115^{+30}_{-30}$	$\langle d^2 \rangle^{1/2}$	2.433	$2.430^{+0.050}_{-0.050}$	$f\sigma_8(0.15)$	0.4562	$0.455^{+0.014}_{-0.014}$
$A^{kSZ}$	0.0	—	$z_{re}$	7.60	$7.7^{+2.0}_{-2.1}$	$\sigma_8(0.15)$	0.7590	$0.746^{+0.022}_{-0.049}$
$A_{100}^{dustTT}$	8.85	$8.9^{+4.7}_{-4.8}$	$10^9 A_s$	2.094	$2.098^{+0.084}_{-0.077}$	$f\sigma_8(0.38)$	0.4765	$0.473^{+0.013}_{-0.016}$
$A_{143}^{dustTT}$	10.99	$10.9^{+4.7}_{-4.4}$	$10^9 A_s e^{-2\tau}$	1.8801	$1.879^{+0.027}_{-0.027}$	$\sigma_8(0.38)$	0.6736	$0.661^{+0.020}_{-0.047}$
$A_{143 \times 217}^{dustTT}$	20.3	$18.6^{+8.4}_{-8.3}$	$D_{40}$	1223.3	$1228^{+29}_{-29}$	$f\sigma_8(0.51)$	0.4761	$0.472^{+0.012}_{-0.018}$
$A_{217}^{dustTT}$	95.8	$94^{+20}_{-20}$	$D_{220}$	5736	$5740^{+100}_{-100}$	$\sigma_8(0.51)$	0.6307	$0.619^{+0.019}_{-0.045}$
$A_{100}^{dustTE}$	0.114	$0.114^{+0.099}_{-0.094}$	$D_{810}$	2540.7	$2539^{+33}_{-35}$	$f\sigma_8(0.61)$	0.4717	$0.467^{+0.012}_{-0.020}$
$A_{100 \times 143}^{dustTE}$	0.134	$0.134^{+0.074}_{-0.074}$	$D_{1420}$	819.2	$818^{+12}_{-12}$	$\sigma_8(0.61)$	0.6002	$0.589^{+0.019}_{-0.043}$
$A_{100 \times 217}^{dustTE}$	0.479	$0.48^{+0.22}_{-0.22}$	$D_{2000}$	231.77	$231.1^{+4.1}_{-4.1}$	$f\sigma_8(2.33)$	0.3020	$0.2973^{+0.0090}_{-0.020}$
$A_{143}^{dustTE}$	0.224	$0.22^{+0.14}_{-0.14}$	$n_{s,0.002}$	0.9689	$0.967^{+0.010}_{-0.010}$	$\sigma_8(2.33)$	0.3122	$0.306^{+0.010}_{-0.024}$
$A_{143 \times 217}^{dustTE}$	0.665	$0.66^{+0.21}_{-0.21}$	$Y_P$	0.245434	$0.24542^{+0.00014}_{-0.00015}$	$f_{2000}^{143}$	28.1	$29^{+7}_{-7}$
$A_{217}^{dustTE}$	2.07	$2.07^{+0.69}_{-0.70}$	$Y_P^{BBN}$	0.246761	$0.24675^{+0.00015}_{-0.00015}$	$f_{2000}^{143 \times 217}$	31.64	$32^{+5}_{-5}$
$c_{100}$	0.99977	$0.9997^{+0.0016}_{-0.0016}$	$10^5 D/H$	2.567	$2.573^{+0.069}_{-0.068}$	$f_{2000}^{217}$	106.07	$106.8^{+4.5}_{-4.5}$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0017}$	Age/Gyr	13.751	$13.79^{+0.16}_{-0.081}$	$\chi^2_{lensing}$	8.84	$9.29 (\nu: 0.3)$
$m_{DES}^1$	0.015	$0.014^{+0.060}_{-0.058}$	$z_*$	1089.70	$1089.75^{+0.65}_{-0.63}$	$\chi^2_{small}$	395.92	$397.1 (\nu: 1.6)$
$m_{DES}^2$	0.013	$0.011^{+0.057}_{-0.058}$	$r_*$	144.62	$144.61^{+0.62}_{-0.66}$	$\chi^2_{lowl}$	22.80	$23.13 (\nu: 0.3)$
$m_{DES}^3$	-0.007	$-0.009^{+0.051}_{-0.051}$	$100\theta_*$	1.04118	$1.04118^{+0.00077}_{-0.00075}$	$\chi^2_{plik}$	2345.2	$2360.4 (\nu: 16.7)$
$m_{DES}^4$	0.013	$0.010^{+0.056}_{-0.053}$	$D_M(z_*)/\text{Gpc}$	13.890	$13.889^{+0.058}_{-0.061}$	$\chi^2_{DES}$	229.2	$232.1 (\nu: 3.3)$
$A_{IA,DES}$	1.46	$1.3^{+1.2}_{-1.2}$	$z_{drag}$	1060.09	$1060.03^{+0.78}_{-0.75}$	$\chi^2_{prior}$	2.5	$19.6 (\nu: 17.9)$
$\alpha_{IA,DES}$	2.5	—	$r_{drag}$	147.25	$147.25^{+0.64}_{-0.66}$	$\chi^2_{CMB}$	2772.7	$2789.9 (\nu: 18.2)$
$\Delta z_{s,DES}^1$	0.0050	$0.005^{+0.037}_{-0.038}$	$k_D$	0.14077	$0.14075^{+0.00075}_{-0.00076}$			
$\Delta z_{s,DES}^2$	-0.0205	$-0.021^{+0.029}_{-0.029}$	$100\theta_D$	0.160670	$0.16071^{+0.00045}_{-0.00044}$			

Best-fit  $\chi^2_{eff} = 3004.39$ ;  $\bar{\chi}^2_{eff} = 3041.59$ ;  $R - 1 = 0.00745$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.84 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.92 commander\_dx12\_v3.2\_29: 22.80 plik\_rd12\_HM\_v22b\_TTTEE: 2345.16 WL - DES\_1YR\_final: 229.17



## 6.162 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DESlens\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022459	$0.02246^{+0.00036}_{-0.00033}$	$\Delta z_{s,DES}^4$	-0.022	$-0.022^{+0.050}_{-0.050}$	$100\theta_{eq}$	0.8171	$0.8182^{+0.0097}_{-0.0095}$
$\Omega_c h^2$	0.11909	$0.1189^{+0.0022}_{-0.0022}$	$H_0$	68.30	$68.0^{+1.2}_{-1.4}$	$100\theta_{s,eq}$	0.45130	$0.4519^{+0.0050}_{-0.0049}$
$100\theta_{MC}$	1.04105	$1.04104^{+0.00075}_{-0.00073}$	$\Omega_\Lambda$	0.6965	$0.693^{+0.015}_{-0.018}$	$H(0.15)$	73.50	$73.2^{+1.1}_{-1.2}$
$\tau$	0.0539	$0.055^{+0.020}_{-0.019}$	$\Omega_m$	0.3035	$0.307^{+0.018}_{-0.015}$	$D_M(0.15)$	635.3	$638^{+12}_{-10}$
$\Sigma m_\nu$ [eV]	0.000	< 0.171	$\Omega_m h^2$	0.14156	$0.1418^{+0.0023}_{-0.0022}$	$H(0.38)$	83.49	$83.29^{+0.81}_{-0.97}$
$\ln(10^{10} A_s)$	3.0415	$3.043^{+0.039}_{-0.037}$	$\Omega_\nu h^2$	0.00000	< 0.00184	$D_M(0.38)$	1517.1	$1522^{+25}_{-21}$
$n_s$	0.9684	$0.9676^{+0.0092}_{-0.0091}$	$\Omega_m h^3$	0.09668	$0.09647^{+0.00088}_{-0.0010}$	$H(0.51)$	90.14	$89.96^{+0.67}_{-0.81}$
$y_{cal}$	1.0003	$1.0005^{+0.0060}_{-0.0064}$	$\sigma_8$	0.8208	$0.811^{+0.020}_{-0.030}$	$D_M(0.51)$	1966.6	$1973^{+30}_{-25}$
$A_{217}^{CIB}$	45.6	$47^{+20}_{-20}$	$S_8$	0.8255	$0.820^{+0.025}_{-0.026}$	$H(0.61)$	95.70	$95.55^{+0.57}_{-0.70}$
$\xi^{tSZ \times CIB}$	0.71	—	$\sigma_8 \Omega_m^{0.5}$	0.4522	$0.449^{+0.014}_{-0.014}$	$D_M(0.61)$	2289.4	$2296^{+32}_{-27}$
$A_{143}^{tSZ}$	7.08	> 0.893	$\sigma_8 \Omega_m^{0.25}$	0.6092	$0.604^{+0.015}_{-0.019}$	$H(2.33)$	235.73	$235.8^{+1.4}_{-1.4}$
$A_{100}^{PS}$	246	$257^{+70}_{-70}$	$\sigma_8/h^{0.5}$	0.9932	$0.984^{+0.023}_{-0.031}$	$D_M(2.33)$	5743.6	$5752^{+35}_{-27}$
$A_{143}^{PS}$	50.7	$45^{+20}_{-20}$	$r_{drag} h$	100.56	$100.2^{+2.0}_{-2.2}$	$f\sigma_8(0.15)$	0.4567	$0.454^{+0.013}_{-0.013}$
$A_{143 \times 217}^{PS}$	54.0	$42^{+20}_{-20}$	$\langle d^2 \rangle^{1/2}$	2.4346	$2.429^{+0.049}_{-0.049}$	$\sigma_8(0.15)$	0.7591	$0.750^{+0.018}_{-0.028}$
$A_{217}^{PS}$	122.1	$115^{+30}_{-30}$	$z_{re}$	7.59	$7.7^{+1.9}_{-2.0}$	$f\sigma_8(0.38)$	0.4769	$0.473^{+0.011}_{-0.013}$
$A^{kSZ}$	0.0	—	$10^9 A_s$	2.094	$2.097^{+0.083}_{-0.076}$	$\sigma_8(0.38)$	0.6736	$0.665^{+0.017}_{-0.026}$
$A_{100}^{dustTT}$	8.80	$8.9^{+4.8}_{-4.7}$	$10^9 A_s e^{-2\tau}$	1.8798	$1.878^{+0.025}_{-0.027}$	$f\sigma_8(0.51)$	0.4763	$0.473^{+0.011}_{-0.013}$
$A_{143}^{dustTT}$	11.06	$10.9^{+4.7}_{-4.4}$	$D_{40}$	1223.9	$1226^{+29}_{-28}$	$\sigma_8(0.51)$	0.6306	$0.623^{+0.016}_{-0.025}$
$A_{143 \times 217}^{dustTT}$	20.2	$18.6^{+8.4}_{-8.5}$	$D_{220}$	5734	$5740^{+99}_{-100}$	$f\sigma_8(0.61)$	0.4719	$0.468^{+0.010}_{-0.013}$
$A_{217}^{dustTT}$	95.5	$94^{+20}_{-20}$	$D_{810}$	2539.7	$2538^{+32}_{-35}$	$\sigma_8(0.61)$	0.6002	$0.593^{+0.015}_{-0.024}$
$A_{100}^{dustTE}$	0.116	$0.114^{+0.10}_{-0.094}$	$D_{1420}$	818.6	$818^{+12}_{-12}$	$f\sigma_8(2.33)$	0.3020	$0.2990^{+0.0072}_{-0.010}$
$A_{100 \times 143}^{dustTE}$	0.134	$0.134^{+0.075}_{-0.074}$	$D_{2000}$	231.57	$231.2^{+4.0}_{-4.1}$	$\sigma_8(2.33)$	0.3121	$0.3085^{+0.0082}_{-0.012}$
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.22}$	$n_{s,0.002}$	0.9684	$0.9676^{+0.0092}_{-0.0091}$	$f_{2000}^{143}$	28.3	$29^{+7}_{-7}$
$A_{143}^{dustTE}$	0.223	$0.22^{+0.14}_{-0.14}$	$Y_P$	0.245430	$0.24543^{+0.00014}_{-0.00013}$	$f_{2000}^{143 \times 217}$	31.66	$32^{+5}_{-5}$
$A_{143 \times 217}^{dustTE}$	0.664	$0.66^{+0.21}_{-0.20}$	$Y_P^{BBN}$	0.246756	$0.24676^{+0.00014}_{-0.00013}$	$f_{2000}^{217}$	106.16	$106.7^{+4.5}_{-4.4}$
$A_{217}^{dustTE}$	2.07	$2.07^{+0.70}_{-0.69}$	$10^5 D/H$	2.569	$2.569^{+0.062}_{-0.065}$	$\chi^2_{lensing}$	8.85	$9.24 (\nu: 0.2)$
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$	Age/Gyr	13.752	$13.771^{+0.080}_{-0.063}$	$\chi^2_{small}$	395.93	$397.0 (\nu: 1.5)$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0017}$	$z_*$	1089.72	$1089.71^{+0.51}_{-0.55}$	$\chi^2_{lowl}$	22.90	$23.04 (\nu: 0.3)$
$m_{DES}^1$	0.015	$0.014^{+0.060}_{-0.058}$	$r_*$	144.60	$144.66^{+0.53}_{-0.54}$	$\chi^2_{plik}$	2344.9	$2360.1 (\nu: 16.5)$
$m_{DES}^2$	0.013	$0.011^{+0.056}_{-0.058}$	$100\theta_*$	1.04119	$1.04121^{+0.00074}_{-0.00073}$	$\chi^2_{6DF}$	0.000	$0.031 (\nu: 0.0)$
$m_{DES}^3$	-0.008	$-0.008^{+0.052}_{-0.051}$	$D_M(z_*)/\text{Gpc}$	13.888	$13.894^{+0.051}_{-0.052}$	$\chi^2_{MGS}$	1.75	$1.58 (\nu: 0.1)$
$m_{DES}^4$	0.012	$0.011^{+0.056}_{-0.055}$	$z_{drag}$	1060.09	$1060.06^{+0.75}_{-0.74}$	$\chi^2_{DR12BAO}$	3.48	$4.1 (\nu: 0.5)$
$A_{IA,DES}$	1.46	$1.3^{+1.2}_{-1.1}$	$r_{drag}$	147.24	$147.30^{+0.57}_{-0.58}$	$\chi^2_{DES}$	229.2	$232.0 (\nu: 3.1)$
$\alpha_{IA,DES}$	2.5	—	$k_D$	0.14077	$0.14071^{+0.00073}_{-0.00073}$	$\chi^2_{prior}$	2.6	$19.4 (\nu: 17.9)$
$\Delta z_{s,DES}^1$	0.0049	$0.004^{+0.037}_{-0.037}$	$100\theta_D$	0.160686	$0.16069^{+0.00044}_{-0.00044}$	$\chi^2_{CMB}$	2772.6	$2789.4 (\nu: 17.5)$
$\Delta z_{s,DES}^2$	-0.0209	$-0.021^{+0.029}_{-0.029}$	$z_{eq}$	3383	$3377^{+51}_{-51}$	$\chi^2_{BAO}$	5.22	$5.75 (\nu: 0.3)$
$\Delta z_{s,DES}^3$	0.0049	$0.004^{+0.027}_{-0.025}$	$k_{eq}$	0.010324	$0.01031^{+0.00016}_{-0.00016}$			

Best-fit  $\chi^2_{eff} = 3009.63$ ;  $\bar{\chi}^2_{eff} = 3046.60$ ;  $R - 1 = 0.00939$ 
 $\chi^2_{eff}$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.48 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.85 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.93 commander\_dx12\_v3\_2\_29: 22.90 plik\_rd12\_HM\_v22b\_TTTEE: 2344.91 WL - DES\_1YR\_final: 229.18



6.163 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DESlens\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02244^{+0.00039}_{-0.00037}$	$\Delta z_{\mathrm{s,DES}}^2$	$-0.021^{+0.029}_{-0.030}$	$k_{\mathrm{D}}$	$0.14071^{+0.00079}_{-0.00078}$
$\Omega_{\mathrm{c}} h^2$	$0.1190^{+0.0029}_{-0.0029}$	$\Delta z_{\mathrm{s,DES}}^3$	$0.004^{+0.027}_{-0.025}$	$100\theta_{\mathrm{D}}$	$0.16071^{+0.00044}_{-0.00045}$
$100\theta_{\mathrm{MC}}$	$1.04101^{+0.00079}_{-0.00079}$	$\Delta z_{\mathrm{s,DES}}^4$	$-0.023^{+0.052}_{-0.052}$	$z_{\mathrm{eq}}$	$3379^{+66}_{-66}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$H_0$	$67.6^{+1.8}_{-4.0}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00020}_{-0.00020}$
$\Sigma m_{\nu}$ [eV]	$< 0.398$	$\Omega_{\Lambda}$	$0.688^{+0.023}_{-0.053}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.012}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.040}_{-0.029}$	$\Omega_{\mathrm{m}}$	$0.312^{+0.053}_{-0.023}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0063}_{-0.0063}$
$n_{\mathrm{s}}$	$0.967^{+0.010}_{-0.010}$	$\Omega_{\mathrm{m}} h^2$	$0.1424^{+0.0054}_{-0.0032}$	$H(0.15)$	$72.9^{+1.6}_{-3.5}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0064}_{-0.0065}$	$\Omega_{\nu} h^2$	$< 0.00428$	$D_{\mathrm{M}}(0.15)$	$641^{+36}_{-15}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$\Omega_{\mathrm{m}} h^3$	$0.0962^{+0.0011}_{-0.0024}$	$H(0.38)$	$83.0^{+1.2}_{-2.7}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\sigma_8$	$0.803^{+0.033}_{-0.072}$	$D_{\mathrm{M}}(0.38)$	$1529^{+73}_{-31}$
$A_{143}^{\mathrm{tSZ}}$	$> 1.03$	$S_8$	$0.818^{+0.034}_{-0.036}$	$H(0.51)$	$89.7^{+1.0}_{-2.2}$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.019}_{-0.020}$	$D_{\mathrm{M}}(0.51)$	$1981^{+86}_{-37}$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.022}_{-0.039}$	$H(0.61)$	$95.35^{+0.85}_{-1.9}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$\sigma_8 / h^{0.5}$	$0.977^{+0.034}_{-0.070}$	$D_{\mathrm{M}}(0.61)$	$2305^{+94}_{-40}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$r_{\mathrm{drag}} h$	$99.6^{+3.0}_{-6.1}$	$H(2.33)$	$236.1^{+3.0}_{-2.0}$
$A^{\mathrm{kSZ}}$	—	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.061}_{-0.061}$	$D_{\mathrm{M}}(2.33)$	$5761^{+96}_{-39}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.8}$	$z_{\mathrm{re}}$	$< 9.43$	$f\sigma_8(0.15)$	$0.453^{+0.017}_{-0.019}$
$A_{143}^{\mathrm{dustTT}}$	$11.0^{+4.7}_{-4.5}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.084}_{-0.061}$	$\sigma_8(0.15)$	$0.742^{+0.031}_{-0.073}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.7^{+8.3}_{-8.4}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.028}_{-0.030}$	$f\sigma_8(0.38)$	$0.471^{+0.016}_{-0.026}$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$	$D_{40}$	$1226^{+30}_{-31}$	$\sigma_8(0.38)$	$0.658^{+0.028}_{-0.069}$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.10}_{-0.093}$	$D_{220}$	$5735^{+100}_{-100}$	$f\sigma_8(0.51)$	$0.470^{+0.015}_{-0.030}$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.075}_{-0.074}$	$D_{810}$	$2537^{+34}_{-35}$	$\sigma_8(0.51)$	$0.616^{+0.027}_{-0.067}$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$D_{1420}$	$817^{+12}_{-12}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.032}$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{2000}$	$231.0^{+4.1}_{-4.1}$	$\sigma_8(0.61)$	$0.586^{+0.025}_{-0.064}$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$n_{\mathrm{s},0.002}$	$0.967^{+0.010}_{-0.010}$	$f\sigma_8(2.33)$	$0.296^{+0.010}_{-0.031}$
$A_{217}^{\mathrm{dustTE}}$	$2.07^{+0.70}_{-0.71}$	$Y_{\mathrm{P}}$	$0.24542^{+0.00015}_{-0.00015}$	$\sigma_8(2.33)$	$0.305^{+0.012}_{-0.036}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24675^{+0.00015}_{-0.00015}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.574^{+0.069}_{-0.069}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$m_{\mathrm{DES}}^1$	$0.014^{+0.060}_{-0.057}$	Age/Gyr	$13.79^{+0.22}_{-0.089}$	$f_{2000}^{217}$	$106.8^{+4.6}_{-4.5}$
$m_{\mathrm{DES}}^2$	$0.012^{+0.057}_{-0.057}$	$z_*$	$1089.75^{+0.65}_{-0.65}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.4)$
$m_{\mathrm{DES}}^3$	$-0.008^{+0.052}_{-0.051}$	$r_*$	$144.64^{+0.67}_{-0.67}$	$\chi_{\mathrm{lowl}}^2$	$22.99 (\nu: 0.3)$
$m_{\mathrm{DES}}^4$	$0.011^{+0.054}_{-0.053}$	$100\theta_*$	$1.04120^{+0.00077}_{-0.00076}$	$\chi_{\mathrm{plik}}^2$	$2361.2 (\nu: 19.4)$
$A_{\mathrm{IA,DES}}$	$1.2^{+1.3}_{-1.2}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.892^{+0.062}_{-0.063}$	$\chi_{\mathrm{DES}}^2$	$232.1 (\nu: 3.2)$
$\alpha_{\mathrm{IA,DES}}$	—	$z_{\mathrm{drag}}$	$1060.02^{+0.79}_{-0.73}$	$\chi_{\mathrm{prior}}^2$	$19.6 (\nu: 17.9)$
$\Delta z_{\mathrm{s,DES}}^1$	$0.005^{+0.037}_{-0.037}$	$r_{\mathrm{drag}}$	$147.29^{+0.68}_{-0.68}$	$\chi_{\mathrm{CMB}}^2$	$2781.1 (\nu: 18.7)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 3032.75; R - 1 = 0.00988$$



## 6.164 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DESlens\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02246^{+0.00036}_{-0.00033}$	$\Delta z_{\mathrm{s,DES}}^4$	$-0.022^{+0.050}_{-0.050}$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.011}_{-0.010}$
$\Omega_{\mathrm{c}}h^2$	$0.1187^{+0.0024}_{-0.0024}$	$H_0$	$68.0^{+1.2}_{-1.5}$	$100\theta_{\mathrm{s,eq}}$	$0.4522^{+0.0054}_{-0.0052}$
$100\theta_{\mathrm{MC}}$	$1.04106^{+0.00076}_{-0.00074}$	$\Omega_{\Lambda}$	$0.693^{+0.015}_{-0.018}$	$H(0.15)$	$73.2^{+1.1}_{-1.3}$
$\tau$	$0.055^{+0.018}_{-0.013}$	$\Omega_{\mathrm{m}}$	$0.307^{+0.018}_{-0.015}$	$D_{\mathrm{M}}(0.15)$	$638^{+13}_{-10}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.194$	$\Omega_{\mathrm{m}}h^2$	$0.1418^{+0.0024}_{-0.0023}$	$H(0.38)$	$83.27^{+0.83}_{-1.0}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.040}_{-0.029}$	$\Omega_{\nu}h^2$	$< 0.00208$	$D_{\mathrm{M}}(0.38)$	$1522^{+26}_{-21}$
$n_{\mathrm{s}}$	$0.9681^{+0.0092}_{-0.0092}$	$\Omega_{\mathrm{m}}h^3$	$0.09643^{+0.00091}_{-0.0012}$	$H(0.51)$	$89.95^{+0.69}_{-0.87}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0062}_{-0.0064}$	$\sigma_8$	$0.809^{+0.023}_{-0.039}$	$D_{\mathrm{M}}(0.51)$	$1973^{+31}_{-25}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$S_8$	$0.818^{+0.030}_{-0.033}$	$H(0.61)$	$95.53^{+0.59}_{-0.76}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.017}_{-0.018}$	$D_{\mathrm{M}}(0.61)$	$2296^{+34}_{-27}$
$A_{143}^{\mathrm{tSZ}}$	$> 0.899$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.019}_{-0.025}$	$H(2.33)$	$235.8^{+1.5}_{-1.4}$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70}$	$\sigma_8/h^{0.5}$	$0.981^{+0.029}_{-0.041}$	$D_{\mathrm{M}}(2.33)$	$5753^{+38}_{-28}$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$	$r_{\mathrm{drag}}h$	$100.2^{+2.0}_{-2.3}$	$f\sigma_8(0.15)$	$0.453^{+0.016}_{-0.017}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.058}_{-0.059}$	$\sigma_8(0.15)$	$0.748^{+0.021}_{-0.037}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$z_{\mathrm{re}}$	$< 9.42$	$f\sigma_8(0.38)$	$0.472^{+0.014}_{-0.018}$
$A^{\mathrm{kSZ}}$	—	$10^9 A_{\mathrm{s}}$	$2.096^{+0.085}_{-0.060}$	$\sigma_8(0.38)$	$0.664^{+0.019}_{-0.033}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.8}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.877^{+0.027}_{-0.029}$	$f\sigma_8(0.51)$	$0.472^{+0.013}_{-0.018}$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.7}_{-4.5}$	$D_{40}$	$1224^{+30}_{-30}$	$\sigma_8(0.51)$	$0.621^{+0.018}_{-0.032}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.7^{+8.4}_{-8.4}$	$D_{220}$	$5736^{+100}_{-100}$	$f\sigma_8(0.61)$	$0.467^{+0.013}_{-0.018}$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$D_{810}$	$2537^{+33}_{-35}$	$\sigma_8(0.61)$	$0.591^{+0.017}_{-0.030}$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.10}_{-0.095}$	$D_{1420}$	$818^{+12}_{-12}$	$f\sigma_8(2.33)$	$0.2984^{+0.0082}_{-0.013}$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.074}$	$D_{2000}$	$231.1^{+4.1}_{-4.2}$	$\sigma_8(2.33)$	$0.3078^{+0.0092}_{-0.015}$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$n_{\mathrm{s},0.002}$	$0.9681^{+0.0092}_{-0.0092}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$Y_{\mathrm{P}}$	$0.24543^{+0.00014}_{-0.00013}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24676^{+0.00014}_{-0.00013}$	$f_{2000}^{217}$	$106.7^{+4.5}_{-4.5}$
$A_{217}^{\mathrm{dust}TE}$	$2.07^{+0.70}_{-0.69}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.569^{+0.062}_{-0.065}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.5)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.774^{+0.087}_{-0.064}$	$\chi_{\mathrm{lowl}}^2$	$22.92 (\nu: 0.3)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017}$	$z_{*}$	$1089.69^{+0.52}_{-0.56}$	$\chi_{\mathrm{plik}}^2$	$2360.7 (\nu: 18.1)$
$m_{\mathrm{DES}}^1$	$0.014^{+0.059}_{-0.058}$	$r_{*}$	$144.70^{+0.58}_{-0.57}$	$\chi_{6\mathrm{DF}}^2$	$0.032 (\nu: 0.0)$
$m_{\mathrm{DES}}^2$	$0.011^{+0.056}_{-0.057}$	$100\theta_{*}$	$1.04123^{+0.00074}_{-0.00073}$	$\chi_{\mathrm{MGS}}^2$	$1.58 (\nu: 0.1)$
$m_{\mathrm{DES}}^3$	$-0.007^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.897^{+0.055}_{-0.054}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.2 (\nu: 0.6)$
$m_{\mathrm{DES}}^4$	$0.011^{+0.055}_{-0.055}$	$z_{\mathrm{drag}}$	$1060.05^{+0.76}_{-0.73}$	$\chi_{\mathrm{DES}}^2$	$231.9 (\nu: 3.0)$
$A_{\mathrm{IA,DES}}$	$1.2^{+1.3}_{-1.2}$	$r_{\mathrm{drag}}$	$147.33^{+0.61}_{-0.61}$	$\chi_{\mathrm{prior}}^2$	$19.4 (\nu: 17.9)$
$\alpha_{\mathrm{IA,DES}}$	—	$k_{\mathrm{D}}$	$0.14068^{+0.00075}_{-0.00074}$	$\chi_{\mathrm{BAO}}^2$	$5.77 (\nu: 0.3)$
$\Delta z_{\mathrm{s,DES}}^1$	$0.004^{+0.037}_{-0.037}$	$100\theta_{\mathrm{D}}$	$0.16070^{+0.00045}_{-0.00044}$	$\chi_{\mathrm{CMB}}^2$	$2780.5 (\nu: 17.4)$
$\Delta z_{\mathrm{s,DES}}^2$	$-0.021^{+0.030}_{-0.029}$	$z_{\mathrm{eq}}$	$3374^{+55}_{-55}$		
$\Delta z_{\mathrm{s,DES}}^3$	$0.005^{+0.026}_{-0.025}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00017}_{-0.00017}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3037.64; R - 1 = 0.00834$$



6.165    base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DESlens\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\rm b} h^2$	$0.02244^{+0.00038}_{-0.00037}$	$\Delta z_{\rm s,DES}^3$	$0.004^{+0.026}_{-0.025}$	$z_{\rm eq}$	$3381^{+63}_{-61}$
$\Omega_{\rm c} h^2$	$0.1190^{+0.0028}_{-0.0027}$	$\Delta z_{\rm s,DES}^4$	$-0.023^{+0.051}_{-0.051}$	$k_{\rm eq}$	$0.01032^{+0.00019}_{-0.00019}$
$100\theta_{\rm MC}$	$1.04100^{+0.00078}_{-0.00078}$	$H_0$	$67.7^{+1.7}_{-3.1}$	$100\theta_{\rm eq}$	$0.817^{+0.012}_{-0.012}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$\Omega_{\Lambda}$	$0.690^{+0.021}_{-0.041}$	$100\theta_{\rm s,eq}$	$0.4515^{+0.0061}_{-0.0061}$
$\Sigma m_{\nu}$ [eV]	$< 0.285$	$\Omega_{\rm m}$	$0.310^{+0.041}_{-0.021}$	$H(0.15)$	$73.0^{+1.5}_{-2.8}$
$\ln(10^{10} A_{\rm s})$	$3.045^{+0.038}_{-0.029}$	$\Omega_{\rm m} h^2$	$0.1423^{+0.0046}_{-0.0030}$	$D_{\rm M}(0.15)$	$640^{+28}_{-14}$
$n_{\rm s}$	$0.9671^{+0.0099}_{-0.010}$	$\Omega_{\nu} h^2$	$< 0.00307$	$H(0.38)$	$83.1^{+1.1}_{-2.1}$
$y_{\rm cal}$	$1.0006^{+0.0062}_{-0.0064}$	$\Omega_{\rm m} h^3$	$0.09634^{+0.00098}_{-0.0017}$	$D_{\rm M}(0.38)$	$1527^{+57}_{-29}$
$A_{217}^{\rm CIB}$	$47^{+20}_{-20}$	$\sigma_8$	$0.808^{+0.023}_{-0.052}$	$H(0.51)$	$89.80^{+0.92}_{-1.7}$
$\xi^{\rm tSZ \times CIB}$	—	$S_8$	$0.821^{+0.028}_{-0.028}$	$D_{\rm M}(0.51)$	$1979^{+67}_{-34}$
$A_{143}^{\rm tSZ}$	$> 0.883$	$\sigma_8 \Omega_{\rm m}^{0.5}$	$0.450^{+0.015}_{-0.015}$	$H(0.61)$	$95.41^{+0.78}_{-1.5}$
$A_{100}^{\rm PS}$	$258^{+70}_{-70}$	$\sigma_8 \Omega_{\rm m}^{0.25}$	$0.603^{+0.017}_{-0.025}$	$D_{\rm M}(0.61)$	$2303^{+73}_{-37}$
$A_{143}^{\rm PS}$	$45^{+20}_{-20}$	$\sigma_8/h^{0.5}$	$0.981^{+0.026}_{-0.045}$	$H(2.33)$	$236.1^{+2.6}_{-1.8}$
$A_{143 \times 217}^{\rm PS}$	$42^{+20}_{-20}$	$r_{\rm drag} h$	$99.7^{+2.8}_{-4.8}$	$D_{\rm M}(2.33)$	$5758^{+72}_{-36}$
$A_{217}^{\rm PS}$	$115^{+30}_{-30}$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.049}_{-0.049}$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.014}$
$A^{\rm kSZ}$	—	$z_{\rm re}$	$< 9.49$	$\sigma_8(0.15)$	$0.746^{+0.022}_{-0.050}$
$A_{100}^{\rm dustTT}$	$8.9^{+4.7}_{-4.8}$	$10^9 A_{\rm s}$	$2.101^{+0.081}_{-0.060}$	$f\sigma_8(0.38)$	$0.473^{+0.013}_{-0.016}$
$A_{143}^{\rm dustTT}$	$10.9^{+4.7}_{-4.4}$	$10^9 A_{\rm s} e^{-2\tau}$	$1.879^{+0.027}_{-0.027}$	$\sigma_8(0.38)$	$0.662^{+0.020}_{-0.047}$
$A_{143 \times 217}^{\rm dustTT}$	$18.6^{+8.4}_{-8.4}$	$D_{40}$	$1227^{+29}_{-29}$	$f\sigma_8(0.51)$	$0.472^{+0.012}_{-0.018}$
$A_{217}^{\rm dustTT}$	$94^{+20}_{-20}$	$D_{220}$	$5740^{+100}_{-100}$	$\sigma_8(0.51)$	$0.619^{+0.019}_{-0.045}$
$A_{100}^{\rm dustTE}$	$0.114^{+0.10}_{-0.094}$	$D_{810}$	$2538^{+33}_{-34}$	$f\sigma_8(0.61)$	$0.467^{+0.011}_{-0.020}$
$A_{100 \times 143}^{\rm dustTE}$	$0.134^{+0.074}_{-0.074}$	$D_{1420}$	$818^{+12}_{-12}$	$\sigma_8(0.61)$	$0.589^{+0.019}_{-0.044}$
$A_{100 \times 217}^{\rm dustTE}$	$0.48^{+0.22}_{-0.22}$	$D_{2000}$	$231.1^{+4.1}_{-4.1}$	$f\sigma_8(2.33)$	$0.2975^{+0.0089}_{-0.020}$
$A_{143}^{\rm dustTE}$	$0.22^{+0.14}_{-0.14}$	$n_{\rm s,0.002}$	$0.9671^{+0.0099}_{-0.010}$	$\sigma_8(2.33)$	$0.307^{+0.010}_{-0.024}$
$A_{143 \times 217}^{\rm dustTE}$	$0.66^{+0.21}_{-0.20}$	$Y_{\rm P}$	$0.24542^{+0.00014}_{-0.00015}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$A_{217}^{\rm dustTE}$	$2.07^{+0.69}_{-0.70}$	$Y_{\rm P}^{\rm BBN}$	$0.24675^{+0.00014}_{-0.00015}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$10^5 {\rm D/H}$	$2.572^{+0.069}_{-0.068}$	$f_{2000}^{217}$	$106.8^{+4.6}_{-4.4}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017}$	Age/Gyr	$13.79^{+0.16}_{-0.081}$	$\chi^2_{\rm lensing}$	$9.25 \, (\nu: 0.3)$
$m_{\rm DES}^1$	$0.014^{+0.059}_{-0.058}$	$z_*$	$1089.74^{+0.64}_{-0.62}$	$\chi^2_{\rm simall}$	$397.0 \, (\nu: 1.7)$
$m_{\rm DES}^2$	$0.011^{+0.057}_{-0.057}$	$r_*$	$144.62^{+0.61}_{-0.64}$	$\chi^2_{\rm lowl}$	$23.12 \, (\nu: 0.3)$
$m_{\rm DES}^3$	$-0.009^{+0.051}_{-0.051}$	$100\theta_*$	$1.04119^{+0.00076}_{-0.00075}$	$\chi^2_{\rm plik}$	$2360.3 \, (\nu: 16.6)$
$m_{\rm DES}^4$	$0.010^{+0.056}_{-0.053}$	$D_{\rm M}(z_*)/{\rm Gpc}$	$13.890^{+0.058}_{-0.061}$	$\chi^2_{\rm DES}$	$232.1 \, (\nu: 3.3)$
$A_{\rm IA,DES}$	$1.3^{+1.3}_{-1.2}$	$z_{\rm drag}$	$1060.04^{+0.77}_{-0.75}$	$\chi^2_{\rm prior}$	$19.5 \, (\nu: 17.9)$
$\alpha_{\rm IA,DES}$	—	$r_{\rm drag}$	$147.26^{+0.63}_{-0.65}$	$\chi^2_{\rm CMB}$	$2789.7 \, (\nu: 17.9)$
$\Delta z_{\rm s,DES}^1$	$0.005^{+0.037}_{-0.038}$	$k_{\rm D}$	$0.14074^{+0.00075}_{-0.00075}$		
$\Delta z_{\rm s,DES}^2$	$-0.021^{+0.029}_{-0.029}$	$100\theta_{\rm D}$	$0.16070^{+0.00045}_{-0.00044}$		

$\bar{\chi}^2_{\rm eff} = 3041.41$ ;  $R - 1 = 0.00879$



## 6.166 base\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_DESlens\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02246^{+0.00036}_{-0.00033}$	$\Delta z_{\mathrm{s,DES}}^4$	$-0.023^{+0.050}_{-0.050}$	$100\theta_{\mathrm{eq}}$	$0.8183^{+0.0096}_{-0.0093}$
$\Omega_{\mathrm{c}}h^2$	$0.1188^{+0.0022}_{-0.0022}$	$H_0$	$68.0^{+1.2}_{-1.4}$	$100\theta_{\mathrm{s,eq}}$	$0.4519^{+0.0049}_{-0.0048}$
$100\theta_{\mathrm{MC}}$	$1.04104^{+0.00075}_{-0.00073}$	$\Omega_{\Lambda}$	$0.693^{+0.015}_{-0.018}$	$H(0.15)$	$73.3^{+1.1}_{-1.3}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$\Omega_{\mathrm{m}}$	$0.307^{+0.018}_{-0.015}$	$D_{\mathrm{M}}(0.15)$	$638^{+12}_{-10}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.173$	$\Omega_{\mathrm{m}}h^2$	$0.1418^{+0.0023}_{-0.0022}$	$H(0.38)$	$83.29^{+0.81}_{-0.97}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.038}_{-0.029}$	$\Omega_{\nu}h^2$	$< 0.00186$	$D_{\mathrm{M}}(0.38)$	$1522^{+25}_{-21}$
$n_{\mathrm{s}}$	$0.9678^{+0.0091}_{-0.0090}$	$\Omega_{\mathrm{m}}h^3$	$0.09647^{+0.00088}_{-0.0010}$	$H(0.51)$	$89.96^{+0.67}_{-0.82}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0060}_{-0.0064}$	$\sigma_8$	$0.812^{+0.019}_{-0.030}$	$D_{\mathrm{M}}(0.51)$	$1972^{+30}_{-25}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$S_8$	$0.820^{+0.025}_{-0.026}$	$H(0.61)$	$95.55^{+0.57}_{-0.71}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.014}_{-0.014}$	$D_{\mathrm{M}}(0.61)$	$2296^{+33}_{-27}$
$A_{143}^{\mathrm{tSZ}}$	$> 0.899$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.015}_{-0.019}$	$H(2.33)$	$235.8^{+1.4}_{-1.4}$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70}$	$\sigma_8/h^{0.5}$	$0.984^{+0.023}_{-0.031}$	$D_{\mathrm{M}}(2.33)$	$5752^{+35}_{-27}$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$	$r_{\mathrm{drag}}h$	$100.2^{+2.0}_{-2.2}$	$f\sigma_8(0.15)$	$0.454^{+0.013}_{-0.013}$
$A_{143\times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$\langle d^2 \rangle^{1/2}$	$2.430^{+0.048}_{-0.048}$	$\sigma_8(0.15)$	$0.750^{+0.018}_{-0.029}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$z_{\mathrm{re}}$	$< 9.44$	$f\sigma_8(0.38)$	$0.474^{+0.011}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	$10^9 A_{\mathrm{s}}$	$2.101^{+0.080}_{-0.059}$	$\sigma_8(0.38)$	$0.666^{+0.016}_{-0.026}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.8}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.025}_{-0.027}$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.013}$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.7}_{-4.4}$	$D_{40}$	$1226^{+29}_{-28}$	$\sigma_8(0.51)$	$0.623^{+0.016}_{-0.025}$
$A_{143\times 217}^{\mathrm{dustTT}}$	$18.6^{+8.4}_{-8.5}$	$D_{220}$	$5740^{+98}_{-100}$	$f\sigma_8(0.61)$	$0.468^{+0.010}_{-0.013}$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$	$D_{810}$	$2538^{+32}_{-35}$	$\sigma_8(0.61)$	$0.593^{+0.015}_{-0.024}$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.10}_{-0.094}$	$D_{1420}$	$818^{+12}_{-12}$	$f\sigma_8(2.33)$	$0.2991^{+0.0072}_{-0.011}$
$A_{100\times 143}^{\mathrm{dustTE}}$	$0.134^{+0.075}_{-0.074}$	$D_{2000}$	$231.2^{+4.0}_{-4.1}$	$\sigma_8(2.33)$	$0.3086^{+0.0081}_{-0.013}$
$A_{100\times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$n_{\mathrm{s},0.002}$	$0.9678^{+0.0091}_{-0.0090}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$Y_{\mathrm{P}}$	$0.24543^{+0.00014}_{-0.00013}$	$f_{2000}^{143\times 217}$	$32^{+5}_{-5}$
$A_{143\times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24676^{+0.00014}_{-0.00013}$	$f_{2000}^{217}$	$106.7^{+4.5}_{-4.3}$
$A_{217}^{\mathrm{dustTE}}$	$2.07^{+0.71}_{-0.69}$	$10^5\mathrm{D}/\mathrm{H}$	$2.569^{+0.062}_{-0.064}$	$\chi_{\mathrm{lensing}}^2$	$9.21 (\nu: 0.2)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.771^{+0.081}_{-0.063}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.6)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017}$	$z_{*}$	$1089.70^{+0.51}_{-0.55}$	$\chi_{\mathrm{lowl}}^2$	$23.04 (\nu: 0.3)$
$m_{\mathrm{DES}}^1$	$0.014^{+0.060}_{-0.058}$	$r_{*}$	$144.67^{+0.53}_{-0.53}$	$\chi_{\mathrm{plik}}^2$	$2360.0 (\nu: 16.3)$
$m_{\mathrm{DES}}^2$	$0.011^{+0.056}_{-0.058}$	$100\theta_{*}$	$1.04121^{+0.00074}_{-0.00073}$	$\chi_{6\mathrm{DF}}^2$	$0.030 (\nu: 0.0)$
$m_{\mathrm{DES}}^3$	$-0.008^{+0.052}_{-0.051}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.895^{+0.051}_{-0.051}$	$\chi_{\mathrm{MGS}}^2$	$1.59 (\nu: 0.1)$
$m_{\mathrm{DES}}^4$	$0.011^{+0.056}_{-0.055}$	$z_{\mathrm{drag}}$	$1060.06^{+0.75}_{-0.74}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.1 (\nu: 0.5)$
$A_{\mathrm{IA,DES}}$	$1.3^{+1.3}_{-1.1}$	$r_{\mathrm{drag}}$	$147.31^{+0.57}_{-0.57}$	$\chi_{\mathrm{DES}}^2$	$232.0 (\nu: 3.1)$
$\alpha_{\mathrm{IA,DES}}$	—	$k_{\mathrm{D}}$	$0.14071^{+0.00072}_{-0.00073}$	$\chi_{\mathrm{prior}}^2$	$19.4 (\nu: 18.0)$
$\Delta z_{\mathrm{s,DES}}^1$	$0.004^{+0.037}_{-0.037}$	$100\theta_{\mathrm{D}}$	$0.16069^{+0.00045}_{-0.00044}$	$\chi_{\mathrm{CMB}}^2$	$2789.3 (\nu: 17.1)$
$\Delta z_{\mathrm{s,DES}}^2$	$-0.021^{+0.029}_{-0.029}$	$z_{\mathrm{eq}}$	$3376^{+50}_{-51}$	$\chi_{\mathrm{BAO}}^2$	$5.74 (\nu: 0.3)$
$\Delta z_{\mathrm{s,DES}}^3$	$0.004^{+0.027}_{-0.025}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00015}_{-0.00015}$		

 $\bar{\chi}_{\mathrm{eff}}^2 = 3046.43; R - 1 = 0.00976$



### 6.167 base\_mnu\_BAO\_Cooke17

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02217	$0.0222^{+0.0014}_{-0.0012}$	Age/Gyr	12.18	$12.7^{+4.1}_{-2.7}$	$D_{\text{M}}(0.15)$	594	$620^{+100}_{-90}$
$\Omega_{\text{c}}h^2$	0.175	$0.14^{+0.16}_{-0.12}$	$z_*$	1094.7	$1093.2^{+9.9}_{-9.6}$	$H(0.38)$	92.1	$89^{+20}_{-20}$
$100\theta_{\text{MC}}$	1.102	$1.107^{+0.086}_{-0.13}$	$r_*$	132.3	$138^{+30}_{-20}$	$D_{\text{M}}(0.38)$	1403	$1462^{+300}_{-200}$
$\Sigma m_{\nu}$ [eV]	0.06	—	$100\theta_*$	1.102	$1.108^{+0.086}_{-0.13}$	$H(0.51)$	100.5	$97^{+20}_{-20}$
$H_0$	72.4	$70^{+10}_{-10}$	$D_{\text{M}}(z_*)/\text{Gpc}$	12.00	$12.5^{+5.0}_{-2.9}$	$D_{\text{M}}(0.51)$	1808	$1884^{+400}_{-300}$
$\Omega_{\Lambda}$	0.622	$0.61^{+0.15}_{-0.13}$	$z_{\text{drag}}$	1063.1	$1062.1^{+8.2}_{-8.2}$	$H(0.61)$	107.4	$104^{+30}_{-20}$
$\Omega_{\text{m}}$	0.378	$0.39^{+0.13}_{-0.15}$	$r_{\text{drag}}$	134.8	$140^{+30}_{-20}$	$D_{\text{M}}(0.61)$	2097	$2184^{+500}_{-400}$
$\Omega_{\text{m}}h^2$	0.198	$0.19^{+0.14}_{-0.11}$	$k_{\text{D}}$	0.1546	$0.150^{+0.030}_{-0.032}$	$H(2.33)$	277	$270^{+80}_{-80}$
$\Omega_{\nu}h^2$	0.0007	$< 0.0533$	$100\theta_{\text{D}}$	0.1693	$0.170^{+0.013}_{-0.017}$	$D_{\text{M}}(2.33)$	5093	$5299^{+2000}_{-1000}$
$\Omega_{\text{m}}h^3$	0.144	$0.135^{+0.13}_{-0.084}$	$z_{\text{eq}}$	4724	$3943^{+4000}_{-3000}$	$\chi^2_{\text{Cooke17}}$	0.00	$1.0 (\nu: 1.0)$
$r_{\text{drag}}h$	97.6	$97.3^{+6.2}_{-5.1}$	$k_{\text{eq}}$	0.0144	$0.0122^{+0.011}_{-0.0082}$	$\chi^2_{6\text{DF}}$	0.23	$0.41 (\nu: 0.1)$
$Y_{\text{P}}$	0.24531	$0.24533^{+0.00057}_{-0.00052}$	$100\theta_{\text{eq}}$	0.68	$0.84^{+0.82}_{-0.37}$	$\chi^2_{\text{MGS}}$	0.63	$0.74 (\nu: 0.2)$
$Y_{\text{P}}^{\text{BBN}}$	0.24664	$0.24665^{+0.00057}_{-0.00052}$	$100\theta_{\text{s,eq}}$	0.379	$0.46^{+0.40}_{-0.20}$	$\chi^2_{\text{DR12BAO}}$	2.13	$3.9 (\nu: 1.6)$
$10^5\text{D}/\text{H}$	2.623	$2.61^{+0.24}_{-0.24}$	$H(0.15)$	79.2	$76^{+10}_{-10}$	$\chi^2_{\text{BAO}}$	3.0	$5.1 (\nu: 2.0)$

Best-fit  $\chi^2_{\text{eff}} = 2.98$ ;  $\bar{\chi}^2_{\text{eff}} = 6.05$ ;  $R - 1 = 0.01904$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017: 0.00 BAO - 6DF: 0.23 MGS: 0.62 DR12BAO: 2.13

### 6.168 base\_mnu\_BAO\_Cooke17\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02218	$0.0222^{+0.0014}_{-0.0012}$	$z_*$	1089.93	$1088.4^{+5.1}_{-3.7}$	$D_{\text{M}}(0.38)$	1526	$1593^{+150}_{-160}$
$\Omega_{\text{c}}h^2$	0.117	$0.084^{+0.066}_{-0.056}$	$r_*$	145.3	$152^{+14}_{-15}$	$H(0.51)$	89.9	$86^{+10}_{-9}$
$100\theta_{\text{MC}}$	1.048	$1.050^{+0.051}_{-0.050}$	$100\theta_*$	1.048	$1.051^{+0.051}_{-0.050}$	$D_{\text{M}}(0.51)$	1976	$2064^{+200}_{-210}$
$\Sigma m_{\nu}$ [eV]	0.38	—	$D_{\text{M}}(z_*)/\text{Gpc}$	13.87	$14.5^{+2.0}_{-1.9}$	$H(0.61)$	95.6	$92^{+10}_{-10}$
$H_0$	67.8	$65.0^{+6.6}_{-5.1}$	$z_{\text{drag}}$	1059.32	$1058.2^{+4.8}_{-4.4}$	$D_{\text{M}}(0.61)$	2300	$2401^{+240}_{-250}$
$\Omega_{\Lambda}$	0.688	$0.686^{+0.050}_{-0.054}$	$r_{\text{drag}}$	148.1	$155^{+15}_{-15}$	$H(2.33)$	236.7	$228^{+40}_{-30}$
$\Omega_{\text{m}}$	0.312	$0.314^{+0.054}_{-0.050}$	$k_{\text{D}}$	0.1397	$0.134^{+0.015}_{-0.012}$	$D_{\text{M}}(2.33)$	5748	$5997^{+700}_{-700}$
$\Omega_{\text{m}}h^2$	0.1431	$0.133^{+0.048}_{-0.034}$	$100\theta_{\text{D}}$	0.1621	$0.1619^{+0.0070}_{-0.0063}$	$\chi^2_{\text{Cooke17}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\nu}h^2$	0.0041	$< 0.0532$	$z_{\text{eq}}$	3321	$2534^{+2000}_{-1000}$	$\chi^2_{\text{JLA}}$	1035.06	$1036.0 (\nu: 1.5)$
$\Omega_{\text{m}}h^3$	0.0969	$0.087^{+0.038}_{-0.030}$	$k_{\text{eq}}$	0.01014	$0.0079^{+0.0046}_{-0.0037}$	$\chi^2_{6\text{DF}}$	0.000	$0.052 (\nu: 0.0)$
$r_{\text{drag}}h$	100.34	$100.3^{+3.2}_{-3.1}$	$100\theta_{\text{eq}}$	0.83	$1.09^{+0.69}_{-0.40}$	$\chi^2_{\text{MGS}}$	1.68	$1.75 (\nu: 0.2)$
$Y_{\text{P}}$	0.24532	$0.24533^{+0.00057}_{-0.00053}$	$100\theta_{\text{s,eq}}$	0.460	$0.59^{+0.33}_{-0.20}$	$\chi^2_{\text{DR12BAO}}$	3.03	$4.0 (\nu: 1.2)$
$Y_{\text{P}}^{\text{BBN}}$	0.24664	$0.24665^{+0.00058}_{-0.00053}$	$H(0.15)$	73.1	$70.1^{+7.6}_{-6.0}$	$\chi^2_{\text{BAO}}$	4.71	$5.8 (\nu: 1.6)$
$10^5\text{D}/\text{H}$	2.622	$2.61^{+0.25}_{-0.24}$	$D_{\text{M}}(0.15)$	640	$668^{+59}_{-65}$			
Age/Gyr	13.76	$14.4^{+1.7}_{-1.7}$	$H(0.38)$	83.2	$80^{+10}_{-8}$			

Best-fit  $\chi^2_{\text{eff}} = 1039.77$ ;  $\bar{\chi}^2_{\text{eff}} = 1042.80$ ;  $R - 1 = 0.00676$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.03 SN - JLA Pantheon18: 1035.06



6.169    base\_mnu\_BAO\_Cooke17\_Pantheon18\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02219	$0.0223^{+0.0013}_{-0.0012}$	$z_*$	1089.37	$1087.8^{+2.8}_{-2.3}$	$D_{\text{M}}(0.38)$	1544	$1611^{+83}_{-100}$
$\Omega_{\text{c}}h^2$	0.1104	$0.078^{+0.041}_{-0.038}$	$r_*$	147.0	$153.5^{+7.2}_{-8.9}$	$H(0.51)$	88.63	$85.0^{+5.3}_{-4.0}$
$100\theta_{\text{MC}}$	1.04093	$1.0409^{+0.0017}_{-0.0015}$	$100\theta_*$	1.04134	$1.0417^{+0.0017}_{-0.0017}$	$D_{\text{M}}(0.51)$	2002	$2088^{+110}_{-130}$
$\Sigma m_\nu$ [eV]	0.46	—	$D_{\text{M}}(z_*)/\text{Gpc}$	14.12	$14.73^{+0.70}_{-0.84}$	$H(0.61)$	94.13	$90.3^{+5.5}_{-4.2}$
$H_0$	67.05	$64.3^{+4.5}_{-3.4}$	$z_{\text{drag}}$	1058.90	$1057.8^{+3.7}_{-3.4}$	$D_{\text{M}}(0.61)$	2330	$2431^{+120}_{-150}$
$\Omega_{\Lambda}$	0.6941	$0.694^{+0.021}_{-0.021}$	$r_{\text{drag}}$	149.8	$156.4^{+7.5}_{-9.2}$	$H(2.33)$	232.2	$223^{+13}_{-11}$
$\Omega_{\text{m}}$	0.3059	$0.306^{+0.021}_{-0.021}$	$k_{\text{D}}$	0.1380	$0.1327^{+0.0083}_{-0.0062}$	$D_{\text{M}}(2.33)$	5838	$6092^{+280}_{-350}$
$\Omega_{\text{m}}h^2$	0.1375	$0.127^{+0.016}_{-0.012}$	$100\theta_{\text{D}}$	0.16125	$0.1608^{+0.0020}_{-0.0021}$	$\chi^2_{\text{Cooke17}}$	0.00	$0.99\ (\nu: 1.0)$
$\Omega_\nu h^2$	0.0050	$< 0.0531$	$z_{\text{eq}}$	3168	$2397^{+1000}_{-900}$	$\chi^2_{\text{JLA}}$	1034.83	$1034.96\ (\nu: 0.0)$
$\Omega_{\text{m}}h^3$	0.0922	$0.082^{+0.015}_{-0.011}$	$k_{\text{eq}}$	0.00967	$0.0075^{+0.0029}_{-0.0025}$	$\chi^2_{6\text{DF}}$	0.000	$0.048\ (\nu: 0.0)$
$r_{\text{drag}}h$	100.43	$100.5^{+2.9}_{-2.6}$	$100\theta_{\text{eq}}$	0.858	$1.12^{+0.46}_{-0.32}$	$\chi^2_{\text{MGS}}$	1.68	$1.80\ (\nu: 0.2)$
$Y_{\text{P}}$	0.24532	$0.24534^{+0.00057}_{-0.00052}$	$100\theta_{\text{s,eq}}$	0.473	$0.61^{+0.23}_{-0.16}$	$\chi^2_{\text{DR12BAO}}$	3.42	$4.1\ (\nu: 0.7)$
$Y_{\text{P}}^{\text{BBN}}$	0.24665	$0.24667^{+0.00057}_{-0.00052}$	$H(0.15)$	72.20	$69.3^{+4.6}_{-3.5}$	$\chi^2_{\text{prior}}$	0.00	$1.1\ (\nu: 1.2)$
$10^5\text{D}/\text{H}$	2.619	$2.61^{+0.24}_{-0.24}$	$D_{\text{M}}(0.15)$	647.0	$675^{+36}_{-44}$	$\chi^2_{\text{BAO}}$	5.09	$6.0\ (\nu: 0.8)$
Age/Gyr	13.98	$14.59^{+0.69}_{-0.86}$	$H(0.38)$	82.07	$78.7^{+4.9}_{-3.7}$			

Best-fit  $\chi^2_{\text{eff}} = 1039.93$ ;  $\bar{\chi}^2_{\text{eff}} = 1042.99$ ;  $R - 1 = 0.01446$   
 $\chi^2_{\text{eff}}$ : Abund - D.Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.42 SN - JLA Pantheon18: 1034.83

6.170    base\_mnu\_BAO\_Cooke17\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02219	$0.0222^{+0.0014}_{-0.0012}$	$z_*$	1089.18	$1087.8^{+3.1}_{-2.3}$	$D_{\text{M}}(0.38)$	1553	$1616^{+80}_{-100}$
$\Omega_{\text{c}}h^2$	0.1075	$0.077^{+0.047}_{-0.042}$	$r_*$	147.7	$153.8^{+7.4}_{-9.5}$	$H(0.51)$	88.18	$84.8^{+5.4}_{-4.0}$
$100\theta_{\text{MC}}$	1.04093	$1.0409^{+0.0015}_{-0.0015}$	$100\theta_*$	1.04139	$1.0417^{+0.0016}_{-0.0016}$	$D_{\text{M}}(0.51)$	2013	$2095^{+100}_{-130}$
$\Sigma m_\nu$ [eV]	0.62	—	$D_{\text{M}}(z_*)/\text{Gpc}$	14.18	$14.76^{+0.71}_{-0.91}$	$H(0.61)$	93.66	$90.1^{+5.7}_{-4.2}$
$H_0$	66.66	$64.1^{+4.5}_{-3.4}$	$z_{\text{drag}}$	1058.71	$1057.6^{+3.9}_{-3.5}$	$D_{\text{M}}(0.61)$	2343	$2438^{+120}_{-150}$
$\Omega_{\Lambda}$	0.6931	$0.693^{+0.022}_{-0.023}$	$r_{\text{drag}}$	150.5	$156.7^{+7.7}_{-9.9}$	$H(2.33)$	231.2	$222^{+14}_{-11}$
$\Omega_{\text{m}}$	0.3069	$0.307^{+0.023}_{-0.022}$	$k_{\text{D}}$	0.1373	$0.1324^{+0.0090}_{-0.0060}$	$D_{\text{M}}(2.33)$	5868	$6107^{+290}_{-370}$
$\Omega_{\text{m}}h^2$	0.1363	$0.126^{+0.017}_{-0.012}$	$100\theta_{\text{D}}$	0.16128	$0.1608^{+0.0020}_{-0.0021}$	$\chi^2_{\text{Cooke17}}$	0.00	$1.0\ (\nu: 1.1)$
$\Omega_\nu h^2$	0.0067	$< 0.0532$	$z_{\text{eq}}$	3099	$2363^{+1000}_{-1000}$	$\chi^2_{6\text{DF}}$	0.001	$0.055\ (\nu: 0.0)$
$\Omega_{\text{m}}h^3$	0.0909	$0.081^{+0.016}_{-0.011}$	$k_{\text{eq}}$	0.00947	$0.0074^{+0.0031}_{-0.0026}$	$\chi^2_{\text{MGS}}$	1.61	$1.72\ (\nu: 0.2)$
$r_{\text{drag}}h$	100.31	$100.4^{+3.0}_{-2.9}$	$100\theta_{\text{eq}}$	0.873	$1.13^{+0.46}_{-0.36}$	$\chi^2_{\text{DR12BAO}}$	3.47	$4.3\ (\nu: 0.9)$
$Y_{\text{P}}$	0.24532	$0.24532^{+0.00058}_{-0.00051}$	$100\theta_{\text{s,eq}}$	0.481	$0.61^{+0.23}_{-0.18}$	$\chi^2_{\text{prior}}$	0.00	$0.99\ (\nu: 0.9)$
$Y_{\text{P}}^{\text{BBN}}$	0.24665	$0.24665^{+0.00058}_{-0.00051}$	$H(0.15)$	71.79	$69.0^{+4.6}_{-3.5}$	$\chi^2_{\text{BAO}}$	5.08	$6.1\ (\nu: 0.9)$
$10^5\text{D}/\text{H}$	2.620	$2.62^{+0.24}_{-0.24}$	$D_{\text{M}}(0.15)$	650.7	$677^{+35}_{-44}$			
Age/Gyr	14.05	$14.62^{+0.69}_{-0.89}$	$H(0.38)$	81.63	$78.5^{+5.1}_{-3.7}$			

Best-fit  $\chi^2_{\text{eff}} = 5.08$ ;  $\bar{\chi}^2_{\text{eff}} = 8.05$ ;  $R - 1 = 0.07129$   
 $\chi^2_{\text{eff}}$ : Abund - D.Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.61 DR12BAO: 3.47



## 7 nnu

### 7.1 base\_nnu\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02202	$0.02207^{+0.00078}_{-0.00079}$	$\sigma_8 \Omega_m^{0.5}$	0.4621	$0.460^{+0.035}_{-0.034}$	$100\theta_{s,eq}$	0.4460	$0.448^{+0.016}_{-0.015}$
$\Omega_c h^2$	0.1188	$0.120^{+0.010}_{-0.0099}$	$\sigma_8 \Omega_m^{0.25}$	0.6108	$0.610^{+0.030}_{-0.030}$	$H(0.15)$	71.1	$71.9^{+6.0}_{-5.5}$
$100\theta_{MC}$	1.04093	$1.0409^{+0.0015}_{-0.0015}$	$\sigma_8/h^{0.5}$	0.9958	$0.993^{+0.041}_{-0.043}$	$D_M(0.15)$	658	$652^{+56}_{-53}$
$\tau$	0.0519	$0.051^{+0.022}_{-0.021}$	$r_{drag}h$	97.6	$98.2^{+5.8}_{-5.3}$	$H(0.38)$	81.4	$82.2^{+5.7}_{-5.3}$
$N_{eff}$	2.90	$3.00^{+0.74}_{-0.69}$	$\langle d^2 \rangle^{1/2}$	2.467	$2.46^{+0.12}_{-0.12}$	$D_M(0.38)$	1566	$1551^{+120}_{-120}$
$\ln(10^{10} A_s)$	3.035	$3.037^{+0.052}_{-0.054}$	$z_{re}$	7.47	$7.4^{+2.2}_{-2.4}$	$H(0.51)$	88.2	$89.0^{+5.7}_{-5.2}$
$n_s$	0.9575	$0.961^{+0.034}_{-0.033}$	$10^9 A_s$	2.081	$2.08^{+0.11}_{-0.11}$	$D_M(0.51)$	2026	$2007^{+150}_{-150}$
$y_{cal}$	1.0005	$1.0005^{+0.0065}_{-0.0063}$	$10^9 A_s e^{-2\tau}$	1.876	$1.881^{+0.056}_{-0.059}$	$H(0.61)$	93.9	$94.7^{+5.7}_{-5.2}$
$A_{217}^{CIB}$	46.8	$48^{+20}_{-20}$	$D_{40}$	1240	$1237^{+56}_{-55}$	$D_M(0.61)$	2356	$2334^{+170}_{-170}$
$\xi^{tSZ \times CIB}$	0.55	—	$D_{220}$	5710	$5713^{+110}_{-100}$	$H(2.33)$	235.0	$236.1^{+9.3}_{-9.1}$
$A_{143}^{tSZ}$	7.0	—	$D_{810}$	2536.8	$2536^{+37}_{-36}$	$D_M(2.33)$	5844	$5801^{+320}_{-320}$
$A_{100}^{PS}$	250	$262^{+70}_{-70}$	$D_{1420}$	816.5	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	0.4653	$0.464^{+0.031}_{-0.032}$
$A_{143}^{PS}$	50.6	$49^{+20}_{-20}$	$D_{2000}$	230.9	$229.9^{+5.8}_{-5.7}$	$\sigma_8(0.15)$	0.7445	$0.747^{+0.033}_{-0.032}$
$A_{143 \times 217}^{PS}$	51.5	$44^{+20}_{-20}$	$n_{s,0.002}$	0.9575	$0.961^{+0.034}_{-0.033}$	$f\sigma_8(0.38)$	0.4800	$0.479^{+0.024}_{-0.025}$
$A_{217}^{PS}$	121.2	$115^{+30}_{-30}$	$Y_P$	0.2432	$0.2446^{+0.0098}_{-0.0099}$	$\sigma_8(0.38)$	0.6582	$0.661^{+0.031}_{-0.030}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.2445	$0.2459^{+0.0098}_{-0.010}$	$f\sigma_8(0.51)$	0.4767	$0.477^{+0.021}_{-0.022}$
$A_{100}^{dustTT}$	8.77	$8.9^{+4.7}_{-4.6}$	$10^5 D/H$	2.599	$2.62^{+0.18}_{-0.17}$	$\sigma_8(0.51)$	0.6153	$0.618^{+0.031}_{-0.029}$
$A_{143}^{dustTT}$	10.74	$10.7^{+4.6}_{-4.6}$	Age/Gyr	13.99	$13.89^{+0.77}_{-0.75}$	$f\sigma_8(0.61)$	0.4705	$0.471^{+0.020}_{-0.020}$
$A_{143 \times 217}^{dustTT}$	19.7	$18.2^{+8.4}_{-8.6}$	$z_*$	1090.11	$1090.2^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	0.5850	$0.588^{+0.030}_{-0.028}$
$A_{217}^{dustTT}$	95.2	$93^{+20}_{-20}$	$r_*$	145.8	$144.9^{+6.6}_{-6.3}$	$f\sigma_8(2.33)$	0.2944	$0.296^{+0.016}_{-0.015}$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04126	$1.0411^{+0.0019}_{-0.0018}$	$\sigma_8(2.33)$	0.3028	$0.305^{+0.018}_{-0.017}$
$c_{217}$	0.99824	$0.9982^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	14.00	$13.92^{+0.61}_{-0.59}$	$f_{2000}^{143}$	29.2	$31^{+9}_{-9}$
$H_0$	65.7	$66.5^{+6.2}_{-5.7}$	$z_{drag}$	1058.94	$1059.2^{+2.8}_{-2.8}$	$f_{2000}^{143 \times 217}$	32.4	$33^{+7}_{-7}$
$\Omega_\Lambda$	0.6725	$0.677^{+0.045}_{-0.049}$	$r_{drag}$	148.6	$147.7^{+6.9}_{-6.5}$	$f_{2000}^{217}$	106.9	$107.9^{+6.1}_{-5.9}$
$\Omega_m$	0.3275	$0.323^{+0.049}_{-0.045}$	$k_D$	0.13965	$0.1402^{+0.0048}_{-0.0047}$	$\chi_{simall}^2$	395.85	$396.9 (\nu: 1.2)$
$\Omega_m h^2$	0.1415	$0.143^{+0.011}_{-0.010}$	$100\theta_D$	0.16071	$0.1610^{+0.0017}_{-0.0017}$	$\chi_{lowl}^2$	24.5	$24.4 (\nu: 2.5)$
$\Omega_m h^3$	0.0930	$0.095^{+0.015}_{-0.013}$	$z_{eq}$	3436	$3419^{+170}_{-160}$	$\chi_{plik}^2$	757.7	$771.7 (\nu: 17.1)$
$\sigma_8$	0.8074	$0.810^{+0.035}_{-0.034}$	$k_{eq}$	0.010379	$0.01040^{+0.00041}_{-0.00040}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.5)$
$S_8$	0.844	$0.840^{+0.064}_{-0.062}$	$100\theta_{eq}$	0.8063	$0.810^{+0.032}_{-0.030}$	$\chi_{CMB}^2$	1178.0	$1192.9 (\nu: 15.6)$

Best-fit  $\chi_{eff}^2 = 1179.27$ ;  $\bar{\chi}_{eff}^2 = 1200.18$ ;  $R - 1 = 0.00449$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 commander\_dx12\_v3.2\_29: 24.50 plik\_rd12\_HM\_v22\_TT: 757.66



## 7.2 base\_nnu\_plikHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02201	$0.02206^{+0.00074}_{-0.00078}$	$\sigma_8 \Omega_m^{0.25}$	0.6060	$0.607^{+0.021}_{-0.021}$	$D_M(0.15)$	661	$653^{+53}_{-50}$
$\Omega_c h^2$	0.1175	$0.119^{+0.011}_{-0.0095}$	$\sigma_8/h^{0.5}$	0.9906	$0.990^{+0.027}_{-0.027}$	$H(0.38)$	81.1	$81.9^{+5.4}_{-5.1}$
$100\theta_{MC}$	1.04110	$1.0410^{+0.0015}_{-0.0014}$	$r_{drag}h$	97.78	$98.3^{+4.6}_{-4.3}$	$D_M(0.38)$	1572	$1555^{+120}_{-110}$
$\tau$	0.0503	$0.051^{+0.022}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.459	$2.454^{+0.080}_{-0.081}$	$H(0.51)$	87.8	$88.7^{+5.4}_{-5.2}$
$N_{eff}$	2.83	$2.95^{+0.73}_{-0.69}$	$z_{re}$	7.28	$7.4^{+2.1}_{-2.3}$	$D_M(0.51)$	2034	$2013^{+150}_{-140}$
$\ln(10^{10} A_s)$	3.028	$3.034^{+0.051}_{-0.052}$	$10^9 A_s$	2.066	$2.08^{+0.11}_{-0.11}$	$H(0.61)$	93.5	$94.3^{+5.4}_{-5.3}$
$n_s$	0.9559	$0.959^{+0.031}_{-0.030}$	$10^9 A_s e^{-2\tau}$	1.868	$1.876^{+0.055}_{-0.060}$	$D_M(0.61)$	2365	$2341^{+170}_{-160}$
$y_{cal}$	1.0003	$1.0005^{+0.0066}_{-0.0064}$	$D_{40}$	1240.1	$1237^{+48}_{-48}$	$H(2.33)$	233.8	$235.2^{+9.5}_{-9.2}$
$A_{217}^{CIB}$	46.8	$47^{+20}_{-20}$	$D_{220}$	5712	$5715^{+110}_{-100}$	$D_M(2.33)$	5869	$5821^{+330}_{-300}$
$\xi^{tSZ \times CIB}$	0.53	—	$D_{810}$	2534.5	$2535^{+37}_{-37}$	$f\sigma_8(0.15)$	0.4615	$0.461^{+0.021}_{-0.021}$
$A_{143}^{tSZ}$	7.0	—	$D_{1420}$	816.7	$815^{+13}_{-13}$	$\sigma_8(0.15)$	0.7393	$0.744^{+0.033}_{-0.032}$
$A_{100}^{PS}$	248	$261^{+70}_{-70}$	$D_{2000}$	231.2	$230.1^{+5.8}_{-5.7}$	$f\sigma_8(0.38)$	0.4762	$0.477^{+0.017}_{-0.017}$
$A_{143}^{PS}$	49.2	$48^{+20}_{-20}$	$n_{s,0.002}$	0.9559	$0.959^{+0.031}_{-0.030}$	$\sigma_8(0.38)$	0.6538	$0.658^{+0.031}_{-0.031}$
$A_{143 \times 217}^{PS}$	50.2	$43^{+20}_{-20}$	$Y_P$	0.2423	$0.2439^{+0.0097}_{-0.010}$	$f\sigma_8(0.51)$	0.4731	$0.474^{+0.016}_{-0.016}$
$A_{217}^{PS}$	120.4	$115^{+30}_{-30}$	$Y_P^{BBN}$	0.2436	$0.2452^{+0.0097}_{-0.010}$	$\sigma_8(0.51)$	0.6112	$0.616^{+0.030}_{-0.030}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.578	$2.61^{+0.18}_{-0.17}$	$f\sigma_8(0.61)$	0.4670	$0.469^{+0.016}_{-0.016}$
$A_{100}^{dustTT}$	8.82	$9.0^{+4.8}_{-4.6}$	Age/Gyr	14.05	$13.93^{+0.77}_{-0.72}$	$\sigma_8(0.61)$	0.5812	$0.585^{+0.030}_{-0.029}$
$A_{143}^{dustTT}$	10.70	$10.7^{+4.5}_{-4.7}$	$z_*$	1089.93	$1090.1^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	0.2925	$0.295^{+0.016}_{-0.016}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.2^{+8.4}_{-8.6}$	$r_*$	146.5	$145.5^{+6.8}_{-6.3}$	$\sigma_8(2.33)$	0.3009	$0.303^{+0.018}_{-0.018}$
$A_{217}^{dustTT}$	94.7	$93^{+20}_{-20}$	$100\theta_*$	1.04145	$1.0412^{+0.0019}_{-0.0018}$	$f_{2000}^{143}$	28.7	$30^{+9}_{-9}$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	14.06	$13.97^{+0.61}_{-0.59}$	$f_{2000}^{143 \times 217}$	32.0	$33^{+6}_{-6}$
$c_{217}$	0.99821	$0.9982^{+0.0015}_{-0.0016}$	$z_{drag}$	1058.75	$1059.1^{+2.7}_{-2.8}$	$f_{2000}^{217}$	106.5	$107.6^{+6.2}_{-5.8}$
$H_0$	65.5	$66.3^{+5.7}_{-5.3}$	$r_{drag}$	149.3	$148.3^{+7.0}_{-6.6}$	$\chi^2_{lensing}$	8.61	$9.37 (\nu: 0.5)$
$\Omega_\Lambda$	0.6734	$0.678^{+0.037}_{-0.039}$	$k_D$	0.13915	$0.1398^{+0.0048}_{-0.0048}$	$\chi^2_{small}$	395.69	$396.8 (\nu: 1.1)$
$\Omega_m$	0.3266	$0.322^{+0.039}_{-0.037}$	$100\theta_D$	0.16054	$0.1608^{+0.0017}_{-0.0016}$	$\chi^2_{lowl}$	24.61	$24.4 (\nu: 1.8)$
$\Omega_m h^2$	0.1401	$0.142^{+0.011}_{-0.010}$	$z_{eq}$	3432	$3416^{+130}_{-130}$	$\chi^2_{plik}$	757.8	$771.1 (\nu: 15.2)$
$\Omega_m h^3$	0.0918	$0.094^{+0.015}_{-0.013}$	$k_{eq}$	0.010323	$0.01035^{+0.00035}_{-0.00034}$	$\chi^2_{prior}$	1.3	$7.3 (\nu: 6.6)$
$\sigma_8$	0.8017	$0.806^{+0.034}_{-0.033}$	$100\theta_{eq}$	0.8070	$0.810^{+0.026}_{-0.023}$	$\chi^2_{CMB}$	1186.7	$1201.7 (\nu: 15.8)$
$S_8$	0.8365	$0.835^{+0.042}_{-0.041}$	$100\theta_{s,eq}$	0.4464	$0.448^{+0.013}_{-0.012}$			
$\sigma_8 \Omega_m^{0.5}$	0.4582	$0.458^{+0.023}_{-0.023}$	$H(0.15)$	70.9	$71.7^{+5.6}_{-5.2}$			

Best-fit  $\chi^2_{eff} = 1188.03$ ;  $\bar{\chi}^2_{eff} = 1208.98$ ;  $R - 1 = 0.00963$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consect8: 8.62 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.69 commander\_dx12\_v3.2\_29: 24.61 plik\_rd12\_HM\_v22\_TT: 757.83



### 7.3 base\_nnu\_plikHM\_TT\_lowl\_lowE\_post\_Cooke17\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02202	$0.02205^{+0.00067}_{-0.00068}$	$\sigma_8 \Omega_m^{0.5}$	0.4611	$0.461^{+0.035}_{-0.034}$	$100\theta_{s,eq}$	0.4464	$0.447^{+0.014}_{-0.013}$
$\Omega_c h^2$	0.1189	$0.1196^{+0.0077}_{-0.0073}$	$\sigma_8 \Omega_m^{0.25}$	0.6101	$0.610^{+0.029}_{-0.030}$	$H(0.15)$	71.24	$71.6^{+4.4}_{-4.1}$
$100\theta_{MC}$	1.04095	$1.0409^{+0.0013}_{-0.0013}$	$\sigma_8/h^{0.5}$	0.9947	$0.994^{+0.041}_{-0.043}$	$D_M(0.15)$	657.2	$654^{+42}_{-41}$
$\tau$	0.0518	$0.051^{+0.022}_{-0.021}$	$r_{drag} h$	97.79	$98.0^{+5.0}_{-4.7}$	$H(0.38)$	81.50	$81.9^{+4.1}_{-3.8}$
$N_{eff}$	2.908	$2.96^{+0.49}_{-0.46}$	$\langle d^2 \rangle^{1/2}$	2.464	$2.46^{+0.10}_{-0.11}$	$D_M(0.38)$	1564	$1557^{+90}_{-88}$
$\ln(10^{10} A_s)$	3.0351	$3.035^{+0.047}_{-0.049}$	$z_{re}$	7.47	$7.4^{+2.1}_{-2.4}$	$H(0.51)$	88.30	$88.7^{+4.0}_{-3.7}$
$n_s$	0.9580	$0.959^{+0.026}_{-0.025}$	$10^9 A_s$	2.080	$2.08^{+0.10}_{-0.10}$	$D_M(0.51)$	2023	$2015^{+110}_{-110}$
$y_{cal}$	1.0004	$1.0005^{+0.0064}_{-0.0064}$	$10^9 A_s e^{-2\tau}$	1.8756	$1.879^{+0.046}_{-0.047}$	$H(0.61)$	93.98	$94.4^{+3.9}_{-3.6}$
$A_{217}^{CIB}$	48.1	$47^{+20}_{-20}$	$D_{40}$	1238.6	$1239^{+49}_{-47}$	$D_M(0.61)$	2352	$2342^{+120}_{-120}$
$\xi^{tSZ \times CIB}$	0.38	—	$D_{220}$	5708	$5713^{+110}_{-100}$	$H(2.33)$	235.0	$235.7^{+6.6}_{-6.3}$
$A_{143}^{tSZ}$	7.0	—	$D_{810}$	2535.6	$2536^{+36}_{-35}$	$D_M(2.33)$	5838	$5817^{+220}_{-220}$
$A_{100}^{PS}$	252	$261^{+70}_{-70}$	$D_{1420}$	815.9	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	0.4645	$0.464^{+0.031}_{-0.032}$
$A_{143}^{PS}$	48.6	$48^{+20}_{-20}$	$D_{2000}$	230.61	$230.0^{+4.9}_{-4.9}$	$\sigma_8(0.15)$	0.7444	$0.746^{+0.026}_{-0.026}$
$A_{143 \times 217}^{PS}$	47.2	$44^{+20}_{-20}$	$n_{s,0.002}$	0.9580	$0.959^{+0.026}_{-0.025}$	$f\sigma_8(0.38)$	0.4794	$0.479^{+0.024}_{-0.025}$
$A_{217}^{PS}$	119.1	$115^{+20}_{-30}$	$Y_P$	0.2434	$0.2440^{+0.0067}_{-0.0067}$	$\sigma_8(0.38)$	0.6583	$0.660^{+0.024}_{-0.024}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.2447	$0.2454^{+0.0067}_{-0.0067}$	$f\sigma_8(0.51)$	0.4763	$0.476^{+0.021}_{-0.021}$
$A_{100}^{dustTT}$	8.79	$9.0^{+4.7}_{-4.6}$	$10^5 D/H$	2.603	$2.62^{+0.13}_{-0.12}$	$\sigma_8(0.51)$	0.6154	$0.617^{+0.023}_{-0.023}$
$A_{143}^{dustTT}$	10.80	$10.7^{+4.6}_{-4.7}$	Age/Gyr	13.97	$13.92^{+0.53}_{-0.51}$	$f\sigma_8(0.61)$	0.4701	$0.470^{+0.019}_{-0.019}$
$A_{143 \times 217}^{dustTT}$	19.5	$18.3^{+8.5}_{-8.6}$	$z_*$	1090.13	$1090.2^{+1.0}_{-1.0}$	$\sigma_8(0.61)$	0.5852	$0.586^{+0.022}_{-0.022}$
$A_{217}^{dustTT}$	94.7	$93^{+20}_{-20}$	$r_*$	145.69	$145.3^{+4.4}_{-4.3}$	$f\sigma_8(2.33)$	0.2945	$0.295^{+0.012}_{-0.012}$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04126	$1.0412^{+0.0014}_{-0.0015}$	$\sigma_8(2.33)$	0.3030	$0.304^{+0.013}_{-0.013}$
$c_{217}$	0.99825	$0.9982^{+0.0015}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.992	$13.95^{+0.41}_{-0.41}$	$\chi_{simall}^2$	395.84	$396.8 (\nu: 1.2)$
$H_0$	65.86	$66.2^{+4.6}_{-4.3}$	$z_{drag}$	1058.94	$1059.1^{+2.1}_{-2.1}$	$\chi_{lowl}^2$	24.40	$24.5 (\nu: 1.8)$
$\Omega_\Lambda$	0.6736	$0.675^{+0.039}_{-0.042}$	$r_{drag}$	148.48	$148.0^{+4.6}_{-4.5}$	$\chi_{plik}^2$	757.7	$770.9 (\nu: 15.0)$
$\Omega_m$	0.3264	$0.325^{+0.042}_{-0.039}$	$k_D$	0.13967	$0.1400^{+0.0034}_{-0.0033}$	$\chi_{Aver15}^2$	0.00	$0.44 (\nu: 0.2)$
$\Omega_m h^2$	0.1416	$0.1423^{+0.0079}_{-0.0075}$	$100\theta_D$	0.16076	$0.1609^{+0.0012}_{-0.0011}$	$\chi_{Cooke17}^2$	0.02	$0.27 (\nu: 0.1)$
$\Omega_m h^3$	0.0932	$0.0942^{+0.0099}_{-0.0089}$	$z_{eq}$	3431	$3425^{+150}_{-140}$	$\chi_{prior}^2$	1.4	$7.2 (\nu: 6.5)$
$\sigma_8$	0.8072	$0.808^{+0.028}_{-0.028}$	$k_{eq}$	0.010374	$0.01039^{+0.00038}_{-0.00037}$	$\chi_{CMB}^2$	1177.9	$1192.2 (\nu: 14.6)$
$S_8$	0.842	$0.841^{+0.063}_{-0.062}$	$100\theta_{eq}$	0.8072	$0.808^{+0.028}_{-0.026}$	$\chi_{Abund}^2$	0.03	$0.71 (\nu: 0.4)$

Best-fit  $\chi_{eff}^2 = 1179.31$ ;  $\bar{\chi}_{eff}^2 = 1200.19$ ;  $R - 1 = 0.00823$

$\chi_{eff}^2$ : Abund - Yp\_Aver2015: 0.00 D\_Cooke2017: 0.02 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.84 commander\_dx12\_v3\_2\_29: 24.40 plik\_rd12\_HM\_v22\_TT: 757.67



## 7.4 base\_nnu\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02210^{+0.00077}_{-0.00078}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.460^{+0.035}_{-0.034}$	$100\theta_{\mathrm{s,eq}}$	$0.448^{+0.016}_{-0.015}$
$\Omega_{\mathrm{c}} h^2$	$0.120^{+0.010}_{-0.0099}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.030}_{-0.029}$	$H(0.15)$	$72.1^{+5.9}_{-5.5}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0015}_{-0.0015}$	$\sigma_8/h^{0.5}$	$0.994^{+0.041}_{-0.042}$	$D_{\mathrm{M}}(0.15)$	$650^{+56}_{-52}$
$\tau$	$0.053^{+0.018}_{-0.012}$	$r_{\mathrm{drag}} h$	$98.4^{+5.7}_{-5.3}$	$H(0.38)$	$82.3^{+5.7}_{-5.3}$
$N_{\mathrm{eff}}$	$3.02^{+0.73}_{-0.69}$	$\langle d^2 \rangle^{1/2}$	$2.46^{+0.12}_{-0.11}$	$D_{\mathrm{M}}(0.38)$	$1548^{+120}_{-120}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.048}_{-0.042}$	$z_{\mathrm{re}}$	$< 9.37$	$H(0.51)$	$89.1^{+5.6}_{-5.2}$
$n_{\mathrm{s}}$	$0.962^{+0.033}_{-0.033}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.10}_{-0.086}$	$D_{\mathrm{M}}(0.51)$	$2003^{+150}_{-140}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0063}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.056}_{-0.059}$	$H(0.61)$	$94.8^{+5.6}_{-5.3}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{40}$	$1235^{+56}_{-54}$	$D_{\mathrm{M}}(0.61)$	$2330^{+170}_{-160}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{220}$	$5713^{+110}_{-100}$	$H(2.33)$	$236.3^{+9.3}_{-9.0}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{810}$	$2536^{+37}_{-35}$	$D_{\mathrm{M}}(2.33)$	$5793^{+320}_{-310}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.15)$	$0.464^{+0.032}_{-0.032}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$D_{2000}$	$229.8^{+5.9}_{-5.6}$	$\sigma_8(0.15)$	$0.749^{+0.032}_{-0.031}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.962^{+0.033}_{-0.033}$	$f\sigma_8(0.38)$	$0.480^{+0.024}_{-0.024}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}$	$0.2448^{+0.0096}_{-0.010}$	$\sigma_8(0.38)$	$0.663^{+0.030}_{-0.029}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2461^{+0.0097}_{-0.010}$	$f\sigma_8(0.51)$	$0.477^{+0.021}_{-0.021}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.6}_{-4.6}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.18}_{-0.17}$	$\sigma_8(0.51)$	$0.620^{+0.029}_{-0.028}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.6}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.87^{+0.77}_{-0.74}$	$f\sigma_8(0.61)$	$0.472^{+0.020}_{-0.020}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.2^{+8.3}_{-8.6}$	$z_*$	$1090.2^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	$0.589^{+0.029}_{-0.027}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$r_*$	$144.8^{+6.6}_{-6.2}$	$f\sigma_8(2.33)$	$0.297^{+0.016}_{-0.015}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0411^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	$0.306^{+0.018}_{-0.016}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.91^{+0.61}_{-0.58}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$H_0$	$66.7^{+6.1}_{-5.6}$	$z_{\mathrm{drag}}$	$1059.3^{+2.8}_{-2.7}$	$f_{2000}^{143 \times 217}$	$33^{+7}_{-7}$
$\Omega_{\Lambda}$	$0.678^{+0.044}_{-0.048}$	$r_{\mathrm{drag}}$	$147.6^{+6.8}_{-6.5}$	$f_{2000}^{217}$	$107.9^{+6.1}_{-6.0}$
$\Omega_{\mathrm{m}}$	$0.322^{+0.048}_{-0.044}$	$k_{\mathrm{D}}$	$0.1403^{+0.0048}_{-0.0047}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.2)$
$\Omega_{\mathrm{m}} h^2$	$0.143^{+0.011}_{-0.010}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0017}_{-0.0016}$	$\chi_{\mathrm{lowl}}^2$	$24.2 (\nu: 2.4)$
$\Omega_{\mathrm{m}} h^3$	$0.095^{+0.015}_{-0.013}$	$z_{\mathrm{eq}}$	$3415^{+160}_{-160}$	$\chi_{\mathrm{plik}}^2$	$771.7 (\nu: 17.1)$
$\sigma_8$	$0.811^{+0.033}_{-0.033}$	$k_{\mathrm{eq}}$	$0.01040^{+0.00041}_{-0.00040}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.5)$
$S_8$	$0.840^{+0.065}_{-0.062}$	$100\theta_{\mathrm{eq}}$	$0.810^{+0.032}_{-0.030}$	$\chi_{\mathrm{CMB}}^2$	$1192.7 (\nu: 15.3)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1199.93; R - 1 = 0.00341$$



## 7.5 base\_nnu\_plikHM\_TT\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02209^{+0.00074}_{-0.00075}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.021}_{-0.021}$	$D_{\mathrm{M}}(0.15)$	$651^{+54}_{-48}$
$\Omega_{\mathrm{c}}h^2$	$0.119^{+0.011}_{-0.0095}$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.027}$	$H(0.38)$	$82.1^{+5.3}_{-5.3}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0014}$	$r_{\mathrm{drag}}h$	$98.5^{+4.5}_{-4.2}$	$D_{\mathrm{M}}(0.38)$	$1551^{+120}_{-110}$
$\tau$	$0.053^{+0.018}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.454^{+0.080}_{-0.081}$	$H(0.51)$	$88.9^{+5.3}_{-5.3}$
$N_{\mathrm{eff}}$	$2.97^{+0.72}_{-0.69}$	$z_{\mathrm{re}}$	$< 9.31$	$D_{\mathrm{M}}(0.51)$	$2008^{+150}_{-140}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.038^{+0.047}_{-0.043}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.10}_{-0.087}$	$H(0.61)$	$94.5^{+5.3}_{-5.3}$
$n_{\mathrm{s}}$	$0.961^{+0.031}_{-0.031}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.876^{+0.054}_{-0.060}$	$D_{\mathrm{M}}(0.61)$	$2335^{+170}_{-150}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0066}_{-0.0064}$	$D_{40}$	$1236^{+49}_{-47}$	$H(2.33)$	$235.4^{+9.4}_{-9.1}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{220}$	$5716^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5811^{+330}_{-300}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2535^{+37}_{-37}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.15)$	$0.746^{+0.032}_{-0.031}$
$A_{100}^{\mathrm{PS}}$	$261^{+70}_{-70}$	$D_{2000}$	$230.1^{+5.9}_{-5.6}$	$f\sigma_8(0.38)$	$0.477^{+0.017}_{-0.017}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.031}_{-0.031}$	$\sigma_8(0.38)$	$0.660^{+0.031}_{-0.030}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2442^{+0.0095}_{-0.0099}$	$f\sigma_8(0.51)$	$0.475^{+0.016}_{-0.016}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2455^{+0.0096}_{-0.0099}$	$\sigma_8(0.51)$	$0.617^{+0.030}_{-0.030}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.18}_{-0.17}$	$f\sigma_8(0.61)$	$0.469^{+0.016}_{-0.016}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.8}_{-4.6}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.91^{+0.78}_{-0.71}$	$\sigma_8(0.61)$	$0.587^{+0.029}_{-0.029}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.5}_{-4.6}$	$z_*$	$1090.1^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	$0.296^{+0.015}_{-0.015}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.2^{+8.2}_{-8.6}$	$r_*$	$145.3^{+6.6}_{-6.3}$	$\sigma_8(2.33)$	$0.305^{+0.018}_{-0.017}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0412^{+0.0019}_{-0.0017}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.96^{+0.61}_{-0.58}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-7}$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.2^{+2.7}_{-2.8}$	$f_{2000}^{217}$	$107.7^{+6.2}_{-5.8}$
$H_0$	$66.6^{+5.5}_{-5.4}$	$r_{\mathrm{drag}}$	$148.1^{+6.9}_{-6.5}$	$\chi_{\mathrm{lensing}}^2$	$9.38 (\nu: 0.5)$
$\Omega_{\Lambda}$	$0.679^{+0.035}_{-0.037}$	$k_{\mathrm{D}}$	$0.1399^{+0.0048}_{-0.0048}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.1)$
$\Omega_{\mathrm{m}}$	$0.321^{+0.037}_{-0.035}$	$100\theta_{\mathrm{D}}$	$0.1609^{+0.0017}_{-0.0016}$	$\chi_{\mathrm{lowl}}^2$	$24.2 (\nu: 1.7)$
$\Omega_{\mathrm{m}}h^2$	$0.142^{+0.011}_{-0.010}$	$z_{\mathrm{eq}}$	$3410^{+120}_{-130}$	$\chi_{\mathrm{plik}}^2$	$771.2 (\nu: 15.2)$
$\Omega_{\mathrm{m}}h^3$	$0.094^{+0.015}_{-0.013}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00035}_{-0.00033}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.6)$
$\sigma_8$	$0.808^{+0.033}_{-0.032}$	$100\theta_{\mathrm{eq}}$	$0.811^{+0.025}_{-0.023}$	$\chi_{\mathrm{CMB}}^2$	$1201.4 (\nu: 15.6)$
$S_8$	$0.835^{+0.042}_{-0.041}$	$100\theta_{\mathrm{s,eq}}$	$0.449^{+0.013}_{-0.012}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.023}_{-0.023}$	$H(0.15)$	$71.9^{+5.4}_{-5.3}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1208.73; R - 1 = 0.01118$$



## 7.6 base\_nnu\_plikHM\_TT\_lowl\_lowE\_post\_Cooke17\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02206^{+0.00067}_{-0.00066}$	$\sigma_8 \Omega_m^{0.25}$	$0.611^{+0.029}_{-0.029}$	$D_M(0.15)$	$653^{+42}_{-40}$
$\Omega_c h^2$	$0.1196^{+0.0077}_{-0.0074}$	$\sigma_8/h^{0.5}$	$0.995^{+0.040}_{-0.041}$	$H(0.38)$	$82.0^{+4.0}_{-3.8}$
$100\theta_{MC}$	$1.0409^{+0.0013}_{-0.0013}$	$r_{drag}h$	$98.1^{+5.0}_{-4.6}$	$D_M(0.38)$	$1555^{+90}_{-88}$
$\tau$	$0.053^{+0.018}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.46^{+0.10}_{-0.11}$	$H(0.51)$	$88.8^{+4.0}_{-3.7}$
$N_{eff}$	$2.97^{+0.49}_{-0.46}$	$z_{re}$	$< 9.31$	$D_M(0.51)$	$2012^{+110}_{-110}$
$\ln(10^{10} A_s)$	$3.040^{+0.044}_{-0.034}$	$10^9 A_s$	$2.090^{+0.093}_{-0.071}$	$H(0.61)$	$94.4^{+3.9}_{-3.6}$
$n_s$	$0.960^{+0.026}_{-0.024}$	$10^9 A_s e^{-2\tau}$	$1.879^{+0.046}_{-0.046}$	$D_M(0.61)$	$2339^{+120}_{-120}$
$y_{cal}$	$1.0005^{+0.0066}_{-0.0064}$	$D_{40}$	$1238^{+49}_{-46}$	$H(2.33)$	$235.7^{+6.5}_{-6.3}$
$A_{217}^{CIB}$	$47^{+20}_{-20}$	$D_{220}$	$5713^{+110}_{-100}$	$D_M(2.33)$	$5812^{+220}_{-220}$
$\xi^{tSZ \times CIB}$	—	$D_{810}$	$2536^{+36}_{-35}$	$f\sigma_8(0.15)$	$0.464^{+0.031}_{-0.031}$
$A_{143}^{tSZ}$	—	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.747^{+0.025}_{-0.023}$
$A_{100}^{PS}$	$261^{+70}_{-70}$	$D_{2000}$	$230.1^{+4.9}_{-4.9}$	$f\sigma_8(0.38)$	$0.480^{+0.023}_{-0.024}$
$A_{143}^{PS}$	$48^{+20}_{-20}$	$n_{s,0.002}$	$0.960^{+0.026}_{-0.024}$	$\sigma_8(0.38)$	$0.661^{+0.023}_{-0.021}$
$A_{143 \times 217}^{PS}$	$44^{+20}_{-20}$	$Y_P$	$0.2442^{+0.0066}_{-0.0066}$	$f\sigma_8(0.51)$	$0.477^{+0.020}_{-0.021}$
$A_{217}^{PS}$	$115^{+30}_{-30}$	$Y_P^{BBN}$	$0.2455^{+0.0066}_{-0.0067}$	$\sigma_8(0.51)$	$0.618^{+0.022}_{-0.020}$
$A^{kSZ}$	—	$10^5 D/H$	$2.62^{+0.13}_{-0.12}$	$f\sigma_8(0.61)$	$0.471^{+0.018}_{-0.018}$
$A_{100}^{dustTT}$	$9.0^{+4.7}_{-4.6}$	Age/Gyr	$13.91^{+0.52}_{-0.51}$	$\sigma_8(0.61)$	$0.588^{+0.021}_{-0.020}$
$A_{143}^{dustTT}$	$10.7^{+4.6}_{-4.6}$	$z_*$	$1090.2^{+1.0}_{-1.0}$	$f\sigma_8(2.33)$	$0.296^{+0.011}_{-0.011}$
$A_{143 \times 217}^{dustTT}$	$18.3^{+8.4}_{-8.6}$	$r_*$	$145.2^{+4.4}_{-4.3}$	$\sigma_8(2.33)$	$0.305^{+0.013}_{-0.012}$
$A_{217}^{dustTT}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0412^{+0.0014}_{-0.0014}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	$13.94^{+0.41}_{-0.40}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{217}$	$0.9982^{+0.0015}_{-0.0015}$	$z_{drag}$	$1059.1^{+2.1}_{-2.1}$	$f_{2000}^{217}$	$107.7^{+5.5}_{-5.3}$
$H_0$	$66.3^{+4.6}_{-4.3}$	$r_{drag}$	$148.0^{+4.6}_{-4.5}$	$\chi_{simall}^2$	$396.7 (\nu: 1.2)$
$\Omega_\Lambda$	$0.676^{+0.039}_{-0.042}$	$k_D$	$0.1400^{+0.0034}_{-0.0033}$	$\chi_{lowl}^2$	$24.5 (\nu: 1.7)$
$\Omega_m$	$0.324^{+0.042}_{-0.039}$	$100\theta_D$	$0.1609^{+0.0012}_{-0.0011}$	$\chi_{plik}^2$	$770.8 (\nu: 14.9)$
$\Omega_m h^2$	$0.1423^{+0.0078}_{-0.0075}$	$z_{eq}$	$3422^{+140}_{-140}$	$\chi_{Aver15}^2$	$0.44 (\nu: 0.2)$
$\Omega_m h^3$	$0.0944^{+0.0098}_{-0.0090}$	$k_{eq}$	$0.01039^{+0.00038}_{-0.00037}$	$\chi_{Cooke17}^2$	$0.28 (\nu: 0.1)$
$\sigma_8$	$0.810^{+0.027}_{-0.026}$	$100\theta_{eq}$	$0.809^{+0.028}_{-0.026}$	$\chi_{prior}^2$	$7.2 (\nu: 6.4)$
$S_8$	$0.842^{+0.063}_{-0.062}$	$100\theta_{s,eq}$	$0.447^{+0.014}_{-0.013}$	$\chi_{CMB}^2$	$1191.9 (\nu: 14.2)$
$\sigma_8 \Omega_m^{0.5}$	$0.461^{+0.035}_{-0.034}$	$H(0.15)$	$71.7^{+4.4}_{-4.1}$	$\chi_{Abund}^2$	$0.72 (\nu: 0.4)$

$$\bar{\chi}_{eff}^2 = 1199.89; R - 1 = 0.00918$$



## 7.7 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02219	$0.02225^{+0.00058}_{-0.00054}$ (+0.6 $\sigma$ )	$\Omega_m h^2$	0.1401	$0.1413^{+0.0081}_{-0.0078}$ (−0.4 $\sigma$ )	$k_{\text{eq}}$	0.010317	$0.01035^{+0.00030}_{-0.00030}$ (−0.3 $\sigma$ )
$\Omega_c h^2$	0.1172	$0.1184^{+0.0078}_{-0.0075}$ (−0.4 $\sigma$ )	$\Omega_m h^3$	0.0922	$0.0938^{+0.0096}_{-0.0093}$ (−0.2 $\sigma$ )	$100\theta_{\text{eq}}$	0.8082	$0.810^{+0.018}_{-0.017}$ (+0.0 $\sigma$ )
$100\theta_{\text{MC}}$	1.04123	$1.0411^{+0.0011}_{-0.0011}$ (+0.4 $\sigma$ )	$\sigma_8$	0.8040	$0.806^{+0.028}_{-0.028}$ (−0.3 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4468	$0.4477^{+0.0090}_{-0.0087}$ (+0.0 $\sigma$ )
$\tau$	0.0538	$0.053^{+0.021}_{-0.020}$ (+0.2 $\sigma$ )	$S_8$	0.8347	$0.833^{+0.041}_{-0.040}$ (−0.3 $\sigma$ )	$H(0.15)$	71.15	$71.7^{+3.5}_{-3.6}$ (−0.1 $\sigma$ )
$N_{\text{eff}}$	2.836	$2.92^{+0.48}_{-0.48}$ (−0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4572	$0.456^{+0.022}_{-0.022}$ (−0.3 $\sigma$ )	$D_M(0.15)$	657.8	$653^{+36}_{-33}$ (+0.0 $\sigma$ )
$\ln(10^{10} A_s)$	3.0365	$3.038^{+0.048}_{-0.048}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6063	$0.607^{+0.022}_{-0.023}$ (−0.3 $\sigma$ )	$H(0.38)$	81.33	$81.9^{+3.5}_{-3.5}$ (−0.1 $\sigma$ )
$n_s$	0.9579	$0.960^{+0.022}_{-0.022}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9910	$0.989^{+0.030}_{-0.030}$ (−0.2 $\sigma$ )	$D_M(0.38)$	1566	$1554^{+79}_{-72}$ (+0.1 $\sigma$ )
$y_{\text{cal}}$	1.0005	$1.0008^{+0.0066}_{-0.0063}$ (+0.1 $\sigma$ )	$r_{\text{drag}} h$	98.15	$98.5^{+3.3}_{-3.1}$ (+0.1 $\sigma$ )	$H(0.51)$	88.07	$88.7^{+3.5}_{-3.5}$ (−0.1 $\sigma$ )
$A_{217}^{\text{CIB}}$	43.5	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.460	$2.456^{+0.077}_{-0.076}$ (−0.0 $\sigma$ )	$D_M(0.51)$	2026	$2012^{+98}_{-91}$ (+0.1 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.96	—	$z_{\text{re}}$	7.60	$7.5^{+2.1}_{-2.2}$ (+0.1 $\sigma$ )	$H(0.61)$	93.70	$94.3^{+3.5}_{-3.6}$ (−0.2 $\sigma$ )
$A_{143}^{\text{tSZ}}$	6.85	$> 0.974$ (+0.2 $\sigma$ )	$10^9 A_s$	2.083	$2.09^{+0.10}_{-0.098}$ (+0.0 $\sigma$ )	$D_M(0.61)$	2357	$2340^{+110}_{-100}$ (+0.1 $\sigma$ )
$A_{100}^{\text{PS}}$	244	$256^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8707	$1.876^{+0.044}_{-0.046}$ (−0.2 $\sigma$ )	$H(2.33)$	233.9	$234.9^{+6.8}_{-6.8}$ (−0.3 $\sigma$ )
$A_{143}^{\text{PS}}$	52.4	$45^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{40}$	1239.7	$1239^{+42}_{-39}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5857	$5822^{+220}_{-200}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	58.7	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{220}$	5730	$5734^{+98}_{-96}$ (+0.5 $\sigma$ )	$f\sigma_8(0.15)$	0.4608	$0.460^{+0.021}_{-0.021}$ (−0.3 $\sigma$ )
$A_{217}^{\text{PS}}$	124.4	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{810}$	2539.3	$2539^{+37}_{-33}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7418	$0.744^{+0.027}_{-0.027}$ (−0.2 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	819.7	$818^{+13}_{-13}$ (+0.6 $\sigma$ )	$f\sigma_8(0.38)$	0.4763	$0.476^{+0.018}_{-0.018}$ (−0.3 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.70	$8.9^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	$D_{2000}$	232.48	$231.6^{+4.7}_{-4.7}$ (+0.8 $\sigma$ )	$\sigma_8(0.38)$	0.6563	$0.659^{+0.025}_{-0.025}$ (−0.2 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.90	$10.8^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9579	$0.960^{+0.022}_{-0.022}$ (−0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4736	$0.474^{+0.016}_{-0.017}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.2	$18.4^{+8.5}_{-8.6}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.2425	$0.2436^{+0.0065}_{-0.0069}$ (−0.3 $\sigma$ )	$\sigma_8(0.51)$	0.6137	$0.616^{+0.024}_{-0.023}$ (−0.2 $\sigma$ )
$A_{217}^{\text{dustTT}}$	96.0	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.2438	$0.2449^{+0.0065}_{-0.0069}$ (−0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4677	$0.468^{+0.016}_{-0.016}$ (−0.3 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.10}_{-0.096}$	$10^5 \text{D/H}$	2.546	$2.56^{+0.12}_{-0.11}$ (−0.9 $\sigma$ )	$\sigma_8(0.61)$	0.5836	$0.586^{+0.023}_{-0.023}$ (−0.2 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.075}_{-0.076}$	Age/Gyr	14.02	$13.94^{+0.52}_{-0.48}$ (+0.2 $\sigma$ )	$f\sigma_8(2.33)$	0.2938	$0.295^{+0.012}_{-0.012}$ (−0.1 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.69	$1089.81^{+0.90}_{-0.84}$ (−0.9 $\sigma$ )	$\sigma_8(2.33)$	0.3024	$0.304^{+0.013}_{-0.013}$ (−0.1 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.225	$0.23^{+0.14}_{-0.14}$	$r_*$	146.36	$145.6^{+4.8}_{-4.4}$ (+0.3 $\sigma$ )	$f_{2000}^{143}$	27.2	$29^{+8}_{-7}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.668	$0.67^{+0.20}_{-0.21}$	$100\theta_*$	1.04156	$1.0414^{+0.0014}_{-0.0013}$ (+0.4 $\sigma$ )	$f_{2000}^{143 \times 217}$	30.9	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.09	$2.09^{+0.70}_{-0.71}$	$D_M(z_*)/\text{Gpc}$	14.052	$13.98^{+0.44}_{-0.41}$ (+0.3 $\sigma$ )	$f_{2000}^{217}$	105.44	$106.5^{+4.9}_{-5.0}$ (−0.6 $\sigma$ )
$c_{100}$	0.99976	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1059.17	$1059.4^{+2.0}_{-2.0}$ (+0.2 $\sigma$ )	$\chi_{\text{small}}^2$	396.03	$397.0 (\nu: 1.5)$ (+0.1 $\sigma$ )
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	149.11	$148.3^{+5.0}_{-4.6}$ (+0.2 $\sigma$ )	$\chi_{\text{lowl}}^2$	24.41	$24.3 (\nu: 1.2)$ (−0.0 $\sigma$ )
$H_0$	65.82	$66.4^{+3.7}_{-3.6}$ (−0.1 $\sigma$ )	$k_{\text{D}}$	0.13944	$0.1400^{+0.0035}_{-0.0036}$ (−0.1 $\sigma$ )	$\chi_{\text{plik}}^2$	2343.0	$2359.2 (\nu: 18.0)$ (+271.5 $\sigma$ )
$\Omega_\Lambda$	0.6767	$0.679^{+0.026}_{-0.028}$ (+0.1 $\sigma$ )	$100\theta_{\text{D}}$	0.16033	$0.1605^{+0.0010}_{-0.0011}$ (−0.7 $\sigma$ )	$\chi_{\text{prior}}^2$	1.3	$11.6 (\nu: 10.5)$ (+1.2 $\sigma$ )
$\Omega_{\text{m}}$	0.3233	$0.321^{+0.028}_{-0.026}$ (−0.1 $\sigma$ )	$z_{\text{eq}}$	3429	$3420^{+94}_{-92}$ (+0.0 $\sigma$ )	$\chi_{\text{CMB}}^2$	2763.4	$2780.5 (\nu: 17.8)$ (+284.4 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 2764.72$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.45$ ;  $\bar{\chi}_{\text{eff}}^2 = 2792.10$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.92$ ;  $R - 1 = 0.01315$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.03 ( $\Delta$  0.17) commander\_dx12\_v3.2.29: 24.41 ( $\Delta$  -0.09) plik\_rd12\_HM\_v22b\_TTTEEE: 2342.95



## 7.8 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02220	$0.02224^{+0.00057}_{-0.00055}$ (+0.6 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.0918	$0.0933^{+0.0096}_{-0.0092}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4472	$0.4478^{+0.0085}_{-0.0082}$ (−0.0 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.1167	$0.1179^{+0.0073}_{-0.0072}$ (−0.3 $\sigma$ )	$\sigma_8$	0.8018	$0.804^{+0.026}_{-0.025}$ (−0.1 $\sigma$ )	$H(0.15)$	71.10	$71.6^{+3.5}_{-3.5}$ (−0.0 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04130	$1.0412^{+0.0011}_{-0.0011}$ (+0.3 $\sigma$ )	$S_8$	0.8312	$0.831^{+0.032}_{-0.033}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	658.2	$654^{+35}_{-33}$ (+0.0 $\sigma$ )
$\tau$	0.0533	$0.053^{+0.020}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4553	$0.455^{+0.018}_{-0.018}$ (−0.2 $\sigma$ )	$H(0.38)$	81.25	$81.8^{+3.5}_{-3.5}$ (−0.1 $\sigma$ )
$N_{\mathrm{eff}}$	2.815	$2.89^{+0.47}_{-0.47}$ (−0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6042	$0.605^{+0.018}_{-0.018}$ (−0.3 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1567	$1557^{+78}_{-73}$ (+0.0 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0339	$3.036^{+0.044}_{-0.043}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9885	$0.988^{+0.023}_{-0.023}$ (−0.2 $\sigma$ )	$H(0.51)$	87.97	$88.5^{+3.5}_{-3.5}$ (−0.1 $\sigma$ )
$n_{\mathrm{s}}$	0.9577	$0.959^{+0.022}_{-0.023}$ (−0.0 $\sigma$ )	$r_{\mathrm{drag}}h$	98.27	$98.5^{+3.0}_{-2.9}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	2028	$2015^{+98}_{-91}$ (+0.0 $\sigma$ )
$y_{\mathrm{cal}}$	1.0005	$1.0007^{+0.0067}_{-0.0063}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.456	$2.454^{+0.065}_{-0.061}$ (+0.0 $\sigma$ )	$H(0.61)$	93.59	$94.1^{+3.6}_{-3.6}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	43.4	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$z_{\mathrm{re}}$	7.53	$7.5^{+1.9}_{-2.0}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2359	$2344^{+110}_{-100}$ (+0.0 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.98	—	$10^9 A_{\mathrm{s}}$	2.078	$2.083^{+0.093}_{-0.087}$ (+0.1 $\sigma$ )	$H(2.33)$	233.5	$234.5^{+6.5}_{-6.8}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	6.9	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8679	$1.873^{+0.042}_{-0.045}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5864	$5832^{+220}_{-210}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	242	$256^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{40}$	1239.1	$1240^{+39}_{-36}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4589	$0.459^{+0.016}_{-0.017}$ (−0.3 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	52.0	$44^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{220}$	5730	$5736^{+95}_{-94}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.7399	$0.742^{+0.025}_{-0.025}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	59.1	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2538.8	$2538^{+37}_{-33}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4747	$0.475^{+0.014}_{-0.014}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	124.4	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{1420}$	819.9	$818^{+13}_{-12}$ (+0.6 $\sigma$ )	$\sigma_8(0.38)$	0.6547	$0.657^{+0.023}_{-0.023}$ (−0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	232.64	$231.7^{+4.8}_{-4.6}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4720	$0.473^{+0.014}_{-0.014}$ (−0.2 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.69	$8.9^{+4.8}_{-4.6}$ (−0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9577	$0.959^{+0.022}_{-0.023}$ (−0.0 $\sigma$ )	$\sigma_8(0.51)$	0.6122	$0.615^{+0.022}_{-0.022}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	10.89	$10.8^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.2422	$0.2433^{+0.0064}_{-0.0068}$ (−0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4662	$0.467^{+0.014}_{-0.014}$ (−0.2 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.3	$18.4^{+8.5}_{-9.0}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2435	$0.2446^{+0.0065}_{-0.0068}$ (−0.2 $\sigma$ )	$\sigma_8(0.61)$	0.5822	$0.585^{+0.022}_{-0.022}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	96.1	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$10^5 \mathrm{D}/\mathrm{H}$	2.538	$2.56^{+0.11}_{-0.11}$ (−0.8 $\sigma$ )	$f\sigma_8(2.33)$	0.2932	$0.294^{+0.012}_{-0.011}$ (−0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.113	$0.114^{+0.10}_{-0.096}$	Age/Gyr	14.04	$13.96^{+0.52}_{-0.49}$ (+0.1 $\sigma$ )	$\sigma_8(2.33)$	0.3018	$0.303^{+0.013}_{-0.013}$ (−0.1 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.136	$0.135^{+0.074}_{-0.076}$	$z_*$	1089.62	$1089.75^{+0.83}_{-0.83}$ (−0.8 $\sigma$ )	$f_{2000}^{143}$	26.9	$29^{+8}_{-8}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$r_*$	146.61	$145.9^{+4.8}_{-4.4}$ (+0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	30.8	$31^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.228	$0.22^{+0.14}_{-0.13}$	$100\theta_*$	1.04165	$1.0415^{+0.0014}_{-0.0013}$ (+0.3 $\sigma$ )	$f_{2000}^{217}$	105.29	$106.4^{+4.9}_{-5.0}$ (−0.5 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.669	$0.67^{+0.19}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	14.075	$14.01^{+0.45}_{-0.41}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	8.50	$9.02$ ( $\nu$ : 0.2) (−0.4 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.09	$2.08^{+0.71}_{-0.73}$	$z_{\mathrm{drag}}$	1059.09	$1059.3^{+2.0}_{-2.0}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{small}}^2$	395.95	$396.8$ ( $\nu$ : 1.1) (+0.0 $\sigma$ )
$c_{100}$	0.99976	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}$	149.36	$148.6^{+5.1}_{-4.6}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	24.36	$24.4$ ( $\nu$ : 1.1) (+0.0 $\sigma$ )
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.13926	$0.1398^{+0.0035}_{-0.0035}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2343.0	$2359.1$ ( $\nu$ : 17.2) (+288.2 $\sigma$ )
$H_0$	65.79	$66.3^{+3.6}_{-3.6}$ (−0.0 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16027	$0.1605^{+0.0010}_{-0.0010}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.4	$11.6$ ( $\nu$ : 10.5) (+1.2 $\sigma$ )
$\Omega_{\Lambda}$	0.6776	$0.679^{+0.025}_{-0.025}$ (+0.1 $\sigma$ )	$z_{\mathrm{eq}}$	3426	$3419^{+87}_{-86}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2771.9	$2789.3$ ( $\nu$ : 17.7) (+282.1 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3224	$0.321^{+0.025}_{-0.025}$ (−0.1 $\sigma$ )	$k_{\mathrm{eq}}$	0.010292	$0.01033^{+0.00028}_{-0.00028}$ (−0.2 $\sigma$ )			
$\Omega_{\mathrm{m}}h^2$	0.1395	$0.1408^{+0.0076}_{-0.0076}$ (−0.2 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8088	$0.810^{+0.017}_{-0.016}$ (+0.0 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2773.28$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.25$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2800.86$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.88$ ;  $R - 1 = 0.01957$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12.Dec5\_ftl\_mv2\_ndclpp-p.teb.consext8: 8.50 ( $\Delta$  -0.11) small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.95 ( $\Delta$  0.25) commander\_dx12.v3.2.29: 24.36 ( $\Delta$  -0.24) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.04



## 7.9 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Cooke17\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.02225^{+0.00053}_{-0.00048}$ (+0.8 $\sigma$ )	$\Omega_m h^2$	0.1411	$0.1417^{+0.0065}_{-0.0065}$ (−0.2 $\sigma$ )	$k_{\text{eq}}$	0.010350	$0.01036^{+0.00027}_{-0.00028}$ (−0.2 $\sigma$ )
$\Omega_c h^2$	0.1182	$0.1188^{+0.0062}_{-0.0061}$ (−0.3 $\sigma$ )	$\Omega_m h^3$	0.0933	$0.0943^{+0.0079}_{-0.0075}$ (+0.0 $\sigma$ )	$100\theta_{\text{eq}}$	0.8085	$0.810^{+0.018}_{-0.016}$ (+0.2 $\sigma$ )
$100\theta_{\text{MC}}$	1.04113	$1.04105^{+0.00098}_{-0.00096}$ (+0.3 $\sigma$ )	$\sigma_8$	0.8069	$0.807^{+0.025}_{-0.025}$ (−0.1 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4470	$0.4478^{+0.0089}_{-0.0083}$ (+0.1 $\sigma$ )
$\tau$	0.0538	$0.053^{+0.021}_{-0.020}$ (+0.2 $\sigma$ )	$S_8$	0.8371	$0.835^{+0.041}_{-0.041}$ (−0.3 $\sigma$ )	$H(0.15)$	71.45	$71.8^{+3.1}_{-2.9}$ (+0.1 $\sigma$ )
$N_{\text{eff}}$	2.891	$2.94^{+0.39}_{-0.38}$ (−0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4585	$0.457^{+0.022}_{-0.022}$ (−0.3 $\sigma$ )	$D_{\text{M}}(0.15)$	655.0	$651^{+30}_{-29}$ (−0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0389	$3.039^{+0.047}_{-0.043}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6082	$0.608^{+0.021}_{-0.022}$ (−0.2 $\sigma$ )	$H(0.38)$	81.66	$82.0^{+3.0}_{-2.9}$ (+0.1 $\sigma$ )
$n_s$	0.9596	$0.960^{+0.019}_{-0.019}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9925	$0.990^{+0.030}_{-0.029}$ (−0.2 $\sigma$ )	$D_{\text{M}}(0.38)$	1559	$1551^{+65}_{-63}$ (−0.2 $\sigma$ )
$y_{\text{cal}}$	1.0005	$1.0008^{+0.0066}_{-0.0065}$ (+0.1 $\sigma$ )	$r_{\text{drag}} h$	98.19	$98.5^{+3.1}_{-2.9}$ (+0.2 $\sigma$ )	$H(0.51)$	88.42	$88.8^{+3.0}_{-2.9}$ (+0.1 $\sigma$ )
$A_{217}^{\text{CIB}}$	44.2	$46^{+20}_{-20}$ (−0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.460	$2.455^{+0.076}_{-0.072}$ (−0.1 $\sigma$ )	$D_{\text{M}}(0.51)$	2018	$2008^{+80}_{-78}$ (−0.1 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.88	—	$z_{\text{re}}$	7.62	$7.5^{+2.0}_{-2.1}$ (+0.2 $\sigma$ )	$H(0.61)$	94.07	$94.5^{+3.0}_{-2.9}$ (+0.1 $\sigma$ )
$A_{143}^{\text{tSZ}}$	6.9	—	$10^9 A_s$	2.088	$2.088^{+0.099}_{-0.089}$ (+0.2 $\sigma$ )	$D_{\text{M}}(0.61)$	2347	$2336^{+91}_{-88}$ (−0.1 $\sigma$ )
$A_{100}^{\text{PS}}$	245	$257^{+70}_{-70}$ (−0.1 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8752	$1.878^{+0.039}_{-0.040}$ (−0.1 $\sigma$ )	$H(2.33)$	234.7	$235.3^{+5.5}_{-5.5}$ (−0.1 $\sigma$ )
$A_{143}^{\text{PS}}$	52.2	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{40}$	1237.6	$1238^{+39}_{-37}$ (−0.0 $\sigma$ )	$D_{\text{M}}(2.33)$	5834	$5812^{+180}_{-170}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	57.6	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{220}$	5727	$5733^{+98}_{-95}$ (+0.5 $\sigma$ )	$f\sigma_8(0.15)$	0.4621	$0.461^{+0.020}_{-0.020}$ (−0.3 $\sigma$ )
$A_{217}^{\text{PS}}$	124.0	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{810}$	2539.8	$2539^{+36}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7446	$0.745^{+0.024}_{-0.023}$ (−0.0 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	819.1	$818^{+13}_{-12}$ (+0.6 $\sigma$ )	$f\sigma_8(0.38)$	0.4778	$0.477^{+0.017}_{-0.017}$ (−0.2 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.70	$8.9^{+4.9}_{-4.6}$ (−0.0 $\sigma$ )	$D_{2000}$	232.06	$231.4^{+4.6}_{-4.4}$ (+0.7 $\sigma$ )	$\sigma_8(0.38)$	0.6588	$0.660^{+0.022}_{-0.021}$ (+0.0 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.89	$10.8^{+4.8}_{-4.6}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9596	$0.960^{+0.019}_{-0.019}$ (+0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4751	$0.475^{+0.015}_{-0.016}$ (−0.2 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.3	$18.5^{+9.0}_{-8.8}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.2432	$0.2439^{+0.0053}_{-0.0055}$ (−0.0 $\sigma$ )	$\sigma_8(0.51)$	0.6160	$0.617^{+0.021}_{-0.020}$ (+0.0 $\sigma$ )
$A_{217}^{\text{dustTT}}$	96.0	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.2445	$0.2452^{+0.0053}_{-0.0055}$ (−0.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4693	$0.469^{+0.014}_{-0.015}$ (−0.2 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.116	$0.114^{+0.10}_{-0.098}$	$10^5 \text{D/H}$	2.562	$2.573^{+0.098}_{-0.094}$ (−0.9 $\sigma$ )	$\sigma_8(0.61)$	0.5859	$0.587^{+0.020}_{-0.019}$ (+0.0 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.136	$0.135^{+0.074}_{-0.077}$	Age/Gyr	13.964	$13.91^{+0.42}_{-0.41}$ (−0.1 $\sigma$ )	$f\sigma_8(2.33)$	0.2950	$0.295^{+0.010}_{-0.0097}$ (+0.1 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.485	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.81	$1089.87^{+0.77}_{-0.75}$ (−0.9 $\sigma$ )	$\sigma_8(2.33)$	0.3036	$0.304^{+0.011}_{-0.010}$ (+0.1 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.227	$0.23^{+0.14}_{-0.13}$	$r_*$	145.81	$145.4^{+3.8}_{-3.6}$ (+0.1 $\sigma$ )	$\chi_{\text{simall}}^2$	396.04	$396.9$ ( $\nu$ : 1.4) (+0.0 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.668	$0.67^{+0.19}_{-0.20}$	$100\theta_*$	1.04143	$1.0413^{+0.0012}_{-0.0012}$ (+0.3 $\sigma$ )	$\chi_{\text{lowl}}^2$	24.18	$24.2$ ( $\nu$ : 0.9) (−0.2 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.09	$2.09^{+0.70}_{-0.72}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.001	$13.96^{+0.35}_{-0.34}$ (+0.1 $\sigma$ )	$\chi_{\text{plik}}^2$	2343.2	$2359.2$ ( $\nu$ : 17.4) (+289.8 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0017}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1059.32	$1059.5^{+1.8}_{-1.7}$ (+0.5 $\sigma$ )	$\chi_{\text{Aver15}}^2$	0.01	$0.28$ ( $\nu$ : 0.1) (−0.3 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	148.54	$148.1^{+4.0}_{-3.8}$ (+0.0 $\sigma$ )	$\chi_{\text{Cooke17}}^2$	0.36	$0.38$ ( $\nu$ : 0.1) (+0.3 $\sigma$ )
$H_0$	66.11	$66.5^{+3.2}_{-3.1}$ (+0.2 $\sigma$ )	$k_{\text{D}}$	0.13983	$0.1401^{+0.0029}_{-0.0029}$ (+0.1 $\sigma$ )	$\chi_{\text{prior}}^2$	1.4	$11.6$ ( $\nu$ : 10.4) (+1.2 $\sigma$ )
$\Omega_{\Lambda}$	0.6772	$0.679^{+0.025}_{-0.025}$ (+0.3 $\sigma$ )	$100\theta_{\text{D}}$	0.16047	$0.16059^{+0.00083}_{-0.00084}$ (−0.7 $\sigma$ )	$\chi_{\text{CMB}}^2$	2763.4	$2780.3$ ( $\nu$ : 17.0) (+294.2 $\sigma$ )
$\Omega_{\text{m}}$	0.3228	$0.321^{+0.025}_{-0.025}$ (−0.3 $\sigma$ )	$z_{\text{eq}}$	3427	$3419^{+88}_{-91}$ (−0.1 $\sigma$ )	$\chi_{\text{Abund}}^2$	0.37	$0.67$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 2765.22$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.91$ ;  $\bar{\chi}_{\text{eff}}^2 = 2792.58$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1592.39$ ;  $R - 1 = 0.01890$

$\chi_{\text{eff}}^2$ : Abund - Yp\_Aver2015: 0.01 ( $\Delta$  0.01) D.Cooke2017: 0.36 ( $\Delta$  0.33) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.04 ( $\Delta$  0.19) commander\_dx12\_v3.2.29: 24.18 ( $\Delta$  -0.21) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.20



## 7.10 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02225^{+0.00058}_{-0.00054} \quad (+0.5\sigma)$	$\Omega_{\text{m}}h^2$	$0.1413^{+0.0080}_{-0.0078} \quad (-0.4\sigma)$	$k_{\text{eq}}$	$0.01035^{+0.00030}_{-0.00030} \quad (-0.3\sigma)$
$\Omega_{\text{c}}h^2$	$0.1184^{+0.0077}_{-0.0075} \quad (-0.4\sigma)$	$\Omega_{\text{m}}h^3$	$0.0939^{+0.0096}_{-0.0093} \quad (-0.3\sigma)$	$100\theta_{\text{eq}}$	$0.810^{+0.018}_{-0.017} \quad (-0.0\sigma)$
$100\theta_{\text{MC}}$	$1.0411^{+0.0011}_{-0.0011} \quad (+0.5\sigma)$	$\sigma_8$	$0.807^{+0.028}_{-0.025} \quad (-0.3\sigma)$	$100\theta_{\text{s,eq}}$	$0.4479^{+0.0090}_{-0.0087} \quad (-0.0\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.2\sigma)$	$S_8$	$0.834^{+0.040}_{-0.039} \quad (-0.3\sigma)$	$H(0.15)$	$71.8^{+3.6}_{-3.5} \quad (-0.1\sigma)$
$N_{\text{eff}}$	$2.92^{+0.48}_{-0.47} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.457^{+0.022}_{-0.022} \quad (-0.3\sigma)$	$D_{\text{M}}(0.15)$	$652^{+35}_{-33} \quad (+0.1\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.041^{+0.046}_{-0.036} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.607^{+0.022}_{-0.021} \quad (-0.3\sigma)$	$H(0.38)$	$82.0^{+3.5}_{-3.5} \quad (-0.2\sigma)$
$n_{\text{s}}$	$0.960^{+0.021}_{-0.022} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.991^{+0.030}_{-0.028} \quad (-0.2\sigma)$	$D_{\text{M}}(0.38)$	$1553^{+78}_{-73} \quad (+0.1\sigma)$
$y_{\text{cal}}$	$1.0007^{+0.0064}_{-0.0063} \quad (+0.1\sigma)$	$r_{\text{drag}}h$	$98.5^{+3.3}_{-3.1} \quad (+0.1\sigma)$	$H(0.51)$	$88.7^{+3.5}_{-3.5} \quad (-0.2\sigma)$
$A_{217}^{\text{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.458^{+0.076}_{-0.073} \quad (-0.0\sigma)$	$D_{\text{M}}(0.51)$	$2011^{+97}_{-91} \quad (+0.1\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 9.40 \quad (+0.1\sigma)$	$H(0.61)$	$94.3^{+3.5}_{-3.6} \quad (-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	$> 0.979 \quad (+0.2\sigma)$	$10^9 A_{\text{s}}$	$2.092^{+0.098}_{-0.074} \quad (-0.0\sigma)$	$D_{\text{M}}(0.61)$	$2338^{+110}_{-100} \quad (+0.1\sigma)$
$A_{100}^{\text{PS}}$	$256^{+70}_{-70} \quad (-0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.876^{+0.044}_{-0.045} \quad (-0.3\sigma)$	$H(2.33)$	$235.0^{+6.7}_{-6.9} \quad (-0.4\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{40}$	$1239^{+42}_{-39} \quad (+0.1\sigma)$	$D_{\text{M}}(2.33)$	$5819^{+220}_{-200} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5734^{+96}_{-96} \quad (+0.5\sigma)$	$f\sigma_8(0.15)$	$0.461^{+0.020}_{-0.020} \quad (-0.3\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{810}$	$2538^{+35}_{-34} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.745^{+0.026}_{-0.024} \quad (-0.3\sigma)$
$A^{\text{kSZ}}$	—	$D_{1420}$	$818^{+12}_{-13} \quad (+0.6\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.017}_{-0.017} \quad (-0.3\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$D_{2000}$	$231.6^{+4.7}_{-4.7} \quad (+0.8\sigma)$	$\sigma_8(0.38)$	$0.660^{+0.024}_{-0.022} \quad (-0.3\sigma)$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$n_{\text{s},0.002}$	$0.960^{+0.021}_{-0.022} \quad (-0.1\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.016}_{-0.016} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.4^{+8.5}_{-8.6} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.2437^{+0.0065}_{-0.0068} \quad (-0.3\sigma)$	$\sigma_8(0.51)$	$0.617^{+0.023}_{-0.021} \quad (-0.3\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.2450^{+0.0065}_{-0.0069} \quad (-0.3\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.015}_{-0.015} \quad (-0.3\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.097}$	$10^5 \text{D}/\text{H}$	$2.56^{+0.12}_{-0.11} \quad (-0.9\sigma)$	$\sigma_8(0.61)$	$0.587^{+0.022}_{-0.020} \quad (-0.2\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.075}_{-0.076}$	$\text{Age}/\text{Gyr}$	$13.93^{+0.52}_{-0.48} \quad (+0.2\sigma)$	$f\sigma_8(2.33)$	$0.296^{+0.011}_{-0.011} \quad (-0.2\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.81^{+0.90}_{-0.84} \quad (-0.9\sigma)$	$\sigma_8(2.33)$	$0.304^{+0.013}_{-0.012} \quad (-0.2\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$r_*$	$145.6^{+4.8}_{-4.4} \quad (+0.3\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-7} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.67^{+0.20}_{-0.21}$	$100\theta_*$	$1.0414^{+0.0014}_{-0.0013} \quad (+0.4\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.70}_{-0.71}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.98^{+0.45}_{-0.41} \quad (+0.3\sigma)$	$f_{2000}^{217}$	$106.5^{+4.9}_{-5.0} \quad (-0.6\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1059.4^{+2.0}_{-2.0} \quad (+0.2\sigma)$	$\chi_{\text{small}}^2$	$396.9 \quad (\nu: 1.6) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\text{drag}}$	$148.3^{+5.0}_{-4.6} \quad (+0.3\sigma)$	$\chi_{\text{lowl}}^2$	$24.3 \quad (\nu: 1.2) \quad (+0.0\sigma)$
$H_0$	$66.4^{+3.7}_{-3.6} \quad (-0.1\sigma)$	$k_{\text{D}}$	$0.1400^{+0.0035}_{-0.0036} \quad (-0.2\sigma)$	$\chi_{\text{plik}}^2$	$2359.1 \quad (\nu: 18.0) \quad (+271.7\sigma)$
$\Omega_{\Lambda}$	$0.680^{+0.026}_{-0.027} \quad (+0.1\sigma)$	$100\theta_{\text{D}}$	$0.1605^{+0.0010}_{-0.0011} \quad (-0.7\sigma)$	$\chi_{\text{prior}}^2$	$11.5 \quad (\nu: 10.5) \quad (+1.2\sigma)$
$\Omega_{\text{m}}$	$0.320^{+0.027}_{-0.026} \quad (-0.1\sigma)$	$z_{\text{eq}}$	$3418^{+94}_{-92} \quad (+0.1\sigma)$	$\chi_{\text{CMB}}^2$	$2780.3 \quad (\nu: 17.5) \quad (+287.1\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 2791.81; \Delta\bar{\chi}_{\text{eff}}^2 = 1591.88; R - 1 = 0.01491$$



### 7.11 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02224^{+0.00058}_{-0.00055} \quad (+0.5\sigma)$	$\Omega_{\text{m}}h^3$	$0.0934^{+0.0095}_{-0.0092} \quad (-0.2\sigma)$	$100\theta_{\text{s,eq}}$	$0.4480^{+0.0085}_{-0.0081} \quad (-0.1\sigma)$
$\Omega_{\text{c}}h^2$	$0.1179^{+0.0073}_{-0.0073} \quad (-0.3\sigma)$	$\sigma_8$	$0.805^{+0.025}_{-0.024} \quad (-0.2\sigma)$	$H(0.15)$	$71.7^{+3.6}_{-3.6} \quad (-0.1\sigma)$
$100\theta_{\text{MC}}$	$1.0412^{+0.0011}_{-0.0011} \quad (+0.4\sigma)$	$S_8$	$0.831^{+0.032}_{-0.032} \quad (-0.2\sigma)$	$D_{\text{M}}(0.15)$	$653^{+36}_{-33} \quad (+0.1\sigma)$
$\tau$	$0.054^{+0.017}_{-0.012} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.455^{+0.018}_{-0.018} \quad (-0.2\sigma)$	$H(0.38)$	$81.8^{+3.5}_{-3.5} \quad (-0.1\sigma)$
$N_{\text{eff}}$	$2.90^{+0.47}_{-0.47} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.606^{+0.018}_{-0.018} \quad (-0.3\sigma)$	$D_{\text{M}}(0.38)$	$1555^{+79}_{-72} \quad (+0.1\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.038^{+0.042}_{-0.033} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.022}_{-0.023} \quad (-0.2\sigma)$	$H(0.51)$	$88.6^{+3.5}_{-3.5} \quad (-0.2\sigma)$
$n_{\text{s}}$	$0.959^{+0.022}_{-0.022} \quad (-0.1\sigma)$	$r_{\text{drag}}h$	$98.6^{+3.0}_{-2.9} \quad (+0.0\sigma)$	$D_{\text{M}}(0.51)$	$2014^{+98}_{-90} \quad (+0.1\sigma)$
$y_{\text{cal}}$	$1.0007^{+0.0066}_{-0.0063} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.455^{+0.064}_{-0.062} \quad (+0.0\sigma)$	$H(0.61)$	$94.2^{+3.6}_{-3.4} \quad (-0.2\sigma)$
$A_{217}^{\text{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\text{re}}$	$< 9.22 \quad (+0.1\sigma)$	$D_{\text{M}}(0.61)$	$2342^{+110}_{-100} \quad (+0.1\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_{\text{s}}$	$2.087^{+0.089}_{-0.068} \quad (+0.0\sigma)$	$H(2.33)$	$234.6^{+6.5}_{-6.8} \quad (-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	—	$10^9 A_{\text{s}} e^{-2\tau}$	$1.873^{+0.042}_{-0.045} \quad (-0.2\sigma)$	$D_{\text{M}}(2.33)$	$5829^{+220}_{-200} \quad (+0.2\sigma)$
$A_{100}^{\text{PS}}$	$256^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1239^{+39}_{-36} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.016}_{-0.017} \quad (-0.2\sigma)$
$A_{143}^{\text{PS}}$	$44^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5735^{+92}_{-95} \quad (+0.5\sigma)$	$\sigma_8(0.15)$	$0.743^{+0.024}_{-0.023} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2538^{+34}_{-33} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.014}_{-0.014} \quad (-0.3\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{1420}$	$818^{+13}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	$0.658^{+0.022}_{-0.021} \quad (-0.2\sigma)$
$A^{\text{kSZ}}$	—	$D_{2000}$	$231.6^{+4.8}_{-4.6} \quad (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.014}_{-0.013} \quad (-0.3\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.8}_{-4.6} \quad (-0.1\sigma)$	$n_{\text{s},0.002}$	$0.959^{+0.022}_{-0.022} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.615^{+0.022}_{-0.021} \quad (-0.2\sigma)$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.6}_{-4.6} \quad (+0.0\sigma)$	$Y_{\text{P}}$	$0.2433^{+0.0064}_{-0.0068} \quad (-0.2\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.014}_{-0.013} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.4^{+8.5}_{-8.8} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.2446^{+0.0065}_{-0.0068} \quad (-0.2\sigma)$	$\sigma_8(0.61)$	$0.585^{+0.021}_{-0.020} \quad (-0.2\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$10^5 \text{D}/\text{H}$	$2.56^{+0.11}_{-0.11} \quad (-0.8\sigma)$	$f\sigma_8(2.33)$	$0.295^{+0.011}_{-0.011} \quad (-0.2\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.096}$	$\text{Age}/\text{Gyr}$	$13.95^{+0.52}_{-0.49} \quad (+0.2\sigma)$	$\sigma_8(2.33)$	$0.304^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.072}_{-0.076}$	$z_*$	$1089.75^{+0.83}_{-0.82} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$145.9^{+4.8}_{-4.4} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.6\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$100\theta_*$	$1.0415^{+0.0014}_{-0.0013} \quad (+0.3\sigma)$	$f_{2000}^{217}$	$106.4^{+4.9}_{-5.0} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.67^{+0.19}_{-0.21}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$14.01^{+0.44}_{-0.41} \quad (+0.2\sigma)$	$\chi_{\text{lensing}}^2$	$9.01 \quad (\nu: 0.2) \quad (-0.4\sigma)$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.72}_{-0.72}$	$z_{\text{drag}}$	$1059.4^{+2.0}_{-2.0} \quad (+0.2\sigma)$	$\chi_{\text{small}}^2$	$396.8 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$r_{\text{drag}}$	$148.6^{+5.0}_{-4.6} \quad (+0.2\sigma)$	$\chi_{\text{lowl}}^2$	$24.4 \quad (\nu: 1.1) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\text{D}}$	$0.1398^{+0.0034}_{-0.0035} \quad (-0.1\sigma)$	$\chi_{\text{plik}}^2$	$2358.9 \quad (\nu: 17.3) \quad (+287.8\sigma)$
$H_0$	$66.3^{+3.6}_{-3.6} \quad (-0.1\sigma)$	$100\theta_{\text{D}}$	$0.1605^{+0.0010}_{-0.0010} \quad (-0.6\sigma)$	$\chi_{\text{prior}}^2$	$11.5 \quad (\nu: 10.4) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.680^{+0.024}_{-0.025} \quad (+0.0\sigma)$	$z_{\text{eq}}$	$3417^{+87}_{-86} \quad (+0.1\sigma)$	$\chi_{\text{CMB}}^2$	$2789.1 \quad (\nu: 17.5) \quad (+284.3\sigma)$
$\Omega_{\text{m}}$	$0.320^{+0.025}_{-0.024} \quad (-0.0\sigma)$	$k_{\text{eq}}$	$0.01032^{+0.00028}_{-0.00027} \quad (-0.2\sigma)$		
$\Omega_{\text{m}}h^2$	$0.1408^{+0.0076}_{-0.0076} \quad (-0.3\sigma)$	$100\theta_{\text{eq}}$	$0.810^{+0.017}_{-0.016} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2800.61; \Delta\bar{\chi}_{\text{eff}}^2 = 1591.88; R - 1 = 0.02136$$



## 7.12 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_post\_Cooke17\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02225^{+0.00053}_{-0.00049} (+0.7\sigma)$	$\Omega_m h^3$	$0.0943^{+0.0079}_{-0.0075} (-0.0\sigma)$	$100\theta_{s,eq}$	$0.4479^{+0.0089}_{-0.0084} (+0.1\sigma)$
$\Omega_c h^2$	$0.1188^{+0.0062}_{-0.0062} (-0.3\sigma)$	$\sigma_8$	$0.808^{+0.025}_{-0.022} (-0.1\sigma)$	$H(0.15)$	$71.9^{+3.1}_{-3.0} (+0.1\sigma)$
$100\theta_{MC}$	$1.04105^{+0.00098}_{-0.00096} (+0.3\sigma)$	$S_8$	$0.835^{+0.041}_{-0.040} (-0.3\sigma)$	$D_M(0.15)$	$651^{+30}_{-29} (-0.1\sigma)$
$\tau$	$0.054^{+0.018}_{-0.013} (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.458^{+0.023}_{-0.022} (-0.3\sigma)$	$H(0.38)$	$82.1^{+3.0}_{-2.9} (+0.1\sigma)$
$N_{eff}$	$2.94^{+0.39}_{-0.38} (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.608^{+0.021}_{-0.020} (-0.2\sigma)$	$D_M(0.38)$	$1551^{+64}_{-63} (-0.1\sigma)$
$\ln(10^{10} A_s)$	$3.041^{+0.045}_{-0.033} (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.991^{+0.030}_{-0.028} (-0.2\sigma)$	$H(0.51)$	$88.8^{+3.0}_{-2.9} (+0.0\sigma)$
$n_s$	$0.961^{+0.019}_{-0.019} (+0.1\sigma)$	$r_{drag} h$	$98.5^{+3.1}_{-2.9} (+0.2\sigma)$	$D_M(0.51)$	$2007^{+80}_{-79} (-0.1\sigma)$
$y_{cal}$	$1.0007^{+0.0064}_{-0.0066} (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.458^{+0.074}_{-0.072} (-0.1\sigma)$	$H(0.61)$	$94.5^{+3.0}_{-2.9} (+0.0\sigma)$
$A_{217}^{CIB}$	$46^{+20}_{-20} (-0.1\sigma)$	$z_{re}$	$< 9.38 (+0.1\sigma)$	$D_M(0.61)$	$2335^{+91}_{-89} (-0.1\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s$	$2.094^{+0.095}_{-0.069} (+0.1\sigma)$	$H(2.33)$	$235.3^{+5.5}_{-5.5} (-0.2\sigma)$
$A_{143}^{tSZ}$	—	$10^9 A_s e^{-2\tau}$	$1.878^{+0.039}_{-0.040} (-0.1\sigma)$	$D_M(2.33)$	$5811^{+180}_{-170} (-0.0\sigma)$
$A_{100}^{PS}$	$257^{+70}_{-70} (-0.1\sigma)$	$D_{40}$	$1238^{+39}_{-37} (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.020} (-0.3\sigma)$
$A_{143}^{PS}$	$45^{+20}_{-20} (-0.4\sigma)$	$D_{220}$	$5732^{+95}_{-96} (+0.5\sigma)$	$\sigma_8(0.15)$	$0.746^{+0.023}_{-0.021} (-0.1\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} (-0.1\sigma)$	$D_{810}$	$2539^{+35}_{-34} (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.017}_{-0.017} (-0.2\sigma)$
$A_{217}^{PS}$	$115^{+30}_{-30} (-0.0\sigma)$	$D_{1420}$	$818^{+12}_{-12} (+0.5\sigma)$	$\sigma_8(0.38)$	$0.660^{+0.021}_{-0.019} (-0.1\sigma)$
$A^{kSZ}$	—	$D_{2000}$	$231.4^{+4.5}_{-4.4} (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.015}_{-0.015} (-0.2\sigma)$
$A_{100}^{dustTT}$	$8.9^{+4.9}_{-4.6} (-0.1\sigma)$	$n_{s,0.002}$	$0.961^{+0.019}_{-0.019} (+0.1\sigma)$	$\sigma_8(0.51)$	$0.618^{+0.020}_{-0.018} (-0.0\sigma)$
$A_{143}^{dustTT}$	$10.8^{+4.8}_{-4.6} (+0.1\sigma)$	$Y_P$	$0.2440^{+0.0053}_{-0.0055} (-0.1\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.014}_{-0.014} (-0.2\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.5^{+8.5}_{-8.8} (+0.1\sigma)$	$Y_P^{BBN}$	$0.2453^{+0.0053}_{-0.0055} (-0.1\sigma)$	$\sigma_8(0.61)$	$0.588^{+0.019}_{-0.017} (-0.0\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} (+0.0\sigma)$	$10^5 D/H$	$2.573^{+0.098}_{-0.094} (-0.9\sigma)$	$f\sigma_8(2.33)$	$0.296^{+0.010}_{-0.0090} (+0.0\sigma)$
$A_{100}^{dustTE}$	$0.114^{+0.10}_{-0.098}$	$Age/Gyr$	$13.91^{+0.42}_{-0.41} (-0.0\sigma)$	$\sigma_8(2.33)$	$0.305^{+0.011}_{-0.0097} (+0.0\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.073}_{-0.078}$	$z_*$	$1089.86^{+0.78}_{-0.75} (-0.8\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} (-0.5\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$145.4^{+3.8}_{-3.6} (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} (-0.6\sigma)$
$A_{143}^{dustTE}$	$0.23^{+0.13}_{-0.13}$	$100\theta_*$	$1.0413^{+0.0012}_{-0.0012} (+0.3\sigma)$	$f_{2000}^{217}$	$106.6^{+4.7}_{-4.8} (-0.5\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.67^{+0.19}_{-0.20}$	$D_M(z_*)/Gpc$	$13.96^{+0.35}_{-0.34} (+0.1\sigma)$	$\chi_{small}^2$	$396.9 (\nu: 1.5) (+0.1\sigma)$
$A_{217}^{dustTE}$	$2.08^{+0.71}_{-0.71}$	$z_{drag}$	$1059.5^{+1.8}_{-1.7} (+0.4\sigma)$	$\chi_{lowl}^2$	$24.2 (\nu: 0.9) (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0017} (+0.1\sigma)$	$r_{drag}$	$148.1^{+4.0}_{-3.8} (+0.1\sigma)$	$\chi_{plik}^2$	$2359.0 (\nu: 17.5) (+290.9\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} (-0.1\sigma)$	$k_D$	$0.1402^{+0.0029}_{-0.0029} (+0.1\sigma)$	$\chi_{Aver15}^2$	$0.28 (\nu: 0.1) (-0.3\sigma)$
$H_0$	$66.5^{+3.2}_{-3.1} (+0.1\sigma)$	$100\theta_D$	$0.16059^{+0.00083}_{-0.00084} (-0.7\sigma)$	$\chi_{Cooke17}^2$	$0.39 (\nu: 0.1) (+0.3\sigma)$
$\Omega_\Lambda$	$0.680^{+0.025}_{-0.025} (+0.2\sigma)$	$z_{eq}$	$3418^{+90}_{-92} (-0.1\sigma)$	$\chi_{prior}^2$	$11.6 (\nu: 10.4) (+1.2\sigma)$
$\Omega_m$	$0.320^{+0.025}_{-0.025} (-0.2\sigma)$	$k_{eq}$	$0.01036^{+0.00027}_{-0.00027} (-0.2\sigma)$	$\chi_{CMB}^2$	$2780.1 (\nu: 16.8) (+297.7\sigma)$
$\Omega_m h^2$	$0.1417^{+0.0064}_{-0.0065} (-0.2\sigma)$	$100\theta_{eq}$	$0.810^{+0.018}_{-0.017} (+0.1\sigma)$	$\chi_{Abund}^2$	$0.67 (\nu: 0.2) (-0.1\sigma)$

$$\bar{\chi}_{eff}^2 = 2792.34; \Delta\bar{\chi}_{eff}^2 = 1592.45; R - 1 = 0.02177$$



### 7.13 base\_nnu\_CamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02199	$0.02204^{+0.00081}_{-0.00081}$	$\sigma_8 \Omega_m^{0.5}$	0.4606	$0.460^{+0.036}_{-0.035}$	$H(0.15)$	71.1	$71.5^{+6.2}_{-5.8}$
$\Omega_c h^2$	0.1187	$0.119^{+0.011}_{-0.010}$	$\sigma_8 \Omega_m^{0.25}$	0.6089	$0.609^{+0.031}_{-0.030}$	$D_M(0.15)$	659	$655^{+61}_{-56}$
$100\theta_{MC}$	1.04101	$1.0410^{+0.0015}_{-0.0015}$	$\sigma_8/h^{0.5}$	0.9931	$0.992^{+0.042}_{-0.043}$	$H(0.38)$	81.3	$81.8^{+6.0}_{-5.6}$
$\tau$	0.0502	$0.051^{+0.023}_{-0.022}$	$r_{drag} h$	97.7	$98.1^{+5.9}_{-5.6}$	$D_M(0.38)$	1567	$1559^{+130}_{-120}$
$N_{eff}$	2.89	$2.94^{+0.79}_{-0.72}$	$\langle d^2 \rangle^{1/2}$	2.462	$2.46^{+0.12}_{-0.12}$	$H(0.51)$	88.1	$88.6^{+5.9}_{-5.5}$
$\ln(10^{10} A_s)$	3.030	$3.033^{+0.055}_{-0.056}$	$z_{re}$	7.30	$7.4^{+2.2}_{-2.5}$	$D_M(0.51)$	2028	$2017^{+160}_{-150}$
$n_s$	0.9569	$0.959^{+0.035}_{-0.034}$	$10^9 A_s$	2.069	$2.08^{+0.12}_{-0.11}$	$H(0.61)$	93.8	$94.3^{+5.9}_{-5.5}$
$y_{cal}$	1.0003	$1.0004^{+0.0065}_{-0.0064}$	$10^9 A_s e^{-2\tau}$	1.872	$1.874^{+0.060}_{-0.063}$	$D_M(0.61)$	2357	$2346^{+180}_{-170}$
$A_{100}^{PS}$	234	$240^{+70}_{-70}$	$D_{40}$	1238	$1236^{+58}_{-57}$	$H(2.33)$	234.8	$235.3^{+9.9}_{-9.5}$
$A_{143}^{PS}$	39	$40^{+20}_{-20}$	$D_{220}$	5700	$5702^{+100}_{-110}$	$D_M(2.33)$	5848	$5826^{+340}_{-330}$
$A_{217}^{PS}$	101.3	$102^{+30}_{-40}$	$D_{810}$	2531.6	$2532^{+37}_{-36}$	$f\sigma_8(0.15)$	0.4638	$0.463^{+0.032}_{-0.032}$
$A_{217}^{CIB}$	45.0	$40^{+20}_{-20}$	$D_{1420}$	814.7	$815^{+13}_{-13}$	$\sigma_8(0.15)$	0.7422	$0.744^{+0.035}_{-0.035}$
$A_{143}^{tSZ}$	6.61	$< 8.83$	$D_{2000}$	230.3	$230.1^{+5.9}_{-6.1}$	$f\sigma_8(0.38)$	0.4785	$0.478^{+0.025}_{-0.025}$
$r_{143 \times 217}^{PS}$	0.592	$0.65^{+0.32}_{-0.33}$	$n_{s,0.002}$	0.9569	$0.959^{+0.035}_{-0.034}$	$\sigma_8(0.38)$	0.6562	$0.658^{+0.033}_{-0.033}$
$r_{143 \times 217}^{CIB}$	0.78	—	$Y_P$	0.2431	$0.244^{+0.010}_{-0.010}$	$f\sigma_8(0.51)$	0.4752	$0.475^{+0.022}_{-0.022}$
$\xi^{tSZ \times CIB}$	0.08	—	$Y_P^{BBN}$	0.2444	$0.245^{+0.010}_{-0.011}$	$\sigma_8(0.51)$	0.6134	$0.616^{+0.032}_{-0.032}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.602	$2.61^{+0.20}_{-0.18}$	$f\sigma_8(0.61)$	0.4690	$0.469^{+0.021}_{-0.021}$
$A_{100}^{dust}$	1.01	$1.01^{+0.51}_{-0.49}$	Age/Gyr	14.00	$13.94^{+0.82}_{-0.78}$	$\sigma_8(0.61)$	0.5833	$0.585^{+0.032}_{-0.031}$
$A_{143}^{dust}$	0.989	$0.97^{+0.44}_{-0.45}$	$z_*$	1090.13	$1090.2^{+1.4}_{-1.3}$	$f\sigma_8(2.33)$	0.2935	$0.295^{+0.017}_{-0.017}$
$A_{217}^{dust}$	0.967	$0.97^{+0.27}_{-0.27}$	$r_*$	145.9	$145.5^{+6.9}_{-6.7}$	$\sigma_8(2.33)$	0.3019	$0.303^{+0.019}_{-0.018}$
$A_{143 \times 217}^{dust}$	1.011	$1.03^{+0.42}_{-0.40}$	$100\theta_*$	1.04133	$1.0413^{+0.0019}_{-0.0018}$	$f_{2000}^{143}$	30.0	$30^{+10}_{-9}$
$c_{100}$	0.99758	$0.9975^{+0.0027}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	14.01	$13.97^{+0.64}_{-0.62}$	$f_{2000}^{217}$	106.9	$107.1^{+6.4}_{-6.4}$
$c_{217}$	1.00132	$1.0011^{+0.0041}_{-0.0041}$	$z_{drag}$	1058.83	$1059.0^{+2.9}_{-2.9}$	$f_{2000}^{143 \times 217}$	32.2	$32^{+7}_{-7}$
$H_0$	65.7	$66.2^{+6.5}_{-6.0}$	$r_{drag}$	148.7	$148.3^{+7.2}_{-6.9}$	$\chi_{simall}^2$	395.70	$396.9 (\nu: 1.4)$
$\Omega_\Lambda$	0.6725	$0.675^{+0.046}_{-0.052}$	$k_D$	0.13952	$0.1398^{+0.0050}_{-0.0049}$	$\chi_{lowl}^2$	24.4	$24.4 (\nu: 2.7)$
$\Omega_m$	0.3275	$0.325^{+0.052}_{-0.046}$	$100\theta_D$	0.16074	$0.1608^{+0.0018}_{-0.0017}$	$\chi_{CamSpec}^2$	7049.2	$7063.3 (\nu: 16.5)$
$\Omega_m h^2$	0.1413	$0.142^{+0.012}_{-0.011}$	$z_{eq}$	3435	$3425^{+170}_{-170}$	$\chi_{prior}^2$	2.1	$7.6 (\nu: 5.8)$
$\Omega_m h^3$	0.0928	$0.094^{+0.015}_{-0.014}$	$k_{eq}$	0.010371	$0.01037^{+0.00045}_{-0.00041}$	$\chi_{CMB}^2$	7469.3	$7484.6 (\nu: 15.8)$
$\sigma_8$	0.8049	$0.807^{+0.036}_{-0.037}$	$100\theta_{eq}$	0.8065	$0.809^{+0.033}_{-0.031}$			
$S_8$	0.841	$0.839^{+0.065}_{-0.063}$	$100\theta_{s,eq}$	0.4461	$0.447^{+0.017}_{-0.016}$			

Best-fit  $\chi_{eff}^2 = 7471.42$ ;  $\bar{\chi}_{eff}^2 = 7492.17$ ;  $R - 1 = 0.00609$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.70 commander\_dx12\_v3.2\_29: 24.43 CamSpec like\_10.7HM: 7049.22



## 7.14 base\_nnu\_CamSpecHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02202^{+0.00077}_{-0.00077}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.458^{+0.024}_{-0.023}$	$H(0.15)$	$71.3^{+5.7}_{-5.4}$
$\Omega_{\mathrm{c}}h^2$	$0.118^{+0.010}_{-0.010}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.15)$	$658^{+56}_{-52}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.028}$	$H(0.38)$	$81.5^{+5.6}_{-5.3}$
$\tau$	$0.051^{+0.022}_{-0.021}$	$r_{\mathrm{drag}}h$	$98.0^{+4.8}_{-4.5}$	$D_{\mathrm{M}}(0.38)$	$1565^{+120}_{-110}$
$N_{\mathrm{eff}}$	$2.89^{+0.75}_{-0.73}$	$\langle d^2 \rangle^{1/2}$	$2.457^{+0.081}_{-0.083}$	$H(0.51)$	$88.2^{+5.6}_{-5.4}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.031^{+0.055}_{-0.054}$	$z_{\mathrm{re}}$	$7.4^{+2.2}_{-2.4}$	$D_{\mathrm{M}}(0.51)$	$2025^{+150}_{-140}$
$n_{\mathrm{s}}$	$0.958^{+0.032}_{-0.031}$	$10^9 A_{\mathrm{s}}$	$2.07^{+0.12}_{-0.11}$	$H(0.61)$	$93.9^{+5.6}_{-5.4}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0064}_{-0.0064}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.869^{+0.056}_{-0.065}$	$D_{\mathrm{M}}(0.61)$	$2355^{+170}_{-160}$
$A_{100}^{\mathrm{PS}}$	$239^{+70}_{-60}$	$D_{40}$	$1237^{+48}_{-49}$	$H(2.33)$	$234.5^{+9.4}_{-9.6}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{220}$	$5705^{+100}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5848^{+340}_{-320}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2532^{+37}_{-35}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.742^{+0.034}_{-0.034}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.95$	$D_{2000}$	$230.4^{+5.8}_{-5.9}$	$f\sigma_8(0.38)$	$0.477^{+0.017}_{-0.017}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.958^{+0.032}_{-0.031}$	$\sigma_8(0.38)$	$0.656^{+0.033}_{-0.033}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.243^{+0.010}_{-0.011}$	$f\sigma_8(0.51)$	$0.474^{+0.016}_{-0.017}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.244^{+0.010}_{-0.011}$	$\sigma_8(0.51)$	$0.613^{+0.032}_{-0.031}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.60^{+0.18}_{-0.17}$	$f\sigma_8(0.61)$	$0.468^{+0.017}_{-0.017}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.49}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.00^{+0.82}_{-0.75}$	$\sigma_8(0.61)$	$0.583^{+0.031}_{-0.030}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.44}_{-0.45}$	$z_*$	$1090.0^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	$0.294^{+0.017}_{-0.016}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_*$	$146.0^{+7.2}_{-6.5}$	$\sigma_8(2.33)$	$0.302^{+0.018}_{-0.018}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41}$	$100\theta_*$	$1.0414^{+0.0018}_{-0.0018}$	$f_{2000}^{143}$	$30^{+9}_{-9}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.02^{+0.67}_{-0.61}$	$f_{2000}^{217}$	$106.8^{+6.3}_{-6.2}$
$c_{217}$	$1.0011^{+0.0042}_{-0.0040}$	$z_{\mathrm{drag}}$	$1058.9^{+2.8}_{-2.9}$	$f_{2000}^{143 \times 217}$	$32^{+7}_{-7}$
$H_0$	$65.9^{+5.8}_{-5.5}$	$r_{\mathrm{drag}}$	$148.8^{+7.6}_{-6.8}$	$\chi_{\mathrm{lensing}}^2$	$9.33 (\nu: 0.5)$
$\Omega_{\Lambda}$	$0.675^{+0.038}_{-0.041}$	$k_{\mathrm{D}}$	$0.1394^{+0.0049}_{-0.0050}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.325^{+0.041}_{-0.038}$	$100\theta_{\mathrm{D}}$	$0.1607^{+0.0017}_{-0.0017}$	$\chi_{\mathrm{lowl}}^2$	$24.5 (\nu: 2.1)$
$\Omega_{\mathrm{m}}h^2$	$0.141^{+0.011}_{-0.011}$	$z_{\mathrm{eq}}$	$3425^{+130}_{-140}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.7 (\nu: 14.4)$
$\Omega_{\mathrm{m}}h^3$	$0.093^{+0.015}_{-0.014}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00036}_{-0.00034}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 5.8)$
$\sigma_8$	$0.804^{+0.035}_{-0.034}$	$100\theta_{\mathrm{eq}}$	$0.808^{+0.026}_{-0.024}$	$\chi_{\mathrm{CMB}}^2$	$7493.4 (\nu: 15.5)$
$S_8$	$0.836^{+0.043}_{-0.043}$	$100\theta_{\mathrm{s,eq}}$	$0.447^{+0.013}_{-0.012}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7500.99; R - 1 = 0.00870$$



### 7.15 base\_nnu\_CamSpecHM\_TT\_lowl\_lowE\_post\_Cooke17\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02203^{+0.00069}_{-0.00068}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.029}_{-0.030}$	$H(0.38)$	$81.8^{+4.2}_{-3.9}$
$\Omega_{\mathrm{c}} h^2$	$0.1192^{+0.0079}_{-0.0075}$	$\sigma_8 / h^{0.5}$	$0.993^{+0.040}_{-0.042}$	$D_{\mathrm{M}}(0.38)$	$1559^{+94}_{-91}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0014}_{-0.0013}$	$r_{\mathrm{drag}} h$	$98.0^{+5.1}_{-4.9}$	$H(0.51)$	$88.6^{+4.0}_{-3.8}$
$\tau$	$0.051^{+0.022}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	$2.46^{+0.11}_{-0.11}$	$D_{\mathrm{M}}(0.51)$	$2017^{+120}_{-110}$
$N_{\mathrm{eff}}$	$2.94^{+0.50}_{-0.48}$	$z_{\mathrm{re}}$	$7.4^{+2.1}_{-2.3}$	$H(0.61)$	$94.2^{+4.0}_{-3.8}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.033^{+0.049}_{-0.050}$	$10^9 A_{\mathrm{s}}$	$2.08^{+0.10}_{-0.10}$	$D_{\mathrm{M}}(0.61)$	$2346^{+130}_{-130}$
$n_{\mathrm{s}}$	$0.959^{+0.027}_{-0.026}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.874^{+0.047}_{-0.046}$	$H(2.33)$	$235.3^{+6.7}_{-6.4}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0064}_{-0.0064}$	$D_{40}$	$1236^{+48}_{-48}$	$D_{\mathrm{M}}(2.33)$	$5826^{+230}_{-230}$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-60}$	$D_{220}$	$5701^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.463^{+0.031}_{-0.031}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2532^{+35}_{-35}$	$\sigma_8(0.15)$	$0.744^{+0.027}_{-0.026}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.479^{+0.023}_{-0.025}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{2000}$	$230.0^{+4.9}_{-4.9}$	$\sigma_8(0.38)$	$0.658^{+0.025}_{-0.024}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87$	$n_{\mathrm{s},0.002}$	$0.959^{+0.027}_{-0.026}$	$f\sigma_8(0.51)$	$0.476^{+0.020}_{-0.021}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}$	$0.2438^{+0.0069}_{-0.0069}$	$\sigma_8(0.51)$	$0.616^{+0.024}_{-0.023}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2451^{+0.0069}_{-0.0069}$	$f\sigma_8(0.61)$	$0.470^{+0.018}_{-0.019}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.13}_{-0.12}$	$\sigma_8(0.61)$	$0.585^{+0.023}_{-0.022}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.94^{+0.54}_{-0.53}$	$f\sigma_8(2.33)$	$0.295^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.49}$	$z_*$	$1090.2^{+1.0}_{-1.0}$	$\sigma_8(2.33)$	$0.303^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.44}_{-0.45}$	$r_*$	$145.5^{+4.5}_{-4.4}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$100\theta_*$	$1.0413^{+0.0015}_{-0.0015}$	$f_{2000}^{217}$	$107.1^{+5.6}_{-5.5}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.97^{+0.42}_{-0.41}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.0^{+2.1}_{-2.2}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.2)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0039}$	$r_{\mathrm{drag}}$	$148.3^{+4.7}_{-4.6}$	$\chi_{\mathrm{lowl}}^2$	$24.3 (\nu: 1.8)$
$H_0$	$66.1^{+4.8}_{-4.4}$	$k_{\mathrm{D}}$	$0.1398^{+0.0035}_{-0.0034}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.8 (\nu: 14.8)$
$\Omega_{\Lambda}$	$0.675^{+0.040}_{-0.044}$	$100\theta_{\mathrm{D}}$	$0.1608^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{Aver15}}^2$	$0.45 (\nu: 0.2)$
$\Omega_{\mathrm{m}}$	$0.325^{+0.044}_{-0.040}$	$z_{\mathrm{eq}}$	$3426^{+150}_{-150}$	$\chi_{\mathrm{Cooke17}}^2$	$0.28 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1419^{+0.0082}_{-0.0077}$	$k_{\mathrm{eq}}$	$0.01038^{+0.00040}_{-0.00038}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.7)$
$\Omega_{\mathrm{m}} h^3$	$0.0938^{+0.010}_{-0.0093}$	$100\theta_{\mathrm{eq}}$	$0.808^{+0.028}_{-0.027}$	$\chi_{\mathrm{CMB}}^2$	$7484.0 (\nu: 14.7)$
$\sigma_8$	$0.807^{+0.029}_{-0.028}$	$100\theta_{\mathrm{s,eq}}$	$0.447^{+0.014}_{-0.014}$	$\chi_{\mathrm{Abund}}^2$	$0.73 (\nu: 0.4)$
$S_8$	$0.840^{+0.064}_{-0.062}$	$H(0.15)$	$71.5^{+4.5}_{-4.2}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.460^{+0.035}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$655^{+44}_{-42}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7492.26; R - 1 = 0.00836$



## 7.16 base\_nnu\_CamSpecHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02206^{+0.00080}_{-0.00080}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.460^{+0.036}_{-0.035}$	$H(0.15)$	$71.7^{+6.1}_{-5.7}$
$\Omega_{\mathrm{c}} h^2$	$0.119^{+0.011}_{-0.010}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.031}_{-0.030}$	$D_{\mathrm{M}}(0.15)$	$653^{+59}_{-55}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0015}_{-0.0015}$	$\sigma_8/h^{0.5}$	$0.993^{+0.042}_{-0.042}$	$H(0.38)$	$82.0^{+5.9}_{-5.5}$
$\tau$	$0.053^{+0.019}_{-0.012}$	$r_{\mathrm{drag}} h$	$98.2^{+5.8}_{-5.5}$	$D_{\mathrm{M}}(0.38)$	$1555^{+130}_{-120}$
$N_{\mathrm{eff}}$	$2.96^{+0.77}_{-0.71}$	$\langle d^2 \rangle^{1/2}$	$2.46^{+0.12}_{-0.12}$	$H(0.51)$	$88.7^{+5.8}_{-5.4}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.038^{+0.052}_{-0.044}$	$z_{\mathrm{re}}$	$< 9.40$	$D_{\mathrm{M}}(0.51)$	$2013^{+160}_{-150}$
$n_{\mathrm{s}}$	$0.960^{+0.034}_{-0.034}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.11}_{-0.089}$	$H(0.61)$	$94.4^{+5.8}_{-5.5}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0065}_{-0.0064}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.875^{+0.059}_{-0.063}$	$D_{\mathrm{M}}(0.61)$	$2340^{+180}_{-170}$
$A_{100}^{\mathrm{PS}}$	$240^{+70}_{-70}$	$D_{40}$	$1234^{+57}_{-57}$	$H(2.33)$	$235.5^{+9.8}_{-9.5}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5702^{+110}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5817^{+340}_{-320}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2532^{+37}_{-36}$	$f\sigma_8(0.15)$	$0.463^{+0.032}_{-0.032}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.746^{+0.034}_{-0.034}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.83$	$D_{2000}$	$230.0^{+5.9}_{-6.0}$	$f\sigma_8(0.38)$	$0.479^{+0.025}_{-0.025}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.034}_{-0.034}$	$\sigma_8(0.38)$	$0.660^{+0.032}_{-0.031}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.010}$	$f\sigma_8(0.51)$	$0.476^{+0.022}_{-0.022}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.010}$	$\sigma_8(0.51)$	$0.617^{+0.031}_{-0.030}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.20}_{-0.18}$	$f\sigma_8(0.61)$	$0.470^{+0.021}_{-0.020}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.49}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.92^{+0.80}_{-0.76}$	$\sigma_8(0.61)$	$0.587^{+0.030}_{-0.029}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.45}$	$z_*$	$1090.2^{+1.4}_{-1.3}$	$f\sigma_8(2.33)$	$0.296^{+0.016}_{-0.015}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_*$	$145.3^{+6.8}_{-6.6}$	$\sigma_8(2.33)$	$0.304^{+0.018}_{-0.017}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.40}$	$100\theta_*$	$1.0412^{+0.0019}_{-0.0019}$	$f_{2000}^{143}$	$30^{+10}_{-9}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.96^{+0.64}_{-0.61}$	$f_{2000}^{217}$	$107.1^{+6.5}_{-6.4}$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.1^{+2.8}_{-2.9}$	$f_{2000}^{143 \times 217}$	$32^{+7}_{-7}$
$H_0$	$66.4^{+6.4}_{-5.9}$	$r_{\mathrm{drag}}$	$148.1^{+7.1}_{-6.9}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.3)$
$\Omega_{\Lambda}$	$0.677^{+0.045}_{-0.050}$	$k_{\mathrm{D}}$	$0.1399^{+0.0050}_{-0.0049}$	$\chi_{\mathrm{lowl}}^2$	$24.3 (\nu: 2.5)$
$\Omega_{\mathrm{m}}$	$0.323^{+0.050}_{-0.045}$	$100\theta_{\mathrm{D}}$	$0.1609^{+0.0018}_{-0.0017}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.2 (\nu: 16.5)$
$\Omega_{\mathrm{m}} h^2$	$0.142^{+0.012}_{-0.011}$	$z_{\mathrm{eq}}$	$3420^{+170}_{-170}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.8)$
$\Omega_{\mathrm{m}} h^3$	$0.094^{+0.015}_{-0.013}$	$k_{\mathrm{eq}}$	$0.01037^{+0.00044}_{-0.00041}$	$\chi_{\mathrm{CMB}}^2$	$7484.3 (\nu: 15.2)$
$\sigma_8$	$0.809^{+0.036}_{-0.035}$	$100\theta_{\mathrm{eq}}$	$0.810^{+0.033}_{-0.030}$		
$S_8$	$0.839^{+0.065}_{-0.063}$	$100\theta_{\mathrm{s,eq}}$	$0.448^{+0.016}_{-0.015}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7491.86$ ;  $R - 1 = 0.00538$



### 7.17 base\_nnu\_CamSpecHM\_TT\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02205^{+0.00074}_{-0.00075}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.458^{+0.024}_{-0.023}$	$H(0.15)$	$71.5^{+5.6}_{-5.2}$
$\Omega_{\mathrm{c}}h^2$	$0.118^{+0.010}_{-0.010}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.021}_{-0.022}$	$D_{\mathrm{M}}(0.15)$	$655^{+54}_{-51}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0015}_{-0.0015}$	$\sigma_8/h^{0.5}$	$0.991^{+0.027}_{-0.028}$	$H(0.38)$	$81.7^{+5.6}_{-5.2}$
$\tau$	$0.053^{+0.018}_{-0.012}$	$r_{\mathrm{drag}}h$	$98.3^{+4.7}_{-4.2}$	$D_{\mathrm{M}}(0.38)$	$1560^{+120}_{-110}$
$N_{\mathrm{eff}}$	$2.91^{+0.74}_{-0.71}$	$\langle d^2 \rangle^{1/2}$	$2.456^{+0.081}_{-0.082}$	$H(0.51)$	$88.4^{+5.6}_{-5.3}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.035^{+0.052}_{-0.046}$	$z_{\mathrm{re}}$	$< 9.35$	$D_{\mathrm{M}}(0.51)$	$2019^{+150}_{-140}$
$n_{\mathrm{s}}$	$0.959^{+0.031}_{-0.030}$	$10^9 A_{\mathrm{s}}$	$2.08^{+0.11}_{-0.095}$	$H(0.61)$	$94.1^{+5.6}_{-5.4}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0063}_{-0.0064}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.870^{+0.056}_{-0.065}$	$D_{\mathrm{M}}(0.61)$	$2348^{+170}_{-160}$
$A_{100}^{\mathrm{PS}}$	$239^{+70}_{-60}$	$D_{40}$	$1236^{+48}_{-48}$	$H(2.33)$	$234.6^{+9.4}_{-9.5}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{220}$	$5705^{+100}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5837^{+340}_{-310}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2532^{+37}_{-35}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.743^{+0.033}_{-0.033}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.94$	$D_{2000}$	$230.4^{+5.8}_{-5.9}$	$f\sigma_8(0.38)$	$0.477^{+0.017}_{-0.017}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.031}_{-0.030}$	$\sigma_8(0.38)$	$0.658^{+0.032}_{-0.032}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.243^{+0.010}_{-0.010}$	$f\sigma_8(0.51)$	$0.474^{+0.016}_{-0.017}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.010}$	$\sigma_8(0.51)$	$0.615^{+0.031}_{-0.031}$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.60^{+0.18}_{-0.17}$	$f\sigma_8(0.61)$	$0.468^{+0.016}_{-0.017}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.48}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.97^{+0.80}_{-0.74}$	$\sigma_8(0.61)$	$0.585^{+0.030}_{-0.030}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.45}$	$z_*$	$1090.0^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	$0.295^{+0.016}_{-0.016}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_*$	$145.9^{+7.1}_{-6.4}$	$\sigma_8(2.33)$	$0.303^{+0.018}_{-0.018}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	$1.0414^{+0.0019}_{-0.0018}$	$f_{2000}^{143}$	$30^{+9}_{-9}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.01^{+0.66}_{-0.60}$	$f_{2000}^{217}$	$106.8^{+6.3}_{-6.2}$
$c_{217}$	$1.0011^{+0.0040}_{-0.0039}$	$z_{\mathrm{drag}}$	$1058.9^{+2.7}_{-2.8}$	$f_{2000}^{143\times 217}$	$32^{+7}_{-7}$
$H_0$	$66.1^{+5.7}_{-5.3}$	$r_{\mathrm{drag}}$	$148.7^{+7.4}_{-6.7}$	$\chi_{\mathrm{lensing}}^2$	$9.34\ (\nu: 0.5)$
$\Omega_{\Lambda}$	$0.677^{+0.037}_{-0.038}$	$k_{\mathrm{D}}$	$0.1395^{+0.0049}_{-0.0049}$	$\chi_{\mathrm{simall}}^2$	$396.7\ (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.323^{+0.038}_{-0.037}$	$100\theta_{\mathrm{D}}$	$0.1607^{+0.0017}_{-0.0017}$	$\chi_{\mathrm{lowl}}^2$	$24.3\ (\nu: 1.9)$
$\Omega_{\mathrm{m}}h^2$	$0.141^{+0.011}_{-0.011}$	$z_{\mathrm{eq}}$	$3418^{+130}_{-130}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.7\ (\nu: 14.4)$
$\Omega_{\mathrm{m}}h^3$	$0.093^{+0.015}_{-0.013}$	$k_{\mathrm{eq}}$	$0.01033^{+0.00035}_{-0.00034}$	$\chi_{\mathrm{prior}}^2$	$7.6\ (\nu: 5.8)$
$\sigma_8$	$0.806^{+0.034}_{-0.034}$	$100\theta_{\mathrm{eq}}$	$0.810^{+0.026}_{-0.023}$	$\chi_{\mathrm{CMB}}^2$	$7493.2\ (\nu: 15.0)$
$S_8$	$0.835^{+0.043}_{-0.042}$	$100\theta_{\mathrm{s,eq}}$	$0.448^{+0.013}_{-0.012}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7500.70$ ;  $R - 1 = 0.00702$



# 7.18 base\_nnu\_CamSpecHM\_TT\_lowl\_lowE\_post\_Cooke17\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02205^{+0.00069}_{-0.00069}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.029}_{-0.029}$	$H(0.38)$	$81.9^{+4.2}_{-3.9}$
$\Omega_{\mathrm{c}} h^2$	$0.1192^{+0.0079}_{-0.0075}$	$\sigma_8 / h^{0.5}$	$0.994^{+0.040}_{-0.041}$	$D_{\mathrm{M}}(0.38)$	$1557^{+93}_{-90}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0014}_{-0.0013}$	$r_{\mathrm{drag}} h$	$98.1^{+5.1}_{-4.9}$	$H(0.51)$	$88.6^{+4.0}_{-3.8}$
$\tau$	$0.053^{+0.018}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.46^{+0.11}_{-0.11}$	$D_{\mathrm{M}}(0.51)$	$2014^{+110}_{-110}$
$N_{\mathrm{eff}}$	$2.95^{+0.50}_{-0.47}$	$z_{\mathrm{re}}$	$< 9.31$	$H(0.61)$	$94.3^{+4.0}_{-3.7}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.037^{+0.045}_{-0.035}$	$10^9 A_{\mathrm{s}}$	$2.085^{+0.097}_{-0.072}$	$D_{\mathrm{M}}(0.61)$	$2342^{+130}_{-120}$
$n_{\mathrm{s}}$	$0.960^{+0.026}_{-0.025}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.875^{+0.048}_{-0.046}$	$H(2.33)$	$235.4^{+6.6}_{-6.5}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0063}_{-0.0064}$	$D_{40}$	$1235^{+48}_{-48}$	$D_{\mathrm{M}}(2.33)$	$5820^{+230}_{-220}$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-60}$	$D_{220}$	$5701^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.464^{+0.031}_{-0.031}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2532^{+36}_{-36}$	$\sigma_8(0.15)$	$0.746^{+0.026}_{-0.024}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.479^{+0.023}_{-0.024}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{2000}$	$230.1^{+4.9}_{-4.8}$	$\sigma_8(0.38)$	$0.660^{+0.024}_{-0.022}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.91$	$n_{\mathrm{s},0.002}$	$0.960^{+0.026}_{-0.025}$	$f\sigma_8(0.51)$	$0.476^{+0.020}_{-0.020}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}$	$0.2439^{+0.0068}_{-0.0068}$	$\sigma_8(0.51)$	$0.617^{+0.023}_{-0.021}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2452^{+0.0068}_{-0.0068}$	$f\sigma_8(0.61)$	$0.470^{+0.018}_{-0.018}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.13}_{-0.12}$	$\sigma_8(0.61)$	$0.587^{+0.022}_{-0.020}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.93^{+0.54}_{-0.53}$	$f\sigma_8(2.33)$	$0.295^{+0.012}_{-0.011}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.49}$	$z_*$	$1090.2^{+1.0}_{-1.0}$	$\sigma_8(2.33)$	$0.304^{+0.013}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.45}$	$r_*$	$145.4^{+4.5}_{-4.4}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$100\theta_*$	$1.0413^{+0.0015}_{-0.0015}$	$f_{2000}^{217}$	$107.1^{+5.6}_{-5.4}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.96^{+0.42}_{-0.41}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.1^{+2.1}_{-2.2}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.2)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0039}$	$r_{\mathrm{drag}}$	$148.2^{+4.7}_{-4.6}$	$\chi_{\mathrm{lowl}}^2$	$24.2 (\nu: 1.7)$
$H_0$	$66.2^{+4.7}_{-4.5}$	$k_{\mathrm{D}}$	$0.1399^{+0.0034}_{-0.0034}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.7 (\nu: 14.7)$
$\Omega_{\Lambda}$	$0.676^{+0.040}_{-0.043}$	$100\theta_{\mathrm{D}}$	$0.1609^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{Aver15}}^2$	$0.45 (\nu: 0.2)$
$\Omega_{\mathrm{m}}$	$0.324^{+0.043}_{-0.040}$	$z_{\mathrm{eq}}$	$3422^{+150}_{-150}$	$\chi_{\mathrm{Cooke17}}^2$	$0.28 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1419^{+0.0082}_{-0.0077}$	$k_{\mathrm{eq}}$	$0.01037^{+0.00039}_{-0.00038}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.8)$
$\Omega_{\mathrm{m}} h^3$	$0.0940^{+0.010}_{-0.0092}$	$100\theta_{\mathrm{eq}}$	$0.809^{+0.028}_{-0.027}$	$\chi_{\mathrm{CMB}}^2$	$7483.7 (\nu: 14.1)$
$\sigma_8$	$0.808^{+0.029}_{-0.026}$	$100\theta_{\mathrm{s,eq}}$	$0.447^{+0.014}_{-0.014}$	$\chi_{\mathrm{Abund}}^2$	$0.73 (\nu: 0.4)$
$S_8$	$0.840^{+0.063}_{-0.061}$	$H(0.15)$	$71.6^{+4.5}_{-4.2}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.460^{+0.035}_{-0.033}$	$D_{\mathrm{M}}(0.15)$	$654^{+43}_{-41}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7491.99; R - 1 = 0.00722$



## 7.19 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02220^{+0.00059}_{-0.00056}$ (+0.5 $\sigma$ )	$\sigma_8$	0.8020	$0.803^{+0.031}_{-0.032}$ (−0.3 $\sigma$ )	$100\theta_{\text{eq}}$	0.8118	$0.812^{+0.020}_{-0.019}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.1174	$0.1179^{+0.0087}_{-0.0084}$ (−0.3 $\sigma$ )	$S_8$	0.8267	$0.826^{+0.043}_{-0.041}$ (−0.5 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4487	$0.449^{+0.010}_{-0.0097}$ (+0.3 $\sigma$ )
$100\theta_{\text{MC}}$	1.04112	$1.0411^{+0.0013}_{-0.0012}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4528	$0.453^{+0.024}_{-0.023}$ (−0.5 $\sigma$ )	$H(0.15)$	71.61	$71.8^{+4.3}_{-4.1}$ (+0.1 $\sigma$ )
$\tau$	0.0527	$0.052^{+0.022}_{-0.022}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6026	$0.603^{+0.023}_{-0.024}$ (−0.5 $\sigma$ )	$D_{\text{M}}(0.15)$	653.2	$651^{+42}_{-39}$ (−0.2 $\sigma$ )
$N_{\text{eff}}$	2.89	$2.92^{+0.58}_{-0.56}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9848	$0.984^{+0.031}_{-0.031}$ (−0.5 $\sigma$ )	$H(0.38)$	81.74	$82.0^{+4.2}_{-4.1}$ (+0.1 $\sigma$ )
$\ln(10^{10} A_{\text{s}})$	3.032	$3.032^{+0.051}_{-0.053}$ (−0.1 $\sigma$ )	$r_{\text{drag}} h$	98.70	$98.8^{+3.7}_{-3.4}$ (+0.3 $\sigma$ )	$D_{\text{M}}(0.38)$	1556	$1552^{+92}_{-86}$ (−0.1 $\sigma$ )
$n_{\text{s}}$	0.9607	$0.961^{+0.024}_{-0.024}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.442	$2.440^{+0.081}_{-0.078}$ (−0.4 $\sigma$ )	$H(0.51)$	88.45	$88.7^{+4.3}_{-4.2}$ (+0.1 $\sigma$ )
$y_{\text{cal}}$	1.0002	$1.0005^{+0.0064}_{-0.0063}$ (+0.0 $\sigma$ )	$z_{\text{re}}$	7.50	$7.4^{+2.1}_{-2.4}$ (+0.0 $\sigma$ )	$D_{\text{M}}(0.51)$	2015	$2009^{+120}_{-110}$ (−0.1 $\sigma$ )
$A_{100}^{\text{PS}}$	230	$236^{+60}_{-70}$ (−0.1 $\sigma$ )	$10^9 A_{\text{s}}$	2.074	$2.07^{+0.11}_{-0.11}$ (−0.1 $\sigma$ )	$H(0.61)$	94.07	$94.3^{+4.3}_{-4.2}$ (+0.0 $\sigma$ )
$A_{143}^{\text{PS}}$	42.7	$38^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\text{s}} e^{-2\tau}$	1.867	$1.869^{+0.049}_{-0.052}$ (−0.2 $\sigma$ )	$D_{\text{M}}(0.61)$	2343	$2337^{+130}_{-120}$ (−0.1 $\sigma$ )
$A_{217}^{\text{PS}}$	105.0	$103^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{40}$	1230.9	$1231^{+42}_{-42}$ (−0.2 $\sigma$ )	$H(2.33)$	234.1	$234.6^{+7.7}_{-7.7}$ (−0.2 $\sigma$ )
$A_{217}^{\text{CIB}}$	41.1	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5712	$5715^{+100}_{-100}$ (+0.3 $\sigma$ )	$D_{\text{M}}(2.33)$	5836	$5823^{+260}_{-250}$ (−0.0 $\sigma$ )
$A_{143}^{\text{tSZ}}$	5.90	< 8.89 (+0.1 $\sigma$ )	$D_{810}$	2532.6	$2533^{+35}_{-36}$ (+0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4568	$0.457^{+0.022}_{-0.021}$ (−0.5 $\sigma$ )
$r_{143 \times 217}^{\text{PS}}$	0.687	$0.66^{+0.31}_{-0.34}$ (+0.1 $\sigma$ )	$D_{1420}$	816.9	$816^{+13}_{-13}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7404	$0.741^{+0.030}_{-0.030}$ (−0.2 $\sigma$ )
$r_{143 \times 217}^{\text{CIB}}$	0.75	—	$D_{2000}$	231.3	$230.9^{+5.4}_{-5.4}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4733	$0.473^{+0.019}_{-0.019}$ (−0.5 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.51	—	$n_{\text{s},0.002}$	0.9607	$0.961^{+0.024}_{-0.024}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6555	$0.656^{+0.028}_{-0.028}$ (−0.2 $\sigma$ )
$A^{\text{kSZ}}$	0.8	—	$Y_{\text{P}}$	0.2431	$0.2436^{+0.0079}_{-0.0081}$ (−0.0 $\sigma$ )	$f\sigma_8(0.51)$	0.4711	$0.471^{+0.018}_{-0.018}$ (−0.5 $\sigma$ )
$A_{100}^{\text{dust}}$	1.02	$1.01^{+0.51}_{-0.50}$ (−0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.2445	$0.2449^{+0.0079}_{-0.0082}$ (−0.0 $\sigma$ )	$\sigma_8(0.51)$	0.6132	$0.614^{+0.027}_{-0.027}$ (−0.1 $\sigma$ )
$A_{143}^{\text{dust}}$	0.973	$0.96^{+0.45}_{-0.46}$ (−0.1 $\sigma$ )	$10^5 \text{D/H}$	2.566	$2.57^{+0.15}_{-0.14}$ (−0.5 $\sigma$ )	$f\sigma_8(0.61)$	0.4656	$0.466^{+0.017}_{-0.017}$ (−0.5 $\sigma$ )
$A_{217}^{\text{dust}}$	0.979	$0.98^{+0.27}_{-0.27}$ (+0.1 $\sigma$ )	Age/Gyr	13.97	$13.94^{+0.62}_{-0.58}$ (−0.0 $\sigma$ )	$\sigma_8(0.61)$	0.5832	$0.584^{+0.026}_{-0.026}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dust}}$	1.011	$1.02^{+0.41}_{-0.41}$ (−0.0 $\sigma$ )	$z_*$	1089.77	$1089.8^{+1.0}_{-1.0}$ (−0.7 $\sigma$ )	$f\sigma_8(2.33)$	0.2938	$0.294^{+0.014}_{-0.013}$ (−0.1 $\sigma$ )
$c_{100}$	0.99769	$0.9975^{+0.0028}_{-0.0027}$ (+0.0 $\sigma$ )	$r_*$	146.1	$145.8^{+5.6}_{-5.3}$ (+0.1 $\sigma$ )	$\sigma_8(2.33)$	0.3026	$0.303^{+0.015}_{-0.014}$ (−0.0 $\sigma$ )
$c_{217}$	1.00117	$1.0011^{+0.0040}_{-0.0041}$ (−0.0 $\sigma$ )	$100\theta_*$	1.04143	$1.0414^{+0.0016}_{-0.0014}$ (+0.1 $\sigma$ )	$f_{2000}^{143}$	28.5	$29^{+9}_{-9}$ (−0.4 $\sigma$ )
$c_{\text{TE}}$	0.9956	$0.996^{+0.014}_{-0.013}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.03	$14.00^{+0.52}_{-0.49}$ (+0.1 $\sigma$ )	$f_{2000}^{217}$	105.8	$106.2^{+5.9}_{-5.6}$ (−0.3 $\sigma$ )
$c_{\text{EE}}$	0.9902	$0.991^{+0.015}_{-0.015}$	$z_{\text{drag}}$	1059.17	$1059.3^{+2.2}_{-2.2}$ (+0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.1	$31^{+6}_{-6}$ (−0.4 $\sigma$ )
$H_0$	66.32	$66.5^{+4.3}_{-4.3}$ (+0.2 $\sigma$ )	$r_{\text{drag}}$	148.8	$148.5^{+5.8}_{-5.5}$ (+0.1 $\sigma$ )	$\chi_{\text{small}}^2$	395.87	$396.8 (\nu: 1.3)$ (−0.0 $\sigma$ )
$\Omega_{\Lambda}$	0.6813	$0.682^{+0.029}_{-0.030}$ (+0.4 $\sigma$ )	$k_{\text{D}}$	0.13951	$0.1397^{+0.0039}_{-0.0040}$ (−0.0 $\sigma$ )	$\chi_{\text{lowl}}^2$	23.68	$23.8 (\nu: 1.1)$ (−0.3 $\sigma$ )
$\Omega_{\text{m}}$	0.3187	$0.318^{+0.030}_{-0.029}$ (−0.4 $\sigma$ )	$100\theta_{\text{D}}$	0.16053	$0.1606^{+0.0014}_{-0.0013}$ (−0.3 $\sigma$ )	$\chi_{\text{CamSpec}}^2$	11498.6	$11514.5 (\nu: 17.2)$ (+774.7 $\sigma$ )
$\Omega_{\text{m}} h^2$	0.1402	$0.1407^{+0.0090}_{-0.0088}$ (−0.3 $\sigma$ )	$z_{\text{eq}}$	3408	$3405^{+100}_{-100}$ (−0.3 $\sigma$ )	$\chi_{\text{prior}}^2$	2.1	$7.9 (\nu: 5.9)$ (+0.1 $\sigma$ )
$\Omega_{\text{m}} h^3$	0.0930	$0.094^{+0.012}_{-0.011}$ (−0.0 $\sigma$ )	$k_{\text{eq}}$	0.010288	$0.01030^{+0.00032}_{-0.00032}$ (−0.4 $\sigma$ )	$\chi_{\text{CMB}}^2$	11918.2	$11935.2 (\nu: 17.3)$ (+792.2 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 11920.27$ ;  $\Delta\chi_{\text{eff}}^2 = 4448.85$ ;  $\bar{\chi}_{\text{eff}}^2 = 11943.05$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 4450.88$ ;  $R - 1 = 0.00888$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 ( $\Delta$  0.17) commander\_dx12\_v3.2.29: 23.68 ( $\Delta$  -0.76) CamSpec like\_10.7HM\_1400\_unified: 11498.65



## 7.20 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02217^{+0.00059}_{-0.00057} \quad (+0.5\sigma)$	$S_8$	$0.828^{+0.032}_{-0.033} \quad (-0.5\sigma)$	$H(0.15)$	$71.5^{+4.3}_{-4.0} \quad (+0.1\sigma)$
$\Omega_c h^2$	$0.1175^{+0.0085}_{-0.0081} \quad (-0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.454^{+0.018}_{-0.018} \quad (-0.5\sigma)$	$D_M(0.15)$	$654^{+40}_{-38} \quad (-0.2\sigma)$
$100\theta_{MC}$	$1.0411^{+0.0013}_{-0.0012} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.603^{+0.019}_{-0.019} \quad (-0.4\sigma)$	$H(0.38)$	$81.7^{+4.2}_{-4.0} \quad (+0.1\sigma)$
$\tau$	$0.053^{+0.020}_{-0.020} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.986^{+0.024}_{-0.024} \quad (-0.4\sigma)$	$D_M(0.38)$	$1558^{+90}_{-87} \quad (-0.1\sigma)$
$N_{\text{eff}}$	$2.88^{+0.57}_{-0.55} \quad (-0.0\sigma)$	$r_{\text{drag}} h$	$98.6^{+3.3}_{-3.1} \quad (+0.3\sigma)$	$H(0.51)$	$88.4^{+4.2}_{-4.1} \quad (+0.1\sigma)$
$\ln(10^{10} A_s)$	$3.033^{+0.047}_{-0.047} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.447^{+0.065}_{-0.064} \quad (-0.3\sigma)$	$D_M(0.51)$	$2017^{+110}_{-110} \quad (-0.1\sigma)$
$n_s$	$0.960^{+0.024}_{-0.024} \quad (+0.2\sigma)$	$z_{\text{re}}$	$7.5^{+2.0}_{-2.1} \quad (+0.1\sigma)$	$H(0.61)$	$94.0^{+4.2}_{-4.2} \quad (+0.1\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0061} \quad (+0.1\sigma)$	$10^9 A_s$	$2.075^{+0.099}_{-0.095} \quad (+0.1\sigma)$	$D_M(0.61)$	$2346^{+130}_{-120} \quad (-0.1\sigma)$
$A_{100}^{\text{PS}}$	$236^{+60}_{-70} \quad (-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.868^{+0.050}_{-0.051} \quad (-0.1\sigma)$	$H(2.33)$	$234.1^{+7.6}_{-7.6} \quad (-0.1\sigma)$
$A_{143}^{\text{PS}}$	$37^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1235^{+39}_{-39} \quad (-0.1\sigma)$	$D_M(2.33)$	$5840^{+260}_{-250} \quad (-0.1\sigma)$
$A_{217}^{\text{PS}}$	$104^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5718^{+100}_{-100} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.017} \quad (-0.5\sigma)$
$A_{217}^{\text{CIB}}$	$38^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2533^{+35}_{-36} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.741^{+0.028}_{-0.028} \quad (-0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.90 \quad (+0.0\sigma)$	$D_{1420}$	$817^{+13}_{-13} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.015}_{-0.015} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$> 0.360 \quad (+0.1\sigma)$	$D_{2000}$	$231.2^{+5.3}_{-5.3} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.656^{+0.027}_{-0.026} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{s,0.002}$	$0.960^{+0.024}_{-0.024} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.015} \quad (-0.3\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P$	$0.2431^{+0.0078}_{-0.0081} \quad (+0.0\sigma)$	$\sigma_8(0.51)$	$0.613^{+0.026}_{-0.025} \quad (-0.0\sigma)$
$A^{\text{kSZ}}$	—	$Y_P^{\text{BBN}}$	$0.2444^{+0.0078}_{-0.0081} \quad (+0.0\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.015}_{-0.014} \quad (-0.3\sigma)$
$A_{100}^{\text{dust}}$	$1.00^{+0.50}_{-0.50} \quad (-0.0\sigma)$	$10^5 \text{D/H}$	$2.57^{+0.14}_{-0.14} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.583^{+0.025}_{-0.024} \quad (-0.0\sigma)$
$A_{143}^{\text{dust}}$	$0.95^{+0.45}_{-0.46} \quad (-0.1\sigma)$	$\text{Age/Gyr}$	$13.98^{+0.62}_{-0.58} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.294^{+0.013}_{-0.013} \quad (+0.0\sigma)$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$z_*$	$1089.79^{+0.98}_{-0.96} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.303^{+0.015}_{-0.014} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.43}_{-0.41} \quad (-0.0\sigma)$	$r_*$	$146.1^{+5.6}_{-5.2} \quad (+0.0\sigma)$	$f_{2000}^{143}$	$28^{+9}_{-9} \quad (-0.3\sigma)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027} \quad (+0.1\sigma)$	$100\theta_*$	$1.0414^{+0.0016}_{-0.0014} \quad (+0.0\sigma)$	$f_{2000}^{217}$	$106.1^{+5.7}_{-5.3} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0043} \quad (-0.0\sigma)$	$D_M(z_*)/\text{Gpc}$	$14.03^{+0.51}_{-0.48} \quad (+0.0\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6} \quad (-0.3\sigma)$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$z_{\text{drag}}$	$1059.1^{+2.2}_{-2.2} \quad (+0.3\sigma)$	$\chi_{\text{lensing}}^2$	$9.08 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$c_{EE}$	$0.990^{+0.015}_{-0.014}$	$r_{\text{drag}}$	$148.9^{+5.8}_{-5.4} \quad (+0.0\sigma)$	$\chi_{\text{small}}^2$	$396.8 \quad (\nu: 1.1) \quad (-0.0\sigma)$
$H_0$	$66.2^{+4.3}_{-4.1} \quad (+0.2\sigma)$	$k_D$	$0.1395^{+0.0039}_{-0.0040} \quad (+0.0\sigma)$	$\chi_{\text{lowl}}^2$	$24.1 \quad (\nu: 1.1) \quad (-0.2\sigma)$
$\Omega_\Lambda$	$0.680^{+0.027}_{-0.027} \quad (+0.3\sigma)$	$100\theta_D$	$0.1605^{+0.0013}_{-0.0013} \quad (-0.3\sigma)$	$\chi_{\text{CamSpec}}^2$	$11513.8 \quad (\nu: 16.5) \quad (+829.2\sigma)$
$\Omega_m$	$0.320^{+0.027}_{-0.027} \quad (-0.3\sigma)$	$z_{\text{eq}}$	$3412^{+95}_{-95} \quad (-0.2\sigma)$	$\chi_{\text{prior}}^2$	$7.9 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\Omega_m h^2$	$0.1403^{+0.0088}_{-0.0085} \quad (-0.1\sigma)$	$k_{\text{eq}}$	$0.01030^{+0.00030}_{-0.00029} \quad (-0.3\sigma)$	$\chi_{\text{CMB}}^2$	$11943.8 \quad (\nu: 17.7) \quad (+798.8\sigma)$
$\Omega_m h^3$	$0.093^{+0.011}_{-0.011} \quad (+0.0\sigma)$	$100\theta_{\text{eq}}$	$0.811^{+0.019}_{-0.017} \quad (+0.3\sigma)$		
$\sigma_8$	$0.802^{+0.029}_{-0.029} \quad (-0.1\sigma)$	$100\theta_{s,\text{eq}}$	$0.4484^{+0.0094}_{-0.0088} \quad (+0.2\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 11951.65; \Delta\bar{\chi}_{\text{eff}}^2 = 4450.66; R - 1 = 0.01144$$



## 7.21 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Cooke17\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02220^{+0.00053}_{-0.00051} \quad (+0.6\sigma)$	$S_8$	$0.827^{+0.042}_{-0.041} \quad (-0.5\sigma)$	$H(0.15)$	$72.0^{+3.4}_{-3.2} \quad (+0.3\sigma)$
$\Omega_c h^2$	$0.1183^{+0.0068}_{-0.0065} \quad (-0.3\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.453^{+0.023}_{-0.022} \quad (-0.5\sigma)$	$D_M(0.15)$	$650^{+32}_{-31} \quad (-0.3\sigma)$
$100\theta_{MC}$	$1.0410^{+0.0011}_{-0.0010} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.604^{+0.022}_{-0.022} \quad (-0.5\sigma)$	$H(0.38)$	$82.1^{+3.3}_{-3.1} \quad (+0.2\sigma)$
$\tau$	$0.052^{+0.021}_{-0.022} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.031}_{-0.031} \quad (-0.5\sigma)$	$D_M(0.38)$	$1549^{+70}_{-68} \quad (-0.3\sigma)$
$N_{\text{eff}}$	$2.95^{+0.43}_{-0.41} \quad (+0.0\sigma)$	$r_{\text{drag}} h$	$98.8^{+3.5}_{-3.2} \quad (+0.4\sigma)$	$H(0.51)$	$88.8^{+3.3}_{-3.1} \quad (+0.2\sigma)$
$\ln(10^{10} A_s)$	$3.033^{+0.047}_{-0.049} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.440^{+0.079}_{-0.078} \quad (-0.4\sigma)$	$D_M(0.51)$	$2005^{+88}_{-85} \quad (-0.3\sigma)$
$n_s$	$0.962^{+0.021}_{-0.020} \quad (+0.3\sigma)$	$z_{\text{re}}$	$7.4^{+2.1}_{-2.4} \quad (+0.0\sigma)$	$H(0.61)$	$94.5^{+3.3}_{-3.1} \quad (+0.2\sigma)$
$y_{\text{cal}}$	$1.0004^{+0.0065}_{-0.0062} \quad (+0.0\sigma)$	$10^9 A_s$	$2.08^{+0.10}_{-0.099} \quad (-0.0\sigma)$	$D_M(0.61)$	$2333^{+99}_{-96} \quad (-0.3\sigma)$
$A_{100}^{\text{PS}}$	$237^{+60}_{-60} \quad (-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.871^{+0.042}_{-0.041} \quad (-0.2\sigma)$	$H(2.33)$	$234.9^{+6.0}_{-5.8} \quad (-0.2\sigma)$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1230^{+40}_{-40} \quad (-0.3\sigma)$	$D_M(2.33)$	$5813^{+190}_{-190} \quad (-0.1\sigma)$
$A_{217}^{\text{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5714^{+100}_{-100} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.022}_{-0.021} \quad (-0.5\sigma)$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2533^{+34}_{-36} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.742^{+0.025}_{-0.024} \quad (-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.88 \quad (+0.0\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.018}_{-0.018} \quad (-0.5\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$D_{2000}$	$230.7^{+4.8}_{-4.6} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.657^{+0.023}_{-0.022} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{s,0.002}$	$0.962^{+0.021}_{-0.020} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.017}_{-0.017} \quad (-0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P$	$0.2439^{+0.0059}_{-0.0059} \quad (+0.1\sigma)$	$\sigma_8(0.51)$	$0.615^{+0.022}_{-0.021} \quad (-0.1\sigma)$
$A^{\text{kSZ}}$	—	$Y_P^{\text{BBN}}$	$0.2453^{+0.0059}_{-0.0059} \quad (+0.1\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.016}_{-0.016} \quad (-0.4\sigma)$
$A_{100}^{\text{dust}}$	$1.00^{+0.50}_{-0.50} \quad (-0.0\sigma)$	$10^5 \text{D/H}$	$2.58^{+0.11}_{-0.11} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.585^{+0.021}_{-0.021} \quad (-0.1\sigma)$
$A_{143}^{\text{dust}}$	$0.96^{+0.44}_{-0.46} \quad (-0.1\sigma)$	$\text{Age/Gyr}$	$13.91^{+0.45}_{-0.45} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.295^{+0.011}_{-0.011} \quad (+0.0\sigma)$
$A_{217}^{\text{dust}}$	$0.98^{+0.28}_{-0.27} \quad (+0.1\sigma)$	$z_*$	$1089.89^{+0.83}_{-0.84} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.304^{+0.012}_{-0.012} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.41} \quad (+0.0\sigma)$	$r_*$	$145.5^{+4.1}_{-4.0} \quad (+0.0\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.3\sigma)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.0413^{+0.0013}_{-0.0012} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$106.4^{+5.2}_{-5.4} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0043} \quad (+0.0\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.98^{+0.38}_{-0.37} \quad (+0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.4\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$z_{\text{drag}}$	$1059.3^{+1.8}_{-1.8} \quad (+0.4\sigma)$	$\chi_{\text{small}}^2$	$396.8 \quad (\nu: 1.3) \quad (-0.0\sigma)$
$c_{EE}$	$0.991^{+0.014}_{-0.013}$	$r_{\text{drag}}$	$148.3^{+4.2}_{-4.1} \quad (+0.0\sigma)$	$\chi_{\text{lowl}}^2$	$23.7 \quad (\nu: 0.9) \quad (-0.4\sigma)$
$H_0$	$66.7^{+3.5}_{-3.3} \quad (+0.3\sigma)$	$k_D$	$0.1399^{+0.0031}_{-0.0030} \quad (+0.1\sigma)$	$\chi_{\text{CamSpec}}^2$	$11514.2 \quad (\nu: 17.0) \quad (+817.5\sigma)$
$\Omega_\Lambda$	$0.682^{+0.027}_{-0.027} \quad (+0.4\sigma)$	$100\theta_D$	$0.16068^{+0.00099}_{-0.00099} \quad (-0.4\sigma)$	$\chi_{\text{Aver15}}^2$	$0.35 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_m$	$0.318^{+0.027}_{-0.027} \quad (-0.4\sigma)$	$z_{\text{eq}}$	$3404^{+95}_{-97} \quad (-0.4\sigma)$	$\chi_{\text{Cooke17}}^2$	$0.35 \quad (\nu: 0.1) \quad (+0.2\sigma)$
$\Omega_m h^2$	$0.1411^{+0.0070}_{-0.0067} \quad (-0.2\sigma)$	$k_{\text{eq}}$	$0.01032^{+0.00029}_{-0.00028} \quad (-0.4\sigma)$	$\chi_{\text{prior}}^2$	$7.9 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\Omega_m h^3$	$0.0941^{+0.0087}_{-0.0080} \quad (+0.1\sigma)$	$100\theta_{\text{eq}}$	$0.813^{+0.019}_{-0.017} \quad (+0.4\sigma)$	$\chi_{\text{CMB}}^2$	$11934.7 \quad (\nu: 17.3) \quad (+821.9\sigma)$
$\sigma_8$	$0.804^{+0.027}_{-0.026} \quad (-0.3\sigma)$	$100\theta_{s,\text{eq}}$	$0.4491^{+0.0095}_{-0.0089} \quad (+0.4\sigma)$	$\chi_{\text{Abund}}^2$	$0.69 \quad (\nu: 0.3) \quad (-0.0\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 11943.28; \Delta\chi_{\text{eff}}^2 = 4451.02; R - 1 = 0.01315$$



## 7.22 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02221^{+0.00059}_{-0.00056} \quad (+0.5\sigma)$	$\sigma_8$	$0.804^{+0.030}_{-0.028} \quad (-0.3\sigma)$	$100\theta_{\text{eq}}$	$0.813^{+0.020}_{-0.019} \quad (+0.3\sigma)$
$\Omega_c h^2$	$0.1179^{+0.0086}_{-0.0084} \quad (-0.3\sigma)$	$S_8$	$0.827^{+0.043}_{-0.041} \quad (-0.5\sigma)$	$100\theta_{\text{s,eq}}$	$0.449^{+0.010}_{-0.0097} \quad (+0.3\sigma)$
$100\theta_{\text{MC}}$	$1.0411^{+0.0013}_{-0.0012} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.453^{+0.024}_{-0.023} \quad (-0.5\sigma)$	$H(0.15)$	$71.9^{+4.2}_{-4.2} \quad (+0.1\sigma)$
$\tau$	$0.054^{+0.018}_{-0.012} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.604^{+0.023}_{-0.023} \quad (-0.5\sigma)$	$D_{\text{M}}(0.15)$	$651^{+42}_{-38} \quad (-0.1\sigma)$
$N_{\text{eff}}$	$2.93^{+0.58}_{-0.56} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.030}_{-0.029} \quad (-0.5\sigma)$	$H(0.38)$	$82.1^{+4.2}_{-4.1} \quad (+0.0\sigma)$
$\ln(10^{10} A_{\text{s}})$	$3.036^{+0.048}_{-0.038} \quad (-0.1\sigma)$	$r_{\text{drag}} h$	$98.9^{+3.7}_{-3.4} \quad (+0.3\sigma)$	$D_{\text{M}}(0.38)$	$1550^{+93}_{-85} \quad (-0.1\sigma)$
$n_{\text{s}}$	$0.962^{+0.024}_{-0.024} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.443^{+0.080}_{-0.077} \quad (-0.3\sigma)$	$H(0.51)$	$88.8^{+4.2}_{-4.2} \quad (+0.0\sigma)$
$y_{\text{cal}}$	$1.0005^{+0.0065}_{-0.0063} \quad (+0.0\sigma)$	$z_{\text{re}}$	$< 9.36 \quad (-0.0\sigma)$	$D_{\text{M}}(0.51)$	$2007^{+120}_{-110} \quad (-0.1\sigma)$
$A_{100}^{\text{PS}}$	$236^{+60}_{-70} \quad (-0.1\sigma)$	$10^9 A_{\text{s}}$	$2.08^{+0.10}_{-0.079} \quad (-0.1\sigma)$	$H(0.61)$	$94.4^{+4.2}_{-4.2} \quad (-0.0\sigma)$
$A_{143}^{\text{PS}}$	$38^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.869^{+0.049}_{-0.052} \quad (-0.2\sigma)$	$D_{\text{M}}(0.61)$	$2335^{+130}_{-120} \quad (-0.1\sigma)$
$A_{217}^{\text{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{40}$	$1231^{+42}_{-42} \quad (-0.1\sigma)$	$H(2.33)$	$234.6^{+7.7}_{-7.7} \quad (-0.2\sigma)$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5715^{+100}_{-100} \quad (+0.3\sigma)$	$D_{\text{M}}(2.33)$	$5819^{+260}_{-240} \quad (+0.0\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.88 \quad (+0.0\sigma)$	$D_{810}$	$2533^{+36}_{-36} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.022}_{-0.021} \quad (-0.5\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.743^{+0.029}_{-0.027} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$D_{2000}$	$230.9^{+5.5}_{-5.4} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.018}_{-0.018} \quad (-0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$n_{\text{s},0.002}$	$0.962^{+0.024}_{-0.024} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.658^{+0.027}_{-0.025} \quad (-0.2\sigma)$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}$	$0.2437^{+0.0078}_{-0.0081} \quad (-0.1\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.017}_{-0.017} \quad (-0.5\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.50} \quad (-0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.2450^{+0.0078}_{-0.0081} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.615^{+0.026}_{-0.024} \quad (-0.2\sigma)$
$A_{143}^{\text{dust}}$	$0.96^{+0.45}_{-0.47} \quad (-0.1\sigma)$	$10^5 \text{D}/\text{H}$	$2.58^{+0.15}_{-0.14} \quad (-0.5\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.017}_{-0.017} \quad (-0.5\sigma)$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.28} \quad (+0.1\sigma)$	$\text{Age}/\text{Gyr}$	$13.93^{+0.62}_{-0.58} \quad (+0.0\sigma)$	$\sigma_8(0.61)$	$0.585^{+0.025}_{-0.023} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.41}_{-0.41} \quad (-0.0\sigma)$	$z_*$	$1089.8^{+1.0}_{-1.0} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.295^{+0.013}_{-0.012} \quad (-0.1\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$r_*$	$145.7^{+5.4}_{-5.2} \quad (+0.1\sigma)$	$\sigma_8(2.33)$	$0.304^{+0.014}_{-0.013} \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041} \quad (-0.1\sigma)$	$100\theta_*$	$1.0414^{+0.0016}_{-0.0015} \quad (+0.2\sigma)$	$f_{2000}^{143}$	$29^{+9}_{-9} \quad (-0.4\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.99^{+0.50}_{-0.49} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$106.2^{+5.9}_{-5.5} \quad (-0.4\sigma)$
$c_{EE}$	$0.991^{+0.015}_{-0.014}$	$z_{\text{drag}}$	$1059.3^{+2.2}_{-2.2} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6} \quad (-0.4\sigma)$
$H_0$	$66.6^{+4.3}_{-4.3} \quad (+0.1\sigma)$	$r_{\text{drag}}$	$148.5^{+5.7}_{-5.5} \quad (+0.1\sigma)$	$\chi_{\text{small}}^2$	$396.7 \quad (\nu: 1.3) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.682^{+0.028}_{-0.030} \quad (+0.3\sigma)$	$k_{\text{D}}$	$0.1398^{+0.0039}_{-0.0039} \quad (-0.1\sigma)$	$\chi_{\text{lowl}}^2$	$23.7 \quad (\nu: 1.1) \quad (-0.2\sigma)$
$\Omega_{\text{m}}$	$0.318^{+0.030}_{-0.028} \quad (-0.3\sigma)$	$100\theta_{\text{D}}$	$0.1606^{+0.0014}_{-0.0013} \quad (-0.4\sigma)$	$\chi_{\text{CamSpec}}^2$	$11514.4 \quad (\nu: 17.2) \quad (+775.8\sigma)$
$\Omega_{\text{m}} h^2$	$0.1408^{+0.0090}_{-0.0087} \quad (-0.3\sigma)$	$z_{\text{eq}}$	$3403^{+100}_{-100} \quad (-0.2\sigma)$	$\chi_{\text{prior}}^2$	$7.9 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\Omega_{\text{m}} h^3$	$0.094^{+0.012}_{-0.011} \quad (-0.1\sigma)$	$k_{\text{eq}}$	$0.01030^{+0.00032}_{-0.00032} \quad (-0.4\sigma)$	$\chi_{\text{CMB}}^2$	$11934.9 \quad (\nu: 17.1) \quad (+808.0\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 11942.78; \Delta\bar{\chi}_{\text{eff}}^2 = 4450.92; R - 1 = 0.01065$$



### 7.23 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02218^{+0.00059}_{-0.00057} \quad (+0.4\sigma)$	$S_8$	$0.828^{+0.032}_{-0.033} \quad (-0.4\sigma)$	$H(0.15)$	$71.6^{+4.2}_{-4.1} \quad (+0.1\sigma)$
$\Omega_c h^2$	$0.1175^{+0.0085}_{-0.0081} \quad (-0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.454^{+0.018}_{-0.018} \quad (-0.4\sigma)$	$D_M(0.15)$	$653^{+41}_{-39} \quad (-0.1\sigma)$
$100\theta_{MC}$	$1.0411^{+0.0013}_{-0.0011} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.604^{+0.019}_{-0.019} \quad (-0.4\sigma)$	$H(0.38)$	$81.8^{+4.2}_{-4.0} \quad (+0.0\sigma)$
$\tau$	$0.054^{+0.018}_{-0.012} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.987^{+0.023}_{-0.023} \quad (-0.4\sigma)$	$D_M(0.38)$	$1556^{+91}_{-85} \quad (-0.1\sigma)$
$N_{\text{eff}}$	$2.89^{+0.57}_{-0.54} \quad (-0.1\sigma)$	$r_{\text{drag}} h$	$98.7^{+3.3}_{-3.1} \quad (+0.2\sigma)$	$H(0.51)$	$88.5^{+4.2}_{-4.0} \quad (+0.0\sigma)$
$\ln(10^{10} A_s)$	$3.035^{+0.045}_{-0.038} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.064}_{-0.064} \quad (-0.3\sigma)$	$D_M(0.51)$	$2015^{+110}_{-110} \quad (-0.1\sigma)$
$n_s$	$0.960^{+0.024}_{-0.023} \quad (+0.1\sigma)$	$z_{\text{re}}$	$< 9.29 \quad (+0.0\sigma)$	$H(0.61)$	$94.1^{+4.3}_{-4.0} \quad (+0.0\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0066}_{-0.0062} \quad (+0.0\sigma)$	$10^9 A_s$	$2.081^{+0.095}_{-0.078} \quad (-0.0\sigma)$	$D_M(0.61)$	$2344^{+130}_{-120} \quad (-0.1\sigma)$
$A_{100}^{\text{PS}}$	$236^{+60}_{-70} \quad (-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.868^{+0.050}_{-0.051} \quad (-0.1\sigma)$	$H(2.33)$	$234.2^{+7.6}_{-7.6} \quad (-0.1\sigma)$
$A_{143}^{\text{PS}}$	$38^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1234^{+40}_{-38} \quad (-0.1\sigma)$	$D_M(2.33)$	$5836^{+250}_{-240} \quad (-0.0\sigma)$
$A_{217}^{\text{PS}}$	$104^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5718^{+100}_{-100} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.017} \quad (-0.4\sigma)$
$A_{217}^{\text{CIB}}$	$38^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2533^{+35}_{-36} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.742^{+0.027}_{-0.025} \quad (-0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.87 \quad (+0.0\sigma)$	$D_{1420}$	$817^{+13}_{-13} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.015}_{-0.015} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$> 0.356 \quad (+0.1\sigma)$	$D_{2000}$	$231.2^{+5.3}_{-5.3} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.657^{+0.026}_{-0.024} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{\text{s},0.002}$	$0.960^{+0.024}_{-0.023} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.015}_{-0.014} \quad (-0.4\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}$	$0.2432^{+0.0077}_{-0.0078} \quad (-0.0\sigma)$	$\sigma_8(0.51)$	$0.614^{+0.025}_{-0.024} \quad (-0.1\sigma)$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.2445^{+0.0077}_{-0.0078} \quad (-0.0\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.015}_{-0.014} \quad (-0.3\sigma)$
$A_{100}^{\text{dust}}$	$1.00^{+0.51}_{-0.50} \quad (-0.0\sigma)$	$10^5 \text{D/H}$	$2.57^{+0.14}_{-0.14} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.584^{+0.024}_{-0.023} \quad (-0.1\sigma)$
$A_{143}^{\text{dust}}$	$0.95^{+0.45}_{-0.46} \quad (-0.1\sigma)$	$\text{Age/Gyr}$	$13.97^{+0.60}_{-0.58} \quad (-0.0\sigma)$	$f\sigma_8(2.33)$	$0.294^{+0.013}_{-0.012} \quad (-0.1\sigma)$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$z_*$	$1089.79^{+0.97}_{-0.96} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.303^{+0.014}_{-0.013} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.43}_{-0.41} \quad (-0.0\sigma)$	$r_*$	$146.1^{+5.4}_{-5.1} \quad (+0.1\sigma)$	$f_{2000}^{143}$	$28^{+9}_{-8} \quad (-0.3\sigma)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.0414^{+0.0016}_{-0.0014} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$106.1^{+5.8}_{-5.3} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0043} \quad (-0.0\sigma)$	$D_M(z_*)/\text{Gpc}$	$14.03^{+0.51}_{-0.48} \quad (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6} \quad (-0.4\sigma)$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$z_{\text{drag}}$	$1059.2^{+2.2}_{-2.2} \quad (+0.2\sigma)$	$\chi_{\text{lensing}}^2$	$9.05 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$c_{EE}$	$0.990^{+0.015}_{-0.014}$	$r_{\text{drag}}$	$148.8^{+5.7}_{-5.4} \quad (+0.1\sigma)$	$\chi_{\text{small}}^2$	$396.7 \quad (\nu: 1.2) \quad (+0.0\sigma)$
$H_0$	$66.3^{+4.3}_{-4.1} \quad (+0.1\sigma)$	$k_{\text{D}}$	$0.1396^{+0.0039}_{-0.0039} \quad (+0.0\sigma)$	$\chi_{\text{lowl}}^2$	$24.0 \quad (\nu: 1.1) \quad (-0.2\sigma)$
$\Omega_\Lambda$	$0.681^{+0.027}_{-0.027} \quad (+0.2\sigma)$	$100\theta_{\text{D}}$	$0.1605^{+0.0013}_{-0.0013} \quad (-0.3\sigma)$	$\chi_{\text{CamSpec}}^2$	$11513.8 \quad (\nu: 16.4) \quad (+828.3\sigma)$
$\Omega_{\text{m}}$	$0.319^{+0.027}_{-0.027} \quad (-0.2\sigma)$	$z_{\text{eq}}$	$3409^{+93}_{-95} \quad (-0.2\sigma)$	$\chi_{\text{prior}}^2$	$7.9 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\Omega_{\text{m}} h^2$	$0.1403^{+0.0088}_{-0.0086} \quad (-0.2\sigma)$	$k_{\text{eq}}$	$0.01029^{+0.00030}_{-0.00029} \quad (-0.3\sigma)$	$\chi_{\text{CMB}}^2$	$11943.5 \quad (\nu: 17.3) \quad (+812.5\sigma)$
$\Omega_{\text{m}} h^3$	$0.093^{+0.011}_{-0.010} \quad (-0.0\sigma)$	$100\theta_{\text{eq}}$	$0.812^{+0.019}_{-0.017} \quad (+0.2\sigma)$		
$\sigma_8$	$0.803^{+0.028}_{-0.026} \quad (-0.2\sigma)$	$100\theta_{\text{s,eq}}$	$0.4486^{+0.0093}_{-0.0087} \quad (+0.2\sigma)$		

$\bar{\chi}_{\text{eff}}^2 = 11951.41$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 4450.71$ ;  $R - 1 = 0.01353$



## 7.24 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Cooke17\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02220^{+0.00052}_{-0.00051} \quad (+0.6\sigma)$	$S_8$	$0.828^{+0.042}_{-0.040} \quad (-0.5\sigma)$	$H(0.15)$	$72.0^{+3.3}_{-3.2} \quad (+0.3\sigma)$
$\Omega_c h^2$	$0.1183^{+0.0068}_{-0.0065} \quad (-0.3\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.454^{+0.023}_{-0.022} \quad (-0.5\sigma)$	$D_M(0.15)$	$650^{+32}_{-31} \quad (-0.3\sigma)$
$100\theta_{MC}$	$1.0410^{+0.0011}_{-0.00098} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.604^{+0.021}_{-0.021} \quad (-0.5\sigma)$	$H(0.38)$	$82.2^{+3.3}_{-3.1} \quad (+0.2\sigma)$
$\tau$	$0.054^{+0.018}_{-0.012} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.986^{+0.030}_{-0.029} \quad (-0.5\sigma)$	$D_M(0.38)$	$1548^{+70}_{-68} \quad (-0.3\sigma)$
$N_{\text{eff}}$	$2.95^{+0.43}_{-0.41} \quad (+0.0\sigma)$	$r_{\text{drag}} h$	$98.9^{+3.4}_{-3.2} \quad (+0.4\sigma)$	$H(0.51)$	$88.9^{+3.3}_{-3.1} \quad (+0.2\sigma)$
$\ln(10^{10} A_s)$	$3.037^{+0.045}_{-0.035} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.443^{+0.077}_{-0.075} \quad (-0.4\sigma)$	$D_M(0.51)$	$2004^{+87}_{-84} \quad (-0.2\sigma)$
$n_s$	$0.962^{+0.020}_{-0.020} \quad (+0.3\sigma)$	$z_{\text{re}}$	$< 9.31 \quad (+0.0\sigma)$	$H(0.61)$	$94.5^{+3.3}_{-3.1} \quad (+0.1\sigma)$
$y_{\text{cal}}$	$1.0004^{+0.0065}_{-0.0061} \quad (+0.0\sigma)$	$10^9 A_s$	$2.084^{+0.095}_{-0.071} \quad (-0.0\sigma)$	$D_M(0.61)$	$2331^{+98}_{-95} \quad (-0.2\sigma)$
$A_{100}^{\text{PS}}$	$237^{+60}_{-60} \quad (-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.871^{+0.042}_{-0.041} \quad (-0.2\sigma)$	$H(2.33)$	$235.0^{+6.1}_{-5.8} \quad (-0.2\sigma)$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{40}$	$1230^{+40}_{-39} \quad (-0.3\sigma)$	$D_M(2.33)$	$5810^{+190}_{-190} \quad (-0.1\sigma)$
$A_{217}^{\text{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5713^{+100}_{-99} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.021}_{-0.021} \quad (-0.5\sigma)$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2533^{+34}_{-36} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.744^{+0.024}_{-0.022} \quad (-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.83 \quad (+0.0\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.017}_{-0.017} \quad (-0.5\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$D_{2000}$	$230.7^{+4.8}_{-4.6} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.659^{+0.022}_{-0.020} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{s,0.002}$	$0.962^{+0.020}_{-0.020} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.016}_{-0.016} \quad (-0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P$	$0.2440^{+0.0058}_{-0.0059} \quad (+0.0\sigma)$	$\sigma_8(0.51)$	$0.616^{+0.021}_{-0.019} \quad (-0.1\sigma)$
$A^{\text{kSZ}}$	—	$Y_P^{\text{BBN}}$	$0.2453^{+0.0058}_{-0.0059} \quad (+0.0\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.015}_{-0.015} \quad (-0.4\sigma)$
$A_{100}^{\text{dust}}$	$1.00^{+0.51}_{-0.50} \quad (-0.0\sigma)$	$10^5 \text{D/H}$	$2.58^{+0.11}_{-0.11} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.586^{+0.020}_{-0.018} \quad (-0.1\sigma)$
$A_{143}^{\text{dust}}$	$0.95^{+0.44}_{-0.47} \quad (-0.1\sigma)$	$\text{Age/Gyr}$	$13.91^{+0.45}_{-0.44} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.295^{+0.011}_{-0.0096} \quad (-0.0\sigma)$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$z_*$	$1089.89^{+0.83}_{-0.84} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.304^{+0.012}_{-0.010} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.41} \quad (+0.0\sigma)$	$r_*$	$145.5^{+4.0}_{-4.0} \quad (+0.1\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.3\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.0413^{+0.0013}_{-0.0012} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$106.4^{+5.3}_{-5.4} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0043} \quad (+0.0\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.97^{+0.37}_{-0.37} \quad (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.4\sigma)$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$z_{\text{drag}}$	$1059.4^{+1.8}_{-1.7} \quad (+0.4\sigma)$	$\chi_{\text{small}}^2$	$396.7 \quad (\nu: 1.3) \quad (-0.0\sigma)$
$c_{EE}$	$0.991^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$148.2^{+4.2}_{-4.1} \quad (+0.0\sigma)$	$\chi_{\text{lowl}}^2$	$23.6 \quad (\nu: 0.9) \quad (-0.3\sigma)$
$H_0$	$66.7^{+3.5}_{-3.3} \quad (+0.3\sigma)$	$k_D$	$0.1399^{+0.0030}_{-0.0030} \quad (+0.0\sigma)$	$\chi_{\text{CamSpec}}^2$	$11514.1 \quad (\nu: 17.0) \quad (+821.1\sigma)$
$\Omega_\Lambda$	$0.683^{+0.027}_{-0.027} \quad (+0.4\sigma)$	$100\theta_D$	$0.1607^{+0.0010}_{-0.00098} \quad (-0.4\sigma)$	$\chi_{\text{Aver15}}^2$	$0.35 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_m$	$0.317^{+0.027}_{-0.027} \quad (-0.4\sigma)$	$z_{\text{eq}}$	$3402^{+95}_{-96} \quad (-0.3\sigma)$	$\chi_{\text{Cooke17}}^2$	$0.35 \quad (\nu: 0.1) \quad (+0.2\sigma)$
$\Omega_m h^2$	$0.1412^{+0.0070}_{-0.0067} \quad (-0.2\sigma)$	$k_{\text{eq}}$	$0.01032^{+0.00029}_{-0.00028} \quad (-0.4\sigma)$	$\chi_{\text{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\Omega_m h^3$	$0.0942^{+0.0087}_{-0.0079} \quad (+0.1\sigma)$	$100\theta_{\text{eq}}$	$0.813^{+0.019}_{-0.018} \quad (+0.4\sigma)$	$\chi_{\text{CMB}}^2$	$11934.5 \quad (\nu: 16.9) \quad (+837.1\sigma)$
$\sigma_8$	$0.805^{+0.026}_{-0.024} \quad (-0.3\sigma)$	$100\theta_{s,\text{eq}}$	$0.4493^{+0.0094}_{-0.0090} \quad (+0.3\sigma)$	$\chi_{\text{Abund}}^2$	$0.70 \quad (\nu: 0.3) \quad (-0.0\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 11943.02; \Delta\bar{\chi}_{\text{eff}}^2 = 4451.03; R - 1 = 0.01235$$



## 7.25 base\_nnu\_plikHM\_TE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02243	$0.0225^{+0.0011}_{-0.0010}$	$r_{\text{drag}} h$	100.7	$100.9^{+6.6}_{-6.1}$	$100\theta_{\text{s,eq}}$	0.4539	$0.454^{+0.019}_{-0.018}$
$\Omega_c h^2$	0.1162	$0.117^{+0.020}_{-0.016}$	$\langle d^2 \rangle^{1/2}$	2.390	$2.39^{+0.14}_{-0.14}$	$H(0.15)$	73.0	$73^{+10}_{-8}$
$100\theta_{\text{MC}}$	1.04154	$1.0415^{+0.0026}_{-0.0023}$	$z_{\text{re}}$	7.07	$7.1^{+2.1}_{-3.0}$	$D_{\text{M}}(0.15)$	640	$637^{+80}_{-80}$
$\tau$	0.0491	$0.050^{+0.021}_{-0.026}$	$10^9 A_{\text{s}}$	2.037	$2.04^{+0.13}_{-0.13}$	$H(0.38)$	82.9	$83^{+10}_{-8}$
$N_{\text{eff}}$	2.95	$3.0^{+1.4}_{-1.2}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.846	$1.849^{+0.074}_{-0.082}$	$D_{\text{M}}(0.38)$	1528	$1521^{+200}_{-200}$
$\ln(10^{10} A_{\text{s}})$	3.014	$3.016^{+0.061}_{-0.066}$	$D_{40}$	1218	$1214^{+89}_{-86}$	$H(0.51)$	89.5	$90.0^{+10}_{-8.5}$
$n_{\text{s}}$	0.9633	$0.966^{+0.050}_{-0.048}$	$D_{220}$	5701	$5693^{+150}_{-150}$	$D_{\text{M}}(0.51)$	1981	$1972^{+200}_{-200}$
$A_{100}^{\text{dustTE}}$	0.114	$0.113^{+0.099}_{-0.097}$	$D_{810}$	2508	$2507^{+66}_{-66}$	$H(0.61)$	95.0	$95.5^{+10}_{-8.6}$
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.136^{+0.077}_{-0.076}$	$D_{1420}$	808.3	$808^{+39}_{-38}$	$D_{\text{M}}(0.61)$	2307	$2296^{+300}_{-300}$
$A_{100 \times 217}^{\text{dustTE}}$	0.475	$0.48^{+0.22}_{-0.22}$	$D_{2000}$	228.4	$228^{+17}_{-17}$	$H(2.33)$	233.9	$235^{+18}_{-16}$
$A_{143}^{\text{dustTE}}$	0.220	$0.22^{+0.14}_{-0.14}$	$n_{\text{s},0.002}$	0.9633	$0.966^{+0.050}_{-0.048}$	$D_{\text{M}}(2.33)$	5788	$5763^{+540}_{-540}$
$A_{143 \times 217}^{\text{dustTE}}$	0.661	$0.66^{+0.20}_{-0.21}$	$Y_{\text{P}}$	0.2441	$0.245^{+0.018}_{-0.017}$	$f\sigma_8(0.15)$	0.4395	$0.440^{+0.033}_{-0.032}$
$A_{217}^{\text{dustTE}}$	2.04	$2.04^{+0.67}_{-0.69}$	$Y_{\text{P}}^{\text{BBN}}$	0.2454	$0.246^{+0.018}_{-0.017}$	$\sigma_8(0.15)$	0.7300	$0.733^{+0.050}_{-0.045}$
$c_{100}$	1.00017	$1.0002^{+0.0018}_{-0.0018}$	$10^5 \text{D/H}$	2.542	$2.56^{+0.33}_{-0.30}$	$f\sigma_8(0.38)$	0.4592	$0.460^{+0.027}_{-0.027}$
$c_{217}$	0.99800	$0.9980^{+0.0017}_{-0.0017}$	Age/Gyr	13.86	$13.8^{+1.3}_{-1.3}$	$\sigma_8(0.38)$	0.6480	$0.651^{+0.047}_{-0.043}$
$y_{\text{cal}}$	0.99998	$0.99997^{+0.0062}_{-0.0064}$	$z_*$	1089.42	$1089.5^{+2.1}_{-2.0}$	$f\sigma_8(0.51)$	0.4588	$0.460^{+0.027}_{-0.026}$
$H_0$	67.8	$68^{+10}_{-8}$	$r_*$	145.9	$145^{+12}_{-12}$	$\sigma_8(0.51)$	0.6068	$0.610^{+0.045}_{-0.042}$
$\Omega_{\Lambda}$	0.697	$0.698^{+0.047}_{-0.053}$	$100\theta_*$	1.04178	$1.0417^{+0.0034}_{-0.0031}$	$f\sigma_8(0.61)$	0.4547	$0.456^{+0.026}_{-0.025}$
$\Omega_{\text{m}}$	0.303	$0.302^{+0.053}_{-0.047}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.00	$13.9^{+1.1}_{-1.1}$	$\sigma_8(0.61)$	0.5776	$0.580^{+0.044}_{-0.041}$
$\Omega_{\text{m}} h^2$	0.1393	$0.141^{+0.020}_{-0.017}$	$z_{\text{drag}}$	1059.70	$1060.0^{+4.5}_{-4.3}$	$f\sigma_8(2.33)$	0.2916	$0.293^{+0.024}_{-0.022}$
$\Omega_{\text{m}} h^3$	0.0944	$0.096^{+0.029}_{-0.022}$	$r_{\text{drag}}$	148.5	$148^{+12}_{-12}$	$\sigma_8(2.33)$	0.3010	$0.303^{+0.026}_{-0.024}$
$\sigma_8$	0.7891	$0.792^{+0.051}_{-0.047}$	$k_{\text{D}}$	0.1398	$0.1403^{+0.0089}_{-0.0079}$	$\chi_{\text{small}}^2$	395.65	$396.8 (\nu: 1.2)$
$S_8$	0.793	$0.795^{+0.064}_{-0.061}$	$100\theta_{\text{D}}$	0.16053	$0.1607^{+0.0031}_{-0.0028}$	$\chi_{\text{plikTE}}^2$	852.9	$860.8 (\nu: 7.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4344	$0.435^{+0.035}_{-0.034}$	$z_{\text{eq}}$	3357	$3355^{+190}_{-190}$	$\chi_{\text{prior}}^2$	0.4	$7.4 (\nu: 6.6)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5855	$0.587^{+0.034}_{-0.034}$	$k_{\text{eq}}$	0.01018	$0.01022^{+0.00060}_{-0.00054}$	$\chi_{\text{CMB}}^2$	1248.5	$1257.6 (\nu: 9.0)$
$\sigma_8/h^{0.5}$	0.9583	$0.959^{+0.048}_{-0.049}$	$100\theta_{\text{eq}}$	0.8220	$0.823^{+0.038}_{-0.035}$			

Best-fit  $\chi_{\text{eff}}^2 = 1248.90$ ;  $\bar{\chi}_{\text{eff}}^2 = 1264.95$ ;  $R - 1 = 0.00876$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.65 plik\_rd12\_HM\_v22\_TE: 852.89



## 7.26 base\_nnu\_plikHM\_TE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.0225^{+0.0010}_{-0.0011}$	$r_{\text{drag}} h$	$101.0^{+6.6}_{-6.1}$	$100\theta_{\text{s,eq}}$	$0.455^{+0.019}_{-0.018}$
$\Omega_c h^2$	$0.118^{+0.019}_{-0.016}$	$\langle d^2 \rangle^{1/2}$	$2.39^{+0.14}_{-0.14}$	$H(0.15)$	$74^{+10}_{-8}$
$100\theta_{\text{MC}}$	$1.0415^{+0.0026}_{-0.0023}$	$z_{\text{re}}$	$< 9.10$	$D_{\text{M}}(0.15)$	$635^{+80}_{-80}$
$\tau$	$0.053^{+0.017}_{-0.011}$	$10^9 A_{\text{s}}$	$2.06^{+0.12}_{-0.10}$	$H(0.38)$	$84^{+10}_{-8}$
$N_{\text{eff}}$	$3.1^{+1.4}_{-1.2}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.850^{+0.072}_{-0.081}$	$D_{\text{M}}(0.38)$	$1517^{+200}_{-200}$
$\ln(10^{10} A_{\text{s}})$	$3.024^{+0.055}_{-0.051}$	$D_{40}$	$1212^{+88}_{-85}$	$H(0.51)$	$90.2^{+9.8}_{-8.4}$
$n_{\text{s}}$	$0.968^{+0.049}_{-0.048}$	$D_{220}$	$5691^{+150}_{-150}$	$D_{\text{M}}(0.51)$	$1967^{+200}_{-200}$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.099}_{-0.095}$	$D_{810}$	$2508^{+66}_{-66}$	$H(0.61)$	$95.7^{+10}_{-8.6}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.136^{+0.077}_{-0.077}$	$D_{1420}$	$808^{+39}_{-37}$	$D_{\text{M}}(0.61)$	$2290^{+300}_{-300}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$D_{2000}$	$228^{+17}_{-17}$	$H(2.33)$	$235^{+17}_{-16}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$n_{\text{s},0.002}$	$0.968^{+0.049}_{-0.048}$	$D_{\text{M}}(2.33)$	$5752^{+540}_{-530}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.20}$	$Y_{\text{P}}$	$0.245^{+0.018}_{-0.017}$	$f\sigma_8(0.15)$	$0.442^{+0.032}_{-0.031}$
$A_{217}^{\text{dustTE}}$	$2.04^{+0.67}_{-0.70}$	$Y_{\text{P}}^{\text{BBN}}$	$0.247^{+0.018}_{-0.017}$	$\sigma_8(0.15)$	$0.736^{+0.048}_{-0.045}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0018}$	$10^5 \text{D/H}$	$2.56^{+0.32}_{-0.29}$	$f\sigma_8(0.38)$	$0.462^{+0.027}_{-0.027}$
$c_{217}$	$0.9980^{+0.0017}_{-0.0017}$	$\text{Age/Gyr}$	$13.8^{+1.3}_{-1.3}$	$\sigma_8(0.38)$	$0.654^{+0.045}_{-0.043}$
$y_{\text{cal}}$	$0.99997^{+0.0062}_{-0.0064}$	$z_*$	$1089.6^{+2.1}_{-2.0}$	$f\sigma_8(0.51)$	$0.462^{+0.026}_{-0.025}$
$H_0$	$69^{+10}_{-8}$	$r_*$	$145^{+12}_{-11}$	$\sigma_8(0.51)$	$0.613^{+0.043}_{-0.041}$
$\Omega_{\Lambda}$	$0.699^{+0.047}_{-0.052}$	$100\theta_*$	$1.0416^{+0.0034}_{-0.0031}$	$f\sigma_8(0.61)$	$0.458^{+0.025}_{-0.024}$
$\Omega_{\text{m}}$	$0.301^{+0.052}_{-0.047}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.9^{+1.1}_{-1.1}$	$\sigma_8(0.61)$	$0.583^{+0.042}_{-0.040}$
$\Omega_{\text{m}} h^2$	$0.141^{+0.020}_{-0.017}$	$z_{\text{drag}}$	$1060.0^{+4.5}_{-4.3}$	$f\sigma_8(2.33)$	$0.294^{+0.023}_{-0.021}$
$\Omega_{\text{m}} h^3$	$0.097^{+0.028}_{-0.022}$	$r_{\text{drag}}$	$148^{+12}_{-12}$	$\sigma_8(2.33)$	$0.304^{+0.025}_{-0.023}$
$\sigma_8$	$0.796^{+0.049}_{-0.046}$	$k_{\text{D}}$	$0.1404^{+0.0088}_{-0.0079}$	$\chi_{\text{simall}}^2$	$396.4 (\nu: 0.6)$
$S_8$	$0.797^{+0.063}_{-0.061}$	$100\theta_{\text{D}}$	$0.1607^{+0.0031}_{-0.0028}$	$\chi_{\text{plikTE}}^2$	$860.9 (\nu: 7.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.436^{+0.035}_{-0.034}$	$z_{\text{eq}}$	$3351^{+190}_{-180}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.5)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.589^{+0.034}_{-0.033}$	$k_{\text{eq}}$	$0.01022^{+0.00060}_{-0.00054}$	$\chi_{\text{CMB}}^2$	$1257.2 (\nu: 8.5)$
$\sigma_8/h^{0.5}$	$0.962^{+0.047}_{-0.045}$	$100\theta_{\text{eq}}$	$0.824^{+0.037}_{-0.035}$		

$\bar{\chi}_{\text{eff}}^2 = 1264.59$ ;  $R - 1 = 0.01129$



## 7.27 base\_nnu\_plikHM\_EE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.0214	$0.0228^{+0.0066}_{-0.0058}$	$D_{40}$	1248	$1234^{+90}_{-99}$	$D_{\mathrm{M}}(0.15)$	740	$684^{+300}_{-200}$
$\Omega_{\mathrm{c}}h^2$	0.0958	$0.108^{+0.057}_{-0.039}$	$D_{220}$	5741	$5844^{+700}_{-700}$	$H(0.38)$	73.0	$80^{+30}_{-20}$
$100\theta_{\mathrm{MC}}$	1.0437	$1.0421^{+0.0091}_{-0.0074}$	$D_{810}$	2585	$2583^{+100}_{-100}$	$D_{\mathrm{M}}(0.38)$	1755	$1627^{+600}_{-500}$
$\tau$	0.0511	$0.051^{+0.025}_{-0.025}$	$D_{1420}$	862	$850^{+62}_{-66}$	$H(0.51)$	79.3	$86^{+30}_{-20}$
$N_{\mathrm{eff}}$	1.57	$< 6.39$	$D_{2000}$	252.6	$246^{+30}_{-30}$	$D_{\mathrm{M}}(0.51)$	2268	$2105^{+700}_{-700}$
$\ln(10^{10}A_{\mathrm{s}})$	2.982	$3.01^{+0.14}_{-0.17}$	$n_{\mathrm{s},0.002}$	0.937	$0.960^{+0.11}_{-0.092}$	$H(0.61)$	84.6	$92^{+30}_{-20}$
$n_{\mathrm{s}}$	0.937	$0.960^{+0.11}_{-0.092}$	$Y_{\mathrm{P}}$	0.2228	$0.235^{+0.051}_{-0.046}$	$D_{\mathrm{M}}(0.61)$	2634	$2447^{+800}_{-800}$
$y_{\mathrm{cal}}$	1.0000	$0.9999^{+0.0064}_{-0.0064}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2240	$0.236^{+0.051}_{-0.046}$	$H(2.33)$	214.0	$226^{+50}_{-40}$
$H_0$	58.4	$65^{+30}_{-20}$	$10^5\mathrm{D}/\mathrm{H}$	2.22	$2.29^{+0.61}_{-0.51}$	$D_{\mathrm{M}}(2.33)$	6480	$6088^{+2000}_{-2000}$
$\Omega_{\Lambda}$	0.654	$0.68^{+0.14}_{-0.18}$	Age/Gyr	15.51	$14.6^{+3.7}_{-3.8}$	$f\sigma_8(0.15)$	0.441	$0.436^{+0.082}_{-0.073}$
$\Omega_{\mathrm{m}}$	0.346	$0.32^{+0.18}_{-0.14}$	$z_*$	1087.27	$1087.7^{+4.7}_{-4.3}$	$\sigma_8(0.15)$	0.686	$0.71^{+0.14}_{-0.11}$
$\Omega_{\mathrm{m}}h^2$	0.118	$0.131^{+0.061}_{-0.043}$	$r_*$	161.1	$153^{+30}_{-30}$	$f\sigma_8(0.38)$	0.450	$0.452^{+0.061}_{-0.061}$
$\Omega_{\mathrm{m}}h^3$	0.069	$0.088^{+0.093}_{-0.049}$	$100\theta_*$	1.0451	$1.043^{+0.011}_{-0.010}$	$\sigma_8(0.38)$	0.605	$0.63^{+0.13}_{-0.11}$
$\sigma_8$	0.746	$0.77^{+0.14}_{-0.11}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	15.42	$14.6^{+3.2}_{-3.2}$	$f\sigma_8(0.51)$	0.445	$0.450^{+0.060}_{-0.059}$
$S_8$	0.801	$0.79^{+0.18}_{-0.14}$	$z_{\mathrm{drag}}$	1054.7	$1059^{+19}_{-19}$	$\sigma_8(0.51)$	0.565	$0.59^{+0.13}_{-0.10}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.439	$0.433^{+0.099}_{-0.079}$	$r_{\mathrm{drag}}$	164.4	$155^{+40}_{-40}$	$f\sigma_8(0.61)$	0.438	$0.446^{+0.060}_{-0.058}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.572	$0.578^{+0.077}_{-0.077}$	$k_{\mathrm{D}}$	0.1296	$0.137^{+0.031}_{-0.025}$	$\sigma_8(0.61)$	0.537	$0.564^{+0.13}_{-0.099}$
$\sigma_8/h^{0.5}$	0.977	$0.96^{+0.13}_{-0.11}$	$100\theta_{\mathrm{D}}$	0.1572	$0.1583^{+0.0059}_{-0.0046}$	$f\sigma_8(2.33)$	0.270	$0.284^{+0.068}_{-0.053}$
$r_{\mathrm{drag}}h$	95.9	$100^{+20}_{-20}$	$z_{\mathrm{eq}}$	3496	$3420^{+500}_{-400}$	$\sigma_8(2.33)$	0.277	$0.294^{+0.077}_{-0.058}$
$\langle d^2 \rangle^{1/2}$	2.456	$2.41^{+0.28}_{-0.27}$	$k_{\mathrm{eq}}$	0.00955	$0.0099^{+0.0018}_{-0.0014}$	$\chi_{\mathrm{small}}^2$	395.57	$396.7 (\nu: 1.2)$
$z_{\mathrm{re}}$	6.96	$7.0^{+2.3}_{-2.6}$	$100\theta_{\mathrm{eq}}$	0.795	$0.814^{+0.094}_{-0.084}$	$\chi_{\mathrm{plikEE}}^2$	738.0	$744.0 (\nu: 6.0)$
$10^9 A_{\mathrm{s}}$	1.973	$2.03^{+0.30}_{-0.33}$	$100\theta_{\mathrm{s,eq}}$	0.4407	$0.449^{+0.043}_{-0.041}$	$\chi_{\mathrm{prior}}^2$	0.00	$0.99 (\nu: 1.0)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.781	$1.84^{+0.22}_{-0.27}$	$H(0.15)$	63.4	$70^{+30}_{-20}$	$\chi_{\mathrm{CMB}}^2$	1133.5	$1140.8 (\nu: 7.4)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 1133.52$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 1141.76$ ;  $R - 1 = 0.00807$

$\chi_{\mathrm{eff}}^2$ : CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.57 plik\_rd12\_HM\_v22\_EE: 737.95



## 7.28 base\_nnu\_plikHM\_EE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.0231^{+0.0064}_{-0.0061}$	$D_{40}$	$1231^{+86}_{-98}$	$D_{\text{M}}(0.15)$	$669^{+300}_{-200}$
$\Omega_{\text{c}}h^2$	$0.111^{+0.056}_{-0.042}$	$D_{220}$	$5861^{+700}_{-700}$	$H(0.38)$	$82^{+30}_{-20}$
$100\theta_{\text{MC}}$	$1.0416^{+0.0095}_{-0.0071}$	$D_{810}$	$2583^{+100}_{-110}$	$D_{\text{M}}(0.38)$	$1593^{+600}_{-500}$
$\tau$	$0.055^{+0.022}_{-0.013}$	$D_{1420}$	$847^{+65}_{-66}$	$H(0.51)$	$88^{+30}_{-20}$
$N_{\text{eff}}$	$< 6.56$	$D_{2000}$	$244^{+30}_{-30}$	$D_{\text{M}}(0.51)$	$2062^{+800}_{-600}$
$\ln(10^{10}A_{\text{s}})$	$3.03^{+0.13}_{-0.18}$	$n_{\text{s},0.002}$	$0.966^{+0.10}_{-0.097}$	$H(0.61)$	$93^{+30}_{-20}$
$n_{\text{s}}$	$0.966^{+0.10}_{-0.097}$	$Y_{\text{P}}$	$0.238^{+0.050}_{-0.050}$	$D_{\text{M}}(0.61)$	$2399^{+900}_{-700}$
$y_{\text{cal}}$	$0.9999^{+0.0064}_{-0.0065}$	$Y_{\text{P}}^{\text{BBN}}$	$0.239^{+0.051}_{-0.050}$	$H(2.33)$	$229^{+50}_{-40}$
$H_0$	$67^{+30}_{-20}$	$10^5\text{D}/\text{H}$	$2.32^{+0.61}_{-0.52}$	$D_{\text{M}}(2.33)$	$5987^{+2000}_{-2000}$
$\Omega_{\Lambda}$	$0.69^{+0.14}_{-0.18}$	Age/Gyr	$14.3^{+3.9}_{-3.6}$	$f\sigma_8(0.15)$	$0.438^{+0.082}_{-0.072}$
$\Omega_{\text{m}}$	$0.31^{+0.18}_{-0.14}$	$z_*$	$1087.8^{+4.7}_{-4.3}$	$\sigma_8(0.15)$	$0.72^{+0.13}_{-0.11}$
$\Omega_{\text{m}}h^2$	$0.135^{+0.061}_{-0.046}$	$r_*$	$151^{+40}_{-30}$	$f\sigma_8(0.38)$	$0.455^{+0.059}_{-0.060}$
$\Omega_{\text{m}}h^3$	$0.093^{+0.092}_{-0.055}$	$100\theta_*$	$1.042^{+0.012}_{-0.0096}$	$\sigma_8(0.38)$	$0.64^{+0.13}_{-0.11}$
$\sigma_8$	$0.78^{+0.13}_{-0.11}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$14.4^{+3.2}_{-3.1}$	$f\sigma_8(0.51)$	$0.454^{+0.059}_{-0.057}$
$S_8$	$0.79^{+0.18}_{-0.14}$	$z_{\text{drag}}$	$1060^{+19}_{-20}$	$\sigma_8(0.51)$	$0.60^{+0.12}_{-0.11}$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.434^{+0.099}_{-0.077}$	$r_{\text{drag}}$	$153^{+40}_{-40}$	$f\sigma_8(0.61)$	$0.450^{+0.059}_{-0.057}$
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.582^{+0.075}_{-0.076}$	$k_{\text{D}}$	$0.139^{+0.030}_{-0.027}$	$\sigma_8(0.61)$	$0.57^{+0.12}_{-0.10}$
$\sigma_8/h^{0.5}$	$0.96^{+0.13}_{-0.11}$	$100\theta_{\text{D}}$	$0.1586^{+0.0058}_{-0.0047}$	$f\sigma_8(2.33)$	$0.289^{+0.066}_{-0.056}$
$r_{\text{drag}}h$	$100^{+20}_{-20}$	$z_{\text{eq}}$	$3400^{+500}_{-400}$	$\sigma_8(2.33)$	$0.299^{+0.075}_{-0.062}$
$\langle d^2 \rangle^{1/2}$	$2.41^{+0.28}_{-0.26}$	$k_{\text{eq}}$	$0.0100^{+0.0018}_{-0.0014}$	$\chi_{\text{simall}}^2$	$396.5 (\nu: 1.0)$
$z_{\text{re}}$	$< 9.14$	$100\theta_{\text{eq}}$	$0.818^{+0.091}_{-0.087}$	$\chi_{\text{plikEE}}^2$	$744.1 (\nu: 6.1)$
$10^9 A_{\text{s}}$	$2.07^{+0.28}_{-0.34}$	$100\theta_{\text{s,eq}}$	$0.451^{+0.042}_{-0.042}$	$\chi_{\text{prior}}^2$	$1.0 (\nu: 1.0)$
$10^9 A_{\text{s}}e^{-2\tau}$	$1.85^{+0.21}_{-0.29}$	$H(0.15)$	$72^{+30}_{-20}$	$\chi_{\text{CMB}}^2$	$1140.6 (\nu: 7.0)$

$\bar{\chi}_{\text{eff}}^2 = 1141.65$ ;  $R - 1 = 0.00915$



## 7.29 base\_nnu\_plikHM\_TE\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02239	$0.02240^{+0.00074}_{-0.00078}$	$\langle d^2 \rangle^{1/2}$	2.389	$2.393^{+0.087}_{-0.083}$	$D_M(0.15)$	645	$642^{+51}_{-51}$
$\Omega_c h^2$	0.1152	$0.116^{+0.018}_{-0.015}$	$z_{\text{re}}$	7.06	$7.0^{+2.1}_{-3.0}$	$H(0.38)$	82.3	$82.7^{+6.5}_{-5.7}$
$100\theta_{\text{MC}}$	1.04169	$1.0416^{+0.0024}_{-0.0022}$	$10^9 A_s$	2.035	$2.04^{+0.13}_{-0.13}$	$D_M(0.38)$	1539	$1533^{+120}_{-120}$
$\tau$	0.0493	$0.049^{+0.021}_{-0.026}$	$10^9 A_s e^{-2\tau}$	1.844	$1.846^{+0.074}_{-0.078}$	$H(0.51)$	88.9	$89.3^{+6.9}_{-6.0}$
$N_{\text{eff}}$	2.87	$2.94^{+1.1}_{-0.89}$	$D_{40}$	1214	$1218^{+66}_{-62}$	$D_M(0.51)$	1995	$1987^{+150}_{-150}$
$\ln(10^{10} A_s)$	3.013	$3.013^{+0.060}_{-0.065}$	$D_{220}$	5690	$5695^{+150}_{-150}$	$H(0.61)$	94.4	$94.9^{+7.2}_{-6.2}$
$n_s$	0.9643	$0.963^{+0.035}_{-0.035}$	$D_{810}$	2513	$2508^{+66}_{-68}$	$D_M(0.61)$	2322	$2313^{+170}_{-170}$
$y_{\text{cal}}$	0.99998	$1.0000^{+0.0065}_{-0.0064}$	$D_{1420}$	812.6	$809^{+35}_{-37}$	$H(2.33)$	232.9	$234^{+16}_{-13}$
$A_{100}^{\text{dustTE}}$	0.113	$0.113^{+0.098}_{-0.094}$	$D_{2000}$	230.2	$229^{+15}_{-15}$	$D_M(2.33)$	5820	$5798^{+390}_{-410}$
$A_{100 \times 143}^{\text{dustTE}}$	0.136	$0.136^{+0.077}_{-0.077}$	$n_{s,0.002}$	0.9643	$0.963^{+0.035}_{-0.035}$	$f\sigma_8(0.15)$	0.4404	$0.441^{+0.027}_{-0.026}$
$A_{100 \times 217}^{\text{dustTE}}$	0.473	$0.48^{+0.22}_{-0.22}$	$Y_P$	0.2431	$0.244^{+0.014}_{-0.013}$	$\sigma_8(0.15)$	0.7288	$0.730^{+0.048}_{-0.044}$
$A_{143}^{\text{dustTE}}$	0.219	$0.22^{+0.14}_{-0.14}$	$Y_P^{\text{BBN}}$	0.2444	$0.245^{+0.014}_{-0.013}$	$f\sigma_8(0.38)$	0.4596	$0.460^{+0.028}_{-0.026}$
$A_{143 \times 217}^{\text{dustTE}}$	0.659	$0.66^{+0.21}_{-0.20}$	$10^5 \text{D/H}$	2.522	$2.54^{+0.30}_{-0.25}$	$\sigma_8(0.38)$	0.6467	$0.648^{+0.044}_{-0.040}$
$A_{217}^{\text{dustTE}}$	2.03	$2.04^{+0.70}_{-0.68}$	Age/Gyr	13.93	$13.88^{+0.94}_{-0.97}$	$f\sigma_8(0.51)$	0.4589	$0.460^{+0.028}_{-0.026}$
$c_{100}$	1.00017	$1.0002^{+0.0018}_{-0.0018}$	$z_*$	1089.30	$1089.5^{+2.2}_{-1.9}$	$\sigma_8(0.51)$	0.6055	$0.607^{+0.041}_{-0.038}$
$c_{217}$	0.99795	$0.9980^{+0.0017}_{-0.0017}$	$r_*$	146.6	$146.0^{+9.5}_{-9.8}$	$f\sigma_8(0.61)$	0.4546	$0.455^{+0.028}_{-0.026}$
$H_0$	67.3	$67.6^{+5.9}_{-5.2}$	$100\theta_*$	1.04199	$1.0419^{+0.0030}_{-0.0028}$	$\sigma_8(0.61)$	0.5763	$0.578^{+0.040}_{-0.036}$
$\Omega_\Lambda$	0.6947	$0.695^{+0.021}_{-0.024}$	$D_M(z_*)/\text{Gpc}$	14.06	$14.01^{+0.88}_{-0.91}$	$f\sigma_8(2.33)$	0.2909	$0.291^{+0.020}_{-0.018}$
$\Omega_m$	0.3053	$0.305^{+0.024}_{-0.021}$	$z_{\text{drag}}$	1059.51	$1059.7^{+3.4}_{-3.3}$	$\sigma_8(2.33)$	0.3001	$0.301^{+0.022}_{-0.020}$
$\Omega_m h^2$	0.1383	$0.140^{+0.019}_{-0.015}$	$r_{\text{drag}}$	149.2	$148.7^{+9.9}_{-10}$	$\chi_{\text{simall}}^2$	395.67	$396.8 (\nu: 1.3)$
$\Omega_m h^3$	0.0930	$0.094^{+0.021}_{-0.017}$	$k_D$	0.1393	$0.1397^{+0.0075}_{-0.0067}$	$\chi_{\text{plikTE}}^2$	852.9	$860.0 (\nu: 7.3)$
$\sigma_8$	0.7881	$0.790^{+0.051}_{-0.047}$	$100\theta_D$	0.16034	$0.1605^{+0.0026}_{-0.0023}$	$\chi_{6\text{DF}}^2$	0.000	$0.048 (\nu: 0.0)$
$S_8$	0.7950	$0.796^{+0.050}_{-0.047}$	$z_{\text{eq}}$	3367	$3366^{+91}_{-84}$	$\chi_{\text{MGS}}^2$	1.68	$1.76 (\nu: 0.2)$
$\sigma_8 \Omega_m^{0.5}$	0.4354	$0.436^{+0.027}_{-0.026}$	$k_{\text{eq}}$	0.01016	$0.01020^{+0.00063}_{-0.00055}$	$\chi_{\text{DR12BAO}}^2$	3.46	$4.2 (\nu: 0.7)$
$\sigma_8 \Omega_m^{0.25}$	0.5858	$0.587^{+0.036}_{-0.034}$	$100\theta_{\text{eq}}$	0.8202	$0.820^{+0.016}_{-0.017}$	$\chi_{\text{prior}}^2$	0.4	$7.4 (\nu: 6.8)$
$\sigma_8/h^{0.5}$	0.9607	$0.960^{+0.037}_{-0.037}$	$100\theta_{s,\text{eq}}$	0.4530	$0.4530^{+0.0082}_{-0.0085}$	$\chi_{\text{BAO}}^2$	5.14	$6.0 (\nu: 0.7)$
$r_{\text{drag}} h$	100.44	$100.4^{+2.8}_{-2.8}$	$H(0.15)$	72.5	$72.8^{+6.1}_{-5.4}$	$\chi_{\text{CMB}}^2$	1248.6	$1256.9 (\nu: 8.7)$

Best-fit  $\chi_{\text{eff}}^2 = 1254.11$ ;  $\bar{\chi}_{\text{eff}}^2 = 1270.28$ ;  $R - 1 = 0.00797$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.46 CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 395.67 plik\_rd12\_HM\_v22\_TE: 852.90



### 7.30 base\_nnu\_plikHM\_TE\_lowE\_BAO\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00072}_{-0.00079}$	$z_{\mathrm{re}}$	$7.6^{+2.1}_{-1.9}$	$D_{\mathrm{M}}(0.38)$	$1550^{+110}_{-110}$
$\Omega_{\mathrm{c}}h^2$	$0.115^{+0.016}_{-0.013}$	$10^9 A_{\mathrm{s}}$	$2.07^{+0.11}_{-0.10}$	$H(0.51)$	$88.5^{+6.4}_{-5.6}$
$100\theta_{\mathrm{MC}}$	$1.0418^{+0.0024}_{-0.0021}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.856^{+0.067}_{-0.072}$	$D_{\mathrm{M}}(0.51)$	$2008^{+140}_{-150}$
$\tau$	$0.055^{+0.022}_{-0.018}$	$D_{40}$	$1225^{+67}_{-62}$	$H(0.61)$	$94.1^{+6.7}_{-5.8}$
$N_{\mathrm{eff}}$	$2.83^{+0.99}_{-0.83}$	$D_{220}$	$5724^{+150}_{-140}$	$D_{\mathrm{M}}(0.61)$	$2337^{+170}_{-170}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.030^{+0.051}_{-0.051}$	$D_{810}$	$2533^{+50}_{-57}$	$H(2.33)$	$233^{+14}_{-12}$
$n_{\mathrm{s}}$	$0.963^{+0.033}_{-0.032}$	$D_{1420}$	$820^{+29}_{-34}$	$D_{\mathrm{M}}(2.33)$	$5843^{+370}_{-380}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0068}$	$D_{2000}$	$233^{+12}_{-15}$	$f\sigma_8(0.15)$	$0.448^{+0.022}_{-0.020}$
$A_{100}^{\mathrm{dustTE}}$	$0.113^{+0.094}_{-0.094}$	$n_{\mathrm{s},0.002}$	$0.963^{+0.033}_{-0.032}$	$\sigma_8(0.15)$	$0.736^{+0.042}_{-0.038}$
$A_{100\times 143}^{\mathrm{dustTE}}$	$0.138^{+0.073}_{-0.079}$	$Y_{\mathrm{P}}$	$0.242^{+0.013}_{-0.012}$	$f\sigma_8(0.38)$	$0.467^{+0.023}_{-0.020}$
$A_{100\times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.244^{+0.013}_{-0.012}$	$\sigma_8(0.38)$	$0.653^{+0.040}_{-0.035}$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$10^5\mathrm{D}/\mathrm{H}$	$2.51^{+0.28}_{-0.24}$	$f\sigma_8(0.51)$	$0.465^{+0.022}_{-0.020}$
$A_{143\times 217}^{\mathrm{dustTE}}$	$0.66^{+0.19}_{-0.23}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.99^{+0.88}_{-0.92}$	$\sigma_8(0.51)$	$0.611^{+0.038}_{-0.033}$
$A_{217}^{\mathrm{dustTE}}$	$2.06^{+0.68}_{-0.63}$	$z_{*}$	$1089.3^{+2.0}_{-1.7}$	$f\sigma_8(0.61)$	$0.461^{+0.023}_{-0.021}$
$c_{100}$	$1.0002^{+0.0019}_{-0.0018}$	$r_{*}$	$146.8^{+8.9}_{-9.1}$	$\sigma_8(0.61)$	$0.581^{+0.037}_{-0.032}$
$c_{217}$	$0.9980^{+0.0016}_{-0.0017}$	$100\theta_{*}$	$1.0421^{+0.0030}_{-0.0027}$	$f\sigma_8(2.33)$	$0.293^{+0.019}_{-0.016}$
$H_0$	$66.8^{+5.7}_{-4.7}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.09^{+0.81}_{-0.84}$	$\sigma_8(2.33)$	$0.302^{+0.020}_{-0.018}$
$\Omega_{\Lambda}$	$0.689^{+0.021}_{-0.023}$	$z_{\mathrm{drag}}$	$1059.5^{+3.3}_{-3.2}$	$\chi_{\mathrm{lensing}}^2$	$10.2\ (\nu: 1.8)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.023}_{-0.021}$	$r_{\mathrm{drag}}$	$149.5^{+9.1}_{-9.4}$	$\chi_{\mathrm{simall}}^2$	$396.9\ (\nu: 1.7)$
$\Omega_{\mathrm{m}}h^2$	$0.138^{+0.017}_{-0.014}$	$k_{\mathrm{D}}$	$0.1393^{+0.0070}_{-0.0059}$	$\chi_{\mathrm{plikTE}}^2$	$860.5\ (\nu: 7.3)$
$\Omega_{\mathrm{m}}h^3$	$0.093^{+0.019}_{-0.015}$	$100\theta_{\mathrm{D}}$	$0.1602^{+0.0024}_{-0.0021}$	$\chi_{6\mathrm{DF}}^2$	$0.063\ (\nu: 0.0)$
$\sigma_8$	$0.797^{+0.044}_{-0.041}$	$z_{\mathrm{eq}}$	$3391^{+84}_{-78}$	$\chi_{\mathrm{MGS}}^2$	$1.35\ (\nu: 0.1)$
$S_8$	$0.810^{+0.041}_{-0.037}$	$k_{\mathrm{eq}}$	$0.01020^{+0.00058}_{-0.00048}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8\ (\nu: 1.4)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.023}_{-0.020}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.015}_{-0.015}$	$\chi_{\mathrm{prior}}^2$	$7.6\ (\nu: 7.3)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.595^{+0.029}_{-0.025}$	$100\theta_{\mathrm{s,eq}}$	$0.4507^{+0.0075}_{-0.0075}$	$\chi_{\mathrm{CMB}}^2$	$1267.6\ (\nu: 9.2)$
$\sigma_8/h^{0.5}$	$0.975^{+0.027}_{-0.026}$	$H(0.15)$	$72.0^{+5.7}_{-4.9}$	$\chi_{\mathrm{BAO}}^2$	$6.2\ (\nu: 0.9)$
$r_{\mathrm{drag}}h$	$99.8^{+2.6}_{-2.6}$	$D_{\mathrm{M}}(0.15)$	$650^{+48}_{-50}$		
$\langle d^2 \rangle^{1/2}$	$2.422^{+0.074}_{-0.072}$	$H(0.38)$	$81.9^{+6.1}_{-5.4}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1281.35$ ;  $R - 1 = 0.02891$



### 7.31 base\_nnu\_plikHM\_TE\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02242^{+0.00073}_{-0.00079}$	$\langle d^2 \rangle^{1/2}$	$2.401^{+0.082}_{-0.076}$	$D_M(0.15)$	$642^{+52}_{-52}$
$\Omega_c h^2$	$0.117^{+0.019}_{-0.015}$	$z_{\text{re}}$	$< 9.00$	$H(0.38)$	$82.8^{+6.7}_{-5.8}$
$100\theta_{\text{MC}}$	$1.0416^{+0.0025}_{-0.0022}$	$10^9 A_s$	$2.05^{+0.11}_{-0.098}$	$D_M(0.38)$	$1532^{+120}_{-120}$
$\tau$	$0.053^{+0.017}_{-0.011}$	$10^9 A_s e^{-2\tau}$	$1.847^{+0.076}_{-0.079}$	$H(0.51)$	$89.4^{+7.0}_{-6.1}$
$N_{\text{eff}}$	$2.95^{+1.1}_{-0.91}$	$D_{40}$	$1217^{+66}_{-62}$	$D_M(0.51)$	$1985^{+150}_{-150}$
$\ln(10^{10} A_s)$	$3.021^{+0.055}_{-0.049}$	$D_{220}$	$5694^{+150}_{-150}$	$H(0.61)$	$94.9^{+7.3}_{-6.4}$
$n_s$	$0.964^{+0.035}_{-0.035}$	$D_{810}$	$2509^{+67}_{-68}$	$D_M(0.61)$	$2311^{+180}_{-180}$
$y_{\text{cal}}$	$1.0000^{+0.0065}_{-0.0065}$	$D_{1420}$	$809^{+35}_{-36}$	$H(2.33)$	$234^{+16}_{-14}$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.098}_{-0.093}$	$D_{2000}$	$229^{+15}_{-15}$	$D_M(2.33)$	$5793^{+400}_{-410}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.136^{+0.078}_{-0.077}$	$n_{s,0.002}$	$0.964^{+0.035}_{-0.035}$	$f\sigma_8(0.15)$	$0.443^{+0.027}_{-0.025}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$Y_{\text{P}}$	$0.244^{+0.014}_{-0.013}$	$\sigma_8(0.15)$	$0.734^{+0.049}_{-0.043}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	$0.245^{+0.014}_{-0.013}$	$f\sigma_8(0.38)$	$0.462^{+0.027}_{-0.025}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$10^5 \text{D/H}$	$2.54^{+0.30}_{-0.26}$	$\sigma_8(0.38)$	$0.651^{+0.044}_{-0.039}$
$A_{217}^{\text{dustTE}}$	$2.04^{+0.70}_{-0.68}$	Age/Gyr	$13.87^{+0.96}_{-0.98}$	$f\sigma_8(0.51)$	$0.462^{+0.028}_{-0.025}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0018}$	$z_*$	$1089.5^{+2.2}_{-1.9}$	$\sigma_8(0.51)$	$0.610^{+0.042}_{-0.037}$
$c_{217}$	$0.9980^{+0.0017}_{-0.0017}$	$r_*$	$145.9^{+9.7}_{-10}$	$f\sigma_8(0.61)$	$0.457^{+0.028}_{-0.025}$
$H_0$	$67.7^{+5.9}_{-5.3}$	$100\theta_*$	$1.0418^{+0.0031}_{-0.0029}$	$\sigma_8(0.61)$	$0.580^{+0.040}_{-0.035}$
$\Omega_\Lambda$	$0.695^{+0.022}_{-0.024}$	$D_M(z_*)/\text{Gpc}$	$14.00^{+0.89}_{-0.92}$	$f\sigma_8(2.33)$	$0.293^{+0.020}_{-0.018}$
$\Omega_{\text{m}}$	$0.305^{+0.024}_{-0.022}$	$z_{\text{drag}}$	$1059.7^{+3.5}_{-3.3}$	$\sigma_8(2.33)$	$0.302^{+0.022}_{-0.019}$
$\Omega_{\text{m}} h^2$	$0.140^{+0.019}_{-0.015}$	$r_{\text{drag}}$	$149^{+10}_{-10}$	$\chi_{\text{simall}}^2$	$396.4 (\nu: 0.7)$
$\Omega_{\text{m}} h^3$	$0.095^{+0.022}_{-0.017}$	$k_{\text{D}}$	$0.1398^{+0.0077}_{-0.0068}$	$\chi_{\text{plikTE}}^2$	$860.1 (\nu: 7.4)$
$\sigma_8$	$0.793^{+0.051}_{-0.046}$	$100\theta_{\text{D}}$	$0.1605^{+0.0026}_{-0.0023}$	$\chi_{6\text{DF}}^2$	$0.048 (\nu: 0.0)$
$S_8$	$0.800^{+0.049}_{-0.046}$	$z_{\text{eq}}$	$3366^{+93}_{-84}$	$\chi_{\text{MGS}}^2$	$1.78 (\nu: 0.2)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.438^{+0.027}_{-0.025}$	$k_{\text{eq}}$	$0.01020^{+0.00065}_{-0.00055}$	$\chi_{\text{DR12BAO}}^2$	$4.2 (\nu: 0.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.589^{+0.035}_{-0.032}$	$100\theta_{\text{eq}}$	$0.821^{+0.016}_{-0.017}$	$\chi_{\text{prior}}^2$	$7.5 (\nu: 6.9)$
$\sigma_8/h^{0.5}$	$0.964^{+0.036}_{-0.033}$	$100\theta_{\text{s,eq}}$	$0.4531^{+0.0082}_{-0.0087}$	$\chi_{\text{BAO}}^2$	$6.0 (\nu: 0.7)$
$r_{\text{drag}} h$	$100.5^{+2.8}_{-2.9}$	$H(0.15)$	$72.9^{+6.2}_{-5.4}$	$\chi_{\text{CMB}}^2$	$1256.5 (\nu: 8.3)$

$\bar{\chi}_{\text{eff}}^2 = 1269.92$ ;  $R - 1 = 0.01050$



### 7.32 base\_nnu\_plikHM\_TE\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02241^{+0.00072}_{-0.00077}$	$z_{\mathrm{re}}$	$< 9.36$	$D_{\mathrm{M}}(0.38)$	$1550^{+120}_{-120}$
$\Omega_{\mathrm{c}}h^2$	$0.115^{+0.016}_{-0.013}$	$10^9 A_{\mathrm{s}}$	$2.08^{+0.11}_{-0.091}$	$H(0.51)$	$88.6^{+6.7}_{-5.7}$
$100\theta_{\mathrm{MC}}$	$1.0418^{+0.0024}_{-0.0021}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.856^{+0.071}_{-0.075}$	$D_{\mathrm{M}}(0.51)$	$2008^{+150}_{-150}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$D_{40}$	$1225^{+67}_{-62}$	$H(0.61)$	$94.1^{+7.0}_{-6.0}$
$N_{\mathrm{eff}}$	$2.83^{+1.0}_{-0.83}$	$D_{220}$	$5722^{+140}_{-140}$	$D_{\mathrm{M}}(0.61)$	$2336^{+170}_{-170}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.033^{+0.050}_{-0.045}$	$D_{810}$	$2532^{+50}_{-57}$	$H(2.33)$	$233^{+14}_{-12}$
$n_{\mathrm{s}}$	$0.963^{+0.033}_{-0.032}$	$D_{1420}$	$820^{+29}_{-34}$	$D_{\mathrm{M}}(2.33)$	$5842^{+390}_{-400}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0068}$	$D_{2000}$	$233^{+12}_{-14}$	$f\sigma_8(0.15)$	$0.449^{+0.022}_{-0.019}$
$A_{100}^{\mathrm{dustTE}}$	$0.113^{+0.096}_{-0.094}$	$n_{\mathrm{s},0.002}$	$0.963^{+0.033}_{-0.032}$	$\sigma_8(0.15)$	$0.737^{+0.043}_{-0.038}$
$A_{100\times 143}^{\mathrm{dustTE}}$	$0.138^{+0.073}_{-0.080}$	$Y_{\mathrm{P}}$	$0.242^{+0.013}_{-0.012}$	$f\sigma_8(0.38)$	$0.467^{+0.022}_{-0.019}$
$A_{100\times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.244^{+0.014}_{-0.012}$	$\sigma_8(0.38)$	$0.653^{+0.039}_{-0.035}$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.13}_{-0.13}$	$10^5\mathrm{D}/\mathrm{H}$	$2.51^{+0.28}_{-0.24}$	$f\sigma_8(0.51)$	$0.466^{+0.022}_{-0.020}$
$A_{143\times 217}^{\mathrm{dustTE}}$	$0.66^{+0.19}_{-0.23}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.99^{+0.92}_{-0.96}$	$\sigma_8(0.51)$	$0.611^{+0.038}_{-0.033}$
$A_{217}^{\mathrm{dustTE}}$	$2.06^{+0.70}_{-0.62}$	$z_{*}$	$1089.3^{+2.0}_{-1.7}$	$f\sigma_8(0.61)$	$0.461^{+0.023}_{-0.020}$
$c_{100}$	$1.0002^{+0.0019}_{-0.0018}$	$r_{*}$	$146.8^{+8.9}_{-9.4}$	$\sigma_8(0.61)$	$0.582^{+0.037}_{-0.031}$
$c_{217}$	$0.9980^{+0.0016}_{-0.0017}$	$100\theta_{*}$	$1.0421^{+0.0031}_{-0.0027}$	$f\sigma_8(2.33)$	$0.293^{+0.019}_{-0.017}$
$H_0$	$66.8^{+5.8}_{-5.2}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$14.09^{+0.82}_{-0.87}$	$\sigma_8(2.33)$	$0.303^{+0.020}_{-0.018}$
$\Omega_{\Lambda}$	$0.690^{+0.020}_{-0.022}$	$z_{\mathrm{drag}}$	$1059.5^{+3.3}_{-3.3}$	$\chi_{\mathrm{lensing}}^2$	$10.1 (\nu: 1.6)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.022}_{-0.020}$	$r_{\mathrm{drag}}$	$149.5^{+9.3}_{-9.6}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.8)$
$\Omega_{\mathrm{m}}h^2$	$0.138^{+0.017}_{-0.014}$	$k_{\mathrm{D}}$	$0.1393^{+0.0070}_{-0.0060}$	$\chi_{\mathrm{plikTE}}^2$	$860.4 (\nu: 7.0)$
$\Omega_{\mathrm{m}}h^3$	$0.093^{+0.020}_{-0.016}$	$100\theta_{\mathrm{D}}$	$0.1602^{+0.0025}_{-0.0021}$	$\chi_{6\mathrm{DF}}^2$	$0.061 (\nu: 0.0)$
$\sigma_8$	$0.797^{+0.045}_{-0.040}$	$z_{\mathrm{eq}}$	$3390^{+85}_{-78}$	$\chi_{\mathrm{MGS}}^2$	$1.37 (\nu: 0.2)$
$S_8$	$0.811^{+0.042}_{-0.037}$	$k_{\mathrm{eq}}$	$0.01019^{+0.00059}_{-0.00049}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.3)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.023}_{-0.020}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.015}_{-0.015}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 7.4)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.595^{+0.028}_{-0.025}$	$100\theta_{\mathrm{s,eq}}$	$0.4508^{+0.0075}_{-0.0074}$	$\chi_{\mathrm{CMB}}^2$	$1267.4 (\nu: 8.8)$
$\sigma_8/h^{0.5}$	$0.976^{+0.026}_{-0.024}$	$H(0.15)$	$72.0^{+5.9}_{-5.3}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.9)$
$r_{\mathrm{drag}}h$	$99.8^{+2.6}_{-2.5}$	$D_{\mathrm{M}}(0.15)$	$650^{+53}_{-51}$		
$\langle d^2 \rangle^{1/2}$	$2.424^{+0.073}_{-0.071}$	$H(0.38)$	$82.0^{+6.4}_{-5.5}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1281.05$ ;  $R - 1 = 0.03229$



### 7.33 base\_nnu\_plikHM\_EE\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02342	$0.0230^{+0.0022}_{-0.0025}$	$D_{810}$	2612	$2589^{+92}_{-95}$	$D_M(0.51)$	2052	$2075^{+400}_{-400}$
$\Omega_c h^2$	0.1056	$0.106^{+0.046}_{-0.036}$	$D_{1420}$	863	$854^{+66}_{-68}$	$H(0.61)$	91.7	$91^{+20}_{-20}$
$100\theta_{MC}$	1.0415	$1.0421^{+0.0095}_{-0.0059}$	$D_{2000}$	250.4	$248^{+30}_{-30}$	$D_M(0.61)$	2389	$2415^{+500}_{-400}$
$\tau$	0.0522	$0.051^{+0.022}_{-0.025}$	$n_{s,0.002}$	0.964	$0.962^{+0.050}_{-0.051}$	$H(2.33)$	225.7	$225^{+40}_{-40}$
$N_{\text{eff}}$	2.37	$2.4^{+2.6}_{-2.1}$	$Y_P$	0.2363	$0.235^{+0.034}_{-0.037}$	$D_M(2.33)$	5996	$6051^{+1000}_{-1000}$
$\ln(10^{10} A_s)$	3.032	$3.015^{+0.099}_{-0.14}$	$Y_P^{\text{BBN}}$	0.2376	$0.236^{+0.034}_{-0.037}$	$f\sigma_8(0.15)$	0.429	$0.429^{+0.054}_{-0.059}$
$n_s$	0.964	$0.962^{+0.050}_{-0.051}$	$10^5 D/H$	2.18	$2.25^{+0.65}_{-0.52}$	$\sigma_8(0.15)$	0.714	$0.71^{+0.11}_{-0.11}$
$y_{\text{cal}}$	1.0004	$0.99997^{+0.0064}_{-0.0065}$	Age/Gyr	14.36	$14.5^{+2.8}_{-2.3}$	$f\sigma_8(0.38)$	0.449	$0.447^{+0.059}_{-0.065}$
$H_0$	65.5	$65^{+10}_{-10}$	$z_*$	1086.77	$1087.2^{+4.9}_{-4.2}$	$\sigma_8(0.38)$	0.634	$0.629^{+0.097}_{-0.10}$
$\Omega_\Lambda$	0.6976	$0.694^{+0.028}_{-0.032}$	$r_*$	151.2	$152^{+30}_{-20}$	$f\sigma_8(0.51)$	0.448	$0.447^{+0.061}_{-0.066}$
$\Omega_m$	0.3024	$0.306^{+0.032}_{-0.028}$	$100\theta_*$	1.0420	$1.043^{+0.011}_{-0.0075}$	$\sigma_8(0.51)$	0.593	$0.589^{+0.092}_{-0.096}$
$\Omega_m h^2$	0.1297	$0.130^{+0.048}_{-0.037}$	$D_M(z_*)/\text{Gpc}$	14.51	$14.6^{+2.7}_{-2.3}$	$f\sigma_8(0.61)$	0.444	$0.442^{+0.061}_{-0.067}$
$\Omega_m h^3$	0.0849	$0.085^{+0.054}_{-0.036}$	$z_{\text{drag}}$	1060.8	$1059.6^{+9.0}_{-9.7}$	$\sigma_8(0.61)$	0.565	$0.561^{+0.088}_{-0.092}$
$\sigma_8$	0.771	$0.77^{+0.11}_{-0.12}$	$r_{\text{drag}}$	153.6	$155^{+30}_{-30}$	$f\sigma_8(2.33)$	0.2852	$0.283^{+0.045}_{-0.047}$
$S_8$	0.774	$0.774^{+0.097}_{-0.11}$	$k_D$	0.1376	$0.137^{+0.019}_{-0.019}$	$\sigma_8(2.33)$	0.2944	$0.292^{+0.048}_{-0.049}$
$\sigma_8 \Omega_m^{0.5}$	0.424	$0.424^{+0.053}_{-0.058}$	$100\theta_D$	0.1574	$0.1579^{+0.0057}_{-0.0048}$	$\chi_{\text{small}}^2$	395.54	396.7 ( $\nu$ : 1.2)
$\sigma_8 \Omega_m^{0.25}$	0.572	$0.570^{+0.077}_{-0.083}$	$z_{\text{eq}}$	3392	$3390^{+110}_{-100}$	$\chi_{\text{plikEE}}^2$	738.8	743.5 ( $\nu$ : 5.0)
$\sigma_8/h^{0.5}$	0.953	$0.951^{+0.057}_{-0.071}$	$k_{\text{eq}}$	0.00987	$0.0098^{+0.0016}_{-0.0014}$	$\chi_{6\text{DF}}^2$	0.000	0.064 ( $\nu$ : 0.0)
$r_{\text{drag}} h$	100.58	$100.3^{+3.2}_{-3.1}$	$100\theta_{\text{eq}}$	0.8181	$0.817^{+0.019}_{-0.019}$	$\chi_{\text{MGS}}^2$	1.75	1.70 ( $\nu$ : 0.3)
$\langle d^2 \rangle^{1/2}$	2.398	$2.390^{+0.098}_{-0.10}$	$100\theta_{s,\text{eq}}$	0.4511	$0.4511^{+0.0092}_{-0.0093}$	$\chi_{\text{DR12BAO}}^2$	3.56	4.5 ( $\nu$ : 1.1)
$z_{\text{re}}$	6.95	$6.9^{+2.1}_{-2.8}$	$H(0.15)$	70.5	$70^{+10}_{-10}$	$\chi_{\text{prior}}^2$	0.03	0.98 ( $\nu$ : 1.0)
$10^9 A_s$	2.073	$2.04^{+0.21}_{-0.27}$	$D_M(0.15)$	663	$671^{+100}_{-100}$	$\chi_{\text{BAO}}^2$	5.30	6.2 ( $\nu$ : 1.0)
$10^9 A_s e^{-2\tau}$	1.868	$1.84^{+0.17}_{-0.23}$	$H(0.38)$	80.0	$80^{+20}_{-10}$	$\chi_{\text{CMB}}^2$	1134.3	1140.2 ( $\nu$ : 6.3)
$D_{40}$	1247	$1235^{+79}_{-82}$	$D_M(0.38)$	1583	$1601^{+300}_{-300}$			
$D_{220}$	5969	$5880^{+360}_{-350}$	$H(0.51)$	86.4	$86^{+20}_{-10}$			

Best-fit  $\chi_{\text{eff}}^2 = 1139.64$ ;  $\bar{\chi}_{\text{eff}}^2 = 1147.36$ ;  $R - 1 = 0.00877$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.56 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.54 plik\_rd12\_HM\_v22\_EE: 738.76



### 7.34 base\_nnu\_plikHM\_EE\_lowE\_BAO\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0230^{+0.0019}_{-0.0019}$	$D_{810}$	$2586^{+74}_{-74}$	$D_{\mathrm{M}}(0.51)$	$2065^{+300}_{-300}$
$\Omega_{\mathrm{c}}h^2$	$0.106^{+0.033}_{-0.026}$	$D_{1420}$	$852^{+55}_{-53}$	$H(0.61)$	$91^{+10}_{-10}$
$100\theta_{\mathrm{MC}}$	$1.0418^{+0.0062}_{-0.0048}$	$D_{2000}$	$247^{+26}_{-25}$	$D_{\mathrm{M}}(0.61)$	$2404^{+400}_{-300}$
$\tau$	$0.051^{+0.020}_{-0.023}$	$n_{\mathrm{s},0.002}$	$0.963^{+0.041}_{-0.039}$	$H(2.33)$	$226^{+30}_{-30}$
$N_{\mathrm{eff}}$	$2.4^{+1.9}_{-1.6}$	$Y_{\mathrm{P}}$	$0.236^{+0.026}_{-0.026}$	$D_{\mathrm{M}}(2.33)$	$6023^{+800}_{-800}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.018^{+0.071}_{-0.088}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.237^{+0.026}_{-0.027}$	$f\sigma_8(0.15)$	$0.430^{+0.041}_{-0.041}$
$n_{\mathrm{s}}$	$0.963^{+0.041}_{-0.039}$	$10^5\mathrm{D}/\mathrm{H}$	$2.26^{+0.48}_{-0.42}$	$\sigma_8(0.15)$	$0.712^{+0.079}_{-0.078}$
$y_{\mathrm{cal}}$	$0.9999^{+0.0064}_{-0.0063}$	Age/Gyr	$14.4^{+2.0}_{-1.8}$	$f\sigma_8(0.38)$	$0.449^{+0.043}_{-0.044}$
$H_0$	$65^{+10}_{-9}$	$z_*$	$1087.3^{+3.6}_{-3.3}$	$\sigma_8(0.38)$	$0.632^{+0.072}_{-0.070}$
$\Omega_{\Lambda}$	$0.694^{+0.027}_{-0.030}$	$r_*$	$152^{+20}_{-20}$	$f\sigma_8(0.51)$	$0.448^{+0.044}_{-0.045}$
$\Omega_{\mathrm{m}}$	$0.306^{+0.030}_{-0.027}$	$100\theta_*$	$1.0424^{+0.0075}_{-0.0060}$	$\sigma_8(0.51)$	$0.591^{+0.069}_{-0.066}$
$\Omega_{\mathrm{m}}h^2$	$0.130^{+0.034}_{-0.028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.6^{+1.9}_{-1.7}$	$f\sigma_8(0.61)$	$0.444^{+0.045}_{-0.045}$
$\Omega_{\mathrm{m}}h^3$	$0.085^{+0.039}_{-0.028}$	$z_{\mathrm{drag}}$	$1059.7^{+7.0}_{-7.6}$	$\sigma_8(0.61)$	$0.563^{+0.066}_{-0.064}$
$\sigma_8$	$0.770^{+0.083}_{-0.083}$	$r_{\mathrm{drag}}$	$154^{+20}_{-20}$	$f\sigma_8(2.33)$	$0.284^{+0.033}_{-0.032}$
$S_8$	$0.776^{+0.073}_{-0.074}$	$k_{\mathrm{D}}$	$0.137^{+0.014}_{-0.013}$	$\sigma_8(2.33)$	$0.293^{+0.035}_{-0.034}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.425^{+0.040}_{-0.040}$	$100\theta_{\mathrm{D}}$	$0.1580^{+0.0042}_{-0.0038}$	$\chi_{\mathrm{lensing}}^2$	$9.2 (\nu: 0.7)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.572^{+0.056}_{-0.057}$	$z_{\mathrm{eq}}$	$3387^{+100}_{-87}$	$\chi_{\mathrm{simall}}^2$	$396.6 (\nu: 1.0)$
$\sigma_8/h^{0.5}$	$0.953^{+0.043}_{-0.049}$	$k_{\mathrm{eq}}$	$0.0099^{+0.0012}_{-0.0010}$	$\chi_{\mathrm{plikEE}}^2$	$742.5 (\nu: 3.6)$
$r_{\mathrm{drag}}h$	$100.3^{+3.1}_{-3.1}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.017}_{-0.018}$	$\chi_{6\mathrm{DF}}^2$	$0.061 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.391^{+0.076}_{-0.081}$	$100\theta_{\mathrm{s,eq}}$	$0.4514^{+0.0082}_{-0.0086}$	$\chi_{\mathrm{MGS}}^2$	$1.68 (\nu: 0.2)$
$z_{\mathrm{re}}$	$6.9^{+2.0}_{-2.4}$	$H(0.15)$	$70^{+10}_{-10}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 1.0)$
$10^9 A_{\mathrm{s}}$	$2.05^{+0.15}_{-0.17}$	$D_{\mathrm{M}}(0.15)$	$668^{+100}_{-90}$	$\chi_{\mathrm{prior}}^2$	$0.96 (\nu: 0.9)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.85^{+0.12}_{-0.15}$	$H(0.38)$	$80^{+10}_{-10}$	$\chi_{\mathrm{CMB}}^2$	$1148.2 (\nu: 6.2)$
$D_{40}$	$1234^{+73}_{-75}$	$D_{\mathrm{M}}(0.38)$	$1593^{+200}_{-200}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.9)$
$D_{220}$	$5873^{+300}_{-280}$	$H(0.51)$	$86^{+10}_{-10}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1155.37; R - 1 = 0.00317$$



### 7.35 base\_nnu\_plikHM\_EE\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0230^{+0.0022}_{-0.0025}$	$D_{810}$	$2586^{+93}_{-94}$	$D_{\mathrm{M}}(0.51)$	$2058^{+400}_{-300}$
$\Omega_{\mathrm{c}}h^2$	$0.108^{+0.046}_{-0.036}$	$D_{1420}$	$851^{+67}_{-66}$	$H(0.61)$	$92^{+20}_{-20}$
$100\theta_{\mathrm{MC}}$	$1.0418^{+0.0089}_{-0.0057}$	$D_{2000}$	$246^{+30}_{-30}$	$D_{\mathrm{M}}(0.61)$	$2395^{+500}_{-400}$
$\tau$	$0.055^{+0.019}_{-0.012}$	$n_{\mathrm{s},0.002}$	$0.964^{+0.049}_{-0.049}$	$H(2.33)$	$227^{+40}_{-30}$
$N_{\mathrm{eff}}$	$2.5^{+2.6}_{-2.1}$	$Y_{\mathrm{P}}$	$0.237^{+0.033}_{-0.036}$	$D_{\mathrm{M}}(2.33)$	$6004^{+1000}_{-1000}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.028^{+0.090}_{-0.12}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.238^{+0.033}_{-0.036}$	$f\sigma_8(0.15)$	$0.433^{+0.052}_{-0.058}$
$n_{\mathrm{s}}$	$0.964^{+0.049}_{-0.049}$	$10^5\mathrm{D}/\mathrm{H}$	$2.27^{+0.64}_{-0.53}$	$\sigma_8(0.15)$	$0.72^{+0.10}_{-0.11}$
$y_{\mathrm{cal}}$	$0.99995^{+0.0063}_{-0.0066}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.4^{+2.7}_{-2.3}$	$f\sigma_8(0.38)$	$0.452^{+0.056}_{-0.063}$
$H_0$	$66^{+10}_{-10}$	$z_*$	$1087.4^{+4.8}_{-4.2}$	$\sigma_8(0.38)$	$0.636^{+0.093}_{-0.098}$
$\Omega_{\Lambda}$	$0.695^{+0.027}_{-0.032}$	$r_*$	$151^{+30}_{-20}$	$f\sigma_8(0.51)$	$0.451^{+0.058}_{-0.064}$
$\Omega_{\mathrm{m}}$	$0.305^{+0.032}_{-0.027}$	$100\theta_*$	$1.042^{+0.011}_{-0.0072}$	$\sigma_8(0.51)$	$0.596^{+0.088}_{-0.092}$
$\Omega_{\mathrm{m}}h^2$	$0.131^{+0.047}_{-0.037}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.5^{+2.6}_{-2.2}$	$f\sigma_8(0.61)$	$0.447^{+0.059}_{-0.064}$
$\Omega_{\mathrm{m}}h^3$	$0.087^{+0.053}_{-0.036}$	$z_{\mathrm{drag}}$	$1060.0^{+8.9}_{-9.6}$	$\sigma_8(0.61)$	$0.567^{+0.085}_{-0.088}$
$\sigma_8$	$0.78^{+0.11}_{-0.12}$	$r_{\mathrm{drag}}$	$154^{+30}_{-20}$	$f\sigma_8(2.33)$	$0.286^{+0.043}_{-0.045}$
$S_8$	$0.781^{+0.093}_{-0.10}$	$k_{\mathrm{D}}$	$0.137^{+0.019}_{-0.018}$	$\sigma_8(2.33)$	$0.295^{+0.046}_{-0.047}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.428^{+0.051}_{-0.057}$	$100\theta_{\mathrm{D}}$	$0.1581^{+0.0055}_{-0.0049}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.9)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.576^{+0.073}_{-0.081}$	$z_{\mathrm{eq}}$	$3387^{+110}_{-98}$	$\chi_{\mathrm{plikEE}}^2$	$743.4 (\nu: 4.9)$
$\sigma_8/h^{0.5}$	$0.957^{+0.052}_{-0.067}$	$k_{\mathrm{eq}}$	$0.0099^{+0.0016}_{-0.0014}$	$\chi_{6\mathrm{DF}}^2$	$0.063 (\nu: 0.0)$
$r_{\mathrm{drag}}h$	$100.4^{+3.2}_{-3.2}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.018}_{-0.019}$	$\chi_{\mathrm{MGS}}^2$	$1.73 (\nu: 0.3)$
$\langle d^2 \rangle^{1/2}$	$2.401^{+0.093}_{-0.088}$	$100\theta_{\mathrm{s,eq}}$	$0.4514^{+0.0090}_{-0.0091}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 (\nu: 1.0)$
$z_{\mathrm{re}}$	$< 8.95$	$H(0.15)$	$71^{+10}_{-10}$	$\chi_{\mathrm{prior}}^2$	$0.97 (\nu: 1.0)$
$10^9 A_{\mathrm{s}}$	$2.07^{+0.19}_{-0.24}$	$D_{\mathrm{M}}(0.15)$	$665^{+100}_{-100}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 1.0)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.85^{+0.16}_{-0.22}$	$H(0.38)$	$80^{+20}_{-10}$	$\chi_{\mathrm{CMB}}^2$	$1139.8 (\nu: 5.8)$
$D_{40}$	$1234^{+79}_{-81}$	$D_{\mathrm{M}}(0.38)$	$1588^{+300}_{-300}$		
$D_{220}$	$5875^{+350}_{-350}$	$H(0.51)$	$87^{+20}_{-10}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1147.01$ ;  $R - 1 = 0.00611$



### 7.36 base\_nnu\_plikHM\_EE\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0229^{+0.0019}_{-0.0020}$	$D_{810}$	$2582^{+72}_{-72}$	$D_{\mathrm{M}}(0.51)$	$2060^{+300}_{-300}$
$\Omega_{\mathrm{c}}h^2$	$0.107^{+0.033}_{-0.026}$	$D_{1420}$	$850^{+54}_{-52}$	$H(0.61)$	$92^{+10}_{-10}$
$100\theta_{\mathrm{MC}}$	$1.0417^{+0.0062}_{-0.0048}$	$D_{2000}$	$246^{+26}_{-25}$	$D_{\mathrm{M}}(0.61)$	$2398^{+400}_{-300}$
$\tau$	$0.055^{+0.017}_{-0.010}$	$n_{\mathrm{s},0.002}$	$0.964^{+0.040}_{-0.039}$	$H(2.33)$	$226^{+30}_{-30}$
$N_{\mathrm{eff}}$	$2.4^{+1.9}_{-1.6}$	$Y_{\mathrm{P}}$	$0.237^{+0.026}_{-0.026}$	$D_{\mathrm{M}}(2.33)$	$6009^{+800}_{-700}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.025^{+0.068}_{-0.083}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.238^{+0.026}_{-0.026}$	$f\sigma_8(0.15)$	$0.432^{+0.040}_{-0.040}$
$n_{\mathrm{s}}$	$0.964^{+0.040}_{-0.039}$	$10^5\mathrm{D}/\mathrm{H}$	$2.28^{+0.48}_{-0.42}$	$\sigma_8(0.15)$	$0.715^{+0.078}_{-0.077}$
$y_{\mathrm{cal}}$	$0.9998^{+0.0060}_{-0.0064}$	Age/Gyr	$14.4^{+2.0}_{-1.8}$	$f\sigma_8(0.38)$	$0.451^{+0.043}_{-0.043}$
$H_0$	$65^{+10}_{-9}$	$z_*$	$1087.5^{+3.6}_{-3.3}$	$\sigma_8(0.38)$	$0.635^{+0.071}_{-0.069}$
$\Omega_{\Lambda}$	$0.695^{+0.027}_{-0.031}$	$r_*$	$151^{+20}_{-20}$	$f\sigma_8(0.51)$	$0.450^{+0.044}_{-0.044}$
$\Omega_{\mathrm{m}}$	$0.305^{+0.031}_{-0.027}$	$100\theta_*$	$1.0423^{+0.0074}_{-0.0060}$	$\sigma_8(0.51)$	$0.594^{+0.067}_{-0.066}$
$\Omega_{\mathrm{m}}h^2$	$0.131^{+0.035}_{-0.028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.5^{+1.8}_{-1.7}$	$f\sigma_8(0.61)$	$0.446^{+0.044}_{-0.044}$
$\Omega_{\mathrm{m}}h^3$	$0.086^{+0.039}_{-0.028}$	$z_{\mathrm{drag}}$	$1059.7^{+7.2}_{-7.6}$	$\sigma_8(0.61)$	$0.566^{+0.064}_{-0.063}$
$\sigma_8$	$0.773^{+0.083}_{-0.081}$	$r_{\mathrm{drag}}$	$154^{+20}_{-20}$	$f\sigma_8(2.33)$	$0.286^{+0.033}_{-0.032}$
$S_8$	$0.780^{+0.072}_{-0.073}$	$k_{\mathrm{D}}$	$0.137^{+0.015}_{-0.013}$	$\sigma_8(2.33)$	$0.295^{+0.035}_{-0.034}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.427^{+0.040}_{-0.040}$	$100\theta_{\mathrm{D}}$	$0.1581^{+0.0041}_{-0.0038}$	$\chi^2_{\mathrm{lensing}}$	$9.1 (\nu: 0.7)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.575^{+0.056}_{-0.055}$	$z_{\mathrm{eq}}$	$3383^{+99}_{-85}$	$\chi^2_{\mathrm{simall}}$	$396.3 (\nu: 0.7)$
$\sigma_8/h^{0.5}$	$0.957^{+0.041}_{-0.046}$	$k_{\mathrm{eq}}$	$0.0099^{+0.0012}_{-0.0010}$	$\chi^2_{\mathrm{plikEE}}$	$742.4 (\nu: 3.5)$
$r_{\mathrm{drag}}h$	$100.4^{+3.1}_{-3.2}$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.017}_{-0.019}$	$\chi^2_{6\mathrm{DF}}$	$0.061 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.398^{+0.073}_{-0.074}$	$100\theta_{\mathrm{s,eq}}$	$0.4517^{+0.0081}_{-0.0085}$	$\chi^2_{\mathrm{MGS}}$	$1.72 (\nu: 0.3)$
$z_{\mathrm{re}}$	$< 8.82$	$H(0.15)$	$70^{+10}_{-10}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.4 (\nu: 1.0)$
$10^9A_{\mathrm{s}}$	$2.06^{+0.14}_{-0.16}$	$D_{\mathrm{M}}(0.15)$	$666^{+100}_{-90}$	$\chi^2_{\mathrm{prior}}$	$0.9 (\nu: 0.9)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.85^{+0.13}_{-0.15}$	$H(0.38)$	$80^{+10}_{-10}$	$\chi^2_{\mathrm{CMB}}$	$1147.9 (\nu: 5.7)$
$D_{40}$	$1232^{+69}_{-72}$	$D_{\mathrm{M}}(0.38)$	$1589^{+200}_{-200}$	$\chi^2_{\mathrm{BAO}}$	$6.2 (\nu: 0.9)$
$D_{220}$	$5860^{+280}_{-280}$	$H(0.51)$	$86^{+10}_{-10}$		

$\bar{\chi}^2_{\mathrm{eff}} = 1155.01$ ;  $R - 1 = 0.00359$



### 7.37 base\_nnu\_plikHM\_TT\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02224	$0.02227^{+0.00059}_{-0.00058}$	$\sigma_8/h^{0.5}$	0.9823	$0.983^{+0.033}_{-0.031}$	$D_M(0.38)$	1525	$1518^{+76}_{-76}$
$\Omega_c h^2$	0.1193	$0.121^{+0.010}_{-0.0093}$	$r_{\text{drag}} h$	99.87	$99.96^{+2.8}_{-2.6}$	$H(0.51)$	89.87	$90.3^{+4.1}_{-3.9}$
$100\theta_{\text{MC}}$	1.04094	$1.0408^{+0.0015}_{-0.0014}$	$\langle d^2 \rangle^{1/2}$	2.425	$2.426^{+0.073}_{-0.073}$	$D_M(0.51)$	1976	$1967^{+96}_{-95}$
$\tau$	0.0545	$0.054^{+0.022}_{-0.022}$	$z_{\text{re}}$	7.72	$7.7^{+2.2}_{-2.4}$	$H(0.61)$	95.47	$96.0^{+4.2}_{-4.0}$
$N_{\text{eff}}$	3.07	$3.15^{+0.62}_{-0.56}$	$10^9 A_s$	2.095	$2.10^{+0.11}_{-0.11}$	$D_M(0.61)$	2300	$2289^{+110}_{-110}$
$\ln(10^{10} A_s)$	3.042	$3.044^{+0.053}_{-0.053}$	$10^9 A_s e^{-2\tau}$	1.879	$1.885^{+0.055}_{-0.053}$	$H(2.33)$	236.1	$237.1^{+8.9}_{-8.2}$
$n_s$	0.9686	$0.970^{+0.022}_{-0.021}$	$D_{40}$	1221.3	$1222^{+38}_{-38}$	$D_M(2.33)$	5754	$5728^{+240}_{-240}$
$y_{\text{cal}}$	1.0003	$1.0006^{+0.0063}_{-0.0065}$	$D_{220}$	5714	$5719^{+100}_{-110}$	$f\sigma_8(0.15)$	0.4546	$0.456^{+0.023}_{-0.022}$
$A_{217}^{\text{CIB}}$	49.7	$48^{+20}_{-20}$	$D_{810}$	2536.1	$2537^{+36}_{-37}$	$\sigma_8(0.15)$	0.7477	$0.750^{+0.033}_{-0.032}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.19	—	$D_{1420}$	815.8	$815^{+13}_{-14}$	$f\sigma_8(0.38)$	0.4734	$0.475^{+0.021}_{-0.020}$
$A_{143}^{\text{tSZ}}$	7.0	—	$D_{2000}$	230.0	$229.4^{+5.6}_{-5.7}$	$\sigma_8(0.38)$	0.6630	$0.666^{+0.030}_{-0.029}$
$A_{100}^{\text{PS}}$	257	$266^{+70}_{-70}$	$n_{s,0.002}$	0.9686	$0.970^{+0.022}_{-0.021}$	$f\sigma_8(0.51)$	0.4723	$0.474^{+0.021}_{-0.019}$
$A_{143}^{\text{PS}}$	47.6	$50^{+20}_{-20}$	$Y_{\text{P}}$	0.2457	$0.2466^{+0.0080}_{-0.0078}$	$\sigma_8(0.51)$	0.6206	$0.623^{+0.029}_{-0.027}$
$A_{143 \times 217}^{\text{PS}}$	43.4	$44^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.2471	$0.2480^{+0.0080}_{-0.0078}$	$f\sigma_8(0.61)$	0.4675	$0.469^{+0.020}_{-0.019}$
$A_{217}^{\text{PS}}$	117.6	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.620	$2.64^{+0.19}_{-0.16}$	$\sigma_8(0.61)$	0.5906	$0.593^{+0.028}_{-0.026}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.78	$13.71^{+0.57}_{-0.57}$	$f\sigma_8(2.33)$	0.2979	$0.299^{+0.014}_{-0.013}$
$A_{100}^{\text{dustTT}}$	8.86	$9.0^{+4.7}_{-4.7}$	$z_*$	1090.05	$1090.2^{+1.3}_{-1.2}$	$\sigma_8(2.33)$	0.3072	$0.308^{+0.015}_{-0.014}$
$A_{143}^{\text{dustTT}}$	10.81	$10.8^{+4.7}_{-4.6}$	$r_*$	144.6	$143.9^{+5.6}_{-5.6}$	$f_{2000}^{143}$	30.5	$32^{+9}_{-9}$
$A_{143 \times 217}^{\text{dustTT}}$	19.1	$18.3^{+8.5}_{-8.7}$	$100\theta_*$	1.04111	$1.0410^{+0.0017}_{-0.0017}$	$f_{2000}^{143 \times 217}$	33.2	$34^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	94.1	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.88	$13.82^{+0.51}_{-0.52}$	$f_{2000}^{217}$	107.7	$108.5^{+5.9}_{-5.7}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.63	$1059.8^{+2.2}_{-2.2}$	$\chi_{\text{small}}^2$	396.05	$397.1 (\nu: 1.8)$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.3	$146.6^{+5.7}_{-5.8}$	$\chi_{\text{lowl}}^2$	22.69	$22.8 (\nu: 0.7)$
$H_0$	67.82	$68.2^{+3.8}_{-3.6}$	$k_{\text{D}}$	0.14048	$0.1410^{+0.0044}_{-0.0041}$	$\chi_{\text{plik}}^2$	760.2	$773.2 (\nu: 16.2)$
$\Omega_{\Lambda}$	0.6908	$0.691^{+0.022}_{-0.021}$	$100\theta_{\text{D}}$	0.16107	$0.1612^{+0.0016}_{-0.0014}$	$\chi_{6\text{DF}}^2$	0.016	$0.057 (\nu: 0.0)$
$\Omega_{\text{m}}$	0.3092	$0.309^{+0.021}_{-0.022}$	$z_{\text{eq}}$	3370	$3368^{+81}_{-81}$	$\chi_{\text{MGS}}^2$	1.34	$1.47 (\nu: 0.2)$
$\Omega_{\text{m}} h^2$	0.1422	$0.143^{+0.011}_{-0.0096}$	$k_{\text{eq}}$	0.010307	$0.01035^{+0.00039}_{-0.00036}$	$\chi_{\text{DR12BAO}}^2$	4.05	$4.7 (\nu: 1.2)$
$\Omega_{\text{m}} h^3$	0.0965	$0.098^{+0.012}_{-0.011}$	$100\theta_{\text{eq}}$	0.8187	$0.819^{+0.016}_{-0.015}$	$\chi_{\text{prior}}^2$	1.4	$7.3 (\nu: 6.7)$
$\sigma_8$	0.8089	$0.812^{+0.036}_{-0.034}$	$100\theta_{s,\text{eq}}$	0.4523	$0.4525^{+0.0080}_{-0.0076}$	$\chi_{\text{BAO}}^2$	5.41	$6.2 (\nu: 0.9)$
$S_8$	0.8213	$0.823^{+0.043}_{-0.041}$	$H(0.15)$	73.08	$73.5^{+3.9}_{-3.6}$	$\chi_{\text{CMB}}^2$	1178.9	$1193.0 (\nu: 15.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4498	$0.451^{+0.023}_{-0.022}$	$D_M(0.15)$	639.4	$636^{+34}_{-33}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6032	$0.605^{+0.027}_{-0.025}$	$H(0.38)$	83.17	$83.6^{+4.0}_{-3.7}$			

Best-fit  $\chi_{\text{eff}}^2 = 1185.72$ ;  $\bar{\chi}_{\text{eff}}^2 = 1206.54$ ;  $R - 1 = 0.01083$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.34 DR12BAO: 4.05 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 396.05 commander\_dx12\_v3.2.29: 22.69 plik\_rd12\_HM\_v22.TT: 760.20



### 7.38 base\_nnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_JLA

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02225	$0.02227^{+0.00058}_{-0.00057}$	$\sigma_8/h^{0.5}$	0.9834	$0.984^{+0.024}_{-0.023}$	$D_M(0.38)$	1528	$1520^{+75}_{-73}$
$\Omega_c h^2$	0.1192	$0.1202^{+0.0096}_{-0.0087}$	$r_{\text{drag}} h$	99.76	$99.9^{+2.6}_{-2.4}$	$H(0.51)$	89.76	$90.2^{+4.0}_{-3.8}$
$100\theta_{\text{MC}}$	1.04096	$1.0409^{+0.0014}_{-0.0014}$	$\langle d^2 \rangle^{1/2}$	2.428	$2.431^{+0.059}_{-0.058}$	$D_M(0.51)$	1979	$1970^{+95}_{-93}$
$\tau$	0.0545	$0.055^{+0.021}_{-0.019}$	$z_{\text{re}}$	7.72	$7.8^{+2.0}_{-2.0}$	$H(0.61)$	95.37	$95.8^{+4.1}_{-3.9}$
$N_{\text{eff}}$	3.06	$3.12^{+0.59}_{-0.54}$	$10^9 A_s$	2.097	$2.10^{+0.10}_{-0.092}$	$D_M(0.61)$	2303	$2293^{+110}_{-110}$
$\ln(10^{10} A_s)$	3.0429	$3.047^{+0.047}_{-0.045}$	$10^9 A_s e^{-2\tau}$	1.8801	$1.884^{+0.049}_{-0.050}$	$H(2.33)$	236.0	$236.9^{+8.3}_{-7.7}$
$n_s$	0.9680	$0.969^{+0.021}_{-0.021}$	$D_{40}$	1223.3	$1225^{+37}_{-37}$	$D_M(2.33)$	5760	$5736^{+240}_{-230}$
$y_{\text{cal}}$	1.0006	$1.0007^{+0.0063}_{-0.0063}$	$D_{220}$	5720	$5725^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4552	$0.456^{+0.017}_{-0.017}$
$A_{217}^{\text{CIB}}$	48.0	$48^{+20}_{-20}$	$D_{810}$	2538.8	$2538^{+35}_{-35}$	$\sigma_8(0.15)$	0.7478	$0.751^{+0.029}_{-0.028}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.42	—	$D_{1420}$	816.9	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4739	$0.475^{+0.017}_{-0.016}$
$A_{143}^{\text{tSZ}}$	6.9	—	$D_{2000}$	230.5	$229.6^{+5.5}_{-5.5}$	$\sigma_8(0.38)$	0.6630	$0.666^{+0.027}_{-0.026}$
$A_{100}^{\text{PS}}$	253	$265^{+80}_{-70}$	$n_{s,0.002}$	0.9680	$0.969^{+0.021}_{-0.021}$	$f\sigma_8(0.51)$	0.4726	$0.474^{+0.017}_{-0.016}$
$A_{143}^{\text{PS}}$	50.5	$49^{+20}_{-20}$	$Y_{\text{P}}$	0.2455	$0.2464^{+0.0077}_{-0.0076}$	$\sigma_8(0.51)$	0.6205	$0.623^{+0.026}_{-0.025}$
$A_{143 \times 217}^{\text{PS}}$	49.1	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.2469	$0.2477^{+0.0077}_{-0.0076}$	$f\sigma_8(0.61)$	0.4678	$0.469^{+0.016}_{-0.016}$
$A_{217}^{\text{PS}}$	120.3	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.614	$2.63^{+0.17}_{-0.16}$	$\sigma_8(0.61)$	0.5905	$0.593^{+0.025}_{-0.024}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.79	$13.73^{+0.56}_{-0.55}$	$f\sigma_8(2.33)$	0.2978	$0.299^{+0.013}_{-0.012}$
$A_{100}^{\text{dustTT}}$	8.89	$9.0^{+4.7}_{-4.7}$	$z_*$	1090.02	$1090.1^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	0.3071	$0.308^{+0.014}_{-0.013}$
$A_{143}^{\text{dustTT}}$	10.81	$10.7^{+4.8}_{-4.6}$	$r_*$	144.7	$144.1^{+5.2}_{-5.3}$	$f_{2000}^{143}$	30.0	$31^{+9}_{-9}$
$A_{143 \times 217}^{\text{dustTT}}$	19.5	$18.3^{+8.4}_{-8.6}$	$100\theta_*$	1.04115	$1.0410^{+0.0016}_{-0.0017}$	$f_{2000}^{143 \times 217}$	33.0	$34^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	94.7	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.894	$13.84^{+0.49}_{-0.49}$	$f_{2000}^{217}$	107.5	$108.3^{+5.8}_{-5.6}$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.59	$1059.8^{+2.1}_{-2.1}$	$\chi_{\text{lensing}}^2$	8.92	$9.45 (\nu: 0.3)$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	147.4	$146.8^{+5.5}_{-5.5}$	$\chi_{\text{small}}^2$	396.08	$397.1 (\nu: 1.8)$
$H_0$	67.70	$68.1^{+3.7}_{-3.5}$	$k_{\text{D}}$	0.14043	$0.1408^{+0.0041}_{-0.0039}$	$\chi_{\text{lowl}}^2$	22.79	$23.0 (\nu: 0.7)$
$\Omega_{\Lambda}$	0.6899	$0.691^{+0.020}_{-0.020}$	$100\theta_{\text{D}}$	0.16101	$0.1612^{+0.0015}_{-0.0014}$	$\chi_{\text{plik}}^2$	760.1	$772.5 (\nu: 15.3)$
$\Omega_{\text{m}}$	0.3101	$0.309^{+0.020}_{-0.020}$	$z_{\text{eq}}$	3374	$3370^{+75}_{-77}$	$\chi_{\text{JLA}}^2$	706.71	$706.73 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.1421	$0.1432^{+0.0099}_{-0.0089}$	$k_{\text{eq}}$	0.010309	$0.01034^{+0.00034}_{-0.00033}$	$\chi_{6\text{DF}}^2$	0.022	$0.053 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	0.0962	$0.097^{+0.012}_{-0.011}$	$100\theta_{\text{eq}}$	0.8180	$0.819^{+0.015}_{-0.014}$	$\chi_{\text{MGS}}^2$	1.28	$1.43 (\nu: 0.2)$
$\sigma_8$	0.8091	$0.812^{+0.031}_{-0.030}$	$100\theta_{\text{s,eq}}$	0.4519	$0.4523^{+0.0075}_{-0.0070}$	$\chi_{\text{DR12BAO}}^2$	4.20	$4.6 (\nu: 1.1)$
$S_8$	0.8226	$0.824^{+0.033}_{-0.032}$	$H(0.15)$	72.97	$73.4^{+3.7}_{-3.5}$	$\chi_{\text{prior}}^2$	1.3	$7.3 (\nu: 6.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4506	$0.451^{+0.018}_{-0.018}$	$D_M(0.15)$	640.5	$637^{+33}_{-32}$	$\chi_{\text{CMB}}^2$	1187.9	$1202.0 (\nu: 15.9)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6038	$0.605^{+0.021}_{-0.021}$	$H(0.38)$	83.05	$83.5^{+3.9}_{-3.7}$	$\chi_{\text{BAO}}^2$	5.50	$6.1 (\nu: 0.7)$

Best-fit  $\chi_{\text{eff}}^2 = 1901.41$ ;  $\bar{\chi}_{\text{eff}}^2 = 1922.14$ ;  $R - 1 = 0.01097$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.20 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.92 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.08 commander\_dx12.v3.2.29: 22.79 plik\_rd12\_HM.v22\_TT: 760.13 SN - JLA December\_2013: 706.71



### 7.39 base\_nnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02228	$0.02228^{+0.00058}_{-0.00057}$	$\sigma_8/h^{0.5}$	0.9832	$0.984^{+0.024}_{-0.023}$	$D_M(0.38)$	1523	$1519^{+74}_{-72}$
$\Omega_c h^2$	0.1197	$0.1203^{+0.0096}_{-0.0087}$	$r_{\text{drag}} h$	99.88	$99.96^{+2.5}_{-2.4}$	$H(0.51)$	90.00	$90.2^{+3.9}_{-3.7}$
$100\theta_{\text{MC}}$	1.04093	$1.0409^{+0.0013}_{-0.0014}$	$\langle d^2 \rangle^{1/2}$	2.427	$2.430^{+0.058}_{-0.058}$	$D_M(0.51)$	1974	$1968^{+94}_{-91}$
$\tau$	0.0545	$0.055^{+0.021}_{-0.019}$	$z_{\text{re}}$	7.72	$7.8^{+2.0}_{-2.0}$	$H(0.61)$	95.61	$95.9^{+4.0}_{-3.8}$
$N_{\text{eff}}$	3.09	$3.13^{+0.59}_{-0.54}$	$10^9 A_s$	2.099	$2.106^{+0.099}_{-0.092}$	$D_M(0.61)$	2297	$2291^{+110}_{-100}$
$\ln(10^{10} A_s)$	3.0441	$3.047^{+0.046}_{-0.044}$	$10^9 A_s e^{-2\tau}$	1.8823	$1.885^{+0.049}_{-0.049}$	$H(2.33)$	236.4	$236.9^{+8.3}_{-7.7}$
$n_s$	0.9689	$0.969^{+0.021}_{-0.021}$	$D_{40}$	1222.7	$1224^{+36}_{-36}$	$D_M(2.33)$	5746	$5733^{+230}_{-230}$
$y_{\text{cal}}$	1.0007	$1.0007^{+0.0063}_{-0.0063}$	$D_{220}$	5722	$5725^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4553	$0.456^{+0.017}_{-0.017}$
$A_{217}^{\text{CIB}}$	49.2	$48^{+20}_{-20}$	$D_{810}$	2539.1	$2538^{+35}_{-35}$	$\sigma_8(0.15)$	0.7490	$0.751^{+0.029}_{-0.028}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.25	—	$D_{1420}$	816.6	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4742	$0.475^{+0.017}_{-0.016}$
$A_{143}^{\text{tSZ}}$	7.1	—	$D_{2000}$	230.2	$229.6^{+5.5}_{-5.5}$	$\sigma_8(0.38)$	0.6642	$0.666^{+0.027}_{-0.026}$
$A_{100}^{\text{PS}}$	256	$265^{+80}_{-70}$	$n_{s,0.002}$	0.9689	$0.969^{+0.021}_{-0.021}$	$f\sigma_8(0.51)$	0.4731	$0.474^{+0.016}_{-0.016}$
$A_{143}^{\text{PS}}$	48.4	$49^{+20}_{-20}$	$Y_{\text{P}}$	0.2460	$0.2464^{+0.0076}_{-0.0074}$	$\sigma_8(0.51)$	0.6217	$0.623^{+0.025}_{-0.025}$
$A_{143 \times 217}^{\text{PS}}$	45.1	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.2473	$0.2478^{+0.0076}_{-0.0075}$	$f\sigma_8(0.61)$	0.4683	$0.469^{+0.017}_{-0.016}$
$A_{217}^{\text{PS}}$	118.5	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.619	$2.63^{+0.17}_{-0.16}$	$\sigma_8(0.61)$	0.5916	$0.593^{+0.024}_{-0.024}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.76	$13.73^{+0.55}_{-0.54}$	$f\sigma_8(2.33)$	0.2984	$0.299^{+0.013}_{-0.012}$
$A_{100}^{\text{dustTT}}$	8.89	$9.0^{+4.7}_{-4.7}$	$z_*$	1090.05	$1090.1^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	0.3077	$0.309^{+0.014}_{-0.013}$
$A_{143}^{\text{dustTT}}$	10.78	$10.7^{+4.8}_{-4.6}$	$r_*$	144.4	$144.0^{+5.2}_{-5.3}$	$f_{2000}^{143}$	30.4	$31^{+9}_{-9}$
$A_{143 \times 217}^{\text{dustTT}}$	19.4	$18.3^{+8.4}_{-8.6}$	$100\theta_*$	1.04109	$1.0410^{+0.0016}_{-0.0017}$	$f_{2000}^{143 \times 217}$	33.2	$34^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	94.6	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.865	$13.84^{+0.49}_{-0.49}$	$f_{2000}^{217}$	107.7	$108.3^{+5.8}_{-5.7}$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.74	$1059.8^{+2.2}_{-2.1}$	$\chi_{\text{lensing}}^2$	8.98	$9.45 (\nu: 0.3)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	147.0	$146.7^{+5.4}_{-5.4}$	$\chi_{\text{small}}^2$	396.05	$397.2 (\nu: 1.8)$
$H_0$	67.92	$68.1^{+3.6}_{-3.4}$	$k_{\text{D}}$	0.14067	$0.1409^{+0.0040}_{-0.0039}$	$\chi_{\text{lowl}}^2$	22.70	$22.9 (\nu: 0.6)$
$\Omega_{\Lambda}$	0.6909	$0.691^{+0.019}_{-0.020}$	$100\theta_{\text{D}}$	0.16107	$0.1612^{+0.0015}_{-0.0014}$	$\chi_{\text{plik}}^2$	760.1	$772.6 (\nu: 15.2)$
$\Omega_{\text{m}}$	0.3091	$0.309^{+0.020}_{-0.019}$	$z_{\text{eq}}$	3372	$3369^{+72}_{-75}$	$\chi_{\text{JLA}}^2$	1034.95	$1035.04 (\nu: 0.1)$
$\Omega_{\text{m}} h^2$	0.1426	$0.1432^{+0.0099}_{-0.0089}$	$k_{\text{eq}}$	0.010323	$0.01034^{+0.00034}_{-0.00033}$	$\chi_{6\text{DF}}^2$	0.016	$0.048 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	0.0969	$0.098^{+0.012}_{-0.010}$	$100\theta_{\text{eq}}$	0.8185	$0.819^{+0.014}_{-0.013}$	$\chi_{\text{MGS}}^2$	1.34	$1.45 (\nu: 0.1)$
$\sigma_8$	0.8103	$0.812^{+0.031}_{-0.030}$	$100\theta_{\text{s,eq}}$	0.4522	$0.4525^{+0.0073}_{-0.0068}$	$\chi_{\text{DR12BAO}}^2$	4.05	$4.5 (\nu: 0.9)$
$S_8$	0.8226	$0.824^{+0.033}_{-0.032}$	$H(0.15)$	73.19	$73.4^{+3.7}_{-3.5}$	$\chi_{\text{prior}}^2$	1.4	$7.3 (\nu: 6.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4506	$0.451^{+0.018}_{-0.017}$	$D_M(0.15)$	638.4	$637^{+32}_{-32}$	$\chi_{\text{CMB}}^2$	1187.9	$1202.1 (\nu: 15.9)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6042	$0.605^{+0.021}_{-0.021}$	$H(0.38)$	83.29	$83.5^{+3.8}_{-3.6}$	$\chi_{\text{BAO}}^2$	5.41	$6.0 (\nu: 0.6)$

Best-fit  $\chi_{\text{eff}}^2 = 2229.65$ ;  $\bar{\chi}_{\text{eff}}^2 = 2250.41$ ;  $R - 1 = 0.01118$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.34 DR12BAO: 4.05 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.98 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.06 commander\_dx12.v3.2.29: 22.70 plik\_rd12\_HM.v22\_TT: 760.14 SN - JLA Pantheon18: 1034.95



## 7.40 base\_nnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02224	$0.02225^{+0.00059}_{-0.00056}$	$\sigma_8/h^{0.5}$	0.9835	$0.985^{+0.024}_{-0.023}$	$D_M(0.38)$	1530	$1523^{+77}_{-75}$
$\Omega_c h^2$	0.1192	$0.1201^{+0.0097}_{-0.0087}$	$r_{\text{drag}} h$	99.65	$99.8^{+2.7}_{-2.5}$	$H(0.51)$	89.67	$90.1^{+4.0}_{-3.8}$
$100\theta_{\text{MC}}$	1.04095	$1.0409^{+0.0014}_{-0.0014}$	$\langle d^2 \rangle^{1/2}$	2.431	$2.432^{+0.059}_{-0.059}$	$D_M(0.51)$	1982	$1973^{+97}_{-94}$
$\tau$	0.0544	$0.055^{+0.021}_{-0.019}$	$z_{\text{re}}$	7.70	$7.8^{+2.0}_{-2.0}$	$H(0.61)$	95.29	$95.7^{+4.1}_{-3.9}$
$N_{\text{eff}}$	3.05	$3.11^{+0.59}_{-0.55}$	$10^9 A_s$	2.095	$2.10^{+0.10}_{-0.094}$	$D_M(0.61)$	2306	$2296^{+110}_{-110}$
$\ln(10^{10} A_s)$	3.0420	$3.046^{+0.047}_{-0.045}$	$10^9 A_s e^{-2\tau}$	1.8789	$1.884^{+0.050}_{-0.049}$	$H(2.33)$	235.9	$236.7^{+8.3}_{-7.7}$
$n_s$	0.9671	$0.968^{+0.021}_{-0.021}$	$D_{40}$	1224.7	$1225^{+37}_{-37}$	$D_M(2.33)$	5765	$5742^{+240}_{-230}$
$y_{\text{cal}}$	1.0005	$1.0007^{+0.0062}_{-0.0063}$	$D_{220}$	5720	$5724^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4555	$0.456^{+0.017}_{-0.017}$
$A_{217}^{\text{CIB}}$	49.2	$48^{+20}_{-20}$	$D_{810}$	2537.2	$2538^{+35}_{-35}$	$\sigma_8(0.15)$	0.7472	$0.750^{+0.029}_{-0.028}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.23	—	$D_{1420}$	816.3	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4740	$0.475^{+0.017}_{-0.016}$
$A_{143}^{\text{tSZ}}$	7.2	—	$D_{2000}$	230.3	$229.7^{+5.5}_{-5.5}$	$\sigma_8(0.38)$	0.6624	$0.665^{+0.027}_{-0.026}$
$A_{100}^{\text{PS}}$	254	$265^{+80}_{-70}$	$n_{s,0.002}$	0.9671	$0.968^{+0.021}_{-0.021}$	$f\sigma_8(0.51)$	0.4726	$0.474^{+0.017}_{-0.016}$
$A_{143}^{\text{PS}}$	47.5	$49^{+20}_{-20}$	$Y_{\text{P}}$	0.2454	$0.2462^{+0.0077}_{-0.0077}$	$\sigma_8(0.51)$	0.6199	$0.623^{+0.026}_{-0.025}$
$A_{143 \times 217}^{\text{PS}}$	44.2	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.2467	$0.2475^{+0.0078}_{-0.0077}$	$f\sigma_8(0.61)$	0.4677	$0.469^{+0.017}_{-0.016}$
$A_{217}^{\text{PS}}$	118.0	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.611	$2.63^{+0.17}_{-0.16}$	$\sigma_8(0.61)$	0.5899	$0.592^{+0.025}_{-0.024}$
$A^{\text{kSZ}}$	0.1	—	Age/Gyr	13.80	$13.75^{+0.57}_{-0.55}$	$f\sigma_8(2.33)$	0.2975	$0.299^{+0.013}_{-0.012}$
$A_{100}^{\text{dustTT}}$	9.00	$9.0^{+4.7}_{-4.7}$	$z_*$	1090.01	$1090.1^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	0.3067	$0.308^{+0.014}_{-0.013}$
$A_{143}^{\text{dustTT}}$	10.76	$10.7^{+4.8}_{-4.6}$	$r_*$	144.7	$144.2^{+5.3}_{-5.3}$	$f_{2000}^{143}$	30.2	$31^{+9}_{-9}$
$A_{143 \times 217}^{\text{dustTT}}$	19.3	$18.3^{+8.3}_{-8.6}$	$100\theta_*$	1.04113	$1.0410^{+0.0016}_{-0.0017}$	$f_{2000}^{143 \times 217}$	33.1	$34^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	94.5	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.900	$13.85^{+0.49}_{-0.50}$	$f_{2000}^{217}$	107.6	$108.3^{+5.8}_{-5.6}$
$c_{100}$	0.99968	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.59	$1059.7^{+2.2}_{-2.1}$	$\chi_{\text{lensing}}^2$	8.90	$9.42 (\nu: 0.3)$
$c_{217}$	0.99825	$0.9983^{+0.0015}_{-0.0015}$	$r_{\text{drag}}$	147.4	$146.9^{+5.5}_{-5.5}$	$\chi_{\text{small}}^2$	396.08	$397.1 (\nu: 1.7)$
$H_0$	67.59	$68.0^{+3.8}_{-3.5}$	$k_{\text{D}}$	0.14040	$0.1408^{+0.0041}_{-0.0039}$	$\chi_{\text{lowl}}^2$	22.94	$23.0 (\nu: 0.7)$
$\Omega_{\Lambda}$	0.6890	$0.690^{+0.021}_{-0.021}$	$100\theta_{\text{D}}$	0.16098	$0.1612^{+0.0015}_{-0.0014}$	$\chi_{\text{plik}}^2$	759.7	$772.4 (\nu: 15.2)$
$\Omega_{\text{m}}$	0.3110	$0.310^{+0.021}_{-0.021}$	$z_{\text{eq}}$	3378	$3373^{+76}_{-79}$	$\chi_{6\text{DF}}^2$	0.029	$0.060 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.1421	$0.143^{+0.010}_{-0.0088}$	$k_{\text{eq}}$	0.010313	$0.01034^{+0.00034}_{-0.00033}$	$\chi_{\text{MGS}}^2$	1.22	$1.37 (\nu: 0.2)$
$\Omega_{\text{m}} h^3$	0.0960	$0.097^{+0.012}_{-0.011}$	$100\theta_{\text{eq}}$	0.8173	$0.818^{+0.015}_{-0.014}$	$\chi_{\text{DR12BAO}}^2$	4.38	$4.8 (\nu: 1.3)$
$\sigma_8$	0.8086	$0.812^{+0.031}_{-0.030}$	$100\theta_{\text{s,eq}}$	0.4516	$0.4521^{+0.0077}_{-0.0071}$	$\chi_{\text{prior}}^2$	1.5	$7.3 (\nu: 6.6)$
$S_8$	0.8233	$0.825^{+0.033}_{-0.032}$	$H(0.15)$	72.87	$73.2^{+3.8}_{-3.6}$	$\chi_{\text{CMB}}^2$	1187.6	$1201.9 (\nu: 15.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4509	$0.452^{+0.018}_{-0.018}$	$D_M(0.15)$	641.4	$638^{+34}_{-33}$	$\chi_{\text{BAO}}^2$	5.63	$6.2 (\nu: 0.9)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6038	$0.606^{+0.021}_{-0.021}$	$H(0.38)$	82.96	$83.4^{+3.9}_{-3.7}$			

Best-fit  $\chi_{\text{eff}}^2 = 1194.71$ ;  $\bar{\chi}_{\text{eff}}^2 = 1215.41$ ;  $R - 1 = 0.01056$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.38 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.90 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.08 comman-  
der\_dx12.v3.2.29: 22.94 plik\_rd12\_HM.v22\_TT: 759.72



# 7.41 base\_nnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02222^{+0.00056}_{-0.00054}$	$\sigma_8/h^{0.5}$	$0.982^{+0.033}_{-0.031}$	$D_{\mathrm{M}}(0.38)$	$1528^{+63}_{-62}$
$\Omega_{\mathrm{c}} h^2$	$0.1192^{+0.0084}_{-0.0076}$	$r_{\mathrm{drag}} h$	$99.8^{+2.7}_{-2.5}$	$H(0.51)$	$89.8^{+3.3}_{-3.1}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0013}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	$2.428^{+0.074}_{-0.072}$	$D_{\mathrm{M}}(0.51)$	$1980^{+80}_{-79}$
$\tau$	$0.054^{+0.022}_{-0.022}$	$z_{\mathrm{re}}$	$7.6^{+2.1}_{-2.4}$	$H(0.61)$	$95.4^{+3.3}_{-3.2}$
$N_{\mathrm{eff}}$	$3.06^{+0.48}_{-0.44}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.11}_{-0.10}$	$D_{\mathrm{M}}(0.61)$	$2304^{+92}_{-90}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.040^{+0.051}_{-0.051}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.047}_{-0.045}$	$H(2.33)$	$235.9^{+7.1}_{-6.6}$
$n_{\mathrm{s}}$	$0.967^{+0.019}_{-0.018}$	$D_{40}$	$1225^{+36}_{-36}$	$D_{\mathrm{M}}(2.33)$	$5762^{+190}_{-190}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0062}_{-0.0064}$	$D_{220}$	$5720^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.454^{+0.022}_{-0.021}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2536^{+36}_{-37}$	$\sigma_8(0.15)$	$0.747^{+0.029}_{-0.027}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.473^{+0.020}_{-0.019}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.9^{+5.2}_{-5.3}$	$\sigma_8(0.38)$	$0.662^{+0.026}_{-0.025}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.967^{+0.019}_{-0.018}$	$f\sigma_8(0.51)$	$0.472^{+0.019}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2455^{+0.0063}_{-0.0062}$	$\sigma_8(0.51)$	$0.619^{+0.025}_{-0.024}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2468^{+0.0064}_{-0.0062}$	$f\sigma_8(0.61)$	$0.467^{+0.019}_{-0.017}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.15}_{-0.14}$	$\sigma_8(0.61)$	$0.590^{+0.023}_{-0.023}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.80^{+0.46}_{-0.45}$	$f\sigma_8(2.33)$	$0.297^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.7}_{-4.7}$	$z_*$	$1090.0^{+1.1}_{-1.1}$	$\sigma_8(2.33)$	$0.307^{+0.013}_{-0.012}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.8}_{-4.6}$	$r_*$	$144.7^{+4.4}_{-4.5}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.3}_{-8.7}$	$100\theta_*$	$1.0412^{+0.0015}_{-0.0015}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.90^{+0.41}_{-0.42}$	$f_{2000}^{217}$	$108.0^{+5.6}_{-5.3}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.5^{+1.8}_{-1.9}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.7)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0015}$	$r_{\mathrm{drag}}$	$147.4^{+4.6}_{-4.6}$	$\chi_{\mathrm{lowl}}^2$	$23.0 (\nu: 0.6)$
$H_0$	$67.7^{+3.1}_{-2.9}$	$k_{\mathrm{D}}$	$0.1404^{+0.0035}_{-0.0033}$	$\chi_{\mathrm{plik}}^2$	$772.6 (\nu: 15.5)$
$\Omega_{\Lambda}$	$0.690^{+0.021}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{Aver15}}^2$	$0.60 (\nu: 0.3)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.020}_{-0.021}$	$z_{\mathrm{eq}}$	$3373^{+77}_{-79}$	$\chi_{6\mathrm{DF}}^2$	$0.062 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1421^{+0.0086}_{-0.0077}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00033}_{-0.00031}$	$\chi_{\mathrm{MGS}}^2$	$1.37 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0962^{+0.0096}_{-0.0086}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.015}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.4)$
$\sigma_8$	$0.808^{+0.031}_{-0.030}$	$100\theta_{\mathrm{s,eq}}$	$0.4521^{+0.0078}_{-0.0072}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.6)$
$S_8$	$0.821^{+0.042}_{-0.039}$	$H(0.15)$	$73.0^{+3.1}_{-3.0}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 1.0)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.023}_{-0.022}$	$D_{\mathrm{M}}(0.15)$	$641^{+28}_{-27}$	$\chi_{\mathrm{CMB}}^2$	$1192.7 (\nu: 15.3)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.025}_{-0.023}$	$H(0.38)$	$83.0^{+3.2}_{-3.0}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1206.79; R - 1 = 0.01271$



## 7.42 base\_nnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02222^{+0.00056}_{-0.00054}$	$r_{\mathrm{drag}}h$	$99.8^{+2.7}_{-2.5}$	$D_{\mathrm{M}}(0.51)$	$1980^{+75}_{-75}$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0076}_{-0.0071}$	$\langle d^2 \rangle^{1/2}$	$2.428^{+0.074}_{-0.071}$	$H(0.61)$	$95.3^{+3.1}_{-3.0}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0012}_{-0.0012}$	$z_{\mathrm{re}}$	$7.6^{+2.1}_{-2.4}$	$D_{\mathrm{M}}(0.61)$	$2304^{+86}_{-86}$
$\tau$	$0.054^{+0.022}_{-0.022}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.11}_{-0.10}$	$H(2.33)$	$235.9^{+6.5}_{-6.2}$
$N_{\mathrm{eff}}$	$3.06^{+0.44}_{-0.41}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.044}_{-0.044}$	$D_{\mathrm{M}}(2.33)$	$5763^{+180}_{-180}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.040^{+0.051}_{-0.049}$	$D_{40}$	$1225^{+35}_{-36}$	$f\sigma_8(0.15)$	$0.454^{+0.022}_{-0.021}$
$n_{\mathrm{s}}$	$0.967^{+0.018}_{-0.018}$	$D_{220}$	$5720^{+99}_{-100}$	$\sigma_8(0.15)$	$0.746^{+0.028}_{-0.026}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0062}_{-0.0065}$	$D_{810}$	$2536^{+36}_{-37}$	$f\sigma_8(0.38)$	$0.473^{+0.020}_{-0.018}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$815^{+12}_{-13}$	$\sigma_8(0.38)$	$0.662^{+0.025}_{-0.024}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{2000}$	$229.9^{+4.8}_{-4.9}$	$f\sigma_8(0.51)$	$0.472^{+0.019}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.967^{+0.018}_{-0.018}$	$\sigma_8(0.51)$	$0.619^{+0.023}_{-0.023}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.2455^{+0.0058}_{-0.0058}$	$f\sigma_8(0.61)$	$0.467^{+0.018}_{-0.017}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2468^{+0.0058}_{-0.0059}$	$\sigma_8(0.61)$	$0.589^{+0.023}_{-0.022}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.13}_{-0.12}$	$f\sigma_8(2.33)$	$0.297^{+0.012}_{-0.011}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.80^{+0.43}_{-0.42}$	$\sigma_8(2.33)$	$0.307^{+0.012}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	$z_{*}$	$1090.04^{+0.94}_{-0.96}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.7}_{-4.7}$	$r_{*}$	$144.7^{+4.2}_{-4.1}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.8}_{-4.6}$	$100\theta_{*}$	$1.0412^{+0.0014}_{-0.0014}$	$f_{2000}^{217}$	$108.0^{+5.4}_{-5.0}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.3}_{-8.7}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.90^{+0.39}_{-0.38}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.7)$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.5^{+1.8}_{-1.9}$	$\chi_{\mathrm{lowl}}^2$	$23.1 (\nu: 0.6)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.5^{+4.4}_{-4.3}$	$\chi_{\mathrm{plik}}^2$	$772.4 (\nu: 15.2)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0015}$	$k_{\mathrm{D}}$	$0.1403^{+0.0033}_{-0.0032}$	$\chi_{\mathrm{Aver15}}^2$	$0.54 (\nu: 0.2)$
$H_0$	$67.7^{+3.0}_{-2.8}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{Cooke17}}^2$	$0.27 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.690^{+0.021}_{-0.020}$	$z_{\mathrm{eq}}$	$3373^{+77}_{-79}$	$\chi_{6\mathrm{DF}}^2$	$0.062 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.020}_{-0.021}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00032}_{-0.00030}$	$\chi_{\mathrm{MGS}}^2$	$1.37 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0078}_{-0.0073}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.015}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.4)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0088}_{-0.0081}$	$100\theta_{\mathrm{s,eq}}$	$0.4521^{+0.0078}_{-0.0072}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.6)$
$\sigma_8$	$0.808^{+0.030}_{-0.028}$	$H(0.15)$	$73.0^{+3.0}_{-2.8}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 1.0)$
$S_8$	$0.821^{+0.041}_{-0.039}$	$D_{\mathrm{M}}(0.15)$	$641^{+26}_{-26}$	$\chi_{\mathrm{CMB}}^2$	$1192.5 (\nu: 15.0)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.023}_{-0.021}$	$H(0.38)$	$83.0^{+3.0}_{-2.9}$	$\chi_{\mathrm{Abund}}^2$	$0.81 (\nu: 0.4)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.025}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1528^{+60}_{-59}$		
$\sigma_8/h^{0.5}$	$0.982^{+0.032}_{-0.030}$	$H(0.51)$	$89.7^{+3.1}_{-2.9}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1206.80; R - 1 = 0.01238$$



### 7.43 base\_nnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02227^{+0.00058}_{-0.00058}$	$\sigma_8/h^{0.5}$	$0.984^{+0.032}_{-0.029}$	$D_M(0.38)$	$1517^{+76}_{-75}$
$\Omega_c h^2$	$0.121^{+0.010}_{-0.0093}$	$r_{\text{drag}} h$	$99.99^{+2.8}_{-2.6}$	$H(0.51)$	$90.4^{+4.1}_{-3.8}$
$100\theta_{\text{MC}}$	$1.0408^{+0.0014}_{-0.0014}$	$\langle d^2 \rangle^{1/2}$	$2.428^{+0.072}_{-0.068}$	$D_M(0.51)$	$1965^{+96}_{-95}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$z_{\text{re}}$	$< 9.65$	$H(0.61)$	$96.0^{+4.2}_{-3.9}$
$N_{\text{eff}}$	$3.15^{+0.63}_{-0.56}$	$10^9 A_s$	$2.11^{+0.11}_{-0.087}$	$D_M(0.61)$	$2287^{+110}_{-110}$
$\ln(10^{10} A_s)$	$3.047^{+0.051}_{-0.042}$	$10^9 A_s e^{-2\tau}$	$1.885^{+0.055}_{-0.053}$	$H(2.33)$	$237.2^{+9.0}_{-8.2}$
$n_s$	$0.970^{+0.021}_{-0.021}$	$D_{40}$	$1222^{+38}_{-38}$	$D_M(2.33)$	$5725^{+240}_{-240}$
$y_{\text{cal}}$	$1.0006^{+0.0063}_{-0.0065}$	$D_{220}$	$5719^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.456^{+0.022}_{-0.021}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+36}_{-37}$	$\sigma_8(0.15)$	$0.752^{+0.033}_{-0.030}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$815^{+13}_{-14}$	$f\sigma_8(0.38)$	$0.475^{+0.021}_{-0.020}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$229.4^{+5.6}_{-5.7}$	$\sigma_8(0.38)$	$0.667^{+0.030}_{-0.027}$
$A_{100}^{\text{PS}}$	$266^{+70}_{-70}$	$n_{\text{s},0.002}$	$0.970^{+0.021}_{-0.021}$	$f\sigma_8(0.51)$	$0.474^{+0.020}_{-0.019}$
$A_{143}^{\text{PS}}$	$50^{+20}_{-20}$	$Y_{\text{P}}$	$0.2467^{+0.0080}_{-0.0077}$	$\sigma_8(0.51)$	$0.624^{+0.028}_{-0.026}$
$A_{143 \times 217}^{\text{PS}}$	$44^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.2480^{+0.0081}_{-0.0078}$	$f\sigma_8(0.61)$	$0.470^{+0.020}_{-0.018}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	$2.64^{+0.19}_{-0.16}$	$\sigma_8(0.61)$	$0.594^{+0.027}_{-0.025}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.71^{+0.57}_{-0.56}$	$f\sigma_8(2.33)$	$0.300^{+0.014}_{-0.013}$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.7}_{-4.7}$	$z_*$	$1090.2^{+1.3}_{-1.2}$	$\sigma_8(2.33)$	$0.309^{+0.015}_{-0.014}$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.7}_{-4.7}$	$r_*$	$143.9^{+5.5}_{-5.6}$	$f_{2000}^{143}$	$32^{+9}_{-9}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.5}_{-8.7}$	$100\theta_*$	$1.0410^{+0.0017}_{-0.0017}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.82^{+0.51}_{-0.52}$	$f_{2000}^{217}$	$108.4^{+5.9}_{-5.7}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.8^{+2.2}_{-2.2}$	$\chi_{\text{simall}}^2$	$397.0 (\nu: 1.9)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	$146.6^{+5.7}_{-5.8}$	$\chi_{\text{lowl}}^2$	$22.8 (\nu: 0.7)$
$H_0$	$68.2^{+3.8}_{-3.5}$	$k_{\text{D}}$	$0.1410^{+0.0044}_{-0.0041}$	$\chi_{\text{plik}}^2$	$773.0 (\nu: 16.0)$
$\Omega_{\Lambda}$	$0.692^{+0.021}_{-0.022}$	$100\theta_{\text{D}}$	$0.1613^{+0.0016}_{-0.0014}$	$\chi_{6\text{DF}}^2$	$0.056 (\nu: 0.0)$
$\Omega_{\text{m}}$	$0.308^{+0.022}_{-0.021}$	$z_{\text{eq}}$	$3368^{+81}_{-82}$	$\chi_{\text{MGS}}^2$	$1.48 (\nu: 0.2)$
$\Omega_{\text{m}} h^2$	$0.144^{+0.011}_{-0.0096}$	$k_{\text{eq}}$	$0.01035^{+0.00039}_{-0.00036}$	$\chi_{\text{DR12BAO}}^2$	$4.6 (\nu: 1.2)$
$\Omega_{\text{m}} h^3$	$0.098^{+0.013}_{-0.011}$	$100\theta_{\text{eq}}$	$0.819^{+0.016}_{-0.015}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.8)$
$\sigma_8$	$0.813^{+0.035}_{-0.032}$	$100\theta_{\text{s,eq}}$	$0.4526^{+0.0081}_{-0.0077}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.8)$
$S_8$	$0.824^{+0.042}_{-0.040}$	$H(0.15)$	$73.5^{+3.9}_{-3.6}$	$\chi_{\text{CMB}}^2$	$1192.8 (\nu: 15.3)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.451^{+0.023}_{-0.022}$	$D_M(0.15)$	$636^{+33}_{-33}$		
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.606^{+0.027}_{-0.025}$	$H(0.38)$	$83.6^{+4.0}_{-3.7}$		

$\bar{\chi}_{\text{eff}}^2 = 1206.29; R - 1 = 0.01028$



# 7.44 base\_nnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_JLA\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02227^{+0.00058}_{-0.00057}$	$\sigma_8/h^{0.5}$	$0.985^{+0.023}_{-0.023}$	$D_M(0.38)$	$1520^{+75}_{-73}$
$\Omega_c h^2$	$0.1202^{+0.0096}_{-0.0087}$	$r_{\text{drag}} h$	$99.9^{+2.6}_{-2.4}$	$H(0.51)$	$90.2^{+4.0}_{-3.8}$
$100\theta_{\text{MC}}$	$1.0409^{+0.0013}_{-0.0014}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.058}_{-0.057}$	$D_M(0.51)$	$1969^{+94}_{-93}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$z_{\text{re}}$	$< 9.62$	$H(0.61)$	$95.8^{+4.1}_{-3.9}$
$N_{\text{eff}}$	$3.13^{+0.59}_{-0.54}$	$10^9 A_s$	$2.108^{+0.098}_{-0.079}$	$D_M(0.61)$	$2292^{+110}_{-110}$
$\ln(10^{10} A_s)$	$3.048^{+0.045}_{-0.038}$	$10^9 A_s e^{-2\tau}$	$1.884^{+0.049}_{-0.050}$	$H(2.33)$	$236.9^{+8.3}_{-7.7}$
$n_s$	$0.969^{+0.021}_{-0.021}$	$D_{40}$	$1224^{+36}_{-37}$	$D_M(2.33)$	$5735^{+230}_{-230}$
$y_{\text{cal}}$	$1.0007^{+0.0063}_{-0.0063}$	$D_{220}$	$5724^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.456^{+0.017}_{-0.017}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2538^{+35}_{-35}$	$\sigma_8(0.15)$	$0.751^{+0.029}_{-0.028}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.475^{+0.017}_{-0.016}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$229.6^{+5.6}_{-5.5}$	$\sigma_8(0.38)$	$0.666^{+0.027}_{-0.026}$
$A_{100}^{\text{PS}}$	$265^{+70}_{-70}$	$n_{s,0.002}$	$0.969^{+0.021}_{-0.021}$	$f\sigma_8(0.51)$	$0.474^{+0.016}_{-0.016}$
$A_{143}^{\text{PS}}$	$49^{+20}_{-20}$	$Y_{\text{P}}$	$0.2464^{+0.0077}_{-0.0076}$	$\sigma_8(0.51)$	$0.624^{+0.025}_{-0.024}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.2477^{+0.0077}_{-0.0076}$	$f\sigma_8(0.61)$	$0.470^{+0.016}_{-0.016}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D/H}$	$2.63^{+0.17}_{-0.16}$	$\sigma_8(0.61)$	$0.593^{+0.024}_{-0.023}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.73^{+0.56}_{-0.54}$	$f\sigma_8(2.33)$	$0.299^{+0.013}_{-0.012}$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.7}_{-4.7}$	$z_*$	$1090.1^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	$0.309^{+0.014}_{-0.013}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.8}_{-4.6}$	$r_*$	$144.1^{+5.2}_{-5.3}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.4}_{-8.6}$	$100\theta_*$	$1.0410^{+0.0016}_{-0.0017}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.84^{+0.49}_{-0.49}$	$f_{2000}^{217}$	$108.3^{+5.8}_{-5.6}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.8^{+2.2}_{-2.1}$	$\chi_{\text{lensing}}^2$	$9.41 (\nu: 0.3)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0015}$	$r_{\text{drag}}$	$146.8^{+5.4}_{-5.5}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 1.9)$
$H_0$	$68.1^{+3.7}_{-3.5}$	$k_{\text{D}}$	$0.1409^{+0.0041}_{-0.0039}$	$\chi_{\text{lowl}}^2$	$22.9 (\nu: 0.7)$
$\Omega_{\Lambda}$	$0.691^{+0.020}_{-0.020}$	$100\theta_{\text{D}}$	$0.1612^{+0.0015}_{-0.0014}$	$\chi_{\text{plik}}^2$	$772.4 (\nu: 15.2)$
$\Omega_{\text{m}}$	$0.309^{+0.020}_{-0.020}$	$z_{\text{eq}}$	$3370^{+73}_{-77}$	$\chi_{\text{JLA}}^2$	$706.72 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	$0.1432^{+0.0099}_{-0.0089}$	$k_{\text{eq}}$	$0.01034^{+0.00034}_{-0.00033}$	$\chi_{6\text{DF}}^2$	$0.051 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.098^{+0.012}_{-0.011}$	$100\theta_{\text{eq}}$	$0.819^{+0.015}_{-0.014}$	$\chi_{\text{MGS}}^2$	$1.44 (\nu: 0.1)$
$\sigma_8$	$0.813^{+0.030}_{-0.029}$	$100\theta_{\text{s,eq}}$	$0.4524^{+0.0075}_{-0.0070}$	$\chi_{\text{DR12BAO}}^2$	$4.6 (\nu: 1.0)$
$S_8$	$0.824^{+0.033}_{-0.032}$	$H(0.15)$	$73.4^{+3.7}_{-3.5}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.452^{+0.018}_{-0.017}$	$D_M(0.15)$	$637^{+33}_{-32}$	$\chi_{\text{CMB}}^2$	$1201.9 (\nu: 15.6)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.606^{+0.021}_{-0.021}$	$H(0.38)$	$83.5^{+3.9}_{-3.7}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.7)$

$\bar{\chi}_{\text{eff}}^2 = 1921.98; R - 1 = 0.01169$



7.45 base\_nnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02228^{+0.00057}_{-0.00057}$	$\sigma_8/h^{0.5}$	$0.985^{+0.023}_{-0.023}$	$D_M(0.38)$	$1519^{+74}_{-72}$
$\Omega_c h^2$	$0.1203^{+0.0096}_{-0.0088}$	$r_{\text{drag}} h$	$99.98^{+2.5}_{-2.4}$	$H(0.51)$	$90.3^{+3.9}_{-3.7}$
$100\theta_{\text{MC}}$	$1.0409^{+0.0013}_{-0.0014}$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.057}_{-0.056}$	$D_M(0.51)$	$1968^{+94}_{-91}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$z_{\text{re}}$	$< 9.62$	$H(0.61)$	$95.9^{+4.0}_{-3.8}$
$N_{\text{eff}}$	$3.13^{+0.59}_{-0.54}$	$10^9 A_s$	$2.108^{+0.097}_{-0.079}$	$D_M(0.61)$	$2290^{+110}_{-100}$
$\ln(10^{10} A_s)$	$3.048^{+0.045}_{-0.038}$	$10^9 A_s e^{-2\tau}$	$1.885^{+0.049}_{-0.049}$	$H(2.33)$	$236.9^{+8.3}_{-7.7}$
$n_s$	$0.969^{+0.021}_{-0.020}$	$D_{40}$	$1224^{+36}_{-36}$	$D_M(2.33)$	$5732^{+230}_{-230}$
$y_{\text{cal}}$	$1.0007^{+0.0063}_{-0.0063}$	$D_{220}$	$5725^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.456^{+0.017}_{-0.017}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2538^{+35}_{-35}$	$\sigma_8(0.15)$	$0.751^{+0.029}_{-0.028}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.475^{+0.017}_{-0.016}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$229.6^{+5.6}_{-5.5}$	$\sigma_8(0.38)$	$0.666^{+0.027}_{-0.025}$
$A_{100}^{\text{PS}}$	$265^{+70}_{-70}$	$n_{s,0.002}$	$0.969^{+0.021}_{-0.020}$	$f\sigma_8(0.51)$	$0.474^{+0.016}_{-0.016}$
$A_{143}^{\text{PS}}$	$49^{+20}_{-20}$	$Y_{\text{P}}$	$0.2465^{+0.0076}_{-0.0074}$	$\sigma_8(0.51)$	$0.624^{+0.025}_{-0.024}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.2478^{+0.0077}_{-0.0074}$	$f\sigma_8(0.61)$	$0.470^{+0.016}_{-0.016}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D/H}$	$2.63^{+0.17}_{-0.16}$	$\sigma_8(0.61)$	$0.594^{+0.024}_{-0.023}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.72^{+0.55}_{-0.54}$	$f\sigma_8(2.33)$	$0.299^{+0.012}_{-0.012}$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.7}_{-4.7}$	$z_*$	$1090.1^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	$0.309^{+0.013}_{-0.013}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.8}_{-4.6}$	$r_*$	$144.0^{+5.2}_{-5.3}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.4}_{-8.6}$	$100\theta_*$	$1.0410^{+0.0016}_{-0.0017}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.84^{+0.48}_{-0.49}$	$f_{2000}^{217}$	$108.3^{+5.8}_{-5.6}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.8^{+2.1}_{-2.1}$	$\chi_{\text{lensing}}^2$	$9.42 (\nu: 0.3)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0015}$	$r_{\text{drag}}$	$146.7^{+5.4}_{-5.4}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 1.9)$
$H_0$	$68.2^{+3.6}_{-3.4}$	$k_{\text{D}}$	$0.1409^{+0.0040}_{-0.0039}$	$\chi_{\text{lowl}}^2$	$22.9 (\nu: 0.6)$
$\Omega_{\Lambda}$	$0.692^{+0.019}_{-0.020}$	$100\theta_{\text{D}}$	$0.1612^{+0.0015}_{-0.0014}$	$\chi_{\text{plik}}^2$	$772.5 (\nu: 15.1)$
$\Omega_{\text{m}}$	$0.308^{+0.020}_{-0.019}$	$z_{\text{eq}}$	$3368^{+71}_{-74}$	$\chi_{\text{JLA}}^2$	$1035.03 (\nu: 0.1)$
$\Omega_{\text{m}} h^2$	$0.1432^{+0.0099}_{-0.0090}$	$k_{\text{eq}}$	$0.01034^{+0.00034}_{-0.00033}$	$\chi_{6\text{DF}}^2$	$0.047 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.098^{+0.012}_{-0.010}$	$100\theta_{\text{eq}}$	$0.819^{+0.014}_{-0.013}$	$\chi_{\text{MGS}}^2$	$1.47 (\nu: 0.1)$
$\sigma_8$	$0.813^{+0.030}_{-0.029}$	$100\theta_{\text{s,eq}}$	$0.4525^{+0.0073}_{-0.0068}$	$\chi_{\text{DR12BAO}}^2$	$4.5 (\nu: 0.9)$
$S_8$	$0.824^{+0.033}_{-0.031}$	$H(0.15)$	$73.4^{+3.7}_{-3.5}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.451^{+0.018}_{-0.017}$	$D_M(0.15)$	$636^{+33}_{-31}$	$\chi_{\text{CMB}}^2$	$1202.0 (\nu: 15.6)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.606^{+0.021}_{-0.021}$	$H(0.38)$	$83.5^{+3.8}_{-3.6}$	$\chi_{\text{BAO}}^2$	$6.0 (\nu: 0.6)$

$$\bar{\chi}_{\text{eff}}^2 = 2250.26; R - 1 = 0.01176$$



# 7.46 base\_nnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02226^{+0.00059}_{-0.00056}$	$\sigma_8/h^{0.5}$	$0.985^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1522^{+76}_{-74}$
$\Omega_{\mathrm{c}}h^2$	$0.1201^{+0.0097}_{-0.0087}$	$r_{\mathrm{drag}}h$	$99.8^{+2.7}_{-2.4}$	$H(0.51)$	$90.1^{+4.0}_{-3.8}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0013}_{-0.0014}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.058}_{-0.058}$	$D_{\mathrm{M}}(0.51)$	$1972^{+95}_{-94}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$z_{\mathrm{re}}$	$< 9.60$	$H(0.61)$	$95.7^{+4.1}_{-3.9}$
$N_{\mathrm{eff}}$	$3.11^{+0.59}_{-0.54}$	$10^9 A_{\mathrm{s}}$	$2.106^{+0.098}_{-0.079}$	$D_{\mathrm{M}}(0.61)$	$2295^{+110}_{-110}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.046}_{-0.038}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.884^{+0.050}_{-0.049}$	$H(2.33)$	$236.8^{+8.4}_{-7.7}$
$n_{\mathrm{s}}$	$0.968^{+0.021}_{-0.021}$	$D_{40}$	$1225^{+37}_{-37}$	$D_{\mathrm{M}}(2.33)$	$5741^{+240}_{-230}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0063}$	$D_{220}$	$5724^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2538^{+35}_{-35}$	$\sigma_8(0.15)$	$0.751^{+0.029}_{-0.028}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.475^{+0.017}_{-0.016}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.7^{+5.5}_{-5.5}$	$\sigma_8(0.38)$	$0.666^{+0.027}_{-0.025}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.021}_{-0.021}$	$f\sigma_8(0.51)$	$0.474^{+0.016}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2462^{+0.0077}_{-0.0076}$	$\sigma_8(0.51)$	$0.623^{+0.026}_{-0.024}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2475^{+0.0077}_{-0.0076}$	$f\sigma_8(0.61)$	$0.469^{+0.016}_{-0.016}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.17}_{-0.16}$	$\sigma_8(0.61)$	$0.593^{+0.025}_{-0.023}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.74^{+0.56}_{-0.55}$	$f\sigma_8(2.33)$	$0.299^{+0.013}_{-0.012}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.7}_{-4.7}$	$z_*$	$1090.1^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	$0.308^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.8}_{-4.6}$	$r_*$	$144.2^{+5.3}_{-5.3}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.3}_{-8.6}$	$100\theta_*$	$1.0410^{+0.0016}_{-0.0017}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.85^{+0.49}_{-0.50}$	$f_{2000}^{217}$	$108.2^{+5.8}_{-5.6}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.7^{+2.1}_{-2.1}$	$\chi_{\mathrm{lensing}}^2$	$9.39 (\nu: 0.3)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0015}$	$r_{\mathrm{drag}}$	$146.9^{+5.5}_{-5.5}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.8)$
$H_0$	$68.0^{+3.8}_{-3.5}$	$k_{\mathrm{D}}$	$0.1408^{+0.0041}_{-0.0039}$	$\chi_{\mathrm{lowl}}^2$	$23.0 (\nu: 0.7)$
$\Omega_{\Lambda}$	$0.690^{+0.020}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0015}_{-0.0014}$	$\chi_{\mathrm{plik}}^2$	$772.3 (\nu: 15.1)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.020}_{-0.020}$	$z_{\mathrm{eq}}$	$3372^{+75}_{-78}$	$\chi_{6\mathrm{DF}}^2$	$0.058 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.143^{+0.010}_{-0.0088}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00034}_{-0.00033}$	$\chi_{\mathrm{MGS}}^2$	$1.39 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^3$	$0.097^{+0.012}_{-0.011}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.015}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.2)$
$\sigma_8$	$0.812^{+0.030}_{-0.029}$	$100\theta_{\mathrm{s,eq}}$	$0.4521^{+0.0077}_{-0.0071}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.6)$
$S_8$	$0.825^{+0.033}_{-0.032}$	$H(0.15)$	$73.3^{+3.8}_{-3.5}$	$\chi_{\mathrm{CMB}}^2$	$1201.8 (\nu: 15.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.017}$	$D_{\mathrm{M}}(0.15)$	$638^{+34}_{-33}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.021}_{-0.021}$	$H(0.38)$	$83.4^{+3.9}_{-3.7}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1215.24; R - 1 = 0.01151$



7.47 base\_nnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02223^{+0.00056}_{-0.00053}$	$\sigma_8/h^{0.5}$	$0.983^{+0.032}_{-0.028}$	$D_M(0.38)$	$1528^{+63}_{-62}$
$\Omega_c h^2$	$0.1192^{+0.0084}_{-0.0077}$	$r_{\text{drag}} h$	$99.8^{+2.7}_{-2.5}$	$H(0.51)$	$89.8^{+3.3}_{-3.1}$
$100\theta_{\text{MC}}$	$1.0410^{+0.0013}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	$2.430^{+0.072}_{-0.067}$	$D_M(0.51)$	$1979^{+79}_{-78}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$z_{\text{re}}$	$< 9.59$	$H(0.61)$	$95.4^{+3.3}_{-3.2}$
$N_{\text{eff}}$	$3.06^{+0.48}_{-0.45}$	$10^9 A_s$	$2.10^{+0.10}_{-0.080}$	$D_M(0.61)$	$2303^{+91}_{-89}$
$\ln(10^{10} A_s)$	$3.043^{+0.049}_{-0.039}$	$10^9 A_s e^{-2\tau}$	$1.878^{+0.047}_{-0.045}$	$H(2.33)$	$236.0^{+7.1}_{-6.6}$
$n_s$	$0.967^{+0.019}_{-0.018}$	$D_{40}$	$1225^{+36}_{-36}$	$D_M(2.33)$	$5760^{+190}_{-190}$
$y_{\text{cal}}$	$1.0006^{+0.0062}_{-0.0063}$	$D_{220}$	$5720^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.455^{+0.022}_{-0.020}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2536^{+36}_{-37}$	$\sigma_8(0.15)$	$0.748^{+0.028}_{-0.025}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.020}_{-0.018}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$229.9^{+5.2}_{-5.3}$	$\sigma_8(0.38)$	$0.663^{+0.025}_{-0.023}$
$A_{100}^{\text{PS}}$	$264^{+70}_{-70}$	$n_{\text{s},0.002}$	$0.967^{+0.019}_{-0.018}$	$f\sigma_8(0.51)$	$0.472^{+0.019}_{-0.017}$
$A_{143}^{\text{PS}}$	$49^{+20}_{-20}$	$Y_{\text{P}}$	$0.2455^{+0.0063}_{-0.0063}$	$\sigma_8(0.51)$	$0.620^{+0.024}_{-0.022}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.2469^{+0.0063}_{-0.0063}$	$f\sigma_8(0.61)$	$0.468^{+0.018}_{-0.017}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D/H}$	$2.62^{+0.15}_{-0.14}$	$\sigma_8(0.61)$	$0.590^{+0.023}_{-0.021}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.79^{+0.46}_{-0.45}$	$f\sigma_8(2.33)$	$0.298^{+0.012}_{-0.011}$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.7}_{-4.6}$	$z_*$	$1090.0^{+1.1}_{-1.1}$	$\sigma_8(2.33)$	$0.307^{+0.013}_{-0.011}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.8}_{-4.6}$	$r_*$	$144.7^{+4.5}_{-4.5}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.3}_{-8.7}$	$100\theta_*$	$1.0412^{+0.0015}_{-0.0015}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.90^{+0.42}_{-0.42}$	$f_{2000}^{217}$	$108.0^{+5.6}_{-5.3}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.6^{+1.9}_{-1.9}$	$\chi_{\text{simall}}^2$	$397.0 (\nu: 1.8)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0015}$	$r_{\text{drag}}$	$147.4^{+4.6}_{-4.7}$	$\chi_{\text{lowl}}^2$	$23.0 (\nu: 0.6)$
$H_0$	$67.7^{+3.1}_{-2.9}$	$k_{\text{D}}$	$0.1404^{+0.0035}_{-0.0033}$	$\chi_{\text{plik}}^2$	$772.4 (\nu: 15.1)$
$\Omega_{\Lambda}$	$0.690^{+0.020}_{-0.020}$	$100\theta_{\text{D}}$	$0.1611^{+0.0013}_{-0.0012}$	$\chi_{\text{Aver15}}^2$	$0.61 (\nu: 0.3)$
$\Omega_{\text{m}}$	$0.310^{+0.020}_{-0.020}$	$z_{\text{eq}}$	$3372^{+78}_{-79}$	$\chi_{6\text{DF}}^2$	$0.060 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	$0.1421^{+0.0086}_{-0.0078}$	$k_{\text{eq}}$	$0.01030^{+0.00034}_{-0.00032}$	$\chi_{\text{MGS}}^2$	$1.39 (\nu: 0.2)$
$\Omega_{\text{m}} h^3$	$0.0963^{+0.0096}_{-0.0087}$	$100\theta_{\text{eq}}$	$0.818^{+0.015}_{-0.014}$	$\chi_{\text{DR12BAO}}^2$	$4.8 (\nu: 1.4)$
$\sigma_8$	$0.809^{+0.031}_{-0.027}$	$100\theta_{\text{s,eq}}$	$0.4522^{+0.0078}_{-0.0072}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.6)$
$S_8$	$0.822^{+0.042}_{-0.039}$	$H(0.15)$	$73.0^{+3.1}_{-2.9}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.9)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.450^{+0.023}_{-0.021}$	$D_M(0.15)$	$640^{+28}_{-27}$	$\chi_{\text{CMB}}^2$	$1192.4 (\nu: 14.6)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.603^{+0.025}_{-0.023}$	$H(0.38)$	$83.1^{+3.2}_{-3.0}$		

$\bar{\chi}_{\text{eff}}^2 = 1206.51; R - 1 = 0.01186$



7.48 base\_nnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02223^{+0.00055}_{-0.00053}$	$r_{\mathrm{drag}}h$	$99.8^{+2.7}_{-2.6}$	$D_{\mathrm{M}}(0.51)$	$1979^{+75}_{-75}$
$\Omega_{\mathrm{c}}h^2$	$0.1192^{+0.0076}_{-0.0071}$	$\langle d^2 \rangle^{1/2}$	$2.430^{+0.073}_{-0.067}$	$H(0.61)$	$95.4^{+3.1}_{-3.0}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0012}_{-0.0012}$	$z_{\mathrm{re}}$	$< 9.59$	$D_{\mathrm{M}}(0.61)$	$2303^{+85}_{-85}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.078}$	$H(2.33)$	$235.9^{+6.5}_{-6.3}$
$N_{\mathrm{eff}}$	$3.06^{+0.44}_{-0.42}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.044}_{-0.044}$	$D_{\mathrm{M}}(2.33)$	$5761^{+180}_{-180}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.049}_{-0.038}$	$D_{40}$	$1225^{+35}_{-36}$	$f\sigma_8(0.15)$	$0.455^{+0.021}_{-0.020}$
$n_{\mathrm{s}}$	$0.967^{+0.018}_{-0.017}$	$D_{220}$	$5720^{+100}_{-100}$	$\sigma_8(0.15)$	$0.748^{+0.027}_{-0.024}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0062}_{-0.0064}$	$D_{810}$	$2536^{+37}_{-37}$	$f\sigma_8(0.38)$	$0.474^{+0.019}_{-0.018}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$815^{+12}_{-13}$	$\sigma_8(0.38)$	$0.663^{+0.024}_{-0.022}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{2000}$	$229.9^{+4.8}_{-4.9}$	$f\sigma_8(0.51)$	$0.472^{+0.018}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.967^{+0.018}_{-0.017}$	$\sigma_8(0.51)$	$0.620^{+0.023}_{-0.021}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.2455^{+0.0058}_{-0.0059}$	$f\sigma_8(0.61)$	$0.468^{+0.017}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2468^{+0.0058}_{-0.0059}$	$\sigma_8(0.61)$	$0.590^{+0.022}_{-0.020}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.13}_{-0.12}$	$f\sigma_8(2.33)$	$0.298^{+0.011}_{-0.010}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.79^{+0.43}_{-0.42}$	$\sigma_8(2.33)$	$0.307^{+0.012}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	$z_{*}$	$1090.04^{+0.94}_{-0.96}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.7}_{-4.5}$	$r_{*}$	$144.7^{+4.2}_{-4.1}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.8}_{-4.7}$	$100\theta_{*}$	$1.0412^{+0.0014}_{-0.0014}$	$f_{2000}^{217}$	$107.9^{+5.3}_{-5.1}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.3}_{-8.7}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.90^{+0.40}_{-0.38}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.8)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.6^{+1.8}_{-1.9}$	$\chi_{\mathrm{lowl}}^2$	$23.1 (\nu: 0.6)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.4^{+4.4}_{-4.3}$	$\chi_{\mathrm{plik}}^2$	$772.2 (\nu: 14.8)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0015}$	$k_{\mathrm{D}}$	$0.1404^{+0.0033}_{-0.0032}$	$\chi_{\mathrm{Aver15}}^2$	$0.55 (\nu: 0.2)$
$H_0$	$67.7^{+3.0}_{-2.8}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{Cooke17}}^2$	$0.27 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.690^{+0.021}_{-0.020}$	$z_{\mathrm{eq}}$	$3372^{+77}_{-80}$	$\chi_{6\mathrm{DF}}^2$	$0.060 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.020}_{-0.021}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00032}_{-0.00031}$	$\chi_{\mathrm{MGS}}^2$	$1.39 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0078}_{-0.0073}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.015}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.4)$
$\Omega_{\mathrm{m}}h^3$	$0.0962^{+0.0088}_{-0.0082}$	$100\theta_{\mathrm{s,eq}}$	$0.4521^{+0.0079}_{-0.0072}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.6)$
$\sigma_8$	$0.809^{+0.029}_{-0.026}$	$H(0.15)$	$73.0^{+3.0}_{-2.8}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.9)$
$S_8$	$0.822^{+0.041}_{-0.039}$	$D_{\mathrm{M}}(0.15)$	$640^{+26}_{-26}$	$\chi_{\mathrm{CMB}}^2$	$1192.2 (\nu: 14.3)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.023}_{-0.021}$	$H(0.38)$	$83.1^{+3.0}_{-2.8}$	$\chi_{\mathrm{Abund}}^2$	$0.82 (\nu: 0.4)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.024}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1528^{+60}_{-60}$		
$\sigma_8/h^{0.5}$	$0.983^{+0.032}_{-0.028}$	$H(0.51)$	$89.8^{+3.1}_{-2.9}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1206.53; R - 1 = 0.01138$$



# 7.49 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022382	$0.02239^{+0.00047}_{-0.00046}$ (+0.5 $\sigma$ )	$\sigma_8$	0.8060	$0.808^{+0.031}_{-0.029}$ (−0.3 $\sigma$ )	$D_M(0.15)$	645.7	$643^{+28}_{-27}$ (+0.5 $\sigma$ )
$\Omega_c h^2$	0.1179	$0.1186^{+0.0080}_{-0.0077}$ (−0.5 $\sigma$ )	$S_8$	0.8229	$0.823^{+0.037}_{-0.035}$ (−0.0 $\sigma$ )	$H(0.38)$	82.48	$82.8^{+3.2}_{-3.0}$ (−0.5 $\sigma$ )
$100\theta_{MC}$	1.04119	$1.0411^{+0.0012}_{-0.0011}$ (+0.4 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4507	$0.451^{+0.020}_{-0.019}$ (−0.0 $\sigma$ )	$D_M(0.38)$	1540	$1534^{+63}_{-62}$ (+0.5 $\sigma$ )
$\tau$	0.0551	$0.056^{+0.023}_{-0.021}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6027	$0.603^{+0.024}_{-0.022}$ (−0.2 $\sigma$ )	$H(0.51)$	89.17	$89.5^{+3.3}_{-3.1}$ (−0.5 $\sigma$ )
$N_{\text{eff}}$	2.956	$3.01^{+0.47}_{-0.46}$ (−0.6 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9837	$0.984^{+0.030}_{-0.028}$ (+0.0 $\sigma$ )	$D_M(0.51)$	1994	$1987^{+79}_{-78}$ (+0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0415	$3.043^{+0.051}_{-0.047}$ (−0.0 $\sigma$ )	$r_{\text{drag}} h$	99.43	$99.6^{+2.3}_{-2.1}$ (−0.4 $\sigma$ )	$H(0.61)$	94.77	$95.1^{+3.4}_{-3.2}$ (−0.5 $\sigma$ )
$n_s$	0.9652	$0.966^{+0.018}_{-0.018}$ (−0.5 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.436	$2.436^{+0.068}_{-0.066}$ (+0.4 $\sigma$ )	$D_M(0.61)$	2320	$2312^{+91}_{-89}$ (+0.5 $\sigma$ )
$y_{\text{cal}}$	1.0006	$1.0007^{+0.0064}_{-0.0065}$ (+0.1 $\sigma$ )	$z_{\text{re}}$	7.72	$7.8^{+2.2}_{-2.2}$ (+0.1 $\sigma$ )	$H(2.33)$	234.9	$235.5^{+6.9}_{-6.9}$ (−0.5 $\sigma$ )
$A_{217}^{\text{CIB}}$	44.0	$46^{+20}_{-20}$ (−0.3 $\sigma$ )	$10^9 A_s$	2.094	$2.10^{+0.11}_{-0.097}$ (−0.0 $\sigma$ )	$D_M(2.33)$	5795	$5777^{+200}_{-190}$ (+0.5 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.89	—	$10^9 A_s e^{-2\tau}$	1.8751	$1.877^{+0.045}_{-0.049}$ (−0.4 $\sigma$ )	$f\sigma_8(0.15)$	0.4552	$0.455^{+0.020}_{-0.019}$ (−0.0 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.01	$> 0.976$ (+0.3 $\sigma$ )	$D_{40}$	1228.4	$1229^{+35}_{-36}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.7447	$0.746^{+0.029}_{-0.027}$ (−0.3 $\sigma$ )
$A_{100}^{\text{PS}}$	244	$257^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{220}$	5736	$5737^{+100}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4732	$0.474^{+0.019}_{-0.018}$ (−0.1 $\sigma$ )
$A_{143}^{\text{PS}}$	52.0	$45^{+20}_{-20}$ (−0.6 $\sigma$ )	$D_{810}$	2541.0	$2539^{+35}_{-37}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6600	$0.662^{+0.026}_{-0.025}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	57.7	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	820.1	$818^{+12}_{-13}$ (+0.6 $\sigma$ )	$f\sigma_8(0.51)$	0.4716	$0.472^{+0.018}_{-0.017}$ (−0.2 $\sigma$ )
$A_{217}^{\text{PS}}$	124.0	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	232.28	$231.4^{+4.8}_{-4.9}$ (+0.9 $\sigma$ )	$\sigma_8(0.51)$	0.6176	$0.619^{+0.025}_{-0.023}$ (−0.4 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$n_{s,0.002}$	0.9652	$0.966^{+0.018}_{-0.018}$ (−0.5 $\sigma$ )	$f\sigma_8(0.61)$	0.4666	$0.467^{+0.018}_{-0.017}$ (−0.2 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.76	$8.9^{+4.7}_{-4.7}$ (−0.1 $\sigma$ )	$Y_P$	0.2442	$0.2448^{+0.0063}_{-0.0065}$ (−0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5876	$0.589^{+0.024}_{-0.022}$ (−0.4 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.02	$10.9^{+4.6}_{-4.7}$ (+0.1 $\sigma$ )	$Y_P^{\text{BBN}}$	0.2455	$0.2461^{+0.0063}_{-0.0065}$ (−0.6 $\sigma$ )	$f\sigma_8(2.33)$	0.2962	$0.297^{+0.012}_{-0.011}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.5	$18.6^{+8.4}_{-8.5}$ (+0.1 $\sigma$ )	$10^5 \text{D/H}$	2.552	$2.57^{+0.12}_{-0.12}$ (−1.1 $\sigma$ )	$\sigma_8(2.33)$	0.3053	$0.306^{+0.013}_{-0.012}$ (−0.4 $\sigma$ )
$A_{217}^{\text{dustTT}}$	96.2	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.874	$13.83^{+0.47}_{-0.46}$ (+0.5 $\sigma$ )	$f_{2000}^{143}$	27.5	$29^{+8}_{-8}$ (−0.8 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.099}_{-0.094}$	$z_*$	1089.63	$1089.74^{+0.94}_{-0.92}$ (−0.9 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.2	$32^{+6}_{-5}$ (−0.9 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.077}_{-0.076}$	$r_*$	145.42	$145.0^{+4.7}_{-4.4}$ (+0.5 $\sigma$ )	$f_{2000}^{217}$	105.7	$106.7^{+5.1}_{-5.0}$ (−0.8 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.479	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04144	$1.0413^{+0.0014}_{-0.0014}$ (+0.5 $\sigma$ )	$\chi_{\text{small}}^2$	396.2	$397.3$ ( $\nu$ : 2.3) (+0.1 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.225	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.964	$13.93^{+0.43}_{-0.41}$ (+0.5 $\sigma$ )	$\chi_{\text{lowl}}^2$	23.21	$23.3$ ( $\nu$ : 0.6) (+0.5 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.666	$0.66^{+0.20}_{-0.21}$	$z_{\text{drag}}$	1059.74	$1059.8^{+1.8}_{-1.7}$ (+0.0 $\sigma$ )	$\chi_{\text{plik}}^2$	2344.8	$2360.4$ ( $\nu$ : 19.2) (+278.9 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.07	$2.08^{+0.70}_{-0.71}$	$r_{\text{drag}}$	148.10	$147.7^{+4.9}_{-4.6}$ (+0.5 $\sigma$ )	$\chi_{6\text{DF}}^2$	0.047	$0.066$ ( $\nu$ : 0.0) (+0.1 $\sigma$ )
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14017	$0.1404^{+0.0035}_{-0.0034}$ (−0.3 $\sigma$ )	$\chi_{\text{MGS}}^2$	1.10	$1.23$ ( $\nu$ : 0.1) (−0.4 $\sigma$ )
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0016}$ (−0.2 $\sigma$ )	$100\theta_D$	0.16051	$0.1606^{+0.0010}_{-0.0011}$ (−1.0 $\sigma$ )	$\chi_{\text{DR12BAO}}^2$	4.79	$5.0$ ( $\nu$ : 1.3) (+0.2 $\sigma$ )
$H_0$	67.14	$67.4^{+3.1}_{-2.9}$ (−0.5 $\sigma$ )	$z_{\text{eq}}$	3394	$3389^{+64}_{-64}$ (+0.7 $\sigma$ )	$\chi_{\text{prior}}^2$	1.5	$11.6$ ( $\nu$ : 10.4) (+1.2 $\sigma$ )
$\Omega_\Lambda$	0.6873	$0.688^{+0.018}_{-0.018}$ (−0.4 $\sigma$ )	$k_{\text{eq}}$	0.010295	$0.01031^{+0.00031}_{-0.00030}$ (−0.2 $\sigma$ )	$\chi_{\text{BAO}}^2$	5.93	$6.3$ ( $\nu$ : 0.9) (+0.1 $\sigma$ )
$\Omega_m$	0.3127	$0.312^{+0.018}_{-0.018}$ (+0.4 $\sigma$ )	$100\theta_{\text{eq}}$	0.8150	$0.816^{+0.012}_{-0.012}$ (−0.6 $\sigma$ )	$\chi_{\text{CMB}}^2$	2764.2	$2781.0$ ( $\nu$ : 18.3) (+282.2 $\sigma$ )
$\Omega_m h^2$	0.1409	$0.1417^{+0.0082}_{-0.0080}$ (−0.5 $\sigma$ )	$100\theta_{s,\text{eq}}$	0.4503	$0.4507^{+0.0063}_{-0.0061}$ (−0.6 $\sigma$ )			
$\Omega_m h^3$	0.0946	$0.0956^{+0.0096}_{-0.0088}$ (−0.5 $\sigma$ )	$H(0.15)$	72.40	$72.7^{+3.1}_{-2.9}$ (−0.5 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 2771.61$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.89$ ;  $\bar{\chi}_{\text{eff}}^2 = 2798.95$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1592.41$ ;  $R - 1 = 0.01038$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.05 ( $\Delta$  0.03) MGS: 1.10 ( $\Delta$  -0.25) DR12BAO: 4.79 ( $\Delta$  0.74) CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 396.16 ( $\Delta$  0.11) commander\_dx12.v3.2.29: 23.21 ( $\Delta$  0.52) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.84



# 7.50 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_JLA

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022382	$0.02238^{+0.00046}_{-0.00044}$ (+0.5 $\sigma$ )	$\sigma_8$	0.8061	$0.808^{+0.027}_{-0.025}$ (−0.3 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	645.5	$643^{+25}_{-28}$ (+0.5 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.1176	$0.1185^{+0.0077}_{-0.0068}$ (−0.5 $\sigma$ )	$S_8$	0.8218	$0.824^{+0.027}_{-0.029}$ (−0.0 $\sigma$ )	$H(0.38)$	82.47	$82.7^{+3.2}_{-2.6}$ (−0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04119	$1.0411^{+0.0010}_{-0.0011}$ (+0.4 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4501	$0.451^{+0.015}_{-0.016}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1539	$1534^{+56}_{-64}$ (+0.5 $\sigma$ )
$\tau$	0.0566	$0.057^{+0.023}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6023	$0.604^{+0.018}_{-0.019}$ (−0.2 $\sigma$ )	$H(0.51)$	89.15	$89.4^{+3.3}_{-2.7}$ (−0.5 $\sigma$ )
$N_{\mathrm{eff}}$	2.948	$3.00^{+0.47}_{-0.41}$ (−0.6 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9836	$0.984^{+0.022}_{-0.023}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1994	$1988^{+70}_{-80}$ (+0.5 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0438	$3.045^{+0.047}_{-0.042}$ (−0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	99.54	$99.6^{+2.1}_{-2.1}$ (−0.4 $\sigma$ )	$H(0.61)$	94.74	$95.1^{+3.4}_{-2.9}$ (−0.5 $\sigma$ )
$n_{\mathrm{s}}$	0.9649	$0.965^{+0.017}_{-0.016}$ (−0.4 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.438	$2.439^{+0.054}_{-0.054}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2320	$2313^{+79}_{-91}$ (+0.5 $\sigma$ )
$y_{\mathrm{cal}}$	1.0008	$1.0008^{+0.0061}_{-0.0066}$ (+0.1 $\sigma$ )	$z_{\mathrm{re}}$	7.86	$7.9^{+2.1}_{-2.0}$ (+0.1 $\sigma$ )	$H(2.33)$	234.7	$235.4^{+6.8}_{-6.2}$ (−0.5 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	45.2	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.099	$2.10^{+0.10}_{-0.087}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5798	$5780^{+170}_{-190}$ (+0.5 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.75	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8740	$1.877^{+0.043}_{-0.044}$ (−0.4 $\sigma$ )	$f\sigma_8(0.15)$	0.4547	$0.456^{+0.015}_{-0.015}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.06	$5.6^{+4.4}_{-4.6}$ (+0.3 $\sigma$ )	$D_{40}$	1229.7	$1230^{+33}_{-31}$ (+0.4 $\sigma$ )	$\sigma_8(0.15)$	0.7448	$0.747^{+0.026}_{-0.024}$ (−0.4 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	246	$256^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{220}$	5740	$5739^{+90}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4728	$0.474^{+0.014}_{-0.015}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	50.0	$45^{+20}_{-20}$ (−0.6 $\sigma$ )	$D_{810}$	2540.7	$2539^{+33}_{-39}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6602	$0.662^{+0.024}_{-0.022}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	54.1	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	820.0	$818^{+13}_{-13}$ (+0.6 $\sigma$ )	$f\sigma_8(0.51)$	0.4714	$0.473^{+0.015}_{-0.014}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	122.2	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	232.26	$231.5^{+4.8}_{-4.7}$ (+0.9 $\sigma$ )	$\sigma_8(0.51)$	0.6178	$0.619^{+0.023}_{-0.021}$ (−0.4 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$n_{\mathrm{s},0.002}$	0.9649	$0.965^{+0.017}_{-0.016}$ (−0.4 $\sigma$ )	$f\sigma_8(0.61)$	0.4664	$0.468^{+0.014}_{-0.014}$ (−0.3 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.82	$8.8^{+4.8}_{-4.5}$ (−0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.2441	$0.2447^{+0.0063}_{-0.0057}$ (−0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5879	$0.589^{+0.022}_{-0.020}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.01	$10.8^{+4.3}_{-4.5}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2454	$0.2460^{+0.0063}_{-0.0057}$ (−0.6 $\sigma$ )	$f\sigma_8(2.33)$	0.2964	$0.297^{+0.011}_{-0.011}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.2	$18.5^{+8.5}_{-8.5}$ (+0.1 $\sigma$ )	$10^5 \mathrm{D}/\mathrm{H}$	2.549	$2.57^{+0.12}_{-0.11}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3056	$0.306^{+0.012}_{-0.011}$ (−0.4 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.5	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.881	$13.84^{+0.42}_{-0.46}$ (+0.5 $\sigma$ )	$f_{2000}^{143}$	27.7	$29^{+8}_{-8}$ (−0.8 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.113	$0.114^{+0.097}_{-0.092}$	$z_*$	1089.60	$1089.72^{+0.84}_{-0.86}$ (−0.9 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.2	$32^{+5}_{-5}$ (−0.8 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.082}_{-0.079}$	$r_*$	145.54	$145.1^{+4.2}_{-4.4}$ (+0.5 $\sigma$ )	$f_{2000}^{217}$	105.87	$106.6^{+4.8}_{-4.9}$ (−0.7 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.481	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	1.04144	$1.0413^{+0.0013}_{-0.0013}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	8.58	$9.06$ ( $\nu$ : 0.2) (−0.5 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.226	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.975	$13.93^{+0.39}_{-0.41}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.5	$397.4$ ( $\nu$ : 2.2) (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.666	$0.67^{+0.20}_{-0.20}$	$z_{\mathrm{drag}}$	1059.70	$1059.8^{+1.8}_{-1.6}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.29	$23.4$ ( $\nu$ : 0.5) (+0.4 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.07	$2.07^{+0.68}_{-0.73}$	$r_{\mathrm{drag}}$	148.22	$147.8^{+4.4}_{-4.5}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2344.5	$2359.6$ ( $\nu$ : 17.2) (+287.3 $\sigma$ )
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.14007	$0.1404^{+0.0033}_{-0.0031}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	706.758	$706.79$ ( $\nu$ : 0.0) (+0.3 $\sigma$ )
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16049	$0.1606^{+0.0011}_{-0.00095}$ (−1.0 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.038	$0.063$ ( $\nu$ : 0.0) (+0.1 $\sigma$ )
$H_0$	67.16	$67.4^{+3.1}_{-2.6}$ (−0.5 $\sigma$ )	$z_{\mathrm{eq}}$	3390	$3388^{+62}_{-61}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	1.16	$1.23$ ( $\nu$ : 0.1) (−0.4 $\sigma$ )
$\Omega_{\Lambda}$	0.6882	$0.688^{+0.017}_{-0.017}$ (−0.3 $\sigma$ )	$k_{\mathrm{eq}}$	0.010278	$0.01031^{+0.00028}_{-0.00026}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	4.58	$5.0$ ( $\nu$ : 1.1) (+0.2 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3118	$0.312^{+0.017}_{-0.017}$ (+0.3 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8157	$0.816^{+0.012}_{-0.012}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.6	$11.6$ ( $\nu$ : 10.3) (+1.2 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.1406	$0.1415^{+0.0079}_{-0.0071}$ (−0.4 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4506	$0.4508^{+0.0059}_{-0.0059}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2772.9	$2789.4$ ( $\nu$ : 17.7) (+281.6 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	0.0944	$0.0954^{+0.0094}_{-0.0080}$ (−0.5 $\sigma$ )	$H(0.15)$	72.41	$72.7^{+3.2}_{-2.6}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	5.77	$6.3$ ( $\nu$ : 0.7) (+0.1 $\sigma$ )

Best-fit  $\chi_{\mathrm{eff}}^2 = 3486.99$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.58$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 3514.05$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.91$ ;  $R - 1 = 0.03296$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.04 ( $\Delta$  0.02) MGS: 1.16 ( $\Delta$  -0.12) DR12BAO: 4.58 ( $\Delta$  0.38) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.58 ( $\Delta$  -0.34) small\_100x143\_offlike5\_EE\_Aplanck 396.47 ( $\Delta$  0.39) commander\_dx12.v3.2.29: 23.29 ( $\Delta$  0.50) plik\_rd12\_HM.v22b\_TTTEEE: 2344.53 SN - JLA December\_2013: 706.76 ( $\Delta$  0.05)



7.51 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022397	$0.02239^{+0.00047}_{-0.00044}$ (+0.5 $\sigma$ )	$\sigma_8$	0.8068	$0.808^{+0.027}_{-0.026}$ (−0.4 $\sigma$ )	$D_M(0.15)$	644.4	$643^{+26}_{-26}$ (+0.5 $\sigma$ )
$\Omega_c h^2$	0.1180	$0.1185^{+0.0076}_{-0.0072}$ (−0.5 $\sigma$ )	$S_8$	0.8225	$0.823^{+0.028}_{-0.028}$ (−0.1 $\sigma$ )	$H(0.38)$	82.60	$82.8^{+3.1}_{-2.8}$ (−0.5 $\sigma$ )
$100\theta_{MC}$	1.04115	$1.0411^{+0.0012}_{-0.0011}$ (+0.4 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4505	$0.451^{+0.015}_{-0.016}$ (−0.1 $\sigma$ )	$D_M(0.38)$	1537	$1534^{+58}_{-59}$ (+0.5 $\sigma$ )
$\tau$	0.0559	$0.057^{+0.020}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6029	$0.603^{+0.019}_{-0.019}$ (−0.2 $\sigma$ )	$H(0.51)$	89.30	$89.5^{+3.2}_{-2.9}$ (−0.5 $\sigma$ )
$N_{\text{eff}}$	2.971	$3.00^{+0.45}_{-0.43}$ (−0.6 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9837	$0.984^{+0.022}_{-0.022}$ (−0.0 $\sigma$ )	$D_M(0.51)$	1991	$1987^{+73}_{-75}$ (+0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0437	$3.045^{+0.045}_{-0.041}$ (−0.1 $\sigma$ )	$r_{\text{drag}} h$	99.53	$99.6^{+2.1}_{-2.0}$ (−0.4 $\sigma$ )	$H(0.61)$	94.89	$95.1^{+3.3}_{-3.0}$ (−0.5 $\sigma$ )
$n_s$	0.9653	$0.966^{+0.018}_{-0.017}$ (−0.4 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.437	$2.438^{+0.054}_{-0.054}$ (+0.4 $\sigma$ )	$D_M(0.61)$	2317	$2312^{+84}_{-86}$ (+0.5 $\sigma$ )
$y_{\text{cal}}$	1.0009	$1.0008^{+0.0064}_{-0.0064}$ (+0.0 $\sigma$ )	$z_{\text{re}}$	7.80	$7.9^{+2.0}_{-2.0}$ (+0.1 $\sigma$ )	$H(2.33)$	235.1	$235.4^{+6.6}_{-6.4}$ (−0.5 $\sigma$ )
$A_{217}^{\text{CIB}}$	46.4	$46^{+20}_{-20}$ (−0.3 $\sigma$ )	$10^9 A_s$	2.098	$2.102^{+0.096}_{-0.085}$ (−0.1 $\sigma$ )	$D_M(2.33)$	5788	$5778^{+190}_{-190}$ (+0.5 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.50	—	$10^9 A_s e^{-2\tau}$	1.8762	$1.877^{+0.042}_{-0.044}$ (−0.4 $\sigma$ )	$f\sigma_8(0.15)$	0.4550	$0.455^{+0.015}_{-0.015}$ (−0.1 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.18	$5.6^{+4.4}_{-4.6}$ (+0.3 $\sigma$ )	$D_{40}$	1229.6	$1230^{+34}_{-33}$ (+0.4 $\sigma$ )	$\sigma_8(0.15)$	0.7455	$0.747^{+0.026}_{-0.024}$ (−0.4 $\sigma$ )
$A_{100}^{\text{PS}}$	249	$257^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{220}$	5741	$5740^{+97}_{-97}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4732	$0.474^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )
$A_{143}^{\text{PS}}$	46.9	$45^{+20}_{-20}$ (−0.6 $\sigma$ )	$D_{810}$	2541.0	$2539^{+34}_{-36}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6608	$0.662^{+0.024}_{-0.022}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	48.3	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	819.7	$818^{+13}_{-13}$ (+0.6 $\sigma$ )	$f\sigma_8(0.51)$	0.4718	$0.472^{+0.015}_{-0.014}$ (−0.3 $\sigma$ )
$A_{217}^{\text{PS}}$	120.1	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	232.05	$231.5^{+4.8}_{-4.7}$ (+0.9 $\sigma$ )	$\sigma_8(0.51)$	0.6184	$0.620^{+0.022}_{-0.021}$ (−0.4 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$n_{s,0.002}$	0.9653	$0.966^{+0.018}_{-0.017}$ (−0.4 $\sigma$ )	$f\sigma_8(0.61)$	0.4668	$0.467^{+0.014}_{-0.014}$ (−0.3 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.79	$8.9^{+4.6}_{-4.6}$ (−0.1 $\sigma$ )	$Y_P$	0.2444	$0.2448^{+0.0061}_{-0.0061}$ (−0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5884	$0.590^{+0.021}_{-0.020}$ (−0.4 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.00	$10.9^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$Y_P^{\text{BBN}}$	0.2457	$0.2461^{+0.0061}_{-0.0061}$ (−0.6 $\sigma$ )	$f\sigma_8(2.33)$	0.2967	$0.297^{+0.011}_{-0.010}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.7	$18.6^{+8.4}_{-8.5}$ (+0.1 $\sigma$ )	$10^5 \text{D/H}$	2.555	$2.57^{+0.11}_{-0.11}$ (−1.1 $\sigma$ )	$\sigma_8(2.33)$	0.3058	$0.306^{+0.012}_{-0.011}$ (−0.4 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.1	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.858	$13.83^{+0.44}_{-0.45}$ (+0.5 $\sigma$ )	$f_{2000}^{143}$	28.0	$29^{+8}_{-8}$ (−0.8 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.097}_{-0.093}$	$z_*$	1089.64	$1089.71^{+0.85}_{-0.86}$ (−1.0 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.4	$32^{+5}_{-5}$ (−0.8 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.079}_{-0.076}$	$r_*$	145.29	$145.1^{+4.4}_{-4.3}$ (+0.5 $\sigma$ )	$f_{2000}^{217}$	106.1	$106.6^{+5.0}_{-5.0}$ (−0.8 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.481	$0.48^{+0.21}_{-0.23}$	$100\theta_*$	1.04138	$1.0413^{+0.0014}_{-0.0013}$ (+0.5 $\sigma$ )	$\chi^2_{\text{lensing}}$	8.62	$9.06$ ( $\nu$ : 0.2) (−0.5 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.225	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.952	$13.93^{+0.40}_{-0.40}$ (+0.5 $\sigma$ )	$\chi^2_{\text{small}}$	396	$230$ ( $\nu$ : 17298.3) (−87.8 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.666	$0.66^{+0.21}_{-0.21}$	$z_{\text{drag}}$	1059.78	$1059.8^{+1.7}_{-1.7}$ (+0.0 $\sigma$ )	$\chi^2_{\text{lowl}}$	23	$191$ ( $\nu$ : 17305.2) (+150.5 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.08	$2.07^{+0.70}_{-0.72}$	$r_{\text{drag}}$	147.96	$147.7^{+4.5}_{-4.5}$ (+0.5 $\sigma$ )	$\chi^2_{\text{plik}}$	2344.6	$2359.9$ ( $\nu$ : 18.0) (+287.6 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14026	$0.1404^{+0.0033}_{-0.0032}$ (−0.3 $\sigma$ )	$\chi^2_{\text{JLA}}$	1035.07	$1035.12$ ( $\nu$ : 0.1) (+0.2 $\sigma$ )
$c_{217}$	0.99815	$0.9982^{+0.0016}_{-0.0016}$ (−0.2 $\sigma$ )	$100\theta_D$	0.16054	$0.1606^{+0.0010}_{-0.0010}$ (−1.0 $\sigma$ )	$\chi^2_{6\text{DF}}$	0.04	$0.59$ ( $\nu$ : 0.2) (+8.4 $\sigma$ )
$H_0$	67.27	$67.4^{+3.0}_{-2.7}$ (−0.5 $\sigma$ )	$z_{\text{eq}}$	3390	$3387^{+59}_{-59}$ (+0.6 $\sigma$ )	$\chi^2_{\text{MGS}}$	1.16	$0.72$ ( $\nu$ : 0.2) (−1.4 $\sigma$ )
$\Omega_\Lambda$	0.6882	$0.689^{+0.016}_{-0.017}$ (−0.3 $\sigma$ )	$k_{\text{eq}}$	0.010295	$0.01030^{+0.00029}_{-0.00027}$ (−0.3 $\sigma$ )	$\chi^2_{\text{DR12BAO}}$	4.60	$4.9$ ( $\nu$ : 1.0) (+0.2 $\sigma$ )
$\Omega_m$	0.3118	$0.311^{+0.017}_{-0.016}$ (+0.3 $\sigma$ )	$100\theta_{\text{eq}}$	0.8157	$0.816^{+0.011}_{-0.011}$ (−0.5 $\sigma$ )	$\chi^2_{\text{prior}}$	1.7	$11.6$ ( $\nu$ : 10.2) (+1.2 $\sigma$ )
$\Omega_m h^2$	0.1411	$0.1415^{+0.0078}_{-0.0074}$ (−0.5 $\sigma$ )	$100\theta_{s,\text{eq}}$	0.4506	$0.4509^{+0.0057}_{-0.0057}$ (−0.6 $\sigma$ )	$\chi^2_{\text{CMB}}$	2772.8	$2789.7$ ( $\nu$ : 18.3) (+281.9 $\sigma$ )
$\Omega_m h^3$	0.0949	$0.0955^{+0.0092}_{-0.0084}$ (−0.5 $\sigma$ )	$H(0.15)$	72.53	$72.7^{+2.9}_{-2.7}$ (−0.5 $\sigma$ )	$\chi^2_{\text{BAO}}$	5.79	$6.2$ ( $\nu$ : 0.6) (+0.1 $\sigma$ )

Best-fit  $\chi^2_{\text{eff}} = 3815.38$ ;  $\Delta\chi^2_{\text{eff}} = 1585.73$ ;  $\bar{\chi}^2_{\text{eff}} = 3842.56$ ;  $\Delta\bar{\chi}^2_{\text{eff}} = 1592.15$ ;  $R - 1 = 0.01451$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.04 ( $\Delta$  0.02) MGS: 1.16 ( $\Delta$  -0.19) DR12BAO: 4.60 ( $\Delta$  0.54) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.62 ( $\Delta$  -0.36) small\_100x143\_offlike5\_EE\_Aplanck 396.33 ( $\Delta$  0.27) commander\_dx12.v3.2.29: 23.25 ( $\Delta$  0.55) plik\_rd12\_HM.v22b\_TTTEEE: 2344.60 SN - JLA Pantheon18: 1035.07 ( $\Delta$  0.12)



## 7.52 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022341	$0.02237^{+0.00047}_{-0.00044}$ (+0.5 $\sigma$ )	$\sigma_8$	0.8047	$0.808^{+0.027}_{-0.025}$ (−0.4 $\sigma$ )	$D_M(0.15)$	648.2	$644^{+27}_{-27}$ (+0.5 $\sigma$ )
$\Omega_c h^2$	0.1173	$0.1183^{+0.0076}_{-0.0072}$ (−0.5 $\sigma$ )	$S_8$	0.8229	$0.824^{+0.028}_{-0.029}$ (−0.1 $\sigma$ )	$H(0.38)$	82.19	$82.7^{+3.1}_{-2.9}$ (−0.5 $\sigma$ )
$100\theta_{MC}$	1.04126	$1.0411^{+0.0012}_{-0.0011}$ (+0.4 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4507	$0.451^{+0.016}_{-0.016}$ (−0.1 $\sigma$ )	$D_M(0.38)$	1545	$1537^{+60}_{-61}$ (+0.5 $\sigma$ )
$\tau$	0.0558	$0.056^{+0.020}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6022	$0.604^{+0.019}_{-0.019}$ (−0.2 $\sigma$ )	$H(0.51)$	88.88	$89.4^{+3.2}_{-3.0}$ (−0.5 $\sigma$ )
$N_{\text{eff}}$	2.914	$2.99^{+0.46}_{-0.43}$ (−0.6 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9841	$0.984^{+0.022}_{-0.022}$ (−0.0 $\sigma$ )	$D_M(0.51)$	2002	$1990^{+77}_{-78}$ (+0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0412	$3.044^{+0.045}_{-0.041}$ (−0.1 $\sigma$ )	$r_{\text{drag}} h$	99.31	$99.5^{+2.2}_{-2.0}$ (−0.3 $\sigma$ )	$H(0.61)$	94.46	$95.0^{+3.3}_{-3.1}$ (−0.5 $\sigma$ )
$n_s$	0.9635	$0.965^{+0.018}_{-0.017}$ (−0.4 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.440	$2.440^{+0.054}_{-0.054}$ (+0.3 $\sigma$ )	$D_M(0.61)$	2329	$2316^{+88}_{-89}$ (+0.5 $\sigma$ )
$y_{\text{cal}}$	1.0006	$1.0008^{+0.0063}_{-0.0065}$ (+0.0 $\sigma$ )	$z_{\text{re}}$	7.78	$7.8^{+1.9}_{-2.0}$ (+0.1 $\sigma$ )	$H(2.33)$	234.3	$235.3^{+6.6}_{-6.4}$ (−0.5 $\sigma$ )
$A_{217}^{\text{CIB}}$	44.0	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.093	$2.100^{+0.096}_{-0.085}$ (−0.1 $\sigma$ )	$D_M(2.33)$	5814	$5785^{+190}_{-190}$ (+0.5 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.92	—	$10^9 A_s e^{-2\tau}$	1.8719	$1.876^{+0.043}_{-0.044}$ (−0.4 $\sigma$ )	$f\sigma_8(0.15)$	0.4551	$0.456^{+0.015}_{-0.015}$ (−0.1 $\sigma$ )
$A_{143}^{\text{tSZ}}$	6.98	$5.6^{+4.4}_{-4.6}$ (+0.3 $\sigma$ )	$D_{40}$	1230.9	$1231^{+34}_{-34}$ (+0.4 $\sigma$ )	$\sigma_8(0.15)$	0.7434	$0.746^{+0.026}_{-0.024}$ (−0.4 $\sigma$ )
$A_{100}^{\text{PS}}$	243	$256^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{220}$	5736	$5739^{+98}_{-98}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4728	$0.474^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )
$A_{143}^{\text{PS}}$	51.9	$45^{+20}_{-20}$ (−0.6 $\sigma$ )	$D_{810}$	2540.1	$2539^{+34}_{-36}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6587	$0.661^{+0.023}_{-0.022}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	58.2	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	820.1	$818^{+13}_{-13}$ (+0.6 $\sigma$ )	$f\sigma_8(0.51)$	0.4712	$0.472^{+0.015}_{-0.014}$ (−0.3 $\sigma$ )
$A_{217}^{\text{PS}}$	123.9	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	232.41	$231.5^{+4.8}_{-4.7}$ (+0.9 $\sigma$ )	$\sigma_8(0.51)$	0.6163	$0.619^{+0.022}_{-0.021}$ (−0.4 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$n_{s,0.002}$	0.9635	$0.965^{+0.018}_{-0.017}$ (−0.4 $\sigma$ )	$f\sigma_8(0.61)$	0.4660	$0.467^{+0.014}_{-0.014}$ (−0.3 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.73	$8.9^{+4.7}_{-4.6}$ (−0.1 $\sigma$ )	$Y_P$	0.2436	$0.2445^{+0.0062}_{-0.0061}$ (−0.5 $\sigma$ )	$\sigma_8(0.61)$	0.5864	$0.589^{+0.022}_{-0.020}$ (−0.4 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.94	$10.9^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$Y_P^{\text{BBN}}$	0.2449	$0.2459^{+0.0062}_{-0.0061}$ (−0.5 $\sigma$ )	$f\sigma_8(2.33)$	0.2956	$0.297^{+0.011}_{-0.010}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.3	$18.6^{+8.4}_{-8.5}$ (+0.1 $\sigma$ )	$10^5 \text{D/H}$	2.545	$2.56^{+0.11}_{-0.11}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3046	$0.306^{+0.012}_{-0.011}$ (−0.4 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.8	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.918	$13.85^{+0.45}_{-0.45}$ (+0.5 $\sigma$ )	$f_{2000}^{143}$	27.3	$29^{+8}_{-8}$ (−0.8 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.097}_{-0.093}$	$z_*$	1089.59	$1089.71^{+0.85}_{-0.86}$ (−0.9 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.0	$32^{+5}_{-5}$ (−0.8 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.079}_{-0.077}$	$r_*$	145.84	$145.2^{+4.4}_{-4.4}$ (+0.5 $\sigma$ )	$f_{2000}^{217}$	105.6	$106.6^{+5.0}_{-4.9}$ (−0.8 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.21}_{-0.23}$	$100\theta_*$	1.04153	$1.0413^{+0.0014}_{-0.0013}$ (+0.5 $\sigma$ )	$\chi^2_{\text{lensing}}$	8.54	$9.05$ ( $\nu$ : 0.2) (−0.5 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.225	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	14.002	$13.94^{+0.41}_{-0.40}$ (+0.5 $\sigma$ )	$\chi^2_{\text{small}}$	396	$229$ ( $\nu$ : 17290.5) (−90.0 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.666	$0.66^{+0.20}_{-0.21}$	$z_{\text{drag}}$	1059.55	$1059.8^{+1.8}_{-1.7}$ (+0.1 $\sigma$ )	$\chi^2_{\text{lowl}}$	23	$192$ ( $\nu$ : 17299.5) (+143.8 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.08	$2.07^{+0.70}_{-0.72}$	$r_{\text{drag}}$	148.53	$147.9^{+4.6}_{-4.5}$ (+0.4 $\sigma$ )	$\chi^2_{\text{plik}}$	2344.3	$2359.7$ ( $\nu$ : 18.0) (+287.6 $\sigma$ )
$c_{100}$	0.99977	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.13985	$0.1403^{+0.0034}_{-0.0033}$ (−0.3 $\sigma$ )	$\chi^2_{6\text{DF}}$	0.06	$0.57$ ( $\nu$ : 0.2) (+6.5 $\sigma$ )
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0016}$ (−0.2 $\sigma$ )	$100\theta_D$	0.16043	$0.1606^{+0.0010}_{-0.0010}$ (−1.0 $\sigma$ )	$\chi^2_{\text{MGS}}$	1.04	$0.69$ ( $\nu$ : 0.2) (−1.2 $\sigma$ )
$H_0$	66.86	$67.3^{+3.0}_{-2.8}$ (−0.5 $\sigma$ )	$z_{\text{eq}}$	3396	$3391^{+61}_{-61}$ (+0.6 $\sigma$ )	$\chi^2_{\text{DR12BAO}}$	5.00	$5.1$ ( $\nu$ : 1.3) (+0.2 $\sigma$ )
$\Omega_\Lambda$	0.6863	$0.688^{+0.017}_{-0.017}$ (−0.3 $\sigma$ )	$k_{\text{eq}}$	0.010274	$0.01031^{+0.00028}_{-0.00027}$ (−0.3 $\sigma$ )	$\chi^2_{\text{prior}}$	1.4	$11.6$ ( $\nu$ : 10.1) (+1.2 $\sigma$ )
$\Omega_m$	0.3137	$0.312^{+0.017}_{-0.017}$ (+0.3 $\sigma$ )	$100\theta_{\text{eq}}$	0.8144	$0.816^{+0.012}_{-0.011}$ (−0.5 $\sigma$ )	$\chi^2_{\text{CMB}}$	2772.7	$2789.5$ ( $\nu$ : 18.3) (+282.0 $\sigma$ )
$\Omega_m h^2$	0.1403	$0.1414^{+0.0079}_{-0.0074}$ (−0.5 $\sigma$ )	$100\theta_{s,\text{eq}}$	0.4500	$0.4505^{+0.0060}_{-0.0058}$ (−0.5 $\sigma$ )	$\chi^2_{\text{BAO}}$	6.09	$6.4$ ( $\nu$ : 0.9) (+0.1 $\sigma$ )
$\Omega_m h^3$	0.0938	$0.0952^{+0.0093}_{-0.0083}$ (−0.5 $\sigma$ )	$H(0.15)$	72.12	$72.6^{+3.0}_{-2.8}$ (−0.5 $\sigma$ )			

Best-fit  $\chi^2_{\text{eff}} = 2780.19$ ;  $\Delta\chi^2_{\text{eff}} = 1585.47$ ;  $\bar{\chi}^2_{\text{eff}} = 2807.45$ ;  $\Delta\bar{\chi}^2_{\text{eff}} = 1592.04$ ;  $R - 1 = 0.01513$   
 $\chi^2_{\text{eff}}$ : BAO - 6DF: 0.06 ( $\Delta$  0.03) MGS: 1.04 ( $\Delta$  -0.18) DR12BAO: 5.00 ( $\Delta$  0.61) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.54 ( $\Delta$  -0.36) small\_100x143\_offlike5\_EE\_Aplanck  
396.33 ( $\Delta$  0.25) commander\_dx12\_v3\_2.29: 23.47 ( $\Delta$  0.53) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.34



### 7.53 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_BAO\_post\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02237^{+0.00044}_{-0.00042} \quad (+0.7\sigma)$	$\sigma_8$	$0.807^{+0.029}_{-0.026} \quad (-0.1\sigma)$	$D_M(0.15)$	$645^{+24}_{-24} \quad (+0.4\sigma)$
$\Omega_c h^2$	$0.1182^{+0.0070}_{-0.0067} \quad (-0.3\sigma)$	$S_8$	$0.823^{+0.036}_{-0.034} \quad (+0.1\sigma)$	$H(0.38)$	$82.6^{+2.7}_{-2.5} \quad (-0.4\sigma)$
$100\theta_{MC}$	$1.0411^{+0.0011}_{-0.0010} \quad (+0.3\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.020}_{-0.019} \quad (+0.1\sigma)$	$D_M(0.38)$	$1537^{+53}_{-53} \quad (+0.4\sigma)$
$\tau$	$0.055^{+0.022}_{-0.021} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.603^{+0.022}_{-0.021} \quad (+0.0\sigma)$	$H(0.51)$	$89.3^{+2.7}_{-2.6} \quad (-0.3\sigma)$
$N_{\text{eff}}$	$2.98^{+0.40}_{-0.39} \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.029}_{-0.027} \quad (+0.1\sigma)$	$D_M(0.51)$	$1991^{+67}_{-67} \quad (+0.4\sigma)$
$\ln(10^{10} A_s)$	$3.042^{+0.050}_{-0.045} \quad (+0.1\sigma)$	$r_{\text{drag}} h$	$99.5^{+2.2}_{-2.1} \quad (-0.3\sigma)$	$H(0.61)$	$94.9^{+2.8}_{-2.7} \quad (-0.3\sigma)$
$n_s$	$0.965^{+0.016}_{-0.016} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.067}_{-0.067} \quad (+0.3\sigma)$	$D_M(0.61)$	$2317^{+76}_{-76} \quad (+0.4\sigma)$
$y_{\text{cal}}$	$1.0007^{+0.0063}_{-0.0064} \quad (+0.1\sigma)$	$z_{\text{re}}$	$7.7^{+2.2}_{-2.2} \quad (+0.1\sigma)$	$H(2.33)$	$235.2^{+5.9}_{-5.8} \quad (-0.3\sigma)$
$A_{217}^{\text{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s$	$2.10^{+0.11}_{-0.092} \quad (+0.1\sigma)$	$D_M(2.33)$	$5787^{+160}_{-160} \quad (+0.3\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_s e^{-2\tau}$	$1.875^{+0.042}_{-0.042} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.019}_{-0.018} \quad (+0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$> 0.989 \quad (+0.3\sigma)$	$D_{40}$	$1230^{+34}_{-33} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.745^{+0.027}_{-0.024} \quad (-0.1\sigma)$
$A_{100}^{\text{PS}}$	$256^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5737^{+100}_{-98} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.473^{+0.017}_{-0.017} \quad (+0.0\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{810}$	$2538^{+35}_{-37} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.661^{+0.024}_{-0.022} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-13} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.017}_{-0.016} \quad (-0.0\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.5^{+4.6}_{-4.6} \quad (+0.8\sigma)$	$\sigma_8(0.51)$	$0.618^{+0.023}_{-0.021} \quad (-0.2\sigma)$
$A^{\text{kSZ}}$	—	$n_{\text{s},0.002}$	$0.965^{+0.016}_{-0.016} \quad (-0.3\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.017}_{-0.016} \quad (-0.0\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.6} \quad (-0.1\sigma)$	$Y_{\text{P}}$	$0.2445^{+0.0054}_{-0.0054} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.588^{+0.022}_{-0.020} \quad (-0.2\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.2458^{+0.0054}_{-0.0055} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.011}_{-0.010} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.5}_{-8.5} \quad (+0.1\sigma)$	$10^5 \text{D}/\text{H}$	$2.56^{+0.11}_{-0.11} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	$0.306^{+0.012}_{-0.011} \quad (-0.2\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\text{Age}/\text{Gyr}$	$13.85^{+0.39}_{-0.39} \quad (+0.3\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-8} \quad (-0.7\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.097}_{-0.093}$	$z_*$	$1089.70^{+0.82}_{-0.83} \quad (-0.8\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.8\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.079}_{-0.077}$	$r_*$	$145.2^{+4.0}_{-3.8} \quad (+0.3\sigma)$	$f_{2000}^{217}$	$106.5^{+5.0}_{-4.8} \quad (-0.7\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	$1.0414^{+0.0013}_{-0.0012} \quad (+0.3\sigma)$	$\chi_{\text{small}}^2$	$228 \quad (\nu: 17312.0) \quad (-90.6\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$13.95^{+0.36}_{-0.35} \quad (+0.3\sigma)$	$\chi_{\text{lowl}}^2$	$192 \quad (\nu: 17315.1) \quad (+153.8\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$z_{\text{drag}}$	$1059.7^{+1.6}_{-1.5} \quad (+0.3\sigma)$	$\chi_{\text{plik}}^2$	$2359.9 \quad (\nu: 18.6) \quad (+285.4\sigma)$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.70}_{-0.72}$	$r_{\text{drag}}$	$147.9^{+4.1}_{-4.0} \quad (+0.3\sigma)$	$\chi_{\text{Aver15}}^2$	$0.32 \quad (\nu: 0.1) \quad (-0.4\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\text{D}}$	$0.1403^{+0.0030}_{-0.0029} \quad (-0.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.58 \quad (\nu: 0.2) \quad (+6.4\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\text{D}}$	$0.16060^{+0.00091}_{-0.00092} \quad (-0.9\sigma)$	$\chi_{\text{MGS}}^2$	$0.69 \quad (\nu: 0.2) \quad (-1.2\sigma)$
$H_0$	$67.3^{+2.6}_{-2.5} \quad (-0.4\sigma)$	$z_{\text{eq}}$	$3390^{+63}_{-62} \quad (+0.6\sigma)$	$\chi_{\text{DR12BAO}}^2$	$5.1 \quad (\nu: 1.4) \quad (+0.2\sigma)$
$\Omega_{\Lambda}$	$0.688^{+0.017}_{-0.018} \quad (-0.3\sigma)$	$k_{\text{eq}}$	$0.01030^{+0.00028}_{-0.00027} \quad (-0.0\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.2) \quad (+1.2\sigma)$
$\Omega_{\text{m}}$	$0.312^{+0.018}_{-0.017} \quad (+0.3\sigma)$	$100\theta_{\text{eq}}$	$0.816^{+0.012}_{-0.012} \quad (-0.5\sigma)$	$\chi_{\text{BAO}}^2$	$6.4 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$\Omega_{\text{m}} h^2$	$0.1413^{+0.0071}_{-0.0068} \quad (-0.2\sigma)$	$100\theta_{\text{s,eq}}$	$0.4506^{+0.0060}_{-0.0060} \quad (-0.5\sigma)$	$\chi_{\text{CMB}}^2$	$2780.6 \quad (\nu: 17.8) \quad (+287.3\sigma)$
$\Omega_{\text{m}} h^3$	$0.0950^{+0.0080}_{-0.0074} \quad (-0.3\sigma)$	$H(0.15)$	$72.5^{+2.6}_{-2.5} \quad (-0.4\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2798.91; \Delta \bar{\chi}_{\text{eff}}^2 = 1592.13; R - 1 = 0.01423$$



# 7.54 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02237^{+0.00044}_{-0.00042} \quad (+0.7\sigma)$	$S_8$	$0.824^{+0.036}_{-0.034} \quad (+0.2\sigma)$	$D_M(0.38)$	$1534^{+51}_{-51} \quad (+0.2\sigma)$
$\Omega_c h^2$	$0.1187^{+0.0066}_{-0.0063} \quad (-0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.019}_{-0.019} \quad (+0.2\sigma)$	$H(0.51)$	$89.5^{+2.6}_{-2.5} \quad (-0.2\sigma)$
$100\theta_{MC}$	$1.0411^{+0.0010}_{-0.00099} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.604^{+0.021}_{-0.021} \quad (+0.1\sigma)$	$D_M(0.51)$	$1987^{+64}_{-65} \quad (+0.2\sigma)$
$\tau$	$0.055^{+0.023}_{-0.021} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.028}_{-0.027} \quad (+0.2\sigma)$	$H(0.61)$	$95.1^{+2.7}_{-2.6} \quad (-0.2\sigma)$
$N_{\text{eff}}$	$3.01^{+0.38}_{-0.36} \quad (-0.3\sigma)$	$r_{\text{drag}} h$	$99.5^{+2.2}_{-2.1} \quad (-0.3\sigma)$	$D_M(0.61)$	$2313^{+73}_{-73} \quad (+0.2\sigma)$
$\ln(10^{10} A_s)$	$3.043^{+0.050}_{-0.044} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.068}_{-0.067} \quad (+0.3\sigma)$	$H(2.33)$	$235.6^{+5.6}_{-5.5} \quad (-0.1\sigma)$
$n_s$	$0.965^{+0.016}_{-0.016} \quad (-0.2\sigma)$	$z_{\text{re}}$	$7.7^{+2.2}_{-2.2} \quad (+0.1\sigma)$	$D_M(2.33)$	$5778^{+160}_{-160} \quad (+0.2\sigma)$
$y_{\text{cal}}$	$1.0007^{+0.0063}_{-0.0064} \quad (+0.1\sigma)$	$10^9 A_s$	$2.10^{+0.11}_{-0.091} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.019}_{-0.018} \quad (+0.2\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s e^{-2\tau}$	$1.877^{+0.041}_{-0.041} \quad (-0.0\sigma)$	$\sigma_8(0.15)$	$0.746^{+0.026}_{-0.023} \quad (+0.0\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{40}$	$1229^{+34}_{-33} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.017}_{-0.016} \quad (+0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$> 0.949 \quad (+0.3\sigma)$	$D_{220}$	$5735^{+100}_{-100} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.023}_{-0.020} \quad (-0.0\sigma)$
$A_{100}^{\text{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{810}$	$2539^{+35}_{-37} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.017}_{-0.016} \quad (+0.1\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{1420}$	$818^{+12}_{-13} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.022}_{-0.019} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$231.3^{+4.4}_{-4.4} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.016}_{-0.015} \quad (+0.1\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$n_{s,0.002}$	$0.965^{+0.016}_{-0.016} \quad (-0.2\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.021}_{-0.019} \quad (-0.0\sigma)$
$A^{\text{kSZ}}$	—	$Y_P$	$0.2448^{+0.0051}_{-0.0050} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.011}_{-0.0096} \quad (-0.1\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.6} \quad (-0.1\sigma)$	$Y_P^{\text{BBN}}$	$0.2462^{+0.0051}_{-0.0050} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.306^{+0.012}_{-0.010} \quad (-0.1\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$10^5 \text{D/H}$	$2.572^{+0.096}_{-0.099} \quad (-0.9\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.6}_{-8.5} \quad (+0.1\sigma)$	$\text{Age/Gyr}$	$13.83^{+0.37}_{-0.37} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.77^{+0.76}_{-0.76} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.7^{+4.8}_{-4.8} \quad (-0.6\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.097}_{-0.093}$	$r_*$	$145.0^{+3.7}_{-3.6} \quad (+0.2\sigma)$	$\chi_{\text{small}}^2$	$230 \quad (\nu: 17284.6) \quad (-89.7\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.078}_{-0.077}$	$100\theta_*$	$1.0413^{+0.0012}_{-0.0012} \quad (+0.2\sigma)$	$\chi_{\text{lowl}}^2$	$190 \quad (\nu: 17286.9) \quad (+154.5\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.23}$	$D_M(z_*)/\text{Gpc}$	$13.92^{+0.34}_{-0.33} \quad (+0.2\sigma)$	$\chi_{\text{plik}}^2$	$2359.9 \quad (\nu: 18.3) \quad (+288.0\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$z_{\text{drag}}$	$1059.8^{+1.6}_{-1.5} \quad (+0.4\sigma)$	$\chi_{\text{Aver15}}^2$	$0.34 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$r_{\text{drag}}$	$147.7^{+3.8}_{-3.7} \quad (+0.1\sigma)$	$\chi_{\text{Cooke17}}^2$	$0.40 \quad (\nu: 0.1) \quad (+0.3\sigma)$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.70}_{-0.72}$	$k_D$	$0.1404^{+0.0029}_{-0.0028} \quad (+0.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.57 \quad (\nu: 0.2) \quad (+6.3\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_D$	$0.16067^{+0.00084}_{-0.00086} \quad (-0.9\sigma)$	$\chi_{\text{MGS}}^2$	$0.69 \quad (\nu: 0.2) \quad (-1.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\text{eq}}$	$3390^{+63}_{-62} \quad (+0.5\sigma)$	$\chi_{\text{DR12BAO}}^2$	$5.1 \quad (\nu: 1.4) \quad (+0.2\sigma)$
$H_0$	$67.4^{+2.6}_{-2.4} \quad (-0.3\sigma)$	$k_{\text{eq}}$	$0.01032^{+0.00027}_{-0.00026} \quad (+0.1\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.2) \quad (+1.2\sigma)$
$\Omega_\Lambda$	$0.688^{+0.017}_{-0.018} \quad (-0.3\sigma)$	$100\theta_{\text{eq}}$	$0.816^{+0.012}_{-0.012} \quad (-0.5\sigma)$	$\chi_{\text{BAO}}^2$	$6.4 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$\Omega_m$	$0.312^{+0.018}_{-0.017} \quad (+0.3\sigma)$	$100\theta_{s,\text{eq}}$	$0.4506^{+0.0060}_{-0.0060} \quad (-0.5\sigma)$	$\chi_{\text{CMB}}^2$	$2780.5 \quad (\nu: 17.5) \quad (+290.0\sigma)$
$\Omega_m h^2$	$0.1417^{+0.0067}_{-0.0065} \quad (-0.1\sigma)$	$H(0.15)$	$72.7^{+2.6}_{-2.4} \quad (-0.3\sigma)$	$\chi_{\text{Abund}}^2$	$0.74 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$\Omega_m h^3$	$0.0955^{+0.0076}_{-0.0071} \quad (-0.2\sigma)$	$D_M(0.15)$	$643^{+23}_{-23} \quad (+0.3\sigma)$		
$\sigma_8$	$0.808^{+0.028}_{-0.025} \quad (+0.0\sigma)$	$H(0.38)$	$82.8^{+2.6}_{-2.4} \quad (-0.2\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2799.26; \Delta \bar{\chi}_{\text{eff}}^2 = 1592.46; R - 1 = 0.01400$$



# 7.55 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00047}_{-0.00046} \quad (+0.5\sigma)$	$\sigma_8$	$0.809^{+0.030}_{-0.028} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+28}_{-27} \quad (+0.6\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1186^{+0.0080}_{-0.0077} \quad (-0.5\sigma)$	$S_8$	$0.824^{+0.037}_{-0.035} \quad (-0.0\sigma)$	$H(0.38)$	$82.8^{+3.2}_{-3.0} \quad (-0.6\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0012}_{-0.0011} \quad (+0.5\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.020}_{-0.019} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1533^{+63}_{-62} \quad (+0.6\sigma)$
$\tau$	$0.057^{+0.020}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.024}_{-0.022} \quad (-0.2\sigma)$	$H(0.51)$	$89.5^{+3.3}_{-3.1} \quad (-0.6\sigma)$
$N_{\mathrm{eff}}$	$3.01^{+0.47}_{-0.46} \quad (-0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.029}_{-0.026} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1986^{+80}_{-78} \quad (+0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.050}_{-0.039} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$99.6^{+2.3}_{-2.1} \quad (-0.4\sigma)$	$H(0.61)$	$95.1^{+3.4}_{-3.2} \quad (-0.5\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.018}_{-0.018} \quad (-0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.067}_{-0.060} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	$2311^{+91}_{-90} \quad (+0.6\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0064}_{-0.0065} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.71 \quad (+0.1\sigma)$	$H(2.33)$	$235.6^{+6.9}_{-6.9} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.3\sigma)$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.11}_{-0.080} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5776^{+200}_{-190} \quad (+0.5\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.045}_{-0.049} \quad (-0.4\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.019}_{-0.018} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 0.969 \quad (+0.3\sigma)$	$D_{40}$	$1229^{+35}_{-35} \quad (+0.5\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.028}_{-0.026} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5737^{+100}_{-100} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.019}_{-0.017} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.6\sigma)$	$D_{810}$	$2539^{+36}_{-37} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.026}_{-0.024} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+13}_{-13} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.018}_{-0.017} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.4^{+4.8}_{-4.8} \quad (+0.9\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.025}_{-0.022} \quad (-0.4\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.018}_{-0.018} \quad (-0.5\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.017}_{-0.016} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.7} \quad (-0.1\sigma)$	$Y_{\mathrm{P}}$	$0.2449^{+0.0063}_{-0.0064} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.024}_{-0.021} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.7} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2462^{+0.0063}_{-0.0065} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.012}_{-0.011} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.5}_{-8.5} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.57^{+0.12}_{-0.12} \quad (-1.1\sigma)$	$\sigma_8(2.33)$	$0.307^{+0.013}_{-0.012} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.83^{+0.47}_{-0.46} \quad (+0.5\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.8\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.099}_{-0.094}$	$z_*$	$1089.74^{+0.94}_{-0.92} \quad (-0.9\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-5} \quad (-0.9\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.076}_{-0.076}$	$r_*$	$145.0^{+4.7}_{-4.4} \quad (+0.5\sigma)$	$f_{2000}^{217}$	$106.6^{+5.0}_{-5.0} \quad (-0.8\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.23}$	$100\theta_*$	$1.0413^{+0.0014}_{-0.0014} \quad (+0.5\sigma)$	$\chi_{\mathrm{small}}^2$	$397.3 \quad (\nu: 2.4) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.92^{+0.43}_{-0.41} \quad (+0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.3 \quad (\nu: 0.6) \quad (+0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.8^{+1.8}_{-1.7} \quad (+0.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.2 \quad (\nu: 19.1) \quad (+280.8\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.70}_{-0.70}$	$r_{\mathrm{drag}}$	$147.7^{+4.9}_{-4.6} \quad (+0.5\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.065 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1405^{+0.0035}_{-0.0034} \quad (-0.3\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.24 \quad (\nu: 0.1) \quad (-0.4\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.1607^{+0.0010}_{-0.0011} \quad (-1.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 \quad (\nu: 1.3) \quad (+0.2\sigma)$
$H_0$	$67.4^{+3.1}_{-2.9} \quad (-0.6\sigma)$	$z_{\mathrm{eq}}$	$3388^{+63}_{-64} \quad (+0.7\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.688^{+0.018}_{-0.018} \quad (-0.4\sigma)$	$k_{\mathrm{eq}}$	$0.01031^{+0.00031}_{-0.00030} \quad (-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.3 \quad (\nu: 0.8) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.018}_{-0.018} \quad (+0.4\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.012}_{-0.012} \quad (-0.6\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2780.8 \quad (\nu: 18.1) \quad (+286.6\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1417^{+0.0083}_{-0.0080} \quad (-0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4508^{+0.0063}_{-0.0061} \quad (-0.6\sigma)$		
$\Omega_{\mathrm{m}}h^3$	$0.0956^{+0.0095}_{-0.0088} \quad (-0.5\sigma)$	$H(0.15)$	$72.7^{+3.1}_{-2.9} \quad (-0.6\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2798.76; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.46; R - 1 = 0.01049$$



7.56 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_BAO\_post\_lensing\_JLA\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02239^{+0.00046}_{-0.00044} \quad (+0.5\sigma)$	$\sigma_8$	$0.809^{+0.027}_{-0.024} \quad (-0.4\sigma)$	$D_M(0.15)$	$643^{+24}_{-28} \quad (+0.5\sigma)$
$\Omega_c h^2$	$0.1185^{+0.0077}_{-0.0068} \quad (-0.5\sigma)$	$S_8$	$0.824^{+0.027}_{-0.028} \quad (-0.0\sigma)$	$H(0.38)$	$82.8^{+3.2}_{-2.6} \quad (-0.5\sigma)$
$100\theta_{MC}$	$1.0411^{+0.0010}_{-0.0011} \quad (+0.4\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.015}_{-0.015} \quad (-0.0\sigma)$	$D_M(0.38)$	$1534^{+55}_{-64} \quad (+0.5\sigma)$
$\tau$	$0.057^{+0.020}_{-0.015} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.604^{+0.018}_{-0.018} \quad (-0.2\sigma)$	$H(0.51)$	$89.5^{+3.3}_{-2.7} \quad (-0.5\sigma)$
$N_{\text{eff}}$	$3.00^{+0.47}_{-0.41} \quad (-0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.022}_{-0.022} \quad (-0.0\sigma)$	$D_M(0.51)$	$1987^{+68}_{-80} \quad (+0.5\sigma)$
$\ln(10^{10} A_s)$	$3.046^{+0.046}_{-0.036} \quad (-0.1\sigma)$	$r_{\text{drag}} h$	$99.6^{+2.1}_{-2.0} \quad (-0.4\sigma)$	$H(0.61)$	$95.1^{+3.4}_{-2.9} \quad (-0.5\sigma)$
$n_s$	$0.966^{+0.017}_{-0.016} \quad (-0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.440^{+0.053}_{-0.050} \quad (+0.3\sigma)$	$D_M(0.61)$	$2313^{+78}_{-91} \quad (+0.5\sigma)$
$y_{\text{cal}}$	$1.0008^{+0.0061}_{-0.0066} \quad (+0.0\sigma)$	$z_{\text{re}}$	$< 9.69 \quad (+0.1\sigma)$	$H(2.33)$	$235.4^{+6.8}_{-6.1} \quad (-0.5\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s$	$2.104^{+0.099}_{-0.074} \quad (-0.1\sigma)$	$D_M(2.33)$	$5779^{+170}_{-190} \quad (+0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_s e^{-2\tau}$	$1.877^{+0.044}_{-0.044} \quad (-0.4\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$5.6^{+4.4}_{-4.6} \quad (+0.3\sigma)$	$D_{40}$	$1230^{+33}_{-31} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.025}_{-0.023} \quad (-0.4\sigma)$
$A_{100}^{\text{PS}}$	$256^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5738^{+90}_{-100} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.014}_{-0.014} \quad (-0.2\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} \quad (-0.6\sigma)$	$D_{810}$	$2539^{+34}_{-39} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.024}_{-0.021} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+13}_{-13} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.014}_{-0.014} \quad (-0.3\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.5^{+4.9}_{-4.6} \quad (+0.9\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.023}_{-0.020} \quad (-0.4\sigma)$
$A^{\text{kSZ}}$	—	$n_{s,0.002}$	$0.966^{+0.017}_{-0.016} \quad (-0.4\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.015}_{-0.014} \quad (-0.3\sigma)$
$A_{100}^{\text{dustTT}}$	$8.8^{+4.8}_{-4.5} \quad (-0.1\sigma)$	$Y_P$	$0.2447^{+0.0063}_{-0.0057} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.022}_{-0.019} \quad (-0.4\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.3}_{-4.6} \quad (+0.1\sigma)$	$Y_P^{\text{BBN}}$	$0.2461^{+0.0063}_{-0.0057} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.011}_{-0.0099} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.5^{+8.5}_{-8.5} \quad (+0.1\sigma)$	$10^5 D/H$	$2.57^{+0.12}_{-0.11} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	$0.307^{+0.012}_{-0.011} \quad (-0.4\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\text{Age/Gyr}$	$13.84^{+0.41}_{-0.46} \quad (+0.5\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.8\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.097}_{-0.092}$	$z_*$	$1089.72^{+0.84}_{-0.85} \quad (-0.9\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.8\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.083}_{-0.081}$	$r_*$	$145.1^{+4.2}_{-4.4} \quad (+0.5\sigma)$	$f_{2000}^{217}$	$106.6^{+4.8}_{-5.0} \quad (-0.7\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.23}$	$100\theta_*$	$1.0413^{+0.0013}_{-0.0013} \quad (+0.5\sigma)$	$\chi_{\text{lensing}}^2$	$9.04 \quad (\nu: 0.2) \quad (-0.5\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$13.93^{+0.39}_{-0.41} \quad (+0.5\sigma)$	$\chi_{\text{small}}^2$	$397.4 \quad (\nu: 2.3) \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.20}$	$z_{\text{drag}}$	$1059.8^{+1.8}_{-1.6} \quad (+0.0\sigma)$	$\chi_{\text{lowl}}^2$	$23.4 \quad (\nu: 0.5) \quad (+0.4\sigma)$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.68}_{-0.73}$	$r_{\text{drag}}$	$147.7^{+4.3}_{-4.5} \quad (+0.5\sigma)$	$\chi_{\text{plik}}^2$	$2359.6 \quad (\nu: 17.1) \quad (+288.2\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_D$	$0.1404^{+0.0033}_{-0.0031} \quad (-0.3\sigma)$	$\chi_{\text{JLA}}^2$	$706.78 \quad (\nu: 0.0) \quad (+0.3\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_D$	$0.1606^{+0.0011}_{-0.00095} \quad (-1.0\sigma)$	$\chi_{6\text{DF}}^2$	$0.061 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$H_0$	$67.4^{+3.2}_{-2.6} \quad (-0.5\sigma)$	$z_{\text{eq}}$	$3388^{+60}_{-60} \quad (+0.6\sigma)$	$\chi_{\text{MGS}}^2$	$1.24 \quad (\nu: 0.1) \quad (-0.4\sigma)$
$\Omega_\Lambda$	$0.689^{+0.017}_{-0.017} \quad (-0.3\sigma)$	$k_{\text{eq}}$	$0.01031^{+0.00028}_{-0.00026} \quad (-0.2\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.9 \quad (\nu: 1.1) \quad (+0.2\sigma)$
$\Omega_m$	$0.311^{+0.017}_{-0.017} \quad (+0.3\sigma)$	$100\theta_{\text{eq}}$	$0.816^{+0.012}_{-0.011} \quad (-0.5\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_m h^2$	$0.1415^{+0.0079}_{-0.0071} \quad (-0.4\sigma)$	$100\theta_{s,\text{eq}}$	$0.4508^{+0.0058}_{-0.0058} \quad (-0.6\sigma)$	$\chi_{\text{CMB}}^2$	$2789.3 \quad (\nu: 17.5) \quad (+284.2\sigma)$
$\Omega_m h^3$	$0.0954^{+0.0094}_{-0.0079} \quad (-0.5\sigma)$	$H(0.15)$	$72.7^{+3.2}_{-2.6} \quad (-0.5\sigma)$	$\chi_{\text{BAO}}^2$	$6.2 \quad (\nu: 0.7) \quad (+0.1\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 3513.91; \Delta \bar{\chi}_{\text{eff}}^2 = 1591.94; R - 1 = 0.03578$$



**7.57 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02240^{+0.00047}_{-0.00045} \quad (+0.5\sigma)$	$\sigma_8$	$0.808^{+0.027}_{-0.025} \quad (-0.4\sigma)$	$D_M(0.15)$	$643^{+26}_{-26} \quad (+0.5\sigma)$
$\Omega_c h^2$	$0.1184^{+0.0076}_{-0.0071} \quad (-0.5\sigma)$	$S_8$	$0.823^{+0.028}_{-0.028} \quad (-0.1\sigma)$	$H(0.38)$	$82.8^{+3.1}_{-2.8} \quad (-0.5\sigma)$
$100\theta_{MC}$	$1.0411^{+0.0012}_{-0.0011} \quad (+0.4\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.015}_{-0.016} \quad (-0.1\sigma)$	$D_M(0.38)$	$1533^{+58}_{-59} \quad (+0.5\sigma)$
$\tau$	$0.057^{+0.019}_{-0.015} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.604^{+0.018}_{-0.019} \quad (-0.3\sigma)$	$H(0.51)$	$89.5^{+3.2}_{-2.9} \quad (-0.5\sigma)$
$N_{\text{eff}}$	$3.00^{+0.45}_{-0.43} \quad (-0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.022}_{-0.021} \quad (-0.0\sigma)$	$D_M(0.51)$	$1986^{+73}_{-75} \quad (+0.5\sigma)$
$\ln(10^{10} A_s)$	$3.046^{+0.044}_{-0.036} \quad (-0.1\sigma)$	$r_{\text{drag}} h$	$99.6^{+2.0}_{-2.0} \quad (-0.4\sigma)$	$H(0.61)$	$95.1^{+3.3}_{-3.0} \quad (-0.5\sigma)$
$n_s$	$0.966^{+0.017}_{-0.017} \quad (-0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.053}_{-0.052} \quad (+0.4\sigma)$	$D_M(0.61)$	$2311^{+84}_{-86} \quad (+0.5\sigma)$
$y_{\text{cal}}$	$1.0008^{+0.0062}_{-0.0064} \quad (+0.0\sigma)$	$z_{\text{re}}$	$< 9.63 \quad (+0.1\sigma)$	$H(2.33)$	$235.4^{+6.6}_{-6.4} \quad (-0.5\sigma)$
$A_{217}^{\text{CIB}}$	$46^{+20}_{-20} \quad (-0.3\sigma)$	$10^9 A_s$	$2.104^{+0.094}_{-0.074} \quad (-0.1\sigma)$	$D_M(2.33)$	$5778^{+190}_{-190} \quad (+0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_s e^{-2\tau}$	$1.877^{+0.043}_{-0.044} \quad (-0.4\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$5.6^{+4.4}_{-4.6} \quad (+0.3\sigma)$	$D_{40}$	$1230^{+33}_{-33} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.025}_{-0.024} \quad (-0.4\sigma)$
$A_{100}^{\text{PS}}$	$257^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5740^{+98}_{-97} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.014}_{-0.014} \quad (-0.2\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} \quad (-0.6\sigma)$	$D_{810}$	$2539^{+33}_{-36} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.024}_{-0.021} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+13}_{-13} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.015}_{-0.014} \quad (-0.3\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.5^{+4.9}_{-4.7} \quad (+0.9\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.022}_{-0.020} \quad (-0.4\sigma)$
$A^{\text{kSZ}}$	—	$n_{s,0.002}$	$0.966^{+0.017}_{-0.017} \quad (-0.5\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.014}_{-0.014} \quad (-0.3\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.6}_{-4.6} \quad (-0.1\sigma)$	$Y_P$	$0.2448^{+0.0061}_{-0.0061} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.021}_{-0.019} \quad (-0.4\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_P^{\text{BBN}}$	$0.2461^{+0.0061}_{-0.0061} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.011}_{-0.010} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.4}_{-8.5} \quad (+0.1\sigma)$	$10^5 D/H$	$2.57^{+0.11}_{-0.11} \quad (-1.1\sigma)$	$\sigma_8(2.33)$	$0.307^{+0.012}_{-0.011} \quad (-0.4\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\text{Age/Gyr}$	$13.83^{+0.44}_{-0.45} \quad (+0.5\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.8\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.096}_{-0.093}$	$z_*$	$1089.70^{+0.85}_{-0.86} \quad (-1.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.8\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.078}_{-0.077}$	$r_*$	$145.1^{+4.3}_{-4.3} \quad (+0.5\sigma)$	$f_{2000}^{217}$	$106.6^{+5.0}_{-4.9} \quad (-0.8\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.23}$	$100\theta_*$	$1.0413^{+0.0014}_{-0.0013} \quad (+0.5\sigma)$	$\chi_{\text{lensing}}^2$	$9.03 \quad (\nu: 0.2) \quad (-0.5\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$13.93^{+0.40}_{-0.40} \quad (+0.5\sigma)$	$\chi_{\text{small}}^2$	$230 \quad (\nu: 17285.0) \quad (-86.2\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$z_{\text{drag}}$	$1059.8^{+1.7}_{-1.7} \quad (+0.0\sigma)$	$\chi_{\text{lowl}}^2$	$190 \quad (\nu: 17292.0) \quad (+150.0\sigma)$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.70}_{-0.71}$	$r_{\text{drag}}$	$147.7^{+4.5}_{-4.5} \quad (+0.5\sigma)$	$\chi_{\text{plik}}^2$	$2359.8 \quad (\nu: 17.9) \quad (+288.5\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_D$	$0.1404^{+0.0033}_{-0.0033} \quad (-0.3\sigma)$	$\chi_{\text{JLA}}^2$	$1035.11 \quad (\nu: 0.1) \quad (+0.3\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.2\sigma)$	$100\theta_D$	$0.1606^{+0.0010}_{-0.0010} \quad (-1.0\sigma)$	$\chi_{6DF}^2$	$0.59 \quad (\nu: 0.2) \quad (+8.7\sigma)$
$H_0$	$67.5^{+3.0}_{-2.7} \quad (-0.5\sigma)$	$z_{\text{eq}}$	$3386^{+59}_{-59} \quad (+0.7\sigma)$	$\chi_{\text{MGS}}^2$	$0.73 \quad (\nu: 0.2) \quad (-1.4\sigma)$
$\Omega_\Lambda$	$0.689^{+0.016}_{-0.016} \quad (-0.4\sigma)$	$k_{\text{eq}}$	$0.01030^{+0.00029}_{-0.00027} \quad (-0.3\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.8 \quad (\nu: 1.0) \quad (+0.3\sigma)$
$\Omega_m$	$0.311^{+0.016}_{-0.016} \quad (+0.4\sigma)$	$100\theta_{\text{eq}}$	$0.816^{+0.011}_{-0.011} \quad (-0.6\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$\Omega_m h^2$	$0.1415^{+0.0078}_{-0.0074} \quad (-0.5\sigma)$	$100\theta_{s,\text{eq}}$	$0.4510^{+0.0057}_{-0.0057} \quad (-0.6\sigma)$	$\chi_{\text{CMB}}^2$	$2789.6 \quad (\nu: 18.0) \quad (+284.5\sigma)$
$\Omega_m h^3$	$0.0955^{+0.0092}_{-0.0084} \quad (-0.5\sigma)$	$H(0.15)$	$72.7^{+3.0}_{-2.7} \quad (-0.5\sigma)$	$\chi_{\text{BAO}}^2$	$6.1 \quad (\nu: 0.6) \quad (+0.1\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 3842.41; \Delta \bar{\chi}_{\text{eff}}^2 = 1592.15; R - 1 = 0.01464$$



7.58 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02238^{+0.00047}_{-0.00044} \quad (+0.5\sigma)$	$\sigma_8$	$0.808^{+0.027}_{-0.025} \quad (-0.4\sigma)$	$D_M(0.15)$	$644^{+27}_{-27} \quad (+0.5\sigma)$
$\Omega_c h^2$	$0.1183^{+0.0076}_{-0.0072} \quad (-0.5\sigma)$	$S_8$	$0.824^{+0.028}_{-0.028} \quad (-0.1\sigma)$	$H(0.38)$	$82.7^{+3.1}_{-2.9} \quad (-0.5\sigma)$
$100\theta_{MC}$	$1.0411^{+0.0012}_{-0.0011} \quad (+0.4\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$D_M(0.38)$	$1536^{+61}_{-61} \quad (+0.5\sigma)$
$\tau$	$0.057^{+0.019}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.604^{+0.018}_{-0.018} \quad (-0.2\sigma)$	$H(0.51)$	$89.4^{+3.2}_{-3.0} \quad (-0.5\sigma)$
$N_{\text{eff}}$	$2.99^{+0.46}_{-0.43} \quad (-0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.022}_{-0.022} \quad (-0.0\sigma)$	$D_M(0.51)$	$1990^{+77}_{-78} \quad (+0.5\sigma)$
$\ln(10^{10} A_s)$	$3.045^{+0.044}_{-0.035} \quad (-0.1\sigma)$	$r_{\text{drag}} h$	$99.5^{+2.1}_{-2.0} \quad (-0.3\sigma)$	$H(0.61)$	$95.0^{+3.3}_{-3.1} \quad (-0.5\sigma)$
$n_s$	$0.965^{+0.018}_{-0.018} \quad (-0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.053}_{-0.052} \quad (+0.3\sigma)$	$D_M(0.61)$	$2315^{+89}_{-89} \quad (+0.5\sigma)$
$y_{\text{cal}}$	$1.0008^{+0.0062}_{-0.0065} \quad (+0.0\sigma)$	$z_{\text{re}}$	$< 9.60 \quad (+0.1\sigma)$	$H(2.33)$	$235.3^{+6.6}_{-6.4} \quad (-0.5\sigma)$
$A_{217}^{\text{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s$	$2.102^{+0.094}_{-0.073} \quad (-0.1\sigma)$	$D_M(2.33)$	$5785^{+190}_{-190} \quad (+0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_s e^{-2\tau}$	$1.876^{+0.043}_{-0.044} \quad (-0.4\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$5.6^{+4.4}_{-4.6} \quad (+0.3\sigma)$	$D_{40}$	$1231^{+34}_{-34} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.025}_{-0.023} \quad (-0.4\sigma)$
$A_{100}^{\text{PS}}$	$256^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5739^{+98}_{-97} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.014}_{-0.014} \quad (-0.2\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} \quad (-0.6\sigma)$	$D_{810}$	$2539^{+34}_{-36} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.023}_{-0.021} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+13}_{-13} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.014}_{-0.014} \quad (-0.3\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.5^{+4.8}_{-4.7} \quad (+0.9\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.022}_{-0.020} \quad (-0.4\sigma)$
$A^{\text{kSZ}}$	—	$n_{\text{s},0.002}$	$0.965^{+0.018}_{-0.018} \quad (-0.4\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.014}_{-0.014} \quad (-0.3\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.6} \quad (-0.1\sigma)$	$Y_{\text{P}}$	$0.2446^{+0.0062}_{-0.0061} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.021}_{-0.020} \quad (-0.4\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.2459^{+0.0062}_{-0.0061} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.011}_{-0.010} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.4}_{-8.5} \quad (+0.1\sigma)$	$10^5 \text{D}/\text{H}$	$2.56^{+0.11}_{-0.11} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	$0.306^{+0.012}_{-0.011} \quad (-0.4\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\text{Age}/\text{Gyr}$	$13.85^{+0.45}_{-0.45} \quad (+0.5\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.8\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.097}_{-0.093}$	$z_*$	$1089.71^{+0.85}_{-0.87} \quad (-0.9\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.8\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.078}_{-0.077}$	$r_*$	$145.2^{+4.4}_{-4.3} \quad (+0.5\sigma)$	$f_{2000}^{217}$	$106.5^{+5.0}_{-4.9} \quad (-0.8\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.23}$	$100\theta_*$	$1.0413^{+0.0014}_{-0.0013} \quad (+0.5\sigma)$	$\chi_{\text{lensing}}^2$	$9.02 \quad (\nu: 0.2) \quad (-0.5\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$13.94^{+0.41}_{-0.40} \quad (+0.5\sigma)$	$\chi_{\text{small}}^2$	$230 \quad (\nu: 17276.4) \quad (-88.2\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$z_{\text{drag}}$	$1059.8^{+1.8}_{-1.7} \quad (+0.1\sigma)$	$\chi_{\text{lowl}}^2$	$191 \quad (\nu: 17285.7) \quad (+143.5\sigma)$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.70}_{-0.71}$	$r_{\text{drag}}$	$147.9^{+4.6}_{-4.5} \quad (+0.5\sigma)$	$\chi_{\text{plik}}^2$	$2359.6 \quad (\nu: 17.9) \quad (+288.4\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\text{D}}$	$0.1403^{+0.0034}_{-0.0033} \quad (-0.3\sigma)$	$\chi_{6\text{DF}}^2$	$0.57 \quad (\nu: 0.2) \quad (+6.8\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.2\sigma)$	$100\theta_{\text{D}}$	$0.1606^{+0.0010}_{-0.0010} \quad (-1.0\sigma)$	$\chi_{\text{MGS}}^2$	$0.69 \quad (\nu: 0.2) \quad (-1.3\sigma)$
$H_0$	$67.3^{+3.0}_{-2.8} \quad (-0.5\sigma)$	$z_{\text{eq}}$	$3390^{+61}_{-61} \quad (+0.6\sigma)$	$\chi_{\text{DR12BAO}}^2$	$5.1 \quad (\nu: 1.2) \quad (+0.2\sigma)$
$\Omega_{\Lambda}$	$0.688^{+0.017}_{-0.017} \quad (-0.3\sigma)$	$k_{\text{eq}}$	$0.01030^{+0.00029}_{-0.00027} \quad (-0.3\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$\Omega_{\text{m}}$	$0.312^{+0.017}_{-0.017} \quad (+0.3\sigma)$	$100\theta_{\text{eq}}$	$0.816^{+0.012}_{-0.011} \quad (-0.5\sigma)$	$\chi_{\text{CMB}}^2$	$2789.4 \quad (\nu: 18.0) \quad (+284.6\sigma)$
$\Omega_{\text{m}} h^2$	$0.1414^{+0.0079}_{-0.0073} \quad (-0.5\sigma)$	$100\theta_{\text{s,eq}}$	$0.4506^{+0.0060}_{-0.0057} \quad (-0.6\sigma)$	$\chi_{\text{BAO}}^2$	$6.3 \quad (\nu: 0.8) \quad (+0.1\sigma)$
$\Omega_{\text{m}} h^3$	$0.0952^{+0.0093}_{-0.0083} \quad (-0.5\sigma)$	$H(0.15)$	$72.6^{+3.0}_{-2.8} \quad (-0.5\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2807.29; \Delta \bar{\chi}_{\text{eff}}^2 = 1592.05; R - 1 = 0.01488$$



7.59 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_BAO\_post\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02237^{+0.00044}_{-0.00042} \quad (+0.7\sigma)$	$\sigma_8$	$0.807^{+0.028}_{-0.025} \quad (-0.1\sigma)$	$D_M(0.15)$	$644^{+23}_{-24} \quad (+0.4\sigma)$
$\Omega_c h^2$	$0.1182^{+0.0070}_{-0.0067} \quad (-0.3\sigma)$	$S_8$	$0.823^{+0.036}_{-0.034} \quad (+0.1\sigma)$	$H(0.38)$	$82.6^{+2.7}_{-2.5} \quad (-0.4\sigma)$
$100\theta_{MC}$	$1.0411^{+0.0011}_{-0.0010} \quad (+0.3\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.019}_{-0.019} \quad (+0.1\sigma)$	$D_M(0.38)$	$1537^{+52}_{-53} \quad (+0.4\sigma)$
$\tau$	$0.056^{+0.020}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.603^{+0.022}_{-0.020} \quad (-0.0\sigma)$	$H(0.51)$	$89.3^{+2.7}_{-2.6} \quad (-0.4\sigma)$
$N_{\text{eff}}$	$2.98^{+0.40}_{-0.38} \quad (-0.5\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.028}_{-0.025} \quad (+0.1\sigma)$	$D_M(0.51)$	$1990^{+66}_{-67} \quad (+0.4\sigma)$
$\ln(10^{10} A_s)$	$3.044^{+0.048}_{-0.036} \quad (+0.1\sigma)$	$r_{\text{drag}} h$	$99.5^{+2.1}_{-2.1} \quad (-0.3\sigma)$	$H(0.61)$	$94.9^{+2.8}_{-2.7} \quad (-0.4\sigma)$
$n_s$	$0.965^{+0.016}_{-0.016} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.066}_{-0.059} \quad (+0.3\sigma)$	$D_M(0.61)$	$2316^{+76}_{-76} \quad (+0.4\sigma)$
$y_{\text{cal}}$	$1.0007^{+0.0064}_{-0.0065} \quad (+0.0\sigma)$	$z_{\text{re}}$	$< 9.65 \quad (+0.1\sigma)$	$H(2.33)$	$235.2^{+5.9}_{-5.7} \quad (-0.3\sigma)$
$A_{217}^{\text{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s$	$2.10^{+0.10}_{-0.075} \quad (+0.1\sigma)$	$D_M(2.33)$	$5787^{+160}_{-160} \quad (+0.4\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_s e^{-2\tau}$	$1.875^{+0.042}_{-0.043} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.019}_{-0.018} \quad (+0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$5.6^{+4.4}_{-4.6} \quad (+0.3\sigma)$	$D_{40}$	$1230^{+34}_{-33} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.746^{+0.026}_{-0.023} \quad (-0.2\sigma)$
$A_{100}^{\text{PS}}$	$256^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5736^{+99}_{-99} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.017}_{-0.016} \quad (+0.0\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{810}$	$2538^{+35}_{-37} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.661^{+0.023}_{-0.020} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-13} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.017}_{-0.016} \quad (-0.0\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.5^{+4.6}_{-4.6} \quad (+0.8\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.022}_{-0.019} \quad (-0.2\sigma)$
$A^{\text{kSZ}}$	—	$n_{s,0.002}$	$0.965^{+0.016}_{-0.016} \quad (-0.3\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.016}_{-0.015} \quad (-0.1\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.6} \quad (-0.1\sigma)$	$Y_P$	$0.2445^{+0.0054}_{-0.0054} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.021}_{-0.018} \quad (-0.2\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_P^{\text{BBN}}$	$0.2458^{+0.0054}_{-0.0054} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.011}_{-0.0094} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.5}_{-8.5} \quad (+0.1\sigma)$	$10^5 D/H$	$2.56^{+0.10}_{-0.11} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	$0.306^{+0.012}_{-0.010} \quad (-0.2\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\text{Age/Gyr}$	$13.85^{+0.39}_{-0.39} \quad (+0.4\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.7\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.097}_{-0.093}$	$z_*$	$1089.70^{+0.83}_{-0.84} \quad (-0.8\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.8\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.078}_{-0.077}$	$r_*$	$145.2^{+3.9}_{-3.8} \quad (+0.3\sigma)$	$f_{2000}^{217}$	$106.5^{+4.9}_{-4.8} \quad (-0.7\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	$1.0414^{+0.0012}_{-0.0012} \quad (+0.3\sigma)$	$\chi_{\text{small}}^2$	$229 \quad (\nu: 17290.3) \quad (-88.7\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$13.95^{+0.36}_{-0.35} \quad (+0.3\sigma)$	$\chi_{\text{lowl}}^2$	$191 \quad (\nu: 17293.8) \quad (+152.4\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$z_{\text{drag}}$	$1059.8^{+1.6}_{-1.5} \quad (+0.3\sigma)$	$\chi_{\text{plik}}^2$	$2359.7 \quad (\nu: 18.3) \quad (+289.0\sigma)$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.70}_{-0.72}$	$r_{\text{drag}}$	$147.9^{+4.1}_{-4.0} \quad (+0.3\sigma)$	$\chi_{\text{Aver15}}^2$	$0.32 \quad (\nu: 0.1) \quad (-0.4\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_D$	$0.1403^{+0.0030}_{-0.0029} \quad (-0.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.58 \quad (\nu: 0.2) \quad (+6.6\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_D$	$0.16060^{+0.00090}_{-0.00092} \quad (-0.9\sigma)$	$\chi_{\text{MGS}}^2$	$0.69 \quad (\nu: 0.2) \quad (-1.2\sigma)$
$H_0$	$67.3^{+2.7}_{-2.4} \quad (-0.4\sigma)$	$z_{\text{eq}}$	$3390^{+63}_{-62} \quad (+0.6\sigma)$	$\chi_{\text{DR12BAO}}^2$	$5.1 \quad (\nu: 1.3) \quad (+0.2\sigma)$
$\Omega_\Lambda$	$0.688^{+0.017}_{-0.018} \quad (-0.3\sigma)$	$k_{\text{eq}}$	$0.01030^{+0.00028}_{-0.00027} \quad (-0.0\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.2) \quad (+1.2\sigma)$
$\Omega_m$	$0.312^{+0.018}_{-0.017} \quad (+0.3\sigma)$	$100\theta_{\text{eq}}$	$0.816^{+0.012}_{-0.012} \quad (-0.5\sigma)$	$\chi_{\text{BAO}}^2$	$6.3 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$\Omega_m h^2$	$0.1413^{+0.0071}_{-0.0068} \quad (-0.3\sigma)$	$100\theta_{s,\text{eq}}$	$0.4506^{+0.0060}_{-0.0060} \quad (-0.5\sigma)$	$\chi_{\text{CMB}}^2$	$2780.4 \quad (\nu: 17.4) \quad (+294.1\sigma)$
$\Omega_m h^3$	$0.0951^{+0.0080}_{-0.0074} \quad (-0.3\sigma)$	$H(0.15)$	$72.6^{+2.6}_{-2.4} \quad (-0.4\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2798.70; \Delta \bar{\chi}_{\text{eff}}^2 = 1592.19; R - 1 = 0.01387$$



7.60 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02237^{+0.00044}_{-0.00043} \quad (+0.7\sigma)$	$S_8$	$0.825^{+0.036}_{-0.033} \quad (+0.2\sigma)$	$D_M(0.38)$	$1534^{+51}_{-52} \quad (+0.3\sigma)$
$\Omega_c h^2$	$0.1187^{+0.0065}_{-0.0063} \quad (-0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.452^{+0.019}_{-0.018} \quad (+0.2\sigma)$	$H(0.51)$	$89.5^{+2.6}_{-2.5} \quad (-0.2\sigma)$
$100\theta_{MC}$	$1.0411^{+0.0010}_{-0.0010} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.604^{+0.021}_{-0.020} \quad (+0.1\sigma)$	$D_M(0.51)$	$1987^{+64}_{-65} \quad (+0.3\sigma)$
$\tau$	$0.056^{+0.020}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.028}_{-0.025} \quad (+0.2\sigma)$	$H(0.61)$	$95.1^{+2.7}_{-2.6} \quad (-0.2\sigma)$
$N_{\text{eff}}$	$3.01^{+0.38}_{-0.35} \quad (-0.3\sigma)$	$r_{\text{drag}} h$	$99.5^{+2.1}_{-2.1} \quad (-0.3\sigma)$	$D_M(0.61)$	$2312^{+73}_{-73} \quad (+0.3\sigma)$
$\ln(10^{10} A_s)$	$3.045^{+0.048}_{-0.035} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.068}_{-0.060} \quad (+0.3\sigma)$	$H(2.33)$	$235.6^{+5.6}_{-5.5} \quad (-0.1\sigma)$
$n_s$	$0.966^{+0.015}_{-0.015} \quad (-0.2\sigma)$	$z_{\text{re}}$	$< 9.67 \quad (+0.1\sigma)$	$D_M(2.33)$	$5777^{+160}_{-160} \quad (+0.2\sigma)$
$y_{\text{cal}}$	$1.0007^{+0.0063}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_s$	$2.10^{+0.10}_{-0.073} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.019}_{-0.017} \quad (+0.2\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s e^{-2\tau}$	$1.877^{+0.042}_{-0.040} \quad (-0.1\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.025}_{-0.022} \quad (-0.0\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{40}$	$1229^{+34}_{-34} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.017}_{-0.016} \quad (+0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$5.6^{+4.4}_{-4.6} \quad (+0.2\sigma)$	$D_{220}$	$5734^{+100}_{-100} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.023}_{-0.020} \quad (-0.1\sigma)$
$A_{100}^{\text{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{810}$	$2538^{+35}_{-37} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.016}_{-0.015} \quad (+0.1\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{1420}$	$818^{+12}_{-13} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.022}_{-0.019} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$231.3^{+4.4}_{-4.4} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.016}_{-0.014} \quad (+0.1\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$n_{s,0.002}$	$0.966^{+0.015}_{-0.015} \quad (-0.2\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.021}_{-0.018} \quad (-0.1\sigma)$
$A^{\text{kSZ}}$	—	$Y_P$	$0.2449^{+0.0051}_{-0.0050} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.011}_{-0.0090} \quad (-0.1\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.6}_{-4.6} \quad (-0.1\sigma)$	$Y_P^{\text{BBN}}$	$0.2462^{+0.0051}_{-0.0050} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.307^{+0.011}_{-0.0095} \quad (-0.1\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$10^5 \text{D/H}$	$2.572^{+0.095}_{-0.099} \quad (-0.9\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.6}_{-8.5} \quad (+0.1\sigma)$	$\text{Age/Gyr}$	$13.83^{+0.37}_{-0.37} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.77^{+0.76}_{-0.76} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.7^{+4.8}_{-4.8} \quad (-0.6\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.097}_{-0.093}$	$r_*$	$145.0^{+3.7}_{-3.6} \quad (+0.2\sigma)$	$\chi_{\text{small}}^2$	$231 \quad (\nu: 17261.9) \quad (-87.8\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.077}_{-0.077}$	$100\theta_*$	$1.0413^{+0.0012}_{-0.0012} \quad (+0.2\sigma)$	$\chi_{\text{lowl}}^2$	$190 \quad (\nu: 17264.5) \quad (+153.2\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.23}$	$D_M(z_*)/\text{Gpc}$	$13.92^{+0.34}_{-0.33} \quad (+0.2\sigma)$	$\chi_{\text{plik}}^2$	$2359.7 \quad (\nu: 18.0) \quad (+291.6\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$z_{\text{drag}}$	$1059.8^{+1.6}_{-1.5} \quad (+0.4\sigma)$	$\chi_{\text{Aver15}}^2$	$0.34 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$r_{\text{drag}}$	$147.7^{+3.8}_{-3.7} \quad (+0.1\sigma)$	$\chi_{\text{Cooke17}}^2$	$0.40 \quad (\nu: 0.1) \quad (+0.3\sigma)$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.70}_{-0.72}$	$k_D$	$0.1404^{+0.0029}_{-0.0028} \quad (+0.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.57 \quad (\nu: 0.2) \quad (+6.5\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_D$	$0.16067^{+0.00083}_{-0.00085} \quad (-0.9\sigma)$	$\chi_{\text{MGS}}^2$	$0.70 \quad (\nu: 0.2) \quad (-1.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\text{eq}}$	$3389^{+63}_{-62} \quad (+0.6\sigma)$	$\chi_{\text{DR12BAO}}^2$	$5.1 \quad (\nu: 1.3) \quad (+0.2\sigma)$
$H_0$	$67.4^{+2.6}_{-2.4} \quad (-0.3\sigma)$	$k_{\text{eq}}$	$0.01032^{+0.00027}_{-0.00026} \quad (+0.1\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.2) \quad (+1.2\sigma)$
$\Omega_\Lambda$	$0.688^{+0.017}_{-0.018} \quad (-0.3\sigma)$	$100\theta_{\text{eq}}$	$0.816^{+0.012}_{-0.012} \quad (-0.5\sigma)$	$\chi_{\text{BAO}}^2$	$6.4 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$\Omega_m$	$0.312^{+0.018}_{-0.017} \quad (+0.3\sigma)$	$100\theta_{s,\text{eq}}$	$0.4507^{+0.0060}_{-0.0060} \quad (-0.5\sigma)$	$\chi_{\text{CMB}}^2$	$2780.3 \quad (\nu: 17.1) \quad (+296.7\sigma)$
$\Omega_m h^2$	$0.1417^{+0.0068}_{-0.0065} \quad (-0.1\sigma)$	$H(0.15)$	$72.7^{+2.5}_{-2.4} \quad (-0.3\sigma)$	$\chi_{\text{Abund}}^2$	$0.74 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$\Omega_m h^3$	$0.0955^{+0.0076}_{-0.0070} \quad (-0.2\sigma)$	$D_M(0.15)$	$643^{+23}_{-23} \quad (+0.3\sigma)$		
$\sigma_8$	$0.809^{+0.027}_{-0.024} \quad (-0.0\sigma)$	$H(0.38)$	$82.8^{+2.5}_{-2.4} \quad (-0.3\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2799.05; \Delta \bar{\chi}_{\text{eff}}^2 = 1592.52; R - 1 = 0.01367$$



# 7.61 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02232	$0.02231^{+0.00052}_{-0.00048}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4481	$0.448^{+0.019}_{-0.019}$	$H(0.38)$	82.89	$82.8^{+3.8}_{-3.3}$
$\Omega_{\mathrm{c}} h^2$	0.1186	$0.1182^{+0.0093}_{-0.0084}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6006	$0.600^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	1531	$1534^{+71}_{-73}$
$100\theta_{\mathrm{MC}}$	1.04099	$1.0411^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	0.9791	$0.979^{+0.027}_{-0.028}$	$H(0.51)$	89.59	$89.4^{+3.9}_{-3.5}$
$\tau$	0.0533	$0.054^{+0.022}_{-0.020}$	$r_{\mathrm{drag}} h$	99.76	$99.8^{+2.5}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	1983	$1987^{+90}_{-92}$
$N_{\mathrm{eff}}$	3.02	$3.00^{+0.58}_{-0.51}$	$\langle d^2 \rangle^{1/2}$	2.423	$2.423^{+0.065}_{-0.068}$	$H(0.61)$	95.18	$95.0^{+4.1}_{-3.6}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0368	$3.036^{+0.048}_{-0.048}$	$z_{\mathrm{re}}$	7.57	$7.6^{+2.1}_{-2.2}$	$D_{\mathrm{M}}(0.61)$	2308	$2312^{+100}_{-110}$
$n_{\mathrm{s}}$	0.9667	$0.966^{+0.020}_{-0.019}$	$10^9 A_{\mathrm{s}}$	2.084	$2.08^{+0.10}_{-0.098}$	$H(2.33)$	235.5	$235.1^{+8.2}_{-7.6}$
$y_{\mathrm{cal}}$	1.0002	$1.0005^{+0.0063}_{-0.0066}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.873	$1.871^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(2.33)$	5772	$5782^{+220}_{-230}$
$A_{100}^{\mathrm{PS}}$	234	$238^{+60}_{-60}$	$D_{40}$	1222.9	$1224^{+36}_{-37}$	$f\sigma_8(0.15)$	0.4528	$0.452^{+0.018}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	45.4	$38^{+20}_{-20}$	$D_{220}$	5718	$5720^{+98}_{-100}$	$\sigma_8(0.15)$	0.7439	$0.743^{+0.029}_{-0.028}$
$A_{217}^{\mathrm{PS}}$	101.0	$102^{+30}_{-40}$	$D_{810}$	2532.9	$2534^{+35}_{-36}$	$f\sigma_8(0.38)$	0.4714	$0.471^{+0.018}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	43.3	$39^{+20}_{-20}$	$D_{1420}$	815.8	$816^{+13}_{-13}$	$\sigma_8(0.38)$	0.6596	$0.659^{+0.027}_{-0.025}$
$A_{143}^{\mathrm{tSZ}}$	5.94	$< 8.91$	$D_{2000}$	230.4	$230.7^{+5.4}_{-5.2}$	$f\sigma_8(0.51)$	0.4701	$0.470^{+0.017}_{-0.017}$
$r_{143 \times 217}^{\mathrm{PS}}$	0.641	$0.66^{+0.32}_{-0.34}$	$n_{\mathrm{s},0.002}$	0.9667	$0.966^{+0.020}_{-0.019}$	$\sigma_8(0.51)$	0.6173	$0.617^{+0.026}_{-0.024}$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.90	—	$Y_{\mathrm{P}}$	0.2451	$0.2447^{+0.0076}_{-0.0072}$	$f\sigma_8(0.61)$	0.4653	$0.465^{+0.017}_{-0.017}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.55	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2464	$0.2460^{+0.0077}_{-0.0073}$	$\sigma_8(0.61)$	0.5874	$0.587^{+0.025}_{-0.023}$
$A^{\mathrm{kSZ}}$	1.3	—	$10^5 \mathrm{D}/\mathrm{H}$	2.587	$2.58^{+0.15}_{-0.14}$	$f\sigma_8(2.33)$	0.2962	$0.296^{+0.013}_{-0.012}$
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.50}_{-0.49}$	Age/Gyr	13.82	$13.84^{+0.53}_{-0.55}$	$\sigma_8(2.33)$	0.3055	$0.305^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{dust}}$	0.998	$0.96^{+0.47}_{-0.44}$	$z_*$	1089.83	$1089.8^{+1.1}_{-0.99}$	$f_{2000}^{143}$	30.1	$29^{+9}_{-8}$
$A_{217}^{\mathrm{dust}}$	0.981	$0.98^{+0.27}_{-0.26}$	$r_*$	145.0	$145.2^{+5.2}_{-5.4}$	$f_{2000}^{217}$	106.6	$106.5^{+5.7}_{-5.8}$
$A_{143 \times 217}^{\mathrm{dust}}$	0.974	$1.02^{+0.42}_{-0.41}$	$100\theta_*$	1.04120	$1.0413^{+0.0015}_{-0.0015}$	$f_{2000}^{143 \times 217}$	31.9	$32^{+6}_{-6}$
$c_{100}$	0.99766	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.922	$13.95^{+0.48}_{-0.50}$	$\chi_{\mathrm{simall}}^2$	395.88	$396.9 (\nu: 1.4)$
$c_{217}$	1.00145	$1.0011^{+0.0041}_{-0.0041}$	$z_{\mathrm{drag}}$	1059.70	$1059.6^{+2.1}_{-1.9}$	$\chi_{\mathrm{lowl}}^2$	22.86	$23.0 (\nu: 0.6)$
$c_{TE}$	0.9966	$0.997^{+0.014}_{-0.013}$	$r_{\mathrm{drag}}$	147.6	$147.9^{+5.4}_{-5.6}$	$\chi_{\mathrm{CamSpec}}^2$	11500.0	$11515.3 (\nu: 17.7)$
$c_{EE}$	0.9922	$0.992^{+0.014}_{-0.014}$	$k_{\mathrm{D}}$	0.14034	$0.1402^{+0.0041}_{-0.0037}$	$\chi_{6\mathrm{DF}}^2$	0.022	$0.056 (\nu: 0.0)$
$H_0$	67.57	$67.5^{+3.7}_{-3.2}$	$100\theta_{\mathrm{D}}$	0.16079	$0.1607^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{MGS}}^2$	1.28	$1.35 (\nu: 0.1)$
$\Omega_{\Lambda}$	0.6900	$0.690^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	3377	$3378^{+69}_{-73}$	$\chi_{\mathrm{DR12BAO}}^2$	4.22	$4.7 (\nu: 1.1)$
$\Omega_{\mathrm{m}}$	0.3100	$0.310^{+0.019}_{-0.020}$	$k_{\mathrm{eq}}$	0.010292	$0.01028^{+0.00033}_{-0.00032}$	$\chi_{\mathrm{prior}}^2$	2.3	$7.8 (\nu: 5.8)$
$\Omega_{\mathrm{m}} h^2$	0.1415	$0.1411^{+0.0096}_{-0.0087}$	$100\theta_{\mathrm{eq}}$	0.8176	$0.818^{+0.014}_{-0.013}$	$\chi_{\mathrm{BAO}}^2$	5.52	$6.1 (\nu: 0.7)$
$\Omega_{\mathrm{m}} h^3$	0.0956	$0.0952^{+0.012}_{-0.0098}$	$100\theta_{\mathrm{s,eq}}$	0.4517	$0.4517^{+0.0072}_{-0.0065}$	$\chi_{\mathrm{CMB}}^2$	11918.7	$11935.2 (\nu: 17.3)$
$\sigma_8$	0.8049	$0.804^{+0.031}_{-0.030}$	$H(0.15)$	72.83	$72.7^{+3.7}_{-3.3}$			
$S_8$	0.8182	$0.817^{+0.035}_{-0.035}$	$D_{\mathrm{M}}(0.15)$	641.7	$643^{+31}_{-32}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 11926.54$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 11949.07$ ;  $R - 1 = 0.00571$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.22 CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 395.88 commander\_dx12\_v3\_2\_29: 22.86 CamSpec like\_10.7HM\_1400\_unified: 11499.97



## 7.62 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_JLA

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02230^{+0.00054}_{-0.00050}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.016}_{-0.015}$	$H(0.38)$	$82.7^{+3.5}_{-3.2}$
$\Omega_{\mathrm{c}} h^2$	$0.1181^{+0.0089}_{-0.0076}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.018}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1536^{+67}_{-70}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.982^{+0.022}_{-0.022}$	$H(0.51)$	$89.3^{+3.7}_{-3.3}$
$\tau$	$0.055^{+0.019}_{-0.019}$	$r_{\mathrm{drag}} h$	$99.6^{+2.2}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	$1990^{+84}_{-87}$
$N_{\mathrm{eff}}$	$2.99^{+0.54}_{-0.49}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.055}_{-0.055}$	$H(0.61)$	$94.9^{+3.8}_{-3.5}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.041}_{-0.042}$	$z_{\mathrm{re}}$	$7.7^{+1.9}_{-2.0}$	$D_{\mathrm{M}}(0.61)$	$2316^{+95}_{-99}$
$n_{\mathrm{s}}$	$0.965^{+0.018}_{-0.018}$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.088}_{-0.087}$	$H(2.33)$	$235.1^{+7.8}_{-6.9}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0063}_{-0.0061}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.873^{+0.049}_{-0.045}$	$D_{\mathrm{M}}(2.33)$	$5788^{+210}_{-220}$
$A_{100}^{\mathrm{PS}}$	$238^{+70}_{-60}$	$D_{40}$	$1227^{+34}_{-33}$	$f\sigma_8(0.15)$	$0.454^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5726^{+96}_{-94}$	$\sigma_8(0.15)$	$0.745^{+0.025}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-40}$	$D_{810}$	$2536^{+34}_{-33}$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$817^{+14}_{-13}$	$\sigma_8(0.38)$	$0.660^{+0.024}_{-0.023}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.66$	$D_{2000}$	$231.0^{+5.3}_{-5.5}$	$f\sigma_8(0.51)$	$0.471^{+0.014}_{-0.014}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.347$	$n_{\mathrm{s},0.002}$	$0.965^{+0.018}_{-0.018}$	$\sigma_8(0.51)$	$0.618^{+0.023}_{-0.022}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2446^{+0.0072}_{-0.0069}$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2459^{+0.0072}_{-0.0070}$	$\sigma_8(0.61)$	$0.588^{+0.022}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.58^{+0.14}_{-0.13}$	$f\sigma_8(2.33)$	$0.296^{+0.012}_{-0.011}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.49}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.86^{+0.50}_{-0.52}$	$\sigma_8(2.33)$	$0.306^{+0.012}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.45}_{-0.42}$	$z_*$	$1089.8^{+1.0}_{-0.90}$	$f_{2000}^{143}$	$29^{+9}_{-9}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.26}_{-0.27}$	$r_*$	$145.3^{+4.9}_{-5.1}$	$f_{2000}^{217}$	$106.4^{+5.7}_{-5.3}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.39}_{-0.41}$	$100\theta_*$	$1.0413^{+0.0015}_{-0.0015}$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-7}$
$c_{100}$	$0.9976^{+0.0028}_{-0.0026}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.95^{+0.45}_{-0.47}$	$\chi_{\mathrm{lensing}}^2$	$9.29 (\nu: 0.4)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0042}$	$z_{\mathrm{drag}}$	$1059.6^{+1.9}_{-1.8}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.4)$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$r_{\mathrm{drag}}$	$148.0^{+5.1}_{-5.3}$	$\chi_{\mathrm{lowl}}^2$	$23.2 (\nu: 0.6)$
$c_{EE}$	$0.992^{+0.014}_{-0.014}$	$k_{\mathrm{D}}$	$0.1401^{+0.0038}_{-0.0035}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.6 (\nu: 17.4)$
$H_0$	$67.3^{+3.5}_{-3.1}$	$100\theta_{\mathrm{D}}$	$0.1607^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{JLA}}^2$	$706.78 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.689^{+0.017}_{-0.019}$	$z_{\mathrm{eq}}$	$3382^{+70}_{-64}$	$\chi_{6\mathrm{DF}}^2$	$0.061 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.019}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00031}_{-0.00028}$	$\chi_{\mathrm{MGS}}^2$	$1.27 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1411^{+0.0093}_{-0.0079}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.012}_{-0.013}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 (\nu: 1.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0950^{+0.011}_{-0.0094}$	$100\theta_{\mathrm{s,eq}}$	$0.4513^{+0.0061}_{-0.0065}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 5.5)$
$\sigma_8$	$0.806^{+0.027}_{-0.027}$	$H(0.15)$	$72.6^{+3.5}_{-3.1}$	$\chi_{\mathrm{CMB}}^2$	$11944.1 (\nu: 17.9)$
$S_8$	$0.821^{+0.029}_{-0.028}$	$D_{\mathrm{M}}(0.15)$	$644^{+30}_{-31}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.8)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 12664.75; R - 1 = 0.04059$$



### 7.63 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022296	$0.02232^{+0.00049}_{-0.00048}$	$\sigma_8 \Omega_m^{0.5}$	0.4488	$0.449^{+0.015}_{-0.015}$	$H(0.38)$	82.61	$82.8^{+3.6}_{-3.3}$
$\Omega_c h^2$	0.1179	$0.1182^{+0.0088}_{-0.0081}$	$\sigma_8 \Omega_m^{0.25}$	0.6009	$0.602^{+0.019}_{-0.019}$	$D_M(0.38)$	1536	$1534^{+69}_{-68}$
$100\theta_{MC}$	1.04105	$1.0411^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	0.9809	$0.982^{+0.022}_{-0.022}$	$H(0.51)$	89.29	$89.4^{+3.7}_{-3.4}$
$\tau$	0.0546	$0.056^{+0.020}_{-0.018}$	$r_{\text{drag}} h$	99.64	$99.7^{+2.1}_{-2.1}$	$D_M(0.51)$	1990	$1987^{+86}_{-87}$
$N_{\text{eff}}$	2.98	$3.00^{+0.54}_{-0.50}$	$\langle d^2 \rangle^{1/2}$	2.429	$2.431^{+0.054}_{-0.054}$	$H(0.61)$	94.88	$95.0^{+3.8}_{-3.5}$
$\ln(10^{10} A_s)$	3.0388	$3.042^{+0.044}_{-0.041}$	$z_{\text{re}}$	7.69	$7.8^{+1.9}_{-1.9}$	$D_M(0.61)$	2316	$2312^{+98}_{-100}$
$n_s$	0.9657	$0.966^{+0.018}_{-0.018}$	$10^9 A_s$	2.088	$2.094^{+0.095}_{-0.085}$	$H(2.33)$	234.9	$235.2^{+7.7}_{-7.3}$
$y_{\text{cal}}$	1.0006	$1.0007^{+0.0062}_{-0.0066}$	$10^9 A_s e^{-2\tau}$	1.8721	$1.873^{+0.047}_{-0.046}$	$D_M(2.33)$	5789	$5782^{+210}_{-220}$
$A_{100}^{\text{PS}}$	231	$238^{+70}_{-60}$	$D_{40}$	1225.3	$1226^{+34}_{-33}$	$f\sigma_8(0.15)$	0.4534	$0.454^{+0.015}_{-0.015}$
$A_{143}^{\text{PS}}$	41.8	$38^{+20}_{-20}$	$D_{220}$	5723	$5726^{+94}_{-98}$	$\sigma_8(0.15)$	0.7436	$0.745^{+0.026}_{-0.025}$
$A_{217}^{\text{PS}}$	104.0	$103^{+30}_{-40}$	$D_{810}$	2535.5	$2535^{+34}_{-35}$	$f\sigma_8(0.38)$	0.4717	$0.472^{+0.015}_{-0.015}$
$A_{217}^{\text{CIB}}$	42.9	$39^{+20}_{-20}$	$D_{1420}$	817.3	$817^{+13}_{-13}$	$\sigma_8(0.38)$	0.6592	$0.661^{+0.024}_{-0.023}$
$A_{143}^{\text{tSZ}}$	6.57	$< 8.92$	$D_{2000}$	231.0	$230.9^{+5.3}_{-5.1}$	$f\sigma_8(0.51)$	0.4704	$0.471^{+0.015}_{-0.015}$
$r_{143 \times 217}^{\text{PS}}$	0.650	$> 0.339$	$n_{s,0.002}$	0.9657	$0.966^{+0.018}_{-0.018}$	$\sigma_8(0.51)$	0.6169	$0.618^{+0.023}_{-0.022}$
$r_{143 \times 217}^{\text{CIB}}$	0.80	—	$Y_P$	0.2445	$0.2447^{+0.0072}_{-0.0071}$	$f\sigma_8(0.61)$	0.4655	$0.466^{+0.014}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.33	—	$Y_P^{\text{BBN}}$	0.2458	$0.2460^{+0.0072}_{-0.0071}$	$\sigma_8(0.61)$	0.5870	$0.588^{+0.022}_{-0.021}$
$A^{\text{kSZ}}$	0.0	—	$10^5 D/H$	2.577	$2.58^{+0.14}_{-0.14}$	$f\sigma_8(2.33)$	0.2960	$0.297^{+0.012}_{-0.011}$
$A_{100}^{\text{dust}}$	1.01	$1.01^{+0.51}_{-0.50}$	Age/Gyr	13.86	$13.84^{+0.50}_{-0.51}$	$\sigma_8(2.33)$	0.3052	$0.306^{+0.012}_{-0.012}$
$A_{143}^{\text{dust}}$	0.968	$0.95^{+0.46}_{-0.43}$	$z_*$	1089.77	$1089.8^{+1.0}_{-0.97}$	$f_{2000}^{143}$	29.1	$29^{+9}_{-8}$
$A_{217}^{\text{dust}}$	0.975	$0.98^{+0.27}_{-0.27}$	$r_*$	145.3	$145.2^{+5.0}_{-5.0}$	$f_{2000}^{217}$	106.3	$106.5^{+5.9}_{-5.7}$
$A_{143 \times 217}^{\text{dust}}$	1.002	$1.02^{+0.41}_{-0.40}$	$100\theta_*$	1.04129	$1.0413^{+0.0015}_{-0.0015}$	$f_{2000}^{143 \times 217}$	31.5	$32^{+6}_{-6}$
$c_{100}$	0.99776	$0.9976^{+0.0028}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	13.959	$13.94^{+0.46}_{-0.46}$	$\chi_{\text{lensing}}^2$	8.94	$9.32 (\nu: 0.4)$
$c_{217}$	1.00120	$1.0011^{+0.0041}_{-0.0040}$	$z_{\text{drag}}$	1059.55	$1059.6^{+1.9}_{-1.8}$	$\chi_{\text{small}}^2$	396.09	$397.1 (\nu: 1.7)$
$c_{TE}$	0.9964	$0.996^{+0.014}_{-0.013}$	$r_{\text{drag}}$	148.1	$147.9^{+5.2}_{-5.2}$	$\chi_{\text{lowl}}^2$	23.00	$23.1 (\nu: 0.6)$
$c_{EE}$	0.9918	$0.992^{+0.013}_{-0.014}$	$k_D$	0.14005	$0.1402^{+0.0038}_{-0.0036}$	$\chi_{\text{CamSpec}}^2$	11499.7	$11514.7 (\nu: 16.7)$
$H_0$	67.30	$67.5^{+3.3}_{-3.1}$	$100\theta_D$	0.16070	$0.1607^{+0.0012}_{-0.0012}$	$\chi_{\text{JLA}}^2$	1035.03	$1035.09 (\nu: 0.1)$
$\Omega_\Lambda$	0.6890	$0.690^{+0.017}_{-0.018}$	$z_{\text{eq}}$	3381	$3379^{+63}_{-64}$	$\chi_{6\text{DF}}^2$	0.030	$0.053 (\nu: 0.0)$
$\Omega_m$	0.3110	$0.310^{+0.018}_{-0.017}$	$k_{\text{eq}}$	0.010274	$0.01028^{+0.00031}_{-0.00030}$	$\chi_{\text{MGS}}^2$	1.22	$1.32 (\nu: 0.1)$
$\Omega_m h^2$	0.1409	$0.1412^{+0.0091}_{-0.0084}$	$100\theta_{\text{eq}}$	0.8170	$0.817^{+0.012}_{-0.012}$	$\chi_{\text{DR12BAO}}^2$	4.39	$4.7 (\nu: 1.0)$
$\Omega_m h^3$	0.0948	$0.0953^{+0.011}_{-0.0094}$	$100\theta_{s,\text{eq}}$	0.4514	$0.4516^{+0.0062}_{-0.0059}$	$\chi_{\text{prior}}^2$	2.0	$7.7 (\nu: 5.8)$
$\sigma_8$	0.8047	$0.806^{+0.028}_{-0.027}$	$H(0.15)$	72.55	$72.7^{+3.4}_{-3.2}$	$\chi_{\text{CMB}}^2$	11927.7	$11944.3 (\nu: 17.6)$
$S_8$	0.8194	$0.820^{+0.028}_{-0.028}$	$D_M(0.15)$	644.2	$643^{+30}_{-30}$	$\chi_{\text{BAO}}^2$	5.64	$6.1 (\nu: 0.6)$

Best-fit  $\chi_{\text{eff}}^2 = 12970.39$ ;  $\bar{\chi}_{\text{eff}}^2 = 12993.15$ ;  $R - 1 = 0.01037$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.39 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.94 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.09 comman-  
der\_dx12\_v3\_2\_29: 23.00 CamSpec like\_10.7HM\_1400\_unified: 11499.66 SN - JLA Pantheon18: 1035.03



# 7.64 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02230^{+0.00050}_{-0.00049}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.016}_{-0.016}$	$H(0.38)$	$82.6^{+3.6}_{-3.3}$
$\Omega_{\mathrm{c}} h^2$	$0.1180^{+0.0089}_{-0.0081}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.019}_{-0.019}$	$D_{\mathrm{M}}(0.38)$	$1537^{+69}_{-70}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.982^{+0.021}_{-0.022}$	$H(0.51)$	$89.3^{+3.7}_{-3.4}$
$\tau$	$0.055^{+0.020}_{-0.018}$	$r_{\mathrm{drag}} h$	$99.6^{+2.3}_{-2.2}$	$D_{\mathrm{M}}(0.51)$	$1991^{+88}_{-88}$
$N_{\mathrm{eff}}$	$2.98^{+0.55}_{-0.50}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.054}_{-0.055}$	$H(0.61)$	$94.9^{+3.8}_{-3.5}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.040^{+0.044}_{-0.042}$	$z_{\mathrm{re}}$	$7.8^{+1.9}_{-2.0}$	$D_{\mathrm{M}}(0.61)$	$2317^{+100}_{-100}$
$n_{\mathrm{s}}$	$0.965^{+0.019}_{-0.019}$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.094}_{-0.086}$	$H(2.33)$	$235.0^{+7.8}_{-7.3}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0062}_{-0.0066}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.047}_{-0.046}$	$D_{\mathrm{M}}(2.33)$	$5791^{+220}_{-220}$
$A_{100}^{\mathrm{PS}}$	$238^{+70}_{-60}$	$D_{40}$	$1227^{+34}_{-34}$	$f\sigma_8(0.15)$	$0.454^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5725^{+95}_{-97}$	$\sigma_8(0.15)$	$0.744^{+0.026}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-40}$	$D_{810}$	$2535^{+34}_{-35}$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.015}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-13}$	$\sigma_8(0.38)$	$0.660^{+0.024}_{-0.023}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.88$	$D_{2000}$	$230.9^{+5.3}_{-5.1}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.015}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.340$	$n_{\mathrm{s},0.002}$	$0.965^{+0.019}_{-0.019}$	$\sigma_8(0.51)$	$0.617^{+0.023}_{-0.022}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2445^{+0.0073}_{-0.0070}$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2458^{+0.0073}_{-0.0070}$	$\sigma_8(0.61)$	$0.588^{+0.023}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.58^{+0.14}_{-0.14}$	$f\sigma_8(2.33)$	$0.296^{+0.012}_{-0.011}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.86^{+0.51}_{-0.52}$	$\sigma_8(2.33)$	$0.305^{+0.013}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.47}_{-0.43}$	$z_*$	$1089.8^{+1.0}_{-0.97}$	$f_{2000}^{143}$	$29^{+9}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27}$	$r_*$	$145.4^{+5.1}_{-5.1}$	$f_{2000}^{217}$	$106.4^{+5.9}_{-5.7}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.40}$	$100\theta_*$	$1.0413^{+0.0015}_{-0.0015}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$c_{100}$	$0.9976^{+0.0028}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.96^{+0.46}_{-0.47}$	$\chi_{\mathrm{lensing}}^2$	$9.27 (\nu: 0.4)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.6^{+1.9}_{-1.8}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.6)$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$r_{\mathrm{drag}}$	$148.1^{+5.2}_{-5.3}$	$\chi_{\mathrm{lowl}}^2$	$23.2 (\nu: 0.6)$
$c_{EE}$	$0.992^{+0.013}_{-0.014}$	$k_{\mathrm{D}}$	$0.1401^{+0.0038}_{-0.0036}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.5 (\nu: 16.7)$
$H_0$	$67.3^{+3.5}_{-3.2}$	$100\theta_{\mathrm{D}}$	$0.1607^{+0.0012}_{-0.0012}$	$\chi_{6\mathrm{DF}}^2$	$0.065 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.688^{+0.018}_{-0.019}$	$z_{\mathrm{eq}}$	$3383^{+65}_{-65}$	$\chi_{\mathrm{MGS}}^2$	$1.25 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.019}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00031}_{-0.00030}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 (\nu: 1.3)$
$\Omega_{\mathrm{m}} h^2$	$0.1410^{+0.0091}_{-0.0085}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 5.7)$
$\Omega_{\mathrm{m}} h^3$	$0.0949^{+0.011}_{-0.0095}$	$100\theta_{\mathrm{s,eq}}$	$0.4512^{+0.0065}_{-0.0063}$	$\chi_{\mathrm{CMB}}^2$	$11944.1 (\nu: 17.6)$
$\sigma_8$	$0.805^{+0.028}_{-0.026}$	$H(0.15)$	$72.5^{+3.5}_{-3.2}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 0.8)$
$S_8$	$0.821^{+0.029}_{-0.028}$	$D_{\mathrm{M}}(0.15)$	$645^{+30}_{-31}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11958.08; R - 1 = 0.01000$$



**7.65 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Aver15**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02229^{+0.00046}_{-0.00046}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.019}_{-0.019}$	$H(0.38)$	$82.6^{+2.9}_{-2.8}$
$\Omega_{\mathrm{c}} h^2$	$0.1177^{+0.0075}_{-0.0070}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.599^{+0.021}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1537^{+58}_{-58}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$\sigma_8/h^{0.5}$	$0.978^{+0.026}_{-0.028}$	$H(0.51)$	$89.2^{+3.0}_{-2.8}$
$\tau$	$0.054^{+0.021}_{-0.020}$	$r_{\mathrm{drag}} h$	$99.7^{+2.3}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	$1992^{+74}_{-73}$
$N_{\mathrm{eff}}$	$2.97^{+0.44}_{-0.41}$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.063}_{-0.065}$	$H(0.61)$	$94.8^{+3.0}_{-2.9}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.035^{+0.047}_{-0.047}$	$z_{\mathrm{re}}$	$7.6^{+2.0}_{-2.2}$	$D_{\mathrm{M}}(0.61)$	$2318^{+84}_{-83}$
$n_{\mathrm{s}}$	$0.965^{+0.017}_{-0.017}$	$10^9 A_{\mathrm{s}}$	$2.08^{+0.10}_{-0.095}$	$H(2.33)$	$234.7^{+6.4}_{-6.1}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0066}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.869^{+0.043}_{-0.044}$	$D_{\mathrm{M}}(2.33)$	$5794^{+180}_{-180}$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-70}$	$D_{40}$	$1225^{+34}_{-34}$	$f\sigma_8(0.15)$	$0.452^{+0.018}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5720^{+98}_{-100}$	$\sigma_8(0.15)$	$0.742^{+0.026}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2533^{+35}_{-35}$	$f\sigma_8(0.38)$	$0.470^{+0.017}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-13}$	$\sigma_8(0.38)$	$0.658^{+0.023}_{-0.022}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.88$	$D_{2000}$	$230.9^{+5.1}_{-4.8}$	$f\sigma_8(0.51)$	$0.469^{+0.016}_{-0.016}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.336$	$n_{\mathrm{s}, 0.002}$	$0.965^{+0.017}_{-0.017}$	$\sigma_8(0.51)$	$0.615^{+0.022}_{-0.021}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2443^{+0.0059}_{-0.0058}$	$f\sigma_8(0.61)$	$0.464^{+0.016}_{-0.016}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2456^{+0.0059}_{-0.0058}$	$\sigma_8(0.61)$	$0.586^{+0.021}_{-0.020}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.57^{+0.12}_{-0.12}$	$f\sigma_8(2.33)$	$0.295^{+0.011}_{-0.010}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.51}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.87^{+0.43}_{-0.42}$	$\sigma_8(2.33)$	$0.304^{+0.012}_{-0.011}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.47}_{-0.43}$	$z_*$	$1089.74^{+0.92}_{-0.89}$	$f_{2000}^{143}$	$29^{+9}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27}$	$r_*$	$145.5^{+4.2}_{-4.1}$	$f_{2000}^{217}$	$106.3^{+5.4}_{-5.5}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.42}_{-0.40}$	$100\theta_*$	$1.0414^{+0.0013}_{-0.0013}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.97^{+0.39}_{-0.38}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.4)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.5^{+1.7}_{-1.7}$	$\chi_{\mathrm{lowl}}^2$	$23.1 (\nu: 0.5)$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$r_{\mathrm{drag}}$	$148.2^{+4.3}_{-4.3}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.9 (\nu: 16.9)$
$c_{EE}$	$0.992^{+0.013}_{-0.014}$	$k_{\mathrm{D}}$	$0.1399^{+0.0031}_{-0.0031}$	$\chi_{\mathrm{Aver15}}^2$	$0.36 (\nu: 0.1)$
$H_0$	$67.3^{+2.9}_{-2.7}$	$100\theta_{\mathrm{D}}$	$0.1607^{+0.0011}_{-0.0011}$	$\chi_{6\mathrm{DF}}^2$	$0.056 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.689^{+0.018}_{-0.019}$	$z_{\mathrm{eq}}$	$3379^{+66}_{-67}$	$\chi_{\mathrm{MGS}}^2$	$1.32 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.019}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01026^{+0.00029}_{-0.00028}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1406^{+0.0077}_{-0.0072}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.013}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 5.9)$
$\Omega_{\mathrm{m}} h^3$	$0.0946^{+0.0087}_{-0.0079}$	$100\theta_{\mathrm{s,eq}}$	$0.4515^{+0.0066}_{-0.0064}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.7)$
$\sigma_8$	$0.803^{+0.027}_{-0.027}$	$H(0.15)$	$72.5^{+2.9}_{-2.7}$	$\chi_{\mathrm{CMB}}^2$	$11934.9 (\nu: 16.8)$
$S_8$	$0.817^{+0.035}_{-0.035}$	$D_{\mathrm{M}}(0.15)$	$645^{+26}_{-26}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11949.20; R - 1 = 0.00729$$



7.66 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02229^{+0.00046}_{-0.00046}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.020}_{-0.021}$	$H(0.51)$	$89.4^{+2.8}_{-2.7}$
$\Omega_{\mathrm{c}} h^2$	$0.1181^{+0.0070}_{-0.0065}$	$\sigma_8/h^{0.5}$	$0.979^{+0.026}_{-0.028}$	$D_{\mathrm{M}}(0.51)$	$1988^{+72}_{-69}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0010}_{-0.0010}$	$r_{\mathrm{drag}} h$	$99.7^{+2.3}_{-2.3}$	$H(0.61)$	$95.0^{+2.9}_{-2.8}$
$\tau$	$0.053^{+0.021}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.063}_{-0.066}$	$D_{\mathrm{M}}(0.61)$	$2314^{+82}_{-79}$
$N_{\mathrm{eff}}$	$3.00^{+0.41}_{-0.39}$	$z_{\mathrm{re}}$	$7.6^{+2.0}_{-2.2}$	$H(2.33)$	$235.1^{+5.9}_{-5.8}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.036^{+0.046}_{-0.047}$	$10^9 A_{\mathrm{s}}$	$2.082^{+0.099}_{-0.095}$	$D_{\mathrm{M}}(2.33)$	$5784^{+170}_{-170}$
$n_{\mathrm{s}}$	$0.966^{+0.016}_{-0.016}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.871^{+0.042}_{-0.042}$	$f\sigma_8(0.15)$	$0.452^{+0.018}_{-0.018}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0066}$	$D_{40}$	$1224^{+33}_{-34}$	$\sigma_8(0.15)$	$0.743^{+0.025}_{-0.024}$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-70}$	$D_{220}$	$5719^{+99}_{-100}$	$f\sigma_8(0.38)$	$0.471^{+0.016}_{-0.017}$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20}$	$D_{810}$	$2533^{+35}_{-35}$	$\sigma_8(0.38)$	$0.659^{+0.022}_{-0.022}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40}$	$D_{1420}$	$816^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.470^{+0.015}_{-0.016}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{2000}$	$230.6^{+5.0}_{-4.6}$	$\sigma_8(0.51)$	$0.616^{+0.021}_{-0.021}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87$	$n_{\mathrm{s},0.002}$	$0.966^{+0.016}_{-0.016}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.016}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.34}_{-0.32}$	$Y_{\mathrm{P}}$	$0.2447^{+0.0054}_{-0.0054}$	$\sigma_8(0.61)$	$0.587^{+0.020}_{-0.020}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2460^{+0.0054}_{-0.0054}$	$f\sigma_8(2.33)$	$0.296^{+0.010}_{-0.010}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.58^{+0.11}_{-0.11}$	$\sigma_8(2.33)$	$0.305^{+0.011}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.85^{+0.41}_{-0.40}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50}$	$z_*$	$1089.80^{+0.82}_{-0.82}$	$f_{2000}^{217}$	$106.5^{+5.3}_{-5.2}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.43}$	$r_*$	$145.3^{+3.9}_{-3.8}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-5}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$100\theta_*$	$1.0413^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.3)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.42}_{-0.40}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.95^{+0.36}_{-0.36}$	$\chi_{\mathrm{lowl}}^2$	$23.00 (\nu: 0.5)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.6^{+1.6}_{-1.6}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.9 (\nu: 16.8)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040}$	$r_{\mathrm{drag}}$	$148.0^{+4.0}_{-4.0}$	$\chi_{\mathrm{Aver15}}^2$	$0.36 (\nu: 0.1)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.1401^{+0.0030}_{-0.0029}$	$\chi_{\mathrm{Cooke17}}^2$	$0.35 (\nu: 0.1)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16075^{+0.00095}_{-0.00095}$	$\chi_{6\mathrm{DF}}^2$	$0.055 (\nu: 0.0)$
$H_0$	$67.4^{+2.8}_{-2.7}$	$z_{\mathrm{eq}}$	$3378^{+67}_{-67}$	$\chi_{\mathrm{MGS}}^2$	$1.32 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.690^{+0.017}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01027^{+0.00028}_{-0.00027}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.1)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.019}_{-0.017}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1410^{+0.0071}_{-0.0067}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0065}_{-0.0063}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.7)$
$\Omega_{\mathrm{m}} h^3$	$0.0951^{+0.0081}_{-0.0075}$	$H(0.15)$	$72.7^{+2.7}_{-2.7}$	$\chi_{\mathrm{CMB}}^2$	$11934.8 (\nu: 16.6)$
$\sigma_8$	$0.804^{+0.026}_{-0.026}$	$D_{\mathrm{M}}(0.15)$	$643^{+26}_{-24}$	$\chi_{\mathrm{Abund}}^2$	$0.71 (\nu: 0.2)$
$S_8$	$0.818^{+0.034}_{-0.034}$	$H(0.38)$	$82.7^{+2.8}_{-2.7}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.019}_{-0.019}$	$D_{\mathrm{M}}(0.38)$	$1535^{+58}_{-55}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11949.40; R - 1 = 0.00827$$



**7.67 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02231^{+0.00052}_{-0.00048}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.019}_{-0.018}$	$H(0.38)$	$82.8^{+3.8}_{-3.4}$
$\Omega_{\mathrm{c}}h^2$	$0.1182^{+0.0093}_{-0.0084}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.022}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1533^{+70}_{-75}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.980^{+0.026}_{-0.025}$	$H(0.51)$	$89.5^{+3.9}_{-3.5}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$r_{\mathrm{drag}}h$	$99.8^{+2.5}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	$1986^{+88}_{-94}$
$N_{\mathrm{eff}}$	$3.00^{+0.58}_{-0.51}$	$\langle d^2 \rangle^{1/2}$	$2.426^{+0.063}_{-0.064}$	$H(0.61)$	$95.1^{+4.1}_{-3.6}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.039^{+0.047}_{-0.038}$	$z_{\mathrm{re}}$	$< 9.44$	$D_{\mathrm{M}}(0.61)$	$2312^{+100}_{-110}$
$n_{\mathrm{s}}$	$0.966^{+0.020}_{-0.019}$	$10^9 A_{\mathrm{s}}$	$2.089^{+0.099}_{-0.077}$	$H(2.33)$	$235.1^{+8.3}_{-7.5}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0066}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.871^{+0.050}_{-0.050}$	$D_{\mathrm{M}}(2.33)$	$5781^{+220}_{-230}$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-60}$	$D_{40}$	$1224^{+36}_{-37}$	$f\sigma_8(0.15)$	$0.453^{+0.018}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5720^{+98}_{-100}$	$\sigma_8(0.15)$	$0.744^{+0.029}_{-0.027}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2534^{+35}_{-36}$	$f\sigma_8(0.38)$	$0.471^{+0.017}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-13}$	$\sigma_8(0.38)$	$0.660^{+0.026}_{-0.024}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.91$	$D_{2000}$	$230.7^{+5.4}_{-5.2}$	$f\sigma_8(0.51)$	$0.470^{+0.017}_{-0.016}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.020}_{-0.019}$	$\sigma_8(0.51)$	$0.617^{+0.025}_{-0.023}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2448^{+0.0077}_{-0.0072}$	$f\sigma_8(0.61)$	$0.465^{+0.017}_{-0.016}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2461^{+0.0077}_{-0.0073}$	$\sigma_8(0.61)$	$0.588^{+0.024}_{-0.022}$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.58^{+0.15}_{-0.14}$	$f\sigma_8(2.33)$	$0.296^{+0.012}_{-0.011}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.49}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.84^{+0.53}_{-0.56}$	$\sigma_8(2.33)$	$0.306^{+0.013}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.47}_{-0.44}$	$z_*$	$1089.8^{+1.1}_{-1.0}$	$f_{2000}^{143}$	$29^{+9}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27}$	$r_*$	$145.2^{+5.2}_{-5.4}$	$f_{2000}^{217}$	$106.5^{+5.8}_{-5.8}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.02^{+0.42}_{-0.41}$	$100\theta_*$	$1.0413^{+0.0015}_{-0.0015}$	$f_{2000}^{143\times 217}$	$32^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.48}_{-0.50}$	$\chi_{\mathrm{simall}}^2$	$396.9\ (\nu: 1.4)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.6^{+2.1}_{-1.8}$	$\chi_{\mathrm{lowl}}^2$	$23.0\ (\nu: 0.6)$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$r_{\mathrm{drag}}$	$147.9^{+5.3}_{-5.6}$	$\chi_{\mathrm{CamSpec}}^2$	$11515.1\ (\nu: 17.5)$
$c_{EE}$	$0.992^{+0.014}_{-0.014}$	$k_{\mathrm{D}}$	$0.1402^{+0.0042}_{-0.0037}$	$\chi_{6\mathrm{DF}}^2$	$0.054\ (\nu: 0.0)$
$H_0$	$67.5^{+3.7}_{-3.2}$	$100\theta_{\mathrm{D}}$	$0.1607^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{MGS}}^2$	$1.36\ (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.690^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3377^{+69}_{-74}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7\ (\nu: 1.1)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.019}_{-0.020}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00033}_{-0.00032}$	$\chi_{\mathrm{prior}}^2$	$7.7\ (\nu: 5.8)$
$\Omega_{\mathrm{m}}h^2$	$0.1411^{+0.0096}_{-0.0087}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.014}_{-0.013}$	$\chi_{\mathrm{BAO}}^2$	$6.1\ (\nu: 0.7)$
$\Omega_{\mathrm{m}}h^3$	$0.0953^{+0.012}_{-0.0097}$	$100\theta_{\mathrm{s,eq}}$	$0.4518^{+0.0072}_{-0.0066}$	$\chi_{\mathrm{CMB}}^2$	$11935.0\ (\nu: 17.0)$
$\sigma_8$	$0.805^{+0.030}_{-0.029}$	$H(0.15)$	$72.7^{+3.7}_{-3.3}$		
$S_8$	$0.818^{+0.034}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$643^{+31}_{-33}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11948.82; R - 1 = 0.00628$$



7.68 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_JLA\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02231^{+0.00055}_{-0.00050}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.450^{+0.016}_{-0.015}$	$H(0.38)$	$82.7^{+3.5}_{-3.2}$
$\Omega_{\text{c}}h^2$	$0.1181^{+0.0089}_{-0.0077}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.602^{+0.018}_{-0.018}$	$D_{\text{M}}(0.38)$	$1536^{+67}_{-70}$
$100\theta_{\text{MC}}$	$1.0411^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.982^{+0.022}_{-0.021}$	$H(0.51)$	$89.3^{+3.7}_{-3.4}$
$\tau$	$0.056^{+0.017}_{-0.014}$	$r_{\text{drag}}h$	$99.7^{+2.1}_{-2.2}$	$D_{\text{M}}(0.51)$	$1990^{+84}_{-89}$
$N_{\text{eff}}$	$2.99^{+0.54}_{-0.49}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.056}_{-0.052}$	$H(0.61)$	$94.9^{+3.8}_{-3.5}$
$\ln(10^{10}A_{\text{s}})$	$3.042^{+0.040}_{-0.036}$	$z_{\text{re}}$	$< 9.45$	$D_{\text{M}}(0.61)$	$2315^{+96}_{-100}$
$n_{\text{s}}$	$0.966^{+0.018}_{-0.018}$	$10^9 A_{\text{s}}$	$2.095^{+0.085}_{-0.075}$	$H(2.33)$	$235.0^{+7.8}_{-6.9}$
$y_{\text{cal}}$	$1.0008^{+0.0063}_{-0.0061}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.873^{+0.049}_{-0.044}$	$D_{\text{M}}(2.33)$	$5787^{+210}_{-220}$
$A_{100}^{\text{PS}}$	$237^{+70}_{-60}$	$D_{40}$	$1227^{+34}_{-33}$	$f\sigma_8(0.15)$	$0.454^{+0.015}_{-0.014}$
$A_{143}^{\text{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5725^{+96}_{-92}$	$\sigma_8(0.15)$	$0.745^{+0.026}_{-0.024}$
$A_{217}^{\text{PS}}$	$103^{+30}_{-40}$	$D_{810}$	$2536^{+34}_{-32}$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.014}$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$817^{+14}_{-13}$	$\sigma_8(0.38)$	$0.660^{+0.023}_{-0.022}$
$A_{143}^{\text{tSZ}}$	$< 8.66$	$D_{2000}$	$231.0^{+5.3}_{-5.5}$	$f\sigma_8(0.51)$	$0.471^{+0.014}_{-0.014}$
$r_{143 \times 217}^{\text{PS}}$	$> 0.347$	$n_{\text{s},0.002}$	$0.966^{+0.018}_{-0.018}$	$\sigma_8(0.51)$	$0.618^{+0.023}_{-0.021}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.2446^{+0.0072}_{-0.0069}$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.2459^{+0.0072}_{-0.0070}$	$\sigma_8(0.61)$	$0.588^{+0.022}_{-0.020}$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.58^{+0.14}_{-0.13}$	$f\sigma_8(2.33)$	$0.297^{+0.011}_{-0.011}$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.51}$	$\text{Age}/\text{Gyr}$	$13.86^{+0.51}_{-0.52}$	$\sigma_8(2.33)$	$0.306^{+0.012}_{-0.011}$
$A_{143}^{\text{dust}}$	$0.95^{+0.45}_{-0.43}$	$z_*$	$1089.8^{+1.0}_{-0.91}$	$f_{2000}^{143}$	$29^{+9}_{-9}$
$A_{217}^{\text{dust}}$	$0.98^{+0.26}_{-0.27}$	$r_*$	$145.3^{+4.9}_{-5.1}$	$f_{2000}^{217}$	$106.4^{+5.8}_{-5.3}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.39}_{-0.41}$	$100\theta_*$	$1.0413^{+0.0015}_{-0.0016}$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-7}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0026}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.95^{+0.45}_{-0.47}$	$\chi_{\text{lensing}}^2$	$9.23 (\nu: 0.3)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0042}$	$z_{\text{drag}}$	$1059.6^{+1.9}_{-1.8}$	$\chi_{\text{simall}}^2$	$397.0 (\nu: 1.5)$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$r_{\text{drag}}$	$148.0^{+5.0}_{-5.3}$	$\chi_{\text{lowl}}^2$	$23.2 (\nu: 0.6)$
$c_{EE}$	$0.992^{+0.014}_{-0.014}$	$k_{\text{D}}$	$0.1401^{+0.0038}_{-0.0035}$	$\chi_{\text{CamSpec}}^2$	$11514.5 (\nu: 17.4)$
$H_0$	$67.3^{+3.4}_{-3.1}$	$100\theta_{\text{D}}$	$0.1607^{+0.0013}_{-0.0012}$	$\chi_{\text{JLA}}^2$	$706.78 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.689^{+0.017}_{-0.019}$	$z_{\text{eq}}$	$3382^{+65}_{-63}$	$\chi_{6\text{DF}}^2$	$0.059 (\nu: 0.0)$
$\Omega_{\text{m}}$	$0.311^{+0.019}_{-0.017}$	$k_{\text{eq}}$	$0.01028^{+0.00031}_{-0.00028}$	$\chi_{\text{MGS}}^2$	$1.28 (\nu: 0.1)$
$\Omega_{\text{m}}h^2$	$0.1410^{+0.0093}_{-0.0078}$	$100\theta_{\text{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{\text{DR12BAO}}^2$	$4.8 (\nu: 1.2)$
$\Omega_{\text{m}}h^3$	$0.0950^{+0.011}_{-0.0094}$	$100\theta_{\text{s,eq}}$	$0.4513^{+0.0060}_{-0.0062}$	$\chi_{\text{prior}}^2$	$7.7 (\nu: 5.4)$
$\sigma_8$	$0.806^{+0.027}_{-0.026}$	$H(0.15)$	$72.6^{+3.5}_{-3.1}$	$\chi_{\text{CMB}}^2$	$11943.9 (\nu: 17.7)$
$S_8$	$0.821^{+0.028}_{-0.028}$	$D_{\text{M}}(0.15)$	$644^{+30}_{-31}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.8)$

$$\bar{\chi}_{\text{eff}}^2 = 12664.58; R - 1 = 0.04058$$



**7.69**    **base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02232^{+0.00049}_{-0.00049}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.015}_{-0.015}$	$H(0.38)$	$82.8^{+3.6}_{-3.3}$
$\Omega_{\mathrm{c}} h^2$	$0.1182^{+0.0088}_{-0.0082}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.019}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1534^{+69}_{-68}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.982^{+0.021}_{-0.021}$	$H(0.51)$	$89.4^{+3.7}_{-3.4}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$r_{\mathrm{drag}} h$	$99.8^{+2.1}_{-2.1}$	$D_{\mathrm{M}}(0.51)$	$1987^{+87}_{-87}$
$N_{\mathrm{eff}}$	$3.00^{+0.54}_{-0.50}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.053}_{-0.051}$	$H(0.61)$	$95.0^{+3.8}_{-3.5}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.043}_{-0.037}$	$z_{\mathrm{re}}$	$< 9.50$	$D_{\mathrm{M}}(0.61)$	$2312^{+99}_{-100}$
$n_{\mathrm{s}}$	$0.966^{+0.018}_{-0.019}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.093}_{-0.076}$	$H(2.33)$	$235.2^{+7.6}_{-7.3}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0062}_{-0.0066}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.873^{+0.047}_{-0.046}$	$D_{\mathrm{M}}(2.33)$	$5782^{+210}_{-220}$
$A_{100}^{\mathrm{PS}}$	$238^{+70}_{-60}$	$D_{40}$	$1226^{+34}_{-33}$	$f\sigma_8(0.15)$	$0.454^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5725^{+94}_{-97}$	$\sigma_8(0.15)$	$0.745^{+0.026}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-40}$	$D_{810}$	$2535^{+34}_{-34}$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-13}$	$\sigma_8(0.38)$	$0.661^{+0.024}_{-0.023}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.95$	$D_{2000}$	$230.9^{+5.3}_{-5.1}$	$f\sigma_8(0.51)$	$0.471^{+0.014}_{-0.014}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.339$	$n_{\mathrm{s},0.002}$	$0.966^{+0.018}_{-0.019}$	$\sigma_8(0.51)$	$0.619^{+0.023}_{-0.021}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2447^{+0.0072}_{-0.0071}$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2461^{+0.0072}_{-0.0071}$	$\sigma_8(0.61)$	$0.589^{+0.022}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.58^{+0.14}_{-0.14}$	$f\sigma_8(2.33)$	$0.297^{+0.011}_{-0.011}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.51}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.84^{+0.51}_{-0.52}$	$\sigma_8(2.33)$	$0.306^{+0.012}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.46}_{-0.43}$	$z_*$	$1089.8^{+1.0}_{-0.97}$	$f_{2000}^{143}$	$29^{+9}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27}$	$r_*$	$145.2^{+5.0}_{-5.0}$	$f_{2000}^{217}$	$106.4^{+5.9}_{-5.7}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.40}$	$100\theta_*$	$1.0413^{+0.0015}_{-0.0015}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$c_{100}$	$0.9976^{+0.0028}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.46}_{-0.46}$	$\chi_{\mathrm{lensing}}^2$	$9.27 (\nu: 0.3)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0039}$	$z_{\mathrm{drag}}$	$1059.6^{+1.9}_{-1.9}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.7)$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$r_{\mathrm{drag}}$	$147.9^{+5.2}_{-5.2}$	$\chi_{\mathrm{lowl}}^2$	$23.1 (\nu: 0.6)$
$c_{EE}$	$0.992^{+0.013}_{-0.014}$	$k_{\mathrm{D}}$	$0.1402^{+0.0037}_{-0.0036}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.7 (\nu: 16.6)$
$H_0$	$67.5^{+3.3}_{-3.1}$	$100\theta_{\mathrm{D}}$	$0.1607^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{JLA}}^2$	$1035.09 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.690^{+0.017}_{-0.018}$	$z_{\mathrm{eq}}$	$3379^{+63}_{-64}$	$\chi_{6\mathrm{DF}}^2$	$0.051 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.018}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00031}_{-0.00030}$	$\chi_{\mathrm{MGS}}^2$	$1.33 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1412^{+0.0091}_{-0.0084}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 0.9)$
$\Omega_{\mathrm{m}} h^3$	$0.0953^{+0.011}_{-0.0096}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0061}_{-0.0060}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 5.8)$
$\sigma_8$	$0.807^{+0.027}_{-0.026}$	$H(0.15)$	$72.7^{+3.4}_{-3.2}$	$\chi_{\mathrm{CMB}}^2$	$11944.2 (\nu: 17.4)$
$S_8$	$0.820^{+0.028}_{-0.028}$	$D_{\mathrm{M}}(0.15)$	$643^{+30}_{-30}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.6)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 12993.02; R - 1 = 0.01132$$



**7.70 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02230^{+0.00050}_{-0.00049}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.016}_{-0.016}$	$H(0.38)$	$82.6^{+3.6}_{-3.3}$
$\Omega_{\mathrm{c}} h^2$	$0.1180^{+0.0088}_{-0.0081}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.019}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1537^{+70}_{-70}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0013}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.982^{+0.021}_{-0.021}$	$H(0.51)$	$89.3^{+3.7}_{-3.4}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$r_{\mathrm{drag}} h$	$99.6^{+2.2}_{-2.2}$	$D_{\mathrm{M}}(0.51)$	$1991^{+89}_{-88}$
$N_{\mathrm{eff}}$	$2.98^{+0.55}_{-0.50}$	$\langle d^2 \rangle^{1/2}$	$2.434^{+0.054}_{-0.053}$	$H(0.61)$	$94.9^{+3.8}_{-3.5}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.043}_{-0.037}$	$z_{\mathrm{re}}$	$< 9.47$	$D_{\mathrm{M}}(0.61)$	$2317^{+100}_{-100}$
$n_{\mathrm{s}}$	$0.965^{+0.019}_{-0.019}$	$10^9 A_{\mathrm{s}}$	$2.094^{+0.092}_{-0.076}$	$H(2.33)$	$235.0^{+7.7}_{-7.4}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0062}_{-0.0066}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.047}_{-0.046}$	$D_{\mathrm{M}}(2.33)$	$5790^{+220}_{-220}$
$A_{100}^{\mathrm{PS}}$	$238^{+70}_{-60}$	$D_{40}$	$1227^{+34}_{-34}$	$f\sigma_8(0.15)$	$0.454^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5724^{+95}_{-97}$	$\sigma_8(0.15)$	$0.745^{+0.026}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-40}$	$D_{810}$	$2535^{+34}_{-35}$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-13}$	$\sigma_8(0.38)$	$0.660^{+0.024}_{-0.022}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.92$	$D_{2000}$	$231.0^{+5.3}_{-5.1}$	$f\sigma_8(0.51)$	$0.471^{+0.014}_{-0.014}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.339$	$n_{\mathrm{s},0.002}$	$0.965^{+0.019}_{-0.019}$	$\sigma_8(0.51)$	$0.618^{+0.023}_{-0.021}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2445^{+0.0073}_{-0.0070}$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2458^{+0.0073}_{-0.0070}$	$\sigma_8(0.61)$	$0.588^{+0.022}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.58^{+0.14}_{-0.14}$	$f\sigma_8(2.33)$	$0.296^{+0.012}_{-0.011}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.51}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.86^{+0.51}_{-0.52}$	$\sigma_8(2.33)$	$0.306^{+0.013}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.46}_{-0.43}$	$z_*$	$1089.8^{+1.0}_{-0.97}$	$f_{2000}^{143}$	$29^{+9}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27}$	$r_*$	$145.4^{+5.1}_{-5.0}$	$f_{2000}^{217}$	$106.4^{+5.9}_{-5.7}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.40}$	$100\theta_*$	$1.0413^{+0.0015}_{-0.0015}$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6}$
$c_{100}$	$0.9976^{+0.0028}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.96^{+0.46}_{-0.46}$	$\chi_{\mathrm{lensing}}^2$	$9.22 (\nu: 0.3)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.6^{+1.9}_{-1.9}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.6)$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$r_{\mathrm{drag}}$	$148.1^{+5.2}_{-5.2}$	$\chi_{\mathrm{lowl}}^2$	$23.2 (\nu: 0.6)$
$c_{EE}$	$0.992^{+0.013}_{-0.015}$	$k_{\mathrm{D}}$	$0.1401^{+0.0038}_{-0.0036}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.5 (\nu: 16.6)$
$H_0$	$67.3^{+3.5}_{-3.2}$	$100\theta_{\mathrm{D}}$	$0.1607^{+0.0012}_{-0.0012}$	$\chi_{6\mathrm{DF}}^2$	$0.063 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.689^{+0.018}_{-0.018}$	$z_{\mathrm{eq}}$	$3383^{+64}_{-66}$	$\chi_{\mathrm{MGS}}^2$	$1.26 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.018}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00031}_{-0.00030}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 (\nu: 1.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1410^{+0.0091}_{-0.0084}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 5.7)$
$\Omega_{\mathrm{m}} h^3$	$0.0949^{+0.011}_{-0.0095}$	$100\theta_{\mathrm{s,eq}}$	$0.4512^{+0.0065}_{-0.0061}$	$\chi_{\mathrm{CMB}}^2$	$11944.0 (\nu: 17.4)$
$\sigma_8$	$0.806^{+0.027}_{-0.026}$	$H(0.15)$	$72.5^{+3.5}_{-3.2}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.8)$
$S_8$	$0.821^{+0.028}_{-0.028}$	$D_{\mathrm{M}}(0.15)$	$644^{+31}_{-31}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11957.94; R - 1 = 0.01105$$



**7.71 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Aver15\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02230^{+0.00046}_{-0.00046}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.448^{+0.019}_{-0.018}$	$H(0.38)$	$82.6^{+2.9}_{-2.8}$
$\Omega_{\text{c}}h^2$	$0.1177^{+0.0075}_{-0.0070}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.600^{+0.020}_{-0.020}$	$D_{\text{M}}(0.38)$	$1537^{+58}_{-58}$
$100\theta_{\text{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$\sigma_8/h^{0.5}$	$0.980^{+0.026}_{-0.025}$	$H(0.51)$	$89.3^{+3.0}_{-2.8}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$r_{\text{drag}}h$	$99.7^{+2.3}_{-2.2}$	$D_{\text{M}}(0.51)$	$1991^{+74}_{-73}$
$N_{\text{eff}}$	$2.97^{+0.44}_{-0.41}$	$\langle d^2 \rangle^{1/2}$	$2.427^{+0.062}_{-0.061}$	$H(0.61)$	$94.8^{+3.0}_{-2.9}$
$\ln(10^{10}A_{\text{s}})$	$3.038^{+0.045}_{-0.035}$	$z_{\text{re}}$	$< 9.44$	$D_{\text{M}}(0.61)$	$2317^{+84}_{-83}$
$n_{\text{s}}$	$0.965^{+0.017}_{-0.016}$	$10^9 A_{\text{s}}$	$2.086^{+0.097}_{-0.073}$	$H(2.33)$	$234.7^{+6.3}_{-6.2}$
$y_{\text{cal}}$	$1.0005^{+0.0063}_{-0.0066}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.869^{+0.044}_{-0.044}$	$D_{\text{M}}(2.33)$	$5793^{+180}_{-180}$
$A_{100}^{\text{PS}}$	$237^{+60}_{-70}$	$D_{40}$	$1225^{+34}_{-34}$	$f\sigma_8(0.15)$	$0.452^{+0.018}_{-0.018}$
$A_{143}^{\text{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5720^{+98}_{-100}$	$\sigma_8(0.15)$	$0.743^{+0.025}_{-0.023}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2533^{+35}_{-35}$	$f\sigma_8(0.38)$	$0.471^{+0.016}_{-0.016}$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-13}$	$\sigma_8(0.38)$	$0.658^{+0.023}_{-0.021}$
$A_{143}^{\text{tSZ}}$	$< 8.96$	$D_{2000}$	$230.9^{+5.1}_{-4.8}$	$f\sigma_8(0.51)$	$0.470^{+0.016}_{-0.015}$
$r_{143 \times 217}^{\text{PS}}$	$> 0.333$	$n_{\text{s},0.002}$	$0.965^{+0.017}_{-0.016}$	$\sigma_8(0.51)$	$0.616^{+0.021}_{-0.020}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.2443^{+0.0058}_{-0.0058}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.015}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.2457^{+0.0059}_{-0.0059}$	$\sigma_8(0.61)$	$0.586^{+0.021}_{-0.019}$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.57^{+0.12}_{-0.12}$	$f\sigma_8(2.33)$	$0.296^{+0.011}_{-0.0097}$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.51}$	$\text{Age}/\text{Gyr}$	$13.87^{+0.43}_{-0.42}$	$\sigma_8(2.33)$	$0.305^{+0.011}_{-0.010}$
$A_{143}^{\text{dust}}$	$0.96^{+0.46}_{-0.43}$	$z_*$	$1089.73^{+0.91}_{-0.89}$	$f_{2000}^{143}$	$29^{+9}_{-8}$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.27}$	$r_*$	$145.5^{+4.2}_{-4.1}$	$f_{2000}^{217}$	$106.3^{+5.5}_{-5.5}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.42}_{-0.40}$	$100\theta_*$	$1.0414^{+0.0013}_{-0.0013}$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.97^{+0.39}_{-0.38}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.4)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040}$	$z_{\text{drag}}$	$1059.5^{+1.7}_{-1.6}$	$\chi_{\text{lowl}}^2$	$23.1 (\nu: 0.5)$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$r_{\text{drag}}$	$148.2^{+4.4}_{-4.3}$	$\chi_{\text{CamSpec}}^2$	$11514.8 (\nu: 16.7)$
$c_{EE}$	$0.991^{+0.013}_{-0.014}$	$k_{\text{D}}$	$0.1400^{+0.0031}_{-0.0031}$	$\chi_{\text{Aver15}}^2$	$0.36 (\nu: 0.1)$
$H_0$	$67.3^{+2.9}_{-2.8}$	$100\theta_{\text{D}}$	$0.1607^{+0.0011}_{-0.0011}$	$\chi_{6\text{DF}}^2$	$0.054 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.690^{+0.018}_{-0.018}$	$z_{\text{eq}}$	$3379^{+66}_{-68}$	$\chi_{\text{MGS}}^2$	$1.33 (\nu: 0.1)$
$\Omega_{\text{m}}$	$0.310^{+0.018}_{-0.018}$	$k_{\text{eq}}$	$0.01026^{+0.00029}_{-0.00028}$	$\chi_{\text{DR12BAO}}^2$	$4.7 (\nu: 1.1)$
$\Omega_{\text{m}}h^2$	$0.1406^{+0.0076}_{-0.0072}$	$100\theta_{\text{eq}}$	$0.817^{+0.013}_{-0.012}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 5.9)$
$\Omega_{\text{m}}h^3$	$0.0947^{+0.0086}_{-0.0079}$	$100\theta_{\text{s,eq}}$	$0.4516^{+0.0066}_{-0.0062}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.7)$
$\sigma_8$	$0.804^{+0.027}_{-0.025}$	$H(0.15)$	$72.6^{+2.9}_{-2.7}$	$\chi_{\text{CMB}}^2$	$11934.7 (\nu: 16.5)$
$S_8$	$0.817^{+0.034}_{-0.033}$	$D_{\text{M}}(0.15)$	$644^{+26}_{-26}$		

$$\bar{\chi}_{\text{eff}}^2 = 11948.97; R - 1 = 0.00928$$



**7.72 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02229^{+0.00046}_{-0.00046}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.020}_{-0.020}$	$H(0.51)$	$89.4^{+2.8}_{-2.7}$
$\Omega_{\mathrm{c}} h^2$	$0.1181^{+0.0069}_{-0.0065}$	$\sigma_8/h^{0.5}$	$0.980^{+0.025}_{-0.025}$	$D_{\mathrm{M}}(0.51)$	$1988^{+72}_{-69}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0010}_{-0.0010}$	$r_{\mathrm{drag}} h$	$99.7^{+2.2}_{-2.2}$	$H(0.61)$	$95.0^{+2.9}_{-2.8}$
$\tau$	$0.055^{+0.018}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.427^{+0.061}_{-0.061}$	$D_{\mathrm{M}}(0.61)$	$2313^{+82}_{-79}$
$N_{\mathrm{eff}}$	$3.00^{+0.40}_{-0.38}$	$z_{\mathrm{re}}$	$< 9.42$	$H(2.33)$	$235.1^{+5.9}_{-5.8}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.039^{+0.045}_{-0.035}$	$10^9 A_{\mathrm{s}}$	$2.088^{+0.096}_{-0.072}$	$D_{\mathrm{M}}(2.33)$	$5783^{+170}_{-170}$
$n_{\mathrm{s}}$	$0.966^{+0.017}_{-0.016}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.871^{+0.042}_{-0.041}$	$f\sigma_8(0.15)$	$0.453^{+0.017}_{-0.017}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0066}$	$D_{40}$	$1224^{+33}_{-33}$	$\sigma_8(0.15)$	$0.744^{+0.024}_{-0.022}$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-70}$	$D_{220}$	$5718^{+99}_{-100}$	$f\sigma_8(0.38)$	$0.471^{+0.016}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20}$	$D_{810}$	$2533^{+35}_{-35}$	$\sigma_8(0.38)$	$0.660^{+0.022}_{-0.020}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40}$	$D_{1420}$	$816^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.470^{+0.015}_{-0.015}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{2000}$	$230.6^{+5.0}_{-4.6}$	$\sigma_8(0.51)$	$0.617^{+0.021}_{-0.019}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.95$	$n_{\mathrm{s},0.002}$	$0.966^{+0.017}_{-0.016}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.014}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.336$	$Y_{\mathrm{P}}$	$0.2447^{+0.0054}_{-0.0054}$	$\sigma_8(0.61)$	$0.587^{+0.020}_{-0.018}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2460^{+0.0054}_{-0.0054}$	$f\sigma_8(2.33)$	$0.296^{+0.010}_{-0.0093}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.58^{+0.11}_{-0.11}$	$\sigma_8(2.33)$	$0.305^{+0.011}_{-0.0099}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.85^{+0.41}_{-0.40}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.51}$	$z_*$	$1089.80^{+0.82}_{-0.82}$	$f_{2000}^{217}$	$106.5^{+5.3}_{-5.2}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.44}$	$r_*$	$145.2^{+3.9}_{-3.8}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-5}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$100\theta_*$	$1.0413^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.4)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.42}_{-0.40}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.95^{+0.36}_{-0.35}$	$\chi_{\mathrm{lowl}}^2$	$23.01 (\nu: 0.5)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.6^{+1.6}_{-1.6}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.7 (\nu: 16.6)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.9^{+4.0}_{-4.0}$	$\chi_{\mathrm{Aver15}}^2$	$0.36 (\nu: 0.1)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.1401^{+0.0029}_{-0.0029}$	$\chi_{\mathrm{Cooke17}}^2$	$0.35 (\nu: 0.1)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16076^{+0.00095}_{-0.00095}$	$\chi_{6\mathrm{DF}}^2$	$0.054 (\nu: 0.0)$
$H_0$	$67.4^{+2.8}_{-2.7}$	$z_{\mathrm{eq}}$	$3378^{+64}_{-67}$	$\chi_{\mathrm{MGS}}^2$	$1.34 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.690^{+0.017}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01027^{+0.00028}_{-0.00027}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.018}_{-0.017}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.013}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 5.9)$
$\Omega_{\mathrm{m}} h^2$	$0.1411^{+0.0071}_{-0.0067}$	$100\theta_{\mathrm{s,eq}}$	$0.4517^{+0.0066}_{-0.0061}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.6)$
$\Omega_{\mathrm{m}} h^3$	$0.0951^{+0.0081}_{-0.0075}$	$H(0.15)$	$72.7^{+2.7}_{-2.7}$	$\chi_{\mathrm{CMB}}^2$	$11934.6 (\nu: 16.2)$
$\sigma_8$	$0.805^{+0.026}_{-0.024}$	$D_{\mathrm{M}}(0.15)$	$643^{+26}_{-25}$	$\chi_{\mathrm{Abund}}^2$	$0.71 (\nu: 0.2)$
$S_8$	$0.819^{+0.033}_{-0.033}$	$H(0.38)$	$82.7^{+2.8}_{-2.7}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.018}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1534^{+57}_{-55}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11949.15; R - 1 = 0.01020$$



### 7.73 base\_nnu\_plikHM\_TT\_lowl\_lowE\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02263	$0.02260^{+0.00058}_{-0.00060}$	$\sigma_8 \Omega_m^{0.25}$	0.6042	$0.606^{+0.030}_{-0.029}$	$D_M(0.15)$	611.1	$610^{+30}_{-28}$
$\Omega_c h^2$	0.1238	$0.1248^{+0.0095}_{-0.0092}$	$\sigma_8/h^{0.5}$	0.9757	$0.977^{+0.038}_{-0.037}$	$H(0.38)$	86.33	$86.6^{+3.4}_{-3.4}$
$100\theta_{MC}$	1.04058	$1.0405^{+0.0014}_{-0.0013}$	$r_{drag}h$	102.21	$102.2^{+3.8}_{-3.9}$	$D_M(0.38)$	1462	$1459^{+67}_{-62}$
$\tau$	0.0568	$0.057^{+0.024}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.387	$2.391^{+0.091}_{-0.084}$	$H(0.51)$	93.01	$93.3^{+3.4}_{-3.4}$
$N_{eff}$	3.478	$3.53^{+0.50}_{-0.48}$	$z_{re}$	7.99	$8.0^{+2.2}_{-2.2}$	$D_M(0.51)$	1897	$1893^{+83}_{-78}$
$\ln(10^{10} A_s)$	3.0599	$3.061^{+0.051}_{-0.047}$	$10^9 A_s$	2.132	$2.14^{+0.11}_{-0.098}$	$H(0.61)$	98.62	$98.9^{+3.5}_{-3.4}$
$n_s$	0.9858	$0.986^{+0.020}_{-0.020}$	$10^9 A_s e^{-2\tau}$	1.9035	$1.905^{+0.047}_{-0.048}$	$D_M(0.61)$	2210	$2205^{+94}_{-89}$
$y_{cal}$	1.0011	$1.0006^{+0.0065}_{-0.0064}$	$D_{40}$	1200.2	$1201^{+39}_{-38}$	$H(2.33)$	240.7	$241.4^{+7.6}_{-7.4}$
$A_{217}^{CIB}$	48.4	$50^{+20}_{-20}$	$D_{220}$	5730	$5724^{+110}_{-100}$	$D_M(2.33)$	5581	$5566^{+190}_{-180}$
$\xi^{tSZ \times CIB}$	0.59	—	$D_{810}$	2545.7	$2542^{+36}_{-37}$	$f\sigma_8(0.15)$	0.4500	$0.452^{+0.029}_{-0.027}$
$A_{143}^{tSZ}$	5.4	—	$D_{1420}$	816.1	$814^{+14}_{-13}$	$\sigma_8(0.15)$	0.7624	$0.764^{+0.031}_{-0.029}$
$A_{100}^{PS}$	265	$272^{+70}_{-70}$	$D_{2000}$	228.7	$227.7^{+5.6}_{-5.3}$	$f\sigma_8(0.38)$	0.4732	$0.475^{+0.024}_{-0.024}$
$A_{143}^{PS}$	54.9	$53^{+20}_{-20}$	$n_{s,0.002}$	0.9858	$0.986^{+0.020}_{-0.020}$	$\sigma_8(0.38)$	0.6781	$0.680^{+0.027}_{-0.025}$
$A_{143 \times 217}^{PS}$	50.2	$45^{+20}_{-20}$	$Y_P$	0.2511	$0.2517^{+0.0062}_{-0.0063}$	$f\sigma_8(0.51)$	0.4743	$0.476^{+0.022}_{-0.022}$
$A_{217}^{PS}$	118.5	$115^{+30}_{-30}$	$Y_P^{BBN}$	0.2525	$0.2530^{+0.0063}_{-0.0063}$	$\sigma_8(0.51)$	0.6356	$0.637^{+0.026}_{-0.024}$
$A^{kSZ}$	3.0	—	$10^5 D/H$	2.686	$2.71^{+0.16}_{-0.16}$	$f\sigma_8(0.61)$	0.4710	$0.472^{+0.021}_{-0.021}$
$A_{100}^{dustTT}$	9.01	$9.1^{+4.7}_{-4.7}$	Age/Gyr	13.366	$13.33^{+0.45}_{-0.44}$	$\sigma_8(0.61)$	0.6054	$0.607^{+0.025}_{-0.023}$
$A_{143}^{dustTT}$	10.96	$10.9^{+4.6}_{-4.6}$	$z_*$	1090.35	$1090.5^{+1.2}_{-1.3}$	$f\sigma_8(2.33)$	0.3060	$0.307^{+0.013}_{-0.012}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.5^{+8.7}_{-8.6}$	$r_*$	141.20	$140.8^{+4.6}_{-4.4}$	$\sigma_8(2.33)$	0.3165	$0.317^{+0.014}_{-0.012}$
$A_{217}^{dustTT}$	94.5	$93^{+20}_{-20}$	$100\theta_*$	1.04046	$1.0403^{+0.0016}_{-0.0016}$	$f_{2000}^{143}$	32.8	$34^{+8}_{-8}$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.571	$13.53^{+0.43}_{-0.41}$	$f_{2000}^{143 \times 217}$	35.1	$36^{+6}_{-6}$
$c_{217}$	0.99833	$0.9983^{+0.0016}_{-0.0016}$	$z_{drag}$	1061.12	$1061.2^{+1.8}_{-1.9}$	$f_{2000}^{217}$	109.5	$110.1^{+5.5}_{-5.7}$
$H_0$	71.11	$71.3^{+3.5}_{-3.6}$	$r_{drag}$	143.74	$143.3^{+4.7}_{-4.5}$	$\chi_{simall}^2$	396.3	$397.5 (\nu: 2.5)$
$\Omega_\Lambda$	0.7091	$0.708^{+0.026}_{-0.029}$	$k_D$	0.14304	$0.1433^{+0.0036}_{-0.0035}$	$\chi_{lowl}^2$	20.96	$21.17 (\nu: 0.3)$
$\Omega_m$	0.2909	$0.292^{+0.029}_{-0.026}$	$100\theta_D$	0.16184	$0.1620^{+0.0013}_{-0.0013}$	$\chi_{plik}^2$	765.1	$777.8 (\nu: 18.5)$
$\Omega_m h^2$	0.1471	$0.1480^{+0.0096}_{-0.0092}$	$z_{eq}$	3308	$3308^{+110}_{-110}$	$\chi_{H073p45}^2$	2.0	$2.4 (\nu: 3.0)$
$\Omega_m h^3$	0.1046	$0.106^{+0.010}_{-0.0098}$	$k_{eq}$	0.010384	$0.01042^{+0.00043}_{-0.00041}$	$\chi_{prior}^2$	1.9	$7.5 (\nu: 7.2)$
$\sigma_8$	0.8227	$0.825^{+0.033}_{-0.032}$	$100\theta_{eq}$	0.8314	$0.831^{+0.021}_{-0.021}$	$\chi_{CMB}^2$	1182.4	$1196.5 (\nu: 17.6)$
$S_8$	0.810	$0.813^{+0.055}_{-0.052}$	$100\theta_{s,eq}$	0.4586	$0.459^{+0.011}_{-0.011}$			
$\sigma_8 \Omega_m^{0.5}$	0.4438	$0.445^{+0.030}_{-0.029}$	$H(0.15)$	76.31	$76.5^{+3.4}_{-3.5}$			

Best-fit  $\chi_{eff}^2 = 1186.27$ ;  $\bar{\chi}_{eff}^2 = 1206.39$ ;  $R - 1 = 0.00670$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.30 commander\_dx12\_v3.2\_29: 20.96 plik\_rd12\_HM\_v22\_TT: 765.11 Hubble - H073p45: 1.99



7.74 base\_nnu\_plikHM\_TT\_lowl\_lowE\_Riess18\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02252	$0.02251^{+0.00054}_{-0.00054}$	$\sigma_8/h^{0.5}$	0.9839	$0.984^{+0.030}_{-0.032}$	$D_{\text{M}}(0.38)$	1475	$1472^{+57}_{-55}$
$\Omega_{\text{c}}h^2$	0.1243	$0.1254^{+0.0093}_{-0.0088}$	$r_{\text{drag}}h$	101.26	$101.1^{+2.4}_{-2.4}$	$H(0.51)$	92.51	$92.8^{+3.2}_{-3.0}$
$100\theta_{\text{MC}}$	1.04048	$1.0404^{+0.0013}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	2.407	$2.409^{+0.071}_{-0.070}$	$D_{\text{M}}(0.51)$	1912	$1908^{+71}_{-70}$
$\tau$	0.0565	$0.056^{+0.022}_{-0.021}$	$z_{\text{re}}$	7.99	$7.9^{+2.1}_{-2.2}$	$H(0.61)$	98.16	$98.4^{+3.4}_{-3.2}$
$N_{\text{eff}}$	3.442	$3.49^{+0.49}_{-0.47}$	$10^9 A_{\text{s}}$	2.135	$2.13^{+0.11}_{-0.10}$	$D_{\text{M}}(0.61)$	2227	$2222^{+83}_{-80}$
$\ln(10^{10} A_{\text{s}})$	3.0612	$3.060^{+0.050}_{-0.048}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.9072	$1.907^{+0.047}_{-0.049}$	$H(2.33)$	240.8	$241.6^{+7.6}_{-7.3}$
$n_{\text{s}}$	0.9825	$0.982^{+0.017}_{-0.017}$	$D_{40}$	1206.9	$1207^{+36}_{-34}$	$D_{\text{M}}(2.33)$	5603	$5588^{+180}_{-180}$
$y_{\text{cal}}$	1.0015	$1.0005^{+0.0063}_{-0.0063}$	$D_{220}$	5728	$5719^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4562	$0.458^{+0.022}_{-0.022}$
$A_{217}^{\text{CIB}}$	52.6	$50^{+20}_{-20}$	$D_{810}$	2548.1	$2542^{+37}_{-36}$	$\sigma_8(0.15)$	0.7641	$0.765^{+0.030}_{-0.028}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.27	—	$D_{1420}$	816.4	$813^{+14}_{-13}$	$f\sigma_8(0.38)$	0.4780	$0.479^{+0.020}_{-0.021}$
$A_{143}^{\text{tSZ}}$	6.34	$4.6^{+4.6}_{-4.6}$	$D_{2000}$	228.9	$227.7^{+5.5}_{-5.4}$	$\sigma_8(0.38)$	0.6788	$0.680^{+0.027}_{-0.024}$
$A_{100}^{\text{PS}}$	264	$273^{+70}_{-80}$	$n_{\text{s},0.002}$	0.9825	$0.982^{+0.017}_{-0.017}$	$f\sigma_8(0.51)$	0.4782	$0.479^{+0.019}_{-0.020}$
$A_{143}^{\text{PS}}$	52.0	$54^{+20}_{-20}$	$Y_{\text{P}}$	0.2506	$0.2512^{+0.0062}_{-0.0063}$	$\sigma_8(0.51)$	0.6359	$0.637^{+0.025}_{-0.023}$
$A_{143 \times 217}^{\text{PS}}$	46.4	$45^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.2519	$0.2525^{+0.0062}_{-0.0063}$	$f\sigma_8(0.61)$	0.4742	$0.475^{+0.019}_{-0.019}$
$A_{217}^{\text{PS}}$	116.2	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.694	$2.71^{+0.16}_{-0.15}$	$\sigma_8(0.61)$	0.6055	$0.606^{+0.024}_{-0.022}$
$A^{\text{kSZ}}$	1.2	—	Age/Gyr	13.417	$13.38^{+0.43}_{-0.44}$	$f\sigma_8(2.33)$	0.3058	$0.306^{+0.012}_{-0.011}$
$A_{100}^{\text{dustTT}}$	9.07	$9.1^{+4.6}_{-4.6}$	$z_*$	1090.49	$1090.6^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	0.3159	$0.316^{+0.013}_{-0.012}$
$A_{143}^{\text{dustTT}}$	10.80	$10.9^{+4.7}_{-4.6}$	$r_*$	141.32	$140.9^{+4.5}_{-4.4}$	$f_{2000}^{143}$	32.6	$34^{+9}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	18.3	$18.5^{+8.5}_{-8.4}$	$100\theta_*$	1.04039	$1.0403^{+0.0016}_{-0.0016}$	$f_{2000}^{143 \times 217}$	35.1	$36^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	91.0	$93^{+20}_{-20}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.583	$13.54^{+0.42}_{-0.42}$	$f_{2000}^{217}$	109.4	$110.1^{+5.2}_{-5.6}$
$c_{100}$	0.99969	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1060.89	$1061.0^{+1.8}_{-1.8}$	$\chi_{\text{small}}^2$	396.3	$397.3 (\nu: 2.0)$
$c_{217}$	0.99825	$0.9983^{+0.0015}_{-0.0016}$	$r_{\text{drag}}$	143.90	$143.4^{+4.7}_{-4.6}$	$\chi_{\text{lowl}}^2$	21.31	$21.55 (\nu: 0.3)$
$H_0$	70.37	$70.5^{+3.0}_{-2.9}$	$k_{\text{D}}$	0.14292	$0.1433^{+0.0037}_{-0.0035}$	$\chi_{\text{plik}}^2$	763.9	$776.3 (\nu: 17.0)$
$\Omega_{\Lambda}$	0.7022	$0.701^{+0.017}_{-0.018}$	$100\theta_{\text{D}}$	0.16183	$0.1620^{+0.0013}_{-0.0012}$	$\chi_{\text{H073p45}}^2$	3.4	$3.6 (\nu: 3.1)$
$\Omega_{\text{m}}$	0.2978	$0.299^{+0.018}_{-0.017}$	$z_{\text{eq}}$	3332	$3337^{+71}_{-71}$	$\chi_{6\text{DF}}^2$	0.025	$0.052 (\nu: 0.0)$
$\Omega_{\text{m}}h^2$	0.1475	$0.1486^{+0.0095}_{-0.0089}$	$k_{\text{eq}}$	0.010438	$0.01048^{+0.00038}_{-0.00036}$	$\chi_{\text{MGS}}^2$	2.19	$2.16 (\nu: 0.2)$
$\Omega_{\text{m}}h^3$	0.1038	$0.105^{+0.010}_{-0.0095}$	$100\theta_{\text{eq}}$	0.8263	$0.826^{+0.014}_{-0.013}$	$\chi_{\text{DR12BAO}}^2$	3.48	$3.99 (\nu: 0.3)$
$\sigma_8$	0.8254	$0.827^{+0.032}_{-0.030}$	$100\theta_{\text{s,eq}}$	0.4561	$0.4557^{+0.0071}_{-0.0068}$	$\chi_{\text{prior}}^2$	1.8	$7.5 (\nu: 7.0)$
$S_8$	0.8224	$0.825^{+0.041}_{-0.042}$	$H(0.15)$	75.64	$75.8^{+3.0}_{-2.9}$	$\chi_{\text{BAO}}^2$	5.70	$6.2 (\nu: 0.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4504	$0.452^{+0.023}_{-0.023}$	$D_{\text{M}}(0.15)$	617.0	$616^{+25}_{-24}$	$\chi_{\text{CMB}}^2$	1181.6	$1195.1 (\nu: 16.4)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6097	$0.611^{+0.025}_{-0.026}$	$H(0.38)$	85.76	$86.0^{+3.1}_{-3.0}$			

Best-fit  $\chi_{\text{eff}}^2 = 1192.50$ ;  $\bar{\chi}_{\text{eff}}^2 = 1212.38$ ;  $R - 1 = 0.01231$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.03 MGS: 2.19 DR12BAO: 3.48 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 396.32 commander\_dx12\_v3.2.29: 21.31 plik\_rd12\_HM\_v22.TT: 763.94  
Hubble - H073p45: 3.44



**7.75 base\_nnu\_plikHM\_TT\_lowl\_lowE\_Riess18\_post\_BAO\_Pantheon18**

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02254	$0.02252^{+0.00054}_{-0.00054}$	$\sigma_8/h^{0.5}$	0.9831	$0.984^{+0.029}_{-0.032}$	$D_M(0.38)$	1473	$1472^{+56}_{-55}$
$\Omega_c h^2$	0.1251	$0.1254^{+0.0093}_{-0.0088}$	$r_{\text{drag}} h$	101.14	$101.1^{+2.3}_{-2.3}$	$H(0.51)$	92.67	$92.8^{+3.2}_{-3.0}$
$100\theta_{\text{MC}}$	1.04041	$1.0404^{+0.0013}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	2.406	$2.409^{+0.069}_{-0.068}$	$D_M(0.51)$	1910	$1908^{+71}_{-69}$
$\tau$	0.0551	$0.056^{+0.022}_{-0.021}$	$z_{\text{re}}$	7.86	$7.9^{+2.1}_{-2.2}$	$H(0.61)$	98.34	$98.4^{+3.3}_{-3.2}$
$N_{\text{eff}}$	3.471	$3.49^{+0.49}_{-0.48}$	$10^9 A_s$	2.128	$2.13^{+0.11}_{-0.10}$	$D_M(0.61)$	2224	$2222^{+81}_{-80}$
$\ln(10^{10} A_s)$	3.0579	$3.060^{+0.050}_{-0.048}$	$10^9 A_s e^{-2\tau}$	1.9062	$1.907^{+0.047}_{-0.049}$	$H(2.33)$	241.4	$241.6^{+7.6}_{-7.3}$
$n_s$	0.9817	$0.982^{+0.017}_{-0.017}$	$D_{40}$	1207.0	$1207^{+36}_{-33}$	$D_M(2.33)$	5592	$5588^{+180}_{-180}$
$y_{\text{cal}}$	1.0005	$1.0005^{+0.0063}_{-0.0063}$	$D_{220}$	5721	$5719^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4566	$0.458^{+0.021}_{-0.022}$
$A_{217}^{\text{CIB}}$	52.0	$50^{+20}_{-20}$	$D_{810}$	2542.6	$2542^{+37}_{-36}$	$\sigma_8(0.15)$	0.7638	$0.765^{+0.030}_{-0.028}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.01	—	$D_{1420}$	813.8	$813^{+14}_{-13}$	$f\sigma_8(0.38)$	0.4782	$0.479^{+0.020}_{-0.021}$
$A_{143}^{\text{tSZ}}$	6.31	$4.6^{+4.6}_{-4.6}$	$D_{2000}$	227.9	$227.7^{+5.5}_{-5.4}$	$\sigma_8(0.38)$	0.6785	$0.680^{+0.027}_{-0.024}$
$A_{100}^{\text{PS}}$	267	$273^{+70}_{-80}$	$n_{s,0.002}$	0.9817	$0.982^{+0.017}_{-0.017}$	$f\sigma_8(0.51)$	0.4783	$0.479^{+0.019}_{-0.020}$
$A_{143}^{\text{PS}}$	49.1	$54^{+20}_{-20}$	$Y_P$	0.2510	$0.2512^{+0.0062}_{-0.0063}$	$\sigma_8(0.51)$	0.6355	$0.637^{+0.025}_{-0.023}$
$A_{143 \times 217}^{\text{PS}}$	39	$45^{+20}_{-20}$	$Y_P^{\text{BBN}}$	0.2523	$0.2525^{+0.0062}_{-0.0063}$	$f\sigma_8(0.61)$	0.4743	$0.475^{+0.019}_{-0.019}$
$A_{217}^{\text{PS}}$	115.0	$115^{+30}_{-30}$	$10^5 \text{D/H}$	2.701	$2.71^{+0.16}_{-0.15}$	$\sigma_8(0.61)$	0.6051	$0.606^{+0.024}_{-0.022}$
$A^{\text{kSZ}}$	1.7	—	Age/Gyr	13.392	$13.38^{+0.43}_{-0.43}$	$f\sigma_8(2.33)$	0.3056	$0.306^{+0.012}_{-0.011}$
$A_{100}^{\text{dustTT}}$	9.05	$9.1^{+4.6}_{-4.6}$	$z_*$	1090.56	$1090.6^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	0.3157	$0.316^{+0.013}_{-0.012}$
$A_{143}^{\text{dustTT}}$	10.91	$10.9^{+4.7}_{-4.6}$	$r_*$	140.99	$140.9^{+4.5}_{-4.5}$	$f_{2000}^{143}$	33.5	$34^{+9}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	18.8	$18.5^{+8.5}_{-8.4}$	$100\theta_*$	1.04031	$1.0403^{+0.0016}_{-0.0016}$	$f_{2000}^{143 \times 217}$	35.5	$36^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	93.2	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.553	$13.54^{+0.42}_{-0.42}$	$f_{2000}^{217}$	109.9	$110.1^{+5.2}_{-5.6}$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1061.00	$1061.0^{+1.8}_{-1.8}$	$\chi_{\text{small}}^2$	396.1	$397.3 (\nu: 2.0)$
$c_{217}$	0.99831	$0.9983^{+0.0015}_{-0.0016}$	$r_{\text{drag}}$	143.56	$143.4^{+4.7}_{-4.6}$	$\chi_{\text{lowl}}^2$	21.44	$21.54 (\nu: 0.3)$
$H_0$	70.45	$70.5^{+2.9}_{-2.8}$	$k_D$	0.14320	$0.1433^{+0.0037}_{-0.0036}$	$\chi_{\text{plik}}^2$	763.7	$776.3 (\nu: 16.9)$
$\Omega_\Lambda$	0.7013	$0.701^{+0.017}_{-0.018}$	$100\theta_D$	0.16187	$0.1620^{+0.0013}_{-0.0012}$	$\chi_{\text{H073p45}}^2$	3.3	$3.6 (\nu: 3.0)$
$\Omega_m$	0.2987	$0.299^{+0.018}_{-0.017}$	$z_{\text{eq}}$	3337	$3337^{+68}_{-69}$	$\chi_{\text{JLA}}^2$	1034.734	$1034.82 (\nu: 0.0)$
$\Omega_m h^2$	0.1483	$0.1486^{+0.0096}_{-0.0089}$	$k_{\text{eq}}$	0.010471	$0.01048^{+0.00038}_{-0.00036}$	$\chi_{6\text{DF}}^2$	0.017	$0.049 (\nu: 0.0)$
$\Omega_m h^3$	0.1044	$0.105^{+0.010}_{-0.0095}$	$100\theta_{\text{eq}}$	0.8255	$0.826^{+0.013}_{-0.013}$	$\chi_{\text{MGS}}^2$	2.12	$2.16 (\nu: 0.2)$
$\sigma_8$	0.8252	$0.827^{+0.033}_{-0.030}$	$100\theta_{s,\text{eq}}$	0.4556	$0.4557^{+0.0067}_{-0.0065}$	$\chi_{\text{DR12BAO}}^2$	3.45	$3.94 (\nu: 0.3)$
$S_8$	0.8234	$0.825^{+0.040}_{-0.041}$	$H(0.15)$	75.74	$75.8^{+2.9}_{-2.8}$	$\chi_{\text{prior}}^2$	1.8	$7.5 (\nu: 7.0)$
$\sigma_8 \Omega_m^{0.5}$	0.4510	$0.452^{+0.022}_{-0.023}$	$D_M(0.15)$	616.2	$616^{+25}_{-24}$	$\chi_{\text{BAO}}^2$	5.58	$6.2 (\nu: 0.7)$
$\sigma_8 \Omega_m^{0.25}$	0.6100	$0.611^{+0.025}_{-0.026}$	$H(0.38)$	85.90	$86.0^{+3.1}_{-2.9}$	$\chi_{\text{CMB}}^2$	1181.2	$1195.1 (\nu: 16.4)$

Best-fit  $\chi_{\text{eff}}^2 = 2226.63$ ;  $\bar{\chi}_{\text{eff}}^2 = 2247.12$ ;  $R - 1 = 0.01243$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 2.12 DR12BAO: 3.45 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 396.11 commander\_dx12\_v3.2.29: 21.44 plik\_rd12\_HM\_v22.TT: 763.69  
Hubble - H073p45: 3.26 SN - JLA Pantheon18: 1034.73



# 7.76 base\_nnu\_plikHM\_TT\_lowl\_lowE\_Riess18\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02257	$0.02258^{+0.00058}_{-0.00059}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6088	$0.609^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.15)$	614.2	$613^{+29}_{-28}$
$\Omega_{\mathrm{c}} h^2$	0.1245	$0.1248^{+0.0087}_{-0.0083}$	$\sigma_8/h^{0.5}$	0.9820	$0.983^{+0.026}_{-0.027}$	$H(0.38)$	86.06	$86.3^{+3.4}_{-3.3}$
$100\theta_{\mathrm{MC}}$	1.04051	$1.0405^{+0.0014}_{-0.0013}$	$r_{\mathrm{drag}} h$	101.59	$101.7^{+3.4}_{-3.2}$	$D_{\mathrm{M}}(0.38)$	1468	$1465^{+65}_{-62}$
$\tau$	0.0581	$0.059^{+0.023}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	2.403	$2.405^{+0.065}_{-0.064}$	$H(0.51)$	92.80	$93.0^{+3.4}_{-3.3}$
$N_{\mathrm{eff}}$	3.471	$3.50^{+0.50}_{-0.48}$	$z_{\mathrm{re}}$	8.15	$8.2^{+2.1}_{-2.1}$	$D_{\mathrm{M}}(0.51)$	1905	$1901^{+82}_{-78}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0629	$3.066^{+0.048}_{-0.043}$	$10^9 A_{\mathrm{s}}$	2.139	$2.15^{+0.10}_{-0.090}$	$H(0.61)$	98.44	$98.6^{+3.5}_{-3.4}$
$n_{\mathrm{s}}$	0.9834	$0.984^{+0.020}_{-0.020}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.9041	$1.906^{+0.043}_{-0.044}$	$D_{\mathrm{M}}(0.61)$	2219	$2214^{+93}_{-89}$
$y_{\mathrm{cal}}$	1.0003	$1.0008^{+0.0065}_{-0.0063}$	$D_{40}$	1204.4	$1206^{+38}_{-36}$	$H(2.33)$	241.1	$241.4^{+7.1}_{-6.9}$
$A_{217}^{\mathrm{CIB}}$	46.9	$49^{+20}_{-20}$	$D_{220}$	5723	$5729^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	5588	$5579^{+190}_{-190}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.72	—	$D_{810}$	2542.8	$2544^{+36}_{-35}$	$f\sigma_8(0.15)$	0.4547	$0.455^{+0.020}_{-0.020}$
$A_{143}^{\mathrm{tSZ}}$	5.07	$4.6^{+4.6}_{-4.6}$	$D_{1420}$	814.5	$814^{+14}_{-13}$	$\sigma_8(0.15)$	0.7647	$0.766^{+0.026}_{-0.024}$
$A_{100}^{\mathrm{PS}}$	265	$272^{+70}_{-80}$	$D_{2000}$	228.2	$228.0^{+5.9}_{-5.4}$	$f\sigma_8(0.38)$	0.4771	$0.478^{+0.017}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	56.7	$53^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	0.9834	$0.984^{+0.020}_{-0.020}$	$\sigma_8(0.38)$	0.6797	$0.681^{+0.025}_{-0.022}$
$A_{143 \times 217}^{\mathrm{PS}}$	52.4	$45^{+20}_{-20}$	$Y_{\mathrm{P}}$	0.2510	$0.2513^{+0.0063}_{-0.0064}$	$f\sigma_8(0.51)$	0.4776	$0.478^{+0.016}_{-0.016}$
$A_{217}^{\mathrm{PS}}$	120.0	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2523	$0.2527^{+0.0063}_{-0.0064}$	$\sigma_8(0.51)$	0.6368	$0.638^{+0.024}_{-0.021}$
$A^{\mathrm{kSZ}}$	3.4	—	$10^5 \mathrm{D}/\mathrm{H}$	2.693	$2.70^{+0.16}_{-0.15}$	$f\sigma_8(0.61)$	0.4739	$0.474^{+0.016}_{-0.015}$
$A_{100}^{\mathrm{dust}TT}$	9.07	$9.1^{+4.7}_{-4.6}$	Age/Gyr	13.383	$13.36^{+0.45}_{-0.44}$	$\sigma_8(0.61)$	0.6064	$0.608^{+0.023}_{-0.020}$
$A_{143}^{\mathrm{dust}TT}$	10.90	$10.9^{+4.7}_{-4.6}$	$z_*$	1090.46	$1090.5^{+1.1}_{-1.2}$	$f\sigma_8(2.33)$	0.3064	$0.307^{+0.012}_{-0.011}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	19.5	$18.4^{+8.5}_{-8.5}$	$r_*$	141.11	$140.9^{+4.5}_{-4.3}$	$\sigma_8(2.33)$	0.3167	$0.317^{+0.013}_{-0.012}$
$A_{217}^{\mathrm{dust}TT}$	95.1	$93^{+20}_{-20}$	$100\theta_*$	1.04041	$1.0403^{+0.0016}_{-0.0015}$	$f_{2000}^{143}$	33.0	$34^{+9}_{-8}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0017}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.563	$13.55^{+0.42}_{-0.40}$	$f_{2000}^{143 \times 217}$	35.2	$36^{+6}_{-6}$
$c_{217}$	0.99828	$0.9983^{+0.0015}_{-0.0016}$	$z_{\mathrm{drag}}$	1061.04	$1061.1^{+1.8}_{-1.9}$	$f_{2000}^{217}$	109.4	$109.9^{+5.4}_{-5.5}$
$H_0$	70.72	$70.9^{+3.5}_{-3.4}$	$r_{\mathrm{drag}}$	143.66	$143.5^{+4.7}_{-4.4}$	$\chi_{\mathrm{lensing}}^2$	9.68	$10.3 (\nu: 0.6)$
$\Omega_{\Lambda}$	0.7046	$0.705^{+0.024}_{-0.024}$	$k_{\mathrm{D}}$	0.14311	$0.1432^{+0.0035}_{-0.0035}$	$\chi_{\mathrm{simall}}^2$	396.7	$397.9 (\nu: 3.1)$
$\Omega_{\mathrm{m}}$	0.2954	$0.295^{+0.024}_{-0.024}$	$100\theta_{\mathrm{D}}$	0.16185	$0.1619^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{lowl}}^2$	21.30	$21.43 (\nu: 0.3)$
$\Omega_{\mathrm{m}} h^2$	0.1477	$0.1481^{+0.0088}_{-0.0084}$	$z_{\mathrm{eq}}$	3325	$3321^{+90}_{-92}$	$\chi_{\mathrm{plik}}^2$	764.3	$776.3 (\nu: 17.1)$
$\Omega_{\mathrm{m}} h^3$	0.1045	$0.105^{+0.010}_{-0.0096}$	$k_{\mathrm{eq}}$	0.010433	$0.01044^{+0.00035}_{-0.00035}$	$\chi_{\mathrm{H073p45}}^2$	2.7	$3.0 (\nu: 3.6)$
$\sigma_8$	0.8258	$0.827^{+0.027}_{-0.026}$	$100\theta_{\mathrm{eq}}$	0.8280	$0.829^{+0.019}_{-0.017}$	$\chi_{\mathrm{prior}}^2$	1.6	$7.5 (\nu: 7.1)$
$S_8$	0.8194	$0.820^{+0.039}_{-0.039}$	$100\theta_{\mathrm{s,eq}}$	0.4569	$0.4572^{+0.0094}_{-0.0089}$	$\chi_{\mathrm{CMB}}^2$	1191.9	$1205.9 (\nu: 18.5)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4488	$0.449^{+0.021}_{-0.021}$	$H(0.15)$	75.97	$76.2^{+3.4}_{-3.3}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 1196.19$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 1216.39$ ;  $R - 1 = 0.01200$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consect8: 9.68 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.67 commander\_dx12\_v3.2\_29: 21.30 plik\_rd12\_HM.v22\_TT: 764.27 Hubble - H073p45: 2.71



**7.77 base\_nnu\_plikHM\_TT\_lowl\_lowE\_Riess18\_post\_BAO\_lensing**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02251^{+0.00054}_{-0.00054}$	$\sigma_8/h^{0.5}$	$0.986^{+0.023}_{-0.024}$	$D_M(0.38)$	$1475^{+57}_{-55}$
$\Omega_c h^2$	$0.1250^{+0.0087}_{-0.0080}$	$r_{\text{drag}} h$	$101.0^{+2.2}_{-2.2}$	$H(0.51)$	$92.6^{+3.1}_{-3.1}$
$100\theta_{\text{MC}}$	$1.0404^{+0.0014}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	$2.414^{+0.056}_{-0.055}$	$D_M(0.51)$	$1913^{+71}_{-70}$
$\tau$	$0.057^{+0.021}_{-0.019}$	$z_{\text{re}}$	$8.0^{+2.0}_{-2.0}$	$H(0.61)$	$98.2^{+3.2}_{-3.2}$
$N_{\text{eff}}$	$3.46^{+0.48}_{-0.45}$	$10^9 A_s$	$2.137^{+0.094}_{-0.085}$	$D_M(0.61)$	$2227^{+81}_{-79}$
$\ln(10^{10} A_s)$	$3.062^{+0.043}_{-0.040}$	$10^9 A_s e^{-2\tau}$	$1.906^{+0.044}_{-0.044}$	$H(2.33)$	$241.2^{+7.0}_{-6.7}$
$n_s$	$0.981^{+0.017}_{-0.017}$	$D_{40}$	$1210^{+34}_{-34}$	$D_M(2.33)$	$5599^{+180}_{-180}$
$y_{\text{cal}}$	$1.0007^{+0.0064}_{-0.0063}$	$D_{220}$	$5724^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.017}$
$A_{217}^{\text{CIB}}$	$49^{+20}_{-20}$	$D_{810}$	$2543^{+36}_{-35}$	$\sigma_8(0.15)$	$0.765^{+0.025}_{-0.024}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$814^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.479^{+0.016}_{-0.016}$
$A_{143}^{\text{tSZ}}$	$4.7^{+4.8}_{-4.4}$	$D_{2000}$	$227.9^{+5.4}_{-5.4}$	$\sigma_8(0.38)$	$0.679^{+0.023}_{-0.021}$
$A_{100}^{\text{PS}}$	$272^{+70}_{-80}$	$n_{\text{s},0.002}$	$0.981^{+0.017}_{-0.017}$	$f\sigma_8(0.51)$	$0.479^{+0.016}_{-0.015}$
$A_{143}^{\text{PS}}$	$53^{+20}_{-20}$	$Y_{\text{P}}$	$0.2508^{+0.0060}_{-0.0060}$	$\sigma_8(0.51)$	$0.636^{+0.022}_{-0.020}$
$A_{143 \times 217}^{\text{PS}}$	$45^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.2521^{+0.0060}_{-0.0060}$	$f\sigma_8(0.61)$	$0.475^{+0.015}_{-0.015}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	$2.70^{+0.15}_{-0.14}$	$\sigma_8(0.61)$	$0.606^{+0.021}_{-0.019}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.41^{+0.43}_{-0.42}$	$f\sigma_8(2.33)$	$0.306^{+0.011}_{-0.0099}$
$A_{100}^{\text{dustTT}}$	$9.1^{+4.7}_{-4.6}$	$z_*$	$1090.6^{+1.1}_{-1.1}$	$\sigma_8(2.33)$	$0.316^{+0.012}_{-0.011}$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.7}_{-4.6}$	$r_*$	$141.1^{+4.3}_{-4.2}$	$f_{2000}^{143}$	$34^{+9}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.5^{+8.5}_{-8.2}$	$100\theta_*$	$1.0403^{+0.0016}_{-0.0015}$	$f_{2000}^{143 \times 217}$	$36^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.57^{+0.40}_{-0.39}$	$f_{2000}^{217}$	$109.9^{+5.4}_{-5.5}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1060.9^{+1.8}_{-1.8}$	$\chi_{\text{lensing}}^2$	$10.02 (\nu: 0.3)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$r_{\text{drag}}$	$143.7^{+4.5}_{-4.3}$	$\chi_{\text{simall}}^2$	$397.4 (\nu: 2.1)$
$H_0$	$70.3^{+2.9}_{-2.8}$	$k_{\text{D}}$	$0.1431^{+0.0034}_{-0.0034}$	$\chi_{\text{lowl}}^2$	$21.70 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.700^{+0.016}_{-0.017}$	$100\theta_{\text{D}}$	$0.1619^{+0.0012}_{-0.0012}$	$\chi_{\text{plik}}^2$	$775.5 (\nu: 16.1)$
$\Omega_{\text{m}}$	$0.300^{+0.017}_{-0.016}$	$z_{\text{eq}}$	$3339^{+65}_{-65}$	$\chi_{\text{H073p45}}^2$	$4.0 (\nu: 3.4)$
$\Omega_{\text{m}} h^2$	$0.1481^{+0.0088}_{-0.0083}$	$k_{\text{eq}}$	$0.01047^{+0.00034}_{-0.00031}$	$\chi_{6\text{DF}}^2$	$0.044 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.1042^{+0.0099}_{-0.0091}$	$100\theta_{\text{eq}}$	$0.825^{+0.012}_{-0.012}$	$\chi_{\text{MGS}}^2$	$2.11 (\nu: 0.2)$
$\sigma_8$	$0.826^{+0.027}_{-0.026}$	$100\theta_{\text{s,eq}}$	$0.4554^{+0.0064}_{-0.0062}$	$\chi_{\text{DR12BAO}}^2$	$3.90 (\nu: 0.2)$
$S_8$	$0.826^{+0.032}_{-0.032}$	$H(0.15)$	$75.6^{+2.9}_{-2.9}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.452^{+0.018}_{-0.017}$	$D_M(0.15)$	$617^{+25}_{-24}$	$\chi_{\text{CMB}}^2$	$1204.6 (\nu: 16.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.611^{+0.020}_{-0.020}$	$H(0.38)$	$85.8^{+3.0}_{-3.0}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.5)$

$$\bar{\chi}_{\text{eff}}^2 = 1222.03; R - 1 = 0.01416$$



# 7.78 base\_nnu\_plikHM\_TT\_lowl\_lowE\_Riess18\_post\_BAO\_lensing\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02252	$0.02251^{+0.00053}_{-0.00053}$	$r_{\text{drag}} h$	101.03	$101.1^{+2.1}_{-2.1}$	$D_{\text{M}}(0.51)$	1915	$1913^{+70}_{-68}$
$\Omega_c h^2$	0.1247	$0.1250^{+0.0087}_{-0.0080}$	$\langle d^2 \rangle^{1/2}$	2.414	$2.414^{+0.056}_{-0.054}$	$H(0.61)$	98.13	$98.2^{+3.2}_{-3.1}$
$100\theta_{\text{MC}}$	1.04049	$1.0404^{+0.0014}_{-0.0013}$	$z_{\text{re}}$	8.02	$8.0^{+2.0}_{-2.0}$	$D_{\text{M}}(0.61)$	2229	$2227^{+81}_{-78}$
$\tau$	0.0568	$0.057^{+0.021}_{-0.019}$	$10^9 A_{\text{s}}$	2.135	$2.137^{+0.093}_{-0.084}$	$H(2.33)$	241.0	$241.2^{+7.0}_{-6.6}$
$N_{\text{eff}}$	3.440	$3.46^{+0.48}_{-0.45}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.9058	$1.906^{+0.044}_{-0.044}$	$D_{\text{M}}(2.33)$	5604	$5599^{+180}_{-170}$
$\ln(10^{10} A_{\text{s}})$	3.0610	$3.062^{+0.043}_{-0.040}$	$D_{40}$	1210.1	$1210^{+34}_{-33}$	$f\sigma_8(0.15)$	0.4575	$0.458^{+0.017}_{-0.017}$
$n_{\text{s}}$	0.9805	$0.981^{+0.017}_{-0.017}$	$D_{220}$	5726	$5724^{+100}_{-100}$	$\sigma_8(0.15)$	0.7643	$0.765^{+0.025}_{-0.024}$
$y_{\text{cal}}$	1.0007	$1.0007^{+0.0064}_{-0.0063}$	$D_{810}$	2543.7	$2543^{+36}_{-35}$	$f\sigma_8(0.38)$	0.4790	$0.479^{+0.016}_{-0.016}$
$A_{217}^{\text{CIB}}$	52.1	$49^{+20}_{-20}$	$D_{1420}$	814.4	$814^{+14}_{-13}$	$\sigma_8(0.38)$	0.6788	$0.679^{+0.023}_{-0.021}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.00	—	$D_{2000}$	228.3	$227.9^{+5.4}_{-5.4}$	$f\sigma_8(0.51)$	0.4790	$0.479^{+0.016}_{-0.015}$
$A_{143}^{\text{tSZ}}$	6.67	$4.7^{+4.8}_{-4.4}$	$n_{\text{s},0.002}$	0.9805	$0.981^{+0.017}_{-0.017}$	$\sigma_8(0.51)$	0.6358	$0.636^{+0.022}_{-0.020}$
$A_{100}^{\text{PS}}$	265	$272^{+70}_{-80}$	$Y_{\text{P}}$	0.2506	$0.2508^{+0.0059}_{-0.0059}$	$f\sigma_8(0.61)$	0.4749	$0.475^{+0.015}_{-0.015}$
$A_{143}^{\text{PS}}$	49.0	$53^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.2519	$0.2521^{+0.0060}_{-0.0059}$	$\sigma_8(0.61)$	0.6053	$0.606^{+0.021}_{-0.019}$
$A_{143 \times 217}^{\text{PS}}$	40	$45^{+20}_{-20}$	$10^5 \text{D}/\text{H}$	2.693	$2.70^{+0.15}_{-0.14}$	$f\sigma_8(2.33)$	0.3056	$0.306^{+0.011}_{-0.0099}$
$A_{217}^{\text{PS}}$	115.7	$115^{+30}_{-30}$	Age/Gyr	13.419	$13.41^{+0.42}_{-0.41}$	$\sigma_8(2.33)$	0.3157	$0.316^{+0.012}_{-0.011}$
$A^{\text{kSZ}}$	1.0	—	$z_*$	1090.51	$1090.6^{+1.1}_{-1.1}$	$f_{2000}^{143}$	33.2	$34^{+9}_{-8}$
$A_{100}^{\text{dustTT}}$	9.03	$9.1^{+4.7}_{-4.6}$	$r_*$	141.24	$141.1^{+4.3}_{-4.2}$	$f_{2000}^{143 \times 217}$	35.3	$36^{+6}_{-6}$
$A_{143}^{\text{dustTT}}$	10.88	$10.9^{+4.7}_{-4.6}$	$100\theta_*$	1.04041	$1.0403^{+0.0016}_{-0.0015}$	$f_{2000}^{217}$	109.7	$109.9^{+5.4}_{-5.5}$
$A_{143 \times 217}^{\text{dustTT}}$	19.0	$18.5^{+8.5}_{-8.2}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.576	$13.57^{+0.40}_{-0.39}$	$\chi_{\text{lensing}}^2$	9.51	$10.01 (\nu: 0.3)$
$A_{217}^{\text{dustTT}}$	93.4	$93^{+20}_{-20}$	$z_{\text{drag}}$	1060.92	$1060.9^{+1.8}_{-1.8}$	$\chi_{\text{small}}^2$	396.5	$397.4 (\nu: 2.0)$
$c_{100}$	0.99962	$0.9996^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	143.81	$143.7^{+4.5}_{-4.3}$	$\chi_{\text{lowl}}^2$	21.61	$21.69 (\nu: 0.3)$
$c_{217}$	0.99831	$0.9983^{+0.0015}_{-0.0016}$	$k_{\text{D}}$	0.14302	$0.1431^{+0.0034}_{-0.0034}$	$\chi_{\text{plik}}^2$	763.0	$775.5 (\nu: 16.1)$
$H_0$	70.25	$70.3^{+2.9}_{-2.8}$	$100\theta_{\text{D}}$	0.16181	$0.1619^{+0.0012}_{-0.0012}$	$\chi_{\text{H073p45}}^2$	3.7	$4.0 (\nu: 3.2)$
$\Omega_{\Lambda}$	0.7004	$0.701^{+0.016}_{-0.017}$	$z_{\text{eq}}$	3341	$3339^{+63}_{-63}$	$\chi_{\text{JLA}}^2$	1034.735	$1034.82 (\nu: 0.0)$
$\Omega_{\text{m}}$	0.2996	$0.299^{+0.017}_{-0.016}$	$k_{\text{eq}}$	0.010463	$0.01047^{+0.00034}_{-0.00031}$	$\chi_{6\text{DF}}^2$	0.012	$0.042 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.1478	$0.1481^{+0.0088}_{-0.0083}$	$100\theta_{\text{eq}}$	0.8248	$0.825^{+0.012}_{-0.012}$	$\chi_{\text{MGS}}^2$	2.04	$2.11 (\nu: 0.1)$
$\Omega_{\text{m}} h^3$	0.1039	$0.1042^{+0.0099}_{-0.0090}$	$100\theta_{\text{s,eq}}$	0.4553	$0.4554^{+0.0062}_{-0.0061}$	$\chi_{\text{DR12BAO}}^2$	3.42	$3.87 (\nu: 0.2)$
$\sigma_8$	0.8257	$0.826^{+0.027}_{-0.026}$	$H(0.15)$	75.54	$75.6^{+2.9}_{-2.8}$	$\chi_{\text{prior}}^2$	1.8	$7.4 (\nu: 6.8)$
$S_8$	0.8252	$0.826^{+0.032}_{-0.031}$	$D_{\text{M}}(0.15)$	617.9	$617^{+25}_{-24}$	$\chi_{\text{CMB}}^2$	1190.5	$1204.6 (\nu: 16.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4520	$0.452^{+0.017}_{-0.017}$	$H(0.38)$	85.69	$85.8^{+3.0}_{-2.9}$	$\chi_{\text{BAO}}^2$	5.47	$6.02 (\nu: 0.5)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6109	$0.611^{+0.020}_{-0.020}$	$D_{\text{M}}(0.38)$	1477	$1475^{+56}_{-54}$			
$\sigma_8/h^{0.5}$	0.9852	$0.985^{+0.023}_{-0.023}$	$H(0.51)$	92.46	$92.6^{+3.1}_{-2.9}$			

Best-fit  $\chi_{\text{eff}}^2 = 2236.25$ ;  $\bar{\chi}_{\text{eff}}^2 = 2256.76$ ;  $R - 1 = 0.01430$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.01 MGS: 2.04 DR12BAO: 3.42 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 9.51 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.47 comman-  
der\_dx12.v3.2.29: 21.61 plik\_rd12\_HM.v22\_TT: 762.95 Hubble - H073p45: 3.71 SN - JLA Pantheon18: 1034.73



**7.79 base\_nnu\_plikHM\_TT\_lowl\_lowE\_Riess18\_post\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02261^{+0.00058}_{-0.00060}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.030}_{-0.029}$	$D_{\mathrm{M}}(0.15)$	$610^{+30}_{-28}$
$\Omega_{\mathrm{c}}h^2$	$0.1247^{+0.0094}_{-0.0092}$	$\sigma_8/h^{0.5}$	$0.978^{+0.038}_{-0.036}$	$H(0.38)$	$86.6^{+3.4}_{-3.4}$
$100\theta_{\mathrm{MC}}$	$1.0405^{+0.0014}_{-0.0014}$	$r_{\mathrm{drag}}h$	$102.2^{+3.7}_{-3.9}$	$D_{\mathrm{M}}(0.38)$	$1459^{+67}_{-62}$
$\tau$	$0.058^{+0.022}_{-0.016}$	$\langle d^2 \rangle^{1/2}$	$2.392^{+0.091}_{-0.084}$	$H(0.51)$	$93.3^{+3.4}_{-3.4}$
$N_{\mathrm{eff}}$	$3.53^{+0.50}_{-0.48}$	$z_{\mathrm{re}}$	$< 10.1$	$D_{\mathrm{M}}(0.51)$	$1893^{+83}_{-78}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.063^{+0.050}_{-0.040}$	$10^9 A_{\mathrm{s}}$	$2.14^{+0.11}_{-0.084}$	$H(0.61)$	$98.9^{+3.5}_{-3.4}$
$n_{\mathrm{s}}$	$0.986^{+0.020}_{-0.020}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.905^{+0.047}_{-0.048}$	$D_{\mathrm{M}}(0.61)$	$2205^{+94}_{-89}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0065}_{-0.0065}$	$D_{40}$	$1201^{+39}_{-38}$	$H(2.33)$	$241.4^{+7.5}_{-7.4}$
$A_{217}^{\mathrm{CIB}}$	$50^{+20}_{-20}$	$D_{220}$	$5724^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5566^{+190}_{-180}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2542^{+36}_{-37}$	$f\sigma_8(0.15)$	$0.452^{+0.029}_{-0.027}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.15)$	$0.765^{+0.030}_{-0.029}$
$A_{100}^{\mathrm{PS}}$	$272^{+70}_{-70}$	$D_{2000}$	$227.7^{+5.6}_{-5.4}$	$f\sigma_8(0.38)$	$0.475^{+0.024}_{-0.024}$
$A_{143}^{\mathrm{PS}}$	$53^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.986^{+0.020}_{-0.020}$	$\sigma_8(0.38)$	$0.680^{+0.027}_{-0.025}$
$A_{143 \times 217}^{\mathrm{PS}}$	$45^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2517^{+0.0062}_{-0.0063}$	$f\sigma_8(0.51)$	$0.476^{+0.022}_{-0.022}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2530^{+0.0063}_{-0.0063}$	$\sigma_8(0.51)$	$0.638^{+0.025}_{-0.023}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.71^{+0.16}_{-0.16}$	$f\sigma_8(0.61)$	$0.473^{+0.021}_{-0.021}$
$A_{100}^{\mathrm{dustTT}}$	$9.1^{+4.7}_{-4.7}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.33^{+0.45}_{-0.44}$	$\sigma_8(0.61)$	$0.607^{+0.024}_{-0.022}$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.6}$	$z_*$	$1090.5^{+1.2}_{-1.3}$	$f\sigma_8(2.33)$	$0.307^{+0.013}_{-0.011}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.5^{+8.6}_{-8.6}$	$r_*$	$140.8^{+4.6}_{-4.4}$	$\sigma_8(2.33)$	$0.318^{+0.013}_{-0.012}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0403^{+0.0015}_{-0.0016}$	$f_{2000}^{143}$	$34^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0017}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.53^{+0.43}_{-0.41}$	$f_{2000}^{143 \times 217}$	$36^{+6}_{-6}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1061.2^{+1.8}_{-1.9}$	$f_{2000}^{217}$	$110.1^{+5.5}_{-5.6}$
$H_0$	$71.3^{+3.5}_{-3.6}$	$r_{\mathrm{drag}}$	$143.3^{+4.8}_{-4.5}$	$\chi_{\mathrm{simall}}^2$	$397.5 (\nu: 2.5)$
$\Omega_{\Lambda}$	$0.709^{+0.026}_{-0.030}$	$k_{\mathrm{D}}$	$0.1433^{+0.0036}_{-0.0035}$	$\chi_{\mathrm{lowl}}^2$	$21.17 (\nu: 0.3)$
$\Omega_{\mathrm{m}}$	$0.291^{+0.030}_{-0.026}$	$100\theta_{\mathrm{D}}$	$0.1620^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{plik}}^2$	$777.7 (\nu: 18.4)$
$\Omega_{\mathrm{m}}h^2$	$0.1480^{+0.0095}_{-0.0092}$	$z_{\mathrm{eq}}$	$3308^{+110}_{-110}$	$\chi_{\mathrm{H073p45}}^2$	$2.4 (\nu: 3.0)$
$\Omega_{\mathrm{m}}h^3$	$0.106^{+0.010}_{-0.0098}$	$k_{\mathrm{eq}}$	$0.01042^{+0.00042}_{-0.00041}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 7.2)$
$\sigma_8$	$0.825^{+0.033}_{-0.032}$	$100\theta_{\mathrm{eq}}$	$0.831^{+0.021}_{-0.021}$	$\chi_{\mathrm{CMB}}^2$	$1196.4 (\nu: 17.4)$
$S_8$	$0.813^{+0.055}_{-0.052}$	$100\theta_{\mathrm{s,eq}}$	$0.459^{+0.011}_{-0.011}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.446^{+0.030}_{-0.029}$	$H(0.15)$	$76.5^{+3.5}_{-3.5}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1206.27; R - 1 = 0.00718$$



# 7.80 base\_nnu\_plikHM\_TT\_lowl\_lowE\_Riess18\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02252^{+0.00054}_{-0.00054}$	$\sigma_8/h^{0.5}$	$0.985^{+0.030}_{-0.030}$	$D_{\mathrm{M}}(0.38)$	$1472^{+57}_{-55}$
$\Omega_{\mathrm{c}}h^2$	$0.1254^{+0.0093}_{-0.0088}$	$r_{\mathrm{drag}}h$	$101.1^{+2.4}_{-2.4}$	$H(0.51)$	$92.8^{+3.2}_{-3.0}$
$100\theta_{\mathrm{MC}}$	$1.0404^{+0.0013}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	$2.411^{+0.070}_{-0.064}$	$D_{\mathrm{M}}(0.51)$	$1908^{+71}_{-70}$
$\tau$	$0.057^{+0.020}_{-0.015}$	$z_{\mathrm{re}}$	$< 9.87$	$H(0.61)$	$98.4^{+3.3}_{-3.2}$
$N_{\mathrm{eff}}$	$3.49^{+0.49}_{-0.47}$	$10^9 A_{\mathrm{s}}$	$2.14^{+0.11}_{-0.081}$	$D_{\mathrm{M}}(0.61)$	$2222^{+82}_{-80}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.061^{+0.049}_{-0.038}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.907^{+0.047}_{-0.049}$	$H(2.33)$	$241.7^{+7.6}_{-7.3}$
$n_{\mathrm{s}}$	$0.982^{+0.017}_{-0.017}$	$D_{40}$	$1207^{+36}_{-34}$	$D_{\mathrm{M}}(2.33)$	$5587^{+180}_{-180}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0063}$	$D_{220}$	$5719^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.458^{+0.022}_{-0.022}$
$A_{217}^{\mathrm{CIB}}$	$50^{+20}_{-20}$	$D_{810}$	$2542^{+37}_{-36}$	$\sigma_8(0.15)$	$0.766^{+0.030}_{-0.027}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$813^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.479^{+0.020}_{-0.020}$
$A_{143}^{\mathrm{tSZ}}$	$4.6^{+4.5}_{-4.6}$	$D_{2000}$	$227.7^{+5.3}_{-5.4}$	$\sigma_8(0.38)$	$0.680^{+0.027}_{-0.024}$
$A_{100}^{\mathrm{PS}}$	$273^{+70}_{-80}$	$n_{\mathrm{s},0.002}$	$0.982^{+0.017}_{-0.017}$	$f\sigma_8(0.51)$	$0.480^{+0.019}_{-0.019}$
$A_{143}^{\mathrm{PS}}$	$54^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2512^{+0.0062}_{-0.0062}$	$\sigma_8(0.51)$	$0.637^{+0.025}_{-0.023}$
$A_{143 \times 217}^{\mathrm{PS}}$	$45^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2525^{+0.0062}_{-0.0063}$	$f\sigma_8(0.61)$	$0.476^{+0.018}_{-0.018}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.71^{+0.16}_{-0.15}$	$\sigma_8(0.61)$	$0.607^{+0.024}_{-0.022}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.38^{+0.43}_{-0.43}$	$f\sigma_8(2.33)$	$0.306^{+0.012}_{-0.011}$
$A_{100}^{\mathrm{dustTT}}$	$9.1^{+4.6}_{-4.6}$	$z_*$	$1090.6^{+1.1}_{-1.2}$	$\sigma_8(2.33)$	$0.316^{+0.013}_{-0.011}$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.7}_{-4.6}$	$r_*$	$140.9^{+4.5}_{-4.4}$	$f_{2000}^{143}$	$34^{+9}_{-8}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.5^{+8.4}_{-8.5}$	$100\theta_*$	$1.0403^{+0.0015}_{-0.0016}$	$f_{2000}^{143 \times 217}$	$36^{+6}_{-6}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.54^{+0.42}_{-0.42}$	$f_{2000}^{217}$	$110.0^{+5.3}_{-5.6}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1061.0^{+1.8}_{-1.8}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 2.1)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$143.4^{+4.7}_{-4.6}$	$\chi_{\mathrm{lowl}}^2$	$21.55 (\nu: 0.3)$
$H_0$	$70.5^{+2.9}_{-2.9}$	$k_{\mathrm{D}}$	$0.1433^{+0.0037}_{-0.0036}$	$\chi_{\mathrm{plik}}^2$	$776.2 (\nu: 16.8)$
$\Omega_{\Lambda}$	$0.701^{+0.017}_{-0.018}$	$100\theta_{\mathrm{D}}$	$0.1620^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{H073p45}}^2$	$3.6 (\nu: 3.1)$
$\Omega_{\mathrm{m}}$	$0.299^{+0.018}_{-0.017}$	$z_{\mathrm{eq}}$	$3337^{+71}_{-71}$	$\chi_{6\mathrm{DF}}^2$	$0.053 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1486^{+0.0096}_{-0.0089}$	$k_{\mathrm{eq}}$	$0.01048^{+0.00038}_{-0.00036}$	$\chi_{\mathrm{MGS}}^2$	$2.17 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^3$	$0.105^{+0.010}_{-0.0095}$	$100\theta_{\mathrm{eq}}$	$0.826^{+0.014}_{-0.013}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.00 (\nu: 0.3)$
$\sigma_8$	$0.827^{+0.032}_{-0.029}$	$100\theta_{\mathrm{s,eq}}$	$0.4557^{+0.0070}_{-0.0068}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 7.0)$
$S_8$	$0.826^{+0.041}_{-0.041}$	$H(0.15)$	$75.8^{+3.0}_{-2.9}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.15)$	$616^{+25}_{-24}$	$\chi_{\mathrm{CMB}}^2$	$1195.0 (\nu: 16.1)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.612^{+0.025}_{-0.025}$	$H(0.38)$	$86.0^{+3.1}_{-3.0}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 1212.22; R - 1 = 0.01139$					



7.81 base\_nnu\_plikHM\_TT\_lowl\_lowE\_Riess18\_post\_BAO\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02252^{+0.00053}_{-0.00053}$	$\sigma_8/h^{0.5}$	$0.985^{+0.029}_{-0.029}$	$D_M(0.38)$	$1472^{+56}_{-54}$
$\Omega_c h^2$	$0.1254^{+0.0093}_{-0.0088}$	$r_{\text{drag}} h$	$101.1^{+2.3}_{-2.3}$	$H(0.51)$	$92.8^{+3.2}_{-3.0}$
$100\theta_{\text{MC}}$	$1.0404^{+0.0013}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	$2.411^{+0.069}_{-0.063}$	$D_M(0.51)$	$1908^{+71}_{-69}$
$\tau$	$0.057^{+0.020}_{-0.015}$	$z_{\text{re}}$	$< 9.87$	$H(0.61)$	$98.4^{+3.3}_{-3.2}$
$N_{\text{eff}}$	$3.49^{+0.49}_{-0.47}$	$10^9 A_s$	$2.14^{+0.11}_{-0.081}$	$D_M(0.61)$	$2222^{+81}_{-80}$
$\ln(10^{10} A_s)$	$3.061^{+0.049}_{-0.038}$	$10^9 A_s e^{-2\tau}$	$1.907^{+0.047}_{-0.049}$	$H(2.33)$	$241.7^{+7.6}_{-7.3}$
$n_s$	$0.982^{+0.017}_{-0.017}$	$D_{40}$	$1207^{+36}_{-34}$	$D_M(2.33)$	$5587^{+180}_{-180}$
$y_{\text{cal}}$	$1.0005^{+0.0063}_{-0.0063}$	$D_{220}$	$5719^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.458^{+0.021}_{-0.022}$
$A_{217}^{\text{CIB}}$	$50^{+20}_{-20}$	$D_{810}$	$2542^{+37}_{-36}$	$\sigma_8(0.15)$	$0.766^{+0.030}_{-0.027}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$813^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.479^{+0.020}_{-0.020}$
$A_{143}^{\text{tSZ}}$	$4.6^{+4.5}_{-4.6}$	$D_{2000}$	$227.7^{+5.3}_{-5.4}$	$\sigma_8(0.38)$	$0.680^{+0.027}_{-0.024}$
$A_{100}^{\text{PS}}$	$273^{+70}_{-80}$	$n_{\text{s},0.002}$	$0.982^{+0.017}_{-0.017}$	$f\sigma_8(0.51)$	$0.480^{+0.019}_{-0.019}$
$A_{143}^{\text{PS}}$	$54^{+20}_{-20}$	$Y_{\text{P}}$	$0.2512^{+0.0062}_{-0.0062}$	$\sigma_8(0.51)$	$0.637^{+0.025}_{-0.023}$
$A_{143 \times 217}^{\text{PS}}$	$45^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.2525^{+0.0062}_{-0.0062}$	$f\sigma_8(0.61)$	$0.476^{+0.018}_{-0.018}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	$2.71^{+0.16}_{-0.15}$	$\sigma_8(0.61)$	$0.607^{+0.024}_{-0.022}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.38^{+0.43}_{-0.43}$	$f\sigma_8(2.33)$	$0.306^{+0.012}_{-0.011}$
$A_{100}^{\text{dustTT}}$	$9.1^{+4.6}_{-4.6}$	$z_*$	$1090.6^{+1.1}_{-1.1}$	$\sigma_8(2.33)$	$0.316^{+0.013}_{-0.011}$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.7}_{-4.6}$	$r_*$	$140.9^{+4.5}_{-4.5}$	$f_{2000}^{143}$	$34^{+9}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.5^{+8.4}_{-8.4}$	$100\theta_*$	$1.0403^{+0.0015}_{-0.0016}$	$f_{2000}^{143 \times 217}$	$36^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.54^{+0.42}_{-0.42}$	$f_{2000}^{217}$	$110.0^{+5.3}_{-5.6}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1061.0^{+1.8}_{-1.8}$	$\chi_{\text{simall}}^2$	$397.2 (\nu: 2.1)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$r_{\text{drag}}$	$143.4^{+4.7}_{-4.6}$	$\chi_{\text{lowl}}^2$	$21.55 (\nu: 0.3)$
$H_0$	$70.5^{+2.9}_{-2.8}$	$k_{\text{D}}$	$0.1433^{+0.0037}_{-0.0036}$	$\chi_{\text{plik}}^2$	$776.2 (\nu: 16.7)$
$\Omega_{\Lambda}$	$0.701^{+0.017}_{-0.018}$	$100\theta_{\text{D}}$	$0.1620^{+0.0013}_{-0.0012}$	$\chi_{\text{H073p45}}^2$	$3.6 (\nu: 3.0)$
$\Omega_{\text{m}}$	$0.299^{+0.018}_{-0.017}$	$z_{\text{eq}}$	$3337^{+68}_{-69}$	$\chi_{\text{JLA}}^2$	$1034.82 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	$0.1486^{+0.0095}_{-0.0089}$	$k_{\text{eq}}$	$0.01048^{+0.00038}_{-0.00036}$	$\chi_{6\text{DF}}^2$	$0.050 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.105^{+0.010}_{-0.0095}$	$100\theta_{\text{eq}}$	$0.826^{+0.013}_{-0.013}$	$\chi_{\text{MGS}}^2$	$2.16 (\nu: 0.2)$
$\sigma_8$	$0.827^{+0.033}_{-0.029}$	$100\theta_{\text{s,eq}}$	$0.4557^{+0.0067}_{-0.0065}$	$\chi_{\text{DR12BAO}}^2$	$3.95 (\nu: 0.3)$
$S_8$	$0.826^{+0.040}_{-0.040}$	$H(0.15)$	$75.8^{+2.9}_{-2.8}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 7.0)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.452^{+0.022}_{-0.022}$	$D_M(0.15)$	$616^{+25}_{-24}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.612^{+0.025}_{-0.025}$	$H(0.38)$	$86.0^{+3.1}_{-2.9}$	$\chi_{\text{CMB}}^2$	$1195.0 (\nu: 16.1)$

$\bar{\chi}_{\text{eff}}^2 = 2246.95; R - 1 = 0.01150$



## 7.82 base\_nnu\_plikHM\_TT\_lowl\_lowE\_Riess18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02258^{+0.00058}_{-0.00059}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.022}_{-0.021}$	$D_{\mathrm{M}}(0.15)$	$613^{+29}_{-28}$
$\Omega_{\mathrm{c}}h^2$	$0.1248^{+0.0085}_{-0.0083}$	$\sigma_8/h^{0.5}$	$0.983^{+0.026}_{-0.027}$	$H(0.38)$	$86.3^{+3.4}_{-3.3}$
$100\theta_{\mathrm{MC}}$	$1.0405^{+0.0014}_{-0.0013}$	$r_{\mathrm{drag}}h$	$101.7^{+3.4}_{-3.2}$	$D_{\mathrm{M}}(0.38)$	$1465^{+65}_{-62}$
$\tau$	$0.059^{+0.021}_{-0.017}$	$\langle d^2 \rangle^{1/2}$	$2.406^{+0.066}_{-0.064}$	$H(0.51)$	$93.0^{+3.4}_{-3.3}$
$N_{\mathrm{eff}}$	$3.50^{+0.50}_{-0.48}$	$z_{\mathrm{re}}$	$< 10.2$	$D_{\mathrm{M}}(0.51)$	$1901^{+82}_{-78}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.066^{+0.047}_{-0.038}$	$10^9 A_{\mathrm{s}}$	$2.15^{+0.10}_{-0.081}$	$H(0.61)$	$98.6^{+3.5}_{-3.4}$
$n_{\mathrm{s}}$	$0.984^{+0.020}_{-0.020}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.906^{+0.043}_{-0.044}$	$D_{\mathrm{M}}(0.61)$	$2214^{+94}_{-89}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0065}_{-0.0063}$	$D_{40}$	$1206^{+38}_{-36}$	$H(2.33)$	$241.4^{+7.0}_{-6.9}$
$A_{217}^{\mathrm{CIB}}$	$49^{+20}_{-20}$	$D_{220}$	$5729^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5579^{+190}_{-190}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2544^{+36}_{-35}$	$f\sigma_8(0.15)$	$0.455^{+0.020}_{-0.020}$
$A_{143}^{\mathrm{tSZ}}$	$4.6^{+4.6}_{-4.6}$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.15)$	$0.766^{+0.026}_{-0.024}$
$A_{100}^{\mathrm{PS}}$	$272^{+70}_{-70}$	$D_{2000}$	$228.0^{+5.9}_{-5.5}$	$f\sigma_8(0.38)$	$0.478^{+0.017}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	$53^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.984^{+0.020}_{-0.020}$	$\sigma_8(0.38)$	$0.681^{+0.024}_{-0.022}$
$A_{143 \times 217}^{\mathrm{PS}}$	$45^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2513^{+0.0062}_{-0.0064}$	$f\sigma_8(0.51)$	$0.478^{+0.016}_{-0.016}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2527^{+0.0062}_{-0.0064}$	$\sigma_8(0.51)$	$0.638^{+0.024}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.70^{+0.16}_{-0.15}$	$f\sigma_8(0.61)$	$0.475^{+0.016}_{-0.015}$
$A_{100}^{\mathrm{dustTT}}$	$9.1^{+4.7}_{-4.6}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.36^{+0.45}_{-0.44}$	$\sigma_8(0.61)$	$0.608^{+0.023}_{-0.020}$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.7}_{-4.6}$	$z_*$	$1090.5^{+1.1}_{-1.2}$	$f\sigma_8(2.33)$	$0.307^{+0.012}_{-0.011}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.4^{+8.4}_{-8.5}$	$r_*$	$140.9^{+4.5}_{-4.2}$	$\sigma_8(2.33)$	$0.318^{+0.013}_{-0.012}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0404^{+0.0016}_{-0.0016}$	$f_{2000}^{143}$	$34^{+9}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0017}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.55^{+0.42}_{-0.40}$	$f_{2000}^{143 \times 217}$	$36^{+6}_{-6}$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$z_{\mathrm{drag}}$	$1061.1^{+1.8}_{-1.9}$	$f_{2000}^{217}$	$109.9^{+5.4}_{-5.5}$
$H_0$	$70.9^{+3.5}_{-3.4}$	$r_{\mathrm{drag}}$	$143.5^{+4.7}_{-4.4}$	$\chi_{\mathrm{lensing}}^2$	$10.2 (\nu: 0.6)$
$\Omega_{\Lambda}$	$0.705^{+0.024}_{-0.024}$	$k_{\mathrm{D}}$	$0.1432^{+0.0034}_{-0.0035}$	$\chi_{\mathrm{simall}}^2$	$397.9 (\nu: 3.1)$
$\Omega_{\mathrm{m}}$	$0.295^{+0.024}_{-0.024}$	$100\theta_{\mathrm{D}}$	$0.1619^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{lowl}}^2$	$21.43 (\nu: 0.3)$
$\Omega_{\mathrm{m}}h^2$	$0.1480^{+0.0088}_{-0.0084}$	$z_{\mathrm{eq}}$	$3321^{+90}_{-92}$	$\chi_{\mathrm{plik}}^2$	$776.3 (\nu: 17.1)$
$\Omega_{\mathrm{m}}h^3$	$0.105^{+0.010}_{-0.0097}$	$k_{\mathrm{eq}}$	$0.01044^{+0.00035}_{-0.00035}$	$\chi_{\mathrm{H073p45}}^2$	$3.0 (\nu: 3.6)$
$\sigma_8$	$0.827^{+0.027}_{-0.026}$	$100\theta_{\mathrm{eq}}$	$0.829^{+0.018}_{-0.018}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 7.1)$
$S_8$	$0.820^{+0.039}_{-0.039}$	$100\theta_{\mathrm{s,eq}}$	$0.4573^{+0.0094}_{-0.0089}$	$\chi_{\mathrm{CMB}}^2$	$1205.8 (\nu: 18.4)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.021}_{-0.021}$	$H(0.15)$	$76.2^{+3.4}_{-3.3}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1216.31$ ;  $R - 1 = 0.01206$



### 7.83 base\_nnu\_plikHM\_TT\_lowl\_lowE\_Riess18\_post\_BAO\_lensing\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02251^{+0.00053}_{-0.00053}$	$r_{\mathrm{drag}}h$	$101.1^{+2.1}_{-2.1}$	$D_{\mathrm{M}}(0.51)$	$1913^{+70}_{-68}$
$\Omega_{\mathrm{c}}h^2$	$0.1249^{+0.0086}_{-0.0080}$	$\langle d^2 \rangle^{1/2}$	$2.415^{+0.056}_{-0.053}$	$H(0.61)$	$98.2^{+3.2}_{-3.2}$
$100\theta_{\mathrm{MC}}$	$1.0404^{+0.0013}_{-0.0013}$	$z_{\mathrm{re}}$	$< 9.82$	$D_{\mathrm{M}}(0.61)$	$2227^{+81}_{-78}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$10^9 A_{\mathrm{s}}$	$2.138^{+0.092}_{-0.075}$	$H(2.33)$	$241.2^{+7.0}_{-6.8}$
$N_{\mathrm{eff}}$	$3.46^{+0.48}_{-0.45}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.906^{+0.044}_{-0.044}$	$D_{\mathrm{M}}(2.33)$	$5599^{+180}_{-170}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.062^{+0.042}_{-0.035}$	$D_{40}$	$1210^{+34}_{-33}$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.017}$
$n_{\mathrm{s}}$	$0.981^{+0.017}_{-0.017}$	$D_{220}$	$5724^{+100}_{-100}$	$\sigma_8(0.15)$	$0.765^{+0.025}_{-0.023}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0063}_{-0.0063}$	$D_{810}$	$2543^{+37}_{-35}$	$f\sigma_8(0.38)$	$0.479^{+0.016}_{-0.015}$
$A_{217}^{\mathrm{CIB}}$	$49^{+20}_{-20}$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.38)$	$0.680^{+0.023}_{-0.021}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{2000}$	$227.9^{+5.4}_{-5.4}$	$f\sigma_8(0.51)$	$0.479^{+0.016}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$4.7^{+4.8}_{-4.4}$	$n_{\mathrm{s},0.002}$	$0.981^{+0.017}_{-0.017}$	$\sigma_8(0.51)$	$0.637^{+0.022}_{-0.019}$
$A_{100}^{\mathrm{PS}}$	$272^{+70}_{-80}$	$Y_{\mathrm{P}}$	$0.2508^{+0.0059}_{-0.0059}$	$f\sigma_8(0.61)$	$0.475^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$53^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2521^{+0.0060}_{-0.0059}$	$\sigma_8(0.61)$	$0.606^{+0.021}_{-0.019}$
$A_{143 \times 217}^{\mathrm{PS}}$	$45^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.70^{+0.15}_{-0.14}$	$f\sigma_8(2.33)$	$0.306^{+0.011}_{-0.0097}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.41^{+0.42}_{-0.41}$	$\sigma_8(2.33)$	$0.316^{+0.012}_{-0.010}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.6^{+1.1}_{-1.1}$	$f_{2000}^{143}$	$34^{+9}_{-8}$
$A_{100}^{\mathrm{dust}TT}$	$9.1^{+4.7}_{-4.6}$	$r_*$	$141.1^{+4.3}_{-4.2}$	$f_{2000}^{143 \times 217}$	$36^{+6}_{-6}$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.7}_{-4.6}$	$100\theta_*$	$1.0403^{+0.0015}_{-0.0015}$	$f_{2000}^{217}$	$109.8^{+5.4}_{-5.5}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+8.5}_{-8.2}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.57^{+0.40}_{-0.39}$	$\chi_{\mathrm{lensing}}^2$	$9.99 (\nu: 0.3)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1060.9^{+1.8}_{-1.8}$	$\chi_{\mathrm{simall}}^2$	$397.4 (\nu: 2.1)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$143.7^{+4.5}_{-4.3}$	$\chi_{\mathrm{lowl}}^2$	$21.69 (\nu: 0.3)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1431^{+0.0034}_{-0.0034}$	$\chi_{\mathrm{plik}}^2$	$775.4 (\nu: 16.0)$
$H_0$	$70.3^{+2.9}_{-2.8}$	$100\theta_{\mathrm{D}}$	$0.1619^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{H073p45}}^2$	$4.0 (\nu: 3.2)$
$\Omega_{\Lambda}$	$0.701^{+0.016}_{-0.017}$	$z_{\mathrm{eq}}$	$3339^{+64}_{-63}$	$\chi_{\mathrm{JLA}}^2$	$1034.82 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.299^{+0.017}_{-0.016}$	$k_{\mathrm{eq}}$	$0.01047^{+0.00033}_{-0.00031}$	$\chi_{6\mathrm{DF}}^2$	$0.042 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1481^{+0.0088}_{-0.0082}$	$100\theta_{\mathrm{eq}}$	$0.825^{+0.012}_{-0.012}$	$\chi_{\mathrm{MGS}}^2$	$2.12 (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^3$	$0.1042^{+0.0098}_{-0.0090}$	$100\theta_{\mathrm{s,eq}}$	$0.4555^{+0.0062}_{-0.0061}$	$\chi_{\mathrm{DR12BAO}}^2$	$3.87 (\nu: 0.2)$
$\sigma_8$	$0.827^{+0.026}_{-0.025}$	$H(0.15)$	$75.6^{+2.9}_{-2.8}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 6.8)$
$S_8$	$0.826^{+0.032}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$617^{+25}_{-24}$	$\chi_{\mathrm{CMB}}^2$	$1204.5 (\nu: 16.3)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.017}$	$H(0.38)$	$85.8^{+3.0}_{-2.9}$	$\chi_{\mathrm{BAO}}^2$	$6.03 (\nu: 0.5)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.020}_{-0.020}$	$D_{\mathrm{M}}(0.38)$	$1475^{+56}_{-54}$		
$\sigma_8/h^{0.5}$	$0.986^{+0.023}_{-0.023}$	$H(0.51)$	$92.6^{+3.1}_{-3.0}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2256.66; R - 1 = 0.01360$$



# 7.84 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022649	$0.02266^{+0.00049}_{-0.00048}$ $(+0.2\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.1006	$0.1014^{+0.0089}_{-0.0081}$ $(-1.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4538	$0.4539^{+0.0082}_{-0.0078}$ $(-1.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.1218	$0.1225^{+0.0075}_{-0.0069}$ $(-0.6\sigma)$	$\sigma_8$	0.8177	$0.820^{+0.028}_{-0.027}$ $(-0.4\sigma)$	$H(0.15)$	74.59	$74.8^{+3.0}_{-2.9}$ $(-1.2\sigma)$
$100\theta_{\mathrm{MC}}$	1.04076	$1.0407^{+0.0010}_{-0.0010}$ $(+0.4\sigma)$	$S_8$	0.8203	$0.822^{+0.040}_{-0.040}$ $(+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	626.0	$624^{+26}_{-26}$ $(+1.3\sigma)$
$\tau$	0.0578	$0.058^{+0.022}_{-0.021}$ $(+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4493	$0.450^{+0.022}_{-0.022}$ $(+0.4\sigma)$	$H(0.38)$	84.68	$84.9^{+3.1}_{-2.9}$ $(-1.2\sigma)$
$N_{\mathrm{eff}}$	3.256	$3.30^{+0.43}_{-0.40}$ $(-1.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6061	$0.608^{+0.023}_{-0.023}$ $(+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	1495	$1491^{+59}_{-57}$ $(+1.3\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0551	$3.058^{+0.048}_{-0.046}$ $(-0.2\sigma)$	$\sigma_8/h^{0.5}$	0.9820	$0.983^{+0.030}_{-0.031}$ $(+0.4\sigma)$	$H(0.51)$	91.40	$91.7^{+3.1}_{-2.9}$ $(-1.2\sigma)$
$n_{\mathrm{s}}$	0.9765	$0.977^{+0.018}_{-0.017}$ $(-1.1\sigma)$	$r_{\mathrm{drag}}h$	100.72	$100.8^{+3.0}_{-2.8}$ $(-0.9\sigma)$	$D_{\mathrm{M}}(0.51)$	1938	$1933^{+74}_{-72}$ $(+1.2\sigma)$
$y_{\mathrm{cal}}$	1.0000	$1.0008^{+0.0065}_{-0.0064}$ $(+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	2.416	$2.419^{+0.073}_{-0.072}$ $(+0.8\sigma)$	$H(0.61)$	97.03	$97.3^{+3.1}_{-3.0}$ $(-1.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	47.3	$48^{+20}_{-20}$ $(-0.3\sigma)$	$z_{\mathrm{re}}$	8.03	$8.0^{+2.1}_{-2.2}$ $(-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	2257	$2251^{+83}_{-83}$ $(+1.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.66	—	$10^9 A_{\mathrm{s}}$	2.122	$2.13^{+0.10}_{-0.095}$ $(-0.2\sigma)$	$H(2.33)$	238.7	$239.3^{+6.2}_{-6.0}$ $(-0.7\sigma)$
$A_{143}^{\mathrm{tSZ}}$	6.3	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8906	$1.896^{+0.041}_{-0.041}$ $(-0.5\sigma)$	$D_{\mathrm{M}}(2.33)$	5666	$5651^{+170}_{-170}$ $(+1.1\sigma)$
$A_{100}^{\mathrm{PS}}$	256	$263^{+70}_{-70}$ $(-0.3\sigma)$	$D_{40}$	1212.9	$1215^{+37}_{-35}$ $(+0.9\sigma)$	$f\sigma_8(0.15)$	0.4547	$0.456^{+0.021}_{-0.021}$ $(+0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	51.3	$48^{+20}_{-20}$ $(-0.7\sigma)$	$D_{220}$	5731	$5739^{+100}_{-98}$ $(+0.4\sigma)$	$\sigma_8(0.15)$	0.7566	$0.759^{+0.026}_{-0.025}$ $(-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	51.0	$43^{+20}_{-20}$ $(-0.2\sigma)$	$D_{810}$	2540.0	$2543^{+36}_{-35}$ $(+0.0\sigma)$	$f\sigma_8(0.38)$	0.4753	$0.477^{+0.019}_{-0.019}$ $(+0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	118.6	$114^{+30}_{-30}$ $(-0.0\sigma)$	$D_{1420}$	817.1	$817^{+13}_{-12}$ $(+0.6\sigma)$	$\sigma_8(0.38)$	0.6717	$0.674^{+0.023}_{-0.023}$ $(-0.6\sigma)$
$A^{\mathrm{kSZ}}$	1.7	—	$D_{2000}$	230.29	$230.1^{+4.8}_{-4.5}$ $(+1.1\sigma)$	$f\sigma_8(0.51)$	0.4751	$0.476^{+0.017}_{-0.017}$ $(+0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	8.94	$9.1^{+4.6}_{-4.7}$ $(-0.0\sigma)$	$n_{\mathrm{s},0.002}$	0.9765	$0.977^{+0.018}_{-0.017}$ $(-1.1\sigma)$	$\sigma_8(0.51)$	0.6291	$0.631^{+0.022}_{-0.022}$ $(-0.7\sigma)$
$A_{143}^{\mathrm{dustTT}}$	11.11	$11.1^{+4.5}_{-4.6}$ $(+0.1\sigma)$	$Y_{\mathrm{P}}$	0.2483	$0.2488^{+0.0055}_{-0.0054}$ $(-1.2\sigma)$	$f\sigma_8(0.61)$	0.4708	$0.472^{+0.017}_{-0.017}$ $(-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.6	$18.8^{+8.6}_{-8.5}$ $(+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2496	$0.2501^{+0.0056}_{-0.0055}$ $(-1.2\sigma)$	$\sigma_8(0.61)$	0.5988	$0.601^{+0.021}_{-0.021}$ $(-0.7\sigma)$
$A_{217}^{\mathrm{dustTT}}$	94.1	$94^{+20}_{-20}$ $(+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	2.607	$2.62^{+0.12}_{-0.11}$ $(-1.4\sigma)$	$f\sigma_8(2.33)$	0.3023	$0.303^{+0.011}_{-0.011}$ $(-0.8\sigma)$
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.115^{+0.096}_{-0.095}$	Age/Gyr	13.568	$13.53^{+0.40}_{-0.40}$ $(+1.1\sigma)$	$\sigma_8(2.33)$	0.3121	$0.313^{+0.012}_{-0.011}$ $(-0.8\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.134	$0.135^{+0.078}_{-0.077}$	$z_*$	1089.93	$1090.02^{+0.92}_{-0.88}$ $(-1.0\sigma)$	$f_{2000}^{143}$	30.0	$31^{+8}_{-8}$ $(-1.0\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.478	$0.48^{+0.23}_{-0.22}$	$r_*$	142.73	$142.4^{+3.9}_{-3.9}$ $(+0.9\sigma)$	$f_{2000}^{143 \times 217}$	32.9	$33^{+5}_{-5}$ $(-1.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	0.222	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04078	$1.0407^{+0.0012}_{-0.0012}$ $(+0.6\sigma)$	$f_{2000}^{217}$	107.2	$107.9^{+5.0}_{-5.1}$ $(-1.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.664	$0.66^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.713	$13.68^{+0.36}_{-0.36}$ $(+0.9\sigma)$	$\chi_{\mathrm{small}}^2$	396.6	$397.6 (\nu: 2.8)$ $(+0.1\sigma)$
$A_{217}^{\mathrm{dustTE}}$	2.08	$2.07^{+0.69}_{-0.68}$	$z_{\mathrm{drag}}$	1060.89	$1061.0^{+1.7}_{-1.6}$ $(-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	21.93	$22.03 (\nu: 0.4)$ $(+1.1\sigma)$
$c_{100}$	0.99968	$0.9997^{+0.0016}_{-0.0016}$ $(+0.1\sigma)$	$r_{\mathrm{drag}}$	145.27	$144.9^{+4.0}_{-4.0}$ $(+0.9\sigma)$	$\chi_{\mathrm{plik}}^2$	2349.8	$2365.3 (\nu: 24.5)$ $(+261.2\sigma)$
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ $(-0.1\sigma)$	$k_{\mathrm{D}}$	0.14222	$0.1425^{+0.0031}_{-0.0030}$ $(-0.6\sigma)$	$\chi_{\mathrm{H073p45}}^2$	6.1	$6.0 (\nu: 5.5)$ $(+1.5\sigma)$
$H_0$	69.33	$69.5^{+3.1}_{-3.0}$ $(-1.2\sigma)$	$100\theta_{\mathrm{D}}$	0.16108	$0.16119^{+0.00097}_{-0.00093}$ $(-1.6\sigma)$	$\chi_{\mathrm{prior}}^2$	1.8	$11.9 (\nu: 10.9)$ $(+1.2\sigma)$
$\Omega_{\Lambda}$	0.6981	$0.698^{+0.022}_{-0.022}$ $(-0.9\sigma)$	$z_{\mathrm{eq}}$	3358	$3356^{+80}_{-81}$ $(+1.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	2768.3	$2785.0 (\nu: 22.2)$ $(+268.1\sigma)$
$\Omega_{\mathrm{m}}$	0.3019	$0.302^{+0.022}_{-0.022}$ $(+0.9\sigma)$	$k_{\mathrm{eq}}$	0.010391	$0.01042^{+0.00031}_{-0.00030}$ $(-0.0\sigma)$			
$\Omega_{\mathrm{m}}h^2$	0.1451	$0.1458^{+0.0077}_{-0.0071}$ $(-0.6\sigma)$	$100\theta_{\mathrm{eq}}$	0.8222	$0.822^{+0.016}_{-0.015}$ $(-1.1\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2776.34$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1590.07$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2802.87$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1596.48$ ;  $R - 1 = 0.00770$   
 $\chi_{\mathrm{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.62 ( $\Delta$  0.32) commander\_dx12\_v3.2.29: 21.93 ( $\Delta$  0.97) plik\_rd12\_HM\_v22b\_TTTEEE: 2349.80 Hubble - H073p45: 6.15 ( $\Delta$  4.16)



# 7.85 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022656	$0.02264^{+0.00043}_{-0.00042}$ (+0.6 $\sigma$ )	$\sigma_8$	0.8205	$0.820^{+0.027}_{-0.027}$ (−0.5 $\sigma$ )	$D_M(0.15)$	626.2	$625^{+23}_{-21}$ (+1.0 $\sigma$ )
$\Omega_c h^2$	0.1222	$0.1226^{+0.0075}_{-0.0069}$ (−0.8 $\sigma$ )	$S_8$	0.8245	$0.824^{+0.034}_{-0.034}$ (−0.1 $\sigma$ )	$H(0.38)$	84.69	$84.8^{+2.7}_{-2.6}$ (−1.0 $\sigma$ )
$100\theta_{MC}$	1.04068	$1.0407^{+0.0010}_{-0.0010}$ (+0.6 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4516	$0.451^{+0.018}_{-0.019}$ (−0.1 $\sigma$ )	$D_M(0.38)$	1495	$1493^{+51}_{-49}$ (+1.0 $\sigma$ )
$\tau$	0.0587	$0.058^{+0.022}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6087	$0.608^{+0.021}_{-0.022}$ (−0.3 $\sigma$ )	$H(0.51)$	91.42	$91.6^{+2.7}_{-2.7}$ (−1.0 $\sigma$ )
$N_{\text{eff}}$	3.266	$3.29^{+0.42}_{-0.39}$ (−1.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9856	$0.984^{+0.027}_{-0.027}$ (−0.0 $\sigma$ )	$D_M(0.51)$	1939	$1935^{+64}_{-62}$ (+1.0 $\sigma$ )
$\ln(10^{10} A_s)$	3.0601	$3.057^{+0.047}_{-0.045}$ (−0.1 $\sigma$ )	$r_{\text{drag}} h$	100.57	$100.6^{+2.1}_{-2.0}$ (−0.5 $\sigma$ )	$H(0.61)$	97.06	$97.2^{+2.9}_{-2.8}$ (−0.9 $\sigma$ )
$n_s$	0.9763	$0.976^{+0.016}_{-0.015}$ (−0.8 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.424	$2.421^{+0.065}_{-0.062}$ (+0.4 $\sigma$ )	$D_M(0.61)$	2257	$2253^{+73}_{-72}$ (+1.0 $\sigma$ )
$y_{\text{cal}}$	1.0011	$1.0007^{+0.0064}_{-0.0063}$ (+0.1 $\sigma$ )	$z_{\text{re}}$	8.12	$8.0^{+2.1}_{-2.2}$ (+0.1 $\sigma$ )	$H(2.33)$	239.0	$239.3^{+6.2}_{-6.0}$ (−0.8 $\sigma$ )
$A_{217}^{\text{CIB}}$	49.5	$48^{+20}_{-20}$ (−0.3 $\sigma$ )	$10^9 A_s$	2.133	$2.13^{+0.10}_{-0.095}$ (−0.1 $\sigma$ )	$D_M(2.33)$	5664	$5655^{+160}_{-160}$ (+0.9 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.30	—	$10^9 A_s e^{-2\tau}$	1.8968	$1.896^{+0.041}_{-0.040}$ (−0.6 $\sigma$ )	$f\sigma_8(0.15)$	0.4569	$0.456^{+0.018}_{-0.018}$ (−0.1 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.1	—	$D_{40}$	1216.8	$1216^{+34}_{-32}$ (+0.6 $\sigma$ )	$\sigma_8(0.15)$	0.7590	$0.759^{+0.025}_{-0.025}$ (−0.6 $\sigma$ )
$A_{100}^{\text{PS}}$	254	$263^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{220}$	5745	$5739^{+100}_{-97}$ (+0.5 $\sigma$ )	$f\sigma_8(0.38)$	0.4774	$0.477^{+0.017}_{-0.017}$ (−0.3 $\sigma$ )
$A_{143}^{\text{PS}}$	47.2	$48^{+20}_{-20}$ (−0.7 $\sigma$ )	$D_{810}$	2546.1	$2543^{+36}_{-35}$ (+0.0 $\sigma$ )	$\sigma_8(0.38)$	0.6738	$0.673^{+0.023}_{-0.023}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	45.2	$42^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{1420}$	818.8	$817^{+13}_{-12}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4770	$0.477^{+0.016}_{-0.016}$ (−0.3 $\sigma$ )
$A_{217}^{\text{PS}}$	118.0	$114^{+30}_{-30}$ (−0.1 $\sigma$ )	$D_{2000}$	230.79	$230.1^{+4.6}_{-4.5}$ (+1.2 $\sigma$ )	$\sigma_8(0.51)$	0.6309	$0.631^{+0.022}_{-0.021}$ (−0.6 $\sigma$ )
$A^{\text{kSZ}}$	0.1	—	$n_{s,0.002}$	0.9763	$0.976^{+0.016}_{-0.015}$ (−0.8 $\sigma$ )	$f\sigma_8(0.61)$	0.4727	$0.472^{+0.016}_{-0.016}$ (−0.4 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.84	$9.1^{+4.6}_{-4.8}$ (−0.0 $\sigma$ )	$Y_P$	0.2484	$0.2487^{+0.0054}_{-0.0053}$ (−1.0 $\sigma$ )	$\sigma_8(0.61)$	0.6006	$0.600^{+0.021}_{-0.020}$ (−0.6 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.97	$11.1^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$Y_P^{\text{BBN}}$	0.2497	$0.2500^{+0.0054}_{-0.0053}$ (−1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3031	$0.303^{+0.011}_{-0.010}$ (−0.7 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.0	$18.8^{+8.5}_{-8.4}$ (+0.1 $\sigma$ )	$10^5 \text{D/H}$	2.609	$2.62^{+0.12}_{-0.11}$ (−1.5 $\sigma$ )	$\sigma_8(2.33)$	0.3129	$0.313^{+0.011}_{-0.011}$ (−0.7 $\sigma$ )
$A_{217}^{\text{dustTT}}$	93.0	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.561	$13.54^{+0.38}_{-0.38}$ (+0.9 $\sigma$ )	$f_{2000}^{143}$	29.7	$31^{+8}_{-8}$ (−1.0 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.112	$0.115^{+0.098}_{-0.093}$	$z_*$	1089.96	$1090.03^{+0.92}_{-0.86}$ (−1.3 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.8	$33^{+5}_{-6}$ (−1.1 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.078}_{-0.078}$	$r_*$	142.59	$142.4^{+3.8}_{-3.9}$ (+0.9 $\sigma$ )	$f_{2000}^{217}$	107.37	$107.9^{+4.8}_{-5.1}$ (−1.0 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	1.04069	$1.0407^{+0.0012}_{-0.0012}$ (+0.7 $\sigma$ )	$\chi_{\text{small}}^2$	396.9	$397.6$ ( $\nu$ : 2.7) (+0.2 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.219	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.701	$13.68^{+0.36}_{-0.36}$ (+0.9 $\sigma$ )	$\chi_{\text{lowl}}^2$	22.03	$22.08$ ( $\nu$ : 0.3) (+0.7 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.660	$0.66^{+0.21}_{-0.21}$	$z_{\text{drag}}$	1060.92	$1060.9^{+1.6}_{-1.5}$ (−0.1 $\sigma$ )	$\chi_{\text{plik}}^2$	2349.0	$2364.6$ ( $\nu$ : 22.2) (+272.6 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.08	$2.08^{+0.70}_{-0.68}$	$r_{\text{drag}}$	145.13	$144.9^{+3.9}_{-4.0}$ (+0.8 $\sigma$ )	$\chi_{\text{H073p45}}^2$	6.3	$6.2$ ( $\nu$ : 4.1) (+1.0 $\sigma$ )
$c_{100}$	0.99965	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14234	$0.1425^{+0.0030}_{-0.0029}$ (−0.6 $\sigma$ )	$\chi_{\text{6DF}}^2$	0.000	$0.027$ ( $\nu$ : 0.0) (−0.4 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.16109	$0.16118^{+0.00099}_{-0.00094}$ (−1.5 $\sigma$ )	$\chi_{\text{MGS}}^2$	1.75	$1.84$ ( $\nu$ : 0.1) (−0.5 $\sigma$ )
$H_0$	69.30	$69.4^{+2.6}_{-2.5}$ (−1.0 $\sigma$ )	$z_{\text{eq}}$	3362	$3360^{+60}_{-59}$ (+0.8 $\sigma$ )	$\chi_{\text{DR12BAO}}^2$	3.52	$3.90$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$\Omega_\Lambda$	0.6971	$0.697^{+0.015}_{-0.016}$ (−0.5 $\sigma$ )	$k_{\text{eq}}$	0.010411	$0.01042^{+0.00030}_{-0.00028}$ (−0.4 $\sigma$ )	$\chi_{\text{prior}}^2$	2.1	$11.9$ ( $\nu$ : 10.9) (+1.2 $\sigma$ )
$\Omega_m$	0.3029	$0.303^{+0.016}_{-0.015}$ (+0.5 $\sigma$ )	$100\theta_{\text{eq}}$	0.8214	$0.822^{+0.011}_{-0.011}$ (−0.7 $\sigma$ )	$\chi_{\text{BAO}}^2$	5.26	$5.76$ ( $\nu$ : 0.2) (−0.4 $\sigma$ )
$\Omega_m h^2$	0.1455	$0.1459^{+0.0077}_{-0.0071}$ (−0.8 $\sigma$ )	$100\theta_{s,\text{eq}}$	0.4534	$0.4536^{+0.0058}_{-0.0058}$ (−0.8 $\sigma$ )	$\chi_{\text{CMB}}^2$	2767.9	$2784.3$ ( $\nu$ : 20.3) (+277.3 $\sigma$ )
$\Omega_m h^3$	0.1008	$0.1013^{+0.0086}_{-0.0078}$ (−0.9 $\sigma$ )	$H(0.15)$	74.57	$74.7^{+2.6}_{-2.5}$ (−1.0 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 2781.50$ ;  $\Delta\chi_{\text{eff}}^2 = 1589.00$ ;  $\bar{\chi}_{\text{eff}}^2 = 2808.11$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1595.72$ ;  $R - 1 = 0.00961$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 ( $\Delta$  -0.03) MGS: 1.75 ( $\Delta$  -0.45) DR12BAO: 3.52 ( $\Delta$  0.03) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.87 ( $\Delta$  0.54) commander\_dx12\_v3\_2\_29: 22.03 ( $\Delta$  0.71) plik\_rd12\_HM\_v22b\_TTTEEE: 2349.01 Hubble - H073p45: 6.25 ( $\Delta$  2.82)



# 7.86 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022654	$0.02265^{+0.00043}_{-0.00042}$ (+0.6 $\sigma$ )	$\sigma_8$	0.8186	$0.820^{+0.027}_{-0.027}$ (−0.5 $\sigma$ )	$D_M(0.15)$	625.3	$625^{+22}_{-21}$ (+1.0 $\sigma$ )
$\Omega_c h^2$	0.1222	$0.1226^{+0.0075}_{-0.0069}$ (−0.8 $\sigma$ )	$S_8$	0.8214	$0.823^{+0.033}_{-0.034}$ (−0.1 $\sigma$ )	$H(0.38)$	84.78	$84.9^{+2.6}_{-2.6}$ (−0.9 $\sigma$ )
$100\theta_{MC}$	1.04071	$1.0407^{+0.0010}_{-0.0010}$ (+0.6 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4499	$0.451^{+0.018}_{-0.019}$ (−0.1 $\sigma$ )	$D_M(0.38)$	1493.5	$1492^{+50}_{-49}$ (+1.0 $\sigma$ )
$\tau$	0.0569	$0.058^{+0.022}_{-0.021}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6069	$0.608^{+0.021}_{-0.021}$ (−0.3 $\sigma$ )	$H(0.51)$	91.51	$91.6^{+2.7}_{-2.7}$ (−0.9 $\sigma$ )
$N_{\text{eff}}$	3.276	$3.29^{+0.42}_{-0.39}$ (−1.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9825	$0.984^{+0.027}_{-0.027}$ (−0.0 $\sigma$ )	$D_M(0.51)$	1936	$1935^{+64}_{-62}$ (+1.0 $\sigma$ )
$\ln(10^{10} A_s)$	3.0556	$3.058^{+0.046}_{-0.045}$ (−0.1 $\sigma$ )	$r_{\text{drag}} h$	100.69	$100.7^{+2.0}_{-2.0}$ (−0.5 $\sigma$ )	$H(0.61)$	97.15	$97.2^{+2.8}_{-2.8}$ (−0.9 $\sigma$ )
$n_s$	0.9764	$0.977^{+0.016}_{-0.015}$ (−0.8 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.417	$2.420^{+0.064}_{-0.061}$ (+0.4 $\sigma$ )	$D_M(0.61)$	2254	$2253^{+73}_{-71}$ (+1.0 $\sigma$ )
$y_{\text{cal}}$	1.0007	$1.0007^{+0.0064}_{-0.0063}$ (+0.1 $\sigma$ )	$z_{\text{re}}$	7.95	$8.0^{+2.1}_{-2.2}$ (+0.1 $\sigma$ )	$H(2.33)$	239.0	$239.3^{+6.2}_{-6.0}$ (−0.8 $\sigma$ )
$A_{217}^{\text{CIB}}$	50.2	$48^{+20}_{-20}$ (−0.3 $\sigma$ )	$10^9 A_s$	2.123	$2.13^{+0.10}_{-0.095}$ (−0.1 $\sigma$ )	$D_M(2.33)$	5659	$5654^{+160}_{-160}$ (+0.9 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.11	—	$10^9 A_s e^{-2\tau}$	1.8948	$1.896^{+0.041}_{-0.040}$ (−0.6 $\sigma$ )	$f\sigma_8(0.15)$	0.4553	$0.456^{+0.018}_{-0.018}$ (−0.2 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.4	—	$D_{40}$	1215.1	$1216^{+33}_{-32}$ (+0.6 $\sigma$ )	$\sigma_8(0.15)$	0.7574	$0.759^{+0.025}_{-0.025}$ (−0.6 $\sigma$ )
$A_{100}^{\text{PS}}$	256	$263^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{220}$	5740	$5739^{+100}_{-98}$ (+0.5 $\sigma$ )	$f\sigma_8(0.38)$	0.4759	$0.477^{+0.017}_{-0.017}$ (−0.3 $\sigma$ )
$A_{143}^{\text{PS}}$	45.0	$48^{+20}_{-20}$ (−0.7 $\sigma$ )	$D_{810}$	2543.1	$2543^{+35}_{-35}$ (+0.0 $\sigma$ )	$\sigma_8(0.38)$	0.6724	$0.674^{+0.023}_{-0.023}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	40.4	$42^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{1420}$	817.6	$817^{+13}_{-12}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4756	$0.477^{+0.016}_{-0.016}$ (−0.4 $\sigma$ )
$A_{217}^{\text{PS}}$	116.3	$114^{+30}_{-30}$ (−0.1 $\sigma$ )	$D_{2000}$	230.29	$230.1^{+4.6}_{-4.5}$ (+1.2 $\sigma$ )	$\sigma_8(0.51)$	0.6297	$0.631^{+0.022}_{-0.021}$ (−0.6 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$n_{s,0.002}$	0.9764	$0.977^{+0.016}_{-0.015}$ (−0.8 $\sigma$ )	$f\sigma_8(0.61)$	0.4714	$0.472^{+0.016}_{-0.016}$ (−0.4 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.91	$9.1^{+4.6}_{-4.8}$ (−0.0 $\sigma$ )	$Y_P$	0.2485	$0.2487^{+0.0053}_{-0.0052}$ (−1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5994	$0.600^{+0.021}_{-0.021}$ (−0.6 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.15	$11.1^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$Y_P^{\text{BBN}}$	0.2499	$0.2501^{+0.0054}_{-0.0052}$ (−1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3026	$0.303^{+0.011}_{-0.010}$ (−0.7 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.6	$18.8^{+8.6}_{-8.4}$ (+0.1 $\sigma$ )	$10^5 \text{D/H}$	2.613	$2.62^{+0.12}_{-0.11}$ (−1.5 $\sigma$ )	$\sigma_8(2.33)$	0.3124	$0.313^{+0.011}_{-0.011}$ (−0.7 $\sigma$ )
$A_{217}^{\text{dustTT}}$	94.3	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.551	$13.54^{+0.38}_{-0.38}$ (+0.9 $\sigma$ )	$f_{2000}^{143}$	30.3	$31^{+8}_{-8}$ (−1.0 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.115^{+0.098}_{-0.093}$	$z_*$	1089.98	$1090.03^{+0.92}_{-0.86}$ (−1.3 $\sigma$ )	$f_{2000}^{143 \times 217}$	33.0	$33^{+5}_{-6}$ (−1.1 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.078}_{-0.077}$	$r_*$	142.53	$142.4^{+3.8}_{-3.9}$ (+0.9 $\sigma$ )	$f_{2000}^{217}$	107.66	$107.9^{+4.8}_{-5.1}$ (−1.0 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.481	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	1.04072	$1.0407^{+0.0012}_{-0.0012}$ (+0.7 $\sigma$ )	$\chi_{\text{small}}^2$	396.4	$397.6$ ( $\nu$ : 2.7) (+0.2 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.695	$13.68^{+0.36}_{-0.36}$ (+0.9 $\sigma$ )	$\chi_{\text{lowl}}^2$	21.97	$22.06$ ( $\nu$ : 0.3) (+0.7 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.660	$0.66^{+0.21}_{-0.21}$	$z_{\text{drag}}$	1060.92	$1060.9^{+1.5}_{-1.5}$ (−0.1 $\sigma$ )	$\chi_{\text{plik}}^2$	2349.6	$2364.7$ ( $\nu$ : 22.1) (+273.0 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.07	$2.08^{+0.69}_{-0.68}$	$r_{\text{drag}}$	145.07	$144.9^{+3.9}_{-4.0}$ (+0.8 $\sigma$ )	$\chi_{\text{H073p45}}^2$	5.9	$6.1$ ( $\nu$ : 3.9) (+1.0 $\sigma$ )
$c_{100}$	0.99968	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14237	$0.1425^{+0.0030}_{-0.0029}$ (−0.6 $\sigma$ )	$\chi_{\text{JLA}}^2$	1034.755	$1034.83$ ( $\nu$ : 0.0) (+0.0 $\sigma$ )
$c_{217}$	0.99821	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.16113	$0.16118^{+0.00099}_{-0.00094}$ (−1.5 $\sigma$ )	$\chi_{6\text{DF}}^2$	0.002	$0.025$ ( $\nu$ : 0.0) (−0.4 $\sigma$ )
$H_0$	69.41	$69.5^{+2.5}_{-2.5}$ (−0.9 $\sigma$ )	$z_{\text{eq}}$	3358	$3359^{+57}_{-57}$ (+0.8 $\sigma$ )	$\chi_{\text{MGS}}^2$	1.82	$1.86$ ( $\nu$ : 0.1) (−0.5 $\sigma$ )
$\Omega_\Lambda$	0.6979	$0.698^{+0.015}_{-0.015}$ (−0.5 $\sigma$ )	$k_{\text{eq}}$	0.010407	$0.01042^{+0.00030}_{-0.00028}$ (−0.4 $\sigma$ )	$\chi_{\text{DR12BAO}}^2$	3.46	$3.85$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$\Omega_m$	0.3021	$0.302^{+0.015}_{-0.015}$ (+0.5 $\sigma$ )	$100\theta_{\text{eq}}$	0.8220	$0.822^{+0.011}_{-0.011}$ (−0.7 $\sigma$ )	$\chi_{\text{prior}}^2$	2.1	$11.9$ ( $\nu$ : 10.9) (+1.2 $\sigma$ )
$\Omega_m h^2$	0.1455	$0.1459^{+0.0077}_{-0.0071}$ (−0.8 $\sigma$ )	$100\theta_{s,\text{eq}}$	0.4537	$0.4536^{+0.0056}_{-0.0055}$ (−0.8 $\sigma$ )	$\chi_{\text{BAO}}^2$	5.28	$5.73$ ( $\nu$ : 0.2) (−0.4 $\sigma$ )
$\Omega_m h^3$	0.1010	$0.1013^{+0.0086}_{-0.0077}$ (−0.9 $\sigma$ )	$H(0.15)$	74.67	$74.7^{+2.5}_{-2.4}$ (−1.0 $\sigma$ )	$\chi_{\text{CMB}}^2$	2768.0	$2784.3$ ( $\nu$ : 20.1) (+277.4 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 3816.05$ ;  $\Delta\chi_{\text{eff}}^2 = 1589.42$ ;  $\bar{\chi}_{\text{eff}}^2 = 3842.86$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1595.74$ ;  $R - 1 = 0.00994$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 ( $\Delta$  -0.02) MGS: 1.82 ( $\Delta$  -0.30) DR12BAO: 3.46 ( $\Delta$  0.02) CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.44 ( $\Delta$  0.32) commander\_dx12\_v3\_2\_29: 21.97 ( $\Delta$  0.53) plik\_rd12\_HM\_v22b\_TTTEEE: 2349.59 Hubble - H073p45: 5.93 ( $\Delta$  2.67) SN - JLA Pantheon18: 1034.76 ( $\Delta$  0.02)



# 7.87 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022643	$0.02265^{+0.00047}_{-0.00048} \quad (+0.3\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.1003	$0.1011^{+0.0086}_{-0.0082} \quad (-1.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4534	$0.4536^{+0.0074}_{-0.0074} \quad (-1.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.1217	$0.1223^{+0.0071}_{-0.0066} \quad (-0.8\sigma)$	$\sigma_8$	0.8189	$0.820^{+0.024}_{-0.024} \quad (-0.7\sigma)$	$H(0.15)$	74.44	$74.7^{+3.0}_{-2.9} \quad (-1.1\sigma)$
$100\theta_{\mathrm{MC}}$	1.04074	$1.0407^{+0.0010}_{-0.00097} \quad (+0.4\sigma)$	$S_8$	0.8229	$0.823^{+0.032}_{-0.032} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	627.2	$625^{+27}_{-25} \quad (+1.1\sigma)$
$\tau$	0.0587	$0.059^{+0.022}_{-0.019} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4507	$0.451^{+0.018}_{-0.018} \quad (+0.2\sigma)$	$H(0.38)$	84.55	$84.8^{+3.0}_{-2.9} \quad (-1.1\sigma)$
$N_{\mathrm{eff}}$	3.241	$3.28^{+0.42}_{-0.41} \quad (-1.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6075	$0.608^{+0.018}_{-0.018} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	1498	$1494^{+59}_{-57} \quad (+1.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0583	$3.059^{+0.043}_{-0.041} \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	0.9846	$0.985^{+0.023}_{-0.023} \quad (+0.2\sigma)$	$H(0.51)$	91.27	$91.5^{+3.0}_{-2.9} \quad (-1.1\sigma)$
$n_{\mathrm{s}}$	0.9759	$0.976^{+0.018}_{-0.018} \quad (-1.0\sigma)$	$r_{\mathrm{drag}}h$	100.58	$100.7^{+2.7}_{-2.6} \quad (-0.8\sigma)$	$D_{\mathrm{M}}(0.51)$	1942	$1937^{+73}_{-72} \quad (+1.1\sigma)$
$y_{\mathrm{cal}}$	1.0007	$1.0009^{+0.0066}_{-0.0062} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	2.423	$2.423^{+0.058}_{-0.058} \quad (+0.7\sigma)$	$H(0.61)$	96.90	$97.2^{+3.0}_{-2.9} \quad (-1.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	46.5	$48^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	8.12	$8.1^{+2.0}_{-2.0} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	2261	$2255^{+83}_{-82} \quad (+1.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.53	—	$10^9 A_{\mathrm{s}}$	2.129	$2.131^{+0.094}_{-0.085} \quad (-0.4\sigma)$	$H(2.33)$	238.6	$239.1^{+6.0}_{-5.9} \quad (-0.8\sigma)$
$A_{143}^{\mathrm{tSZ}}$	7.3	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8931	$1.895^{+0.039}_{-0.038} \quad (-0.7\sigma)$	$D_{\mathrm{M}}(2.33)$	5673	$5659^{+170}_{-170} \quad (+1.1\sigma)$
$A_{100}^{\mathrm{PS}}$	251	$263^{+70}_{-70} \quad (-0.3\sigma)$	$D_{40}$	1215.9	$1217^{+35}_{-34} \quad (+0.8\sigma)$	$f\sigma_8(0.15)$	0.4560	$0.456^{+0.017}_{-0.017} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	50.5	$47^{+20}_{-20} \quad (-0.7\sigma)$	$D_{220}$	5740	$5743^{+100}_{-97} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	0.7576	$0.759^{+0.023}_{-0.023} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	51.3	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	2543.9	$2543^{+35}_{-34} \quad (-0.0\sigma)$	$f\sigma_8(0.38)$	0.4765	$0.477^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	121.6	$114^{+20}_{-30} \quad (-0.1\sigma)$	$D_{1420}$	818.5	$817^{+13}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	0.6725	$0.674^{+0.022}_{-0.021} \quad (-0.8\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	230.81	$230.2^{+4.8}_{-4.5} \quad (+1.1\sigma)$	$f\sigma_8(0.51)$	0.4761	$0.477^{+0.014}_{-0.014} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dustTT}}$	9.03	$9.0^{+4.6}_{-4.8} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	0.9759	$0.976^{+0.018}_{-0.018} \quad (-1.0\sigma)$	$\sigma_8(0.51)$	0.6297	$0.631^{+0.021}_{-0.020} \quad (-0.8\sigma)$
$A_{143}^{\mathrm{dustTT}}$	11.37	$11.0^{+4.5}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	0.2481	$0.2485^{+0.0054}_{-0.0055} \quad (-1.1\sigma)$	$f\sigma_8(0.61)$	0.4718	$0.472^{+0.013}_{-0.014} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.9	$18.8^{+8.5}_{-8.3} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2494	$0.2499^{+0.0055}_{-0.0055} \quad (-1.1\sigma)$	$\sigma_8(0.61)$	0.5994	$0.601^{+0.020}_{-0.020} \quad (-0.9\sigma)$
$A_{217}^{\mathrm{dustTT}}$	96.8	$94^{+20}_{-20} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	2.603	$2.61^{+0.11}_{-0.11} \quad (-1.4\sigma)$	$f\sigma_8(2.33)$	0.3026	$0.303^{+0.011}_{-0.010} \quad (-0.9\sigma)$
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.115^{+0.096}_{-0.093}$	Age/Gyr	13.584	$13.55^{+0.41}_{-0.39} \quad (+1.1\sigma)$	$\sigma_8(2.33)$	0.3123	$0.313^{+0.011}_{-0.011} \quad (-0.9\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.134	$0.135^{+0.078}_{-0.077}$	$z_*$	1089.91	$1089.99^{+0.88}_{-0.85} \quad (-1.1\sigma)$	$f_{2000}^{143}$	29.6	$31^{+8}_{-8} \quad (-0.9\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.482	$0.48^{+0.22}_{-0.21}$	$r_*$	142.83	$142.5^{+3.9}_{-3.7} \quad (+0.9\sigma)$	$f_{2000}^{143 \times 217}$	32.7	$33^{+5}_{-5} \quad (-1.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04078	$1.0407^{+0.0012}_{-0.0012} \quad (+0.6\sigma)$	$f_{2000}^{217}$	107.19	$107.8^{+4.8}_{-5.0} \quad (-1.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.664	$0.66^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.724	$13.69^{+0.36}_{-0.35} \quad (+0.9\sigma)$	$\chi_{\mathrm{lensing}}^2$	9.02	$9.54 \quad (\nu: 0.3) \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dustTE}}$	2.07	$2.08^{+0.69}_{-0.67}$	$z_{\mathrm{drag}}$	1060.85	$1060.9^{+1.6}_{-1.7} \quad (-0.3\sigma)$	$\chi_{\mathrm{small}}^2$	396.9	$397.8 \quad (\nu: 2.8) \quad (-0.0\sigma)$
$c_{100}$	0.99973	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	145.38	$145.1^{+4.0}_{-3.9} \quad (+0.9\sigma)$	$\chi_{\mathrm{lowl}}^2$	22.04	$22.16 \quad (\nu: 0.4) \quad (+0.9\sigma)$
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	0.14215	$0.1424^{+0.0030}_{-0.0030} \quad (-0.6\sigma)$	$\chi_{\mathrm{plik}}^2$	2348.8	$2364.2 \quad (\nu: 22.5) \quad (+271.3\sigma)$
$H_0$	69.18	$69.4^{+3.0}_{-3.0} \quad (-1.1\sigma)$	$100\theta_{\mathrm{D}}$	0.16103	$0.16114^{+0.00096}_{-0.00091} \quad (-1.6\sigma)$	$\chi_{\mathrm{H073p45}}^2$	6.6	$6.4 \quad (\nu: 5.8) \quad (+1.3\sigma)$
$\Omega_{\Lambda}$	0.6970	$0.698^{+0.020}_{-0.021} \quad (-0.8\sigma)$	$z_{\mathrm{eq}}$	3362	$3359^{+76}_{-74} \quad (+1.1\sigma)$	$\chi_{\mathrm{prior}}^2$	1.9	$11.8 \quad (\nu: 11.1) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	0.3030	$0.302^{+0.021}_{-0.020} \quad (+0.8\sigma)$	$k_{\mathrm{eq}}$	0.010394	$0.01041^{+0.00028}_{-0.00028} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	2776.8	$2793.7 \quad (\nu: 22.6) \quad (+260.9\sigma)$
$\Omega_{\mathrm{m}}h^2$	0.1450	$0.1456^{+0.0073}_{-0.0068} \quad (-0.7\sigma)$	$100\theta_{\mathrm{eq}}$	0.8214	$0.822^{+0.015}_{-0.015} \quad (-1.0\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2785.24$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1589.04$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2811.92$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1595.54$ ;  $R - 1 = 0.01134$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 9.02 ( $\Delta$  -0.66) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.87 ( $\Delta$  0.19) commander\_dx12.v3.2.29: 22.04 ( $\Delta$  0.74) plik\_rd12\_HM\_v22b\_TTTEEE: 2348.83 Hubble - H073p45: 6.61 ( $\Delta$  3.90)



# 7.88 base\_nnu\_plikHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022622	$0.02264^{+0.00043}_{-0.00042}$ (+0.6 $\sigma$ )	$\sigma_8$	0.8183	$0.820^{+0.024}_{-0.024}$ (−0.6 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	628.1	$626^{+23}_{-21}$ (+0.9 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.1217	$0.1223^{+0.0071}_{-0.0066}$ (−0.8 $\sigma$ )	$S_8$	0.8236	$0.824^{+0.028}_{-0.028}$ (−0.1 $\sigma$ )	$H(0.38)$	84.46	$84.7^{+2.6}_{-2.6}$ (−0.9 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04073	$1.0407^{+0.0010}_{-0.00097}$ (+0.5 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4511	$0.451^{+0.016}_{-0.015}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1500	$1495^{+51}_{-48}$ (+0.9 $\sigma$ )
$\tau$	0.0577	$0.058^{+0.021}_{-0.018}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6075	$0.608^{+0.018}_{-0.018}$ (−0.4 $\sigma$ )	$H(0.51)$	91.19	$91.5^{+2.7}_{-2.7}$ (−0.9 $\sigma$ )
$N_{\mathrm{eff}}$	3.234	$3.27^{+0.40}_{-0.39}$ (−1.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9845	$0.985^{+0.022}_{-0.022}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1944	$1938^{+65}_{-61}$ (+0.9 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0565	$3.059^{+0.041}_{-0.039}$ (−0.2 $\sigma$ )	$r_{\mathrm{drag}}h$	100.46	$100.6^{+2.0}_{-1.9}$ (−0.5 $\sigma$ )	$H(0.61)$	96.82	$97.1^{+2.8}_{-2.7}$ (−0.9 $\sigma$ )
$n_{\mathrm{s}}$	0.9751	$0.976^{+0.015}_{-0.015}$ (−0.8 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.424	$2.424^{+0.054}_{-0.052}$ (+0.5 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2263	$2256^{+75}_{-69}$ (+0.9 $\sigma$ )
$y_{\mathrm{cal}}$	1.0009	$1.0008^{+0.0064}_{-0.0062}$ (+0.1 $\sigma$ )	$z_{\mathrm{re}}$	8.02	$8.1^{+1.9}_{-1.9}$ (+0.1 $\sigma$ )	$H(2.33)$	238.6	$239.0^{+6.0}_{-5.7}$ (−0.8 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	48.9	$48^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.125	$2.130^{+0.089}_{-0.082}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5677	$5663^{+160}_{-150}$ (+0.9 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.28	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8937	$1.895^{+0.038}_{-0.038}$ (−0.6 $\sigma$ )	$f\sigma_8(0.15)$	0.4563	$0.457^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.3	—	$D_{40}$	1217.5	$1218^{+33}_{-32}$ (+0.6 $\sigma$ )	$\sigma_8(0.15)$	0.7569	$0.759^{+0.023}_{-0.022}$ (−0.7 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	254	$263^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{220}$	5742	$5742^{+100}_{-96}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4765	$0.477^{+0.014}_{-0.014}$ (−0.3 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	46.9	$47^{+20}_{-20}$ (−0.7 $\sigma$ )	$D_{810}$	2544.4	$2543^{+35}_{-34}$ (+0.0 $\sigma$ )	$\sigma_8(0.38)$	0.6718	$0.673^{+0.021}_{-0.021}$ (−0.7 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	44.6	$42^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{1420}$	818.5	$817^{+13}_{-12}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4760	$0.477^{+0.014}_{-0.014}$ (−0.4 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	118.0	$114^{+20}_{-30}$ (−0.1 $\sigma$ )	$D_{2000}$	230.78	$230.2^{+4.7}_{-4.5}$ (+1.1 $\sigma$ )	$\sigma_8(0.51)$	0.6290	$0.631^{+0.020}_{-0.020}$ (−0.7 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$n_{\mathrm{s},0.002}$	0.9751	$0.976^{+0.015}_{-0.015}$ (−0.8 $\sigma$ )	$f\sigma_8(0.61)$	0.4716	$0.472^{+0.013}_{-0.014}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.93	$9.0^{+4.6}_{-4.8}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}$	0.2480	$0.2485^{+0.0052}_{-0.0053}$ (−1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5987	$0.600^{+0.019}_{-0.019}$ (−0.7 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.10	$11.0^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2493	$0.2498^{+0.0052}_{-0.0053}$ (−1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3022	$0.3030^{+0.0096}_{-0.0097}$ (−0.7 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.8	$18.8^{+8.5}_{-8.3}$ (+0.1 $\sigma$ )	$10^5 \mathrm{D}/\mathrm{H}$	2.604	$2.61^{+0.11}_{-0.11}$ (−1.5 $\sigma$ )	$\sigma_8(2.33)$	0.3119	$0.313^{+0.010}_{-0.010}$ (−0.7 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	94.8	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.593	$13.56^{+0.38}_{-0.37}$ (+0.9 $\sigma$ )	$f_{2000}^{143}$	29.8	$31^{+8}_{-8}$ (−0.9 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.115^{+0.096}_{-0.093}$	$z_*$	1089.94	$1090.00^{+0.86}_{-0.83}$ (−1.3 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.7	$33^{+5}_{-5}$ (−1.1 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.077}_{-0.077}$	$r_*$	142.88	$142.6^{+3.7}_{-3.7}$ (+0.8 $\sigma$ )	$f_{2000}^{217}$	107.31	$107.8^{+4.8}_{-5.1}$ (−1.0 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.479	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	1.04077	$1.0407^{+0.0012}_{-0.0012}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	9.02	$9.48$ ( $\nu$ : 0.2) (−0.7 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.221	$0.22^{+0.14}_{-0.13}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.728	$13.70^{+0.35}_{-0.34}$ (+0.8 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.6	$397.7$ ( $\nu$ : 2.5) (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.664	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	1060.77	$1060.9^{+1.5}_{-1.5}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	22.11	$22.20$ ( $\nu$ : 0.3) (+0.7 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.07	$2.08^{+0.69}_{-0.68}$	$r_{\mathrm{drag}}$	145.44	$145.1^{+3.8}_{-3.8}$ (+0.8 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2348.4	$2363.8$ ( $\nu$ : 21.1) (+279.5 $\sigma$ )
$c_{100}$	0.99969	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.14211	$0.1423^{+0.0030}_{-0.0028}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	6.9	$6.5$ ( $\nu$ : 4.3) (+1.0 $\sigma$ )
$c_{217}$	0.99823	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16103	$0.16113^{+0.00096}_{-0.00090}$ (−1.5 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.000	$0.024$ ( $\nu$ : 0.0) (−0.3 $\sigma$ )
$H_0$	69.08	$69.3^{+2.5}_{-2.5}$ (−0.9 $\sigma$ )	$z_{\mathrm{eq}}$	3365	$3361^{+57}_{-55}$ (+0.9 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	1.68	$1.81$ ( $\nu$ : 0.1) (−0.5 $\sigma$ )
$\Omega_{\Lambda}$	0.6961	$0.697^{+0.015}_{-0.016}$ (−0.5 $\sigma$ )	$k_{\mathrm{eq}}$	0.010398	$0.01041^{+0.00027}_{-0.00026}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	3.57	$3.88$ ( $\nu$ : 0.2) (−0.0 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3039	$0.303^{+0.016}_{-0.015}$ (+0.5 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8208	$0.821^{+0.011}_{-0.011}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	2.0	$11.8$ ( $\nu$ : 10.9) (+1.2 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.1450	$0.1456^{+0.0074}_{-0.0067}$ (−0.8 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4531	$0.4534^{+0.0054}_{-0.0055}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2776.2	$2793.1$ ( $\nu$ : 20.7) (+275.0 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	0.1002	$0.1009^{+0.0082}_{-0.0076}$ (−0.9 $\sigma$ )	$H(0.15)$	74.35	$74.6^{+2.5}_{-2.5}$ (−0.9 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	5.25	$5.71$ ( $\nu$ : 0.2) (−0.3 $\sigma$ )

Best-fit  $\chi_{\mathrm{eff}}^2 = 2790.37$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2817.17$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1595.14$ ;  $R - 1 = 0.01178$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.57 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.02 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.62 commander\_dx12.v3.2.29: 22.11 plik\_rd12\_HM\_v22b\_TTTEEE: 2348.44 Hubble - H073p45: 6.95



7.89 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_Riess18\_post\_BAO\_lensing\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022634	$0.02264^{+0.00042}_{-0.00041}$ (+0.6 $\sigma$ )	$S_8$	0.8219	$0.824^{+0.028}_{-0.028}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1498.1	$1495^{+51}_{-47}$ (+0.9 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.1217	$0.1223^{+0.0072}_{-0.0066}$ (−0.8 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4501	$0.451^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )	$H(0.51)$	91.26	$91.5^{+2.6}_{-2.7}$ (−0.9 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04076	$1.0407^{+0.0010}_{-0.00097}$ (+0.5 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6067	$0.608^{+0.018}_{-0.018}$ (−0.4 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1942	$1937^{+65}_{-60}$ (+0.9 $\sigma$ )
$\tau$	0.0576	$0.059^{+0.021}_{-0.018}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9832	$0.985^{+0.022}_{-0.022}$ (−0.1 $\sigma$ )	$H(0.61)$	96.90	$97.1^{+2.7}_{-2.7}$ (−0.9 $\sigma$ )
$N_{\mathrm{eff}}$	3.240	$3.27^{+0.40}_{-0.38}$ (−1.0 $\sigma$ )	$r_{\mathrm{drag}}h$	100.58	$100.6^{+1.9}_{-1.9}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2261	$2256^{+73}_{-68}$ (+0.9 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0557	$3.059^{+0.041}_{-0.039}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.421	$2.424^{+0.053}_{-0.052}$ (+0.5 $\sigma$ )	$H(2.33)$	238.6	$239.1^{+6.0}_{-5.8}$ (−0.8 $\sigma$ )
$n_{\mathrm{s}}$	0.9753	$0.976^{+0.015}_{-0.015}$ (−0.8 $\sigma$ )	$z_{\mathrm{re}}$	8.01	$8.1^{+1.9}_{-1.9}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5673	$5661^{+160}_{-150}$ (+0.9 $\sigma$ )
$y_{\mathrm{cal}}$	1.0006	$1.0008^{+0.0064}_{-0.0062}$ (+0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.124	$2.131^{+0.089}_{-0.082}$ (−0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4554	$0.456^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	49.8	$48^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8924	$1.895^{+0.038}_{-0.037}$ (−0.6 $\sigma$ )	$\sigma_8(0.15)$	0.7565	$0.759^{+0.023}_{-0.022}$ (−0.6 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.11	—	$D_{40}$	1216.6	$1217^{+32}_{-32}$ (+0.6 $\sigma$ )	$f\sigma_8(0.38)$	0.4759	$0.477^{+0.014}_{-0.014}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.4	—	$D_{220}$	5740	$5742^{+100}_{-96}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6715	$0.673^{+0.021}_{-0.021}$ (−0.7 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	255	$263^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{810}$	2542.5	$2543^{+35}_{-34}$ (+0.0 $\sigma$ )	$f\sigma_8(0.51)$	0.4755	$0.477^{+0.014}_{-0.014}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	44.2	$47^{+20}_{-20}$ (−0.7 $\sigma$ )	$D_{1420}$	817.8	$817^{+13}_{-12}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6288	$0.631^{+0.019}_{-0.020}$ (−0.7 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	40	$42^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{2000}$	230.52	$230.2^{+4.7}_{-4.5}$ (+1.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4711	$0.472^{+0.013}_{-0.014}$ (−0.5 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	116.4	$114^{+20}_{-30}$ (−0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9753	$0.976^{+0.015}_{-0.015}$ (−0.8 $\sigma$ )	$\sigma_8(0.61)$	0.5986	$0.600^{+0.019}_{-0.019}$ (−0.7 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$Y_{\mathrm{P}}$	0.2481	$0.2485^{+0.0052}_{-0.0051}$ (−1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3021	$0.3030^{+0.0096}_{-0.0095}$ (−0.7 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.93	$9.0^{+4.7}_{-4.8}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2494	$0.2498^{+0.0052}_{-0.0052}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3119	$0.313^{+0.010}_{-0.010}$ (−0.7 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.09	$11.0^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.604	$2.61^{+0.11}_{-0.11}$ (−1.5 $\sigma$ )	$f_{2000}^{143}$	29.9	$31^{+8}_{-8}$ (−0.9 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	19.5	$18.8^{+8.5}_{-8.3}$ (+0.1 $\sigma$ )	Age/Gyr	13.584	$13.56^{+0.38}_{-0.36}$ (+0.9 $\sigma$ )	$f_{2000}^{143\times 217}$	32.7	$33^{+5}_{-6}$ (−1.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	94.3	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$z_*$	1089.93	$1090.00^{+0.87}_{-0.82}$ (−1.3 $\sigma$ )	$f_{2000}^{217}$	107.43	$107.8^{+4.8}_{-5.1}$ (−1.0 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.115	$0.115^{+0.096}_{-0.093}$	$r_*$	142.84	$142.5^{+3.7}_{-3.7}$ (+0.8 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	9.06	$9.48$ ( $\nu$ : 0.2) (−0.7 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.077}_{-0.077}$	$100\theta_*$	1.04079	$1.0407^{+0.0012}_{-0.0012}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.6	$397.7$ ( $\nu$ : 2.6) (+0.1 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	0.482	$0.48^{+0.22}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.724	$13.70^{+0.35}_{-0.34}$ (+0.8 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	22.11	$22.17$ ( $\nu$ : 0.3) (+0.6 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.223	$0.22^{+0.14}_{-0.13}$	$z_{\mathrm{drag}}$	1060.81	$1060.9^{+1.5}_{-1.5}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2348.7	$2363.9$ ( $\nu$ : 21.1) (+279.8 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	0.660	$0.66^{+0.21}_{-0.21}$	$r_{\mathrm{drag}}$	145.39	$145.1^{+3.8}_{-3.8}$ (+0.8 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	6.6	$6.4$ ( $\nu$ : 4.1) (+1.0 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.07	$2.08^{+0.69}_{-0.68}$	$k_{\mathrm{D}}$	0.14214	$0.1424^{+0.0030}_{-0.0028}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	1034.769	$1034.83$ ( $\nu$ : 0.0) (+0.1 $\sigma$ )
$c_{100}$	0.99970	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16105	$0.16114^{+0.00096}_{-0.00090}$ (−1.5 $\sigma$ )	$\chi_{\mathrm{6DF}}^2$	0.000	$0.023$ ( $\nu$ : 0.0) (−0.3 $\sigma$ )
$c_{217}$	0.99822	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{\mathrm{eq}}$	3362	$3360^{+55}_{-53}$ (+0.9 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	1.75	$1.83$ ( $\nu$ : 0.1) (−0.5 $\sigma$ )
$H_0$	69.17	$69.4^{+2.5}_{-2.5}$ (−0.9 $\sigma$ )	$k_{\mathrm{eq}}$	0.010394	$0.01041^{+0.00027}_{-0.00026}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	3.50	$3.84$ ( $\nu$ : 0.2) (−0.0 $\sigma$ )
$\Omega_{\Lambda}$	0.6970	$0.697^{+0.014}_{-0.015}$ (−0.5 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8213	$0.822^{+0.010}_{-0.010}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	2.0	$11.8$ ( $\nu$ : 10.9) (+1.2 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3030	$0.303^{+0.015}_{-0.014}$ (+0.5 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4534	$0.4535^{+0.0053}_{-0.0052}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2776.5	$2793.2$ ( $\nu$ : 20.6) (+275.5 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.1450	$0.1456^{+0.0074}_{-0.0068}$ (−0.8 $\sigma$ )	$H(0.15)$	74.44	$74.6^{+2.5}_{-2.5}$ (−0.9 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	5.25	$5.69$ ( $\nu$ : 0.2) (−0.3 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	0.1003	$0.1010^{+0.0082}_{-0.0076}$ (−0.9 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	627.3	$626^{+22}_{-21}$ (+0.9 $\sigma$ )			
$\sigma_8$	0.8177	$0.820^{+0.024}_{-0.024}$ (−0.6 $\sigma$ )	$H(0.38)$	84.54	$84.7^{+2.5}_{-2.6}$ (−0.9 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 3825.12$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1588.87$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 3851.93$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1595.17$ ;  $R - 1 = 0.01182$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.00 ( $\Delta$  -0.01) MGS: 1.75 ( $\Delta$  -0.29) DR12BAO: 3.50 ( $\Delta$  0.08) CMB - smicadx12.Dec5.ftl\_mv2\_ndclpp\_p.teb.consext8: 9.06 ( $\Delta$  -0.45) small\_100x143.offlike5\_EE\_Aplanc  
396.60 ( $\Delta$  0.13) commander\_dx12.v3.2.29: 22.11 ( $\Delta$  0.50) plik\_rd12\_HM.v22b\_TTTEE: 2348.72 Hubble - H073p45: 6.63 ( $\Delta$  2.92) SN - JLA Pantheon18: 1034.77 ( $\Delta$  0.03)



# 7.90 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_Riess18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02266^{+0.00049}_{-0.00048} \quad (+0.2\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.1015^{+0.0089}_{-0.0081} \quad (-1.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4540^{+0.0081}_{-0.0078} \quad (-1.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1225^{+0.0075}_{-0.0069} \quad (-0.6\sigma)$	$\sigma_8$	$0.820^{+0.028}_{-0.026} \quad (-0.4\sigma)$	$H(0.15)$	$74.8^{+3.0}_{-2.9} \quad (-1.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0010}_{-0.0010} \quad (+0.4\sigma)$	$S_8$	$0.823^{+0.040}_{-0.040} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$624^{+26}_{-26} \quad (+1.2\sigma)$
$\tau$	$0.058^{+0.021}_{-0.016} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.022}_{-0.022} \quad (+0.4\sigma)$	$H(0.38)$	$84.9^{+3.0}_{-2.9} \quad (-1.2\sigma)$
$N_{\mathrm{eff}}$	$3.30^{+0.43}_{-0.40} \quad (-1.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.023}_{-0.023} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1491^{+58}_{-57} \quad (+1.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.059^{+0.047}_{-0.038} \quad (-0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.030}_{-0.030} \quad (+0.4\sigma)$	$H(0.51)$	$91.7^{+3.1}_{-2.9} \quad (-1.2\sigma)$
$n_{\mathrm{s}}$	$0.977^{+0.018}_{-0.017} \quad (-1.1\sigma)$	$r_{\mathrm{drag}}h$	$100.8^{+3.0}_{-2.8} \quad (-0.9\sigma)$	$D_{\mathrm{M}}(0.51)$	$1933^{+73}_{-72} \quad (+1.2\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0066}_{-0.0064} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.420^{+0.072}_{-0.071} \quad (+0.8\sigma)$	$H(0.61)$	$97.3^{+3.1}_{-3.0} \quad (-1.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20} \quad (-0.3\sigma)$	$z_{\mathrm{re}}$	$< 9.94 \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2250^{+83}_{-83} \quad (+1.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.13^{+0.10}_{-0.080} \quad (-0.2\sigma)$	$H(2.33)$	$239.3^{+6.2}_{-6.0} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.896^{+0.042}_{-0.041} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(2.33)$	$5651^{+170}_{-170} \quad (+1.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70} \quad (-0.3\sigma)$	$D_{40}$	$1215^{+37}_{-35} \quad (+0.9\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.021}_{-0.021} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20} \quad (-0.7\sigma)$	$D_{220}$	$5739^{+100}_{-98} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.759^{+0.025}_{-0.024} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2543^{+36}_{-35} \quad (+0.0\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.019}_{-0.018} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30} \quad (-0.0\sigma)$	$D_{1420}$	$817^{+13}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	$0.674^{+0.023}_{-0.022} \quad (-0.6\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$230.1^{+4.7}_{-4.5} \quad (+1.1\sigma)$	$f\sigma_8(0.51)$	$0.477^{+0.017}_{-0.017} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$9.1^{+4.6}_{-4.7} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.977^{+0.018}_{-0.017} \quad (-1.1\sigma)$	$\sigma_8(0.51)$	$0.631^{+0.022}_{-0.021} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$11.1^{+4.5}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.2488^{+0.0055}_{-0.0054} \quad (-1.2\sigma)$	$f\sigma_8(0.61)$	$0.472^{+0.017}_{-0.016} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.8^{+8.7}_{-8.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2502^{+0.0056}_{-0.0055} \quad (-1.2\sigma)$	$\sigma_8(0.61)$	$0.601^{+0.021}_{-0.020} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.12}_{-0.11} \quad (-1.4\sigma)$	$f\sigma_8(2.33)$	$0.303^{+0.011}_{-0.010} \quad (-0.8\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.097}_{-0.095}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.53^{+0.40}_{-0.40} \quad (+1.1\sigma)$	$\sigma_8(2.33)$	$0.313^{+0.012}_{-0.011} \quad (-0.9\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.078}_{-0.077}$	$z_*$	$1090.02^{+0.92}_{-0.89} \quad (-1.0\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} \quad (-1.0\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$142.4^{+3.9}_{-3.9} \quad (+0.9\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-1.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.0407^{+0.0012}_{-0.0012} \quad (+0.5\sigma)$	$f_{2000}^{217}$	$107.9^{+5.0}_{-5.1} \quad (-1.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.68^{+0.36}_{-0.36} \quad (+0.9\sigma)$	$\chi_{\mathrm{small}}^2$	$397.6 \quad (\nu: 2.9) \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.07^{+0.69}_{-0.68}$	$z_{\mathrm{drag}}$	$1061.0^{+1.7}_{-1.6} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.03 \quad (\nu: 0.4) \quad (+1.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$144.9^{+4.0}_{-4.0} \quad (+0.9\sigma)$	$\chi_{\mathrm{plik}}^2$	$2365.2 \quad (\nu: 24.4) \quad (+261.8\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.1425^{+0.0031}_{-0.0030} \quad (-0.6\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$6.0 \quad (\nu: 5.4) \quad (+1.5\sigma)$
$H_0$	$69.6^{+3.1}_{-3.0} \quad (-1.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.16119^{+0.00097}_{-0.00094} \quad (-1.6\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.9 \quad (\nu: 10.9) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.698^{+0.022}_{-0.022} \quad (-0.9\sigma)$	$z_{\mathrm{eq}}$	$3356^{+80}_{-81} \quad (+1.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2784.9 \quad (\nu: 22.1) \quad (+269.4\sigma)$
$\Omega_{\mathrm{m}}$	$0.302^{+0.022}_{-0.022} \quad (+0.9\sigma)$	$k_{\mathrm{eq}}$	$0.01041^{+0.00031}_{-0.00030} \quad (-0.0\sigma)$		
$\Omega_{\mathrm{m}}h^2$	$0.1459^{+0.0077}_{-0.0071} \quad (-0.6\sigma)$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.016}_{-0.015} \quad (-1.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2802.74; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1596.48; R - 1 = 0.00708$$



7.91 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_Riess18\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02265^{+0.00043}_{-0.00042} (+0.6\sigma)$	$\sigma_8$	$0.821^{+0.027}_{-0.027} (-0.6\sigma)$	$D_M(0.15)$	$625^{+23}_{-21} (+1.0\sigma)$
$\Omega_c h^2$	$0.1226^{+0.0075}_{-0.0069} (-0.8\sigma)$	$S_8$	$0.824^{+0.033}_{-0.033} (-0.1\sigma)$	$H(0.38)$	$84.8^{+2.7}_{-2.6} (-1.0\sigma)$
$100\theta_{MC}$	$1.0407^{+0.0010}_{-0.0010} (+0.6\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.018}_{-0.018} (-0.1\sigma)$	$D_M(0.38)$	$1493^{+51}_{-49} (+1.0\sigma)$
$\tau$	$0.058^{+0.020}_{-0.016} (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.609^{+0.021}_{-0.021} (-0.3\sigma)$	$H(0.51)$	$91.6^{+2.7}_{-2.7} (-0.9\sigma)$
$N_{\text{eff}}$	$3.29^{+0.42}_{-0.39} (-1.0\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.027}_{-0.026} (-0.0\sigma)$	$D_M(0.51)$	$1935^{+64}_{-62} (+1.0\sigma)$
$\ln(10^{10} A_s)$	$3.058^{+0.046}_{-0.038} (-0.2\sigma)$	$r_{\text{drag}} h$	$100.6^{+2.1}_{-2.0} (-0.5\sigma)$	$H(0.61)$	$97.2^{+2.9}_{-2.8} (-0.9\sigma)$
$n_s$	$0.976^{+0.016}_{-0.015} (-0.8\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.422^{+0.064}_{-0.059} (+0.4\sigma)$	$D_M(0.61)$	$2253^{+73}_{-71} (+1.0\sigma)$
$y_{\text{cal}}$	$1.0007^{+0.0065}_{-0.0063} (+0.1\sigma)$	$z_{\text{re}}$	$< 9.91 (+0.1\sigma)$	$H(2.33)$	$239.3^{+6.2}_{-6.0} (-0.8\sigma)$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20} (-0.3\sigma)$	$10^9 A_s$	$2.130^{+0.099}_{-0.079} (-0.2\sigma)$	$D_M(2.33)$	$5655^{+160}_{-160} (+0.9\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_s e^{-2\tau}$	$1.896^{+0.041}_{-0.040} (-0.6\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.018}_{-0.018} (-0.1\sigma)$
$A_{143}^{\text{tSZ}}$	—	$D_{40}$	$1216^{+34}_{-32} (+0.6\sigma)$	$\sigma_8(0.15)$	$0.759^{+0.025}_{-0.025} (-0.6\sigma)$
$A_{100}^{\text{PS}}$	$263^{+70}_{-70} (-0.3\sigma)$	$D_{220}$	$5738^{+100}_{-97} (+0.5\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.017}_{-0.017} (-0.3\sigma)$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20} (-0.7\sigma)$	$D_{810}$	$2543^{+36}_{-35} (+0.0\sigma)$	$\sigma_8(0.38)$	$0.674^{+0.022}_{-0.022} (-0.6\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} (-0.3\sigma)$	$D_{1420}$	$817^{+13}_{-12} (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.477^{+0.016}_{-0.016} (-0.4\sigma)$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30} (-0.1\sigma)$	$D_{2000}$	$230.1^{+4.6}_{-4.5} (+1.2\sigma)$	$\sigma_8(0.51)$	$0.631^{+0.021}_{-0.021} (-0.7\sigma)$
$A^{\text{kSZ}}$	—	$n_{s,0.002}$	$0.976^{+0.016}_{-0.015} (-0.8\sigma)$	$f\sigma_8(0.61)$	$0.473^{+0.016}_{-0.015} (-0.4\sigma)$
$A_{100}^{\text{dustTT}}$	$9.1^{+4.6}_{-4.8} (-0.0\sigma)$	$Y_{\text{P}}$	$0.2487^{+0.0054}_{-0.0052} (-1.0\sigma)$	$\sigma_8(0.61)$	$0.601^{+0.020}_{-0.020} (-0.7\sigma)$
$A_{143}^{\text{dustTT}}$	$11.1^{+4.5}_{-4.5} (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.2500^{+0.0054}_{-0.0053} (-1.0\sigma)$	$f\sigma_8(2.33)$	$0.303^{+0.011}_{-0.010} (-0.7\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.8^{+8.5}_{-8.4} (+0.1\sigma)$	$10^5 \text{D/H}$	$2.62^{+0.12}_{-0.11} (-1.5\sigma)$	$\sigma_8(2.33)$	$0.313^{+0.011}_{-0.010} (-0.7\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} (+0.1\sigma)$	$\text{Age/Gyr}$	$13.54^{+0.38}_{-0.38} (+0.9\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} (-1.0\sigma)$
$A_{100}^{\text{dustTE}}$	$0.115^{+0.098}_{-0.093}$	$z_*$	$1090.03^{+0.92}_{-0.86} (-1.3\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-6} (-1.1\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.078}_{-0.077}$	$r_*$	$142.4^{+3.8}_{-3.9} (+0.9\sigma)$	$f_{2000}^{217}$	$107.9^{+4.8}_{-5.1} (-1.0\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	$1.0407^{+0.0012}_{-0.0012} (+0.7\sigma)$	$\chi_{\text{small}}^2$	$397.6 (\nu: 2.7) (+0.2\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$D_M(z_*)/\text{Gpc}$	$13.68^{+0.36}_{-0.36} (+0.9\sigma)$	$\chi_{\text{lowl}}^2$	$22.09 (\nu: 0.3) (+0.7\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$z_{\text{drag}}$	$1060.9^{+1.5}_{-1.5} (-0.1\sigma)$	$\chi_{\text{plik}}^2$	$2364.5 (\nu: 22.1) (+274.1\sigma)$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.70}_{-0.68}$	$r_{\text{drag}}$	$144.9^{+3.9}_{-4.0} (+0.8\sigma)$	$\chi_{\text{H073p45}}^2$	$6.2 (\nu: 4.1) (+1.0\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016} (+0.1\sigma)$	$k_{\text{D}}$	$0.1425^{+0.0030}_{-0.0029} (-0.6\sigma)$	$\chi_{6\text{DF}}^2$	$0.027 (\nu: 0.0) (-0.4\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} (-0.1\sigma)$	$100\theta_{\text{D}}$	$0.16118^{+0.00099}_{-0.00094} (-1.5\sigma)$	$\chi_{\text{MGS}}^2$	$1.84 (\nu: 0.1) (-0.5\sigma)$
$H_0$	$69.4^{+2.6}_{-2.5} (-0.9\sigma)$	$z_{\text{eq}}$	$3360^{+60}_{-59} (+0.8\sigma)$	$\chi_{\text{DR12BAO}}^2$	$3.89 (\nu: 0.2) (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.697^{+0.015}_{-0.016} (-0.5\sigma)$	$k_{\text{eq}}$	$0.01042^{+0.00030}_{-0.00029} (-0.4\sigma)$	$\chi_{\text{prior}}^2$	$11.9 (\nu: 10.9) (+1.2\sigma)$
$\Omega_{\text{m}}$	$0.303^{+0.016}_{-0.015} (+0.5\sigma)$	$100\theta_{\text{eq}}$	$0.822^{+0.011}_{-0.011} (-0.7\sigma)$	$\chi_{\text{BAO}}^2$	$5.76 (\nu: 0.2) (-0.4\sigma)$
$\Omega_{\text{m}} h^2$	$0.1459^{+0.0077}_{-0.0071} (-0.8\sigma)$	$100\theta_{\text{s,eq}}$	$0.4536^{+0.0058}_{-0.0057} (-0.8\sigma)$	$\chi_{\text{CMB}}^2$	$2784.2 (\nu: 20.1) (+280.3\sigma)$
$\Omega_{\text{m}} h^3$	$0.1013^{+0.0086}_{-0.0078} (-0.9\sigma)$	$H(0.15)$	$74.7^{+2.6}_{-2.5} (-1.0\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2807.99; \Delta \bar{\chi}_{\text{eff}}^2 = 1595.77; R - 1 = 0.00955$$



7.92 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_Riess18\_post\_BAO\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02265^{+0.00042}_{-0.00042} \quad (+0.6\sigma)$	$\sigma_8$	$0.821^{+0.027}_{-0.027} \quad (-0.6\sigma)$	$D_{\mathrm{M}}(0.15)$	$625^{+22}_{-21} \quad (+1.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1226^{+0.0075}_{-0.0069} \quad (-0.8\sigma)$	$S_8$	$0.824^{+0.033}_{-0.033} \quad (-0.1\sigma)$	$H(0.38)$	$84.9^{+2.6}_{-2.6} \quad (-0.9\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0010}_{-0.0010} \quad (+0.6\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.018}_{-0.018} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1492^{+50}_{-48} \quad (+1.0\sigma)$
$\tau$	$0.058^{+0.020}_{-0.016} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.021}_{-0.021} \quad (-0.3\sigma)$	$H(0.51)$	$91.6^{+2.7}_{-2.7} \quad (-0.9\sigma)$
$N_{\mathrm{eff}}$	$3.29^{+0.42}_{-0.39} \quad (-1.0\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.026}_{-0.025} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1934^{+63}_{-61} \quad (+1.0\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.059^{+0.046}_{-0.037} \quad (-0.2\sigma)$	$r_{\mathrm{drag}}h$	$100.7^{+2.0}_{-1.9} \quad (-0.5\sigma)$	$H(0.61)$	$97.2^{+2.8}_{-2.7} \quad (-0.9\sigma)$
$n_{\mathrm{s}}$	$0.977^{+0.016}_{-0.015} \quad (-0.8\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.421^{+0.064}_{-0.058} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	$2252^{+73}_{-71} \quad (+1.0\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0063} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.91 \quad (+0.1\sigma)$	$H(2.33)$	$239.3^{+6.2}_{-6.0} \quad (-0.8\sigma)$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20} \quad (-0.3\sigma)$	$10^9 A_{\mathrm{s}}$	$2.130^{+0.099}_{-0.078} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5654^{+160}_{-160} \quad (+0.9\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.896^{+0.042}_{-0.040} \quad (-0.6\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.018}_{-0.018} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1216^{+33}_{-32} \quad (+0.6\sigma)$	$\sigma_8(0.15)$	$0.759^{+0.025}_{-0.025} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5739^{+100}_{-97} \quad (+0.5\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.017}_{-0.016} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20} \quad (-0.7\sigma)$	$D_{810}$	$2543^{+36}_{-35} \quad (+0.0\sigma)$	$\sigma_8(0.38)$	$0.674^{+0.022}_{-0.022} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.3\sigma)$	$D_{1420}$	$817^{+13}_{-12} \quad (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.477^{+0.016}_{-0.016} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30} \quad (-0.1\sigma)$	$D_{2000}$	$230.1^{+4.6}_{-4.5} \quad (+1.1\sigma)$	$\sigma_8(0.51)$	$0.631^{+0.021}_{-0.021} \quad (-0.7\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.977^{+0.016}_{-0.015} \quad (-0.8\sigma)$	$f\sigma_8(0.61)$	$0.473^{+0.016}_{-0.015} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$9.1^{+4.6}_{-4.8} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2487^{+0.0054}_{-0.0052} \quad (-1.0\sigma)$	$\sigma_8(0.61)$	$0.601^{+0.020}_{-0.020} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$11.1^{+4.5}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2501^{+0.0054}_{-0.0052} \quad (-1.0\sigma)$	$f\sigma_8(2.33)$	$0.303^{+0.010}_{-0.010} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.8^{+8.5}_{-8.4} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.12}_{-0.11} \quad (-1.5\sigma)$	$\sigma_8(2.33)$	$0.313^{+0.011}_{-0.010} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.54^{+0.37}_{-0.38} \quad (+0.9\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} \quad (-0.9\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.098}_{-0.093}$	$z_*$	$1090.03^{+0.91}_{-0.86} \quad (-1.3\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-6} \quad (-1.1\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.078}_{-0.077}$	$r_*$	$142.4^{+3.8}_{-3.9} \quad (+0.9\sigma)$	$f_{2000}^{217}$	$107.9^{+4.8}_{-5.1} \quad (-1.0\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	$1.0407^{+0.0012}_{-0.0012} \quad (+0.7\sigma)$	$\chi_{\mathrm{small}}^2$	$397.6 \quad (\nu: 2.7) \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.68^{+0.35}_{-0.35} \quad (+0.8\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.06 \quad (\nu: 0.3) \quad (+0.7\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1061.0^{+1.5}_{-1.5} \quad (-0.1\sigma)$	$\chi_{\mathrm{plik}}^2$	$2364.6 \quad (\nu: 22.0) \quad (+274.5\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.70}_{-0.68}$	$r_{\mathrm{drag}}$	$144.9^{+3.9}_{-4.0} \quad (+0.8\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$6.1 \quad (\nu: 3.9) \quad (+1.0\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1425^{+0.0030}_{-0.0029} \quad (-0.6\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1034.83 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16118^{+0.00099}_{-0.00093} \quad (-1.5\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.025 \quad (\nu: 0.0) \quad (-0.4\sigma)$
$H_0$	$69.5^{+2.5}_{-2.4} \quad (-0.9\sigma)$	$z_{\mathrm{eq}}$	$3359^{+57}_{-57} \quad (+0.8\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.86 \quad (\nu: 0.1) \quad (-0.5\sigma)$
$\Omega_{\Lambda}$	$0.698^{+0.015}_{-0.015} \quad (-0.5\sigma)$	$k_{\mathrm{eq}}$	$0.01042^{+0.00030}_{-0.00028} \quad (-0.4\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$3.85 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.302^{+0.015}_{-0.015} \quad (+0.5\sigma)$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.011}_{-0.011} \quad (-0.7\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.9 \quad (\nu: 10.9) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1459^{+0.0077}_{-0.0071} \quad (-0.8\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4537^{+0.0056}_{-0.0055} \quad (-0.8\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.73 \quad (\nu: 0.2) \quad (-0.4\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.1014^{+0.0086}_{-0.0078} \quad (-0.9\sigma)$	$H(0.15)$	$74.7^{+2.5}_{-2.5} \quad (-0.9\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2784.3 \quad (\nu: 20.0) \quad (+280.5\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 3842.74; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1595.79; R - 1 = 0.00993$$



### 7.93 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_Riess18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02265^{+0.00047}_{-0.00048} \quad (+0.3\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.1011^{+0.0087}_{-0.0081} \quad (-1.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4537^{+0.0073}_{-0.0073} \quad (-1.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1223^{+0.0071}_{-0.0066} \quad (-0.8\sigma)$	$\sigma_8$	$0.820^{+0.024}_{-0.024} \quad (-0.7\sigma)$	$H(0.15)$	$74.7^{+3.0}_{-2.9} \quad (-1.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0010}_{-0.00097} \quad (+0.4\sigma)$	$S_8$	$0.823^{+0.032}_{-0.032} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$625^{+27}_{-25} \quad (+1.1\sigma)$
$\tau$	$0.059^{+0.020}_{-0.016} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.018}_{-0.018} \quad (+0.2\sigma)$	$H(0.38)$	$84.8^{+3.0}_{-2.9} \quad (-1.1\sigma)$
$N_{\mathrm{eff}}$	$3.28^{+0.42}_{-0.41} \quad (-1.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.018}_{-0.018} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1494^{+59}_{-57} \quad (+1.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.060^{+0.043}_{-0.036} \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.023}_{-0.023} \quad (+0.2\sigma)$	$H(0.51)$	$91.5^{+3.0}_{-2.9} \quad (-1.1\sigma)$
$n_{\mathrm{s}}$	$0.976^{+0.018}_{-0.017} \quad (-1.0\sigma)$	$r_{\mathrm{drag}}h$	$100.7^{+2.7}_{-2.6} \quad (-0.8\sigma)$	$D_{\mathrm{M}}(0.51)$	$1936^{+73}_{-72} \quad (+1.1\sigma)$
$y_{\mathrm{cal}}$	$1.0008^{+0.0066}_{-0.0062} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.058}_{-0.058} \quad (+0.7\sigma)$	$H(0.61)$	$97.2^{+3.0}_{-3.0} \quad (-1.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.92 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2254^{+84}_{-82} \quad (+1.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.133^{+0.092}_{-0.076} \quad (-0.4\sigma)$	$H(2.33)$	$239.1^{+6.0}_{-5.9} \quad (-0.8\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.895^{+0.038}_{-0.038} \quad (-0.7\sigma)$	$D_{\mathrm{M}}(2.33)$	$5659^{+170}_{-170} \quad (+1.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70} \quad (-0.3\sigma)$	$D_{40}$	$1217^{+35}_{-34} \quad (+0.8\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.017}_{-0.017} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.7\sigma)$	$D_{220}$	$5742^{+100}_{-97} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.759^{+0.023}_{-0.023} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.3\sigma)$	$D_{810}$	$2543^{+36}_{-34} \quad (-0.0\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.014}_{-0.015} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$114^{+20}_{-30} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+13}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	$0.674^{+0.021}_{-0.021} \quad (-0.8\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$230.2^{+4.7}_{-4.5} \quad (+1.1\sigma)$	$f\sigma_8(0.51)$	$0.477^{+0.014}_{-0.014} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.7}_{-4.8} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.976^{+0.018}_{-0.017} \quad (-1.0\sigma)$	$\sigma_8(0.51)$	$0.631^{+0.021}_{-0.020} \quad (-0.8\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$11.0^{+4.5}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.2486^{+0.0054}_{-0.0055} \quad (-1.1\sigma)$	$f\sigma_8(0.61)$	$0.472^{+0.013}_{-0.014} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.8^{+8.5}_{-8.3} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2499^{+0.0055}_{-0.0055} \quad (-1.1\sigma)$	$\sigma_8(0.61)$	$0.601^{+0.020}_{-0.019} \quad (-0.9\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.11}_{-0.11} \quad (-1.4\sigma)$	$f\sigma_8(2.33)$	$0.303^{+0.010}_{-0.0098} \quad (-0.9\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.096}_{-0.094}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.55^{+0.41}_{-0.40} \quad (+1.1\sigma)$	$\sigma_8(2.33)$	$0.313^{+0.011}_{-0.011} \quad (-0.9\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.078}_{-0.077}$	$z_*$	$1089.99^{+0.87}_{-0.84} \quad (-1.1\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} \quad (-0.9\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$r_*$	$142.5^{+3.9}_{-3.8} \quad (+0.9\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-1.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.0407^{+0.0012}_{-0.0012} \quad (+0.6\sigma)$	$f_{2000}^{217}$	$107.8^{+4.8}_{-5.0} \quad (-1.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.69^{+0.36}_{-0.35} \quad (+0.9\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.53 \quad (\nu: 0.2) \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.70}_{-0.68}$	$z_{\mathrm{drag}}$	$1060.9^{+1.6}_{-1.7} \quad (-0.3\sigma)$	$\chi_{\mathrm{small}}^2$	$397.8 \quad (\nu: 2.9) \quad (-0.0\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$145.1^{+4.0}_{-3.9} \quad (+0.9\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.16 \quad (\nu: 0.4) \quad (+0.9\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.1424^{+0.0030}_{-0.0030} \quad (-0.6\sigma)$	$\chi_{\mathrm{plik}}^2$	$2364.2 \quad (\nu: 22.4) \quad (+271.8\sigma)$
$H_0$	$69.4^{+3.0}_{-3.0} \quad (-1.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16114^{+0.00096}_{-0.00091} \quad (-1.6\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$6.4 \quad (\nu: 5.6) \quad (+1.3\sigma)$
$\Omega_{\Lambda}$	$0.698^{+0.020}_{-0.021} \quad (-0.8\sigma)$	$z_{\mathrm{eq}}$	$3359^{+75}_{-74} \quad (+1.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.8 \quad (\nu: 11.0) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.302^{+0.021}_{-0.020} \quad (+0.8\sigma)$	$k_{\mathrm{eq}}$	$0.01041^{+0.00028}_{-0.00028} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2793.6 \quad (\nu: 22.5) \quad (+262.0\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1456^{+0.0073}_{-0.0068} \quad (-0.7\sigma)$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.015}_{-0.014} \quad (-1.0\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2811.83; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1595.52; R - 1 = 0.01079$$



7.94 base\_nnu\_plikHM\_TTTEE\_lowl\_lowE\_Riess18\_post\_BAO\_lensing\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02264^{+0.00042}_{-0.00041} \quad (+0.6\sigma)$	$S_8$	$0.824^{+0.028}_{-0.028} \quad (-0.2\sigma)$	$D_M(0.38)$	$1494^{+50}_{-48} \quad (+0.9\sigma)$
$\Omega_c h^2$	$0.1223^{+0.0072}_{-0.0066} \quad (-0.8\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.015}_{-0.015} \quad (-0.2\sigma)$	$H(0.51)$	$91.5^{+2.6}_{-2.7} \quad (-0.9\sigma)$
$100\theta_{MC}$	$1.0407^{+0.0010}_{-0.00097} \quad (+0.5\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.608^{+0.018}_{-0.018} \quad (-0.4\sigma)$	$D_M(0.51)$	$1937^{+63}_{-60} \quad (+0.9\sigma)$
$\tau$	$0.059^{+0.019}_{-0.016} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.021}_{-0.021} \quad (-0.1\sigma)$	$H(0.61)$	$97.1^{+2.8}_{-2.7} \quad (-0.9\sigma)$
$N_{\text{eff}}$	$3.28^{+0.40}_{-0.38} \quad (-1.0\sigma)$	$r_{\text{drag}} h$	$100.6^{+1.9}_{-1.9} \quad (-0.5\sigma)$	$D_M(0.61)$	$2255^{+72}_{-68} \quad (+0.9\sigma)$
$\ln(10^{10} A_s)$	$3.059^{+0.041}_{-0.035} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.052}_{-0.051} \quad (+0.5\sigma)$	$H(2.33)$	$239.1^{+6.0}_{-5.8} \quad (-0.8\sigma)$
$n_s$	$0.976^{+0.015}_{-0.015} \quad (-0.8\sigma)$	$z_{\text{re}}$	$< 9.82 \quad (+0.1\sigma)$	$D_M(2.33)$	$5661^{+160}_{-150} \quad (+0.9\sigma)$
$y_{\text{cal}}$	$1.0008^{+0.0064}_{-0.0062} \quad (+0.1\sigma)$	$10^9 A_s$	$2.132^{+0.088}_{-0.073} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.015}_{-0.015} \quad (-0.2\sigma)$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s e^{-2\tau}$	$1.895^{+0.038}_{-0.037} \quad (-0.6\sigma)$	$\sigma_8(0.15)$	$0.759^{+0.023}_{-0.022} \quad (-0.7\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{40}$	$1217^{+32}_{-31} \quad (+0.6\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.014}_{-0.014} \quad (-0.4\sigma)$
$A_{143}^{\text{tSZ}}$	—	$D_{220}$	$5742^{+100}_{-96} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.674^{+0.020}_{-0.020} \quad (-0.7\sigma)$
$A_{100}^{\text{PS}}$	$263^{+70}_{-70} \quad (-0.3\sigma)$	$D_{810}$	$2543^{+35}_{-34} \quad (+0.0\sigma)$	$f\sigma_8(0.51)$	$0.477^{+0.014}_{-0.014} \quad (-0.4\sigma)$
$A_{143}^{\text{PS}}$	$47^{+20}_{-20} \quad (-0.7\sigma)$	$D_{1420}$	$817^{+13}_{-12} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.631^{+0.019}_{-0.019} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.3\sigma)$	$D_{2000}$	$230.2^{+4.6}_{-4.5} \quad (+1.1\sigma)$	$f\sigma_8(0.61)$	$0.472^{+0.013}_{-0.013} \quad (-0.5\sigma)$
$A_{217}^{\text{PS}}$	$114^{+20}_{-30} \quad (-0.1\sigma)$	$n_{s,0.002}$	$0.976^{+0.015}_{-0.015} \quad (-0.8\sigma)$	$\sigma_8(0.61)$	$0.601^{+0.018}_{-0.018} \quad (-0.7\sigma)$
$A^{\text{kSZ}}$	—	$Y_P$	$0.2485^{+0.0052}_{-0.0052} \quad (-1.0\sigma)$	$f\sigma_8(2.33)$	$0.3031^{+0.0095}_{-0.0093} \quad (-0.7\sigma)$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.7}_{-4.8} \quad (-0.0\sigma)$	$Y_P^{\text{BBN}}$	$0.2498^{+0.0052}_{-0.0052} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	$0.313^{+0.010}_{-0.0099} \quad (-0.7\sigma)$
$A_{143}^{\text{dustTT}}$	$11.0^{+4.5}_{-4.5} \quad (+0.1\sigma)$	$10^5 \text{D/H}$	$2.61^{+0.11}_{-0.11} \quad (-1.5\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} \quad (-0.9\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.8^{+8.5}_{-8.3} \quad (+0.1\sigma)$	$\text{Age/Gyr}$	$13.55^{+0.38}_{-0.36} \quad (+0.9\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-1.1\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1090.00^{+0.86}_{-0.82} \quad (-1.3\sigma)$	$f_{2000}^{217}$	$107.8^{+4.7}_{-5.1} \quad (-1.0\sigma)$
$A_{100}^{\text{dustTE}}$	$0.115^{+0.096}_{-0.093}$	$r_*$	$142.5^{+3.7}_{-3.7} \quad (+0.8\sigma)$	$\chi_{\text{lensing}}^2$	$9.47 \quad (\nu: 0.2) \quad (-0.7\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.077}_{-0.077}$	$100\theta_*$	$1.0407^{+0.0012}_{-0.0012} \quad (+0.6\sigma)$	$\chi_{\text{simall}}^2$	$397.7 \quad (\nu: 2.6) \quad (+0.2\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$D_M(z_*)/\text{Gpc}$	$13.70^{+0.35}_{-0.34} \quad (+0.8\sigma)$	$\chi_{\text{lowl}}^2$	$22.17 \quad (\nu: 0.3) \quad (+0.6\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.13}_{-0.13}$	$z_{\text{drag}}$	$1060.9^{+1.5}_{-1.5} \quad (-0.0\sigma)$	$\chi_{\text{plik}}^2$	$2363.8 \quad (\nu: 21.0) \quad (+281.0\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$r_{\text{drag}}$	$145.1^{+3.8}_{-3.8} \quad (+0.8\sigma)$	$\chi_{\text{H073p45}}^2$	$6.4 \quad (\nu: 4.1) \quad (+1.0\sigma)$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.69}_{-0.68}$	$k_D$	$0.1424^{+0.0030}_{-0.0028} \quad (-0.5\sigma)$	$\chi_{\text{JLA}}^2$	$1034.83 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_D$	$0.16114^{+0.00096}_{-0.00091} \quad (-1.5\sigma)$	$\chi_{6\text{DF}}^2$	$0.023 \quad (\nu: 0.0) \quad (-0.3\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\text{eq}}$	$3360^{+55}_{-53} \quad (+0.9\sigma)$	$\chi_{\text{MGS}}^2$	$1.83 \quad (\nu: 0.1) \quad (-0.5\sigma)$
$H_0$	$69.4^{+2.5}_{-2.5} \quad (-0.9\sigma)$	$k_{\text{eq}}$	$0.01041^{+0.00027}_{-0.00026} \quad (-0.4\sigma)$	$\chi_{\text{DR12BAO}}^2$	$3.83 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$\Omega_\Lambda$	$0.697^{+0.014}_{-0.015} \quad (-0.5\sigma)$	$100\theta_{\text{eq}}$	$0.822^{+0.010}_{-0.010} \quad (-0.8\sigma)$	$\chi_{\text{prior}}^2$	$11.8 \quad (\nu: 10.8) \quad (+1.2\sigma)$
$\Omega_m$	$0.303^{+0.015}_{-0.014} \quad (+0.5\sigma)$	$100\theta_{s,\text{eq}}$	$0.4536^{+0.0053}_{-0.0052} \quad (-0.8\sigma)$	$\chi_{\text{CMB}}^2$	$2793.1 \quad (\nu: 20.5) \quad (+277.8\sigma)$
$\Omega_m h^2$	$0.1456^{+0.0074}_{-0.0068} \quad (-0.7\sigma)$	$H(0.15)$	$74.6^{+2.5}_{-2.5} \quad (-0.9\sigma)$	$\chi_{\text{BAO}}^2$	$5.69 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$\Omega_m h^3$	$0.1010^{+0.0082}_{-0.0076} \quad (-0.9\sigma)$	$D_M(0.15)$	$626^{+22}_{-21} \quad (+0.9\sigma)$		
$\sigma_8$	$0.820^{+0.024}_{-0.024} \quad (-0.6\sigma)$	$H(0.38)$	$84.8^{+2.5}_{-2.6} \quad (-0.9\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 3851.85; \Delta \bar{\chi}_{\text{eff}}^2 = 1595.19; R - 1 = 0.01150$$



**7.95 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Riess18**

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022599	$0.02261^{+0.00046}_{-0.00045}$	$S_8$	0.8140	$0.815^{+0.041}_{-0.040}$	$H(0.15)$	75.40	$75.5^{+3.1}_{-3.2}$
$\Omega_c h^2$	0.1230	$0.1231^{+0.0082}_{-0.0080}$	$\sigma_8 \Omega_m^{0.5}$	0.4459	$0.446^{+0.022}_{-0.022}$	$D_M(0.15)$	618.8	$619^{+28}_{-26}$
$100\theta_{MC}$	1.04053	$1.0405^{+0.0011}_{-0.0010}$	$\sigma_8 \Omega_m^{0.25}$	0.6040	$0.604^{+0.023}_{-0.023}$	$H(0.38)$	85.47	$85.5^{+3.1}_{-3.2}$
$\tau$	0.0553	$0.056^{+0.022}_{-0.022}$	$\sigma_8/h^{0.5}$	0.9767	$0.977^{+0.030}_{-0.030}$	$D_M(0.38)$	1479	$1479^{+63}_{-58}$
$N_{\text{eff}}$	3.374	$3.38^{+0.46}_{-0.47}$	$r_{\text{drag}} h$	101.37	$101.4^{+2.8}_{-2.7}$	$H(0.51)$	92.18	$92.2^{+3.2}_{-3.3}$
$\ln(10^{10} A_s)$	3.0526	$3.053^{+0.048}_{-0.047}$	$\langle d^2 \rangle^{1/2}$	2.399	$2.399^{+0.071}_{-0.072}$	$D_M(0.51)$	1919	$1918^{+79}_{-73}$
$n_s$	0.9799	$0.980^{+0.017}_{-0.019}$	$z_{\text{re}}$	7.82	$7.8^{+2.1}_{-2.4}$	$H(0.61)$	97.81	$97.9^{+3.2}_{-3.3}$
$y_{\text{cal}}$	1.0006	$1.0005^{+0.0067}_{-0.0064}$	$10^9 A_s$	2.117	$2.12^{+0.10}_{-0.097}$	$D_M(0.61)$	2234	$2233^{+90}_{-83}$
$A_{100}^{\text{PS}}$	247	$247^{+60}_{-70}$	$10^9 A_s e^{-2\tau}$	1.8953	$1.896^{+0.044}_{-0.045}$	$H(2.33)$	239.8	$239.9^{+6.7}_{-6.8}$
$A_{143}^{\text{PS}}$	40.2	$43^{+20}_{-20}$	$D_{40}$	1207.3	$1207^{+36}_{-33}$	$D_M(2.33)$	5624	$5621^{+190}_{-180}$
$A_{217}^{\text{PS}}$	98.5	$101^{+30}_{-30}$	$D_{220}$	5726	$5726^{+100}_{-99}$	$f\sigma_8(0.15)$	0.4516	$0.452^{+0.021}_{-0.021}$
$A_{217}^{\text{CIB}}$	45.2	$42^{+20}_{-20}$	$D_{810}$	2538.5	$2539^{+38}_{-35}$	$\sigma_8(0.15)$	0.7575	$0.758^{+0.027}_{-0.026}$
$A_{143}^{\text{tSZ}}$	4.90	$< 8.69$	$D_{1420}$	814.4	$815^{+14}_{-13}$	$f\sigma_8(0.38)$	0.4734	$0.474^{+0.019}_{-0.019}$
$r_{143 \times 217}^{\text{PS}}$	0.548	$0.65^{+0.32}_{-0.31}$	$D_{2000}$	228.6	$228.7^{+5.2}_{-5.2}$	$\sigma_8(0.38)$	0.6731	$0.674^{+0.024}_{-0.024}$
$r_{143 \times 217}^{\text{CIB}}$	0.72	—	$n_{s,0.002}$	0.9799	$0.980^{+0.017}_{-0.019}$	$f\sigma_8(0.51)$	0.4737	$0.474^{+0.018}_{-0.018}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.00	—	$Y_P$	0.2498	$0.2499^{+0.0059}_{-0.0063}$	$\sigma_8(0.51)$	0.6306	$0.631^{+0.023}_{-0.022}$
$A^{\text{kSZ}}$	3.0	—	$Y_P^{\text{BBN}}$	0.2511	$0.2512^{+0.0059}_{-0.0064}$	$f\sigma_8(0.61)$	0.4699	$0.470^{+0.017}_{-0.017}$
$A_{100}^{\text{dust}}$	1.02	$1.02^{+0.50}_{-0.50}$	$10^5 D/H$	2.656	$2.66^{+0.13}_{-0.14}$	$\sigma_8(0.61)$	0.6004	$0.601^{+0.022}_{-0.021}$
$A_{143}^{\text{dust}}$	0.980	$0.98^{+0.45}_{-0.45}$	Age/Gyr	13.468	$13.46^{+0.45}_{-0.42}$	$f\sigma_8(2.33)$	0.3033	$0.304^{+0.011}_{-0.011}$
$A_{217}^{\text{dust}}$	0.960	$0.97^{+0.27}_{-0.26}$	$z_*$	1090.20	$1090.2^{+1.0}_{-1.0}$	$\sigma_8(2.33)$	0.3134	$0.314^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\text{dust}}$	1.004	$1.03^{+0.43}_{-0.41}$	$r_*$	141.92	$141.9^{+4.4}_{-4.1}$	$f_{2000}^{143}$	32.3	$32^{+9}_{-8}$
$c_{100}$	0.99752	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_*$	1.04050	$1.0405^{+0.0014}_{-0.0013}$	$f_{2000}^{217}$	108.6	$108.4^{+5.6}_{-5.6}$
$c_{217}$	1.00146	$1.0013^{+0.0041}_{-0.0040}$	$D_M(z_*)/\text{Gpc}$	13.639	$13.63^{+0.40}_{-0.38}$	$f_{2000}^{143 \times 217}$	33.9	$34^{+6}_{-6}$
$c_{TE}$	0.9988	$0.999^{+0.013}_{-0.013}$	$z_{\text{drag}}$	1060.92	$1061.0^{+1.6}_{-1.7}$	$\chi_{\text{small}}^2$	396.09	$397.2 (\nu: 1.7)$
$c_{EE}$	0.9965	$0.997^{+0.014}_{-0.014}$	$r_{\text{drag}}$	144.47	$144.4^{+4.5}_{-4.2}$	$\chi_{\text{lowl}}^2$	21.47	$21.54 (\nu: 0.3)$
$H_0$	70.17	$70.2^{+3.2}_{-3.2}$	$k_D$	0.14261	$0.1427^{+0.0032}_{-0.0033}$	$\chi_{\text{CamSpec}}^2$	11505.1	$11520.7 (\nu: 21.9)$
$\Omega_\Lambda$	0.7030	$0.703^{+0.020}_{-0.021}$	$100\theta_D$	0.16152	$0.1615^{+0.0011}_{-0.0012}$	$\chi_{\text{H073p45}}^2$	3.9	$4.3 (\nu: 4.5)$
$\Omega_m$	0.2970	$0.297^{+0.021}_{-0.020}$	$z_{\text{eq}}$	3332	$3332^{+80}_{-79}$	$\chi_{\text{prior}}^2$	2.4	$7.9 (\nu: 6.2)$
$\Omega_m h^2$	0.1462	$0.1464^{+0.0083}_{-0.0081}$	$k_{\text{eq}}$	0.010391	$0.01040^{+0.00033}_{-0.00032}$	$\chi_{\text{CMB}}^2$	11922.6	$11939.4 (\nu: 20.9)$
$\Omega_m h^3$	0.1026	$0.1028^{+0.0095}_{-0.0093}$	$100\theta_{\text{eq}}$	0.8266	$0.827^{+0.016}_{-0.015}$			
$\sigma_8$	0.8182	$0.819^{+0.029}_{-0.028}$	$100\theta_{s,\text{eq}}$	0.4562	$0.4562^{+0.0080}_{-0.0077}$			

Best-fit  $\chi_{\text{eff}}^2 = 11928.99$ ;  $\bar{\chi}_{\text{eff}}^2 = 11951.65$ ;  $R - 1 = 0.01475$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.09 commander\_dx12\_v3.2\_29: 21.47 CamSpec like\_10.7HM\_1400\_unified: 11505.09 Hubble - H073p45: 3.91



7.96 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02256^{+0.00043}_{-0.00041}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.019}_{-0.019}$	$H(0.38)$	$85.2^{+2.9}_{-2.9}$
$\Omega_{\mathrm{c}}h^2$	$0.1232^{+0.0084}_{-0.0080}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.023}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1485^{+57}_{-53}$
$100\theta_{\mathrm{MC}}$	$1.0405^{+0.0011}_{-0.0011}$	$\sigma_8/h^{0.5}$	$0.980^{+0.027}_{-0.027}$	$H(0.51)$	$91.9^{+3.0}_{-3.1}$
$\tau$	$0.055^{+0.022}_{-0.021}$	$r_{\mathrm{drag}}h$	$101.0^{+2.1}_{-2.1}$	$D_{\mathrm{M}}(0.51)$	$1926^{+72}_{-67}$
$N_{\mathrm{eff}}$	$3.35^{+0.45}_{-0.47}$	$\langle d^2 \rangle^{1/2}$	$2.407^{+0.064}_{-0.064}$	$H(0.61)$	$97.6^{+3.1}_{-3.2}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.052^{+0.048}_{-0.045}$	$z_{\mathrm{re}}$	$7.8^{+2.1}_{-2.2}$	$D_{\mathrm{M}}(0.61)$	$2243^{+83}_{-76}$
$n_{\mathrm{s}}$	$0.978^{+0.016}_{-0.017}$	$10^9 A_{\mathrm{s}}$	$2.12^{+0.10}_{-0.094}$	$H(2.33)$	$239.8^{+6.8}_{-6.8}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0068}_{-0.0065}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.896^{+0.044}_{-0.046}$	$D_{\mathrm{M}}(2.33)$	$5635^{+180}_{-170}$
$A_{100}^{\mathrm{PS}}$	$246^{+60}_{-60}$	$D_{40}$	$1210^{+34}_{-33}$	$f\sigma_8(0.15)$	$0.454^{+0.019}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$D_{220}$	$5723^{+110}_{-94}$	$\sigma_8(0.15)$	$0.758^{+0.026}_{-0.027}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{810}$	$2539^{+38}_{-35}$	$f\sigma_8(0.38)$	$0.475^{+0.018}_{-0.018}$
$A_{217}^{\mathrm{CIB}}$	$42^{+20}_{-20}$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.38)$	$0.673^{+0.023}_{-0.024}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.66$	$D_{2000}$	$228.7^{+5.2}_{-5.1}$	$f\sigma_8(0.51)$	$0.475^{+0.017}_{-0.017}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.31}$	$n_{\mathrm{s},0.002}$	$0.978^{+0.016}_{-0.017}$	$\sigma_8(0.51)$	$0.630^{+0.022}_{-0.023}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2495^{+0.0057}_{-0.0062}$	$f\sigma_8(0.61)$	$0.471^{+0.017}_{-0.017}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2508^{+0.0057}_{-0.0062}$	$\sigma_8(0.61)$	$0.600^{+0.021}_{-0.022}$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.66^{+0.14}_{-0.14}$	$f\sigma_8(2.33)$	$0.303^{+0.011}_{-0.011}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.51}_{-0.48}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.49^{+0.44}_{-0.40}$	$\sigma_8(2.33)$	$0.313^{+0.012}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.44}_{-0.44}$	$z_*$	$1090.2^{+1.1}_{-1.0}$	$f_{2000}^{143}$	$32^{+9}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$r_*$	$142.0^{+4.4}_{-4.2}$	$f_{2000}^{217}$	$108.3^{+5.5}_{-5.5}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	$1.0405^{+0.0014}_{-0.0013}$	$f_{2000}^{143\times 217}$	$34^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.65^{+0.41}_{-0.38}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.6)$
$c_{217}$	$1.0013^{+0.0041}_{-0.0039}$	$z_{\mathrm{drag}}$	$1060.8^{+1.6}_{-1.6}$	$\chi_{\mathrm{lowl}}^2$	$21.73 (\nu: 0.3)$
$c_{TE}$	$0.999^{+0.012}_{-0.013}$	$r_{\mathrm{drag}}$	$144.6^{+4.5}_{-4.3}$	$\chi_{\mathrm{CamSpec}}^2$	$11519.5 (\nu: 20.0)$
$c_{EE}$	$0.996^{+0.013}_{-0.014}$	$k_{\mathrm{D}}$	$0.1426^{+0.0033}_{-0.0033}$	$\chi_{\mathrm{H073p45}}^2$	$5.2 (\nu: 4.1)$
$H_0$	$69.8^{+2.8}_{-2.8}$	$100\theta_{\mathrm{D}}$	$0.1615^{+0.0011}_{-0.0012}$	$\chi_{6\mathrm{DF}}^2$	$0.036 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.700^{+0.016}_{-0.016}$	$z_{\mathrm{eq}}$	$3344^{+61}_{-61}$	$\chi_{\mathrm{MGS}}^2$	$2.04 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.300^{+0.016}_{-0.016}$	$k_{\mathrm{eq}}$	$0.01042^{+0.00032}_{-0.00030}$	$\chi_{\mathrm{DR12BAO}}^2$	$3.84 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1464^{+0.0085}_{-0.0080}$	$100\theta_{\mathrm{eq}}$	$0.824^{+0.012}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	$7.9 (\nu: 6.1)$
$\Omega_{\mathrm{m}}h^3$	$0.1022^{+0.0091}_{-0.0092}$	$100\theta_{\mathrm{s,eq}}$	$0.4550^{+0.0060}_{-0.0059}$	$\chi_{\mathrm{BAO}}^2$	$5.92 (\nu: 0.4)$
$\sigma_8$	$0.819^{+0.028}_{-0.029}$	$H(0.15)$	$75.1^{+2.8}_{-2.8}$	$\chi_{\mathrm{CMB}}^2$	$11938.4 (\nu: 19.5)$
$S_8$	$0.819^{+0.035}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$622^{+25}_{-23}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11957.32; R - 1 = 0.01940$$



**7.97 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_BAO\_Pantheon18**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02256^{+0.00043}_{-0.00040}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.019}_{-0.018}$	$H(0.38)$	$85.2^{+2.9}_{-2.9}$
$\Omega_{\mathrm{c}} h^2$	$0.1232^{+0.0083}_{-0.0080}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1485^{+56}_{-52}$
$100\theta_{\mathrm{MC}}$	$1.0405^{+0.0011}_{-0.0011}$	$\sigma_8/h^{0.5}$	$0.980^{+0.027}_{-0.027}$	$H(0.51)$	$92.0^{+2.9}_{-3.0}$
$\tau$	$0.055^{+0.022}_{-0.021}$	$r_{\mathrm{drag}} h$	$101.0^{+2.0}_{-2.0}$	$D_{\mathrm{M}}(0.51)$	$1926^{+71}_{-66}$
$N_{\mathrm{eff}}$	$3.36^{+0.44}_{-0.47}$	$\langle d^2 \rangle^{1/2}$	$2.406^{+0.064}_{-0.064}$	$H(0.61)$	$97.6^{+3.0}_{-3.2}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.052^{+0.048}_{-0.046}$	$z_{\mathrm{re}}$	$7.8^{+2.1}_{-2.2}$	$D_{\mathrm{M}}(0.61)$	$2242^{+81}_{-76}$
$n_{\mathrm{s}}$	$0.979^{+0.015}_{-0.016}$	$10^9 A_{\mathrm{s}}$	$2.12^{+0.10}_{-0.094}$	$H(2.33)$	$239.8^{+6.8}_{-6.8}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0068}_{-0.0065}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.896^{+0.044}_{-0.046}$	$D_{\mathrm{M}}(2.33)$	$5635^{+190}_{-170}$
$A_{100}^{\mathrm{PS}}$	$246^{+60}_{-60}$	$D_{40}$	$1210^{+34}_{-32}$	$f\sigma_8(0.15)$	$0.454^{+0.019}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$D_{220}$	$5723^{+110}_{-95}$	$\sigma_8(0.15)$	$0.758^{+0.026}_{-0.027}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{810}$	$2539^{+38}_{-35}$	$f\sigma_8(0.38)$	$0.475^{+0.018}_{-0.018}$
$A_{217}^{\mathrm{CIB}}$	$42^{+20}_{-20}$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.38)$	$0.673^{+0.023}_{-0.024}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.68$	$D_{2000}$	$228.7^{+5.2}_{-5.1}$	$f\sigma_8(0.51)$	$0.475^{+0.017}_{-0.017}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.31}$	$n_{\mathrm{s},0.002}$	$0.979^{+0.015}_{-0.016}$	$\sigma_8(0.51)$	$0.630^{+0.022}_{-0.023}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2495^{+0.0057}_{-0.0062}$	$f\sigma_8(0.61)$	$0.471^{+0.017}_{-0.017}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2508^{+0.0057}_{-0.0062}$	$\sigma_8(0.61)$	$0.600^{+0.021}_{-0.022}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.66^{+0.14}_{-0.14}$	$f\sigma_8(2.33)$	$0.303^{+0.011}_{-0.011}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.51}_{-0.49}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.49^{+0.44}_{-0.39}$	$\sigma_8(2.33)$	$0.313^{+0.011}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.44}_{-0.44}$	$z_*$	$1090.2^{+1.0}_{-1.0}$	$f_{2000}^{143}$	$32^{+9}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$r_*$	$142.0^{+4.4}_{-4.2}$	$f_{2000}^{217}$	$108.3^{+5.5}_{-5.5}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	$1.0405^{+0.0014}_{-0.0013}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.65^{+0.41}_{-0.38}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.6)$
$c_{217}$	$1.0013^{+0.0041}_{-0.0039}$	$z_{\mathrm{drag}}$	$1060.8^{+1.6}_{-1.6}$	$\chi_{\mathrm{lowl}}^2$	$21.73 (\nu: 0.3)$
$c_{TE}$	$0.999^{+0.012}_{-0.013}$	$r_{\mathrm{drag}}$	$144.6^{+4.5}_{-4.3}$	$\chi_{\mathrm{CamSpec}}^2$	$11519.6 (\nu: 19.9)$
$c_{EE}$	$0.996^{+0.013}_{-0.014}$	$k_{\mathrm{D}}$	$0.1426^{+0.0033}_{-0.0033}$	$\chi_{\mathrm{H073p45}}^2$	$5.1 (\nu: 4.0)$
$H_0$	$69.8^{+2.7}_{-2.7}$	$100\theta_{\mathrm{D}}$	$0.1615^{+0.0011}_{-0.0012}$	$\chi_{\mathrm{JLA}}^2$	$1034.81 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.700^{+0.015}_{-0.016}$	$z_{\mathrm{eq}}$	$3344^{+59}_{-59}$	$\chi_{6\mathrm{DF}}^2$	$0.035 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.300^{+0.016}_{-0.015}$	$k_{\mathrm{eq}}$	$0.01041^{+0.00032}_{-0.00030}$	$\chi_{\mathrm{MGS}}^2$	$2.05 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1464^{+0.0084}_{-0.0080}$	$100\theta_{\mathrm{eq}}$	$0.824^{+0.011}_{-0.011}$	$\chi_{\mathrm{DR12BAO}}^2$	$3.81 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^3$	$0.1023^{+0.0091}_{-0.0091}$	$100\theta_{\mathrm{s,eq}}$	$0.4550^{+0.0058}_{-0.0058}$	$\chi_{\mathrm{prior}}^2$	$7.9 (\nu: 6.1)$
$\sigma_8$	$0.819^{+0.028}_{-0.029}$	$H(0.15)$	$75.1^{+2.8}_{-2.8}$	$\chi_{\mathrm{BAO}}^2$	$5.90 (\nu: 0.3)$
$S_8$	$0.819^{+0.035}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$622^{+24}_{-23}$	$\chi_{\mathrm{CMB}}^2$	$11938.4 (\nu: 19.4)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 12992.06; R - 1 = 0.01918$$



**7.98 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_lensing**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02259^{+0.00047}_{-0.00045}$	$S_8$	$0.820^{+0.032}_{-0.032}$	$H(0.15)$	$75.2^{+3.1}_{-3.0}$
$\Omega_{\mathrm{c}} h^2$	$0.1231^{+0.0079}_{-0.0076}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.018}_{-0.018}$	$D_{\mathrm{M}}(0.15)$	$621^{+27}_{-26}$
$100\theta_{\mathrm{MC}}$	$1.0405^{+0.0011}_{-0.0010}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.019}_{-0.019}$	$H(0.38)$	$85.3^{+3.1}_{-3.1}$
$\tau$	$0.058^{+0.021}_{-0.020}$	$\sigma_8/h^{0.5}$	$0.982^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1483^{+60}_{-57}$
$N_{\mathrm{eff}}$	$3.36^{+0.46}_{-0.47}$	$r_{\mathrm{drag}} h$	$101.1^{+2.6}_{-2.5}$	$H(0.51)$	$92.0^{+3.2}_{-3.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.058^{+0.045}_{-0.043}$	$\langle d^2 \rangle^{1/2}$	$2.411^{+0.058}_{-0.058}$	$D_{\mathrm{M}}(0.51)$	$1923^{+76}_{-73}$
$n_{\mathrm{s}}$	$0.979^{+0.017}_{-0.018}$	$z_{\mathrm{re}}$	$8.0^{+2.0}_{-2.1}$	$H(0.61)$	$97.7^{+3.3}_{-3.2}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0069}_{-0.0062}$	$10^9 A_{\mathrm{s}}$	$2.129^{+0.098}_{-0.089}$	$D_{\mathrm{M}}(0.61)$	$2240^{+87}_{-82}$
$A_{100}^{\mathrm{PS}}$	$247^{+60}_{-60}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.897^{+0.041}_{-0.042}$	$H(2.33)$	$239.8^{+6.6}_{-6.5}$
$A_{143}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$D_{40}$	$1211^{+33}_{-33}$	$D_{\mathrm{M}}(2.33)$	$5631^{+180}_{-180}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{220}$	$5731^{+100}_{-97}$	$f\sigma_8(0.15)$	$0.455^{+0.017}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{810}$	$2541^{+38}_{-33}$	$\sigma_8(0.15)$	$0.760^{+0.024}_{-0.024}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.66$	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.476^{+0.015}_{-0.015}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.31}$	$D_{2000}$	$228.9^{+5.2}_{-5.1}$	$\sigma_8(0.38)$	$0.675^{+0.022}_{-0.022}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.979^{+0.017}_{-0.018}$	$f\sigma_8(0.51)$	$0.476^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2496^{+0.0059}_{-0.0062}$	$\sigma_8(0.51)$	$0.632^{+0.021}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2509^{+0.0059}_{-0.0063}$	$f\sigma_8(0.61)$	$0.472^{+0.014}_{-0.014}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.49}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.65^{+0.13}_{-0.14}$	$\sigma_8(0.61)$	$0.602^{+0.020}_{-0.020}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.43}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.48^{+0.44}_{-0.42}$	$f\sigma_8(2.33)$	$0.304^{+0.011}_{-0.010}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$z_*$	$1090.22^{+0.96}_{-1.0}$	$\sigma_8(2.33)$	$0.314^{+0.011}_{-0.011}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.44}_{-0.41}$	$r_*$	$142.0^{+4.2}_{-4.1}$	$f_{2000}^{143}$	$32^{+9}_{-8}$
$c_{100}$	$0.9976^{+0.0027}_{-0.0026}$	$100\theta_*$	$1.0405^{+0.0014}_{-0.0013}$	$f_{2000}^{217}$	$108.3^{+5.5}_{-5.5}$
$c_{217}$	$1.0013^{+0.0042}_{-0.0039}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.64^{+0.39}_{-0.38}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$c_{TE}$	$0.999^{+0.012}_{-0.013}$	$z_{\mathrm{drag}}$	$1060.9^{+1.6}_{-1.7}$	$\chi_{\mathrm{lensing}}^2$	$9.92 (\nu: 0.5)$
$c_{EE}$	$0.996^{+0.014}_{-0.014}$	$r_{\mathrm{drag}}$	$144.5^{+4.4}_{-4.2}$	$\chi_{\mathrm{simall}}^2$	$397.5 (\nu: 2.3)$
$H_0$	$70.0^{+3.1}_{-3.0}$	$k_{\mathrm{D}}$	$0.1426^{+0.0032}_{-0.0032}$	$\chi_{\mathrm{lowl}}^2$	$21.79 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.701^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.1615^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$11519.4 (\nu: 20.4)$
$\Omega_{\mathrm{m}}$	$0.299^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3341^{+73}_{-74}$	$\chi_{\mathrm{H073p45}}^2$	$5.0 (\nu: 5.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1463^{+0.0081}_{-0.0078}$	$k_{\mathrm{eq}}$	$0.01041^{+0.00031}_{-0.00029}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 6.3)$
$\Omega_{\mathrm{m}} h^3$	$0.1024^{+0.0093}_{-0.0092}$	$100\theta_{\mathrm{eq}}$	$0.825^{+0.015}_{-0.014}$	$\chi_{\mathrm{CMB}}^2$	$11948.6 (\nu: 21.5)$
$\sigma_8$	$0.821^{+0.025}_{-0.025}$	$100\theta_{\mathrm{s,eq}}$	$0.4553^{+0.0075}_{-0.0070}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11961.40; R - 1 = 0.02109$$



**7.99 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_BAO\_lensing**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02255^{+0.00043}_{-0.00042}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.016}_{-0.016}$	$H(0.38)$	$85.1^{+2.9}_{-2.8}$
$\Omega_{\mathrm{c}} h^2$	$0.1230^{+0.0079}_{-0.0077}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.018}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1488^{+55}_{-53}$
$100\theta_{\mathrm{MC}}$	$1.0405^{+0.0011}_{-0.0010}$	$\sigma_8/h^{0.5}$	$0.983^{+0.022}_{-0.022}$	$H(0.51)$	$91.8^{+3.0}_{-3.0}$
$\tau$	$0.057^{+0.021}_{-0.019}$	$r_{\mathrm{drag}} h$	$100.8^{+2.0}_{-2.0}$	$D_{\mathrm{M}}(0.51)$	$1929^{+69}_{-67}$
$N_{\mathrm{eff}}$	$3.34^{+0.45}_{-0.45}$	$\langle d^2 \rangle^{1/2}$	$2.415^{+0.053}_{-0.052}$	$H(0.61)$	$97.5^{+3.0}_{-3.0}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.056^{+0.042}_{-0.040}$	$z_{\mathrm{re}}$	$8.0^{+2.0}_{-2.0}$	$D_{\mathrm{M}}(0.61)$	$2246^{+80}_{-77}$
$n_{\mathrm{s}}$	$0.978^{+0.015}_{-0.016}$	$10^9 A_{\mathrm{s}}$	$2.125^{+0.091}_{-0.084}$	$H(2.33)$	$239.7^{+6.6}_{-6.6}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0068}_{-0.0063}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.897^{+0.041}_{-0.042}$	$D_{\mathrm{M}}(2.33)$	$5642^{+180}_{-170}$
$A_{100}^{\mathrm{PS}}$	$246^{+60}_{-60}$	$D_{40}$	$1213^{+32}_{-31}$	$f\sigma_8(0.15)$	$0.456^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$D_{220}$	$5729^{+100}_{-96}$	$\sigma_8(0.15)$	$0.759^{+0.023}_{-0.023}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{810}$	$2540^{+37}_{-33}$	$f\sigma_8(0.38)$	$0.476^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.674^{+0.021}_{-0.021}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.68$	$D_{2000}$	$229.0^{+5.3}_{-5.2}$	$f\sigma_8(0.51)$	$0.476^{+0.014}_{-0.014}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.31}$	$n_{\mathrm{s},0.002}$	$0.978^{+0.015}_{-0.016}$	$\sigma_8(0.51)$	$0.631^{+0.020}_{-0.020}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2493^{+0.0057}_{-0.0060}$	$f\sigma_8(0.61)$	$0.472^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2506^{+0.0058}_{-0.0060}$	$\sigma_8(0.61)$	$0.601^{+0.019}_{-0.019}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.65^{+0.13}_{-0.13}$	$f\sigma_8(2.33)$	$0.303^{+0.010}_{-0.0098}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.48}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.51^{+0.43}_{-0.40}$	$\sigma_8(2.33)$	$0.313^{+0.011}_{-0.011}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.44}_{-0.44}$	$z_*$	$1090.23^{+0.97}_{-1.0}$	$f_{2000}^{143}$	$32^{+9}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$r_*$	$142.1^{+4.2}_{-4.0}$	$f_{2000}^{217}$	$108.2^{+5.6}_{-5.5}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.44}_{-0.41}$	$100\theta_*$	$1.0405^{+0.0014}_{-0.0013}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$c_{100}$	$0.9976^{+0.0027}_{-0.0026}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.66^{+0.40}_{-0.38}$	$\chi_{\mathrm{lensing}}^2$	$9.80 (\nu: 0.3)$
$c_{217}$	$1.0013^{+0.0041}_{-0.0039}$	$z_{\mathrm{drag}}$	$1060.8^{+1.5}_{-1.6}$	$\chi_{\mathrm{simall}}^2$	$397.3 (\nu: 1.8)$
$c_{TE}$	$0.998^{+0.012}_{-0.013}$	$r_{\mathrm{drag}}$	$144.7^{+4.3}_{-4.2}$	$\chi_{\mathrm{lowl}}^2$	$21.90 (\nu: 0.3)$
$c_{EE}$	$0.996^{+0.013}_{-0.014}$	$k_{\mathrm{D}}$	$0.1425^{+0.0032}_{-0.0031}$	$\chi_{\mathrm{CamSpec}}^2$	$11518.7 (\nu: 19.3)$
$H_0$	$69.7^{+2.8}_{-2.7}$	$100\theta_{\mathrm{D}}$	$0.1614^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{H073p45}}^2$	$5.5 (\nu: 4.3)$
$\Omega_{\Lambda}$	$0.699^{+0.015}_{-0.015}$	$z_{\mathrm{eq}}$	$3348^{+59}_{-57}$	$\chi_{6\mathrm{DF}}^2$	$0.030 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.301^{+0.015}_{-0.015}$	$k_{\mathrm{eq}}$	$0.01042^{+0.00030}_{-0.00029}$	$\chi_{\mathrm{MGS}}^2$	$1.96 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1462^{+0.0081}_{-0.0079}$	$100\theta_{\mathrm{eq}}$	$0.824^{+0.011}_{-0.011}$	$\chi_{\mathrm{DR12BAO}}^2$	$3.81 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^3$	$0.1019^{+0.0091}_{-0.0088}$	$100\theta_{\mathrm{s,eq}}$	$0.4546^{+0.0057}_{-0.0056}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 6.1)$
$\sigma_8$	$0.820^{+0.025}_{-0.025}$	$H(0.15)$	$75.0^{+2.8}_{-2.7}$	$\chi_{\mathrm{CMB}}^2$	$11947.7 (\nu: 19.8)$
$S_8$	$0.822^{+0.029}_{-0.029}$	$D_{\mathrm{M}}(0.15)$	$623^{+24}_{-23}$	$\chi_{\mathrm{BAO}}^2$	$5.80 (\nu: 0.3)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 11966.84; R - 1 = 0.02276$$



**7.100 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_BAO\_lensing\_Pantheon18**

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022562	$0.02256^{+0.00043}_{-0.00040}$	$\sigma_8 \Omega_m^{0.25}$	0.6075	$0.608^{+0.018}_{-0.018}$	$H(0.51)$	91.85	$91.8^{+2.9}_{-2.9}$
$\Omega_c h^2$	0.1232	$0.1231^{+0.0079}_{-0.0077}$	$\sigma_8/h^{0.5}$	0.9821	$0.983^{+0.022}_{-0.022}$	$D_M(0.51)$	1928	$1929^{+69}_{-66}$
$100\theta_{MC}$	1.04053	$1.0405^{+0.0011}_{-0.0010}$	$r_{drag}h$	100.81	$100.8^{+1.9}_{-1.9}$	$H(0.61)$	97.50	$97.5^{+3.0}_{-3.0}$
$\tau$	0.0560	$0.057^{+0.021}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	2.413	$2.415^{+0.053}_{-0.051}$	$D_M(0.61)$	2245	$2246^{+79}_{-75}$
$N_{eff}$	3.343	$3.34^{+0.45}_{-0.45}$	$z_{re}$	7.90	$8.0^{+1.9}_{-2.0}$	$H(2.33)$	239.8	$239.7^{+6.6}_{-6.5}$
$\ln(10^{10} A_s)$	3.0548	$3.056^{+0.042}_{-0.040}$	$10^9 A_s$	2.122	$2.125^{+0.091}_{-0.084}$	$D_M(2.33)$	5639	$5641^{+180}_{-170}$
$n_s$	0.9775	$0.978^{+0.015}_{-0.016}$	$10^9 A_s e^{-2\tau}$	1.8967	$1.897^{+0.041}_{-0.042}$	$f\sigma_8(0.15)$	0.4555	$0.455^{+0.015}_{-0.015}$
$y_{cal}$	1.0006	$1.0007^{+0.0068}_{-0.0063}$	$D_{40}$	1212.5	$1213^{+31}_{-31}$	$\sigma_8(0.15)$	0.7587	$0.759^{+0.023}_{-0.023}$
$A_{100}^{PS}$	246	$246^{+60}_{-60}$	$D_{220}$	5727	$5729^{+100}_{-96}$	$f\sigma_8(0.38)$	0.4763	$0.476^{+0.014}_{-0.014}$
$A_{143}^{PS}$	40.5	$43^{+20}_{-20}$	$D_{810}$	2539.4	$2540^{+37}_{-33}$	$\sigma_8(0.38)$	0.6737	$0.674^{+0.021}_{-0.021}$
$A_{217}^{PS}$	99.2	$101^{+30}_{-30}$	$D_{1420}$	814.6	$815^{+14}_{-13}$	$f\sigma_8(0.51)$	0.4762	$0.476^{+0.014}_{-0.014}$
$A_{217}^{CIB}$	45.0	$41^{+20}_{-20}$	$D_{2000}$	228.8	$229.0^{+5.3}_{-5.2}$	$\sigma_8(0.51)$	0.6309	$0.631^{+0.020}_{-0.020}$
$A_{143}^{tSZ}$	5.07	$< 8.70$	$n_{s,0.002}$	0.9775	$0.978^{+0.015}_{-0.016}$	$f\sigma_8(0.61)$	0.4720	$0.472^{+0.014}_{-0.014}$
$r_{143 \times 217}^{PS}$	0.557	$0.65^{+0.32}_{-0.31}$	$Y_P$	0.2494	$0.2493^{+0.0057}_{-0.0060}$	$\sigma_8(0.61)$	0.6007	$0.601^{+0.019}_{-0.019}$
$r_{143 \times 217}^{CIB}$	0.73	—	$Y_P^{BBN}$	0.2507	$0.2506^{+0.0057}_{-0.0060}$	$f\sigma_8(2.33)$	0.3032	$0.3034^{+0.0099}_{-0.0098}$
$\xi^{tSZ \times CIB}$	0.02	—	$10^5 D/H$	2.652	$2.65^{+0.13}_{-0.14}$	$\sigma_8(2.33)$	0.3131	$0.313^{+0.011}_{-0.011}$
$A^{kSZ}$	2.7	—	Age/Gyr	13.503	$13.51^{+0.43}_{-0.39}$	$f_{2000}^{143}$	32.1	$32^{+9}_{-8}$
$A_{100}^{dust}$	1.018	$1.01^{+0.51}_{-0.48}$	$z_*$	1090.24	$1090.23^{+0.96}_{-1.0}$	$f_{2000}^{217}$	108.4	$108.2^{+5.6}_{-5.5}$
$A_{143}^{dust}$	0.976	$0.96^{+0.44}_{-0.44}$	$r_*$	142.04	$142.1^{+4.3}_{-4.0}$	$f_{2000}^{143 \times 217}$	33.8	$34^{+6}_{-6}$
$A_{217}^{dust}$	0.965	$0.97^{+0.27}_{-0.26}$	$100\theta_*$	1.04052	$1.0405^{+0.0014}_{-0.0013}$	$\chi_{lensing}^2$	9.46	$9.80 (\nu: 0.3)$
$A_{143 \times 217}^{dust}$	1.004	$1.03^{+0.43}_{-0.41}$	$D_M(z_*)/\text{Gpc}$	13.651	$13.66^{+0.39}_{-0.37}$	$\chi_{small}^2$	396.28	$397.3 (\nu: 1.9)$
$c_{100}$	0.99758	$0.9976^{+0.0027}_{-0.0026}$	$z_{drag}$	1060.85	$1060.8^{+1.5}_{-1.6}$	$\chi_{lowl}^2$	21.82	$21.89 (\nu: 0.3)$
$c_{217}$	1.00150	$1.0013^{+0.0041}_{-0.0039}$	$r_{drag}$	144.61	$144.7^{+4.4}_{-4.2}$	$\chi_{CamSpec}^2$	11503.8	$11518.7 (\nu: 19.3)$
$c_{TE}$	0.9983	$0.998^{+0.012}_{-0.013}$	$k_D$	0.14254	$0.1425^{+0.0032}_{-0.0032}$	$\chi_{H073p45}^2$	5.1	$5.5 (\nu: 4.1)$
$c_{EE}$	0.9957	$0.996^{+0.013}_{-0.014}$	$100\theta_D$	0.16145	$0.1614^{+0.0011}_{-0.0011}$	$\chi_{JLA}^2$	1034.745	$1034.81 (\nu: 0.0)$
$H_0$	69.71	$69.7^{+2.7}_{-2.6}$	$z_{eq}$	3349	$3348^{+57}_{-55}$	$\chi_{6DF}^2$	0.004	$0.029 (\nu: 0.0)$
$\Omega_\Lambda$	0.6988	$0.699^{+0.014}_{-0.015}$	$k_{eq}$	0.010423	$0.01042^{+0.00030}_{-0.00029}$	$\chi_{MGS}^2$	1.89	$1.97 (\nu: 0.1)$
$\Omega_m$	0.3012	$0.301^{+0.015}_{-0.014}$	$100\theta_{eq}$	0.8234	$0.824^{+0.011}_{-0.011}$	$\chi_{DR12BAO}^2$	3.43	$3.79 (\nu: 0.1)$
$\Omega_m h^2$	0.1464	$0.1463^{+0.0081}_{-0.0078}$	$100\theta_{s,eq}$	0.4545	$0.4546^{+0.0055}_{-0.0055}$	$\chi_{prior}^2$	2.4	$7.8 (\nu: 6.1)$
$\Omega_m h^3$	0.1020	$0.1020^{+0.0091}_{-0.0088}$	$H(0.15)$	74.98	$75.0^{+2.7}_{-2.7}$	$\chi_{CMB}^2$	11931.3	$11947.7 (\nu: 19.7)$
$\sigma_8$	0.8200	$0.820^{+0.025}_{-0.025}$	$D_M(0.15)$	622.6	$623^{+24}_{-23}$	$\chi_{BAO}^2$	5.33	$5.79 (\nu: 0.2)$
$S_8$	0.8216	$0.822^{+0.028}_{-0.028}$	$H(0.38)$	85.11	$85.1^{+2.8}_{-2.8}$			
$\sigma_8 \Omega_m^{0.5}$	0.4500	$0.450^{+0.016}_{-0.015}$	$D_M(0.38)$	1487	$1488^{+55}_{-52}$			

Best-fit  $\chi_{eff}^2 = 12978.85$ ;  $\bar{\chi}_{eff}^2 = 13001.59$ ;  $R - 1 = 0.02251$

$\chi_{eff}^2$ : BAO - 6DF: 0.00 MGS: 1.89 DR12BAO: 3.43 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.46 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.28 commander\_dx12\_v3\_2\_29: 21.82 CamSpec like\_10.7HM.1400\_unified: 11503.77 Hubble - H073p45: 5.08 SN - JLA Pantheon18: 1034.74



**7.101**    **base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02261^{+0.00046}_{-0.00046}$	$S_8$	$0.815^{+0.041}_{-0.040}$	$H(0.15)$	$75.5^{+3.1}_{-3.2}$
$\Omega_{\mathrm{c}}h^2$	$0.1231^{+0.0081}_{-0.0080}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.446^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.15)$	$618^{+28}_{-26}$
$100\theta_{\mathrm{MC}}$	$1.0405^{+0.0011}_{-0.0010}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.023}_{-0.023}$	$H(0.38)$	$85.6^{+3.1}_{-3.2}$
$\tau$	$0.056^{+0.020}_{-0.015}$	$\sigma_8/h^{0.5}$	$0.978^{+0.029}_{-0.029}$	$D_{\mathrm{M}}(0.38)$	$1478^{+63}_{-58}$
$N_{\mathrm{eff}}$	$3.38^{+0.46}_{-0.47}$	$r_{\mathrm{drag}}h$	$101.4^{+2.8}_{-2.7}$	$H(0.51)$	$92.3^{+3.2}_{-3.3}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.055^{+0.047}_{-0.037}$	$\langle d^2 \rangle^{1/2}$	$2.401^{+0.070}_{-0.068}$	$D_{\mathrm{M}}(0.51)$	$1917^{+79}_{-73}$
$n_{\mathrm{s}}$	$0.981^{+0.017}_{-0.019}$	$z_{\mathrm{re}}$	$< 9.74$	$H(0.61)$	$97.9^{+3.2}_{-3.3}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0067}_{-0.0064}$	$10^9 A_{\mathrm{s}}$	$2.12^{+0.10}_{-0.078}$	$D_{\mathrm{M}}(0.61)$	$2233^{+90}_{-83}$
$A_{100}^{\mathrm{PS}}$	$247^{+60}_{-70}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.896^{+0.043}_{-0.045}$	$H(2.33)$	$239.9^{+6.7}_{-6.8}$
$A_{143}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$D_{40}$	$1207^{+36}_{-33}$	$D_{\mathrm{M}}(2.33)$	$5620^{+190}_{-170}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{220}$	$5726^{+100}_{-98}$	$f\sigma_8(0.15)$	$0.452^{+0.021}_{-0.021}$
$A_{217}^{\mathrm{CIB}}$	$42^{+20}_{-20}$	$D_{810}$	$2539^{+38}_{-35}$	$\sigma_8(0.15)$	$0.759^{+0.026}_{-0.025}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.69$	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.019}_{-0.019}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.30}$	$D_{2000}$	$228.7^{+5.2}_{-5.2}$	$\sigma_8(0.38)$	$0.674^{+0.024}_{-0.023}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.981^{+0.017}_{-0.019}$	$f\sigma_8(0.51)$	$0.474^{+0.017}_{-0.018}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2499^{+0.0058}_{-0.0063}$	$\sigma_8(0.51)$	$0.632^{+0.022}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2512^{+0.0059}_{-0.0063}$	$f\sigma_8(0.61)$	$0.471^{+0.017}_{-0.017}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.50}_{-0.50}$	$10^5\mathrm{D}/\mathrm{H}$	$2.66^{+0.13}_{-0.14}$	$\sigma_8(0.61)$	$0.601^{+0.022}_{-0.020}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.45}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.46^{+0.45}_{-0.41}$	$f\sigma_8(2.33)$	$0.304^{+0.011}_{-0.011}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$z_*$	$1090.2^{+1.0}_{-1.0}$	$\sigma_8(2.33)$	$0.314^{+0.012}_{-0.011}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.41}$	$r_*$	$141.8^{+4.3}_{-4.1}$	$f_{2000}^{143}$	$32^{+9}_{-8}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0028}$	$100\theta_*$	$1.0405^{+0.0014}_{-0.0013}$	$f_{2000}^{217}$	$108.4^{+5.5}_{-5.7}$
$c_{217}$	$1.0013^{+0.0041}_{-0.0040}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.63^{+0.40}_{-0.38}$	$f_{2000}^{143\times 217}$	$34^{+6}_{-6}$
$c_{TE}$	$0.999^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1061.0^{+1.6}_{-1.7}$	$\chi_{\mathrm{simall}}^2$	$397.1\ (\nu: 1.8)$
$c_{EE}$	$0.997^{+0.014}_{-0.014}$	$r_{\mathrm{drag}}$	$144.4^{+4.5}_{-4.2}$	$\chi_{\mathrm{lowl}}^2$	$21.54\ (\nu: 0.3)$
$H_0$	$70.2^{+3.1}_{-3.2}$	$k_{\mathrm{D}}$	$0.1427^{+0.0032}_{-0.0033}$	$\chi_{\mathrm{CamSpec}}^2$	$11520.6\ (\nu: 21.8)$
$\Omega_{\Lambda}$	$0.703^{+0.020}_{-0.021}$	$100\theta_{\mathrm{D}}$	$0.1615^{+0.0011}_{-0.0012}$	$\chi_{\mathrm{H073p45}}^2$	$4.3\ (\nu: 4.5)$
$\Omega_{\mathrm{m}}$	$0.297^{+0.021}_{-0.020}$	$z_{\mathrm{eq}}$	$3332^{+79}_{-79}$	$\chi_{\mathrm{prior}}^2$	$7.9\ (\nu: 6.3)$
$\Omega_{\mathrm{m}}h^2$	$0.1464^{+0.0082}_{-0.0081}$	$k_{\mathrm{eq}}$	$0.01040^{+0.00033}_{-0.00032}$	$\chi_{\mathrm{CMB}}^2$	$11939.3\ (\nu: 20.6)$
$\Omega_{\mathrm{m}}h^3$	$0.1029^{+0.0095}_{-0.0093}$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.016}_{-0.015}$		
$\sigma_8$	$0.819^{+0.028}_{-0.027}$	$100\theta_{\mathrm{s,eq}}$	$0.4563^{+0.0080}_{-0.0077}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11951.46; R - 1 = 0.01420$$



**7.102 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_BAO\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02256^{+0.00043}_{-0.00041}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.019}_{-0.019}$	$H(0.38)$	$85.2^{+2.9}_{-2.9}$
$\Omega_{\mathrm{c}} h^2$	$0.1232^{+0.0082}_{-0.0080}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1485^{+57}_{-53}$
$100\theta_{\mathrm{MC}}$	$1.0405^{+0.0011}_{-0.0010}$	$\sigma_8/h^{0.5}$	$0.981^{+0.027}_{-0.026}$	$H(0.51)$	$92.0^{+3.0}_{-3.1}$
$\tau$	$0.056^{+0.020}_{-0.015}$	$r_{\mathrm{drag}} h$	$101.0^{+2.1}_{-2.0}$	$D_{\mathrm{M}}(0.51)$	$1926^{+72}_{-67}$
$N_{\mathrm{eff}}$	$3.35^{+0.45}_{-0.47}$	$\langle d^2 \rangle^{1/2}$	$2.408^{+0.063}_{-0.059}$	$H(0.61)$	$97.6^{+3.0}_{-3.2}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.054^{+0.046}_{-0.037}$	$z_{\mathrm{re}}$	$< 9.65$	$D_{\mathrm{M}}(0.61)$	$2242^{+83}_{-76}$
$n_{\mathrm{s}}$	$0.979^{+0.016}_{-0.017}$	$10^9 A_{\mathrm{s}}$	$2.12^{+0.10}_{-0.077}$	$H(2.33)$	$239.8^{+6.8}_{-6.9}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0068}_{-0.0065}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.896^{+0.043}_{-0.046}$	$D_{\mathrm{M}}(2.33)$	$5635^{+190}_{-170}$
$A_{100}^{\mathrm{PS}}$	$246^{+60}_{-60}$	$D_{40}$	$1210^{+34}_{-33}$	$f\sigma_8(0.15)$	$0.454^{+0.019}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$D_{220}$	$5723^{+110}_{-94}$	$\sigma_8(0.15)$	$0.758^{+0.026}_{-0.026}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{810}$	$2539^{+38}_{-35}$	$f\sigma_8(0.38)$	$0.476^{+0.018}_{-0.018}$
$A_{217}^{\mathrm{CIB}}$	$42^{+20}_{-20}$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.38)$	$0.674^{+0.023}_{-0.024}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.63$	$D_{2000}$	$228.8^{+5.2}_{-5.1}$	$f\sigma_8(0.51)$	$0.476^{+0.017}_{-0.017}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.31}$	$n_{\mathrm{s},0.002}$	$0.979^{+0.016}_{-0.017}$	$\sigma_8(0.51)$	$0.631^{+0.022}_{-0.022}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2495^{+0.0057}_{-0.0063}$	$f\sigma_8(0.61)$	$0.471^{+0.017}_{-0.016}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2508^{+0.0057}_{-0.0063}$	$\sigma_8(0.61)$	$0.601^{+0.021}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.66^{+0.14}_{-0.14}$	$f\sigma_8(2.33)$	$0.303^{+0.011}_{-0.011}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.50}_{-0.48}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.49^{+0.44}_{-0.39}$	$\sigma_8(2.33)$	$0.313^{+0.011}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.44}_{-0.44}$	$z_*$	$1090.2^{+1.1}_{-1.1}$	$f_{2000}^{143}$	$32^{+9}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$r_*$	$142.0^{+4.5}_{-4.0}$	$f_{2000}^{217}$	$108.3^{+5.5}_{-5.5}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	$1.0405^{+0.0014}_{-0.0013}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.65^{+0.42}_{-0.37}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.6)$
$c_{217}$	$1.0013^{+0.0041}_{-0.0039}$	$z_{\mathrm{drag}}$	$1060.8^{+1.6}_{-1.6}$	$\chi_{\mathrm{lowl}}^2$	$21.74 (\nu: 0.3)$
$c_{TE}$	$0.999^{+0.012}_{-0.013}$	$r_{\mathrm{drag}}$	$144.6^{+4.6}_{-4.2}$	$\chi_{\mathrm{CamSpec}}^2$	$11519.4 (\nu: 19.8)$
$c_{EE}$	$0.996^{+0.013}_{-0.014}$	$k_{\mathrm{D}}$	$0.1426^{+0.0032}_{-0.0033}$	$\chi_{\mathrm{H073p45}}^2$	$5.1 (\nu: 4.1)$
$H_0$	$69.8^{+2.8}_{-2.8}$	$100\theta_{\mathrm{D}}$	$0.1615^{+0.0011}_{-0.0012}$	$\chi_{6\mathrm{DF}}^2$	$0.037 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.700^{+0.015}_{-0.016}$	$z_{\mathrm{eq}}$	$3344^{+60}_{-61}$	$\chi_{\mathrm{MGS}}^2$	$2.05 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.300^{+0.016}_{-0.015}$	$k_{\mathrm{eq}}$	$0.01041^{+0.00032}_{-0.00030}$	$\chi_{\mathrm{DR12BAO}}^2$	$3.84 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1464^{+0.0083}_{-0.0080}$	$100\theta_{\mathrm{eq}}$	$0.824^{+0.012}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	$7.9 (\nu: 6.1)$
$\Omega_{\mathrm{m}} h^3$	$0.1023^{+0.0091}_{-0.0093}$	$100\theta_{\mathrm{s,eq}}$	$0.4550^{+0.0060}_{-0.0059}$	$\chi_{\mathrm{BAO}}^2$	$5.93 (\nu: 0.4)$
$\sigma_8$	$0.820^{+0.027}_{-0.028}$	$H(0.15)$	$75.1^{+2.8}_{-2.8}$	$\chi_{\mathrm{CMB}}^2$	$11938.2 (\nu: 19.1)$
$S_8$	$0.820^{+0.035}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$622^{+25}_{-23}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11957.12; R - 1 = 0.01923$$



**7.103 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_BAO\_Pantheon18\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02257^{+0.00042}_{-0.00041}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.019}_{-0.018}$	$H(0.38)$	$85.2^{+2.8}_{-2.9}$
$\Omega_{\mathrm{c}} h^2$	$0.1232^{+0.0082}_{-0.0080}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1485^{+57}_{-52}$
$100\theta_{\mathrm{MC}}$	$1.0405^{+0.0011}_{-0.0010}$	$\sigma_8/h^{0.5}$	$0.981^{+0.027}_{-0.025}$	$H(0.51)$	$92.0^{+2.9}_{-3.1}$
$\tau$	$0.056^{+0.020}_{-0.015}$	$r_{\mathrm{drag}} h$	$101.0^{+2.0}_{-2.0}$	$D_{\mathrm{M}}(0.51)$	$1925^{+72}_{-66}$
$N_{\mathrm{eff}}$	$3.36^{+0.44}_{-0.47}$	$\langle d^2 \rangle^{1/2}$	$2.408^{+0.062}_{-0.058}$	$H(0.61)$	$97.6^{+3.0}_{-3.2}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.054^{+0.046}_{-0.037}$	$z_{\mathrm{re}}$	$< 9.65$	$D_{\mathrm{M}}(0.61)$	$2242^{+83}_{-75}$
$n_{\mathrm{s}}$	$0.979^{+0.015}_{-0.017}$	$10^9 A_{\mathrm{s}}$	$2.120^{+0.099}_{-0.077}$	$H(2.33)$	$239.8^{+6.8}_{-6.9}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0068}_{-0.0065}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.896^{+0.043}_{-0.046}$	$D_{\mathrm{M}}(2.33)$	$5634^{+190}_{-160}$
$A_{100}^{\mathrm{PS}}$	$246^{+60}_{-60}$	$D_{40}$	$1210^{+34}_{-33}$	$f\sigma_8(0.15)$	$0.454^{+0.019}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$D_{220}$	$5723^{+110}_{-94}$	$\sigma_8(0.15)$	$0.758^{+0.026}_{-0.026}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{810}$	$2539^{+38}_{-35}$	$f\sigma_8(0.38)$	$0.476^{+0.018}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$42^{+20}_{-20}$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.38)$	$0.674^{+0.023}_{-0.024}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.65$	$D_{2000}$	$228.8^{+5.2}_{-5.1}$	$f\sigma_8(0.51)$	$0.475^{+0.017}_{-0.017}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.31}$	$n_{\mathrm{s},0.002}$	$0.979^{+0.015}_{-0.017}$	$\sigma_8(0.51)$	$0.631^{+0.022}_{-0.022}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2495^{+0.0056}_{-0.0062}$	$f\sigma_8(0.61)$	$0.471^{+0.017}_{-0.016}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2508^{+0.0057}_{-0.0062}$	$\sigma_8(0.61)$	$0.601^{+0.021}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.66^{+0.14}_{-0.14}$	$f\sigma_8(2.33)$	$0.303^{+0.011}_{-0.011}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.50}_{-0.48}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.49^{+0.44}_{-0.39}$	$\sigma_8(2.33)$	$0.313^{+0.011}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.44}_{-0.44}$	$z_*$	$1090.2^{+1.1}_{-1.1}$	$f_{2000}^{143}$	$32^{+9}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$r_*$	$142.0^{+4.5}_{-4.0}$	$f_{2000}^{217}$	$108.3^{+5.5}_{-5.5}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	$1.0405^{+0.0014}_{-0.0013}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.65^{+0.42}_{-0.37}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.7)$
$c_{217}$	$1.0013^{+0.0041}_{-0.0039}$	$z_{\mathrm{drag}}$	$1060.9^{+1.6}_{-1.6}$	$\chi_{\mathrm{lowl}}^2$	$21.73 (\nu: 0.3)$
$c_{TE}$	$0.999^{+0.012}_{-0.013}$	$r_{\mathrm{drag}}$	$144.6^{+4.6}_{-4.2}$	$\chi_{\mathrm{CamSpec}}^2$	$11519.4 (\nu: 19.8)$
$c_{EE}$	$0.996^{+0.013}_{-0.014}$	$k_{\mathrm{D}}$	$0.1426^{+0.0032}_{-0.0033}$	$\chi_{\mathrm{H073p45}}^2$	$5.1 (\nu: 3.9)$
$H_0$	$69.9^{+2.7}_{-2.7}$	$100\theta_{\mathrm{D}}$	$0.1615^{+0.0011}_{-0.0012}$	$\chi_{\mathrm{JLA}}^2$	$1034.81 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.700^{+0.015}_{-0.015}$	$z_{\mathrm{eq}}$	$3344^{+58}_{-59}$	$\chi_{6\mathrm{DF}}^2$	$0.035 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.300^{+0.015}_{-0.015}$	$k_{\mathrm{eq}}$	$0.01041^{+0.00031}_{-0.00030}$	$\chi_{\mathrm{MGS}}^2$	$2.06 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1464^{+0.0083}_{-0.0080}$	$100\theta_{\mathrm{eq}}$	$0.824^{+0.011}_{-0.011}$	$\chi_{\mathrm{DR12BAO}}^2$	$3.81 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^3$	$0.1023^{+0.0091}_{-0.0093}$	$100\theta_{\mathrm{s,eq}}$	$0.4550^{+0.0058}_{-0.0057}$	$\chi_{\mathrm{prior}}^2$	$7.9 (\nu: 6.1)$
$\sigma_8$	$0.820^{+0.027}_{-0.028}$	$H(0.15)$	$75.1^{+2.7}_{-2.8}$	$\chi_{\mathrm{BAO}}^2$	$5.90 (\nu: 0.4)$
$S_8$	$0.820^{+0.035}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$622^{+25}_{-23}$	$\chi_{\mathrm{CMB}}^2$	$11938.2 (\nu: 19.0)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 12991.86; R - 1 = 0.01898$$



7.104 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02259^{+0.00047}_{-0.00046}$	$S_8$	$0.820^{+0.032}_{-0.032}$	$H(0.15)$	$75.2^{+3.1}_{-3.0}$
$\Omega_{\mathrm{c}} h^2$	$0.1231^{+0.0078}_{-0.0076}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.018}_{-0.017}$	$D_{\mathrm{M}}(0.15)$	$621^{+27}_{-26}$
$100\theta_{\mathrm{MC}}$	$1.0405^{+0.0011}_{-0.0010}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.019}_{-0.019}$	$H(0.38)$	$85.3^{+3.1}_{-3.1}$
$\tau$	$0.058^{+0.020}_{-0.016}$	$\sigma_8/h^{0.5}$	$0.982^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1483^{+60}_{-57}$
$N_{\mathrm{eff}}$	$3.36^{+0.46}_{-0.47}$	$r_{\mathrm{drag}} h$	$101.1^{+2.6}_{-2.4}$	$H(0.51)$	$92.1^{+3.2}_{-3.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.059^{+0.044}_{-0.036}$	$\langle d^2 \rangle^{1/2}$	$2.412^{+0.058}_{-0.057}$	$D_{\mathrm{M}}(0.51)$	$1923^{+76}_{-73}$
$n_{\mathrm{s}}$	$0.979^{+0.017}_{-0.018}$	$z_{\mathrm{re}}$	$< 9.87$	$H(0.61)$	$97.7^{+3.3}_{-3.2}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0068}_{-0.0062}$	$10^9 A_{\mathrm{s}}$	$2.131^{+0.097}_{-0.076}$	$D_{\mathrm{M}}(0.61)$	$2239^{+87}_{-82}$
$A_{100}^{\mathrm{PS}}$	$247^{+60}_{-60}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.897^{+0.041}_{-0.042}$	$H(2.33)$	$239.8^{+6.6}_{-6.5}$
$A_{143}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$D_{40}$	$1211^{+33}_{-33}$	$D_{\mathrm{M}}(2.33)$	$5631^{+180}_{-180}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{220}$	$5731^{+100}_{-97}$	$f\sigma_8(0.15)$	$0.455^{+0.017}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{810}$	$2541^{+37}_{-33}$	$\sigma_8(0.15)$	$0.760^{+0.023}_{-0.023}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.65$	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.476^{+0.015}_{-0.015}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.31}$	$D_{2000}$	$228.9^{+5.2}_{-5.1}$	$\sigma_8(0.38)$	$0.675^{+0.022}_{-0.021}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.979^{+0.017}_{-0.018}$	$f\sigma_8(0.51)$	$0.476^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2496^{+0.0059}_{-0.0062}$	$\sigma_8(0.51)$	$0.632^{+0.021}_{-0.020}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2509^{+0.0059}_{-0.0063}$	$f\sigma_8(0.61)$	$0.472^{+0.014}_{-0.014}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.65^{+0.13}_{-0.14}$	$\sigma_8(0.61)$	$0.602^{+0.020}_{-0.020}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.44}_{-0.44}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.48^{+0.44}_{-0.42}$	$f\sigma_8(2.33)$	$0.304^{+0.011}_{-0.010}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$z_*$	$1090.21^{+0.96}_{-1.0}$	$\sigma_8(2.33)$	$0.314^{+0.011}_{-0.011}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.41}$	$r_*$	$142.0^{+4.2}_{-4.0}$	$f_{2000}^{143}$	$32^{+9}_{-8}$
$c_{100}$	$0.9976^{+0.0027}_{-0.0026}$	$100\theta_*$	$1.0405^{+0.0014}_{-0.0013}$	$f_{2000}^{217}$	$108.3^{+5.5}_{-5.5}$
$c_{217}$	$1.0013^{+0.0042}_{-0.0039}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.64^{+0.39}_{-0.37}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$c_{TE}$	$0.999^{+0.012}_{-0.013}$	$z_{\mathrm{drag}}$	$1060.9^{+1.6}_{-1.7}$	$\chi_{\mathrm{lensing}}^2$	$9.90 (\nu: 0.4)$
$c_{EE}$	$0.996^{+0.014}_{-0.014}$	$r_{\mathrm{drag}}$	$144.5^{+4.4}_{-4.1}$	$\chi_{\mathrm{simall}}^2$	$397.5 (\nu: 2.3)$
$H_0$	$70.0^{+3.1}_{-3.0}$	$k_{\mathrm{D}}$	$0.1426^{+0.0032}_{-0.0032}$	$\chi_{\mathrm{lowl}}^2$	$21.78 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.701^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.1615^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$11519.4 (\nu: 20.3)$
$\Omega_{\mathrm{m}}$	$0.299^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3340^{+72}_{-74}$	$\chi_{\mathrm{H073p45}}^2$	$4.9 (\nu: 5.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1463^{+0.0081}_{-0.0078}$	$k_{\mathrm{eq}}$	$0.01041^{+0.00030}_{-0.00029}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 6.2)$
$\Omega_{\mathrm{m}} h^3$	$0.1024^{+0.0093}_{-0.0092}$	$100\theta_{\mathrm{eq}}$	$0.825^{+0.015}_{-0.014}$	$\chi_{\mathrm{CMB}}^2$	$11948.5 (\nu: 21.3)$
$\sigma_8$	$0.821^{+0.025}_{-0.025}$	$100\theta_{\mathrm{s,eq}}$	$0.4554^{+0.0074}_{-0.0070}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11961.28; R - 1 = 0.02116$$



7.105 base\_nnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Riess18\_post\_BAO\_lensing\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02256^{+0.00043}_{-0.00040}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.608^{+0.018}_{-0.018}$	$H(0.51)$	$91.8^{+2.9}_{-2.9}$
$\Omega_{\text{c}} h^2$	$0.1230^{+0.0078}_{-0.0078}$	$\sigma_8/h^{0.5}$	$0.983^{+0.022}_{-0.021}$	$D_{\text{M}}(0.51)$	$1929^{+69}_{-66}$
$100\theta_{\text{MC}}$	$1.0405^{+0.0011}_{-0.0010}$	$r_{\text{drag}} h$	$100.9^{+1.9}_{-1.9}$	$H(0.61)$	$97.5^{+3.0}_{-3.0}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$\langle d^2 \rangle^{1/2}$	$2.415^{+0.052}_{-0.050}$	$D_{\text{M}}(0.61)$	$2246^{+79}_{-75}$
$N_{\text{eff}}$	$3.34^{+0.45}_{-0.45}$	$z_{\text{re}}$	$< 9.67$	$H(2.33)$	$239.7^{+6.5}_{-6.6}$
$\ln(10^{10} A_{\text{s}})$	$3.057^{+0.041}_{-0.035}$	$10^9 A_{\text{s}}$	$2.127^{+0.090}_{-0.073}$	$D_{\text{M}}(2.33)$	$5641^{+180}_{-170}$
$n_{\text{s}}$	$0.978^{+0.015}_{-0.016}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.896^{+0.040}_{-0.042}$	$f\sigma_8(0.15)$	$0.456^{+0.015}_{-0.015}$
$y_{\text{cal}}$	$1.0007^{+0.0068}_{-0.0063}$	$D_{40}$	$1213^{+32}_{-31}$	$\sigma_8(0.15)$	$0.759^{+0.023}_{-0.023}$
$A_{100}^{\text{PS}}$	$246^{+60}_{-60}$	$D_{220}$	$5729^{+100}_{-96}$	$f\sigma_8(0.38)$	$0.477^{+0.014}_{-0.014}$
$A_{143}^{\text{PS}}$	$43^{+20}_{-20}$	$D_{810}$	$2540^{+37}_{-33}$	$\sigma_8(0.38)$	$0.674^{+0.021}_{-0.021}$
$A_{217}^{\text{PS}}$	$101^{+30}_{-30}$	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.51)$	$0.476^{+0.014}_{-0.014}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.0^{+5.3}_{-5.1}$	$\sigma_8(0.51)$	$0.632^{+0.020}_{-0.020}$
$A_{143}^{\text{tSZ}}$	$< 8.66$	$n_{\text{s},0.002}$	$0.978^{+0.015}_{-0.016}$	$f\sigma_8(0.61)$	$0.472^{+0.014}_{-0.014}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.32}_{-0.31}$	$Y_{\text{P}}$	$0.2493^{+0.0057}_{-0.0060}$	$\sigma_8(0.61)$	$0.601^{+0.019}_{-0.019}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.2506^{+0.0057}_{-0.0060}$	$f\sigma_8(2.33)$	$0.3035^{+0.0098}_{-0.0098}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^5 \text{D}/\text{H}$	$2.65^{+0.13}_{-0.13}$	$\sigma_8(2.33)$	$0.313^{+0.011}_{-0.011}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.51^{+0.43}_{-0.39}$	$f_{2000}^{143}$	$32^{+9}_{-8}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.48}$	$z_*$	$1090.23^{+0.95}_{-1.0}$	$f_{2000}^{217}$	$108.2^{+5.6}_{-5.6}$
$A_{143}^{\text{dust}}$	$0.96^{+0.44}_{-0.44}$	$r_*$	$142.1^{+4.3}_{-4.0}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.26}$	$100\theta_*$	$1.0405^{+0.0014}_{-0.0013}$	$\chi_{\text{lensing}}^2$	$9.77 (\nu: 0.3)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.41}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.66^{+0.39}_{-0.37}$	$\chi_{\text{simall}}^2$	$397.3 (\nu: 1.9)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0026}$	$z_{\text{drag}}$	$1060.8^{+1.5}_{-1.6}$	$\chi_{\text{lowl}}^2$	$21.89 (\nu: 0.3)$
$c_{217}$	$1.0013^{+0.0041}_{-0.0039}$	$r_{\text{drag}}$	$144.7^{+4.4}_{-4.1}$	$\chi_{\text{CamSpec}}^2$	$11518.7 (\nu: 19.2)$
$c_{TE}$	$0.998^{+0.012}_{-0.013}$	$k_{\text{D}}$	$0.1425^{+0.0031}_{-0.0032}$	$\chi_{\text{H073p45}}^2$	$5.5 (\nu: 4.1)$
$c_{EE}$	$0.996^{+0.013}_{-0.014}$	$100\theta_{\text{D}}$	$0.1614^{+0.0011}_{-0.0011}$	$\chi_{\text{JLA}}^2$	$1034.81 (\nu: 0.0)$
$H_0$	$69.7^{+2.7}_{-2.7}$	$z_{\text{eq}}$	$3347^{+56}_{-55}$	$\chi_{6\text{DF}}^2$	$0.029 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.699^{+0.014}_{-0.015}$	$k_{\text{eq}}$	$0.01041^{+0.00030}_{-0.00029}$	$\chi_{\text{MGS}}^2$	$1.98 (\nu: 0.1)$
$\Omega_{\text{m}}$	$0.301^{+0.015}_{-0.014}$	$100\theta_{\text{eq}}$	$0.824^{+0.011}_{-0.011}$	$\chi_{\text{DR12BAO}}^2$	$3.78 (\nu: 0.1)$
$\Omega_{\text{m}} h^2$	$0.1462^{+0.0080}_{-0.0078}$	$100\theta_{\text{s,eq}}$	$0.4547^{+0.0055}_{-0.0055}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.1)$
$\Omega_{\text{m}} h^3$	$0.1020^{+0.0090}_{-0.0088}$	$H(0.15)$	$75.0^{+2.7}_{-2.7}$	$\chi_{\text{CMB}}^2$	$11947.6 (\nu: 19.4)$
$\sigma_8$	$0.821^{+0.025}_{-0.025}$	$D_{\text{M}}(0.15)$	$623^{+24}_{-23}$	$\chi_{\text{BAO}}^2$	$5.79 (\nu: 0.2)$
$S_8$	$0.822^{+0.028}_{-0.028}$	$H(0.38)$	$85.1^{+2.8}_{-2.8}$		
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.450^{+0.016}_{-0.015}$	$D_{\text{M}}(0.38)$	$1488^{+55}_{-52}$		

$$\bar{\chi}_{\text{eff}}^2 = 13001.46; R - 1 = 0.02255$$



**7.106 base\_nnu\_CleanedCamSpecHM\_TT\_lowl\_lowE**

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02201	$0.02206^{+0.00086}_{-0.00082}$	$\sigma_8/h^{0.5}$	0.9910	$0.990^{+0.041}_{-0.043}$	$D_M(0.15)$	653	$651^{+60}_{-56}$
$\Omega_c h^2$	0.1196	$0.120^{+0.011}_{-0.010}$	$r_{\text{drag}} h$	98.1	$98.4^{+5.9}_{-5.6}$	$H(0.38)$	81.9	$82.2^{+6.0}_{-5.7}$
$100\theta_{\text{MC}}$	1.04091	$1.0409^{+0.0015}_{-0.0014}$	$\langle d^2 \rangle^{1/2}$	2.455	$2.45^{+0.12}_{-0.12}$	$D_M(0.38)$	1554	$1551^{+130}_{-120}$
$\tau$	0.0503	$0.052^{+0.022}_{-0.023}$	$z_{\text{re}}$	7.33	$7.4^{+2.2}_{-2.6}$	$H(0.51)$	88.7	$88.9^{+6.0}_{-5.6}$
$N_{\text{eff}}$	2.97	$2.99^{+0.79}_{-0.74}$	$10^9 A_s$	2.075	$2.08^{+0.12}_{-0.11}$	$D_M(0.51)$	2012	$2007^{+160}_{-150}$
$\ln(10^{10} A_s)$	3.032	$3.035^{+0.057}_{-0.057}$	$10^9 A_s e^{-2\tau}$	1.876	$1.876^{+0.058}_{-0.060}$	$H(0.61)$	94.4	$94.6^{+6.0}_{-5.7}$
$n_s$	0.9590	$0.960^{+0.035}_{-0.036}$	$D_{40}$	1236	$1236^{+60}_{-56}$	$D_M(0.61)$	2339	$2335^{+190}_{-170}$
$y_{\text{cal}}$	1.0003	$1.0004^{+0.0063}_{-0.0066}$	$D_{220}$	5703	$5707^{+110}_{-110}$	$H(2.33)$	235.7	$235.8^{+9.8}_{-9.4}$
$A_{100}^{\text{PS}}$	251	$255^{+70}_{-70}$	$D_{810}$	2531.0	$2530^{+37}_{-37}$	$D_M(2.33)$	5813	$5805^{+350}_{-330}$
$A_{143}^{\text{tSZ}}$	5.91	$< 8.91$	$D_{1420}$	813.0	$813^{+13}_{-14}$	$f\sigma_8(0.15)$	0.4625	$0.462^{+0.031}_{-0.033}$
$A^{\text{kSZ}}$	0.8	—	$D_{2000}$	229.3	$229.2^{+5.9}_{-6.3}$	$\sigma_8(0.15)$	0.7444	$0.745^{+0.036}_{-0.033}$
$A_{100}^{\text{dust}}$	0.998	$1.00^{+0.50}_{-0.50}$	$n_{\text{s},0.002}$	0.9590	$0.960^{+0.035}_{-0.036}$	$f\sigma_8(0.38)$	0.4781	$0.478^{+0.024}_{-0.026}$
$A_{143}^{\text{power}}$	11.8	$10.3^{+7.8}_{-6.1}$	$Y_{\text{P}}$	0.2442	$0.244^{+0.010}_{-0.011}$	$\sigma_8(0.38)$	0.6586	$0.659^{+0.034}_{-0.032}$
$A_{217}^{\text{power}}$	10.9	$8.2^{+8.1}_{-5.1}$	$Y_{\text{P}}^{\text{BBN}}$	0.2455	$0.246^{+0.010}_{-0.011}$	$f\sigma_8(0.51)$	0.4753	$0.475^{+0.021}_{-0.023}$
$A_{143 \times 217}^{\text{power}}$	7.2	$< 11.6$	$10^5 \text{D/H}$	2.626	$2.63^{+0.20}_{-0.18}$	$\sigma_8(0.51)$	0.6158	$0.617^{+0.034}_{-0.031}$
$\gamma_{143}^{\text{power}}$	1.31	$> 0.360$	Age/Gyr	13.91	$13.90^{+0.83}_{-0.79}$	$f\sigma_8(0.61)$	0.4694	$0.469^{+0.020}_{-0.021}$
$\gamma_{217}^{\text{power}}$	1.33	—	$z_*$	1090.26	$1090.2^{+1.3}_{-1.3}$	$\sigma_8(0.61)$	0.5856	$0.587^{+0.033}_{-0.030}$
$\gamma_{143 \times 217}^{\text{power}}$	1.24	—	$r_*$	145.2	$145.1^{+6.9}_{-6.7}$	$f\sigma_8(2.33)$	0.2948	$0.295^{+0.018}_{-0.016}$
$c_{100}$	0.99804	$0.9978^{+0.0027}_{-0.0028}$	$100\theta_*$	1.04117	$1.0411^{+0.0019}_{-0.0017}$	$\sigma_8(2.33)$	0.3034	$0.304^{+0.020}_{-0.018}$
$c_{217}$	0.99899	$0.9994^{+0.0043}_{-0.0034}$	$D_M(z_*)/\text{Gpc}$	13.95	$13.94^{+0.64}_{-0.62}$	$f_{2000}^{143}$	23.1	$23^{+10}_{-9}$
$H_0$	66.3	$66.6^{+6.5}_{-6.0}$	$z_{\text{drag}}$	1059.02	$1059.1^{+2.9}_{-3.0}$	$f_{2000}^{217}$	16.7	$16.7^{+6.6}_{-6.2}$
$\Omega_\Lambda$	0.6764	$0.678^{+0.045}_{-0.051}$	$r_{\text{drag}}$	148.0	$147.9^{+7.2}_{-6.9}$	$f_{2000}^{143 \times 217}$	11.1	$10.9^{+7.4}_{-6.9}$
$\Omega_{\text{m}}$	0.3236	$0.322^{+0.051}_{-0.045}$	$k_{\text{D}}$	0.1399	$0.1401^{+0.0051}_{-0.0050}$	$\chi_{\text{simall}}^2$	395.69	$396.9 (\nu: 1.3)$
$\Omega_{\text{m}} h^2$	0.1422	$0.142^{+0.011}_{-0.011}$	$100\theta_{\text{D}}$	0.16097	$0.1610^{+0.0018}_{-0.0017}$	$\chi_{\text{lowl}}^2$	24.2	$24.4 (\nu: 2.8)$
$\Omega_{\text{m}} h^3$	0.0943	$0.095^{+0.016}_{-0.014}$	$z_{\text{eq}}$	3419	$3414^{+170}_{-170}$	$\chi_{\text{CamSpec}}^2$	6703.8	$6716.4 (\nu: 15.5)$
$\sigma_8$	0.8069	$0.808^{+0.037}_{-0.034}$	$k_{\text{eq}}$	0.010381	$0.01038^{+0.00042}_{-0.00042}$	$\chi_{\text{prior}}^2$	1.3	$5.3 (\nu: 4.2)$
$S_8$	0.838	$0.837^{+0.064}_{-0.064}$	$100\theta_{\text{eq}}$	0.8092	$0.810^{+0.032}_{-0.031}$	$\chi_{\text{CMB}}^2$	7123.7	$7137.7 (\nu: 14.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4590	$0.458^{+0.035}_{-0.035}$	$100\theta_{\text{s,eq}}$	0.4475	$0.448^{+0.017}_{-0.016}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6086	$0.608^{+0.029}_{-0.031}$	$H(0.15)$	71.7	$71.9^{+6.3}_{-5.8}$			

Best-fit  $\chi_{\text{eff}}^2 = 7124.98$ ;  $\bar{\chi}_{\text{eff}}^2 = 7142.96$ ;  $R - 1 = 0.00706$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.69 commander\_dx12\_v3.2\_29: 24.16 CamSpec like\_10.7cleaned: 6703.83



# 7.107 base\_nnu\_lensing\_lenspriors\_BAO\_Cooke17\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02186	$0.0220^{+0.0018}_{-0.0017}$	$D_{1420}$	859	$843^{+200}_{-200}$	$D_{\mathrm{M}}(0.51)$	2011	$1999^{+150}_{-150}$
$\Omega_{\mathrm{c}}h^2$	0.1127	$0.115^{+0.033}_{-0.028}$	$D_{2000}$	242	$240^{+100}_{-70}$	$H(0.61)$	93.6	$94.3^{+8.4}_{-7.7}$
$100\theta_{\mathrm{MC}}$	1.0384	$1.040^{+0.038}_{-0.040}$	$n_{\mathrm{s},0.002}$	0.957	$0.956^{+0.050}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	2341	$2328^{+180}_{-170}$
$N_{\mathrm{eff}}$	2.88	$2.91^{+0.70}_{-0.65}$	$Y_{\mathrm{P}}$	0.2430	$0.2434^{+0.0098}_{-0.0098}$	$H(2.33)$	230.4	$232^{+26}_{-24}$
$\ln(10^{10}A_{\mathrm{s}})$	3.092	$3.08^{+0.27}_{-0.26}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2443	$0.2447^{+0.0098}_{-0.0098}$	$D_{\mathrm{M}}(2.33)$	5875	$5838^{+540}_{-500}$
$n_{\mathrm{s}}$	0.957	$0.956^{+0.050}_{-0.051}$	$10^5\mathrm{D}/\mathrm{H}$	2.626	$2.61^{+0.24}_{-0.24}$	$f\sigma_8(0.15)$	0.4495	$0.452^{+0.046}_{-0.046}$
$H_0$	66.82	$67.2^{+4.9}_{-4.5}$	Age/Gyr	14.07	$14.0^{+1.3}_{-1.2}$	$\sigma_8(0.15)$	0.7470	$0.748^{+0.043}_{-0.044}$
$\Omega_{\Lambda}$	0.6973	$0.695^{+0.042}_{-0.046}$	$z_{*}$	1089.75	$1089.8^{+3.1}_{-2.8}$	$f\sigma_8(0.38)$	0.4698	$0.471^{+0.039}_{-0.040}$
$\Omega_{\mathrm{m}}$	0.3027	$0.305^{+0.046}_{-0.042}$	$r_{*}$	147.6	$147^{+11}_{-10}$	$\sigma_8(0.38)$	0.6631	$0.664^{+0.036}_{-0.037}$
$\Omega_{\mathrm{m}}h^2$	0.1352	$0.138^{+0.033}_{-0.028}$	$100\theta_{*}$	1.0387	$1.041^{+0.038}_{-0.040}$	$f\sigma_8(0.51)$	0.4694	$0.471^{+0.035}_{-0.037}$
$\Omega_{\mathrm{m}}h^3$	0.0903	$0.093^{+0.029}_{-0.024}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	14.21	$14.1^{+1.5}_{-1.3}$	$\sigma_8(0.51)$	0.6210	$0.622^{+0.033}_{-0.035}$
$\sigma_8$	0.8074	$0.809^{+0.048}_{-0.050}$	$z_{\mathrm{drag}}$	1058.1	$1058.6^{+5.4}_{-5.4}$	$f\sigma_8(0.61)$	0.4652	$0.466^{+0.033}_{-0.034}$
$S_8$	0.811	$0.815^{+0.090}_{-0.088}$	$r_{\mathrm{drag}}$	150.5	$150^{+11}_{-11}$	$\sigma_8(0.61)$	0.5911	$0.592^{+0.032}_{-0.033}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4442	$0.447^{+0.049}_{-0.048}$	$k_{\mathrm{D}}$	0.1376	$0.139^{+0.011}_{-0.010}$	$f\sigma_8(2.33)$	0.2984	$0.299^{+0.016}_{-0.016}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.5989	$0.601^{+0.049}_{-0.049}$	$100\theta_{\mathrm{D}}$	0.1607	$0.1608^{+0.0053}_{-0.0053}$	$\sigma_8(2.33)$	0.3081	$0.308^{+0.016}_{-0.017}$
$\sigma_8/h^{0.5}$	0.988	$0.987^{+0.050}_{-0.051}$	$z_{\mathrm{eq}}$	3286	$3337^{+700}_{-600}$	$\chi^2_{\mathrm{lensing}}$	7.8	$9.9 (\nu: 2.4)$
$r_{\mathrm{drag}}h$	100.58	$100.5^{+3.1}_{-3.1}$	$k_{\mathrm{eq}}$	0.00992	$0.0101^{+0.0023}_{-0.0019}$	$\chi^2_{\mathrm{Aver15}}$	0.02	$0.9 (\nu: 0.8)$
$\langle d^2 \rangle^{1/2}$	2.487	$2.48^{+0.14}_{-0.13}$	$100\theta_{\mathrm{eq}}$	0.831	$0.826^{+0.10}_{-0.091}$	$\chi^2_{\mathrm{Cooke17}}$	0.01	$0.9 (\nu: 1.0)$
$z_{\mathrm{re}}$	7.72	$7.73^{+0.63}_{-0.58}$	$100\theta_{\mathrm{s,eq}}$	0.4590	$0.456^{+0.052}_{-0.047}$	$\chi^2_{6\mathrm{DF}}$	0.000	$0.058 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	2.20	$2.19^{+0.66}_{-0.51}$	$H(0.15)$	71.9	$72.3^{+5.5}_{-5.1}$	$\chi^2_{\mathrm{MGS}}$	1.75	$1.81 (\nu: 0.2)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	1.97	$1.96^{+0.59}_{-0.45}$	$D_{\mathrm{M}}(0.15)$	649.4	$646^{+47}_{-45}$	$\chi^2_{\mathrm{DR12BAO}}$	3.53	$4.4 (\nu: 1.3)$
$D_{40}$	1325	$1318^{+400}_{-300}$	$H(0.38)$	81.6	$82.2^{+6.9}_{-6.2}$	$\chi^2_{\mathrm{prior}}$	0.03	$1.0 (\nu: 1.0)$
$D_{220}$	6159	$6121^{+3000}_{-2000}$	$D_{\mathrm{M}}(0.38)$	1551	$1543^{+120}_{-110}$	$\chi^2_{\mathrm{BAO}}$	5.28	$6.3 (\nu: 1.4)$
$D_{810}$	2685	$2648^{+800}_{-700}$	$H(0.51)$	88.1	$88.8^{+7.7}_{-7.0}$	$\chi^2_{\mathrm{Abund}}$	0.03	$1.9 (\nu: 1.8)$

Best-fit  $\chi^2_{\mathrm{eff}} = 13.18$ ;  $\bar{\chi}^2_{\mathrm{eff}} = 19.03$ ;  $R - 1 = 0.01158$   
 $\chi^2_{\mathrm{eff}}$ : Abund - Yp\_Aver2015: 0.02 D\_Cooke2017: 0.01 BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.53 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.84



# 7.108 base\_nnu\_lensing\_lenspriors\_BAO\_Cooke17\_Aver15\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02194	$0.0220^{+0.0018}_{-0.0016}$	$D_{2000}$	243	$243^{+80}_{-60}$	$D_M(0.61)$	2337	$2331^{+180}_{-160}$
$\Omega_c h^2$	0.1124	$0.114^{+0.029}_{-0.024}$	$n_{s,0.002}$	0.9561	$0.956^{+0.049}_{-0.050}$	$H(2.33)$	230.3	$231^{+23}_{-21}$
$100\theta_{MC}$	1.0376	$1.039^{+0.033}_{-0.035}$	$Y_P$	0.2433	$0.243^{+0.010}_{-0.0099}$	$D_M(2.33)$	5871	$5853^{+480}_{-460}$
$N_{\text{eff}}$	2.90	$2.92^{+0.74}_{-0.65}$	$Y_P^{\text{BBN}}$	0.2446	$0.245^{+0.010}_{-0.0099}$	$f\sigma_8(0.15)$	0.4487	$0.450^{+0.041}_{-0.039}$
$\ln(10^{10} A_s)$	3.100	$3.09^{+0.23}_{-0.22}$	$10^5 D/H$	2.617	$2.61^{+0.24}_{-0.25}$	$\sigma_8(0.15)$	0.7476	$0.748^{+0.042}_{-0.044}$
$n_s$	0.9561	$0.956^{+0.049}_{-0.050}$	Age/Gyr	14.06	$14.0^{+1.2}_{-1.1}$	$f\sigma_8(0.38)$	0.4693	$0.470^{+0.035}_{-0.036}$
$H_0$	66.96	$67.2^{+4.8}_{-4.5}$	$z_*$	1089.65	$1089.7^{+2.6}_{-2.5}$	$\sigma_8(0.38)$	0.6638	$0.664^{+0.035}_{-0.039}$
$\Omega_\Lambda$	0.6989	$0.698^{+0.034}_{-0.037}$	$r_*$	147.5	$147^{+10}_{-9.8}$	$f\sigma_8(0.51)$	0.4692	$0.470^{+0.032}_{-0.033}$
$\Omega_m$	0.3011	$0.302^{+0.037}_{-0.034}$	$100\theta_*$	1.0380	$1.039^{+0.034}_{-0.034}$	$\sigma_8(0.51)$	0.6217	$0.622^{+0.033}_{-0.036}$
$\Omega_m h^2$	0.1350	$0.137^{+0.029}_{-0.025}$	$D_M(z_*)/\text{Gpc}$	14.21	$14.2^{+1.3}_{-1.2}$	$f\sigma_8(0.61)$	0.4651	$0.466^{+0.030}_{-0.031}$
$\Omega_m h^3$	0.0904	$0.092^{+0.026}_{-0.021}$	$z_{\text{drag}}$	1058.3	$1058.5^{+5.4}_{-5.4}$	$\sigma_8(0.61)$	0.5919	$0.592^{+0.031}_{-0.034}$
$\sigma_8$	0.8079	$0.808^{+0.046}_{-0.049}$	$r_{\text{drag}}$	150.4	$150^{+11}_{-10}$	$f\sigma_8(2.33)$	0.2989	$0.299^{+0.015}_{-0.017}$
$S_8$	0.809	$0.811^{+0.079}_{-0.076}$	$k_D$	0.1377	$0.138^{+0.010}_{-0.0094}$	$\sigma_8(2.33)$	0.3086	$0.309^{+0.016}_{-0.017}$
$\sigma_8 \Omega_m^{0.5}$	0.4433	$0.444^{+0.043}_{-0.042}$	$100\theta_D$	0.16055	$0.1606^{+0.0045}_{-0.0045}$	$\chi^2_{\text{lensing}}$	7.78	$9.6 (\nu: 1.8)$
$\sigma_8 \Omega_m^{0.25}$	0.5984	$0.599^{+0.043}_{-0.044}$	$z_{\text{eq}}$	3273	$3303^{+600}_{-500}$	$\chi^2_{\text{Aver15}}$	0.01	$0.9 (\nu: 0.8)$
$\sigma_8/h^{0.5}$	0.987	$0.986^{+0.050}_{-0.051}$	$k_{\text{eq}}$	0.00989	$0.00999^{+0.0019}_{-0.0017}$	$\chi^2_{\text{Cooke17}}$	0.00	$0.95 (\nu: 1.0)$
$r_{\text{drag}} h$	100.71	$100.7^{+2.8}_{-2.7}$	$100\theta_{\text{eq}}$	0.833	$0.831^{+0.087}_{-0.079}$	$\chi^2_{\text{JLA}}$	1034.74	$1035.14 (\nu: 0.2)$
$\langle d^2 \rangle^{1/2}$	2.493	$2.49^{+0.13}_{-0.13}$	$100\theta_{s,\text{eq}}$	0.4600	$0.459^{+0.044}_{-0.041}$	$\chi^2_{6\text{DF}}$	0.002	$0.047 (\nu: 0.0)$
$z_{\text{re}}$	7.70	$7.71^{+0.52}_{-0.50}$	$H(0.15)$	72.0	$72.3^{+5.2}_{-4.9}$	$\chi^2_{\text{MGS}}$	1.82	$1.87 (\nu: 0.2)$
$10^9 A_s$	2.22	$2.21^{+0.56}_{-0.44}$	$D_M(0.15)$	648.2	$647^{+47}_{-44}$	$\chi^2_{\text{DR12BAO}}$	3.54	$4.4 (\nu: 1.1)$
$10^9 A_s e^{-2\tau}$	1.989	$1.98^{+0.50}_{-0.40}$	$H(0.38)$	81.7	$82.1^{+6.2}_{-5.9}$	$\chi^2_{\text{prior}}$	0.04	$0.96 (\nu: 0.9)$
$D_{40}$	1338	$1331^{+400}_{-300}$	$D_M(0.38)$	1548	$1544^{+110}_{-110}$	$\chi^2_{\text{BAO}}$	5.36	$6.3 (\nu: 1.2)$
$D_{220}$	6230	$6202^{+2000}_{-2000}$	$H(0.51)$	88.2	$88.6^{+7.0}_{-6.5}$	$\chi^2_{\text{Abund}}$	0.01	$1.8 (\nu: 1.8)$
$D_{810}$	2704	$2680^{+700}_{-600}$	$D_M(0.51)$	2008	$2002^{+150}_{-140}$			
$D_{1420}$	864	$854^{+200}_{-200}$	$H(0.61)$	93.6	$94.0^{+7.8}_{-7.1}$			

Best-fit  $\chi^2_{\text{eff}} = 1047.92$ ;  $\bar{\chi}^2_{\text{eff}} = 1053.81$ ;  $R - 1 = 0.01510$   
 $\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.01 D\_Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 3.54 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.78 SN - JLA Pantheon18: 1034.74



# 7.109 base\_nnu\_lensing\_lenspriors\_BAO\_Cooke17\_Aver15\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02189	$0.0220^{+0.0018}_{-0.0016}$	$D_{1420}$	845	$843^{+100}_{-100}$	$D_{\mathrm{M}}(0.51)$	2003	$1999^{+120}_{-120}$
$\Omega_{\mathrm{c}}h^2$	0.1143	$0.115^{+0.016}_{-0.014}$	$D_{2000}$	238.2	$237^{+40}_{-40}$	$H(0.61)$	94.0	$94.3^{+5.9}_{-5.2}$
$100\theta_{\mathrm{MC}}$	1.04091	$1.0409^{+0.0015}_{-0.0016}$	$n_{\mathrm{s},0.002}$	0.9551	$0.954^{+0.048}_{-0.049}$	$D_{\mathrm{M}}(0.61)$	2332	$2327^{+140}_{-140}$
$N_{\mathrm{eff}}$	2.88	$2.91^{+0.74}_{-0.65}$	$Y_{\mathrm{P}}$	0.2429	$0.243^{+0.010}_{-0.0098}$	$H(2.33)$	231.8	$232^{+14}_{-13}$
$\ln(10^{10}A_{\mathrm{s}})$	3.077	$3.075^{+0.089}_{-0.10}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2442	$0.245^{+0.010}_{-0.0098}$	$D_{\mathrm{M}}(2.33)$	5847	$5832^{+340}_{-340}$
$n_{\mathrm{s}}$	0.9551	$0.954^{+0.048}_{-0.049}$	$10^5\mathrm{D}/\mathrm{H}$	2.618	$2.62^{+0.25}_{-0.23}$	$f\sigma_8(0.15)$	0.4518	$0.452^{+0.025}_{-0.025}$
$H_0$	67.02	$67.2^{+4.6}_{-4.1}$	Age/Gyr	14.00	$13.96^{+0.80}_{-0.82}$	$\sigma_8(0.15)$	0.7483	$0.749^{+0.038}_{-0.040}$
$\Omega_{\Lambda}$	0.6952	$0.695^{+0.023}_{-0.023}$	$z_*$	1089.86	$1089.9^{+1.7}_{-1.7}$	$f\sigma_8(0.38)$	0.4716	$0.472^{+0.024}_{-0.025}$
$\Omega_{\mathrm{m}}$	0.3048	$0.305^{+0.023}_{-0.023}$	$r_*$	147.2	$146.8^{+8.5}_{-8.7}$	$\sigma_8(0.38)$	0.6640	$0.664^{+0.035}_{-0.036}$
$\Omega_{\mathrm{m}}h^2$	0.1369	$0.138^{+0.018}_{-0.015}$	$100\theta_*$	1.04127	$1.0412^{+0.0016}_{-0.0017}$	$f\sigma_8(0.51)$	0.4710	$0.471^{+0.024}_{-0.024}$
$\Omega_{\mathrm{m}}h^3$	0.0917	$0.093^{+0.018}_{-0.015}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	14.13	$14.10^{+0.81}_{-0.83}$	$\sigma_8(0.51)$	0.6217	$0.622^{+0.033}_{-0.034}$
$\sigma_8$	0.8090	$0.809^{+0.041}_{-0.042}$	$z_{\mathrm{drag}}$	1058.3	$1058.5^{+5.6}_{-5.2}$	$f\sigma_8(0.61)$	0.4666	$0.467^{+0.023}_{-0.024}$
$S_8$	0.8154	$0.816^{+0.047}_{-0.047}$	$r_{\mathrm{drag}}$	150.0	$149.6^{+9.1}_{-9.3}$	$\sigma_8(0.61)$	0.5918	$0.592^{+0.032}_{-0.033}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4466	$0.447^{+0.026}_{-0.025}$	$k_{\mathrm{D}}$	0.1381	$0.1385^{+0.0085}_{-0.0075}$	$f\sigma_8(2.33)$	0.2987	$0.299^{+0.016}_{-0.017}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6011	$0.601^{+0.031}_{-0.031}$	$100\theta_{\mathrm{D}}$	0.16097	$0.1610^{+0.0019}_{-0.0019}$	$\sigma_8(2.33)$	0.3082	$0.308^{+0.017}_{-0.018}$
$\sigma_8/h^{0.5}$	0.988	$0.987^{+0.051}_{-0.053}$	$z_{\mathrm{eq}}$	3330	$3336^{+130}_{-120}$	$\chi^2_{\mathrm{lensing}}$	7.99	$9.2 (\nu: 1.2)$
$r_{\mathrm{drag}}h$	100.55	$100.5^{+3.0}_{-2.9}$	$k_{\mathrm{eq}}$	0.01005	$0.01009^{+0.00078}_{-0.00070}$	$\chi^2_{\mathrm{Aver15}}$	0.03	$0.95 (\nu: 0.9)$
$\langle d^2 \rangle^{1/2}$	2.482	$2.48^{+0.10}_{-0.099}$	$100\theta_{\mathrm{eq}}$	0.8249	$0.824^{+0.020}_{-0.020}$	$\chi^2_{\mathrm{Cooke17}}$	0.00	$0.98 (\nu: 1.0)$
$z_{\mathrm{re}}$	7.747	$7.74^{+0.29}_{-0.29}$	$100\theta_{\mathrm{s,eq}}$	0.4558	$0.455^{+0.011}_{-0.011}$	$\chi^2_{6\mathrm{DF}}$	0.000	$0.055 (\nu: 0.0)$
$10^9A_{\mathrm{s}}$	2.168	$2.17^{+0.20}_{-0.21}$	$H(0.15)$	72.14	$72.4^{+4.8}_{-4.3}$	$\chi^2_{\mathrm{MGS}}$	1.75	$1.80 (\nu: 0.2)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	1.943	$1.94^{+0.18}_{-0.19}$	$D_{\mathrm{M}}(0.15)$	647.4	$646^{+41}_{-41}$	$\chi^2_{\mathrm{DR12BAO}}$	3.37	$4.3 (\nu: 0.9)$
$D_{40}$	1305	$1306^{+200}_{-100}$	$H(0.38)$	81.98	$82.2^{+5.3}_{-4.7}$	$\chi^2_{\mathrm{prior}}$	0.06	$2.0 (\nu: 2.0)$
$D_{220}$	6027	$6025^{+650}_{-600}$	$D_{\mathrm{M}}(0.38)$	1546	$1542^{+95}_{-96}$	$\chi^2_{\mathrm{BAO}}$	5.12	$6.1 (\nu: 1.0)$
$D_{810}$	2639	$2632^{+300}_{-300}$	$H(0.51)$	88.5	$88.8^{+5.6}_{-5.0}$	$\chi^2_{\mathrm{Abund}}$	0.03	$1.9 (\nu: 1.9)$

Best-fit  $\chi^2_{\mathrm{eff}} = 13.20$ ;  $\bar{\chi}^2_{\mathrm{eff}} = 19.27$ ;  $R - 1 = 0.00810$   
 $\chi^2_{\mathrm{eff}}$ : Abund - Yp\_Aver2015: 0.03 D\_Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.37 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.99



# 7.110 base\_nnu\_lensing\_lenspriors\_BAO\_Cooke17\_Aver15\_theta\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02187	$0.0220^{+0.0018}_{-0.0016}$	$D_{2000}$	240.0	$238^{+40}_{-40}$	$D_M(0.61)$	2334	$2324^{+150}_{-150}$
$\Omega_c h^2$	0.1139	$0.115^{+0.016}_{-0.014}$	$n_{s,0.002}$	0.9557	$0.954^{+0.049}_{-0.047}$	$H(2.33)$	231.4	$232^{+15}_{-13}$
$100\theta_{MC}$	1.04091	$1.0409^{+0.0016}_{-0.0016}$	$Y_P$	0.2427	$0.243^{+0.010}_{-0.010}$	$D_M(2.33)$	5853	$5829^{+350}_{-350}$
$N_{\text{eff}}$	2.86	$2.92^{+0.74}_{-0.66}$	$Y_P^{\text{BBN}}$	0.2440	$0.245^{+0.010}_{-0.010}$	$f\sigma_8(0.15)$	0.4519	$0.452^{+0.025}_{-0.025}$
$\ln(10^{10} A_s)$	3.082	$3.077^{+0.091}_{-0.10}$	$10^5 D/H$	2.616	$2.61^{+0.25}_{-0.24}$	$\sigma_8(0.15)$	0.7495	$0.749^{+0.038}_{-0.038}$
$n_s$	0.9557	$0.954^{+0.049}_{-0.047}$	Age/Gyr	14.01	$13.96^{+0.83}_{-0.83}$	$f\sigma_8(0.38)$	0.4719	$0.472^{+0.024}_{-0.024}$
$H_0$	67.00	$67.3^{+4.7}_{-4.2}$	$z_*$	1089.83	$1089.8^{+1.6}_{-1.7}$	$\sigma_8(0.38)$	0.6652	$0.665^{+0.035}_{-0.034}$
$\Omega_\Lambda$	0.6961	$0.696^{+0.021}_{-0.022}$	$r_*$	147.4	$146.8^{+8.9}_{-8.8}$	$f\sigma_8(0.51)$	0.4714	$0.471^{+0.024}_{-0.024}$
$\Omega_m$	0.3039	$0.304^{+0.022}_{-0.021}$	$100\theta_*$	1.04127	$1.0412^{+0.0017}_{-0.0017}$	$\sigma_8(0.51)$	0.6229	$0.622^{+0.033}_{-0.033}$
$\Omega_m h^2$	0.1364	$0.138^{+0.018}_{-0.016}$	$D_M(z_*)/\text{Gpc}$	14.15	$14.09^{+0.83}_{-0.83}$	$f\sigma_8(0.61)$	0.4671	$0.467^{+0.024}_{-0.024}$
$\Omega_m h^3$	0.0914	$0.093^{+0.018}_{-0.015}$	$z_{\text{drag}}$	1058.2	$1058.6^{+5.5}_{-5.2}$	$\sigma_8(0.61)$	0.5929	$0.592^{+0.032}_{-0.031}$
$\sigma_8$	0.8102	$0.810^{+0.041}_{-0.041}$	$r_{\text{drag}}$	150.3	$149.6^{+9.5}_{-9.4}$	$f\sigma_8(2.33)$	0.2993	$0.299^{+0.016}_{-0.016}$
$S_8$	0.8155	$0.815^{+0.046}_{-0.046}$	$k_D$	0.1379	$0.1385^{+0.0085}_{-0.0078}$	$\sigma_8(2.33)$	0.3089	$0.309^{+0.017}_{-0.017}$
$\sigma_8 \Omega_m^{0.5}$	0.4467	$0.447^{+0.025}_{-0.025}$	$100\theta_D$	0.16095	$0.1610^{+0.0019}_{-0.0020}$	$\chi^2_{\text{lensing}}$	7.96	$9.2 (\nu: 1.2)$
$\sigma_8 \Omega_m^{0.25}$	0.6016	$0.601^{+0.031}_{-0.030}$	$z_{\text{eq}}$	3326	$3333^{+130}_{-110}$	$\chi^2_{\text{Aver15}}$	0.05	$0.9 (\nu: 0.9)$
$\sigma_8/h^{0.5}$	0.990	$0.987^{+0.050}_{-0.052}$	$k_{\text{eq}}$	0.01003	$0.01009^{+0.00078}_{-0.00073}$	$\chi^2_{\text{Cooke17}}$	0.00	$0.98 (\nu: 1.0)$
$r_{\text{drag}} h$	100.66	$100.6^{+2.8}_{-2.7}$	$100\theta_{\text{eq}}$	0.8257	$0.825^{+0.018}_{-0.020}$	$\chi^2_{\text{JLA}}$	1034.79	$1034.93 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	2.485	$2.48^{+0.10}_{-0.10}$	$100\theta_{s,\text{eq}}$	0.4562	$0.456^{+0.010}_{-0.011}$	$\chi^2_{6\text{DF}}$	0.001	$0.049 (\nu: 0.0)$
$z_{\text{re}}$	7.741	$7.74^{+0.29}_{-0.29}$	$H(0.15)$	72.11	$72.4^{+4.9}_{-4.5}$	$\chi^2_{\text{MGS}}$	1.82	$1.86 (\nu: 0.2)$
$10^9 A_s$	2.180	$2.17^{+0.20}_{-0.21}$	$D_M(0.15)$	647.6	$645^{+42}_{-42}$	$\chi^2_{\text{DR12BAO}}$	3.34	$4.1 (\nu: 0.6)$
$10^9 A_s e^{-2\tau}$	1.953	$1.94^{+0.18}_{-0.19}$	$H(0.38)$	81.9	$82.3^{+5.3}_{-4.9}$	$\chi^2_{\text{prior}}$	0.05	$2.0 (\nu: 2.0)$
$D_{40}$	1311	$1308^{+100}_{-100}$	$D_M(0.38)$	1546	$1540^{+100}_{-98}$	$\chi^2_{\text{BAO}}$	5.16	$6.0 (\nu: 0.8)$
$D_{220}$	6063	$6038^{+610}_{-580}$	$H(0.51)$	88.4	$88.9^{+5.6}_{-5.1}$	$\chi^2_{\text{Abund}}$	0.05	$1.9 (\nu: 1.9)$
$D_{810}$	2656	$2637^{+300}_{-300}$	$D_M(0.51)$	2005	$1997^{+130}_{-120}$			
$D_{1420}$	851	$844^{+100}_{-100}$	$H(0.61)$	93.9	$94.3^{+5.9}_{-5.3}$			

Best-fit  $\chi^2_{\text{eff}} = 1048.00$ ;  $\bar{\chi}^2_{\text{eff}} = 1054.11$ ;  $R - 1 = 0.00939$   
 $\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.05 D\_Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 3.33 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.96 SN - JLA Pantheon18: 1034.79



### 7.111 base\_nnu\_BAO\_Cooke17\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02202	$0.0221^{+0.0020}_{-0.0018}$	$r_*$	134.9	$131^{+30}_{-20}$	$H(0.51)$	98.2	$103^{+20}_{-20}$
$\Omega_{\text{c}}h^2$	0.165	$0.19^{+0.15}_{-0.10}$	$100\theta_*$	1.096	$1.113^{+0.085}_{-0.10}$	$D_{\text{M}}(0.51)$	1844	$1787^{+300}_{-300}$
$100\theta_{\text{MC}}$	1.095	$1.113^{+0.085}_{-0.10}$	$D_{\text{M}}(z_*)/\text{Gpc}$	12.32	$11.8^{+3.6}_{-2.7}$	$H(0.61)$	105.0	$110^{+30}_{-20}$
$N_{\text{eff}}$	2.94	$2.96^{+0.75}_{-0.70}$	$z_{\text{drag}}$	1062.1	$1063.7^{+9.8}_{-10}$	$D_{\text{M}}(0.61)$	2139	$2071^{+400}_{-400}$
$H_0$	71.2	$73^{+10}_{-10}$	$r_{\text{drag}}$	137.5	$133^{+30}_{-20}$	$H(2.33)$	269	$286^{+90}_{-70}$
$\Omega_{\Lambda}$	0.630	$0.60^{+0.12}_{-0.13}$	$k_{\text{D}}$	0.1516	$0.157^{+0.031}_{-0.028}$	$D_{\text{M}}(2.33)$	5213	$5009^{+1000}_{-1000}$
$\Omega_{\text{m}}$	0.370	$0.40^{+0.13}_{-0.12}$	$100\theta_{\text{D}}$	0.1682	$0.171^{+0.013}_{-0.013}$	$\chi^2_{\text{Aver15}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\text{m}}h^2$	0.187	$0.22^{+0.15}_{-0.10}$	$z_{\text{eq}}$	4527	$5183^{+3000}_{-2000}$	$\chi^2_{\text{Cooke17}}$	0.00	$1.1 (\nu: 1.1)$
$\Omega_{\text{m}}h^3$	0.133	$0.159^{+0.15}_{-0.086}$	$k_{\text{eq}}$	0.0137	$0.0157^{+0.011}_{-0.0073}$	$\chi^2_{6\text{DF}}$	0.18	$0.44 (\nu: 0.1)$
$r_{\text{drag}}h$	97.9	$97.1^{+5.4}_{-5.1}$	$100\theta_{\text{eq}}$	0.693	$0.66^{+0.25}_{-0.17}$	$\chi^2_{\text{MGS}}$	0.72	$0.69 (\nu: 0.2)$
$Y_{\text{P}}$	0.2438	$0.244^{+0.010}_{-0.010}$	$100\theta_{\text{s,eq}}$	0.387	$0.368^{+0.13}_{-0.092}$	$\chi^2_{\text{DR12BAO}}$	2.10	$4.0 (\nu: 1.7)$
$Y_{\text{P}}^{\text{BBN}}$	0.2452	$0.245^{+0.010}_{-0.011}$	$H(0.15)$	77.8	$80^{+10}_{-10}$	$\chi^2_{\text{BAO}}$	3.00	$5.1 (\nu: 2.1)$
$10^5\text{D}/\text{H}$	2.614	$2.61^{+0.24}_{-0.25}$	$D_{\text{M}}(0.15)$	605	$589^{+100}_{-90}$	$\chi^2_{\text{Abund}}$	0.01	$2.1 (\nu: 2.2)$
Age/Gyr	12.47	$12.0^{+3.0}_{-2.5}$	$H(0.38)$	90.1	$94^{+20}_{-20}$			
$z_*$	1093.9	$1095.7^{+9.6}_{-7.5}$	$D_{\text{M}}(0.38)$	1430	$1387^{+300}_{-200}$			

Best-fit  $\chi^2_{\text{eff}} = 3.01$ ;  $\bar{\chi}^2_{\text{eff}} = 7.19$ ;  $R - 1 = 0.02751$

$\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.00 D\_Cooke2017: 0.00 BAO - 6DF: 0.18 MGS: 0.72 DR12BAO: 2.10

### 7.112 base\_nnu\_BAO\_Cooke17\_Aver15\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02197	$0.0221^{+0.0020}_{-0.0017}$	$r_*$	144.8	$144^{+13}_{-13}$	$H(0.51)$	90.3	$91^{+10}_{-9}$
$\Omega_{\text{c}}h^2$	0.1218	$0.125^{+0.047}_{-0.038}$	$100\theta_*$	1.0496	$1.052^{+0.049}_{-0.050}$	$D_{\text{M}}(0.51)$	1970	$1956^{+190}_{-180}$
$100\theta_{\text{MC}}$	1.0494	$1.052^{+0.049}_{-0.050}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.80	$13.7^{+1.9}_{-1.7}$	$H(0.61)$	95.9	$97^{+10}_{-10}$
$N_{\text{eff}}$	2.94	$2.98^{+0.71}_{-0.69}$	$z_{\text{drag}}$	1059.1	$1059.6^{+6.6}_{-6.1}$	$D_{\text{M}}(0.61)$	2292	$2276^{+230}_{-220}$
$H_0$	68.0	$68.5^{+6.4}_{-5.7}$	$r_{\text{drag}}$	147.6	$147^{+14}_{-13}$	$H(2.33)$	237.8	$240^{+30}_{-30}$
$\Omega_{\Lambda}$	0.687	$0.685^{+0.050}_{-0.052}$	$k_{\text{D}}$	0.1404	$0.142^{+0.014}_{-0.013}$	$D_{\text{M}}(2.33)$	5726	$5682^{+700}_{-600}$
$\Omega_{\text{m}}$	0.313	$0.315^{+0.052}_{-0.050}$	$100\theta_{\text{D}}$	0.1622	$0.1624^{+0.0068}_{-0.0069}$	$\chi^2_{\text{Aver15}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\text{m}}h^2$	0.1444	$0.148^{+0.048}_{-0.039}$	$z_{\text{eq}}$	3486	$3555^{+1000}_{-900}$	$\chi^2_{\text{Cooke17}}$	0.00	$1.1 (\nu: 1.1)$
$\Omega_{\text{m}}h^3$	0.0981	$0.102^{+0.043}_{-0.032}$	$k_{\text{eq}}$	0.01056	$0.0108^{+0.0033}_{-0.0027}$	$\chi^2_{\text{JLA}}$	1035.11	$1036.0 (\nu: 1.4)$
$r_{\text{drag}}h$	100.32	$100.3^{+3.1}_{-3.0}$	$100\theta_{\text{eq}}$	0.804	$0.80^{+0.13}_{-0.11}$	$\chi^2_{6\text{DF}}$	0.000	$0.052 (\nu: 0.0)$
$Y_{\text{P}}$	0.2438	$0.2443^{+0.0098}_{-0.010}$	$100\theta_{\text{s,eq}}$	0.445	$0.442^{+0.066}_{-0.058}$	$\chi^2_{\text{MGS}}$	1.68	$1.76 (\nu: 0.2)$
$Y_{\text{P}}^{\text{BBN}}$	0.2451	$0.2456^{+0.0098}_{-0.010}$	$H(0.15)$	73.3	$73.9^{+7.3}_{-6.5}$	$\chi^2_{\text{DR12BAO}}$	2.97	$4.0 (\nu: 1.1)$
$10^5\text{D}/\text{H}$	2.623	$2.61^{+0.25}_{-0.25}$	$D_{\text{M}}(0.15)$	638	$633^{+59}_{-56}$	$\chi^2_{\text{BAO}}$	4.65	$5.8 (\nu: 1.6)$
Age/Gyr	13.71	$13.6^{+1.6}_{-1.5}$	$H(0.38)$	83.5	$84.3^{+9.2}_{-8.1}$	$\chi^2_{\text{Abund}}$	0.01	$2.1 (\nu: 2.1)$
$z_*$	1090.48	$1090.6^{+3.9}_{-3.5}$	$D_{\text{M}}(0.38)$	1521	$1510^{+150}_{-140}$			

Best-fit  $\chi^2_{\text{eff}} = 1039.77$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.87$ ;  $R - 1 = 0.00775$

$\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.00 D\_Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 2.97 SN - JLA Pantheon18: 1035.11



### 7.113 base\_nnu\_BAO\_Cooke17\_Aver15\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02192	$0.0220^{+0.0018}_{-0.0018}$	$r_*$	146.8	$146.5^{+8.4}_{-8.4}$	$H(0.51)$	88.7	$89.0^{+5.7}_{-5.2}$
$\Omega_{\text{c}}h^2$	0.1150	$0.116^{+0.015}_{-0.014}$	$100\theta_*$	1.04123	$1.0412^{+0.0017}_{-0.0017}$	$D_{\text{M}}(0.51)$	2000	$1995^{+130}_{-130}$
$100\theta_{\text{MC}}$	1.04090	$1.0409^{+0.0015}_{-0.0016}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.10	$14.07^{+0.80}_{-0.80}$	$H(0.61)$	94.2	$94.5^{+5.9}_{-5.4}$
$N_{\text{eff}}$	2.91	$2.94^{+0.74}_{-0.67}$	$z_{\text{drag}}$	1058.4	$1058.7^{+5.4}_{-5.5}$	$D_{\text{M}}(0.61)$	2328	$2323^{+150}_{-150}$
$H_0$	67.11	$67.3^{+4.8}_{-4.5}$	$r_{\text{drag}}$	149.7	$149.3^{+9.0}_{-9.0}$	$H(2.33)$	232.3	$233^{+14}_{-13}$
$\Omega_{\Lambda}$	0.6945	$0.694^{+0.024}_{-0.025}$	$k_{\text{D}}$	0.1384	$0.1388^{+0.0082}_{-0.0076}$	$D_{\text{M}}(2.33)$	5835	$5821^{+350}_{-350}$
$\Omega_{\text{m}}$	0.3055	$0.306^{+0.025}_{-0.024}$	$100\theta_{\text{D}}$	0.16101	$0.1610^{+0.0020}_{-0.0019}$	$\chi^2_{\text{Aver15}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\text{m}}h^2$	0.1376	$0.138^{+0.017}_{-0.015}$	$z_{\text{eq}}$	3336	$3341^{+130}_{-120}$	$\chi^2_{\text{Cooke17}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\text{m}}h^3$	0.0923	$0.093^{+0.018}_{-0.015}$	$k_{\text{eq}}$	0.01008	$0.01012^{+0.00074}_{-0.00068}$	$\chi^2_{6\text{DF}}$	0.000	$0.059 (\nu: 0.0)$
$r_{\text{drag}}h$	100.44	$100.4^{+3.2}_{-3.0}$	$100\theta_{\text{eq}}$	0.8240	$0.823^{+0.022}_{-0.021}$	$\chi^2_{\text{MGS}}$	1.68	$1.75 (\nu: 0.3)$
$Y_{\text{P}}$	0.2433	$0.244^{+0.010}_{-0.010}$	$100\theta_{\text{s,eq}}$	0.4553	$0.455^{+0.012}_{-0.012}$	$\chi^2_{\text{DR12BAO}}$	3.43	$4.4 (\nu: 1.1)$
$Y_{\text{P}}^{\text{BBN}}$	0.2446	$0.245^{+0.010}_{-0.010}$	$H(0.15)$	72.25	$72.5^{+4.9}_{-4.6}$	$\chi^2_{\text{prior}}$	0.00	$0.98 (\nu: 1.0)$
$10^5\text{D}/\text{H}$	2.621	$2.62^{+0.24}_{-0.25}$	$D_{\text{M}}(0.15)$	646.5	$645^{+44}_{-42}$	$\chi^2_{\text{BAO}}$	5.11	$6.2 (\nu: 1.1)$
Age/Gyr	13.97	$13.94^{+0.84}_{-0.82}$	$H(0.38)$	82.1	$82.4^{+5.4}_{-5.0}$	$\chi^2_{\text{Abund}}$	0.01	$2.0 (\nu: 2.0)$
$z_*$	1089.91	$1089.9^{+1.7}_{-1.7}$	$D_{\text{M}}(0.38)$	1543	$1540^{+100}_{-98}$			

Best-fit  $\chi^2_{\text{eff}} = 5.12$ ;  $\bar{\chi}^2_{\text{eff}} = 9.22$ ;  $R - 1 = 0.01015$

$\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.01 D\_Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.43

### 7.114 base\_nnu\_BAO\_Cooke17\_Aver15\_Pantheon18\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02195	$0.0220^{+0.0019}_{-0.0017}$	$r_*$	146.7	$146.4^{+9.2}_{-8.0}$	$H(0.51)$	88.8	$89.1^{+5.1}_{-5.3}$
$\Omega_{\text{c}}h^2$	0.1152	$0.116^{+0.015}_{-0.014}$	$100\theta_*$	1.04125	$1.0412^{+0.0016}_{-0.0017}$	$D_{\text{M}}(0.51)$	1997	$1992^{+130}_{-110}$
$100\theta_{\text{MC}}$	1.04093	$1.0409^{+0.0015}_{-0.0015}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.09	$14.06^{+0.88}_{-0.76}$	$H(0.61)$	94.3	$94.6^{+5.4}_{-5.6}$
$N_{\text{eff}}$	2.92	$2.95^{+0.68}_{-0.70}$	$z_{\text{drag}}$	1058.5	$1058.8^{+5.6}_{-5.4}$	$D_{\text{M}}(0.61)$	2324	$2319^{+150}_{-130}$
$H_0$	67.24	$67.4^{+4.3}_{-4.3}$	$r_{\text{drag}}$	149.5	$149.2^{+9.9}_{-8.6}$	$H(2.33)$	232.5	$233^{+13}_{-14}$
$\Omega_{\Lambda}$	0.6954	$0.696^{+0.022}_{-0.021}$	$k_{\text{D}}$	0.1385	$0.1389^{+0.0078}_{-0.0080}$	$D_{\text{M}}(2.33)$	5828	$5816^{+360}_{-320}$
$\Omega_{\text{m}}$	0.3046	$0.304^{+0.021}_{-0.022}$	$100\theta_{\text{D}}$	0.16103	$0.1610^{+0.0019}_{-0.0018}$	$\chi^2_{\text{Aver15}}$	0.00	$0.96 (\nu: 0.9)$
$\Omega_{\text{m}}h^2$	0.1378	$0.138^{+0.016}_{-0.016}$	$z_{\text{eq}}$	3333	$3336^{+120}_{-120}$	$\chi^2_{\text{Cooke17}}$	0.00	$0.98 (\nu: 1.0)$
$\Omega_{\text{m}}h^3$	0.0926	$0.093^{+0.016}_{-0.016}$	$k_{\text{eq}}$	0.01009	$0.01011^{+0.00072}_{-0.00071}$	$\chi^2_{\text{JLA}}$	1034.80	$1034.93 (\nu: 0.0)$
$r_{\text{drag}}h$	100.55	$100.6^{+2.9}_{-2.6}$	$100\theta_{\text{eq}}$	0.8245	$0.824^{+0.019}_{-0.018}$	$\chi^2_{6\text{DF}}$	0.000	$0.049 (\nu: 0.0)$
$Y_{\text{P}}$	0.2435	$0.2438^{+0.0094}_{-0.010}$	$100\theta_{\text{s,eq}}$	0.4556	$0.455^{+0.011}_{-0.010}$	$\chi^2_{\text{MGS}}$	1.75	$1.84 (\nu: 0.2)$
$Y_{\text{P}}^{\text{BBN}}$	0.2448	$0.2451^{+0.0094}_{-0.010}$	$H(0.15)$	72.39	$72.6^{+4.4}_{-4.5}$	$\chi^2_{\text{DR12BAO}}$	3.38	$4.1 (\nu: 0.6)$
$10^5\text{D}/\text{H}$	2.622	$2.61^{+0.24}_{-0.23}$	$D_{\text{M}}(0.15)$	645.2	$644^{+43}_{-38}$	$\chi^2_{\text{prior}}$	0.00	$0.96 (\nu: 0.9)$
Age/Gyr	13.95	$13.93^{+0.87}_{-0.75}$	$H(0.38)$	82.25	$82.5^{+4.8}_{-5.0}$	$\chi^2_{\text{BAO}}$	5.13	$6.0 (\nu: 0.8)$
$z_*$	1089.90	$1089.9^{+1.6}_{-1.6}$	$D_{\text{M}}(0.38)$	1540	$1537^{+100}_{-89}$	$\chi^2_{\text{Abund}}$	0.00	$1.9 (\nu: 1.9)$

Best-fit  $\chi^2_{\text{eff}} = 1039.94$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.87$ ;  $R - 1 = 0.00476$

$\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.00 D\_Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.38 SN - JLA Pantheon18: 1034.80



### 7.115 base\_nnu\_BAO\_Cooke17Marc\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02179	$0.0218^{+0.0014}_{-0.0013}$	$r_*$	134.4	$131^{+20}_{-20}$	$H(0.51)$	98.8	$102^{+20}_{-20}$
$\Omega_{\text{c}}h^2$	0.168	$0.19^{+0.14}_{-0.10}$	$100\theta_*$	1.099	$1.110^{+0.090}_{-0.10}$	$D_{\text{M}}(0.51)$	1837	$1798^{+300}_{-300}$
$100\theta_{\text{MC}}$	1.099	$1.110^{+0.090}_{-0.10}$	$D_{\text{M}}(z_*)/\text{Gpc}$	12.23	$11.9^{+3.2}_{-2.8}$	$H(0.61)$	105.6	$109^{+30}_{-20}$
$N_{\text{eff}}$	2.94	$2.97^{+0.72}_{-0.66}$	$z_{\text{drag}}$	1061.8	$1062.9^{+9.2}_{-7.5}$	$D_{\text{M}}(0.61)$	2131	$2084^{+400}_{-400}$
$H_0$	71.4	$73^{+10}_{-9}$	$r_{\text{drag}}$	137.0	$134^{+20}_{-20}$	$H(2.33)$	271	$283^{+90}_{-70}$
$\Omega_{\Lambda}$	0.626	$0.61^{+0.12}_{-0.14}$	$k_{\text{D}}$	0.1519	$0.156^{+0.031}_{-0.024}$	$D_{\text{M}}(2.33)$	5183	$5048^{+1000}_{-1000}$
$\Omega_{\text{m}}$	0.374	$0.39^{+0.14}_{-0.12}$	$100\theta_{\text{D}}$	0.1691	$0.171^{+0.014}_{-0.014}$	$\chi^2_{\text{Cooke17Marc}}$	0.00	$0.99 (\nu: 1.0)$
$\Omega_{\text{m}}h^2$	0.191	$0.21^{+0.14}_{-0.10}$	$z_{\text{eq}}$	4604	$5067^{+4000}_{-2000}$	$\chi^2_{\text{Aver15}}$	0.00	$0.97 (\nu: 0.9)$
$\Omega_{\text{m}}h^3$	0.136	$0.155^{+0.13}_{-0.088}$	$k_{\text{eq}}$	0.0140	$0.0154^{+0.011}_{-0.0068}$	$\chi^2_{6\text{DF}}$	0.20	$0.42 (\nu: 0.1)$
$r_{\text{drag}}h$	97.7	$97.2^{+5.3}_{-5.4}$	$100\theta_{\text{eq}}$	0.687	$0.67^{+0.24}_{-0.18}$	$\chi^2_{\text{MGS}}$	0.67	$0.72 (\nu: 0.2)$
$Y_{\text{P}}$	0.2438	$0.2441^{+0.0099}_{-0.0098}$	$100\theta_{\text{s,eq}}$	0.384	$0.372^{+0.13}_{-0.098}$	$\chi^2_{\text{DR12BAO}}$	2.11	$3.8 (\nu: 1.5)$
$Y_{\text{P}}^{\text{BBN}}$	0.2451	$0.2454^{+0.0099}_{-0.0098}$	$H(0.15)$	78.0	$80^{+10}_{-10}$	$\chi^2_{\text{BAO}}$	2.98	$5.0 (\nu: 1.8)$
$10^5\text{D}/\text{H}$	2.661	$2.66^{+0.11}_{-0.11}$	$D_{\text{M}}(0.15)$	603	$592^{+80}_{-90}$	$\chi^2_{\text{Abund}}$	0.00	$2.0 (\nu: 1.9)$
Age/Gyr	12.40	$12.1^{+2.7}_{-2.5}$	$H(0.38)$	90.5	$93^{+20}_{-20}$			
$z_*$	1094.6	$1095.8^{+9.9}_{-7.9}$	$D_{\text{M}}(0.38)$	1425	$1396^{+200}_{-200}$			

Best-fit  $\chi^2_{\text{eff}} = 2.98$ ;  $\bar{\chi}^2_{\text{eff}} = 6.92$ ;  $R - 1 = 0.01290$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_marcucci: 0.00 Yp\_Aver2015: 0.00 BAO - 6DF: 0.20 MGS: 0.67 DR12BAO: 2.11

### 7.116 base\_nnu\_BAO\_Cooke17Marc\_Aver15\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02178	$0.0218^{+0.0015}_{-0.0014}$	$r_*$	145.1	$144^{+14}_{-14}$	$H(0.51)$	90.0	$91^{+10}_{-10}$
$\Omega_{\text{c}}h^2$	0.1211	$0.125^{+0.051}_{-0.040}$	$100\theta_*$	1.049	$1.052^{+0.050}_{-0.052}$	$D_{\text{M}}(0.51)$	1975	$1963^{+200}_{-190}$
$100\theta_{\text{MC}}$	1.049	$1.052^{+0.050}_{-0.052}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.84	$13.7^{+2.0}_{-1.8}$	$H(0.61)$	95.7	$97^{+10}_{-10}$
$N_{\text{eff}}$	2.94	$2.97^{+0.79}_{-0.68}$	$z_{\text{drag}}$	1058.6	$1058.9^{+6.2}_{-5.7}$	$D_{\text{M}}(0.61)$	2298	$2283^{+240}_{-230}$
$H_0$	67.8	$68.2^{+6.6}_{-5.7}$	$r_{\text{drag}}$	148.0	$147^{+15}_{-14}$	$H(2.33)$	237.1	$240^{+40}_{-30}$
$\Omega_{\Lambda}$	0.688	$0.684^{+0.051}_{-0.054}$	$k_{\text{D}}$	0.1399	$0.141^{+0.015}_{-0.014}$	$D_{\text{M}}(2.33)$	5741	$5698^{+700}_{-700}$
$\Omega_{\text{m}}$	0.312	$0.316^{+0.054}_{-0.051}$	$100\theta_{\text{D}}$	0.1623	$0.1628^{+0.0067}_{-0.0071}$	$\chi^2_{\text{Cooke17Marc}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\text{m}}h^2$	0.1435	$0.148^{+0.052}_{-0.040}$	$z_{\text{eq}}$	3465	$3547^{+1000}_{-900}$	$\chi^2_{\text{Aver15}}$	0.00	$1.0 (\nu: 1.1)$
$\Omega_{\text{m}}h^3$	0.0973	$0.101^{+0.047}_{-0.033}$	$k_{\text{eq}}$	0.01050	$0.0108^{+0.0035}_{-0.0028}$	$\chi^2_{\text{JLA}}$	1035.10	$1036.1 (\nu: 1.6)$
$r_{\text{drag}}h$	100.33	$100.2^{+3.0}_{-3.1}$	$100\theta_{\text{eq}}$	0.807	$0.80^{+0.13}_{-0.11}$	$\chi^2_{6\text{DF}}$	0.000	$0.053 (\nu: 0.0)$
$Y_{\text{P}}$	0.2437	$0.244^{+0.011}_{-0.010}$	$100\theta_{\text{s,eq}}$	0.446	$0.443^{+0.068}_{-0.060}$	$\chi^2_{\text{MGS}}$	1.68	$1.73 (\nu: 0.2)$
$Y_{\text{P}}^{\text{BBN}}$	0.2450	$0.245^{+0.011}_{-0.010}$	$H(0.15)$	73.1	$73.6^{+7.7}_{-6.7}$	$\chi^2_{\text{DR12BAO}}$	2.98	$3.9 (\nu: 1.2)$
$10^5\text{D}/\text{H}$	2.661	$2.66^{+0.11}_{-0.11}$	$D_{\text{M}}(0.15)$	639	$636^{+60}_{-59}$	$\chi^2_{\text{BAO}}$	4.66	$5.7 (\nu: 1.6)$
Age/Gyr	13.74	$13.6^{+1.8}_{-1.6}$	$H(0.38)$	83.3	$84^{+10}_{-8}$	$\chi^2_{\text{Abund}}$	0.00	$2.0 (\nu: 2.1)$
$z_*$	1090.67	$1090.9^{+3.7}_{-3.5}$	$D_{\text{M}}(0.38)$	1525	$1516^{+150}_{-150}$			

Best-fit  $\chi^2_{\text{eff}} = 1039.76$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.83$ ;  $R - 1 = 0.00422$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_marcucci: 0.00 Yp\_Aver2015: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 2.98 SN - JLA Pantheon18: 1035.10



7.117    base\_nnu\_BAO\_Cooke17Marc\_Aver15\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02172	$0.0218^{+0.0014}_{-0.0013}$	$r_*$	146.9	$146.5^{+8.6}_{-8.5}$	$H(0.51)$	88.6	$88.9^{+5.7}_{-5.1}$
$\Omega_{\text{c}}h^2$	0.1150	$0.116^{+0.016}_{-0.014}$	$100\theta_*$	1.04128	$1.0412^{+0.0017}_{-0.0017}$	$D_{\text{M}}(0.51)$	2003	$1998^{+130}_{-130}$
$100\theta_{\text{MC}}$	1.04093	$1.0409^{+0.0016}_{-0.0016}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.11	$14.07^{+0.81}_{-0.82}$	$H(0.61)$	94.1	$94.4^{+5.9}_{-5.3}$
$N_{\text{eff}}$	2.91	$2.95^{+0.75}_{-0.66}$	$z_{\text{drag}}$	1057.95	$1058.2^{+5.1}_{-4.7}$	$D_{\text{M}}(0.61)$	2331	$2326^{+150}_{-150}$
$H_0$	67.01	$67.2^{+4.9}_{-4.3}$	$r_{\text{drag}}$	149.9	$149.4^{+9.3}_{-9.1}$	$H(2.33)$	232.2	$233^{+14}_{-13}$
$\Omega_{\Lambda}$	0.6940	$0.693^{+0.023}_{-0.025}$	$k_{\text{D}}$	0.1380	$0.1385^{+0.0082}_{-0.0075}$	$D_{\text{M}}(2.33)$	5841	$5826^{+340}_{-340}$
$\Omega_{\text{m}}$	0.3060	$0.307^{+0.025}_{-0.023}$	$100\theta_{\text{D}}$	0.16131	$0.16133^{+0.00093}_{-0.0010}$	$\chi^2_{\text{Cooke17Marc}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\text{m}}h^2$	0.1374	$0.138^{+0.017}_{-0.016}$	$z_{\text{eq}}$	3329	$3335^{+130}_{-120}$	$\chi^2_{\text{Aver15}}$	0.01	$0.98 (\nu: 1.0)$
$\Omega_{\text{m}}h^3$	0.0921	$0.093^{+0.018}_{-0.015}$	$k_{\text{eq}}$	0.01007	$0.01011^{+0.00077}_{-0.00071}$	$\chi^2_{6\text{DF}}$	0.000	$0.061 (\nu: 0.0)$
$r_{\text{drag}}h$	100.43	$100.3^{+3.1}_{-3.1}$	$100\theta_{\text{eq}}$	0.8248	$0.824^{+0.021}_{-0.020}$	$\chi^2_{\text{MGS}}$	1.68	$1.71 (\nu: 0.3)$
$Y_{\text{P}}$	0.2433	$0.244^{+0.010}_{-0.0099}$	$100\theta_{\text{s,eq}}$	0.4559	$0.455^{+0.011}_{-0.011}$	$\chi^2_{\text{DR12BAO}}$	3.40	$4.4 (\nu: 1.2)$
$Y_{\text{P}}^{\text{BBN}}$	0.2446	$0.245^{+0.010}_{-0.0099}$	$H(0.15)$	72.16	$72.4^{+5.0}_{-4.4}$	$\chi^2_{\text{prior}}$	0.00	$0.98 (\nu: 1.1)$
$10^5\text{D}/\text{H}$	2.661	$2.66^{+0.10}_{-0.11}$	$D_{\text{M}}(0.15)$	647.3	$646^{+43}_{-43}$	$\chi^2_{\text{BAO}}$	5.08	$6.2 (\nu: 1.2)$
Age/Gyr	13.98	$13.95^{+0.82}_{-0.81}$	$H(0.38)$	82.0	$82.3^{+5.4}_{-4.8}$	$\chi^2_{\text{Abund}}$	0.01	$2.0 (\nu: 2.0)$
$z_*$	1090.17	$1090.20^{+0.90}_{-0.89}$	$D_{\text{M}}(0.38)$	1545	$1542^{+98}_{-100}$			

Best-fit  $\chi^2_{\text{eff}} = 5.09$ ;  $\bar{\chi}^2_{\text{eff}} = 9.16$ ;  $R - 1 = 0.00593$   
 $\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_marcucci: 0.00 Yp\_Aver2015: 0.01 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.40

7.118    base\_nnu\_BAO\_Cooke17Marc\_Aver15\_Pantheon18\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02177	$0.0218^{+0.0014}_{-0.0013}$	$r_*$	146.6	$146.5^{+8.9}_{-8.2}$	$H(0.51)$	88.8	$88.9^{+5.5}_{-5.2}$
$\Omega_{\text{c}}h^2$	0.1155	$0.116^{+0.015}_{-0.014}$	$100\theta_*$	1.04122	$1.0412^{+0.0017}_{-0.0017}$	$D_{\text{M}}(0.51)$	1998	$1996^{+130}_{-120}$
$100\theta_{\text{MC}}$	1.04089	$1.0409^{+0.0015}_{-0.0016}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.08	$14.07^{+0.85}_{-0.78}$	$H(0.61)$	94.3	$94.4^{+5.8}_{-5.5}$
$N_{\text{eff}}$	2.94	$2.95^{+0.73}_{-0.69}$	$z_{\text{drag}}$	1058.10	$1058.2^{+4.8}_{-4.7}$	$D_{\text{M}}(0.61)$	2326	$2323^{+140}_{-140}$
$H_0$	67.16	$67.3^{+4.5}_{-4.3}$	$r_{\text{drag}}$	149.5	$149.4^{+9.5}_{-8.7}$	$H(2.33)$	232.6	$233^{+14}_{-13}$
$\Omega_{\Lambda}$	0.6941	$0.695^{+0.022}_{-0.021}$	$k_{\text{D}}$	0.1383	$0.1385^{+0.0077}_{-0.0077}$	$D_{\text{M}}(2.33)$	5829	$5823^{+350}_{-330}$
$\Omega_{\text{m}}$	0.3059	$0.305^{+0.021}_{-0.022}$	$100\theta_{\text{D}}$	0.16133	$0.16133^{+0.00094}_{-0.0010}$	$\chi^2_{\text{Cooke17Marc}}$	0.00	$0.98 (\nu: 1.0)$
$\Omega_{\text{m}}h^2$	0.1380	$0.138^{+0.017}_{-0.016}$	$z_{\text{eq}}$	3330	$3331^{+110}_{-120}$	$\chi^2_{\text{Aver15}}$	0.00	$0.99 (\nu: 0.9)$
$\Omega_{\text{m}}h^3$	0.0927	$0.093^{+0.017}_{-0.015}$	$k_{\text{eq}}$	0.01009	$0.01010^{+0.00073}_{-0.00071}$	$\chi^2_{\text{JLA}}$	1034.83	$1034.96 (\nu: 0.0)$
$r_{\text{drag}}h$	100.43	$100.5^{+2.9}_{-2.6}$	$100\theta_{\text{eq}}$	0.8246	$0.825^{+0.020}_{-0.017}$	$\chi^2_{6\text{DF}}$	0.000	$0.050 (\nu: 0.0)$
$Y_{\text{P}}$	0.2436	$0.244^{+0.010}_{-0.010}$	$100\theta_{\text{s,eq}}$	0.4557	$0.456^{+0.011}_{-0.0097}$	$\chi^2_{\text{MGS}}$	1.68	$1.79 (\nu: 0.2)$
$Y_{\text{P}}^{\text{BBN}}$	0.2450	$0.245^{+0.010}_{-0.010}$	$H(0.15)$	72.32	$72.5^{+4.8}_{-4.4}$	$\chi^2_{\text{DR12BAO}}$	3.41	$4.2 (\nu: 0.7)$
$10^5\text{D}/\text{H}$	2.662	$2.66^{+0.11}_{-0.12}$	$D_{\text{M}}(0.15)$	645.9	$645^{+42}_{-41}$	$\chi^2_{\text{prior}}$	0.00	$1.0 (\nu: 1.0)$
Age/Gyr	13.96	$13.94^{+0.84}_{-0.80}$	$H(0.38)$	82.2	$82.4^{+5.2}_{-4.8}$	$\chi^2_{\text{BAO}}$	5.09	$6.0 (\nu: 0.8)$
$z_*$	1090.19	$1090.17^{+0.83}_{-0.91}$	$D_{\text{M}}(0.38)$	1542	$1540^{+98}_{-95}$	$\chi^2_{\text{Abund}}$	0.00	$2.0 (\nu: 1.9)$

Best-fit  $\chi^2_{\text{eff}} = 1039.92$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.97$ ;  $R - 1 = 0.00670$   
 $\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_marcucci: 0.00 Yp\_Aver2015: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.41 SN - JLA Pantheon18: 1034.83



### 7.119 base\_nnu\_BAO\_Cooke17Adel\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02246	$0.0225^{+0.0017}_{-0.0016}$	$r_*$	136.5	$131^{+20}_{-20}$	$H(0.51)$	96.8	$103^{+20}_{-20}$
$\Omega_{\text{c}}h^2$	0.156	$0.191^{+0.15}_{-0.097}$	$100\theta_*$	1.087	$1.112^{+0.087}_{-0.095}$	$D_{\text{M}}(0.51)$	1864	$1784^{+300}_{-300}$
$100\theta_{\text{MC}}$	1.087	$1.112^{+0.086}_{-0.095}$	$D_{\text{M}}(z_*)/\text{Gpc}$	12.56	$11.8^{+3.3}_{-2.6}$	$H(0.61)$	103.4	$110^{+30}_{-20}$
$N_{\text{eff}}$	2.92	$2.95^{+0.74}_{-0.71}$	$z_{\text{drag}}$	1062.5	$1064.6^{+9.5}_{-8.5}$	$D_{\text{M}}(0.61)$	2164	$2068^{+400}_{-300}$
$H_0$	70.7	$73^{+10}_{-10}$	$r_{\text{drag}}$	139.0	$133^{+20}_{-20}$	$H(2.33)$	264	$285^{+90}_{-70}$
$\Omega_{\Lambda}$	0.641	$0.61^{+0.11}_{-0.14}$	$k_{\text{D}}$	0.1504	$0.158^{+0.031}_{-0.026}$	$D_{\text{M}}(2.33)$	5296	$5009^{+1000}_{-1000}$
$\Omega_{\text{m}}$	0.359	$0.39^{+0.14}_{-0.11}$	$100\theta_{\text{D}}$	0.1664	$0.170^{+0.013}_{-0.013}$	$\chi^2_{\text{Cooke17Adel}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\text{m}}h^2$	0.179	$0.214^{+0.15}_{-0.097}$	$z_{\text{eq}}$	4342	$5170^{+4000}_{-2000}$	$\chi^2_{\text{Aver15}}$	0.00	$1.0 (\nu: 1.1)$
$\Omega_{\text{m}}h^3$	0.127	$0.159^{+0.14}_{-0.089}$	$k_{\text{eq}}$	0.0131	$0.0157^{+0.011}_{-0.0069}$	$\chi^2_{6\text{DF}}$	0.14	$0.42 (\nu: 0.1)$
$r_{\text{drag}}h$	98.3	$97.2^{+5.2}_{-5.3}$	$100\theta_{\text{eq}}$	0.710	$0.66^{+0.23}_{-0.18}$	$\chi^2_{\text{MGS}}$	0.82	$0.72 (\nu: 0.2)$
$Y_{\text{P}}$	0.2437	$0.244^{+0.010}_{-0.011}$	$100\theta_{\text{s,eq}}$	0.396	$0.368^{+0.12}_{-0.095}$	$\chi^2_{\text{DR12BAO}}$	2.18	$3.9 (\nu: 1.5)$
$Y_{\text{P}}^{\text{BBN}}$	0.2450	$0.245^{+0.010}_{-0.011}$	$H(0.15)$	77.0	$81^{+10}_{-10}$	$\chi^2_{\text{BAO}}$	3.14	$5.0 (\nu: 1.8)$
$10^5\text{D}/\text{H}$	2.526	$2.52^{+0.17}_{-0.18}$	$D_{\text{M}}(0.15)$	610	$587^{+100}_{-90}$	$\chi^2_{\text{Abund}}$	0.00	$2.0 (\nu: 2.1)$
Age/Gyr	12.67	$12.0^{+2.9}_{-2.4}$	$H(0.38)$	89.0	$94^{+20}_{-20}$			
$z_*$	1092.7	$1095.0^{+9.1}_{-7.3}$	$D_{\text{M}}(0.38)$	1444	$1385^{+200}_{-200}$			

Best-fit  $\chi^2_{\text{eff}} = 3.14$ ;  $\bar{\chi}^2_{\text{eff}} = 7.04$ ;  $R - 1 = 0.00760$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_adelberger: 0.00 Yp\_Aver2015: 0.00 BAO - 6DF: 0.14 MGS: 0.82 DR12BAO: 2.18

### 7.120 base\_nnu\_BAO\_Cooke17Adel\_Aver15\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02245	$0.0225^{+0.0017}_{-0.0015}$	$r_*$	144.4	$144^{+12}_{-13}$	$H(0.51)$	90.6	$91^{+10}_{-9}$
$\Omega_{\text{c}}h^2$	0.1223	$0.125^{+0.045}_{-0.037}$	$100\theta_*$	1.0505	$1.052^{+0.045}_{-0.050}$	$D_{\text{M}}(0.51)$	1962	$1954^{+170}_{-190}$
$100\theta_{\text{MC}}$	1.0503	$1.052^{+0.046}_{-0.050}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.75	$13.7^{+1.9}_{-1.7}$	$H(0.61)$	96.3	$97^{+10}_{-10}$
$N_{\text{eff}}$	2.92	$2.94^{+0.75}_{-0.67}$	$z_{\text{drag}}$	1060.2	$1060.5^{+6.2}_{-5.3}$	$D_{\text{M}}(0.61)$	2283	$2274^{+200}_{-220}$
$H_0$	68.2	$68.6^{+6.5}_{-5.2}$	$r_{\text{drag}}$	147.0	$147^{+13}_{-13}$	$H(2.33)$	238.6	$240^{+30}_{-30}$
$\Omega_{\Lambda}$	0.6877	$0.686^{+0.051}_{-0.048}$	$k_{\text{D}}$	0.1415	$0.142^{+0.014}_{-0.012}$	$D_{\text{M}}(2.33)$	5704	$5680^{+700}_{-600}$
$\Omega_{\text{m}}$	0.3123	$0.314^{+0.048}_{-0.051}$	$100\theta_{\text{D}}$	0.1615	$0.1617^{+0.0063}_{-0.0067}$	$\chi^2_{\text{Cooke17Adel}}$	0.00	$0.96 (\nu: 0.9)$
$\Omega_{\text{m}}h^2$	0.1454	$0.148^{+0.046}_{-0.038}$	$z_{\text{eq}}$	3521	$3570^{+1000}_{-800}$	$\chi^2_{\text{Aver15}}$	0.00	$0.97 (\nu: 1.0)$
$\Omega_{\text{m}}h^3$	0.0992	$0.102^{+0.043}_{-0.031}$	$k_{\text{eq}}$	0.01065	$0.0108^{+0.0031}_{-0.0026}$	$\chi^2_{\text{JLA}}$	1035.10	$1035.9 (\nu: 1.1)$
$r_{\text{drag}}h$	100.33	$100.3^{+3.0}_{-2.9}$	$100\theta_{\text{eq}}$	0.800	$0.80^{+0.13}_{-0.10}$	$\chi^2_{6\text{DF}}$	0.000	$0.049 (\nu: 0.0)$
$Y_{\text{P}}$	0.2437	$0.244^{+0.010}_{-0.010}$	$100\theta_{\text{s,eq}}$	0.443	$0.441^{+0.065}_{-0.053}$	$\chi^2_{\text{MGS}}$	1.68	$1.77 (\nu: 0.2)$
$Y_{\text{P}}^{\text{BBN}}$	0.2450	$0.245^{+0.010}_{-0.010}$	$H(0.15)$	73.6	$74.0^{+7.4}_{-5.9}$	$\chi^2_{\text{DR12BAO}}$	2.98	$3.9 (\nu: 1.1)$
$10^5\text{D}/\text{H}$	2.526	$2.52^{+0.16}_{-0.17}$	$D_{\text{M}}(0.15)$	635	$633^{+52}_{-57}$	$\chi^2_{\text{BAO}}$	4.66	$5.8 (\nu: 1.5)$
Age/Gyr	13.66	$13.6^{+1.6}_{-1.5}$	$H(0.38)$	83.8	$84.3^{+9.2}_{-7.4}$	$\chi^2_{\text{Abund}}$	0.00	$1.9 (\nu: 1.9)$
$z_*$	1089.90	$1090.0^{+3.3}_{-3.4}$	$D_{\text{M}}(0.38)$	1515	$1509^{+130}_{-140}$			

Best-fit  $\chi^2_{\text{eff}} = 1039.76$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.57$ ;  $R - 1 = 0.00588$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_adelberger: 0.00 Yp\_Aver2015: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 2.98 SN - JLA Pantheon18: 1035.10



7.121    base\_nnu\_BAO\_Cooke17Adel\_Aver15\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02242	$0.0225^{+0.0017}_{-0.0015}$	$r_*$	146.4	$146.1^{+9.4}_{-8.9}$	$H(0.51)$	89.0	$89.2^{+6.0}_{-5.5}$
$\Omega_{\text{c}}h^2$	0.1152	$0.116^{+0.017}_{-0.015}$	$100\theta_*$	1.04121	$1.0411^{+0.0018}_{-0.0018}$	$D_{\text{M}}(0.51)$	1992	$1988^{+130}_{-130}$
$100\theta_{\text{MC}}$	1.04094	$1.0409^{+0.0016}_{-0.0016}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.06	$14.03^{+0.89}_{-0.85}$	$H(0.61)$	94.5	$94.8^{+6.3}_{-5.8}$
$N_{\text{eff}}$	2.90	$2.93^{+0.78}_{-0.73}$	$z_{\text{drag}}$	1059.6	$1059.8^{+5.5}_{-5.1}$	$D_{\text{M}}(0.61)$	2319	$2315^{+150}_{-150}$
$H_0$	67.39	$67.6^{+5.0}_{-4.6}$	$r_{\text{drag}}$	149.1	$149^{+10}_{-9.5}$	$H(2.33)$	233.0	$234^{+15}_{-14}$
$\Omega_{\Lambda}$	0.6954	$0.695^{+0.022}_{-0.024}$	$k_{\text{D}}$	0.1394	$0.1398^{+0.0086}_{-0.0079}$	$D_{\text{M}}(2.33)$	5815	$5804^{+370}_{-360}$
$\Omega_{\text{m}}$	0.3046	$0.305^{+0.024}_{-0.022}$	$100\theta_{\text{D}}$	0.16029	$0.1603^{+0.0014}_{-0.0014}$	$\chi^2_{\text{Cooke17Adel}}$	0.00	$0.99 (\nu: 0.9)$
$\Omega_{\text{m}}h^2$	0.1383	$0.139^{+0.018}_{-0.016}$	$z_{\text{eq}}$	3355	$3358^{+120}_{-120}$	$\chi^2_{\text{Aver15}}$	0.00	$1.1 (\nu: 1.2)$
$\Omega_{\text{m}}h^3$	0.0932	$0.094^{+0.019}_{-0.016}$	$k_{\text{eq}}$	0.01014	$0.01017^{+0.00079}_{-0.00071}$	$\chi^2_{6\text{DF}}$	0.000	$0.056 (\nu: 0.0)$
$r_{\text{drag}}h$	100.45	$100.5^{+3.0}_{-2.9}$	$100\theta_{\text{eq}}$	0.8219	$0.822^{+0.020}_{-0.019}$	$\chi^2_{\text{MGS}}$	1.68	$1.76 (\nu: 0.3)$
$Y_{\text{P}}$	0.2435	$0.244^{+0.011}_{-0.011}$	$100\theta_{\text{s,eq}}$	0.4538	$0.454^{+0.011}_{-0.010}$	$\chi^2_{\text{DR12BAO}}$	3.51	$4.4 (\nu: 1.0)$
$Y_{\text{P}}^{\text{BBN}}$	0.2448	$0.245^{+0.011}_{-0.011}$	$H(0.15)$	72.54	$72.7^{+5.2}_{-4.7}$	$\chi^2_{\text{prior}}$	0.00	$1.0 (\nu: 1.2)$
$10^5\text{D}/\text{H}$	2.526	$2.52^{+0.17}_{-0.18}$	$D_{\text{M}}(0.15)$	643.8	$643^{+45}_{-44}$	$\chi^2_{\text{BAO}}$	5.19	$6.2 (\nu: 1.0)$
Age/Gyr	13.92	$13.90^{+0.89}_{-0.86}$	$H(0.38)$	82.4	$82.6^{+5.6}_{-5.1}$	$\chi^2_{\text{Abund}}$	0.00	$2.1 (\nu: 2.1)$
$z_*$	1089.30	$1089.3^{+1.2}_{-1.3}$	$D_{\text{M}}(0.38)$	1537	$1534^{+100}_{-100}$			

Best-fit  $\chi^2_{\text{eff}} = 5.19$ ;  $\bar{\chi}^2_{\text{eff}} = 9.33$ ;  $R - 1 = 0.00415$   
 $\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_adelberger: 0.00 Yp\_Aver2015: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.51

7.122    base\_nnu\_BAO\_Cooke17Adel\_Aver15\_Pantheon18\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02241	$0.0225^{+0.0017}_{-0.0016}$	$r_*$	146.6	$146.0^{+9.2}_{-8.5}$	$H(0.51)$	88.9	$89.3^{+5.7}_{-5.5}$
$\Omega_{\text{c}}h^2$	0.1148	$0.116^{+0.016}_{-0.015}$	$100\theta_*$	1.04119	$1.0411^{+0.0017}_{-0.0016}$	$D_{\text{M}}(0.51)$	1993	$1986^{+130}_{-120}$
$100\theta_{\text{MC}}$	1.04090	$1.0409^{+0.0015}_{-0.0015}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.08	$14.03^{+0.88}_{-0.82}$	$H(0.61)$	94.4	$94.8^{+5.9}_{-5.8}$
$N_{\text{eff}}$	2.89	$2.94^{+0.77}_{-0.70}$	$z_{\text{drag}}$	1059.5	$1059.9^{+5.3}_{-5.3}$	$D_{\text{M}}(0.61)$	2320	$2313^{+150}_{-140}$
$H_0$	67.38	$67.6^{+4.6}_{-4.4}$	$r_{\text{drag}}$	149.2	$148.7^{+9.9}_{-9.0}$	$H(2.33)$	232.6	$234^{+14}_{-14}$
$\Omega_{\Lambda}$	0.6963	$0.696^{+0.020}_{-0.021}$	$k_{\text{D}}$	0.1393	$0.1398^{+0.0083}_{-0.0081}$	$D_{\text{M}}(2.33)$	5821	$5801^{+370}_{-340}$
$\Omega_{\text{m}}$	0.3037	$0.304^{+0.021}_{-0.020}$	$100\theta_{\text{D}}$	0.16027	$0.1603^{+0.0013}_{-0.0014}$	$\chi^2_{\text{Cooke17Adel}}$	0.00	$0.98 (\nu: 1.0)$
$\Omega_{\text{m}}h^2$	0.1379	$0.139^{+0.018}_{-0.016}$	$z_{\text{eq}}$	3350	$3357^{+120}_{-120}$	$\chi^2_{\text{Aver15}}$	0.01	$0.99 (\nu: 1.0)$
$\Omega_{\text{m}}h^3$	0.0929	$0.094^{+0.018}_{-0.016}$	$k_{\text{eq}}$	0.01012	$0.01017^{+0.00077}_{-0.00074}$	$\chi^2_{\text{JLA}}$	1034.78	$1034.92 (\nu: 0.0)$
$r_{\text{drag}}h$	100.56	$100.5^{+2.8}_{-2.6}$	$100\theta_{\text{eq}}$	0.8227	$0.822^{+0.020}_{-0.019}$	$\chi^2_{6\text{DF}}$	0.000	$0.047 (\nu: 0.0)$
$Y_{\text{P}}$	0.2433	$0.244^{+0.010}_{-0.011}$	$100\theta_{\text{s,eq}}$	0.4543	$0.454^{+0.011}_{-0.010}$	$\chi^2_{\text{MGS}}$	1.75	$1.80 (\nu: 0.2)$
$Y_{\text{P}}^{\text{BBN}}$	0.2446	$0.245^{+0.010}_{-0.011}$	$H(0.15)$	72.52	$72.8^{+4.8}_{-4.6}$	$\chi^2_{\text{DR12BAO}}$	3.45	$4.2 (\nu: 0.7)$
$10^5\text{D}/\text{H}$	2.525	$2.52^{+0.17}_{-0.17}$	$D_{\text{M}}(0.15)$	644.0	$642^{+44}_{-41}$	$\chi^2_{\text{prior}}$	0.00	$0.99 (\nu: 0.9)$
Age/Gyr	13.94	$13.89^{+0.89}_{-0.82}$	$H(0.38)$	82.4	$82.7^{+5.3}_{-5.2}$	$\chi^2_{\text{BAO}}$	5.20	$6.1 (\nu: 0.7)$
$z_*$	1089.27	$1089.3^{+1.2}_{-1.2}$	$D_{\text{M}}(0.38)$	1538	$1533^{+100}_{-95}$	$\chi^2_{\text{Abund}}$	0.01	$2.0 (\nu: 2.0)$

Best-fit  $\chi^2_{\text{eff}} = 1039.99$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.96$ ;  $R - 1 = 0.00918$   
 $\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_adelberger: 0.00 Yp\_Aver2015: 0.01 BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.45 SN - JLA Pantheon18: 1034.78



## 8 nnu+meffsterile

### 8.1 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02216	$0.02223^{+0.00065}_{-0.00058}$	$S_8$	0.837	$0.816^{+0.069}_{-0.082}$	$100\theta_{s,eq}$	0.4490	$0.455^{+0.033}_{-0.014}$
$\Omega_c h^2$	0.1203	$0.1215^{+0.0093}_{-0.014}$	$\sigma_8 \Omega_m^{0.5}$	0.4587	$0.447^{+0.038}_{-0.045}$	$H(0.15)$	72.33	$72.5^{+4.5}_{-2.6}$
$100\theta_{MC}$	1.04072	$1.0405^{+0.0013}_{-0.0014}$	$\sigma_8 \Omega_m^{0.25}$	0.610	$0.591^{+0.042}_{-0.062}$	$D_M(0.15)$	646.8	$646^{+28}_{-41}$
$\tau$	0.0529	$0.053^{+0.022}_{-0.021}$	$\sigma_8/h^{0.5}$	0.992	$0.953^{+0.064}_{-0.10}$	$H(0.38)$	82.57	$83.0^{+4.2}_{-1.9}$
$m_{\nu, sterile}^{eff} [eV]$	0.01	$< 1.26$	$r_{drag} h$	98.6	$97.5^{+5.6}_{-5.9}$	$D_M(0.38)$	1541	$1537^{+54}_{-88}$
$N_{eff}$	3.046	$< 3.67$	$\langle d^2 \rangle^{1/2}$	2.451	$2.45^{+0.11}_{-0.11}$	$H(0.51)$	89.36	$90.0^{+4.0}_{-1.6}$
$\ln(10^{10} A_s)$	3.0415	$3.047^{+0.049}_{-0.046}$	$z_{re}$	7.59	$7.6^{+2.2}_{-2.4}$	$D_M(0.51)$	1995	$1988^{+63}_{-110}$
$n_s$	0.9637	$0.966^{+0.027}_{-0.020}$	$10^9 A_s$	2.094	$2.11^{+0.11}_{-0.094}$	$H(0.61)$	95.04	$95.8^{+3.5}_{-1.6}$
$y_{cal}$	1.0003	$1.0005^{+0.0067}_{-0.0063}$	$10^9 A_s e^{-2\tau}$	1.8833	$1.895^{+0.044}_{-0.040}$	$D_M(0.61)$	2320	$2311^{+68}_{-120}$
$A_{217}^{CIB}$	48.9	$49^{+20}_{-20}$	$D_{40}$	1231.0	$1228^{+47}_{-50}$	$H(2.33)$	236.6	$239.8^{+7.9}_{-5.1}$
$\xi^{tSZ \times CIB}$	0.30	—	$D_{220}$	5712	$5712^{+110}_{-100}$	$D_M(2.33)$	5776	$5729^{+87}_{-190}$
$A_{143}^{tSZ}$	7.0	—	$D_{810}$	2537.4	$2539^{+37}_{-36}$	$f\sigma_8(0.15)$	0.4626	$0.451^{+0.036}_{-0.045}$
$A_{100}^{PS}$	254	$269^{+70}_{-70}$	$D_{1420}$	815.1	$813^{+14}_{-13}$	$\sigma_8(0.15)$	0.749	$0.719^{+0.053}_{-0.090}$
$A_{143}^{PS}$	49.4	$52^{+20}_{-20}$	$D_{2000}$	230.0	$228.2^{+5.1}_{-5.2}$	$f\sigma_8(0.38)$	0.4792	$0.465^{+0.033}_{-0.048}$
$A_{143 \times 217}^{PS}$	46.5	$45^{+20}_{-20}$	$n_{s,0.002}$	0.9637	$0.966^{+0.027}_{-0.020}$	$\sigma_8(0.38)$	0.663	$0.636^{+0.048}_{-0.082}$
$A_{217}^{PS}$	119.0	$116^{+30}_{-30}$	$Y_P$	0.24531	$0.2477^{+0.0059}_{-0.0026}$	$f\sigma_8(0.51)$	0.4769	$0.461^{+0.032}_{-0.049}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.24664	$0.2490^{+0.0059}_{-0.0026}$	$\sigma_8(0.51)$	0.620	$0.595^{+0.046}_{-0.078}$
$A_{100}^{dustTT}$	8.78	$9.0^{+4.7}_{-4.8}$	$10^5 D/H$	2.625	$2.67^{+0.15}_{-0.12}$	$f\sigma_8(0.61)$	0.4712	$0.455^{+0.031}_{-0.050}$
$A_{143}^{dustTT}$	10.77	$10.8^{+4.6}_{-4.7}$	Age/Gyr	13.826	$13.71^{+0.20}_{-0.45}$	$\sigma_8(0.61)$	0.590	$0.565^{+0.045}_{-0.074}$
$A_{143 \times 217}^{dustTT}$	19.3	$18.4^{+8.5}_{-8.4}$	$z_*$	1090.22	$1090.6^{+1.3}_{-1.1}$	$f\sigma_8(2.33)$	0.2972	$0.285^{+0.023}_{-0.038}$
$A_{217}^{dustTT}$	94.4	$93^{+20}_{-20}$	$r_*$	144.48	$142.8^{+2.4}_{-4.3}$	$\sigma_8(2.33)$	0.3060	$0.293^{+0.026}_{-0.040}$
$c_{100}$	0.99962	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04093	$1.0406^{+0.0013}_{-0.0015}$	$f_{2000}^{143}$	30.4	$33^{+8}_{-8}$
$c_{217}$	0.99823	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/Gpc$	13.880	$13.72^{+0.24}_{-0.37}$	$f_{2000}^{143 \times 217}$	33.2	$35^{+6}_{-6}$
$H_0$	66.97	$67.0^{+4.8}_{-3.2}$	$z_{drag}$	1059.47	$1060.0^{+2.0}_{-1.5}$	$f_{2000}^{217}$	107.6	$109.5^{+5.7}_{-5.2}$
$\Omega_\Lambda$	0.6806	$0.671^{+0.044}_{-0.053}$	$r_{drag}$	147.21	$145.5^{+2.6}_{-4.2}$	$\chi_{small}^2$	395.94	$397.0 (\nu: 1.6)$
$\Omega_m$	0.3194	$0.329^{+0.053}_{-0.044}$	$k_D$	0.14058	$0.1419^{+0.0034}_{-0.0022}$	$\chi_{lowl}^2$	23.58	$23.5 (\nu: 1.2)$
$\Omega_m h^2$	0.1432	$0.147^{+0.011}_{-0.0074}$	$100\theta_D$	0.16101	$0.1614^{+0.0013}_{-0.00084}$	$\chi_{plik}^2$	758.8	$774.5 (\nu: 17.4)$
$\Omega_\nu h^2$	0.0008	$0.0037^{+0.010}_{-0.0032}$	$z_{eq}$	3405	$3355^{+140}_{-280}$	$\chi_{prior}^2$	1.4	$7.4 (\nu: 6.9)$
$\Omega_m h^3$	0.0959	$0.0988^{+0.0095}_{-0.0039}$	$k_{eq}$	0.01039	$0.01039^{+0.00046}_{-0.00075}$	$\chi_{CMB}^2$	1178.3	$1195.0 (\nu: 17.6)$
$\sigma_8$	0.812	$0.780^{+0.056}_{-0.094}$	$100\theta_{eq}$	0.8122	$0.823^{+0.063}_{-0.028}$			

Best-fit  $\chi_{eff}^2 = 1179.66$ ;  $\bar{\chi}_{eff}^2 = 1202.36$ ;  $R - 1 = 0.01778$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.94 commander\_dx12\_v3.2\_29: 23.58 plik\_rd12\_HM\_v22\_TT: 758.77



## 8.2 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.02221^{+0.00058}_{-0.00056}$	$S_8$	0.831	$0.819^{+0.049}_{-0.066}$	$100\theta_{s,eq}$	0.4600	$0.454^{+0.031}_{-0.011}$
$\Omega_c h^2$	0.1160	$0.1216^{+0.0090}_{-0.013}$	$\sigma_8 \Omega_m^{0.5}$	0.4552	$0.448^{+0.027}_{-0.036}$	$H(0.15)$	72.55	$72.4^{+4.1}_{-2.2}$
$100\theta_{MC}$	1.04082	$1.0405^{+0.0013}_{-0.0013}$	$\sigma_8 \Omega_m^{0.25}$	0.6073	$0.592^{+0.032}_{-0.051}$	$D_M(0.15)$	644.5	$647^{+23}_{-37}$
$\tau$	0.0541	$0.053^{+0.022}_{-0.020}$	$\sigma_8/h^{0.5}$	0.988	$0.955^{+0.054}_{-0.080}$	$H(0.38)$	82.74	$82.9^{+3.8}_{-1.6}$
$m_{\nu, sterile}^{eff} [eV]$	0.36	$< 1.16$	$r_{drag} h$	99.0	$97.3^{+4.7}_{-5.3}$	$D_M(0.38)$	1536	$1539^{+45}_{-81}$
$N_{eff}$	3.047	$< 3.62$	$\langle d^2 \rangle^{1/2}$	2.444	$2.453^{+0.074}_{-0.075}$	$H(0.51)$	89.49	$89.8^{+3.2}_{-1.5}$
$\ln(10^{10} A_s)$	3.0425	$3.048^{+0.046}_{-0.041}$	$z_{re}$	7.70	$7.6^{+2.1}_{-2.2}$	$D_M(0.51)$	1989	$1991^{+52}_{-100}$
$n_s$	0.9653	$0.965^{+0.023}_{-0.017}$	$10^9 A_s$	2.096	$2.107^{+0.098}_{-0.086}$	$H(0.61)$	95.14	$95.7^{+3.1}_{-1.4}$
$y_{cal}$	1.0002	$1.0005^{+0.0066}_{-0.0064}$	$10^9 A_s e^{-2\tau}$	1.8808	$1.895^{+0.041}_{-0.034}$	$D_M(0.61)$	2314	$2315^{+55}_{-110}$
$A_{217}^{CIB}$	48.4	$49^{+20}_{-20}$	$D_{40}$	1227.7	$1230^{+40}_{-41}$	$H(2.33)$	236.3	$239.7^{+7.1}_{-4.9}$
$\xi^{tSZ \times CIB}$	0.34	—	$D_{220}$	5713	$5714^{+110}_{-100}$	$D_M(2.33)$	5771	$5735^{+76}_{-170}$
$A_{143}^{tSZ}$	7.0	—	$D_{810}$	2536.9	$2539^{+35}_{-36}$	$f\sigma_8(0.15)$	0.4595	$0.452^{+0.026}_{-0.037}$
$A_{100}^{PS}$	253	$269^{+70}_{-70}$	$D_{1420}$	815.6	$813^{+14}_{-13}$	$\sigma_8(0.15)$	0.748	$0.720^{+0.048}_{-0.074}$
$A_{143}^{PS}$	49.0	$52^{+20}_{-20}$	$D_{2000}$	230.2	$228.3^{+5.1}_{-5.2}$	$f\sigma_8(0.38)$	0.4768	$0.465^{+0.025}_{-0.040}$
$A_{143 \times 217}^{PS}$	47.0	$45^{+20}_{-20}$	$n_{s,0.002}$	0.9653	$0.965^{+0.023}_{-0.017}$	$\sigma_8(0.38)$	0.663	$0.636^{+0.046}_{-0.068}$
$A_{217}^{PS}$	119.3	$116^{+30}_{-30}$	$Y_P$	0.24535	$0.2475^{+0.0054}_{-0.0024}$	$f\sigma_8(0.51)$	0.4749	$0.462^{+0.026}_{-0.041}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.24667	$0.2488^{+0.0054}_{-0.0024}$	$\sigma_8(0.51)$	0.620	$0.595^{+0.044}_{-0.064}$
$A_{100}^{dustTT}$	8.90	$9.0^{+4.7}_{-4.9}$	$10^5 D/H$	2.616	$2.67^{+0.15}_{-0.12}$	$f\sigma_8(0.61)$	0.4696	$0.456^{+0.026}_{-0.042}$
$A_{143}^{dustTT}$	10.87	$10.8^{+4.5}_{-4.8}$	Age/Gyr	13.816	$13.73^{+0.18}_{-0.40}$	$\sigma_8(0.61)$	0.590	$0.565^{+0.042}_{-0.062}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.4^{+8.4}_{-8.3}$	$z_*$	1090.11	$1090.6^{+1.3}_{-1.1}$	$f\sigma_8(2.33)$	0.2972	$0.285^{+0.022}_{-0.032}$
$A_{217}^{dustTT}$	94.5	$93^{+20}_{-20}$	$r_*$	144.58	$142.9^{+2.3}_{-3.8}$	$\sigma_8(2.33)$	0.3062	$0.293^{+0.024}_{-0.034}$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0015}$	$100\theta_*$	1.04102	$1.0406^{+0.0013}_{-0.0014}$	$f_{2000}^{143}$	30.0	$33^{+8}_{-8}$
$c_{217}$	0.99824	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/Gpc$	13.888	$13.73^{+0.22}_{-0.35}$	$f_{2000}^{143 \times 217}$	32.9	$35^{+6}_{-6}$
$H_0$	67.23	$66.8^{+4.4}_{-2.6}$	$z_{drag}$	1059.55	$1060.0^{+1.9}_{-1.4}$	$f_{2000}^{217}$	107.4	$109.5^{+5.6}_{-5.1}$
$\Omega_\Lambda$	0.6842	$0.670^{+0.037}_{-0.048}$	$r_{drag}$	147.30	$145.5^{+2.4}_{-3.9}$	$\chi^2_{lensing}$	8.88	$9.27 (\nu: 0.4)$
$\Omega_m$	0.3158	$0.330^{+0.048}_{-0.037}$	$k_D$	0.14052	$0.1419^{+0.0033}_{-0.0020}$	$\chi^2_{small}$	396	$502 (\nu: 14302.6)$
$\Omega_m h^2$	0.1427	$0.147^{+0.011}_{-0.0065}$	$100\theta_D$	0.16097	$0.1613^{+0.0012}_{-0.00082}$	$\chi^2_{lowl}$	23.29	$23.6 (\nu: 0.9)$
$\Omega_\nu h^2$	0.0045	$0.0037^{+0.0097}_{-0.0032}$	$z_{eq}$	3303	$3362^{+110}_{-260}$	$\chi^2_{plik}$	759	$668 (\nu: 14315.7)$
$\Omega_m h^3$	0.0960	$0.0985^{+0.0081}_{-0.0036}$	$k_{eq}$	0.01015	$0.01041^{+0.00041}_{-0.00070}$	$\chi^2_{prior}$	1.3	$7.3 (\nu: 6.8)$
$\sigma_8$	0.810	$0.781^{+0.050}_{-0.079}$	$100\theta_{eq}$	0.8333	$0.822^{+0.059}_{-0.022}$	$\chi^2_{CMB}$	1187.2	$1203.6 (\nu: 17.4)$

Best-fit  $\chi^2_{eff} = 1188.51$ ;  $\bar{\chi}^2_{eff} = 1210.94$ ;  $R - 1 = 0.01963$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.88 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.04 commander\_dx12\_v3.2.29: 23.29 plik\_rd12\_HM\_v22\_TT: 758.94



### 8.3 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02223^{+0.00065}_{-0.00057}$	$S_8$	$0.817^{+0.069}_{-0.081}$	$100\theta_{s,eq}$	$0.455^{+0.034}_{-0.014}$
$\Omega_c h^2$	$0.1215^{+0.0093}_{-0.014}$	$\sigma_8 \Omega_m^{0.5}$	$0.447^{+0.038}_{-0.044}$	$H(0.15)$	$72.6^{+4.5}_{-2.7}$
$100\theta_{MC}$	$1.0405^{+0.0013}_{-0.0014}$	$\sigma_8 \Omega_m^{0.25}$	$0.591^{+0.042}_{-0.062}$	$D_M(0.15)$	$646^{+28}_{-41}$
$\tau$	$0.054^{+0.020}_{-0.013}$	$\sigma_8/h^{0.5}$	$0.954^{+0.064}_{-0.10}$	$H(0.38)$	$83.1^{+4.2}_{-1.9}$
$m_{\nu, sterile}^{eff} [eV]$	$< 1.26$	$r_{drag} h$	$97.5^{+5.6}_{-5.9}$	$D_M(0.38)$	$1536^{+55}_{-88}$
$N_{eff}$	$< 3.68$	$\langle d^2 \rangle^{1/2}$	$2.45^{+0.11}_{-0.11}$	$H(0.51)$	$90.0^{+4.1}_{-1.6}$
$\ln(10^{10} A_s)$	$3.049^{+0.047}_{-0.033}$	$z_{re}$	$< 9.61$	$D_M(0.51)$	$1987^{+64}_{-110}$
$n_s$	$0.966^{+0.027}_{-0.020}$	$10^9 A_s$	$2.11^{+0.10}_{-0.069}$	$H(0.61)$	$95.8^{+3.5}_{-1.6}$
$y_{cal}$	$1.0005^{+0.0067}_{-0.0063}$	$10^9 A_s e^{-2\tau}$	$1.895^{+0.044}_{-0.040}$	$D_M(0.61)$	$2310^{+69}_{-120}$
$A_{217}^{CIB}$	$49^{+20}_{-20}$	$D_{40}$	$1227^{+47}_{-50}$	$H(2.33)$	$239.8^{+7.9}_{-5.1}$
$\xi^{tSZ \times CIB}$	—	$D_{220}$	$5712^{+110}_{-100}$	$D_M(2.33)$	$5728^{+88}_{-190}$
$A_{143}^{tSZ}$	—	$D_{810}$	$2539^{+37}_{-36}$	$f\sigma_8(0.15)$	$0.451^{+0.036}_{-0.045}$
$A_{100}^{PS}$	$268^{+70}_{-70}$	$D_{1420}$	$813^{+14}_{-13}$	$\sigma_8(0.15)$	$0.721^{+0.052}_{-0.090}$
$A_{143}^{PS}$	$52^{+20}_{-20}$	$D_{2000}$	$228.2^{+5.1}_{-5.2}$	$f\sigma_8(0.38)$	$0.465^{+0.033}_{-0.048}$
$A_{143 \times 217}^{PS}$	$45^{+20}_{-20}$	$n_{s,0.002}$	$0.966^{+0.027}_{-0.020}$	$\sigma_8(0.38)$	$0.637^{+0.048}_{-0.082}$
$A_{217}^{PS}$	$116^{+30}_{-30}$	$Y_P$	$0.2477^{+0.0060}_{-0.0027}$	$f\sigma_8(0.51)$	$0.462^{+0.032}_{-0.050}$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.2490^{+0.0060}_{-0.0027}$	$\sigma_8(0.51)$	$0.596^{+0.046}_{-0.078}$
$A_{100}^{dustTT}$	$9.0^{+4.7}_{-4.8}$	$10^5 D/H$	$2.67^{+0.15}_{-0.12}$	$f\sigma_8(0.61)$	$0.456^{+0.031}_{-0.050}$
$A_{143}^{dustTT}$	$10.8^{+4.6}_{-4.7}$	$Age/Gyr$	$13.71^{+0.21}_{-0.46}$	$\sigma_8(0.61)$	$0.566^{+0.044}_{-0.075}$
$A_{143 \times 217}^{dustTT}$	$18.3^{+8.6}_{-8.4}$	$z_*$	$1090.6^{+1.3}_{-1.1}$	$f\sigma_8(2.33)$	$0.286^{+0.023}_{-0.038}$
$A_{217}^{dustTT}$	$93^{+20}_{-20}$	$r_*$	$142.8^{+2.6}_{-4.0}$	$\sigma_8(2.33)$	$0.293^{+0.025}_{-0.041}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0406^{+0.0013}_{-0.0015}$	$f_{2000}^{143}$	$33^{+8}_{-8}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/Gpc$	$13.72^{+0.24}_{-0.38}$	$f_{2000}^{143 \times 217}$	$35^{+6}_{-6}$
$H_0$	$67.1^{+4.8}_{-3.2}$	$z_{drag}$	$1060.0^{+2.0}_{-1.5}$	$f_{2000}^{217}$	$109.5^{+5.7}_{-5.2}$
$\Omega_\Lambda$	$0.672^{+0.044}_{-0.053}$	$r_{drag}$	$145.5^{+2.6}_{-4.2}$	$\chi_{small}^2$	$396.9 (\nu: 1.6)$
$\Omega_m$	$0.328^{+0.053}_{-0.044}$	$k_D$	$0.1419^{+0.0035}_{-0.0022}$	$\chi_{lowl}^2$	$23.4 (\nu: 1.2)$
$\Omega_m h^2$	$0.147^{+0.011}_{-0.0074}$	$100\theta_D$	$0.1614^{+0.0013}_{-0.00085}$	$\chi_{plik}^2$	$774.4 (\nu: 17.4)$
$\Omega_\nu h^2$	$0.0037^{+0.013}_{-0.0032}$	$z_{eq}$	$3354^{+140}_{-290}$	$\chi_{prior}^2$	$7.4 (\nu: 6.9)$
$\Omega_m h^3$	$0.0988^{+0.0094}_{-0.0039}$	$k_{eq}$	$0.01039^{+0.00046}_{-0.00076}$	$\chi_{CMB}^2$	$1194.8 (\nu: 17.3)$
$\sigma_8$	$0.781^{+0.055}_{-0.094}$	$100\theta_{eq}$	$0.823^{+0.065}_{-0.028}$		

$$\bar{\chi}_{eff}^2 = 1202.13; R - 1 = 0.02055$$



#### 8.4 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02222^{+0.00058}_{-0.00054}$	$S_8$	$0.819^{+0.049}_{-0.067}$	$100\theta_{s,eq}$	$0.454^{+0.031}_{-0.011}$
$\Omega_c h^2$	$0.1215^{+0.0089}_{-0.013}$	$\sigma_8 \Omega_m^{0.5}$	$0.448^{+0.027}_{-0.037}$	$H(0.15)$	$72.4^{+4.1}_{-2.2}$
$100\theta_{MC}$	$1.0405^{+0.0013}_{-0.0013}$	$\sigma_8 \Omega_m^{0.25}$	$0.592^{+0.032}_{-0.051}$	$D_M(0.15)$	$647^{+23}_{-37}$
$\tau$	$0.054^{+0.019}_{-0.014}$	$\sigma_8/h^{0.5}$	$0.955^{+0.054}_{-0.080}$	$H(0.38)$	$82.9^{+3.8}_{-1.5}$
$m_{\nu, sterile}^{eff} [eV]$	$< 1.16$	$r_{drag} h$	$97.4^{+4.7}_{-5.3}$	$D_M(0.38)$	$1538^{+45}_{-81}$
$N_{eff}$	$< 3.62$	$\langle d^2 \rangle^{1/2}$	$2.454^{+0.074}_{-0.075}$	$H(0.51)$	$89.9^{+3.2}_{-1.5}$
$\ln(10^{10} A_s)$	$3.050^{+0.044}_{-0.031}$	$z_{re}$	$< 9.56$	$D_M(0.51)$	$1990^{+51}_{-100}$
$n_s$	$0.965^{+0.023}_{-0.017}$	$10^9 A_s$	$2.111^{+0.094}_{-0.064}$	$H(0.61)$	$95.7^{+3.1}_{-1.4}$
$y_{cal}$	$1.0005^{+0.0066}_{-0.0063}$	$10^9 A_s e^{-2\tau}$	$1.895^{+0.040}_{-0.034}$	$D_M(0.61)$	$2313^{+54}_{-110}$
$A_{217}^{CIB}$	$49^{+20}_{-20}$	$D_{40}$	$1229^{+38}_{-41}$	$H(2.33)$	$239.7^{+7.1}_{-4.9}$
$\xi^{tSZ \times CIB}$	—	$D_{220}$	$5714^{+110}_{-100}$	$D_M(2.33)$	$5734^{+76}_{-170}$
$A_{143}^{tSZ}$	—	$D_{810}$	$2539^{+35}_{-35}$	$f\sigma_8(0.15)$	$0.452^{+0.026}_{-0.037}$
$A_{100}^{PS}$	$268^{+70}_{-70}$	$D_{1420}$	$813^{+14}_{-13}$	$\sigma_8(0.15)$	$0.720^{+0.048}_{-0.075}$
$A_{143}^{PS}$	$52^{+20}_{-20}$	$D_{2000}$	$228.3^{+5.2}_{-5.1}$	$f\sigma_8(0.38)$	$0.466^{+0.025}_{-0.040}$
$A_{143 \times 217}^{PS}$	$45^{+20}_{-20}$	$n_{s,0.002}$	$0.965^{+0.023}_{-0.017}$	$\sigma_8(0.38)$	$0.637^{+0.045}_{-0.069}$
$A_{217}^{PS}$	$116^{+30}_{-30}$	$Y_P$	$0.2475^{+0.0054}_{-0.0025}$	$f\sigma_8(0.51)$	$0.462^{+0.026}_{-0.041}$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.2488^{+0.0055}_{-0.0025}$	$\sigma_8(0.51)$	$0.595^{+0.043}_{-0.065}$
$A_{100}^{dustTT}$	$9.0^{+4.7}_{-4.9}$	$10^5 D/H$	$2.67^{+0.15}_{-0.12}$	$f\sigma_8(0.61)$	$0.456^{+0.026}_{-0.042}$
$A_{143}^{dustTT}$	$10.8^{+4.6}_{-4.8}$	$Age/Gyr$	$13.72^{+0.18}_{-0.40}$	$\sigma_8(0.61)$	$0.566^{+0.042}_{-0.062}$
$A_{143 \times 217}^{dustTT}$	$18.4^{+8.4}_{-8.3}$	$z_*$	$1090.6^{+1.3}_{-1.1}$	$f\sigma_8(2.33)$	$0.285^{+0.022}_{-0.032}$
$A_{217}^{dustTT}$	$93^{+20}_{-20}$	$r_*$	$142.9^{+2.4}_{-3.8}$	$\sigma_8(2.33)$	$0.293^{+0.024}_{-0.034}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0407^{+0.0013}_{-0.0014}$	$f_{2000}^{143}$	$33^{+8}_{-8}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/Gpc$	$13.73^{+0.22}_{-0.36}$	$f_{2000}^{143 \times 217}$	$35^{+6}_{-6}$
$H_0$	$66.9^{+4.4}_{-2.6}$	$z_{drag}$	$1060.0^{+1.9}_{-1.4}$	$f_{2000}^{217}$	$109.4^{+5.6}_{-5.1}$
$\Omega_\Lambda$	$0.670^{+0.037}_{-0.048}$	$r_{drag}$	$145.5^{+2.4}_{-3.9}$	$\chi_{lensing}^2$	$9.25 (\nu: 0.4)$
$\Omega_m$	$0.330^{+0.048}_{-0.037}$	$k_D$	$0.1419^{+0.0033}_{-0.0020}$	$\chi_{small}^2$	$501 (\nu: 14225.2)$
$\Omega_m h^2$	$0.147^{+0.011}_{-0.0065}$	$100\theta_D$	$0.1613^{+0.0012}_{-0.00082}$	$\chi_{lowl}^2$	$23.5 (\nu: 0.8)$
$\Omega_\nu h^2$	$0.0036^{+0.0097}_{-0.0032}$	$z_{eq}$	$3360^{+110}_{-260}$	$\chi_{plik}^2$	$669 (\nu: 14236.6)$
$\Omega_m h^3$	$0.0986^{+0.0081}_{-0.0037}$	$k_{eq}$	$0.01040^{+0.00040}_{-0.00070}$	$\chi_{prior}^2$	$7.3 (\nu: 6.8)$
$\sigma_8$	$0.781^{+0.049}_{-0.080}$	$100\theta_{eq}$	$0.822^{+0.059}_{-0.021}$	$\chi_{CMB}^2$	$1203.4 (\nu: 17.1)$
$\bar{\chi}_{eff}^2 = 1210.72; R - 1 = 0.02178$					



## 8.5 base\_nnu\_meffsterile\_plikHM\_TTTEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022445	$0.02243^{+0.00047}_{-0.00039}$ (+0.9 $\sigma$ )	$\Omega_m h^2$	0.1434	$0.1459^{+0.0085}_{-0.0050}$ (−0.4 $\sigma$ )	$k_{\text{eq}}$	0.010384	$0.01035^{+0.00033}_{-0.00065}$ (−0.2 $\sigma$ )
$\Omega_c h^2$	0.1203	$0.1199^{+0.0066}_{-0.012}$ (−0.4 $\sigma$ )	$\Omega_\nu h^2$	0.0006	$0.0035^{+0.0091}_{-0.0031}$ (−0.1 $\sigma$ )	$100\theta_{\text{eq}}$	0.8150	$0.824^{+0.050}_{-0.024}$ (+0.0 $\sigma$ )
$100\theta_{\text{MC}}$	1.04088	$1.04074^{+0.00080}_{-0.00088}$ (+0.4 $\sigma$ )	$\Omega_m h^3$	0.09713	$0.0979^{+0.0050}_{-0.0023}$ (−0.3 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4502	$0.455^{+0.026}_{-0.012}$ (+0.0 $\sigma$ )
$\tau$	0.0602	$0.055^{+0.022}_{-0.021}$ (+0.3 $\sigma$ )	$\sigma_8$	0.817	$0.783^{+0.047}_{-0.088}$ (+0.1 $\sigma$ )	$H(0.15)$	73.05	$72.6^{+2.5}_{-1.6}$ (+0.1 $\sigma$ )
$m_{\nu, \text{sterile}}^{\text{eff}}$ [eV]	0.00	< 1.12 (−0.1 $\sigma$ )	$S_8$	0.834	$0.813^{+0.052}_{-0.077}$ (−0.1 $\sigma$ )	$D_{\text{M}}(0.15)$	639.9	$645^{+17}_{-23}$ (−0.1 $\sigma$ )
$N_{\text{eff}}$	3.084	< 3.41 (−0.5 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4569	$0.445^{+0.029}_{-0.042}$ (−0.1 $\sigma$ )	$H(0.38)$	83.21	$83.0^{+2.2}_{-1.1}$ (−0.0 $\sigma$ )
$\ln(10^{10} A_{\text{s}})$	3.0581	$3.049^{+0.045}_{-0.043}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6111	$0.590^{+0.035}_{-0.061}$ (−0.0 $\sigma$ )	$D_{\text{M}}(0.38)$	1525.9	$1535^{+33}_{-49}$ (−0.1 $\sigma$ )
$n_{\text{s}}$	0.9687	$0.966^{+0.016}_{-0.013}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.993	$0.955^{+0.054}_{-0.10}$ (+0.1 $\sigma$ )	$H(0.51)$	89.97	$89.9^{+2.2}_{-0.92}$ (−0.1 $\sigma$ )
$y_{\text{cal}}$	1.0010	$1.0008^{+0.0065}_{-0.0064}$ (+0.1 $\sigma$ )	$r_{\text{drag}} h$	99.40	$98.0^{+3.4}_{-4.2}$ (+0.3 $\sigma$ )	$D_{\text{M}}(0.51)$	1976.5	$1987^{+38}_{-59}$ (−0.0 $\sigma$ )
$A_{217}^{\text{CIB}}$	45.5	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.451	$2.448^{+0.074}_{-0.075}$ (+0.0 $\sigma$ )	$H(0.61)$	95.61	$95.6^{+1.9}_{-0.93}$ (−0.2 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.74	—	$z_{\text{re}}$	8.27	$7.7^{+2.1}_{-2.3}$ (+0.2 $\sigma$ )	$D_{\text{M}}(0.61)$	2300	$2310^{+40}_{-67}$ (−0.0 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.03	$5.3^{+4.4}_{-4.8}$ (+0.3 $\sigma$ )	$10^9 A_{\text{s}}$	2.129	$2.110^{+0.096}_{-0.090}$ (+0.1 $\sigma$ )	$H(2.33)$	236.96	$238.7^{+5.9}_{-3.4}$ (−0.4 $\sigma$ )
$A_{100}^{\text{PS}}$	247	$261^{+70}_{-70}$ (−0.3 $\sigma$ )	$10^9 A_{\text{s}} e^{-2\tau}$	1.8872	$1.891^{+0.032}_{-0.032}$ (−0.2 $\sigma$ )	$D_{\text{M}}(2.33)$	5745	$5740^{+50}_{-100}$ (+0.2 $\sigma$ )
$A_{143}^{\text{PS}}$	51.8	$48^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{40}$	1227.2	$1230^{+35}_{-36}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4615	$0.449^{+0.028}_{-0.043}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	55.4	$43^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5735	$5733^{+100}_{-100}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.755	$0.722^{+0.044}_{-0.083}$ (+0.1 $\sigma$ )
$A_{217}^{\text{PS}}$	122.9	$116^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{810}$	2544.6	$2542^{+35}_{-35}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4797	$0.464^{+0.027}_{-0.047}$ (−0.0 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	819.3	$817^{+12}_{-12}$ (+0.7 $\sigma$ )	$\sigma_8(0.38)$	0.669	$0.639^{+0.041}_{-0.076}$ (+0.1 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.81	$9.0^{+4.7}_{-4.6}$ (−0.0 $\sigma$ )	$D_{2000}$	231.71	$230.0^{+4.2}_{-4.3}$ (+0.9 $\sigma$ )	$f\sigma_8(0.51)$	0.4782	$0.461^{+0.026}_{-0.048}$ (+0.0 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.02	$11.0^{+4.5}_{-4.6}$ (+0.1 $\sigma$ )	$n_{\text{s}, 0.002}$	0.9687	$0.966^{+0.016}_{-0.013}$ (−0.0 $\sigma$ )	$\sigma_8(0.51)$	0.626	$0.598^{+0.039}_{-0.071}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.3	$18.8^{+8.3}_{-8.4}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.24593	$0.2468^{+0.0035}_{-0.0016}$ (−0.4 $\sigma$ )	$f\sigma_8(0.61)$	0.4731	$0.456^{+0.026}_{-0.048}$ (+0.0 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.7	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.24726	$0.2481^{+0.0035}_{-0.0016}$ (−0.4 $\sigma$ )	$\sigma_8(0.61)$	0.596	$0.568^{+0.038}_{-0.068}$ (+0.1 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.10}_{-0.094}$	$10^5 \text{D/H}$	2.585	$2.612^{+0.093}_{-0.077}$ (−1.2 $\sigma$ )	$f\sigma_8(2.33)$	0.3004	$0.286^{+0.019}_{-0.035}$ (+0.1 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.134^{+0.074}_{-0.078}$	Age/Gyr	13.753	$13.74^{+0.12}_{-0.25}$ (+0.2 $\sigma$ )	$\sigma_8(2.33)$	0.3097	$0.295^{+0.021}_{-0.036}$ (+0.1 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.480	$0.48^{+0.22}_{-0.21}$	$z_*$	1089.89	$1090.16^{+0.90}_{-0.76}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	28.5	$31^{+7}_{-7}$ (−0.7 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.225	$0.22^{+0.14}_{-0.14}$	$r_*$	144.11	$143.3^{+1.6}_{-2.6}$ (+0.4 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.9	$33^{+5}_{-5}$ (−0.8 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.665	$0.67^{+0.21}_{-0.21}$	$100\theta_*$	1.04103	$1.04087^{+0.00083}_{-0.00095}$ (+0.4 $\sigma$ )	$f_{2000}^{217}$	106.43	$108.0^{+4.9}_{-4.8}$ (−0.7 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.08	$2.09^{+0.70}_{-0.69}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.843	$13.77^{+0.15}_{-0.24}$ (+0.4 $\sigma$ )	$\chi_{\text{small}}^2$	397.59	$397.2 (\nu: 2.0)$ (+0.1 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1060.16	$1060.3^{+1.4}_{-0.97}$ (+0.5 $\sigma$ )	$\chi_{\text{lowl}}^2$	23.02	$23.4 (\nu: 0.6)$ (−0.0 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	146.74	$146.0^{+1.7}_{-2.7}$ (+0.4 $\sigma$ )	$\chi_{\text{plik}}^2$	2344.4	$2362.4 (\nu: 19.5)$ (+269.3 $\sigma$ )
$H_0$	67.74	$67.1^{+2.6}_{-2.0}$ (+0.1 $\sigma$ )	$k_{\text{D}}$	0.14115	$0.1418^{+0.0025}_{-0.0014}$ (−0.1 $\sigma$ )	$\chi_{\text{prior}}^2$	1.6	$11.7 (\nu: 11.0)$ (+1.2 $\sigma$ )
$\Omega_{\Lambda}$	0.6875	$0.676^{+0.026}_{-0.037}$ (+0.3 $\sigma$ )	$100\theta_{\text{D}}$	0.16078	$0.16090^{+0.00068}_{-0.00051}$ (−1.1 $\sigma$ )	$\chi_{\text{CMB}}^2$	2765.0	$2783.1 (\nu: 19.7)$ (+267.7 $\sigma$ )
$\Omega_{\text{m}}$	0.3125	$0.324^{+0.037}_{-0.026}$ (−0.3 $\sigma$ )	$z_{\text{eq}}$	3394	$3355^{+110}_{-260}$ (−0.0 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 2766.68$ ;  $\Delta\chi_{\text{eff}}^2 = 1587.02$ ;  $\bar{\chi}_{\text{eff}}^2 = 2794.77$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1592.41$ ;  $R - 1 = 0.01444$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 397.59 ( $\Delta$  1.65) commander\_dx12\_v3.2.29: 23.02 ( $\Delta$  -0.56) plik\_rd12\_HM\_v22b\_TTTEE: 2344.43



## 8.6 base\_nnu\_meffsterile\_plikHM\_TTTEE\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022389	$0.02242^{+0.00049}_{-0.00038}$ (+1.0 $\sigma$ )	$\Omega_m h^2$	0.1429	$0.1459^{+0.0076}_{-0.0049}$ (−0.5 $\sigma$ )	$k_{\text{eq}}$	0.009249	$0.01035^{+0.00030}_{-0.00056}$ (−0.3 $\sigma$ )
$\Omega_c h^2$	0.0995	$0.1200^{+0.0062}_{-0.010}$ (−0.4 $\sigma$ )	$\Omega_\nu h^2$	0.0210	$0.0034^{+0.0076}_{-0.0031}$ (−0.1 $\sigma$ )	$100\theta_{\text{eq}}$	0.9283	$0.823^{+0.051}_{-0.019}$ (+0.1 $\sigma$ )
$100\theta_{\text{MC}}$	1.04094	$1.04074^{+0.00080}_{-0.00093}$ (+0.4 $\sigma$ )	$\Omega_m h^3$	0.09635	$0.0979^{+0.0047}_{-0.0022}$ (−0.3 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.5095	$0.454^{+0.027}_{-0.0097}$ (+0.1 $\sigma$ )
$\tau$	0.0543	$0.055^{+0.022}_{-0.019}$ (+0.3 $\sigma$ )	$\sigma_8$	0.806	$0.784^{+0.042}_{-0.068}$ (+0.1 $\sigma$ )	$H(0.15)$	72.74	$72.6^{+2.4}_{-1.6}$ (+0.2 $\sigma$ )
$m_{\nu, \text{sterile}}^{\text{eff}}$ [eV]	1.915	< 0.936 (−0.1 $\sigma$ )	$S_8$	0.8256	$0.815^{+0.043}_{-0.056}$ (−0.2 $\sigma$ )	$D_{\text{M}}(0.15)$	642.8	$645^{+16}_{-23}$ (−0.2 $\sigma$ )
$N_{\text{eff}}$	3.054	< 3.39 (−0.5 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4522	$0.446^{+0.023}_{-0.031}$ (−0.2 $\sigma$ )	$H(0.38)$	82.91	$82.9^{+2.2}_{-1.0}$ (+0.1 $\sigma$ )
$\ln(10^{10} A_{\text{s}})$	3.0438	$3.050^{+0.044}_{-0.037}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6039	$0.591^{+0.029}_{-0.043}$ (−0.0 $\sigma$ )	$D_{\text{M}}(0.38)$	1532.4	$1536^{+32}_{-49}$ (−0.2 $\sigma$ )
$n_{\text{s}}$	0.9660	$0.965^{+0.016}_{-0.012}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.982	$0.957^{+0.045}_{-0.074}$ (+0.1 $\sigma$ )	$H(0.51)$	89.66	$89.8^{+1.8}_{-0.94}$ (−0.0 $\sigma$ )
$y_{\text{cal}}$	1.0005	$1.0009^{+0.0064}_{-0.0066}$ (+0.1 $\sigma$ )	$r_{\text{drag}} h$	99.18	$98.0^{+3.5}_{-3.9}$ (+0.4 $\sigma$ )	$D_{\text{M}}(0.51)$	1984.6	$1987^{+36}_{-59}$ (−0.2 $\sigma$ )
$A_{217}^{\text{CIB}}$	47.7	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.444	$2.451^{+0.058}_{-0.058}$ (−0.1 $\sigma$ )	$H(0.61)$	95.30	$95.6^{+1.8}_{-0.85}$ (−0.1 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.33	—	$z_{\text{re}}$	7.68	$7.8^{+2.1}_{-2.0}$ (+0.2 $\sigma$ )	$D_{\text{M}}(0.61)$	2309	$2311^{+38}_{-66}$ (−0.1 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.30	$5.3^{+4.5}_{-4.8}$ (+0.3 $\sigma$ )	$10^9 A_{\text{s}}$	2.098	$2.112^{+0.094}_{-0.077}$ (+0.2 $\sigma$ )	$H(2.33)$	236.50	$238.6^{+5.4}_{-3.3}$ (−0.5 $\sigma$ )
$A_{100}^{\text{PS}}$	251	$262^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_{\text{s}} e^{-2\tau}$	1.8823	$1.891^{+0.031}_{-0.030}$ (−0.3 $\sigma$ )	$D_{\text{M}}(2.33)$	5762	$5742^{+46}_{-100}$ (+0.1 $\sigma$ )
$A_{143}^{\text{PS}}$	45.9	$48^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{40}$	1228.4	$1231^{+33}_{-32}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4565	$0.450^{+0.023}_{-0.031}$ (−0.2 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	44.8	$43^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5730	$5734^{+99}_{-100}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.745	$0.723^{+0.040}_{-0.064}$ (+0.1 $\sigma$ )
$A_{217}^{\text{PS}}$	118.6	$116^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{810}$	2539.8	$2542^{+35}_{-35}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4741	$0.465^{+0.023}_{-0.034}$ (−0.0 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	817.6	$817^{+12}_{-12}$ (+0.6 $\sigma$ )	$\sigma_8(0.38)$	0.6600	$0.640^{+0.037}_{-0.060}$ (+0.2 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.90	$9.0^{+4.6}_{-4.7}$ (−0.0 $\sigma$ )	$D_{2000}$	231.22	$230.1^{+4.2}_{-4.3}$ (+0.9 $\sigma$ )	$f\sigma_8(0.51)$	0.4724	$0.462^{+0.023}_{-0.034}$ (+0.0 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.04	$11.0^{+4.4}_{-4.5}$ (+0.1 $\sigma$ )	$n_{\text{s}, 0.002}$	0.9660	$0.965^{+0.016}_{-0.012}$ (+0.1 $\sigma$ )	$\sigma_8(0.51)$	0.6175	$0.598^{+0.035}_{-0.057}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.7	$18.8^{+8.0}_{-8.2}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.24551	$0.2468^{+0.0036}_{-0.0015}$ (−0.4 $\sigma$ )	$f\sigma_8(0.61)$	0.4672	$0.456^{+0.022}_{-0.035}$ (+0.0 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.0	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.24683	$0.2481^{+0.0036}_{-0.0016}$ (−0.4 $\sigma$ )	$\sigma_8(0.61)$	0.5875	$0.569^{+0.034}_{-0.054}$ (+0.2 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.115^{+0.095}_{-0.094}$	$10^5 \text{D/H}$	2.585	$2.611^{+0.091}_{-0.080}$ (−1.2 $\sigma$ )	$f\sigma_8(2.33)$	0.2961	$0.287^{+0.018}_{-0.028}$ (+0.2 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.134^{+0.074}_{-0.079}$	Age/Gyr	13.794	$13.74^{+0.11}_{-0.24}$ (+0.2 $\sigma$ )	$\sigma_8(2.33)$	0.3052	$0.295^{+0.019}_{-0.030}$ (+0.2 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.89	$1090.16^{+0.87}_{-0.78}$ (−1.1 $\sigma$ )	$f_{2000}^{143}$	28.9	$31^{+7}_{-7}$ (−0.7 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.225	$0.22^{+0.14}_{-0.14}$	$r_*$	144.45	$143.4^{+1.6}_{-2.4}$ (+0.4 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.0	$33^{+5}_{-5}$ (−0.8 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.664	$0.66^{+0.21}_{-0.20}$	$100\theta_*$	1.04111	$1.04087^{+0.00083}_{-0.00098}$ (+0.4 $\sigma$ )	$f_{2000}^{217}$	106.62	$108.0^{+4.9}_{-4.6}$ (−0.7 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.08	$2.08^{+0.71}_{-0.71}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.874	$13.78^{+0.15}_{-0.23}$ (+0.4 $\sigma$ )	$\chi_{\text{lensing}}^2$	8.96	9.03 ( $\nu$ : 0.2) (−0.3 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1059.97	$1060.3^{+1.4}_{-0.95}$ (+0.5 $\sigma$ )	$\chi_{\text{small}}^2$	396	1646 ( $\nu$ : 447059.2) (+6.8 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	147.10	$146.0^{+1.6}_{-2.5}$ (+0.4 $\sigma$ )	$\chi_{\text{lowl}}^2$	23.22	23.5 ( $\nu$ : 0.5) (−0.1 $\sigma$ )
$H_0$	67.42	$67.1^{+2.6}_{-1.9}$ (+0.2 $\sigma$ )	$k_{\text{D}}$	0.14087	$0.1418^{+0.0023}_{-0.0014}$ (−0.1 $\sigma$ )	$\chi_{\text{plik}}^2$	2344	1113 ( $\nu$ : 446893.7) (+2.6 $\sigma$ )
$\Omega_{\Lambda}$	0.6856	$0.676^{+0.028}_{-0.033}$ (+0.4 $\sigma$ )	$100\theta_{\text{D}}$	0.16074	$0.16089^{+0.00070}_{-0.00054}$ (−1.1 $\sigma$ )	$\chi_{\text{prior}}^2$	1.8	11.6 ( $\nu$ : 10.9) (+1.2 $\sigma$ )
$\Omega_{\text{m}}$	0.3144	$0.324^{+0.033}_{-0.028}$ (−0.4 $\sigma$ )	$z_{\text{eq}}$	2910	$3359^{+95}_{-230}$ (−0.0 $\sigma$ )	$\chi_{\text{CMB}}^2$	2772.3	2791.6 ( $\nu$ : 19.6) (+269.6 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 2774.15$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.64$ ;  $\bar{\chi}_{\text{eff}}^2 = 2803.21$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1592.26$ ;  $R - 1 = 0.04894$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12.Dec5.ftl.mv2.ndclpp-p.teb.consext8: 8.96 ( $\Delta$  0.07) simall\_100x143\_offlike5.EE\_Aplanck.B: 396.02 ( $\Delta$  -0.02) commander.dx12.v3.2.29: 23.22 ( $\Delta$  -0.07) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.13



## 8.7 base\_nnu\_meffsterile\_plikHM\_TTTEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02243^{+0.00048}_{-0.00038} \quad (+0.8\sigma)$	$\Omega_{\text{m}}h^2$	$0.1459^{+0.0086}_{-0.0049} \quad (-0.4\sigma)$	$k_{\text{eq}}$	$0.01035^{+0.00033}_{-0.00067} \quad (-0.2\sigma)$
$\Omega_{\text{c}}h^2$	$0.1200^{+0.0066}_{-0.012} \quad (-0.4\sigma)$	$\Omega_{\nu}h^2$	$0.0035^{+0.0091}_{-0.0030} \quad (-0.1\sigma)$	$100\theta_{\text{eq}}$	$0.824^{+0.050}_{-0.024} \quad (+0.0\sigma)$
$100\theta_{\text{MC}}$	$1.04074^{+0.00081}_{-0.00088} \quad (+0.4\sigma)$	$\Omega_{\text{m}}h^3$	$0.0980^{+0.0050}_{-0.0023} \quad (-0.3\sigma)$	$100\theta_{\text{s,eq}}$	$0.455^{+0.026}_{-0.012} \quad (+0.0\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8$	$0.784^{+0.046}_{-0.090} \quad (+0.1\sigma)$	$H(0.15)$	$72.6^{+2.5}_{-1.6} \quad (+0.0\sigma)$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 1.12 \quad (-0.1\sigma)$	$S_8$	$0.814^{+0.052}_{-0.078} \quad (-0.1\sigma)$	$D_{\text{M}}(0.15)$	$645^{+17}_{-23} \quad (-0.1\sigma)$
$N_{\text{eff}}$	$< 3.41 \quad (-0.5\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.446^{+0.028}_{-0.043} \quad (-0.1\sigma)$	$H(0.38)$	$83.0^{+2.3}_{-1.1} \quad (-0.1\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.051^{+0.043}_{-0.032} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.591^{+0.034}_{-0.061} \quad (-0.0\sigma)$	$D_{\text{M}}(0.38)$	$1535^{+33}_{-49} \quad (-0.0\sigma)$
$n_{\text{s}}$	$0.966^{+0.016}_{-0.013} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.956^{+0.054}_{-0.10} \quad (+0.1\sigma)$	$H(0.51)$	$89.9^{+2.2}_{-0.93} \quad (-0.1\sigma)$
$y_{\text{cal}}$	$1.0008^{+0.0065}_{-0.0064} \quad (+0.1\sigma)$	$r_{\text{drag}}h$	$98.0^{+3.3}_{-4.2} \quad (+0.2\sigma)$	$D_{\text{M}}(0.51)$	$1986^{+37}_{-60} \quad (-0.0\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.450^{+0.072}_{-0.069} \quad (+0.0\sigma)$	$H(0.61)$	$95.6^{+1.9}_{-0.93} \quad (-0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 9.64 \quad (+0.1\sigma)$	$D_{\text{M}}(0.61)$	$2310^{+40}_{-67} \quad (+0.0\sigma)$
$A_{143}^{\text{tSZ}}$	$5.3^{+4.4}_{-4.8} \quad (+0.3\sigma)$	$10^9 A_{\text{s}}$	$2.113^{+0.093}_{-0.066} \quad (+0.1\sigma)$	$H(2.33)$	$238.7^{+6.0}_{-3.4} \quad (-0.4\sigma)$
$A_{100}^{\text{PS}}$	$261^{+70}_{-70} \quad (-0.3\sigma)$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.891^{+0.033}_{-0.032} \quad (-0.2\sigma)$	$D_{\text{M}}(2.33)$	$5740^{+50}_{-110} \quad (+0.2\sigma)$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20} \quad (-0.5\sigma)$	$D_{40}$	$1230^{+35}_{-36} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.449^{+0.028}_{-0.044} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5732^{+100}_{-100} \quad (+0.5\sigma)$	$\sigma_8(0.15)$	$0.723^{+0.044}_{-0.084} \quad (+0.1\sigma)$
$A_{217}^{\text{PS}}$	$116^{+30}_{-30} \quad (+0.0\sigma)$	$D_{810}$	$2542^{+35}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.464^{+0.027}_{-0.048} \quad (-0.0\sigma)$
$A^{\text{kSZ}}$	—	$D_{1420}$	$817^{+12}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	$0.640^{+0.040}_{-0.076} \quad (+0.1\sigma)$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$D_{2000}$	$230.0^{+4.2}_{-4.3} \quad (+0.9\sigma)$	$f\sigma_8(0.51)$	$0.462^{+0.026}_{-0.048} \quad (-0.0\sigma)$
$A_{143}^{\text{dustTT}}$	$11.0^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$n_{\text{s}, 0.002}$	$0.966^{+0.016}_{-0.013} \quad (-0.0\sigma)$	$\sigma_8(0.51)$	$0.598^{+0.038}_{-0.072} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.7^{+8.4}_{-8.4} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.2468^{+0.0035}_{-0.0016} \quad (-0.5\sigma)$	$f\sigma_8(0.61)$	$0.456^{+0.026}_{-0.049} \quad (+0.0\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.2482^{+0.0035}_{-0.0016} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.569^{+0.037}_{-0.069} \quad (+0.1\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.094}$	$10^5 \text{D/H}$	$2.611^{+0.093}_{-0.077} \quad (-1.2\sigma)$	$f\sigma_8(2.33)$	$0.287^{+0.019}_{-0.035} \quad (+0.1\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.074}_{-0.078}$	$\text{Age/Gyr}$	$13.74^{+0.12}_{-0.25} \quad (+0.2\sigma)$	$\sigma_8(2.33)$	$0.295^{+0.020}_{-0.037} \quad (+0.1\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$z_*$	$1090.16^{+0.90}_{-0.76} \quad (-1.0\sigma)$	$f_{2000}^{143}$	$31^{+7}_{-7} \quad (-0.7\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$r_*$	$143.3^{+1.6}_{-2.6} \quad (+0.4\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.8\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.67^{+0.20}_{-0.21}$	$100\theta_*$	$1.04087^{+0.00083}_{-0.00095} \quad (+0.4\sigma)$	$f_{2000}^{217}$	$107.9^{+4.9}_{-4.8} \quad (-0.7\sigma)$
$A_{217}^{\text{dustTE}}$	$2.09^{+0.70}_{-0.69}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.77^{+0.15}_{-0.25} \quad (+0.4\sigma)$	$\chi_{\text{simall}}^2$	$397.2 \quad (\nu: 2.0) \quad (+0.2\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1060.3^{+1.4}_{-0.94} \quad (+0.4\sigma)$	$\chi_{\text{lowl}}^2$	$23.4 \quad (\nu: 0.6) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\text{drag}}$	$146.0^{+1.7}_{-2.7} \quad (+0.4\sigma)$	$\chi_{\text{plik}}^2$	$2362.2 \quad (\nu: 19.3) \quad (+269.5\sigma)$
$H_0$	$67.2^{+2.6}_{-2.0} \quad (+0.1\sigma)$	$k_{\text{D}}$	$0.1418^{+0.0025}_{-0.0014} \quad (-0.1\sigma)$	$\chi_{\text{prior}}^2$	$11.7 \quad (\nu: 11.0) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.676^{+0.026}_{-0.037} \quad (+0.3\sigma)$	$100\theta_{\text{D}}$	$0.16089^{+0.00068}_{-0.00051} \quad (-1.1\sigma)$	$\chi_{\text{CMB}}^2$	$2782.9 \quad (\nu: 19.3) \quad (+270.3\sigma)$
$\Omega_{\text{m}}$	$0.324^{+0.037}_{-0.026} \quad (-0.3\sigma)$	$z_{\text{eq}}$	$3355^{+110}_{-270} \quad (+0.0\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2794.57; \Delta\bar{\chi}_{\text{eff}}^2 = 1592.45; R - 1 = 0.01250$$



## 8.8 base\_nnu\_meffsterile\_plikHM\_TTTEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02243^{+0.00050}_{-0.00038} \quad (+0.9\sigma)$	$\Omega_{\text{m}}h^2$	$0.1458^{+0.0076}_{-0.0049} \quad (-0.4\sigma)$	$k_{\text{eq}}$	$0.01035^{+0.00030}_{-0.00057} \quad (-0.3\sigma)$
$\Omega_{\text{c}}h^2$	$0.1200^{+0.0062}_{-0.010} \quad (-0.4\sigma)$	$\Omega_{\nu}h^2$	$0.0034^{+0.0076}_{-0.0031} \quad (-0.1\sigma)$	$100\theta_{\text{eq}}$	$0.823^{+0.051}_{-0.019} \quad (+0.1\sigma)$
$100\theta_{\text{MC}}$	$1.04075^{+0.00080}_{-0.00092} \quad (+0.4\sigma)$	$\Omega_{\text{m}}h^3$	$0.0979^{+0.0047}_{-0.0022} \quad (-0.3\sigma)$	$100\theta_{\text{s,eq}}$	$0.455^{+0.027}_{-0.0096} \quad (+0.0\sigma)$
$\tau$	$0.056^{+0.020}_{-0.015} \quad (+0.3\sigma)$	$\sigma_8$	$0.784^{+0.042}_{-0.068} \quad (+0.1\sigma)$	$H(0.15)$	$72.6^{+2.5}_{-1.6} \quad (+0.1\sigma)$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 0.948 \quad (-0.1\sigma)$	$S_8$	$0.815^{+0.043}_{-0.056} \quad (-0.2\sigma)$	$D_{\text{M}}(0.15)$	$645^{+16}_{-23} \quad (-0.2\sigma)$
$N_{\text{eff}}$	$< 3.40 \quad (-0.5\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.446^{+0.023}_{-0.031} \quad (-0.2\sigma)$	$H(0.38)$	$83.0^{+2.2}_{-1.0} \quad (+0.0\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.051^{+0.043}_{-0.030} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.592^{+0.029}_{-0.043} \quad (-0.0\sigma)$	$D_{\text{M}}(0.38)$	$1535^{+32}_{-50} \quad (-0.1\sigma)$
$n_{\text{s}}$	$0.965^{+0.016}_{-0.013} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.957^{+0.045}_{-0.075} \quad (+0.1\sigma)$	$H(0.51)$	$89.8^{+1.8}_{-0.94} \quad (-0.0\sigma)$
$y_{\text{cal}}$	$1.0009^{+0.0065}_{-0.0066} \quad (+0.1\sigma)$	$r_{\text{drag}}h$	$98.0^{+3.5}_{-3.9} \quad (+0.3\sigma)$	$D_{\text{M}}(0.51)$	$1987^{+37}_{-61} \quad (-0.1\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.451^{+0.057}_{-0.056} \quad (-0.1\sigma)$	$H(0.61)$	$95.6^{+2.3}_{-0.77} \quad (-0.1\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 9.68 \quad (+0.2\sigma)$	$D_{\text{M}}(0.61)$	$2311^{+38}_{-67} \quad (-0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$5.3^{+4.4}_{-4.8} \quad (+0.3\sigma)$	$10^9 A_{\text{s}}$	$2.115^{+0.092}_{-0.062} \quad (+0.1\sigma)$	$H(2.33)$	$238.6^{+5.4}_{-3.3} \quad (-0.4\sigma)$
$A_{100}^{\text{PS}}$	$262^{+70}_{-70} \quad (-0.2\sigma)$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.891^{+0.031}_{-0.030} \quad (-0.3\sigma)$	$D_{\text{M}}(2.33)$	$5741^{+47}_{-100} \quad (+0.2\sigma)$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20} \quad (-0.5\sigma)$	$D_{40}$	$1231^{+33}_{-31} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.450^{+0.023}_{-0.031} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5734^{+100}_{-100} \quad (+0.5\sigma)$	$\sigma_8(0.15)$	$0.724^{+0.040}_{-0.065} \quad (+0.1\sigma)$
$A_{217}^{\text{PS}}$	$116^{+30}_{-30} \quad (-0.0\sigma)$	$D_{810}$	$2542^{+35}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.465^{+0.023}_{-0.034} \quad (-0.0\sigma)$
$A^{\text{kSZ}}$	—	$D_{1420}$	$817^{+12}_{-13} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	$0.640^{+0.037}_{-0.060} \quad (+0.1\sigma)$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.6}_{-4.8} \quad (+0.0\sigma)$	$D_{2000}$	$230.1^{+4.2}_{-4.3} \quad (+0.9\sigma)$	$f\sigma_8(0.51)$	$0.462^{+0.023}_{-0.034} \quad (+0.0\sigma)$
$A_{143}^{\text{dustTT}}$	$11.0^{+4.5}_{-4.5} \quad (+0.1\sigma)$	$n_{\text{s}, 0.002}$	$0.965^{+0.016}_{-0.013} \quad (+0.0\sigma)$	$\sigma_8(0.51)$	$0.599^{+0.036}_{-0.057} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.8^{+8.1}_{-8.2} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.2468^{+0.0036}_{-0.0016} \quad (-0.4\sigma)$	$f\sigma_8(0.61)$	$0.457^{+0.023}_{-0.035} \quad (+0.0\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.2481^{+0.0036}_{-0.0016} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.569^{+0.034}_{-0.055} \quad (+0.2\sigma)$
$A_{100}^{\text{dustTE}}$	$0.115^{+0.093}_{-0.093}$	$10^5 \text{D/H}$	$2.611^{+0.091}_{-0.081} \quad (-1.2\sigma)$	$f\sigma_8(2.33)$	$0.287^{+0.018}_{-0.028} \quad (+0.2\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.075}_{-0.079}$	$\text{Age/Gyr}$	$13.74^{+0.11}_{-0.24} \quad (+0.2\sigma)$	$\sigma_8(2.33)$	$0.295^{+0.019}_{-0.030} \quad (+0.2\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1090.16^{+0.87}_{-0.79} \quad (-1.0\sigma)$	$f_{2000}^{143}$	$31^{+7}_{-7} \quad (-0.7\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$r_*$	$143.4^{+1.6}_{-2.5} \quad (+0.4\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.8\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.20}$	$100\theta_*$	$1.04088^{+0.00083}_{-0.00098} \quad (+0.4\sigma)$	$f_{2000}^{217}$	$108.0^{+4.9}_{-4.6} \quad (-0.7\sigma)$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.71}_{-0.71}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.77^{+0.15}_{-0.23} \quad (+0.4\sigma)$	$\chi_{\text{lensing}}^2$	$9.01 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1060.3^{+1.4}_{-0.96} \quad (+0.5\sigma)$	$\chi_{\text{simall}}^2$	$1645 \quad (\nu: 447270.5) \quad (+6.8\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\text{drag}}$	$146.0^{+1.6}_{-2.5} \quad (+0.3\sigma)$	$\chi_{\text{lowl}}^2$	$23.5 \quad (\nu: 0.5) \quad (-0.0\sigma)$
$H_0$	$67.1^{+2.7}_{-1.9} \quad (+0.2\sigma)$	$k_{\text{D}}$	$0.1418^{+0.0023}_{-0.0014} \quad (-0.1\sigma)$	$\chi_{\text{plik}}^2$	$1114 \quad (\nu: 447092.4) \quad (+2.6\sigma)$
$\Omega_{\Lambda}$	$0.676^{+0.028}_{-0.034} \quad (+0.4\sigma)$	$100\theta_{\text{D}}$	$0.16089^{+0.00070}_{-0.00054} \quad (-1.1\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 11.0) \quad (+1.2\sigma)$
$\Omega_{\text{m}}$	$0.324^{+0.034}_{-0.028} \quad (-0.4\sigma)$	$z_{\text{eq}}$	$3358^{+94}_{-230} \quad (-0.0\sigma)$	$\chi_{\text{CMB}}^2$	$2791.5 \quad (\nu: 19.4) \quad (+271.9\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 2803.10; \Delta\bar{\chi}_{\text{eff}}^2 = 1592.38; R - 1 = 0.04623$$



## 8.9 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022298	$0.02237^{+0.00046}_{-0.00045}$	$\Omega_m h^3$	0.09691	$0.0981^{+0.0064}_{-0.0027}$	$100\theta_{\text{eq}}$	0.8160	$0.827^{+0.059}_{-0.021}$
$\Omega_c h^2$	0.1202	$0.1198^{+0.0078}_{-0.012}$	$\sigma_8$	0.811	$0.778^{+0.050}_{-0.086}$	$100\theta_{\text{s,eq}}$	0.4508	$0.456^{+0.031}_{-0.011}$
$100\theta_{\text{MC}}$	1.04084	$1.04068^{+0.00088}_{-0.0010}$	$S_8$	0.828	$0.805^{+0.053}_{-0.076}$	$H(0.15)$	73.00	$72.8^{+2.8}_{-1.7}$
$\tau$	0.0547	$0.053^{+0.023}_{-0.021}$	$\sigma_8 \Omega_m^{0.5}$	0.4536	$0.441^{+0.029}_{-0.042}$	$D_{\text{M}}(0.15)$	640.4	$643^{+18}_{-26}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	0.00	$< 1.04$	$\sigma_8 \Omega_m^{0.25}$	0.6067	$0.586^{+0.035}_{-0.056}$	$H(0.38)$	83.15	$83.1^{+2.7}_{-1.3}$
$N_{\text{eff}}$	3.089	$< 3.50$	$\sigma_8/h^{0.5}$	0.986	$0.948^{+0.054}_{-0.098}$	$D_{\text{M}}(0.38)$	1527.0	$1531^{+35}_{-55}$
$\ln(10^{10} A_{\text{s}})$	3.0445	$3.043^{+0.050}_{-0.045}$	$r_{\text{drag}} h$	99.44	$98.3^{+3.5}_{-4.4}$	$H(0.51)$	89.90	$90.0^{+2.6}_{-1.1}$
$n_{\text{s}}$	0.9671	$0.967^{+0.018}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	2.437	$2.430^{+0.076}_{-0.074}$	$D_{\text{M}}(0.51)$	1978	$1982^{+41}_{-69}$
$y_{\text{cal}}$	1.0006	$1.0005^{+0.0065}_{-0.0067}$	$z_{\text{re}}$	7.75	$7.6^{+2.3}_{-2.3}$	$H(0.61)$	95.54	$95.7^{+2.3}_{-1.1}$
$A_{100}^{\text{PS}}$	239	$244^{+60}_{-60}$	$10^9 A_{\text{s}}$	2.100	$2.10^{+0.11}_{-0.093}$	$D_{\text{M}}(0.61)$	2302	$2305^{+44}_{-77}$
$A_{143}^{\text{PS}}$	44.7	$42^{+20}_{-20}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8822	$1.886^{+0.038}_{-0.034}$	$H(2.33)$	236.8	$238.6^{+6.1}_{-4.0}$
$A_{217}^{\text{PS}}$	102.0	$101^{+30}_{-30}$	$D_{40}$	1225.7	$1222^{+37}_{-39}$	$D_{\text{M}}(2.33)$	5749	$5734^{+58}_{-130}$
$A_{217}^{\text{CIB}}$	42.1	$41^{+20}_{-20}$	$D_{220}$	5719	$5717^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4581	$0.445^{+0.028}_{-0.042}$
$A_{143}^{\text{tSZ}}$	4.79	$< 8.82$	$D_{810}$	2536.7	$2536^{+37}_{-36}$	$\sigma_8(0.15)$	0.750	$0.718^{+0.047}_{-0.081}$
$r_{143 \times 217}^{\text{PS}}$	0.682	$0.65^{+0.31}_{-0.31}$	$D_{1420}$	815.3	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4762	$0.460^{+0.028}_{-0.044}$
$r_{143 \times 217}^{\text{CIB}}$	0.70	—	$D_{2000}$	229.99	$229.0^{+4.6}_{-4.9}$	$\sigma_8(0.38)$	0.664	$0.636^{+0.042}_{-0.074}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.55	—	$n_{\text{s}, 0.002}$	0.9671	$0.967^{+0.018}_{-0.014}$	$f\sigma_8(0.51)$	0.4747	$0.458^{+0.028}_{-0.045}$
$A^{\text{kSZ}}$	3.0	—	$Y_{\text{P}}$	0.24594	$0.2471^{+0.0044}_{-0.0019}$	$\sigma_8(0.51)$	0.622	$0.595^{+0.040}_{-0.070}$
$A_{100}^{\text{dust}}$	1.01	$1.01^{+0.52}_{-0.51}$	$Y_{\text{P}}^{\text{BBN}}$	0.24727	$0.2484^{+0.0044}_{-0.0019}$	$f\sigma_8(0.61)$	0.4697	$0.453^{+0.027}_{-0.045}$
$A_{143}^{\text{dust}}$	0.969	$0.97^{+0.44}_{-0.45}$	$10^5 \text{D}/\text{H}$	2.614	$2.63^{+0.12}_{-0.094}$	$\sigma_8(0.61)$	0.592	$0.566^{+0.038}_{-0.067}$
$A_{217}^{\text{dust}}$	0.966	$0.97^{+0.27}_{-0.27}$	$\text{Age}/\text{Gyr}$	13.763	$13.73^{+0.14}_{-0.30}$	$f\sigma_8(2.33)$	0.2983	$0.285^{+0.020}_{-0.034}$
$A_{143 \times 217}^{\text{dust}}$	1.021	$1.03^{+0.42}_{-0.41}$	$z_*$	1090.07	$1090.2^{+1.0}_{-0.88}$	$\sigma_8(2.33)$	0.3075	$0.293^{+0.022}_{-0.037}$
$c_{100}$	0.99762	$0.9975^{+0.0027}_{-0.0027}$	$r_*$	144.22	$143.3^{+1.9}_{-3.2}$	$f_{2000}^{143}$	30.6	$31^{+8}_{-8}$
$c_{217}$	1.00124	$1.0012^{+0.0040}_{-0.0041}$	$100\theta_*$	1.04101	$1.04080^{+0.00091}_{-0.0011}$	$f_{2000}^{217}$	107.2	$108.0^{+5.5}_{-5.2}$
$c_{TE}$	0.9969	$0.997^{+0.013}_{-0.012}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.853	$13.77^{+0.18}_{-0.30}$	$f_{2000}^{143 \times 217}$	32.8	$34^{+6}_{-6}$
$c_{EE}$	0.9933	$0.993^{+0.014}_{-0.013}$	$z_{\text{drag}}$	1059.82	$1060.2^{+1.5}_{-1.1}$	$\chi_{\text{simall}}^2$	396.18	$397.0 (\nu: 1.6)$
$H_0$	67.69	$67.4^{+3.0}_{-2.1}$	$r_{\text{drag}}$	146.90	$146.0^{+1.9}_{-3.3}$	$\chi_{\text{lowl}}^2$	23.00	$22.9 (\nu: 0.6)$
$\Omega_{\Lambda}$	0.6876	$0.679^{+0.027}_{-0.038}$	$k_{\text{D}}$	0.14085	$0.1416^{+0.0028}_{-0.0016}$	$\chi_{\text{CamSpec}}^2$	11500.0	$11517.5 (\nu: 18.9)$
$\Omega_{\text{m}}$	0.3124	$0.321^{+0.038}_{-0.027}$	$100\theta_{\text{D}}$	0.16101	$0.16107^{+0.00099}_{-0.00064}$	$\chi_{\text{prior}}^2$	2.2	$7.9 (\nu: 6.2)$
$\Omega_{\text{m}} h^2$	0.1432	$0.1457^{+0.0091}_{-0.0054}$	$z_{\text{eq}}$	3386	$3339^{+110}_{-260}$	$\chi_{\text{CMB}}^2$	11919.1	$11937.4 (\nu: 19.1)$
$\Omega_{\nu} h^2$	0.0007	$0.0035^{+0.0083}_{-0.0030}$	$k_{\text{eq}}$	0.01036	$0.01031^{+0.00035}_{-0.00067}$			

Best-fit  $\chi_{\text{eff}}^2 = 11921.37$ ;  $\bar{\chi}_{\text{eff}}^2 = 11945.34$ ;  $R - 1 = 0.02481$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.18 commander\_dx12\_v3.2\_29: 23.00 CamSpec like\_10.7HM\_1400\_unified: 11499.96



## 8.10 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02234^{+0.00045}_{-0.00043}$	$\Omega_{\mathrm{m}}h^3$	$0.0980^{+0.0060}_{-0.0026}$	$100\theta_{\mathrm{eq}}$	$0.824^{+0.051}_{-0.018}$
$\Omega_{\mathrm{c}}h^2$	$0.1201^{+0.0073}_{-0.011}$	$\sigma_8$	$0.783^{+0.042}_{-0.066}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.027}_{-0.0096}$
$100\theta_{\mathrm{MC}}$	$1.04066^{+0.00080}_{-0.00099}$	$S_8$	$0.812^{+0.042}_{-0.058}$	$H(0.15)$	$72.7^{+2.8}_{-1.6}$
$\tau$	$0.054^{+0.022}_{-0.020}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.445^{+0.023}_{-0.032}$	$D_{\mathrm{M}}(0.15)$	$644^{+17}_{-25}$
$m_{\nu,\mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.963$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.590^{+0.028}_{-0.044}$	$H(0.38)$	$83.0^{+2.6}_{-1.1}$
$N_{\mathrm{eff}}$	$< 3.48$	$\sigma_8/h^{0.5}$	$0.955^{+0.044}_{-0.074}$	$D_{\mathrm{M}}(0.38)$	$1534^{+32}_{-55}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.046}_{-0.040}$	$r_{\mathrm{drag}}h$	$98.1^{+3.3}_{-4.0}$	$H(0.51)$	$89.9^{+2.5}_{-0.97}$
$n_{\mathrm{s}}$	$0.966^{+0.018}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.059}_{-0.061}$	$D_{\mathrm{M}}(0.51)$	$1985^{+37}_{-68}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0066}_{-0.0066}$	$z_{\mathrm{re}}$	$7.7^{+2.1}_{-2.1}$	$H(0.61)$	$95.6^{+2.5}_{-1.0}$
$A_{100}^{\mathrm{PS}}$	$244^{+60}_{-60}$	$10^9A_{\mathrm{s}}$	$2.105^{+0.099}_{-0.083}$	$D_{\mathrm{M}}(0.61)$	$2309^{+40}_{-77}$
$A_{143}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.888^{+0.036}_{-0.031}$	$H(2.33)$	$238.6^{+5.7}_{-3.7}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{40}$	$1226^{+34}_{-34}$	$D_{\mathrm{M}}(2.33)$	$5739^{+48}_{-140}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{220}$	$5720^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.449^{+0.022}_{-0.032}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.79$	$D_{810}$	$2538^{+37}_{-36}$	$\sigma_8(0.15)$	$0.723^{+0.041}_{-0.063}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.32}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.464^{+0.022}_{-0.035}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$229.2^{+4.6}_{-4.5}$	$\sigma_8(0.38)$	$0.639^{+0.038}_{-0.057}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.018}_{-0.013}$	$f\sigma_8(0.51)$	$0.461^{+0.022}_{-0.035}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.2470^{+0.0043}_{-0.0018}$	$\sigma_8(0.51)$	$0.598^{+0.036}_{-0.054}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2483^{+0.0043}_{-0.0018}$	$f\sigma_8(0.61)$	$0.456^{+0.022}_{-0.036}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.45}$	$10^5\mathrm{D}/\mathrm{H}$	$2.63^{+0.12}_{-0.088}$	$\sigma_8(0.61)$	$0.569^{+0.035}_{-0.053}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.74^{+0.13}_{-0.31}$	$f\sigma_8(2.33)$	$0.287^{+0.018}_{-0.027}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.40}$	$z_*$	$1090.28^{+0.98}_{-0.78}$	$\sigma_8(2.33)$	$0.295^{+0.019}_{-0.029}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$r_*$	$143.4^{+1.8}_{-3.0}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{217}$	$1.0012^{+0.0041}_{-0.0041}$	$100\theta_*$	$1.04079^{+0.00083}_{-0.0011}$	$f_{2000}^{217}$	$108.0^{+5.4}_{-5.2}$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.77^{+0.16}_{-0.28}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-6}$
$c_{EE}$	$0.993^{+0.014}_{-0.014}$	$z_{\mathrm{drag}}$	$1060.1^{+1.4}_{-1.1}$	$\chi_{\mathrm{lensing}}^2$	$9.25 (\nu: 0.4)$
$H_0$	$67.2^{+2.9}_{-1.9}$	$r_{\mathrm{drag}}$	$146.0^{+1.8}_{-3.1}$	$\chi_{\mathrm{small}}^2$	$397.1 (\nu: 1.8)$
$\Omega_{\Lambda}$	$0.677^{+0.026}_{-0.035}$	$k_{\mathrm{D}}$	$0.1416^{+0.0026}_{-0.0015}$	$\chi_{\mathrm{lowl}}^2$	$23.2 (\nu: 0.5)$
$\Omega_{\mathrm{m}}$	$0.323^{+0.035}_{-0.026}$	$100\theta_{\mathrm{D}}$	$0.16106^{+0.00097}_{-0.00062}$	$\chi_{\mathrm{CamSpec}}^2$	$11516.6 (\nu: 17.1)$
$\Omega_{\mathrm{m}}h^2$	$0.1458^{+0.0084}_{-0.0049}$	$z_{\mathrm{eq}}$	$3351^{+93}_{-230}$	$\chi_{\mathrm{prior}}^2$	$7.9 (\nu: 6.1)$
$\Omega_{\nu}h^2$	$0.0033^{+0.0080}_{-0.0029}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00032}_{-0.00060}$	$\chi_{\mathrm{CMB}}^2$	$11946.1 (\nu: 18.6)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 11954.00; R - 1 = 0.02353$$



# 8.11 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02237^{+0.00046}_{-0.00044}$	$\Omega_{\mathrm{m}}h^3$	$0.0982^{+0.0063}_{-0.0027}$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.060}_{-0.021}$
$\Omega_{\mathrm{c}}h^2$	$0.1198^{+0.0077}_{-0.012}$	$\sigma_8$	$0.779^{+0.049}_{-0.085}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.031}_{-0.011}$
$100\theta_{\mathrm{MC}}$	$1.04068^{+0.00087}_{-0.0010}$	$S_8$	$0.806^{+0.053}_{-0.076}$	$H(0.15)$	$72.8^{+2.8}_{-1.7}$
$\tau$	$0.054^{+0.020}_{-0.013}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.441^{+0.029}_{-0.042}$	$D_{\mathrm{M}}(0.15)$	$643^{+18}_{-26}$
$m_{\nu,\mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 1.04$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.586^{+0.035}_{-0.056}$	$H(0.38)$	$83.2^{+2.7}_{-1.2}$
$N_{\mathrm{eff}}$	$< 3.51$	$\sigma_8/h^{0.5}$	$0.949^{+0.054}_{-0.096}$	$D_{\mathrm{M}}(0.38)$	$1531^{+35}_{-56}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.048}_{-0.031}$	$r_{\mathrm{drag}}h$	$98.4^{+3.5}_{-4.4}$	$H(0.51)$	$90.0^{+2.6}_{-1.0}$
$n_{\mathrm{s}}$	$0.968^{+0.018}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.074}_{-0.072}$	$D_{\mathrm{M}}(0.51)$	$1981^{+41}_{-70}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0067}$	$z_{\mathrm{re}}$	$< 9.62$	$H(0.61)$	$95.7^{+2.3}_{-1.1}$
$A_{100}^{\mathrm{PS}}$	$244^{+60}_{-60}$	$10^9A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.065}$	$D_{\mathrm{M}}(0.61)$	$2304^{+43}_{-78}$
$A_{143}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.886^{+0.038}_{-0.034}$	$H(2.33)$	$238.6^{+6.1}_{-4.1}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{40}$	$1222^{+37}_{-39}$	$D_{\mathrm{M}}(2.33)$	$5733^{+58}_{-130}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{220}$	$5717^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.445^{+0.028}_{-0.042}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.82$	$D_{810}$	$2536^{+37}_{-37}$	$\sigma_8(0.15)$	$0.719^{+0.046}_{-0.081}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.31}$	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.461^{+0.028}_{-0.043}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$229.1^{+4.6}_{-4.8}$	$\sigma_8(0.38)$	$0.637^{+0.042}_{-0.074}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.968^{+0.018}_{-0.014}$	$f\sigma_8(0.51)$	$0.459^{+0.027}_{-0.044}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.2471^{+0.0044}_{-0.0020}$	$\sigma_8(0.51)$	$0.595^{+0.040}_{-0.070}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.52}_{-0.51}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2485^{+0.0044}_{-0.0020}$	$f\sigma_8(0.61)$	$0.453^{+0.027}_{-0.045}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.44}_{-0.45}$	$10^5\mathrm{D}/\mathrm{H}$	$2.63^{+0.12}_{-0.094}$	$\sigma_8(0.61)$	$0.566^{+0.038}_{-0.067}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.72^{+0.14}_{-0.31}$	$f\sigma_8(2.33)$	$0.286^{+0.020}_{-0.034}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$z_*$	$1090.2^{+1.0}_{-0.88}$	$\sigma_8(2.33)$	$0.294^{+0.021}_{-0.037}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$r_*$	$143.3^{+1.9}_{-3.2}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$100\theta_*$	$1.04080^{+0.00089}_{-0.0011}$	$f_{2000}^{217}$	$108.0^{+5.5}_{-5.2}$
$c_{TE}$	$0.997^{+0.013}_{-0.012}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.77^{+0.18}_{-0.30}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-6}$
$c_{EE}$	$0.993^{+0.014}_{-0.013}$	$z_{\mathrm{drag}}$	$1060.2^{+1.5}_{-1.1}$	$\chi_{\mathrm{small}}^2$	$396.9 (\nu: 1.7)$
$H_0$	$67.4^{+3.0}_{-2.1}$	$r_{\mathrm{drag}}$	$146.0^{+2.0}_{-3.3}$	$\chi_{\mathrm{lowl}}^2$	$22.9 (\nu: 0.6)$
$\Omega_{\Lambda}$	$0.679^{+0.027}_{-0.038}$	$k_{\mathrm{D}}$	$0.1416^{+0.0026}_{-0.0018}$	$\chi_{\mathrm{CamSpec}}^2$	$11517.4 (\nu: 18.8)$
$\Omega_{\mathrm{m}}$	$0.321^{+0.038}_{-0.027}$	$100\theta_{\mathrm{D}}$	$0.16107^{+0.00099}_{-0.00064}$	$\chi_{\mathrm{prior}}^2$	$7.9 (\nu: 6.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1457^{+0.0091}_{-0.0054}$	$z_{\mathrm{eq}}$	$3339^{+110}_{-260}$	$\chi_{\mathrm{CMB}}^2$	$11937.2 (\nu: 18.7)$
$\Omega_{\nu}h^2$	$0.0035^{+0.0083}_{-0.0030}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00035}_{-0.00067}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11945.16; R - 1 = 0.02558$$



## 8.12 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02235^{+0.00045}_{-0.00042}$	$\Omega_m h^3$	$0.0980^{+0.0061}_{-0.0026}$	$100\theta_{\text{eq}}$	$0.824^{+0.052}_{-0.018}$
$\Omega_c h^2$	$0.1201^{+0.0074}_{-0.011}$	$\sigma_8$	$0.784^{+0.042}_{-0.067}$	$100\theta_{\text{s,eq}}$	$0.455^{+0.027}_{-0.0095}$
$100\theta_{\text{MC}}$	$1.04066^{+0.00080}_{-0.00099}$	$S_8$	$0.812^{+0.042}_{-0.059}$	$H(0.15)$	$72.7^{+2.8}_{-1.6}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$\sigma_8 \Omega_m^{0.5}$	$0.445^{+0.023}_{-0.032}$	$D_{\text{M}}(0.15)$	$644^{+16}_{-25}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 0.967$	$\sigma_8 \Omega_m^{0.25}$	$0.590^{+0.028}_{-0.045}$	$H(0.38)$	$83.0^{+2.6}_{-1.1}$
$N_{\text{eff}}$	$< 3.49$	$\sigma_8/h^{0.5}$	$0.955^{+0.047}_{-0.070}$	$D_{\text{M}}(0.38)$	$1533^{+32}_{-56}$
$\ln(10^{10} A_{\text{s}})$	$3.049^{+0.045}_{-0.031}$	$r_{\text{drag}} h$	$98.2^{+3.3}_{-4.1}$	$H(0.51)$	$89.9^{+2.6}_{-0.94}$
$n_{\text{s}}$	$0.967^{+0.018}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.442^{+0.058}_{-0.060}$	$D_{\text{M}}(0.51)$	$1985^{+37}_{-69}$
$y_{\text{cal}}$	$1.0007^{+0.0066}_{-0.0066}$	$z_{\text{re}}$	$< 9.67$	$H(0.61)$	$95.6^{+2.5}_{-0.98}$
$A_{100}^{\text{PS}}$	$244^{+60}_{-60}$	$10^9 A_{\text{s}}$	$2.109^{+0.096}_{-0.064}$	$D_{\text{M}}(0.61)$	$2308^{+40}_{-77}$
$A_{143}^{\text{PS}}$	$42^{+20}_{-20}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.888^{+0.037}_{-0.031}$	$H(2.33)$	$238.6^{+5.7}_{-3.7}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30}$	$D_{40}$	$1226^{+34}_{-34}$	$D_{\text{M}}(2.33)$	$5738^{+53}_{-130}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$D_{220}$	$5720^{+110}_{-99}$	$f\sigma_8(0.15)$	$0.449^{+0.022}_{-0.032}$
$A_{143}^{\text{tSZ}}$	$< 8.79$	$D_{810}$	$2538^{+37}_{-36}$	$\sigma_8(0.15)$	$0.723^{+0.040}_{-0.063}$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.32}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.464^{+0.022}_{-0.035}$
$r_{143 \times 217}^{\text{CIB}}$	—	$D_{2000}$	$229.2^{+4.6}_{-4.5}$	$\sigma_8(0.38)$	$0.640^{+0.037}_{-0.058}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$n_{\text{s}, 0.002}$	$0.967^{+0.018}_{-0.013}$	$f\sigma_8(0.51)$	$0.462^{+0.022}_{-0.036}$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}$	$0.2470^{+0.0043}_{-0.0018}$	$\sigma_8(0.51)$	$0.598^{+0.036}_{-0.055}$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.49}$	$Y_{\text{P}}^{\text{BBN}}$	$0.2483^{+0.0043}_{-0.0018}$	$f\sigma_8(0.61)$	$0.456^{+0.022}_{-0.036}$
$A_{143}^{\text{dust}}$	$0.97^{+0.45}_{-0.45}$	$10^5 \text{D}/\text{H}$	$2.63^{+0.12}_{-0.088}$	$\sigma_8(0.61)$	$0.569^{+0.034}_{-0.053}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27}$	$\text{Age}/\text{Gyr}$	$13.74^{+0.13}_{-0.31}$	$f\sigma_8(2.33)$	$0.287^{+0.018}_{-0.027}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.40}$	$z_*$	$1090.27^{+0.99}_{-0.79}$	$\sigma_8(2.33)$	$0.295^{+0.019}_{-0.029}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$r_*$	$143.4^{+1.8}_{-3.0}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$100\theta_*$	$1.04079^{+0.00083}_{-0.0011}$	$f_{2000}^{217}$	$107.9^{+5.4}_{-5.2}$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.77^{+0.17}_{-0.28}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{EE}$	$0.993^{+0.014}_{-0.014}$	$z_{\text{drag}}$	$1060.1^{+1.3}_{-1.1}$	$\chi_{\text{lensing}}^2$	$9.21 (\nu: 0.4)$
$H_0$	$67.2^{+2.9}_{-1.9}$	$r_{\text{drag}}$	$146.0^{+1.8}_{-3.1}$	$\chi_{\text{small}}^2$	$397.1 (\nu: 1.9)$
$\Omega_{\Lambda}$	$0.677^{+0.026}_{-0.035}$	$k_{\text{D}}$	$0.1416^{+0.0026}_{-0.0015}$	$\chi_{\text{lowl}}^2$	$23.2 (\nu: 0.5)$
$\Omega_{\text{m}}$	$0.323^{+0.035}_{-0.026}$	$100\theta_{\text{D}}$	$0.16106^{+0.00098}_{-0.00062}$	$\chi_{\text{CamSpec}}^2$	$11516.5 (\nu: 17.1)$
$\Omega_{\text{m}} h^2$	$0.1457^{+0.0084}_{-0.0049}$	$z_{\text{eq}}$	$3350^{+92}_{-230}$	$\chi_{\text{prior}}^2$	$7.9 (\nu: 6.1)$
$\Omega_{\nu} h^2$	$0.0033^{+0.0079}_{-0.0029}$	$k_{\text{eq}}$	$0.01034^{+0.00032}_{-0.00061}$	$\chi_{\text{CMB}}^2$	$11946.0 (\nu: 18.3)$

$$\bar{\chi}_{\text{eff}}^2 = 11953.86; R - 1 = 0.02344$$



### 8.13 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02231	$0.02235^{+0.00058}_{-0.00053}$	$\sigma_8 \Omega_m^{0.5}$	0.4502	$0.441^{+0.028}_{-0.040}$	$D_M(0.15)$	636.1	$633^{+18}_{-30}$
$\Omega_c h^2$	0.1199	$0.120^{+0.010}_{-0.013}$	$\sigma_8 \Omega_m^{0.25}$	0.6047	$0.591^{+0.035}_{-0.054}$	$H(0.38)$	83.52	$84.0^{+3.4}_{-1.8}$
$100\theta_{MC}$	1.04093	$1.0407^{+0.0012}_{-0.0014}$	$\sigma_8/h^{0.5}$	0.984	$0.957^{+0.048}_{-0.086}$	$D_M(0.38)$	1518	$1511^{+38}_{-68}$
$\tau$	0.0557	$0.055^{+0.022}_{-0.022}$	$r_{\text{drag}} h$	100.10	$99.8^{+2.6}_{-2.5}$	$H(0.51)$	90.23	$90.7^{+3.5}_{-1.7}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	0.00	$< 1.07$	$\langle d^2 \rangle^{1/2}$	2.428	$2.412^{+0.075}_{-0.083}$	$D_M(0.51)$	1967	$1958^{+46}_{-87}$
$N_{\text{eff}}$	3.118	$< 3.75$	$z_{\text{re}}$	7.85	$7.8^{+2.1}_{-2.4}$	$H(0.61)$	95.84	$96.4^{+3.5}_{-1.7}$
$\ln(10^{10} A_s)$	3.0484	$3.048^{+0.050}_{-0.048}$	$10^9 A_s$	2.108	$2.11^{+0.11}_{-0.098}$	$D_M(0.61)$	2290	$2279^{+51}_{-99}$
$n_s$	0.9701	$0.973^{+0.023}_{-0.016}$	$10^9 A_s e^{-2\tau}$	1.8858	$1.888^{+0.050}_{-0.036}$	$H(2.33)$	236.7	$238.5^{+7.5}_{-4.4}$
$y_{\text{cal}}$	1.0013	$1.0006^{+0.0062}_{-0.0064}$	$D_{40}$	1223.1	$1215^{+38}_{-42}$	$D_M(2.33)$	5734	$5699^{+95}_{-200}$
$A_{217}^{\text{CIB}}$	49.8	$49^{+20}_{-20}$	$D_{220}$	5731	$5720^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4552	$0.446^{+0.028}_{-0.040}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.20	—	$D_{810}$	2543.0	$2538^{+35}_{-35}$	$\sigma_8(0.15)$	0.751	$0.732^{+0.044}_{-0.070}$
$A_{143}^{\text{tSZ}}$	7.1	—	$D_{1420}$	817.5	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4745	$0.464^{+0.027}_{-0.042}$
$A_{100}^{\text{PS}}$	256	$267^{+70}_{-70}$	$D_{2000}$	230.5	$228.7^{+4.8}_{-5.3}$	$\sigma_8(0.38)$	0.666	$0.649^{+0.040}_{-0.063}$
$A_{143}^{\text{PS}}$	48.0	$51^{+20}_{-20}$	$n_{s,0.002}$	0.9701	$0.973^{+0.023}_{-0.016}$	$f\sigma_8(0.51)$	0.4736	$0.463^{+0.027}_{-0.043}$
$A_{143 \times 217}^{\text{PS}}$	43.9	$44^{+20}_{-20}$	$Y_P$	0.24634	$0.2480^{+0.0066}_{-0.0028}$	$\sigma_8(0.51)$	0.6235	$0.607^{+0.038}_{-0.059}$
$A_{217}^{\text{PS}}$	118.0	$115^{+30}_{-30}$	$Y_P^{\text{BBN}}$	0.24767	$0.2493^{+0.0066}_{-0.0028}$	$f\sigma_8(0.61)$	0.4689	$0.458^{+0.027}_{-0.043}$
$A^{\text{kSZ}}$	0.0	—	$10^5 \text{D}/\text{H}$	2.621	$2.66^{+0.16}_{-0.12}$	$\sigma_8(0.61)$	0.5934	$0.578^{+0.036}_{-0.056}$
$A_{100}^{\text{dustTT}}$	8.89	$9.1^{+4.8}_{-4.8}$	Age/Gyr	13.728	$13.64^{+0.22}_{-0.47}$	$f\sigma_8(2.33)$	0.2993	$0.292^{+0.019}_{-0.029}$
$A_{143}^{\text{dustTT}}$	10.79	$10.8^{+4.6}_{-4.7}$	$z_*$	1090.05	$1090.3^{+1.2}_{-0.90}$	$\sigma_8(2.33)$	0.3088	$0.301^{+0.020}_{-0.030}$
$A_{143 \times 217}^{\text{dustTT}}$	19.2	$18.4^{+8.5}_{-8.5}$	$r_*$	144.14	$143.1^{+2.4}_{-4.6}$	$f_{2000}^{143}$	30.6	$33^{+8}_{-8}$
$A_{217}^{\text{dustTT}}$	94.2	$93^{+20}_{-20}$	$100\theta_*$	1.04108	$1.0408^{+0.0013}_{-0.0016}$	$f_{2000}^{143 \times 217}$	33.3	$35^{+6}_{-6}$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.845	$13.75^{+0.23}_{-0.43}$	$f_{2000}^{217}$	107.9	$109.1^{+5.5}_{-5.4}$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.86	$1060.2^{+2.0}_{-1.5}$	$\chi_{\text{small}}^2$	396.28	$397.2 (\nu: 2.0)$
$H_0$	68.18	$68.5^{+3.5}_{-2.0}$	$r_{\text{drag}}$	146.82	$145.8^{+2.5}_{-4.8}$	$\chi_{\text{lowl}}^2$	22.61	$22.3 (\nu: 0.6)$
$\Omega_\Lambda$	0.6927	$0.690^{+0.020}_{-0.021}$	$k_D$	0.14084	$0.1416^{+0.0039}_{-0.0020}$	$\chi_{\text{plik}}^2$	760.1	$775.2 (\nu: 17.7)$
$\Omega_m$	0.3073	$0.310^{+0.021}_{-0.020}$	$100\theta_D$	0.16112	$0.1614^{+0.0014}_{-0.00096}$	$\chi_{6\text{DF}}^2$	0.006	$0.063 (\nu: 0.0)$
$\Omega_m h^2$	0.1429	$0.1451^{+0.0099}_{-0.0054}$	$z_{\text{eq}}$	3366	$3321^{+98}_{-250}$	$\chi_{\text{MGS}}^2$	1.47	$1.36 (\nu: 0.2)$
$\Omega_\nu h^2$	0.0007	$0.0025^{+0.0098}_{-0.0023}$	$k_{\text{eq}}$	0.01032	$0.01029^{+0.00042}_{-0.00067}$	$\chi_{\text{DR12BAO}}^2$	3.79	$4.9 (\nu: 1.5)$
$\Omega_m h^3$	0.0974	$0.0994^{+0.010}_{-0.0045}$	$100\theta_{\text{eq}}$	0.8197	$0.829^{+0.056}_{-0.019}$	$\chi_{\text{prior}}^2$	1.7	$7.4 (\nu: 6.9)$
$\sigma_8$	0.812	$0.792^{+0.047}_{-0.075}$	$100\theta_{s,\text{eq}}$	0.4528	$0.458^{+0.029}_{-0.010}$	$\chi_{\text{BAO}}^2$	5.27	$6.3 (\nu: 1.1)$
$S_8$	0.822	$0.804^{+0.052}_{-0.073}$	$H(0.15)$	73.44	$73.8^{+3.5}_{-1.9}$	$\chi_{\text{CMB}}^2$	1179.0	$1194.7 (\nu: 17.0)$

Best-fit  $\chi_{\text{eff}}^2 = 1185.94$ ;  $\bar{\chi}_{\text{eff}}^2 = 1208.40$ ;  $R - 1 = 0.03028$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 3.79 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 396.28 commander\_dx12\_v3.2.29: 22.61 plik\_rd12\_HM\_v22.TT: 760.13



# 8.14 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02225	$0.02236^{+0.00057}_{-0.00053}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4472	$0.440^{+0.027}_{-0.039}$	$D_{\mathrm{M}}(0.15)$	639.5	$632^{+17}_{-30}$
$\Omega_{\mathrm{c}} h^2$	0.1189	$0.120^{+0.010}_{-0.013}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6002	$0.591^{+0.034}_{-0.052}$	$H(0.38)$	83.12	$84.1^{+3.4}_{-1.8}$
$100\theta_{\mathrm{MC}}$	1.04093	$1.0407^{+0.0012}_{-0.0013}$	$\sigma_8/h^{0.5}$	0.978	$0.957^{+0.047}_{-0.083}$	$D_{\mathrm{M}}(0.38)$	1526	$1509^{+37}_{-68}$
$\tau$	0.0525	$0.055^{+0.022}_{-0.023}$	$r_{\mathrm{drag}} h$	99.98	$99.9^{+2.5}_{-2.4}$	$H(0.51)$	89.81	$90.8^{+3.5}_{-1.8}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	0.00	$< 1.03$	$\langle d^2 \rangle^{1/2}$	2.418	$2.409^{+0.075}_{-0.082}$	$D_{\mathrm{M}}(0.51)$	1977	$1955^{+46}_{-85}$
$N_{\mathrm{eff}}$	3.062	$< 3.77$	$z_{\mathrm{re}}$	7.51	$7.8^{+2.1}_{-2.5}$	$H(0.61)$	95.40	$96.5^{+3.5}_{-1.7}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0364	$3.048^{+0.050}_{-0.048}$	$10^9 A_{\mathrm{s}}$	2.083	$2.11^{+0.11}_{-0.098}$	$D_{\mathrm{M}}(0.61)$	2301	$2275^{+55}_{-93}$
$n_{\mathrm{s}}$	0.9679	$0.974^{+0.022}_{-0.016}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8754	$1.888^{+0.050}_{-0.037}$	$H(2.33)$	235.8	$238.5^{+7.6}_{-4.4}$
$y_{\mathrm{cal}}$	1.0001	$1.0006^{+0.0063}_{-0.0064}$	$D_{40}$	1220.8	$1214^{+37}_{-41}$	$D_{\mathrm{M}}(2.33)$	5759	$5694^{+98}_{-200}$
$A_{217}^{\mathrm{CIB}}$	50.4	$49^{+20}_{-20}$	$D_{220}$	5713	$5721^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4521	$0.445^{+0.027}_{-0.039}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.12	—	$D_{810}$	2534.2	$2538^{+36}_{-35}$	$\sigma_8(0.15)$	0.744	$0.733^{+0.043}_{-0.068}$
$A_{143}^{\mathrm{tSZ}}$	7.1	—	$D_{1420}$	815.0	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4710	$0.464^{+0.027}_{-0.041}$
$A_{100}^{\mathrm{PS}}$	256	$267^{+70}_{-70}$	$D_{2000}$	229.8	$228.7^{+4.8}_{-5.4}$	$\sigma_8(0.38)$	0.660	$0.650^{+0.039}_{-0.061}$
$A_{143}^{\mathrm{PS}}$	46.1	$51^{+20}_{-20}$	$n_{\mathrm{s}, 0.002}$	0.9679	$0.974^{+0.022}_{-0.016}$	$f\sigma_8(0.51)$	0.4699	$0.463^{+0.027}_{-0.041}$
$A_{143 \times 217}^{\mathrm{PS}}$	41.3	$44^{+20}_{-20}$	$Y_{\mathrm{P}}$	0.24556	$0.2481^{+0.0066}_{-0.0030}$	$\sigma_8(0.51)$	0.6180	$0.609^{+0.037}_{-0.057}$
$A_{217}^{\mathrm{PS}}$	116.1	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.24689	$0.2494^{+0.0067}_{-0.0030}$	$f\sigma_8(0.61)$	0.4652	$0.459^{+0.026}_{-0.041}$
$A^{\mathrm{kSZ}}$	0.1	—	$10^5 \mathrm{D}/\mathrm{H}$	2.615	$2.66^{+0.17}_{-0.12}$	$\sigma_8(0.61)$	0.5882	$0.579^{+0.035}_{-0.055}$
$A_{100}^{\mathrm{dustTT}}$	8.88	$9.1^{+4.9}_{-4.8}$	Age/Gyr	13.788	$13.63^{+0.23}_{-0.47}$	$f\sigma_8(2.33)$	0.2967	$0.293^{+0.018}_{-0.028}$
$A_{143}^{\mathrm{dustTT}}$	10.81	$10.8^{+4.7}_{-4.7}$	$z_*$	1090.00	$1090.3^{+1.2}_{-0.90}$	$\sigma_8(2.33)$	0.3060	$0.302^{+0.019}_{-0.029}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.1	$18.4^{+8.5}_{-8.5}$	$r_*$	144.72	$143.1^{+2.4}_{-4.7}$	$\chi_{\mathrm{small}}^2$	396	$312 (\nu: 12353.2)$
$A_{217}^{\mathrm{dustTT}}$	93.9	$93^{+20}_{-20}$	$100\theta_*$	1.04112	$1.0408^{+0.0013}_{-0.0016}$	$\chi_{\mathrm{lowl}}^2$	23	$107 (\nu: 12350.7)$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.900	$13.74^{+0.23}_{-0.43}$	$\chi_{\mathrm{plik}}^2$	760.5	$775.3 (\nu: 17.6)$
$c_{217}$	0.99829	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	1059.59	$1060.2^{+2.0}_{-1.5}$	$\chi_{\mathrm{JLA}}^2$	1034.92	$1035.04 (\nu: 0.1)$
$H_0$	67.81	$68.6^{+3.5}_{-2.0}$	$r_{\mathrm{drag}}$	147.43	$145.7^{+2.6}_{-4.8}$	$\chi_{6\mathrm{DF}}^2$	0.01	$0.36 (\nu: 0.2)$
$\Omega_{\Lambda}$	0.6916	$0.691^{+0.019}_{-0.019}$	$k_{\mathrm{D}}$	0.14035	$0.1416^{+0.0039}_{-0.0021}$	$\chi_{\mathrm{MGS}}^2$	1.41	$1.13 (\nu: 0.3)$
$\Omega_{\mathrm{m}}$	0.3084	$0.309^{+0.019}_{-0.019}$	$100\theta_{\mathrm{D}}$	0.16103	$0.1614^{+0.0015}_{-0.00097}$	$\chi_{\mathrm{DR12BAO}}^2$	3.91	$4.6 (\nu: 1.1)$
$\Omega_{\mathrm{m}} h^2$	0.1418	$0.1451^{+0.0099}_{-0.0055}$	$z_{\mathrm{eq}}$	3367	$3320^{+95}_{-240}$	$\chi_{\mathrm{prior}}^2$	1.5	$7.4 (\nu: 6.9)$
$\Omega_{\nu} h^2$	0.0006	$0.0024^{+0.0093}_{-0.0021}$	$k_{\mathrm{eq}}$	0.01029	$0.01029^{+0.00041}_{-0.00066}$	$\chi_{\mathrm{BAO}}^2$	5.33	$6.1 (\nu: 0.7)$
$\Omega_{\mathrm{m}} h^3$	0.0962	$0.0996^{+0.010}_{-0.0047}$	$100\theta_{\mathrm{eq}}$	0.8194	$0.829^{+0.054}_{-0.019}$	$\chi_{\mathrm{CMB}}^2$	1179.0	$1194.7 (\nu: 16.8)$
$\sigma_8$	0.805	$0.793^{+0.046}_{-0.072}$	$100\theta_{\mathrm{s}, \mathrm{eq}}$	0.4527	$0.458^{+0.029}_{-0.0096}$			
$S_8$	0.817	$0.804^{+0.050}_{-0.071}$	$H(0.15)$	73.06	$73.9^{+3.5}_{-1.9}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2220.73$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2243.31$ ;  $R - 1 = 0.02477$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.91 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.81 commander\_dx12\_v3.2.29: 22.70 plik\_rd12\_HM\_v22.TT: 760.48  
SN - JLA Pantheon18: 1034.92



# 8.15 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02230^{+0.00054}_{-0.00051}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.588^{+0.034}_{-0.051}$	$D_{\mathrm{M}}(0.38)$	$1520^{+31}_{-52}$
$\Omega_{\mathrm{c}} h^2$	$0.1187^{+0.0087}_{-0.011}$	$\sigma_8/h^{0.5}$	$0.955^{+0.049}_{-0.083}$	$H(0.51)$	$90.3^{+2.5}_{-1.3}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0013}$	$r_{\mathrm{drag}} h$	$99.7^{+2.5}_{-2.5}$	$D_{\mathrm{M}}(0.51)$	$1969^{+37}_{-65}$
$\tau$	$0.054^{+0.022}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	$2.417^{+0.075}_{-0.075}$	$H(0.61)$	$95.9^{+2.5}_{-1.2}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 1.10$	$z_{\mathrm{re}}$	$7.7^{+2.1}_{-2.4}$	$D_{\mathrm{M}}(0.61)$	$2292^{+40}_{-74}$
$N_{\mathrm{eff}}$	$< 3.53$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.093}$	$H(2.33)$	$237.4^{+6.1}_{-3.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.047}_{-0.045}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.041}_{-0.032}$	$D_{\mathrm{M}}(2.33)$	$5729^{+67}_{-140}$
$n_{\mathrm{s}}$	$0.970^{+0.018}_{-0.014}$	$D_{40}$	$1219^{+35}_{-37}$	$f\sigma_8(0.15)$	$0.444^{+0.027}_{-0.038}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0063}$	$D_{220}$	$5720^{+100}_{-100}$	$\sigma_8(0.15)$	$0.728^{+0.040}_{-0.067}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+35}_{-34}$	$f\sigma_8(0.38)$	$0.462^{+0.027}_{-0.040}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.645^{+0.036}_{-0.059}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.1^{+4.5}_{-4.9}$	$f\sigma_8(0.51)$	$0.461^{+0.026}_{-0.040}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$n_{\mathrm{s}, 0.002}$	$0.970^{+0.018}_{-0.014}$	$\sigma_8(0.51)$	$0.604^{+0.034}_{-0.056}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2469^{+0.0048}_{-0.0018}$	$f\sigma_8(0.61)$	$0.456^{+0.025}_{-0.040}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2483^{+0.0048}_{-0.0018}$	$\sigma_8(0.61)$	$0.575^{+0.033}_{-0.054}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.64^{+0.13}_{-0.10}$	$f\sigma_8(2.33)$	$0.290^{+0.016}_{-0.027}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.72^{+0.16}_{-0.34}$	$\sigma_8(2.33)$	$0.299^{+0.017}_{-0.029}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.9}_{-4.7}$	$z_*$	$1090.17^{+0.98}_{-0.81}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.7}_{-4.7}$	$r_*$	$143.8^{+1.7}_{-3.4}$	$f_{2000}^{143 \times 217}$	$34^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.4^{+8.5}_{-8.5}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0014}$	$f_{2000}^{217}$	$108.7^{+5.1}_{-5.2}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.81^{+0.16}_{-0.32}$	$\chi_{\mathrm{small}}^2$	$310 (\nu: 12476.4)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.9^{+1.6}_{-1.3}$	$\chi_{\mathrm{lowl}}^2$	$109 (\nu: 12480.4)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.5^{+1.8}_{-3.6}$	$\chi_{\mathrm{plik}}^2$	$774.3 (\nu: 16.3)$
$H_0$	$68.0^{+2.6}_{-1.7}$	$k_{\mathrm{D}}$	$0.1411^{+0.0029}_{-0.0016}$	$\chi_{\mathrm{Aver15}}^2$	$0.84 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.689^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0011}_{-0.00080}$	$\chi_{6\mathrm{DF}}^2$	$0.34 (\nu: 0.2)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3317^{+100}_{-250}$	$\chi_{\mathrm{MGS}}^2$	$1.02 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1439^{+0.0075}_{-0.0043}$	$k_{\mathrm{eq}}$	$0.01023^{+0.00038}_{-0.00062}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 (\nu: 1.7)$
$\Omega_{\nu} h^2$	$0.0028^{+0.010}_{-0.0023}$	$100\theta_{\mathrm{eq}}$	$0.830^{+0.056}_{-0.021}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 6.8)$
$\Omega_{\mathrm{m}} h^3$	$0.0979^{+0.0073}_{-0.0031}$	$100\theta_{\mathrm{s,eq}}$	$0.458^{+0.029}_{-0.011}$	$\chi_{\mathrm{BAO}}^2$	$6.4 (\nu: 1.2)$
$\sigma_8$	$0.787^{+0.043}_{-0.071}$	$H(0.15)$	$73.3^{+2.6}_{-1.5}$	$\chi_{\mathrm{CMB}}^2$	$1194.1 (\nu: 16.0)$
$S_8$	$0.802^{+0.051}_{-0.069}$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-23}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.439^{+0.028}_{-0.038}$	$H(0.38)$	$83.5^{+2.7}_{-1.3}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1208.67; R - 1 = 0.03995$$



# 8.16 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02231^{+0.00052}_{-0.00048}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.587^{+0.033}_{-0.051}$	$D_{\mathrm{M}}(0.38)$	$1521^{+29}_{-49}$
$\Omega_{\mathrm{c}} h^2$	$0.1185^{+0.0081}_{-0.011}$	$\sigma_8/h^{0.5}$	$0.954^{+0.048}_{-0.083}$	$H(0.51)$	$90.2^{+2.5}_{-1.1}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0012}$	$r_{\mathrm{drag}} h$	$99.7^{+2.5}_{-2.5}$	$D_{\mathrm{M}}(0.51)$	$1970^{+35}_{-61}$
$\tau$	$0.054^{+0.022}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	$2.417^{+0.076}_{-0.074}$	$H(0.61)$	$95.8^{+2.6}_{-1.0}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 1.11$	$z_{\mathrm{re}}$	$7.7^{+2.1}_{-2.4}$	$D_{\mathrm{M}}(0.61)$	$2293^{+39}_{-70}$
$N_{\mathrm{eff}}$	$< 3.48$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.093}$	$H(2.33)$	$237.2^{+5.6}_{-3.0}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.047}_{-0.045}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.039}_{-0.031}$	$D_{\mathrm{M}}(2.33)$	$5732^{+57}_{-150}$
$n_{\mathrm{s}}$	$0.970^{+0.017}_{-0.013}$	$D_{40}$	$1220^{+35}_{-36}$	$f\sigma_8(0.15)$	$0.443^{+0.027}_{-0.038}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0063}$	$D_{220}$	$5721^{+100}_{-100}$	$\sigma_8(0.15)$	$0.727^{+0.039}_{-0.066}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+35}_{-34}$	$f\sigma_8(0.38)$	$0.461^{+0.026}_{-0.040}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+12}_{-12}$	$\sigma_8(0.38)$	$0.645^{+0.035}_{-0.060}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.2^{+4.4}_{-4.5}$	$f\sigma_8(0.51)$	$0.460^{+0.026}_{-0.040}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$n_{\mathrm{s}, 0.002}$	$0.970^{+0.017}_{-0.013}$	$\sigma_8(0.51)$	$0.603^{+0.033}_{-0.056}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2468^{+0.0043}_{-0.0017}$	$f\sigma_8(0.61)$	$0.455^{+0.025}_{-0.040}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2481^{+0.0044}_{-0.0017}$	$\sigma_8(0.61)$	$0.574^{+0.032}_{-0.054}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.12}_{-0.093}$	$f\sigma_8(2.33)$	$0.290^{+0.016}_{-0.027}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.72^{+0.14}_{-0.35}$	$\sigma_8(2.33)$	$0.299^{+0.017}_{-0.029}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.9}_{-4.7}$	$z_*$	$1090.14^{+0.86}_{-0.74}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.7}_{-4.7}$	$r_*$	$143.9^{+1.5}_{-3.5}$	$f_{2000}^{143 \times 217}$	$34^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.4^{+8.5}_{-8.5}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0013}$	$f_{2000}^{217}$	$108.6^{+4.8}_{-5.0}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.82^{+0.14}_{-0.32}$	$\chi_{\mathrm{small}}^2$	$313 (\nu: 12224.8)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.9^{+1.6}_{-1.2}$	$\chi_{\mathrm{lowl}}^2$	$107 (\nu: 12231.4)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.6^{+1.7}_{-3.3}$	$\chi_{\mathrm{plik}}^2$	$774.2 (\nu: 16.0)$
$H_0$	$68.0^{+2.5}_{-1.6}$	$k_{\mathrm{D}}$	$0.1410^{+0.0028}_{-0.0015}$	$\chi_{\mathrm{Aver15}}^2$	$0.76 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.689^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16118^{+0.00099}_{-0.00073}$	$\chi_{\mathrm{Cooke17}}^2$	$0.22 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3316^{+100}_{-250}$	$\chi_{6\mathrm{DF}}^2$	$0.33 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1437^{+0.0069}_{-0.0041}$	$k_{\mathrm{eq}}$	$0.01022^{+0.00037}_{-0.00062}$	$\chi_{\mathrm{MGS}}^2$	$1.03 (\nu: 0.2)$
$\Omega_{\nu} h^2$	$0.0029^{+0.010}_{-0.0024}$	$100\theta_{\mathrm{eq}}$	$0.831^{+0.053}_{-0.023}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 (\nu: 1.6)$
$\Omega_{\mathrm{m}} h^3$	$0.0977^{+0.0067}_{-0.0029}$	$100\theta_{\mathrm{s,eq}}$	$0.459^{+0.028}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 6.8)$
$\sigma_8$	$0.787^{+0.043}_{-0.071}$	$H(0.15)$	$73.3^{+2.5}_{-1.5}$	$\chi_{\mathrm{BAO}}^2$	$6.4 (\nu: 1.1)$
$S_8$	$0.801^{+0.051}_{-0.070}$	$D_{\mathrm{M}}(0.15)$	$638^{+14}_{-22}$	$\chi_{\mathrm{CMB}}^2$	$1194.0 (\nu: 15.9)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.438^{+0.028}_{-0.038}$	$H(0.38)$	$83.5^{+2.5}_{-1.2}$	$\chi_{\mathrm{Abund}}^2$	$0.98 (\nu: 0.4)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1208.67; R - 1 = 0.03900$$



# 8.17 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02235^{+0.00058}_{-0.00053}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.441^{+0.028}_{-0.040}$	$D_{\mathrm{M}}(0.15)$	$633^{+18}_{-30}$
$\Omega_{\mathrm{c}} h^2$	$0.120^{+0.010}_{-0.013}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.591^{+0.034}_{-0.054}$	$H(0.38)$	$84.0^{+3.4}_{-1.8}$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0012}_{-0.0013}$	$\sigma_8/h^{0.5}$	$0.958^{+0.048}_{-0.087}$	$D_{\mathrm{M}}(0.38)$	$1511^{+38}_{-69}$
$\tau$	$0.056^{+0.020}_{-0.015}$	$r_{\mathrm{drag}} h$	$99.8^{+2.6}_{-2.5}$	$H(0.51)$	$90.8^{+3.5}_{-1.7}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 1.08$	$\langle d^2 \rangle^{1/2}$	$2.414^{+0.075}_{-0.079}$	$D_{\mathrm{M}}(0.51)$	$1957^{+46}_{-87}$
$N_{\mathrm{eff}}$	$< 3.76$	$z_{\mathrm{re}}$	$< 9.72$	$H(0.61)$	$96.4^{+3.5}_{-1.7}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.050^{+0.048}_{-0.035}$	$10^9 A_{\mathrm{s}}$	$2.11^{+0.10}_{-0.073}$	$D_{\mathrm{M}}(0.61)$	$2278^{+51}_{-99}$
$n_{\mathrm{s}}$	$0.973^{+0.022}_{-0.016}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.888^{+0.050}_{-0.037}$	$H(2.33)$	$238.5^{+7.6}_{-4.4}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0063}_{-0.0064}$	$D_{40}$	$1215^{+38}_{-43}$	$D_{\mathrm{M}}(2.33)$	$5698^{+95}_{-200}$
$A_{217}^{\mathrm{CIB}}$	$49^{+20}_{-20}$	$D_{220}$	$5720^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.446^{+0.028}_{-0.041}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2538^{+35}_{-35}$	$\sigma_8(0.15)$	$0.733^{+0.044}_{-0.070}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.464^{+0.027}_{-0.043}$
$A_{100}^{\mathrm{PS}}$	$267^{+70}_{-70}$	$D_{2000}$	$228.7^{+4.7}_{-5.3}$	$\sigma_8(0.38)$	$0.650^{+0.040}_{-0.063}$
$A_{143}^{\mathrm{PS}}$	$51^{+20}_{-20}$	$n_{\mathrm{s}, 0.002}$	$0.973^{+0.022}_{-0.016}$	$f\sigma_8(0.51)$	$0.463^{+0.027}_{-0.043}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2480^{+0.0066}_{-0.0029}$	$\sigma_8(0.51)$	$0.608^{+0.038}_{-0.059}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2493^{+0.0067}_{-0.0029}$	$f\sigma_8(0.61)$	$0.459^{+0.026}_{-0.043}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.66^{+0.16}_{-0.12}$	$\sigma_8(0.61)$	$0.579^{+0.036}_{-0.057}$
$A_{100}^{\mathrm{dustTT}}$	$9.1^{+4.8}_{-4.7}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.64^{+0.22}_{-0.47}$	$f\sigma_8(2.33)$	$0.292^{+0.018}_{-0.029}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.7}_{-4.7}$	$z_*$	$1090.3^{+1.2}_{-0.90}$	$\sigma_8(2.33)$	$0.301^{+0.020}_{-0.030}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.4^{+8.5}_{-8.5}$	$r_*$	$143.1^{+2.4}_{-4.6}$	$f_{2000}^{143}$	$33^{+8}_{-8}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0408^{+0.0013}_{-0.0016}$	$f_{2000}^{143 \times 217}$	$35^{+6}_{-6}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.75^{+0.23}_{-0.43}$	$f_{2000}^{217}$	$109.1^{+5.5}_{-5.4}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1060.2^{+2.0}_{-1.5}$	$\chi_{\mathrm{small}}^2$	$397.2 (\nu: 2.0)$
$H_0$	$68.5^{+3.5}_{-2.0}$	$r_{\mathrm{drag}}$	$145.7^{+2.5}_{-4.8}$	$\chi_{\mathrm{lowl}}^2$	$22.3 (\nu: 0.6)$
$\Omega_{\Lambda}$	$0.690^{+0.020}_{-0.021}$	$k_{\mathrm{D}}$	$0.1416^{+0.0039}_{-0.0021}$	$\chi_{\mathrm{plik}}^2$	$775.0 (\nu: 17.6)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.021}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.1614^{+0.0014}_{-0.00097}$	$\chi_{6\mathrm{DF}}^2$	$0.062 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1452^{+0.0099}_{-0.0054}$	$z_{\mathrm{eq}}$	$3320^{+99}_{-250}$	$\chi_{\mathrm{MGS}}^2$	$1.37 (\nu: 0.2)$
$\Omega_{\nu} h^2$	$0.0025^{+0.0099}_{-0.0023}$	$k_{\mathrm{eq}}$	$0.01029^{+0.00042}_{-0.00067}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 (\nu: 1.5)$
$\Omega_{\mathrm{m}} h^3$	$0.0994^{+0.010}_{-0.0046}$	$100\theta_{\mathrm{eq}}$	$0.829^{+0.056}_{-0.019}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 6.9)$
$\sigma_8$	$0.793^{+0.047}_{-0.075}$	$100\theta_{\mathrm{s,eq}}$	$0.458^{+0.030}_{-0.010}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 1.0)$
$S_8$	$0.805^{+0.052}_{-0.074}$	$H(0.15)$	$73.8^{+3.6}_{-1.9}$	$\chi_{\mathrm{CMB}}^2$	$1194.5 (\nu: 16.6)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1208.20; R - 1 = 0.02851$$



8.18 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02237^{+0.00057}_{-0.00053}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.591^{+0.034}_{-0.053}$	$D_{\text{M}}(0.38)$	$1509^{+37}_{-67}$
$\Omega_{\text{c}} h^2$	$0.120^{+0.010}_{-0.013}$	$\sigma_8/h^{0.5}$	$0.958^{+0.047}_{-0.084}$	$H(0.51)$	$90.9^{+3.5}_{-1.8}$
$100\theta_{\text{MC}}$	$1.0407^{+0.0012}_{-0.0013}$	$r_{\text{drag}} h$	$99.9^{+2.5}_{-2.4}$	$D_{\text{M}}(0.51)$	$1955^{+46}_{-85}$
$\tau$	$0.056^{+0.020}_{-0.015}$	$\langle d^2 \rangle^{1/2}$	$2.411^{+0.074}_{-0.078}$	$H(0.61)$	$96.5^{+3.5}_{-1.7}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 1.04$	$z_{\text{re}}$	$< 9.74$	$D_{\text{M}}(0.61)$	$2275^{+55}_{-93}$
$N_{\text{eff}}$	$< 3.77$	$10^9 A_{\text{s}}$	$2.11^{+0.10}_{-0.074}$	$H(2.33)$	$238.5^{+7.6}_{-4.5}$
$\ln(10^{10} A_{\text{s}})$	$3.050^{+0.049}_{-0.035}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.888^{+0.051}_{-0.037}$	$D_{\text{M}}(2.33)$	$5693^{+98}_{-200}$
$n_{\text{s}}$	$0.974^{+0.022}_{-0.016}$	$D_{40}$	$1214^{+37}_{-42}$	$f\sigma_8(0.15)$	$0.446^{+0.027}_{-0.040}$
$y_{\text{cal}}$	$1.0006^{+0.0063}_{-0.0064}$	$D_{220}$	$5721^{+100}_{-100}$	$\sigma_8(0.15)$	$0.734^{+0.043}_{-0.068}$
$A_{217}^{\text{CIB}}$	$49^{+20}_{-20}$	$D_{810}$	$2538^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.465^{+0.027}_{-0.041}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.38)$	$0.651^{+0.039}_{-0.061}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$228.7^{+4.7}_{-5.4}$	$f\sigma_8(0.51)$	$0.464^{+0.026}_{-0.042}$
$A_{100}^{\text{PS}}$	$267^{+70}_{-70}$	$n_{\text{s}, 0.002}$	$0.974^{+0.022}_{-0.016}$	$\sigma_8(0.51)$	$0.609^{+0.037}_{-0.058}$
$A_{143}^{\text{PS}}$	$51^{+20}_{-20}$	$Y_{\text{P}}$	$0.2481^{+0.0067}_{-0.0030}$	$f\sigma_8(0.61)$	$0.459^{+0.026}_{-0.042}$
$A_{143 \times 217}^{\text{PS}}$	$44^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.2494^{+0.0067}_{-0.0030}$	$\sigma_8(0.61)$	$0.580^{+0.035}_{-0.055}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	$2.66^{+0.17}_{-0.12}$	$f\sigma_8(2.33)$	$0.293^{+0.018}_{-0.028}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.63^{+0.23}_{-0.47}$	$\sigma_8(2.33)$	$0.302^{+0.019}_{-0.029}$
$A_{100}^{\text{dustTT}}$	$9.1^{+4.9}_{-4.7}$	$z_*$	$1090.3^{+1.2}_{-0.91}$	$f_{2000}^{143}$	$33^{+9}_{-8}$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.7}_{-4.7}$	$r_*$	$143.0^{+2.5}_{-4.7}$	$f_{2000}^{143 \times 217}$	$35^{+6}_{-6}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.5^{+8.5}_{-8.5}$	$100\theta_*$	$1.0408^{+0.0013}_{-0.0016}$	$f_{2000}^{217}$	$109.1^{+5.6}_{-5.4}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.74^{+0.23}_{-0.43}$	$\chi_{\text{small}}^2$	$312 (\nu: 12352.2)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1060.2^{+2.0}_{-1.5}$	$\chi_{\text{lowl}}^2$	$107 (\nu: 12349.9)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	$145.7^{+2.6}_{-4.8}$	$\chi_{\text{plik}}^2$	$775.2 (\nu: 17.4)$
$H_0$	$68.6^{+3.5}_{-2.0}$	$k_{\text{D}}$	$0.1416^{+0.0039}_{-0.0021}$	$\chi_{\text{JLA}}^2$	$1035.03 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.692^{+0.019}_{-0.019}$	$100\theta_{\text{D}}$	$0.1614^{+0.0015}_{-0.00098}$	$\chi_{6\text{DF}}^2$	$0.36 (\nu: 0.2)$
$\Omega_{\text{m}}$	$0.308^{+0.019}_{-0.019}$	$z_{\text{eq}}$	$3320^{+95}_{-240}$	$\chi_{\text{MGS}}^2$	$1.13 (\nu: 0.3)$
$\Omega_{\text{m}} h^2$	$0.1452^{+0.0093}_{-0.0059}$	$k_{\text{eq}}$	$0.01029^{+0.00041}_{-0.00067}$	$\chi_{\text{DR12BAO}}^2$	$4.6 (\nu: 1.1)$
$\Omega_{\nu} h^2$	$0.0024^{+0.0094}_{-0.0021}$	$100\theta_{\text{eq}}$	$0.829^{+0.055}_{-0.019}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.9)$
$\Omega_{\text{m}} h^3$	$0.0996^{+0.010}_{-0.0048}$	$100\theta_{\text{s,eq}}$	$0.458^{+0.029}_{-0.0096}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.7)$
$\sigma_8$	$0.794^{+0.046}_{-0.073}$	$H(0.15)$	$73.9^{+3.5}_{-1.8}$	$\chi_{\text{CMB}}^2$	$1194.6 (\nu: 16.4)$
$S_8$	$0.805^{+0.050}_{-0.071}$	$D_{\text{M}}(0.15)$	$632^{+17}_{-30}$		
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.441^{+0.027}_{-0.039}$	$H(0.38)$	$84.1^{+3.4}_{-1.8}$		

$\bar{\chi}_{\text{eff}}^2 = 2243.12; R - 1 = 0.02260$



# 8.19 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02231^{+0.00054}_{-0.00051}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.589^{+0.034}_{-0.052}$	$D_{\mathrm{M}}(0.38)$	$1520^{+31}_{-52}$
$\Omega_{\mathrm{c}} h^2$	$0.1187^{+0.0087}_{-0.011}$	$\sigma_8/h^{0.5}$	$0.956^{+0.048}_{-0.083}$	$H(0.51)$	$90.3^{+2.5}_{-1.3}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0013}$	$r_{\mathrm{drag}} h$	$99.7^{+2.5}_{-2.5}$	$D_{\mathrm{M}}(0.51)$	$1969^{+37}_{-65}$
$\tau$	$0.056^{+0.020}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.419^{+0.075}_{-0.070}$	$H(0.61)$	$95.9^{+2.5}_{-1.2}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 1.11$	$z_{\mathrm{re}}$	$< 9.65$	$D_{\mathrm{M}}(0.61)$	$2291^{+40}_{-74}$
$N_{\mathrm{eff}}$	$< 3.53$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.097}_{-0.068}$	$H(2.33)$	$237.4^{+6.1}_{-3.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.046^{+0.045}_{-0.033}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.041}_{-0.032}$	$D_{\mathrm{M}}(2.33)$	$5728^{+66}_{-140}$
$n_{\mathrm{s}}$	$0.970^{+0.018}_{-0.014}$	$D_{40}$	$1219^{+35}_{-37}$	$f\sigma_8(0.15)$	$0.444^{+0.027}_{-0.039}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0063}$	$D_{220}$	$5720^{+100}_{-100}$	$\sigma_8(0.15)$	$0.729^{+0.040}_{-0.067}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+35}_{-34}$	$f\sigma_8(0.38)$	$0.462^{+0.026}_{-0.041}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.646^{+0.036}_{-0.060}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.1^{+4.5}_{-4.9}$	$f\sigma_8(0.51)$	$0.461^{+0.026}_{-0.041}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$n_{\mathrm{s}, 0.002}$	$0.970^{+0.018}_{-0.014}$	$\sigma_8(0.51)$	$0.605^{+0.034}_{-0.056}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2470^{+0.0048}_{-0.0018}$	$f\sigma_8(0.61)$	$0.456^{+0.025}_{-0.040}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2483^{+0.0048}_{-0.0018}$	$\sigma_8(0.61)$	$0.575^{+0.032}_{-0.054}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.64^{+0.13}_{-0.10}$	$f\sigma_8(2.33)$	$0.290^{+0.016}_{-0.027}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.71^{+0.16}_{-0.34}$	$\sigma_8(2.33)$	$0.299^{+0.017}_{-0.029}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.9}_{-4.7}$	$z_*$	$1090.17^{+0.99}_{-0.81}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.6}_{-4.7}$	$r_*$	$143.8^{+1.7}_{-3.4}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-5}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.4^{+8.5}_{-8.5}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0014}$	$f_{2000}^{217}$	$108.7^{+5.1}_{-5.2}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.81^{+0.17}_{-0.32}$	$\chi_{\mathrm{small}}^2$	$311 (\nu: 12436.7)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.9^{+1.6}_{-1.3}$	$\chi_{\mathrm{lowl}}^2$	$109 (\nu: 12440.3)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.5^{+1.9}_{-3.6}$	$\chi_{\mathrm{plik}}^2$	$774.2 (\nu: 16.1)$
$H_0$	$68.1^{+2.6}_{-1.7}$	$k_{\mathrm{D}}$	$0.1411^{+0.0029}_{-0.0016}$	$\chi_{\mathrm{Aver15}}^2$	$0.85 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.689^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0011}_{-0.00080}$	$\chi_{6\mathrm{DF}}^2$	$0.35 (\nu: 0.2)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3316^{+100}_{-250}$	$\chi_{\mathrm{MGS}}^2$	$1.02 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1439^{+0.0075}_{-0.0043}$	$k_{\mathrm{eq}}$	$0.01023^{+0.00038}_{-0.00063}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 (\nu: 1.6)$
$\Omega_{\nu} h^2$	$0.0028^{+0.010}_{-0.0023}$	$100\theta_{\mathrm{eq}}$	$0.830^{+0.057}_{-0.021}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 6.8)$
$\Omega_{\mathrm{m}} h^3$	$0.0979^{+0.0073}_{-0.0031}$	$100\theta_{\mathrm{s,eq}}$	$0.458^{+0.030}_{-0.011}$	$\chi_{\mathrm{BAO}}^2$	$6.4 (\nu: 1.1)$
$\sigma_8$	$0.788^{+0.043}_{-0.072}$	$H(0.15)$	$73.4^{+2.6}_{-1.5}$	$\chi_{\mathrm{CMB}}^2$	$1193.9 (\nu: 15.7)$
$S_8$	$0.802^{+0.051}_{-0.070}$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-23}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.439^{+0.028}_{-0.038}$	$H(0.38)$	$83.5^{+2.7}_{-1.3}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1208.49; R - 1 = 0.03891$$



## 8.20 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02232^{+0.00052}_{-0.00048}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.588^{+0.033}_{-0.051}$	$D_{\mathrm{M}}(0.38)$	$1521^{+30}_{-49}$
$\Omega_{\mathrm{c}} h^2$	$0.1185^{+0.0081}_{-0.011}$	$\sigma_8/h^{0.5}$	$0.955^{+0.048}_{-0.084}$	$H(0.51)$	$90.2^{+2.3}_{-1.2}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0012}$	$r_{\mathrm{drag}} h$	$99.7^{+2.5}_{-2.5}$	$D_{\mathrm{M}}(0.51)$	$1970^{+35}_{-61}$
$\tau$	$0.056^{+0.020}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.419^{+0.076}_{-0.070}$	$H(0.61)$	$95.9^{+2.3}_{-1.1}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 1.11$	$z_{\mathrm{re}}$	$< 9.66$	$D_{\mathrm{M}}(0.61)$	$2292^{+39}_{-70}$
$N_{\mathrm{eff}}$	$< 3.48$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.097}_{-0.068}$	$H(2.33)$	$237.2^{+5.6}_{-3.0}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.046^{+0.045}_{-0.033}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.039}_{-0.031}$	$D_{\mathrm{M}}(2.33)$	$5731^{+62}_{-130}$
$n_{\mathrm{s}}$	$0.970^{+0.017}_{-0.013}$	$D_{40}$	$1220^{+35}_{-36}$	$f\sigma_8(0.15)$	$0.444^{+0.027}_{-0.039}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0063}$	$D_{220}$	$5721^{+100}_{-100}$	$\sigma_8(0.15)$	$0.728^{+0.039}_{-0.067}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+35}_{-34}$	$f\sigma_8(0.38)$	$0.462^{+0.026}_{-0.040}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+12}_{-12}$	$\sigma_8(0.38)$	$0.645^{+0.035}_{-0.060}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.2^{+4.4}_{-4.5}$	$f\sigma_8(0.51)$	$0.460^{+0.025}_{-0.041}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$n_{\mathrm{s}, 0.002}$	$0.970^{+0.017}_{-0.013}$	$\sigma_8(0.51)$	$0.604^{+0.033}_{-0.057}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2468^{+0.0043}_{-0.0017}$	$f\sigma_8(0.61)$	$0.456^{+0.025}_{-0.040}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2482^{+0.0044}_{-0.0017}$	$\sigma_8(0.61)$	$0.575^{+0.031}_{-0.054}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.12}_{-0.093}$	$f\sigma_8(2.33)$	$0.290^{+0.016}_{-0.027}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.72^{+0.15}_{-0.32}$	$\sigma_8(2.33)$	$0.299^{+0.017}_{-0.029}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.9}_{-4.7}$	$z_*$	$1090.13^{+0.86}_{-0.74}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.6}_{-4.7}$	$r_*$	$143.9^{+1.5}_{-3.5}$	$f_{2000}^{143 \times 217}$	$34^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.4^{+8.5}_{-8.5}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0013}$	$f_{2000}^{217}$	$108.6^{+4.8}_{-5.0}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.82^{+0.16}_{-0.29}$	$\chi_{\mathrm{small}}^2$	$313 (\nu: 12200.8)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.9^{+1.6}_{-1.2}$	$\chi_{\mathrm{lowl}}^2$	$107 (\nu: 12207.3)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.6^{+1.8}_{-3.3}$	$\chi_{\mathrm{plik}}^2$	$774.0 (\nu: 15.9)$
$H_0$	$68.0^{+2.5}_{-1.7}$	$k_{\mathrm{D}}$	$0.1410^{+0.0028}_{-0.0016}$	$\chi_{\mathrm{Aver15}}^2$	$0.77 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.689^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16118^{+0.00099}_{-0.00073}$	$\chi_{\mathrm{Cooke17}}^2$	$0.22 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3315^{+100}_{-250}$	$\chi_{6\mathrm{DF}}^2$	$0.34 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1437^{+0.0069}_{-0.0041}$	$k_{\mathrm{eq}}$	$0.01022^{+0.00037}_{-0.00063}$	$\chi_{\mathrm{MGS}}^2$	$1.03 (\nu: 0.2)$
$\Omega_{\nu} h^2$	$0.0029^{+0.010}_{-0.0023}$	$100\theta_{\mathrm{eq}}$	$0.831^{+0.058}_{-0.021}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 (\nu: 1.6)$
$\Omega_{\mathrm{m}} h^3$	$0.0977^{+0.0067}_{-0.0029}$	$100\theta_{\mathrm{s,eq}}$	$0.459^{+0.030}_{-0.011}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 6.8)$
$\sigma_8$	$0.787^{+0.042}_{-0.072}$	$H(0.15)$	$73.3^{+2.4}_{-1.5}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 1.1)$
$S_8$	$0.801^{+0.051}_{-0.070}$	$D_{\mathrm{M}}(0.15)$	$638^{+14}_{-22}$	$\chi_{\mathrm{CMB}}^2$	$1193.8 (\nu: 15.5)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.439^{+0.028}_{-0.038}$	$H(0.38)$	$83.5^{+2.5}_{-1.2}$	$\chi_{\mathrm{Abund}}^2$	$0.99 (\nu: 0.4)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1208.48; R - 1 = 0.03789$$



## 8.21 base\_nnu\_meffsterile\_plikHM\_TTTEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022412	$0.02250^{+0.00041}_{-0.00038} (+0.7\sigma)$	$\Omega_\nu h^2$	0.0039	$0.0027^{+0.0083}_{-0.0026} (+0.1\sigma)$	$100\theta_{s,eq}$	0.4595	$0.456^{+0.025}_{-0.0095} (-0.2\sigma)$
$\Omega_c h^2$	0.1161	$0.1187^{+0.0075}_{-0.0097} (-0.4\sigma)$	$\Omega_m h^3$	0.09632	$0.0977^{+0.0060}_{-0.0021} (-0.5\sigma)$	$H(0.15)$	72.95	$73.2^{+2.3}_{-1.2} (-0.5\sigma)$
$100\theta_{MC}$	1.04101	$1.04091^{+0.00079}_{-0.00086} (+0.3\sigma)$	$\sigma_8$	0.809	$0.792^{+0.039}_{-0.061} (+0.0\sigma)$	$D_M(0.15)$	640.7	$639^{+12}_{-20} (+0.5\sigma)$
$\tau$	0.0546	$0.056^{+0.022}_{-0.020} (+0.2\sigma)$	$S_8$	0.823	$0.808^{+0.044}_{-0.062} (+0.1\sigma)$	$H(0.38)$	83.06	$83.4^{+2.3}_{-0.99} (-0.5\sigma)$
$m_{\nu, sterile}^{eff} [eV]$	0.302	$< 0.947 (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4507	$0.443^{+0.024}_{-0.034} (+0.1\sigma)$	$D_M(0.38)$	1528.1	$1523^{+25}_{-45} (+0.5\sigma)$
$N_{eff}$	3.047	$< 3.42 (-0.7\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6037	$0.592^{+0.029}_{-0.045} (+0.1\sigma)$	$H(0.51)$	89.77	$90.2^{+2.4}_{-0.89} (-0.5\sigma)$
$\ln(10^{10} A_s)$	3.0434	$3.049^{+0.047}_{-0.042} (+0.1\sigma)$	$\sigma_8/h^{0.5}$	0.983	$0.961^{+0.043}_{-0.072} (+0.2\sigma)$	$D_M(0.51)$	1979.7	$1972^{+29}_{-57} (+0.5\sigma)$
$n_s$	0.9678	$0.969^{+0.016}_{-0.012} (-0.5\sigma)$	$r_{drag} h$	99.64	$99.4^{+2.2}_{-2.1} (-0.4\sigma)$	$H(0.61)$	95.39	$95.8^{+2.5}_{-0.82} (-0.5\sigma)$
$y_{cal}$	1.0007	$1.0008^{+0.0064}_{-0.0065} (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	2.432	$2.430^{+0.066}_{-0.062} (+0.6\sigma)$	$D_M(0.61)$	2303.7	$2295^{+32}_{-65} (+0.5\sigma)$
$A_{217}^{CIB}$	47.9	$47^{+20}_{-20} (-0.2\sigma)$	$z_{re}$	7.69	$7.9^{+2.1}_{-2.2} (+0.1\sigma)$	$H(2.33)$	236.13	$237.4^{+5.1}_{-2.4} (-0.4\sigma)$
$\xi^{tSZ \times CIB}$	0.33	—	$10^9 A_s$	2.098	$2.11^{+0.10}_{-0.088} (+0.1\sigma)$	$D_M(2.33)$	5759	$5733^{+50}_{-120} (+0.5\sigma)$
$A_{143}^{tSZ}$	7.17	$5.4^{+4.5}_{-4.6} (+0.3\sigma)$	$10^9 A_s e^{-2\tau}$	1.8806	$1.885^{+0.034}_{-0.031} (-0.2\sigma)$	$f\sigma_8(0.15)$	0.4554	$0.447^{+0.024}_{-0.034} (+0.1\sigma)$
$A_{100}^{PS}$	251	$260^{+70}_{-70} (-0.3\sigma)$	$D_{40}$	1225.0	$1225^{+33}_{-33} (+0.6\sigma)$	$\sigma_8(0.15)$	0.7472	$0.732^{+0.036}_{-0.057} (-0.0\sigma)$
$A_{143}^{PS}$	45.9	$47^{+20}_{-20} (-0.6\sigma)$	$D_{220}$	5732	$5738^{+100}_{-98} (+0.5\sigma)$	$f\sigma_8(0.38)$	0.4738	$0.465^{+0.023}_{-0.035} (+0.1\sigma)$
$A_{143 \times 217}^{PS}$	44.5	$43^{+20}_{-20} (-0.2\sigma)$	$D_{810}$	2541.0	$2541^{+34}_{-36} (+0.2\sigma)$	$\sigma_8(0.38)$	0.6624	$0.648^{+0.032}_{-0.050} (-0.0\sigma)$
$A_{217}^{PS}$	118.3	$115^{+30}_{-30} (+0.0\sigma)$	$D_{1420}$	818.6	$817^{+13}_{-12} (+0.6\sigma)$	$f\sigma_8(0.51)$	0.4725	$0.463^{+0.022}_{-0.035} (+0.0\sigma)$
$A^{kSZ}$	0.0	—	$D_{2000}$	231.47	$230.6^{+4.3}_{-4.2} (+1.0\sigma)$	$\sigma_8(0.51)$	0.6199	$0.607^{+0.031}_{-0.047} (-0.0\sigma)$
$A_{100}^{dustTT}$	8.91	$9.0^{+4.7}_{-4.6} (-0.0\sigma)$	$n_{s,0.002}$	0.9678	$0.969^{+0.016}_{-0.012} (-0.5\sigma)$	$f\sigma_8(0.61)$	0.4676	$0.459^{+0.022}_{-0.035} (+0.0\sigma)$
$A_{143}^{dustTT}$	10.97	$11.0^{+4.6}_{-4.6} (+0.1\sigma)$	$Y_P$	0.24543	$0.2466^{+0.0039}_{-0.0013} (-0.6\sigma)$	$\sigma_8(0.61)$	0.5899	$0.577^{+0.029}_{-0.045} (-0.0\sigma)$
$A_{143 \times 217}^{dustTT}$	19.5	$18.7^{+8.1}_{-8.5} (+0.1\sigma)$	$Y_P^{BBN}$	0.24675	$0.2479^{+0.0039}_{-0.0013} (-0.6\sigma)$	$f\sigma_8(2.33)$	0.2974	$0.291^{+0.015}_{-0.023} (-0.1\sigma)$
$A_{217}^{dustTT}$	94.6	$94^{+20}_{-20} (+0.1\sigma)$	$10^5 D/H$	2.578	$2.591^{+0.089}_{-0.069} (-1.2\sigma)$	$\sigma_8(2.33)$	0.3067	$0.300^{+0.016}_{-0.024} (-0.1\sigma)$
$A_{100}^{dustTE}$	0.112	$0.114^{+0.099}_{-0.095}$	Age/Gyr	13.787	$13.73^{+0.12}_{-0.29} (+0.5\sigma)$	$f_{2000}^{143}$	28.8	$30^{+7}_{-7} (-0.8\sigma)$
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.077}_{-0.076}$	$z_*$	1089.80	$1089.89^{+0.67}_{-0.60} (-1.0\sigma)$	$f_{2000}^{143 \times 217}$	31.88	$33^{+5}_{-5} (-0.9\sigma)$
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.22}$	$r_*$	144.59	$143.8^{+1.3}_{-2.8} (+0.5\sigma)$	$f_{2000}^{217}$	106.57	$107.4^{+4.7}_{-4.7} (-0.8\sigma)$
$A_{143}^{dustTE}$	0.223	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04119	$1.04104^{+0.00081}_{-0.00099} (+0.4\sigma)$	$\chi_{small}^2$	396.1	$397.4 (\nu: 2.5) (+0.1\sigma)$
$A_{143 \times 217}^{dustTE}$	0.663	$0.66^{+0.21}_{-0.21}$	$D_M(z_*)/Gpc$	13.887	$13.82^{+0.12}_{-0.26} (+0.5\sigma)$	$\chi_{lowl}^2$	22.87	$22.90 (\nu: 0.4) (+0.6\sigma)$
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.68}$	$z_{drag}$	1059.97	$1060.3^{+1.4}_{-0.94} (+0.3\sigma)$	$\chi_{plik}^2$	2345.2	$2362.0 (\nu: 19.2) (+266.4\sigma)$
$c_{100}$	0.99971	$0.9997^{+0.0015}_{-0.0016} (+0.1\sigma)$	$r_{drag}$	147.24	$146.4^{+1.2}_{-3.4} (+0.4\sigma)$	$\chi_{6DF}^2$	0.030	$0.077 (\nu: 0.0) (+0.2\sigma)$
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016} (-0.2\sigma)$	$k_D$	0.14074	$0.1414^{+0.0025}_{-0.0012} (-0.2\sigma)$	$\chi_{MGS}^2$	1.22	$1.15 (\nu: 0.1) (-0.4\sigma)$
$H_0$	67.67	$67.9^{+2.3}_{-1.4} (-0.5\sigma)$	$100\theta_D$	0.16074	$0.16084^{+0.00081}_{-0.00051} (-1.2\sigma)$	$\chi_{DR12BAO}^2$	4.44	$5.4 (\nu: 1.6) (+0.3\sigma)$
$\Omega_\Lambda$	0.6892	$0.688^{+0.017}_{-0.017} (-0.3\sigma)$	$z_{eq}$	3309	$3337^{+92}_{-220} (+0.3\sigma)$	$\chi_{prior}^2$	1.8	$11.7 (\nu: 10.5) (+1.1\sigma)$
$\Omega_m$	0.3108	$0.312^{+0.017}_{-0.017} (+0.3\sigma)$	$k_{eq}$	0.010157	$0.01027^{+0.00033}_{-0.00054} (-0.1\sigma)$	$\chi_{BAO}^2$	5.68	$6.6 (\nu: 1.1) (+0.2\sigma)$
$\Omega_m h^2$	0.14233	$0.1440^{+0.0061}_{-0.0034} (-0.4\sigma)$	$100\theta_{eq}$	0.8326	$0.827^{+0.048}_{-0.018} (-0.2\sigma)$	$\chi_{CMB}^2$	2764.1	$2782.3 (\nu: 18.5) (+272.3\sigma)$

Best-fit  $\chi_{eff}^2 = 2771.63$ ;  $\Delta\chi_{eff}^2 = 1585.69$ ;  $\bar{\chi}_{eff}^2 = 2800.57$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.17$ ;  $R - 1 = 0.01553$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.03 ( $\Delta$  0.02) MGS: 1.22 ( $\Delta$  -0.26) DR12BAO: 4.44 ( $\Delta$  0.65) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.05 ( $\Delta$  -0.23) commander\_dx12\_v3\_2\_29: 22.87 ( $\Delta$  0.26) plik\_rd12\_HM\_v22b\_TTTEE: 2345.20



## 8.22 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022440	$0.02251^{+0.00041}_{-0.00037}$ (+0.7 $\sigma$ )	$\Omega_m h^3$	0.09635	$0.0978^{+0.0074}_{-0.0022}$ (−0.5 $\sigma$ )	$D_M(0.15)$	640.0	$638^{+12}_{-20}$ (+0.5 $\sigma$ )
$\Omega_c h^2$	0.1189	$0.1187^{+0.0079}_{-0.0098}$ (−0.4 $\sigma$ )	$\sigma_8$	0.811	$0.792^{+0.039}_{-0.061}$ (−0.0 $\sigma$ )	$H(0.38)$	83.11	$83.5^{+2.4}_{-0.99}$ (−0.5 $\sigma$ )
$100\theta_{MC}$	1.04102	$1.04092^{+0.00081}_{-0.00086}$ (+0.4 $\sigma$ )	$S_8$	0.824	$0.807^{+0.044}_{-0.061}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1526.8	$1521^{+24}_{-47}$ (+0.6 $\sigma$ )
$\tau$	0.0585	$0.057^{+0.022}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4515	$0.442^{+0.024}_{-0.033}$ (+0.1 $\sigma$ )	$H(0.51)$	89.81	$90.2^{+2.2}_{-1.0}$ (−0.5 $\sigma$ )
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	0.025	< 0.964 (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6051	$0.592^{+0.029}_{-0.044}$ (+0.0 $\sigma$ )	$D_M(0.51)$	1978.0	$1970^{+29}_{-59}$ (+0.6 $\sigma$ )
$N_{\text{eff}}$	3.046	< 3.44 (−0.7 $\sigma$ )	$\sigma_8/h^{0.5}$	0.985	$0.961^{+0.042}_{-0.072}$ (+0.1 $\sigma$ )	$H(0.61)$	95.42	$95.9^{+2.3}_{-0.93}$ (−0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0505	$3.049^{+0.046}_{-0.042}$ (+0.1 $\sigma$ )	$r_{\text{drag}} h$	99.76	$99.6^{+2.1}_{-2.1}$ (−0.4 $\sigma$ )	$D_M(0.61)$	2302	$2293^{+32}_{-68}$ (+0.6 $\sigma$ )
$n_s$	0.9672	$0.969^{+0.016}_{-0.012}$ (−0.6 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.440	$2.428^{+0.065}_{-0.060}$ (+0.6 $\sigma$ )	$H(2.33)$	236.07	$237.4^{+5.3}_{-2.4}$ (−0.4 $\sigma$ )
$y_{\text{cal}}$	1.0005	$1.0007^{+0.0066}_{-0.0065}$ (+0.1 $\sigma$ )	$z_{\text{re}}$	8.07	$7.9^{+2.1}_{-2.1}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5757	$5730^{+50}_{-140}$ (+0.5 $\sigma$ )
$A_{217}^{\text{CIB}}$	48.2	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.113	$2.11^{+0.10}_{-0.088}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4562	$0.447^{+0.024}_{-0.034}$ (+0.1 $\sigma$ )
$\xi^{\text{tSZ}} \times \text{CIB}$	0.34	—	$10^9 A_s e^{-2\tau}$	1.8796	$1.884^{+0.035}_{-0.031}$ (−0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7497	$0.732^{+0.036}_{-0.057}$ (−0.0 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.23	$5.4^{+4.6}_{-4.6}$ (+0.3 $\sigma$ )	$D_{40}$	1227.8	$1224^{+33}_{-33}$ (+0.6 $\sigma$ )	$f\sigma_8(0.38)$	0.4749	$0.465^{+0.023}_{-0.035}$ (+0.0 $\sigma$ )
$A_{100}^{\text{PS}}$	251	$260^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{220}$	5738	$5739^{+98}_{-100}$ (+0.5 $\sigma$ )	$\sigma_8(0.38)$	0.6647	$0.649^{+0.033}_{-0.051}$ (−0.1 $\sigma$ )
$A_{143}^{\text{PS}}$	46.4	$47^{+20}_{-20}$ (−0.6 $\sigma$ )	$D_{810}$	2539.4	$2540^{+35}_{-36}$ (+0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4737	$0.463^{+0.023}_{-0.035}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	44.9	$43^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	817.8	$817^{+12}_{-13}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6221	$0.607^{+0.031}_{-0.047}$ (−0.1 $\sigma$ )
$A_{217}^{\text{PS}}$	118.0	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.26	$230.6^{+4.2}_{-4.3}$ (+1.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4689	$0.458^{+0.022}_{-0.035}$ (−0.0 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$n_{s,0.002}$	0.9672	$0.969^{+0.016}_{-0.012}$ (−0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5920	$0.578^{+0.030}_{-0.045}$ (−0.1 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.79	$9.0^{+4.7}_{-4.6}$ (−0.0 $\sigma$ )	$Y_P$	0.24542	$0.2466^{+0.0042}_{-0.0013}$ (−0.6 $\sigma$ )	$f\sigma_8(2.33)$	0.2986	$0.292^{+0.015}_{-0.023}$ (−0.1 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.04	$11.0^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$Y_P^{\text{BBN}}$	0.24675	$0.2479^{+0.0042}_{-0.0013}$ (−0.6 $\sigma$ )	$\sigma_8(2.33)$	0.3079	$0.301^{+0.016}_{-0.024}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.7	$18.6^{+8.2}_{-8.5}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.573	$2.590^{+0.092}_{-0.068}$ (−1.2 $\sigma$ )	$f_{2000}^{143}$	29.0	$30^{+7}_{-7}$ (−0.8 $\sigma$ )
$A_{217}^{\text{dustTT}}$	94.7	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.784	$13.72^{+0.12}_{-0.33}$ (+0.5 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.0	$33^{+5}_{-5}$ (−0.9 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.113^{+0.099}_{-0.094}$	$z_*$	1089.76	$1089.87^{+0.69}_{-0.58}$ (−1.0 $\sigma$ )	$f_{2000}^{217}$	106.65	$107.4^{+4.8}_{-4.8}$ (−0.8 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.079}_{-0.075}$	$r_*$	144.60	$143.8^{+1.2}_{-3.4}$ (+0.5 $\sigma$ )	$\chi_{\text{small}}^2$	397	291 ( $\nu$ : 14275.5) (−0.1 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.479	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04120	$1.04105^{+0.00084}_{-0.0010}$ (+0.4 $\sigma$ )	$\chi_{\text{lowl}}^2$	23	129 ( $\nu$ : 14277.5) (+0.1 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.888	$13.82^{+0.11}_{-0.31}$ (+0.5 $\sigma$ )	$\chi_{\text{plik}}^2$	2344.6	2362.3 ( $\nu$ : 19.5) (+267.6 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.662	$0.66^{+0.21}_{-0.21}$	$z_{\text{drag}}$	1060.05	$1060.4^{+1.4}_{-0.93}$ (+0.2 $\sigma$ )	$\chi_{\text{JLA}}^2$	1034.98	1035.12 ( $\nu$ : 0.1) (+0.3 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.07	$2.07^{+0.68}_{-0.67}$	$r_{\text{drag}}$	147.24	$146.4^{+1.3}_{-3.5}$ (+0.4 $\sigma$ )	$\chi_{6\text{DF}}^2$	0.02	0.40 ( $\nu$ : 0.2) (+0.1 $\sigma$ )
$c_{100}$	0.99970	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14076	$0.1414^{+0.0026}_{-0.0012}$ (−0.2 $\sigma$ )	$\chi_{\text{MGS}}^2$	1.28	0.89 ( $\nu$ : 0.2) (−0.3 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.2 $\sigma$ )	$100\theta_D$	0.16071	$0.16084^{+0.00084}_{-0.00051}$ (−1.2 $\sigma$ )	$\chi_{\text{DR12BAO}}^2$	4.25	5.0 ( $\nu$ : 1.2) (+0.3 $\sigma$ )
$H_0$	67.75	$68.0^{+2.3}_{-1.3}$ (−0.5 $\sigma$ )	$z_{\text{eq}}$	3377	$3335^{+88}_{-220}$ (+0.3 $\sigma$ )	$\chi_{\text{prior}}^2$	1.8	11.7 ( $\nu$ : 10.6) (+1.2 $\sigma$ )
$\Omega_\Lambda$	0.6902	$0.689^{+0.017}_{-0.017}$ (−0.4 $\sigma$ )	$k_{\text{eq}}$	0.010311	$0.01026^{+0.00034}_{-0.00055}$ (−0.1 $\sigma$ )	$\chi_{\text{BAO}}^2$	5.56	6.3 ( $\nu$ : 0.8) (+0.2 $\sigma$ )
$\Omega_m$	0.3098	$0.311^{+0.017}_{-0.017}$ (+0.4 $\sigma$ )	$100\theta_{\text{eq}}$	0.8183	$0.827^{+0.049}_{-0.018}$ (−0.2 $\sigma$ )	$\chi_{\text{CMB}}^2$	2764.7	2782.5 ( $\nu$ : 18.6) (+273.7 $\sigma$ )
$\Omega_m h^2$	0.14222	$0.1438^{+0.0065}_{-0.0034}$ (−0.4 $\sigma$ )	$100\theta_{s,\text{eq}}$	0.4520	$0.457^{+0.026}_{-0.0092}$ (−0.2 $\sigma$ )			
$\Omega_\nu h^2$	0.0009	$0.0027^{+0.0088}_{-0.0025}$ (+0.1 $\sigma$ )	$H(0.15)$	73.02	$73.3^{+2.3}_{-1.2}$ (−0.5 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 3806.99$ ;  $\Delta\chi_{\text{eff}}^2 = 1586.25$ ;  $\bar{\chi}_{\text{eff}}^2 = 3835.68$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1592.37$ ;  $R - 1 = 0.01641$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 ( $\Delta$  0.01) MGS: 1.28 ( $\Delta$  -0.13) DR12BAO: 4.25 ( $\Delta$  0.34) CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 396.96 ( $\Delta$  1.15) commander\_dx12\_v3\_2\_29: 23.15 ( $\Delta$  0.44) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.56 SN - JLA Pantheon18: 1034.98 ( $\Delta$  0.06)



### 8.23 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02249^{+0.00039}_{-0.00036} \quad (+0.9\sigma)$	$\Omega_m h^3$	$0.0974^{+0.0048}_{-0.0018} \quad (-0.2\sigma)$	$D_M(0.15)$	$639^{+11}_{-17} \quad (+0.3\sigma)$
$\Omega_c h^2$	$0.1183^{+0.0066}_{-0.0095} \quad (-0.1\sigma)$	$\sigma_8$	$0.790^{+0.037}_{-0.060} \quad (+0.1\sigma)$	$H(0.38)$	$83.3^{+1.9}_{-0.91} \quad (-0.3\sigma)$
$100\theta_{MC}$	$1.04094^{+0.00079}_{-0.00081} \quad (+0.2\sigma)$	$S_8$	$0.807^{+0.045}_{-0.061} \quad (+0.2\sigma)$	$D_M(0.38)$	$1524^{+23}_{-39} \quad (+0.3\sigma)$
$\tau$	$0.056^{+0.022}_{-0.020} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.442^{+0.024}_{-0.033} \quad (+0.2\sigma)$	$H(0.51)$	$90.1^{+1.9}_{-0.80} \quad (-0.3\sigma)$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 0.988 \quad (+0.0\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.591^{+0.029}_{-0.044} \quad (+0.2\sigma)$	$D_M(0.51)$	$1974^{+27}_{-48} \quad (+0.3\sigma)$
$N_{\text{eff}}$	$< 3.35 \quad (-0.5\sigma)$	$\sigma_8/h^{0.5}$	$0.960^{+0.043}_{-0.071} \quad (+0.2\sigma)$	$H(0.61)$	$95.7^{+2.0}_{-0.72} \quad (-0.2\sigma)$
$\ln(10^{10} A_s)$	$3.048^{+0.045}_{-0.042} \quad (+0.2\sigma)$	$r_{\text{drag}} h$	$99.4^{+2.1}_{-2.1} \quad (-0.3\sigma)$	$D_M(0.61)$	$2297^{+30}_{-54} \quad (+0.3\sigma)$
$n_s$	$0.968^{+0.014}_{-0.011} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.065}_{-0.062} \quad (+0.5\sigma)$	$H(2.33)$	$237.2^{+4.3}_{-2.2} \quad (-0.1\sigma)$
$y_{\text{cal}}$	$1.0007^{+0.0067}_{-0.0065} \quad (+0.1\sigma)$	$z_{\text{re}}$	$7.8^{+2.0}_{-2.1} \quad (+0.2\sigma)$	$D_M(2.33)$	$5739^{+43}_{-98} \quad (+0.2\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s$	$2.108^{+0.097}_{-0.086} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.446^{+0.024}_{-0.033} \quad (+0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_s e^{-2\tau}$	$1.883^{+0.032}_{-0.030} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.730^{+0.035}_{-0.055} \quad (+0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$5.4^{+4.5}_{-4.6} \quad (+0.2\sigma)$	$D_{40}$	$1225^{+32}_{-33} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.464^{+0.023}_{-0.035} \quad (+0.2\sigma)$
$A_{100}^{\text{PS}}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5738^{+98}_{-100} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.647^{+0.031}_{-0.049} \quad (+0.1\sigma)$
$A_{143}^{\text{PS}}$	$47^{+20}_{-20} \quad (-0.5\sigma)$	$D_{810}$	$2540^{+35}_{-36} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.463^{+0.022}_{-0.035} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.606^{+0.029}_{-0.046} \quad (+0.1\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.6^{+4.1}_{-4.3} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.458^{+0.021}_{-0.034} \quad (+0.1\sigma)$
$A^{\text{kSZ}}$	—	$n_{s,0.002}$	$0.968^{+0.014}_{-0.011} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	$0.576^{+0.028}_{-0.044} \quad (+0.1\sigma)$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$Y_P$	$0.2463^{+0.0032}_{-0.0011} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.291^{+0.014}_{-0.022} \quad (+0.1\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.7}_{-4.6} \quad (+0.1\sigma)$	$Y_P^{\text{BBN}}$	$0.2477^{+0.0032}_{-0.0011} \quad (-0.4\sigma)$	$\sigma_8(2.33)$	$0.300^{+0.015}_{-0.023} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.2}_{-8.4} \quad (+0.1\sigma)$	$10^5 D/H$	$2.588^{+0.081}_{-0.066} \quad (-1.1\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.7\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\text{Age/Gyr}$	$13.739^{+0.099}_{-0.23} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.8\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.099}_{-0.095}$	$z_*$	$1089.87^{+0.64}_{-0.58} \quad (-0.9\sigma)$	$f_{2000}^{217}$	$107.4^{+4.8}_{-4.7} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.079}_{-0.075}$	$r_*$	$144.0^{+1.0}_{-2.6} \quad (+0.2\sigma)$	$\chi_{\text{simall}}^2$	$292 (\nu: 14191.0) \quad (-0.1\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04108^{+0.00081}_{-0.00090} \quad (+0.2\sigma)$	$\chi_{\text{lowl}}^2$	$129 (\nu: 14191.3) \quad (+0.1\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$13.830^{+0.099}_{-0.24} \quad (+0.2\sigma)$	$\chi_{\text{plik}}^2$	$2361.8 (\nu: 18.8) \quad (+278.3\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$z_{\text{drag}}$	$1060.3^{+1.2}_{-0.84} \quad (+0.7\sigma)$	$\chi_{\text{Aver15}}^2$	$0.53 (\nu: 0.1) \quad (-0.4\sigma)$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.68}_{-0.67}$	$r_{\text{drag}}$	$146.6^{+1.1}_{-2.7} \quad (+0.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.39 (\nu: 0.2) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_D$	$0.1413^{+0.0021}_{-0.0011} \quad (+0.2\sigma)$	$\chi_{\text{MGS}}^2$	$0.84 (\nu: 0.2) \quad (-0.3\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_D$	$0.16081^{+0.00070}_{-0.00048} \quad (-1.1\sigma)$	$\chi_{\text{DR12BAO}}^2$	$5.3 (\nu: 1.6) \quad (+0.2\sigma)$
$H_0$	$67.8^{+2.0}_{-1.3} \quad (-0.3\sigma)$	$z_{\text{eq}}$	$3334^{+94}_{-220} \quad (+0.3\sigma)$	$\chi_{\text{prior}}^2$	$11.7 (\nu: 10.5) \quad (+1.2\sigma)$
$\Omega_\Lambda$	$0.688^{+0.016}_{-0.017} \quad (-0.2\sigma)$	$k_{\text{eq}}$	$0.01025^{+0.00031}_{-0.00053} \quad (+0.1\sigma)$	$\chi_{\text{BAO}}^2$	$6.6 (\nu: 1.1) \quad (+0.1\sigma)$
$\Omega_m$	$0.312^{+0.017}_{-0.016} \quad (+0.2\sigma)$	$100\theta_{\text{eq}}$	$0.828^{+0.046}_{-0.021} \quad (-0.2\sigma)$	$\chi_{\text{CMB}}^2$	$2782.1 (\nu: 18.1) \quad (+280.7\sigma)$
$\Omega_m h^2$	$0.1437^{+0.0053}_{-0.0032} \quad (-0.1\sigma)$	$100\theta_{s,\text{eq}}$	$0.457^{+0.024}_{-0.011} \quad (-0.2\sigma)$		
$\Omega_\nu h^2$	$0.0029^{+0.0086}_{-0.0027} \quad (+0.0\sigma)$	$H(0.15)$	$73.1^{+1.9}_{-1.1} \quad (-0.3\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2800.91; \Delta\bar{\chi}_{\text{eff}}^2 = 1592.23; R - 1 = 0.01503$$



## 8.24 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02248^{+0.00039}_{-0.00035} \quad (+0.8\sigma)$	$\Omega_{\mathrm{m}} h^3$	$0.0974^{+0.0048}_{-0.0018} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$639^{+11}_{-18} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1184^{+0.0065}_{-0.0096} \quad (-0.0\sigma)$	$\sigma_8$	$0.791^{+0.037}_{-0.060} \quad (+0.2\sigma)$	$H(0.38)$	$83.3^{+1.9}_{-0.91} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04093^{+0.00079}_{-0.00080} \quad (+0.1\sigma)$	$S_8$	$0.807^{+0.044}_{-0.061} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1525^{+23}_{-39} \quad (+0.2\sigma)$
$\tau$	$0.056^{+0.022}_{-0.020} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.442^{+0.024}_{-0.033} \quad (+0.3\sigma)$	$H(0.51)$	$90.1^{+1.9}_{-0.80} \quad (-0.2\sigma)$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.991 \quad (-0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.591^{+0.028}_{-0.044} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1975^{+27}_{-48} \quad (+0.2\sigma)$
$N_{\mathrm{eff}}$	$< 3.35 \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.960^{+0.043}_{-0.072} \quad (+0.2\sigma)$	$H(0.61)$	$95.7^{+2.0}_{-0.72} \quad (-0.2\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.048^{+0.045}_{-0.042} \quad (+0.2\sigma)$	$r_{\mathrm{drag}} h$	$99.4^{+2.1}_{-2.1} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	$2298^{+30}_{-55} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.014}_{-0.012} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.066}_{-0.062} \quad (+0.5\sigma)$	$H(2.33)$	$237.2^{+4.2}_{-2.3} \quad (-0.0\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0066}_{-0.0065} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$7.8^{+2.1}_{-2.1} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5739^{+43}_{-99} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.107^{+0.097}_{-0.086} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.447^{+0.024}_{-0.034} \quad (+0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.032}_{-0.030} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.730^{+0.035}_{-0.056} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.4^{+4.6}_{-4.6} \quad (+0.2\sigma)$	$D_{40}$	$1225^{+32}_{-33} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.464^{+0.023}_{-0.035} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$260^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5737^{+98}_{-99} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.647^{+0.031}_{-0.050} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2540^{+35}_{-36} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.463^{+0.022}_{-0.035} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.606^{+0.029}_{-0.047} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.5^{+4.1}_{-4.2} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.458^{+0.021}_{-0.035} \quad (+0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s}, 0.002}$	$0.968^{+0.014}_{-0.012} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	$0.576^{+0.028}_{-0.044} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2464^{+0.0032}_{-0.0011} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	$0.291^{+0.014}_{-0.022} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2477^{+0.0032}_{-0.0011} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.300^{+0.015}_{-0.024} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.3}_{-8.4} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.590^{+0.076}_{-0.063} \quad (-1.1\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.739^{+0.099}_{-0.23} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.099}_{-0.094}$	$z_*$	$1089.89^{+0.61}_{-0.57} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$107.4^{+4.8}_{-4.7} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.079}_{-0.074}$	$r_*$	$144.0^{+1.1}_{-2.6} \quad (+0.1\sigma)$	$\chi_{\mathrm{simall}}^2$	$290 \quad (\nu: 14344.0) \quad (-0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04107^{+0.00081}_{-0.00089} \quad (+0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$130 \quad (\nu: 14345.4) \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.83^{+0.10}_{-0.24} \quad (+0.1\sigma)$	$\chi_{\mathrm{plik}}^2$	$2361.7 \quad (\nu: 18.7) \quad (+280.3\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1060.3^{+1.2}_{-0.87} \quad (+0.6\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.54 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.68}_{-0.67}$	$r_{\mathrm{drag}}$	$146.6^{+1.1}_{-2.7} \quad (+0.0\sigma)$	$\chi_{\mathrm{Cooke17}}^2$	$0.17 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1413^{+0.0021}_{-0.0011} \quad (+0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.39 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16082^{+0.00066}_{-0.00047} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$0.82 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$H_0$	$67.8^{+2.0}_{-1.3} \quad (-0.3\sigma)$	$z_{\mathrm{eq}}$	$3335^{+94}_{-220} \quad (+0.3\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.4 \quad (\nu: 1.6) \quad (+0.2\sigma)$
$\Omega_{\Lambda}$	$0.687^{+0.016}_{-0.017} \quad (-0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01026^{+0.00030}_{-0.00054} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.7 \quad (\nu: 10.5) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.313^{+0.017}_{-0.016} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.828^{+0.046}_{-0.020} \quad (-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.6 \quad (\nu: 1.1) \quad (+0.2\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1437^{+0.0052}_{-0.0032} \quad (+0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.457^{+0.024}_{-0.011} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2782.0 \quad (\nu: 18.0) \quad (+282.0\sigma)$
$\Omega_{\nu} h^2$	$0.0029^{+0.0087}_{-0.0027} \quad (-0.0\sigma)$	$H(0.15)$	$73.1^{+2.0}_{-1.1} \quad (-0.2\sigma)$	$\chi_{\mathrm{Abund}}^2$	$0.70 \quad (\nu: 0.1) \quad (-0.3\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2801.05; \Delta \bar{\chi}_{\mathrm{eff}}^2 = 1592.38; R - 1 = 0.01420$$



## 8.25 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02250^{+0.00041}_{-0.00038} \quad (+0.7\sigma)$	$\Omega_\nu h^2$	$0.0027^{+0.0083}_{-0.0026} \quad (+0.1\sigma)$	$100\theta_{s,eq}$	$0.456^{+0.025}_{-0.0095} \quad (-0.2\sigma)$
$\Omega_c h^2$	$0.1187^{+0.0075}_{-0.0097} \quad (-0.4\sigma)$	$\Omega_m h^3$	$0.0977^{+0.0060}_{-0.0022} \quad (-0.5\sigma)$	$H(0.15)$	$73.2^{+2.3}_{-1.2} \quad (-0.5\sigma)$
$100\theta_{MC}$	$1.04091^{+0.00079}_{-0.00086} \quad (+0.3\sigma)$	$\sigma_8$	$0.792^{+0.038}_{-0.061} \quad (-0.0\sigma)$	$D_M(0.15)$	$638^{+12}_{-20} \quad (+0.5\sigma)$
$\tau$	$0.057^{+0.020}_{-0.015} \quad (+0.2\sigma)$	$S_8$	$0.808^{+0.044}_{-0.062} \quad (+0.1\sigma)$	$H(0.38)$	$83.4^{+2.3}_{-1.0} \quad (-0.5\sigma)$
$m_{\nu, sterile}^{eff} [eV]$	$< 0.949 \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.443^{+0.024}_{-0.034} \quad (+0.1\sigma)$	$D_M(0.38)$	$1523^{+24}_{-45} \quad (+0.5\sigma)$
$N_{eff}$	$< 3.42 \quad (-0.7\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.592^{+0.029}_{-0.045} \quad (+0.1\sigma)$	$H(0.51)$	$90.2^{+2.4}_{-0.90} \quad (-0.5\sigma)$
$\ln(10^{10} A_s)$	$3.050^{+0.046}_{-0.034} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.961^{+0.043}_{-0.073} \quad (+0.1\sigma)$	$D_M(0.51)$	$1972^{+29}_{-57} \quad (+0.5\sigma)$
$n_s$	$0.969^{+0.016}_{-0.012} \quad (-0.5\sigma)$	$r_{drag} h$	$99.4^{+2.2}_{-2.1} \quad (-0.4\sigma)$	$H(0.61)$	$95.8^{+2.5}_{-0.82} \quad (-0.5\sigma)$
$y_{cal}$	$1.0008^{+0.0064}_{-0.0065} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.065}_{-0.060} \quad (+0.6\sigma)$	$D_M(0.61)$	$2295^{+32}_{-65} \quad (+0.5\sigma)$
$A_{217}^{CIB}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$z_{re}$	$< 9.76 \quad (+0.1\sigma)$	$H(2.33)$	$237.4^{+5.1}_{-2.4} \quad (-0.4\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s$	$2.112^{+0.098}_{-0.070} \quad (+0.0\sigma)$	$D_M(2.33)$	$5733^{+50}_{-120} \quad (+0.5\sigma)$
$A_{143}^{tSZ}$	$5.4^{+4.5}_{-4.6} \quad (+0.3\sigma)$	$10^9 A_s e^{-2\tau}$	$1.885^{+0.033}_{-0.031} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	$0.447^{+0.023}_{-0.034} \quad (+0.1\sigma)$
$A_{100}^{PS}$	$260^{+70}_{-70} \quad (-0.3\sigma)$	$D_{40}$	$1225^{+33}_{-33} \quad (+0.6\sigma)$	$\sigma_8(0.15)$	$0.732^{+0.036}_{-0.057} \quad (-0.0\sigma)$
$A_{143}^{PS}$	$47^{+20}_{-20} \quad (-0.6\sigma)$	$D_{220}$	$5738^{+100}_{-99} \quad (+0.5\sigma)$	$f\sigma_8(0.38)$	$0.465^{+0.023}_{-0.035} \quad (+0.1\sigma)$
$A_{143 \times 217}^{PS}$	$43^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2541^{+35}_{-36} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.649^{+0.032}_{-0.050} \quad (-0.0\sigma)$
$A_{217}^{PS}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$817^{+13}_{-12} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.464^{+0.022}_{-0.035} \quad (+0.0\sigma)$
$A^{kSZ}$	—	$D_{2000}$	$230.6^{+4.3}_{-4.2} \quad (+1.0\sigma)$	$\sigma_8(0.51)$	$0.607^{+0.030}_{-0.047} \quad (-0.1\sigma)$
$A_{100}^{dustTT}$	$9.0^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$n_{s,0.002}$	$0.969^{+0.016}_{-0.012} \quad (-0.5\sigma)$	$f\sigma_8(0.61)$	$0.459^{+0.022}_{-0.035} \quad (+0.0\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_P$	$0.2466^{+0.0039}_{-0.0013} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.578^{+0.029}_{-0.045} \quad (-0.1\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.7^{+8.1}_{-8.5} \quad (+0.1\sigma)$	$Y_P^{BBN}$	$0.2479^{+0.0039}_{-0.0013} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.292^{+0.015}_{-0.023} \quad (-0.1\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$10^5 D/H$	$2.591^{+0.090}_{-0.069} \quad (-1.2\sigma)$	$\sigma_8(2.33)$	$0.300^{+0.016}_{-0.024} \quad (-0.1\sigma)$
$A_{100}^{dustTE}$	$0.114^{+0.099}_{-0.095}$	Age/Gyr	$13.72^{+0.12}_{-0.29} \quad (+0.5\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.8\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.077}_{-0.076}$	$z_*$	$1089.89^{+0.67}_{-0.60} \quad (-1.0\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.9\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$143.8^{+1.3}_{-2.9} \quad (+0.5\sigma)$	$f_{2000}^{217}$	$107.4^{+4.7}_{-4.7} \quad (-0.8\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.04104^{+0.00081}_{-0.0010} \quad (+0.4\sigma)$	$\chi_{small}^2$	$397.4 \quad (\nu: 2.6) \quad (+0.1\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.21}_{-0.21}$	$D_M(z_*)/Gpc$	$13.82^{+0.12}_{-0.26} \quad (+0.5\sigma)$	$\chi_{lowl}^2$	$22.90 \quad (\nu: 0.4) \quad (+0.6\sigma)$
$A_{217}^{dustTE}$	$2.08^{+0.69}_{-0.68}$	$z_{drag}$	$1060.3^{+1.4}_{-0.90} \quad (+0.2\sigma)$	$\chi_{plik}^2$	$2361.9 \quad (\nu: 19.2) \quad (+267.6\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$r_{drag}$	$146.4^{+1.4}_{-3.0} \quad (+0.4\sigma)$	$\chi_{6DF}^2$	$0.076 \quad (\nu: 0.0) \quad (+0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.2\sigma)$	$k_D$	$0.1414^{+0.0025}_{-0.0012} \quad (-0.2\sigma)$	$\chi_{MGS}^2$	$1.15 \quad (\nu: 0.1) \quad (-0.4\sigma)$
$H_0$	$67.9^{+2.3}_{-1.4} \quad (-0.5\sigma)$	$100\theta_D$	$0.16084^{+0.00081}_{-0.00051} \quad (-1.2\sigma)$	$\chi_{DR12BAO}^2$	$5.3 \quad (\nu: 1.6) \quad (+0.3\sigma)$
$\Omega_\Lambda$	$0.688^{+0.017}_{-0.017} \quad (-0.3\sigma)$	$z_{eq}$	$3337^{+92}_{-220} \quad (+0.3\sigma)$	$\chi_{prior}^2$	$11.7 \quad (\nu: 10.6) \quad (+1.1\sigma)$
$\Omega_m$	$0.312^{+0.017}_{-0.017} \quad (+0.3\sigma)$	$k_{eq}$	$0.01027^{+0.00033}_{-0.00054} \quad (-0.1\sigma)$	$\chi_{BAO}^2$	$6.6 \quad (\nu: 1.1) \quad (+0.2\sigma)$
$\Omega_m h^2$	$0.1440^{+0.0061}_{-0.0034} \quad (-0.4\sigma)$	$100\theta_{eq}$	$0.827^{+0.048}_{-0.018} \quad (-0.2\sigma)$	$\chi_{CMB}^2$	$2782.2 \quad (\nu: 18.4) \quad (+275.7\sigma)$

$$\bar{\chi}_{eff}^2 = 2800.45; \Delta\bar{\chi}_{eff}^2 = 1592.25; R - 1 = 0.01583$$



8.26 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02251^{+0.00041}_{-0.00037} \quad (+0.7\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0978^{+0.0074}_{-0.0022} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	$638^{+12}_{-21} \quad (+0.6\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1187^{+0.0079}_{-0.0099} \quad (-0.4\sigma)$	$\sigma_8$	$0.793^{+0.039}_{-0.061} \quad (-0.0\sigma)$	$H(0.38)$	$83.5^{+2.5}_{-1.0} \quad (-0.6\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04092^{+0.00081}_{-0.00087} \quad (+0.4\sigma)$	$S_8$	$0.807^{+0.044}_{-0.061} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1521^{+24}_{-47} \quad (+0.6\sigma)$
$\tau$	$0.057^{+0.020}_{-0.015} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.442^{+0.024}_{-0.034} \quad (+0.1\sigma)$	$H(0.51)$	$90.2^{+2.2}_{-1.0} \quad (-0.6\sigma)$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.973 \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.592^{+0.029}_{-0.045} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1970^{+29}_{-59} \quad (+0.6\sigma)$
$N_{\mathrm{eff}}$	$< 3.44 \quad (-0.7\sigma)$	$\sigma_8/h^{0.5}$	$0.961^{+0.042}_{-0.072} \quad (+0.1\sigma)$	$H(0.61)$	$95.9^{+2.3}_{-0.94} \quad (-0.5\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.050^{+0.046}_{-0.034} \quad (+0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.6^{+2.1}_{-2.1} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	$2292^{+32}_{-68} \quad (+0.6\sigma)$
$n_{\mathrm{s}}$	$0.969^{+0.016}_{-0.012} \quad (-0.6\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.064}_{-0.059} \quad (+0.6\sigma)$	$H(2.33)$	$237.4^{+5.3}_{-2.4} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0066}_{-0.0065} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.78 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5730^{+50}_{-130} \quad (+0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.112^{+0.098}_{-0.071} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.447^{+0.024}_{-0.034} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.884^{+0.035}_{-0.031} \quad (-0.2\sigma)$	$\sigma_8(0.15)$	$0.732^{+0.036}_{-0.057} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.4^{+4.6}_{-4.6} \quad (+0.3\sigma)$	$D_{40}$	$1224^{+33}_{-33} \quad (+0.6\sigma)$	$f\sigma_8(0.38)$	$0.465^{+0.023}_{-0.035} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$260^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5739^{+98}_{-100} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.649^{+0.033}_{-0.051} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.6\sigma)$	$D_{810}$	$2540^{+35}_{-36} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.464^{+0.022}_{-0.035} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.608^{+0.031}_{-0.048} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.6^{+4.2}_{-4.3} \quad (+0.9\sigma)$	$f\sigma_8(0.61)$	$0.459^{+0.022}_{-0.035} \quad (-0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s}, 0.002}$	$0.969^{+0.016}_{-0.012} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.578^{+0.030}_{-0.045} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2466^{+0.0042}_{-0.0013} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.292^{+0.015}_{-0.023} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.7} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2479^{+0.0042}_{-0.0014} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.301^{+0.016}_{-0.024} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.2}_{-8.5} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.590^{+0.092}_{-0.069} \quad (-1.2\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.8\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.72^{+0.12}_{-0.31} \quad (+0.5\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.9\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.113^{+0.099}_{-0.095}$	$z_*$	$1089.87^{+0.70}_{-0.58} \quad (-1.0\sigma)$	$f_{2000}^{217}$	$107.4^{+4.8}_{-4.8} \quad (-0.8\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.079}_{-0.075}$	$r_*$	$143.8^{+1.2}_{-3.4} \quad (+0.5\sigma)$	$\chi_{\mathrm{simall}}^2$	$291 \quad (\nu: 14232.5) \quad (-0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	$1.04104^{+0.00084}_{-0.0010} \quad (+0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$129 \quad (\nu: 14235.3) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.82^{+0.13}_{-0.29} \quad (+0.5\sigma)$	$\chi_{\mathrm{plik}}^2$	$2362.2 \quad (\nu: 19.5) \quad (+268.8\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1060.4^{+1.4}_{-0.93} \quad (+0.2\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.12 \quad (\nu: 0.1) \quad (+0.3\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.07^{+0.68}_{-0.67}$	$r_{\mathrm{drag}}$	$146.4^{+1.4}_{-3.2} \quad (+0.4\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.40 \quad (\nu: 0.2) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1414^{+0.0026}_{-0.0012} \quad (-0.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$0.89 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00085}_{-0.00051} \quad (-1.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 \quad (\nu: 1.2) \quad (+0.3\sigma)$
$H_0$	$68.0^{+2.4}_{-1.4} \quad (-0.6\sigma)$	$z_{\mathrm{eq}}$	$3334^{+88}_{-220} \quad (+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.7 \quad (\nu: 10.6) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.689^{+0.017}_{-0.017} \quad (-0.4\sigma)$	$k_{\mathrm{eq}}$	$0.01026^{+0.00034}_{-0.00055} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.3 \quad (\nu: 0.8) \quad (+0.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.017}_{-0.017} \quad (+0.4\sigma)$	$100\theta_{\mathrm{eq}}$	$0.828^{+0.050}_{-0.018} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2782.4 \quad (\nu: 18.6) \quad (+277.0\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1439^{+0.0066}_{-0.0034} \quad (-0.4\sigma)$	$100\theta_{\mathrm{s}, \mathrm{eq}}$	$0.457^{+0.024}_{-0.010} \quad (-0.2\sigma)$		
$\Omega_{\nu}h^2$	$0.0027^{+0.0089}_{-0.0026} \quad (+0.1\sigma)$	$H(0.15)$	$73.3^{+2.3}_{-1.2} \quad (-0.6\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3835.56; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.44; R - 1 = 0.01701$$



## 8.27 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02249^{+0.00039}_{-0.00036} \quad (+0.9\sigma)$	$\Omega_{\mathrm{m}} h^3$	$0.0974^{+0.0049}_{-0.0018} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$639^{+11}_{-17} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1183^{+0.0067}_{-0.0095} \quad (-0.1\sigma)$	$\sigma_8$	$0.791^{+0.037}_{-0.060} \quad (+0.1\sigma)$	$H(0.38)$	$83.3^{+1.9}_{-0.91} \quad (-0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04094^{+0.00079}_{-0.00081} \quad (+0.2\sigma)$	$S_8$	$0.807^{+0.044}_{-0.061} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1524^{+23}_{-39} \quad (+0.3\sigma)$
$\tau$	$0.057^{+0.020}_{-0.015} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.442^{+0.024}_{-0.034} \quad (+0.2\sigma)$	$H(0.51)$	$90.1^{+1.9}_{-0.80} \quad (-0.3\sigma)$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.991 \quad (+0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.591^{+0.028}_{-0.044} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1974^{+28}_{-48} \quad (+0.3\sigma)$
$N_{\mathrm{eff}}$	$< 3.35 \quad (-0.5\sigma)$	$\sigma_8/h^{0.5}$	$0.960^{+0.043}_{-0.072} \quad (+0.2\sigma)$	$H(0.61)$	$95.7^{+2.0}_{-0.72} \quad (-0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.049^{+0.044}_{-0.033} \quad (+0.2\sigma)$	$r_{\mathrm{drag}} h$	$99.4^{+2.1}_{-2.1} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	$2297^{+30}_{-55} \quad (+0.3\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.014}_{-0.012} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.065}_{-0.060} \quad (+0.5\sigma)$	$H(2.33)$	$237.2^{+4.3}_{-2.2} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0066}_{-0.0065} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.71 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5739^{+43}_{-99} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.110^{+0.095}_{-0.070} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.447^{+0.024}_{-0.034} \quad (+0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.032}_{-0.030} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.731^{+0.034}_{-0.056} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.4^{+4.6}_{-4.6} \quad (+0.2\sigma)$	$D_{40}$	$1225^{+32}_{-33} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.464^{+0.023}_{-0.035} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5738^{+98}_{-100} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.648^{+0.031}_{-0.050} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.5\sigma)$	$D_{810}$	$2540^{+35}_{-36} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.463^{+0.022}_{-0.035} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.606^{+0.029}_{-0.047} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.6^{+4.1}_{-4.3} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.458^{+0.021}_{-0.035} \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s}, 0.002}$	$0.968^{+0.014}_{-0.012} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	$0.577^{+0.028}_{-0.044} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2464^{+0.0032}_{-0.0011} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.291^{+0.014}_{-0.022} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.7} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2477^{+0.0032}_{-0.0011} \quad (-0.4\sigma)$	$\sigma_8(2.33)$	$0.300^{+0.015}_{-0.023} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.2}_{-8.4} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.588^{+0.081}_{-0.066} \quad (-1.1\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.74^{+0.10}_{-0.23} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.8\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.099}_{-0.095}$	$z_*$	$1089.87^{+0.65}_{-0.58} \quad (-0.9\sigma)$	$f_{2000}^{217}$	$107.3^{+4.8}_{-4.8} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.079}_{-0.075}$	$r_*$	$144.0^{+1.0}_{-2.6} \quad (+0.2\sigma)$	$\chi_{\mathrm{small}}^2$	$292 \quad (\nu: 14138.5) \quad (-0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	$1.04108^{+0.00081}_{-0.00090} \quad (+0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$128 \quad (\nu: 14139.9) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.830^{+0.098}_{-0.24} \quad (+0.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2361.7 \quad (\nu: 18.7) \quad (+279.5\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1060.3^{+1.2}_{-0.85} \quad (+0.6\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.53 \quad (\nu: 0.1) \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.68}_{-0.68}$	$r_{\mathrm{drag}}$	$146.6^{+1.1}_{-2.7} \quad (+0.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.39 \quad (\nu: 0.2) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1413^{+0.0021}_{-0.0011} \quad (+0.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$0.84 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16080^{+0.00070}_{-0.00048} \quad (-1.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.3 \quad (\nu: 1.6) \quad (+0.2\sigma)$
$H_0$	$67.8^{+2.0}_{-1.3} \quad (-0.3\sigma)$	$z_{\mathrm{eq}}$	$3333^{+93}_{-220} \quad (+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.7 \quad (\nu: 10.5) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.017} \quad (-0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01025^{+0.00031}_{-0.00053} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.6 \quad (\nu: 1.1) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.017}_{-0.016} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.828^{+0.046}_{-0.021} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2782.0 \quad (\nu: 18.0) \quad (+283.8\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1437^{+0.0053}_{-0.0032} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s}, \mathrm{eq}}$	$0.457^{+0.024}_{-0.011} \quad (-0.2\sigma)$		
$\Omega_{\nu} h^2$	$0.0029^{+0.0086}_{-0.0027} \quad (+0.0\sigma)$	$H(0.15)$	$73.1^{+1.9}_{-1.1} \quad (-0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2800.77; \Delta \bar{\chi}_{\mathrm{eff}}^2 = 1592.28; R - 1 = 0.01526$$



8.28 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02248^{+0.00039}_{-0.00035} \quad (+0.8\sigma)$	$\Omega_{\mathrm{m}} h^3$	$0.0974^{+0.0049}_{-0.0018} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$639^{+11}_{-18} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1184^{+0.0065}_{-0.0096} \quad (-0.0\sigma)$	$\sigma_8$	$0.791^{+0.037}_{-0.061} \quad (+0.2\sigma)$	$H(0.38)$	$83.3^{+1.9}_{-0.91} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04093^{+0.00079}_{-0.00081} \quad (+0.1\sigma)$	$S_8$	$0.807^{+0.044}_{-0.061} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1524^{+23}_{-39} \quad (+0.3\sigma)$
$\tau$	$0.057^{+0.020}_{-0.015} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.442^{+0.024}_{-0.034} \quad (+0.3\sigma)$	$H(0.51)$	$90.1^{+1.9}_{-0.80} \quad (-0.2\sigma)$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.993 \quad (-0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.591^{+0.028}_{-0.044} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1975^{+27}_{-48} \quad (+0.3\sigma)$
$N_{\mathrm{eff}}$	$< 3.35 \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.961^{+0.043}_{-0.072} \quad (+0.2\sigma)$	$H(0.61)$	$95.7^{+2.0}_{-0.72} \quad (-0.2\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.049^{+0.044}_{-0.033} \quad (+0.2\sigma)$	$r_{\mathrm{drag}} h$	$99.4^{+2.1}_{-2.1} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	$2298^{+30}_{-55} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.014}_{-0.012} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.065}_{-0.060} \quad (+0.5\sigma)$	$H(2.33)$	$237.2^{+4.2}_{-2.3} \quad (-0.0\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0065} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.71 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5739^{+43}_{-99} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.110^{+0.095}_{-0.070} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.447^{+0.024}_{-0.034} \quad (+0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.032}_{-0.030} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.731^{+0.034}_{-0.056} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.4^{+4.6}_{-4.6} \quad (+0.2\sigma)$	$D_{40}$	$1225^{+32}_{-33} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.464^{+0.022}_{-0.035} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$260^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5737^{+98}_{-99} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.648^{+0.031}_{-0.050} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2540^{+35}_{-36} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.463^{+0.022}_{-0.035} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.606^{+0.029}_{-0.047} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.5^{+4.1}_{-4.2} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.458^{+0.021}_{-0.035} \quad (+0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s}, 0.002}$	$0.968^{+0.014}_{-0.012} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	$0.577^{+0.028}_{-0.044} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2464^{+0.0032}_{-0.0011} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	$0.291^{+0.014}_{-0.023} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2477^{+0.0032}_{-0.0011} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.300^{+0.015}_{-0.023} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.2}_{-8.4} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.590^{+0.077}_{-0.063} \quad (-1.1\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.74^{+0.10}_{-0.23} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.099}_{-0.095}$	$z_*$	$1089.89^{+0.62}_{-0.57} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$107.4^{+4.8}_{-4.7} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.079}_{-0.075}$	$r_*$	$144.0^{+1.1}_{-2.6} \quad (+0.1\sigma)$	$\chi_{\mathrm{simall}}^2$	$290 \quad (\nu: 14295.5) \quad (-0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04107^{+0.00080}_{-0.00089} \quad (+0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$130 \quad (\nu: 14298.0) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.83^{+0.10}_{-0.24} \quad (+0.1\sigma)$	$\chi_{\mathrm{plik}}^2$	$2361.6 \quad (\nu: 18.7) \quad (+281.7\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1060.3^{+1.2}_{-0.87} \quad (+0.6\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.54 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.68}_{-0.67}$	$r_{\mathrm{drag}}$	$146.6^{+1.1}_{-2.7} \quad (+0.0\sigma)$	$\chi_{\mathrm{Cooke17}}^2$	$0.17 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1413^{+0.0021}_{-0.0011} \quad (+0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.39 \quad (\nu: 0.2) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16082^{+0.00067}_{-0.00047} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$0.83 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$H_0$	$67.8^{+2.0}_{-1.3} \quad (-0.3\sigma)$	$z_{\mathrm{eq}}$	$3334^{+92}_{-220} \quad (+0.3\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.4 \quad (\nu: 1.6) \quad (+0.2\sigma)$
$\Omega_{\Lambda}$	$0.687^{+0.016}_{-0.017} \quad (-0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01026^{+0.00030}_{-0.00054} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.7 \quad (\nu: 10.5) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.313^{+0.017}_{-0.016} \quad (+0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.828^{+0.046}_{-0.020} \quad (-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.6 \quad (\nu: 1.1) \quad (+0.2\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1437^{+0.0052}_{-0.0032} \quad (+0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.457^{+0.024}_{-0.011} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2781.9 \quad (\nu: 17.9) \quad (+285.3\sigma)$
$\Omega_{\nu} h^2$	$0.0029^{+0.0087}_{-0.0027} \quad (-0.0\sigma)$	$H(0.15)$	$73.1^{+2.0}_{-1.1} \quad (-0.3\sigma)$	$\chi_{\mathrm{Abund}}^2$	$0.71 \quad (\nu: 0.1) \quad (-0.3\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2800.91; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.43; R - 1 = 0.01453$$



## 8.29 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022350	$0.02243^{+0.00042}_{-0.00039}$	$\sigma_8$	0.806	$0.788^{+0.043}_{-0.073}$	$H(0.15)$	73.00	$73.4^{+2.6}_{-1.3}$
$\Omega_c h^2$	0.1148	$0.1187^{+0.0087}_{-0.013}$	$S_8$	0.818	$0.801^{+0.047}_{-0.073}$	$D_M(0.15)$	640.1	$637^{+13}_{-23}$
$100\theta_{MC}$	1.04097	$1.04082^{+0.00086}_{-0.0010}$	$\sigma_8 \Omega_m^{0.5}$	0.4483	$0.439^{+0.026}_{-0.040}$	$H(0.38)$	83.07	$83.6^{+2.4}_{-1.2}$
$\tau$	0.0538	$0.055^{+0.021}_{-0.021}$	$\sigma_8 \Omega_m^{0.25}$	0.6012	$0.588^{+0.032}_{-0.053}$	$D_M(0.38)$	1527.2	$1519^{+27}_{-52}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	0.38	$< 1.15$	$\sigma_8/h^{0.5}$	0.980	$0.955^{+0.046}_{-0.085}$	$H(0.51)$	89.76	$90.3^{+2.5}_{-1.1}$
$N_{\text{eff}}$	3.047	$< 3.53$	$r_{\text{drag}} h$	99.86	$99.7^{+2.3}_{-2.2}$	$D_M(0.51)$	1978.7	$1967^{+32}_{-65}$
$\ln(10^{10} A_s)$	3.0404	$3.044^{+0.047}_{-0.045}$	$\langle d^2 \rangle^{1/2}$	2.425	$2.415^{+0.066}_{-0.068}$	$H(0.61)$	95.36	$96.0^{+2.5}_{-1.1}$
$n_s$	0.9680	$0.970^{+0.017}_{-0.013}$	$z_{\text{re}}$	7.62	$7.7^{+2.0}_{-2.3}$	$D_M(0.61)$	2303	$2290^{+35}_{-75}$
$y_{\text{cal}}$	1.0009	$1.0006^{+0.0064}_{-0.0063}$	$10^9 A_s$	2.091	$2.10^{+0.10}_{-0.092}$	$H(2.33)$	235.81	$237.5^{+5.6}_{-3.0}$
$A_{100}^{\text{PS}}$	235	$243^{+60}_{-70}$	$10^9 A_s e^{-2\tau}$	1.8778	$1.881^{+0.040}_{-0.031}$	$D_M(2.33)$	5761	$5725^{+58}_{-140}$
$A_{143}^{\text{PS}}$	43.8	$41^{+20}_{-20}$	$D_{40}$	1222.9	$1218^{+34}_{-35}$	$f\sigma_8(0.15)$	0.4530	$0.444^{+0.025}_{-0.040}$
$A_{217}^{\text{PS}}$	104.5	$102^{+30}_{-40}$	$D_{220}$	5726	$5723^{+99}_{-100}$	$\sigma_8(0.15)$	0.745	$0.728^{+0.040}_{-0.067}$
$A_{217}^{\text{CIB}}$	41.8	$41^{+20}_{-20}$	$D_{810}$	2538.5	$2536^{+34}_{-35}$	$f\sigma_8(0.38)$	0.4718	$0.462^{+0.025}_{-0.042}$
$A_{143}^{\text{tSZ}}$	5.70	$< 8.78$	$D_{1420}$	817.4	$815^{+12}_{-13}$	$\sigma_8(0.38)$	0.6609	$0.646^{+0.036}_{-0.060}$
$r_{143 \times 217}^{\text{PS}}$	0.693	$0.65^{+0.31}_{-0.33}$	$D_{2000}$	230.94	$229.5^{+4.3}_{-4.5}$	$f\sigma_8(0.51)$	0.4707	$0.461^{+0.025}_{-0.042}$
$r_{143 \times 217}^{\text{CIB}}$	0.71	—	$n_{s,0.002}$	0.9680	$0.970^{+0.017}_{-0.013}$	$\sigma_8(0.51)$	0.6186	$0.604^{+0.034}_{-0.057}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.48	—	$Y_P$	0.24540	$0.2469^{+0.0049}_{-0.0017}$	$f\sigma_8(0.61)$	0.4659	$0.456^{+0.024}_{-0.041}$
$A^{\text{kSZ}}$	1.2	—	$Y_P^{\text{BBN}}$	0.24673	$0.2483^{+0.0049}_{-0.0017}$	$\sigma_8(0.61)$	0.5886	$0.575^{+0.032}_{-0.054}$
$A_{100}^{\text{dust}}$	1.01	$1.02^{+0.50}_{-0.51}$	$10^5 \text{D/H}$	2.590	$2.62^{+0.13}_{-0.084}$	$f\sigma_8(2.33)$	0.2969	$0.290^{+0.016}_{-0.028}$
$A_{143}^{\text{dust}}$	0.958	$0.97^{+0.45}_{-0.44}$	Age/Gyr	13.793	$13.71^{+0.14}_{-0.34}$	$\sigma_8(2.33)$	0.3062	$0.299^{+0.017}_{-0.029}$
$A_{217}^{\text{dust}}$	0.975	$0.97^{+0.27}_{-0.27}$	$z_*$	1089.85	$1090.01^{+0.92}_{-0.68}$	$f_{2000}^{143}$	29.4	$31^{+8}_{-7}$
$A_{143 \times 217}^{\text{dust}}$	1.030	$1.03^{+0.42}_{-0.43}$	$r_*$	144.74	$143.7^{+1.5}_{-3.4}$	$f_{2000}^{217}$	106.5	$107.6^{+5.1}_{-5.1}$
$c_{100}$	0.99777	$0.9975^{+0.0028}_{-0.0028}$	$100\theta_*$	1.04116	$1.04094^{+0.00089}_{-0.0012}$	$f_{2000}^{143 \times 217}$	31.9	$33^{+6}_{-5}$
$c_{217}$	1.00120	$1.0012^{+0.0041}_{-0.0040}$	$D_M(z_*)/\text{Gpc}$	13.901	$13.81^{+0.14}_{-0.32}$	$\chi_{\text{simall}}^2$	395.95	$397.1 (\nu: 1.7)$
$c_{TE}$	0.9969	$0.997^{+0.013}_{-0.013}$	$z_{\text{drag}}$	1059.82	$1060.2^{+1.5}_{-0.99}$	$\chi_{\text{lowl}}^2$	22.71	$22.47 (\nu: 0.4)$
$c_{EE}$	0.9925	$0.994^{+0.014}_{-0.013}$	$r_{\text{drag}}$	147.41	$146.4^{+1.6}_{-3.6}$	$\chi_{\text{CamSpec}}^2$	11500.3	$11517.3 (\nu: 18.6)$
$H_0$	67.75	$68.1^{+2.6}_{-1.5}$	$k_D$	0.14051	$0.1413^{+0.0026}_{-0.0015}$	$\chi_{6\text{DF}}^2$	0.016	$0.058 (\nu: 0.0)$
$\Omega_\Lambda$	0.6909	$0.690^{+0.018}_{-0.018}$	$100\theta_D$	0.16083	$0.1610^{+0.0011}_{-0.00065}$	$\chi_{\text{MGS}}^2$	1.34	$1.30 (\nu: 0.1)$
$\Omega_m$	0.3091	$0.310^{+0.018}_{-0.018}$	$z_{\text{eq}}$	3278	$3321^{+93}_{-280}$	$\chi_{\text{DR12BAO}}^2$	4.08	$4.9 (\nu: 1.2)$
$\Omega_m h^2$	0.1419	$0.1439^{+0.0075}_{-0.0038}$	$k_{\text{eq}}$	0.01008	$0.01024^{+0.00036}_{-0.00070}$	$\chi_{\text{prior}}^2$	2.1	$7.9 (\nu: 6.0)$
$\Omega_\nu h^2$	0.0047	$0.0028^{+0.012}_{-0.0023}$	$100\theta_{\text{eq}}$	0.8388	$0.830^{+0.065}_{-0.019}$	$\chi_{\text{BAO}}^2$	5.44	$6.2 (\nu: 0.8)$
$\Omega_m h^3$	0.0961	$0.0980^{+0.0074}_{-0.0026}$	$100\theta_{s,\text{eq}}$	0.4628	$0.458^{+0.034}_{-0.0098}$	$\chi_{\text{CMB}}^2$	11919.0	$11936.9 (\nu: 18.4)$

Best-fit  $\chi_{\text{eff}}^2 = 11926.47$ ;  $\bar{\chi}_{\text{eff}}^2 = 11950.99$ ;  $R - 1 = 0.01562$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.34 DR12BAO: 4.08 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.95 commander\_dx12\_v3.2.29: 22.71 CamSpec like\_10.7HM\_1400\_unified: 11500.30



### 8.30 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Pantheon18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02243^{+0.00043}_{-0.00038}$	$S_8$	$0.801^{+0.047}_{-0.073}$	$H(0.38)$	$83.6^{+2.5}_{-1.2}$
$\Omega_c h^2$	$0.1186^{+0.0089}_{-0.013}$	$\sigma_8 \Omega_m^{0.5}$	$0.438^{+0.026}_{-0.040}$	$D_M(0.38)$	$1517^{+27}_{-51}$
$100\theta_{MC}$	$1.04083^{+0.00086}_{-0.0010}$	$\sigma_8 \Omega_m^{0.25}$	$0.588^{+0.031}_{-0.053}$	$H(0.51)$	$90.4^{+2.5}_{-1.1}$
$\tau$	$0.055^{+0.021}_{-0.021}$	$\sigma_8/h^{0.5}$	$0.955^{+0.046}_{-0.085}$	$D_M(0.51)$	$1966^{+32}_{-64}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 1.15$	$r_{\text{drag}} h$	$99.8^{+2.2}_{-2.1}$	$H(0.61)$	$96.0^{+2.6}_{-1.1}$
$N_{\text{eff}}$	$< 3.54$	$\langle d^2 \rangle^{1/2}$	$2.413^{+0.065}_{-0.066}$	$D_M(0.61)$	$2288^{+35}_{-73}$
$\ln(10^{10} A_s)$	$3.044^{+0.047}_{-0.045}$	$z_{\text{re}}$	$7.7^{+2.0}_{-2.2}$	$H(2.33)$	$237.4^{+5.7}_{-3.0}$
$n_s$	$0.971^{+0.017}_{-0.013}$	$10^9 A_s$	$2.10^{+0.10}_{-0.092}$	$D_M(2.33)$	$5723^{+59}_{-150}$
$y_{\text{cal}}$	$1.0006^{+0.0064}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	$1.881^{+0.040}_{-0.031}$	$f\sigma_8(0.15)$	$0.443^{+0.025}_{-0.040}$
$A_{100}^{\text{PS}}$	$243^{+60}_{-70}$	$D_{40}$	$1218^{+34}_{-35}$	$\sigma_8(0.15)$	$0.729^{+0.040}_{-0.068}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5724^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.462^{+0.025}_{-0.042}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2536^{+34}_{-34}$	$\sigma_8(0.38)$	$0.646^{+0.036}_{-0.061}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$815^{+12}_{-13}$	$f\sigma_8(0.51)$	$0.461^{+0.024}_{-0.042}$
$A_{143}^{\text{tSZ}}$	$< 8.78$	$D_{2000}$	$229.6^{+4.3}_{-4.5}$	$\sigma_8(0.51)$	$0.605^{+0.033}_{-0.057}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.32}$	$n_{s,0.002}$	$0.971^{+0.017}_{-0.013}$	$f\sigma_8(0.61)$	$0.456^{+0.024}_{-0.042}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_P$	$0.2470^{+0.0049}_{-0.0017}$	$\sigma_8(0.61)$	$0.576^{+0.032}_{-0.054}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P^{\text{BBN}}$	$0.2483^{+0.0050}_{-0.0017}$	$f\sigma_8(2.33)$	$0.291^{+0.016}_{-0.028}$
$A^{\text{kSZ}}$	—	$10^5 D/H$	$2.61^{+0.13}_{-0.085}$	$\sigma_8(2.33)$	$0.300^{+0.017}_{-0.029}$
$A_{100}^{\text{dust}}$	$1.02^{+0.50}_{-0.51}$	$\text{Age/Gyr}$	$13.70^{+0.14}_{-0.35}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143}^{\text{dust}}$	$0.96^{+0.45}_{-0.44}$	$z_*$	$1090.00^{+0.93}_{-0.68}$	$f_{2000}^{217}$	$107.6^{+5.1}_{-5.2}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_*$	$143.7^{+1.5}_{-3.5}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.43}$	$100\theta_*$	$1.04095^{+0.00091}_{-0.0012}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 1.6)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$D_M(z_*)/\text{Gpc}$	$13.81^{+0.15}_{-0.33}$	$\chi_{\text{lowl}}^2$	$22.41 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$	$z_{\text{drag}}$	$1060.2^{+1.5}_{-1.0}$	$\chi_{\text{CamSpec}}^2$	$11517.4 (\nu: 18.5)$
$c_{TE}$	$0.998^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$146.4^{+1.6}_{-3.6}$	$\chi_{\text{JLA}}^2$	$1035.04 (\nu: 0.0)$
$c_{EE}$	$0.994^{+0.014}_{-0.013}$	$k_D$	$0.1413^{+0.0027}_{-0.0015}$	$\chi_{6\text{DF}}^2$	$0.048 (\nu: 0.0)$
$H_0$	$68.2^{+2.5}_{-1.4}$	$100\theta_D$	$0.1610^{+0.0011}_{-0.00065}$	$\chi_{\text{MGS}}^2$	$1.37 (\nu: 0.1)$
$\Omega_\Lambda$	$0.691^{+0.017}_{-0.017}$	$z_{\text{eq}}$	$3319^{+90}_{-280}$	$\chi_{\text{DR12BAO}}^2$	$4.6 (\nu: 1.0)$
$\Omega_m$	$0.309^{+0.017}_{-0.017}$	$k_{\text{eq}}$	$0.01024^{+0.00036}_{-0.00070}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_m h^2$	$0.1438^{+0.0078}_{-0.0038}$	$100\theta_{\text{eq}}$	$0.830^{+0.065}_{-0.018}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.6)$
$\Omega_\nu h^2$	$0.0027^{+0.012}_{-0.0022}$	$100\theta_{s,\text{eq}}$	$0.458^{+0.033}_{-0.011}$	$\chi_{\text{CMB}}^2$	$11936.9 (\nu: 18.4)$
$\Omega_m h^3$	$0.0981^{+0.0075}_{-0.0027}$	$H(0.15)$	$73.5^{+2.6}_{-1.3}$		
$\sigma_8$	$0.788^{+0.043}_{-0.073}$	$D_M(0.15)$	$636^{+13}_{-22}$		

$$\bar{\chi}_{\text{eff}}^2 = 12985.86; R - 1 = 0.01581$$



### 8.31 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02241^{+0.00041}_{-0.00037}$	$S_8$	$0.799^{+0.047}_{-0.072}$	$H(0.38)$	$83.4^{+2.0}_{-1.0}$
$\Omega_c h^2$	$0.1179^{+0.0076}_{-0.012}$	$\sigma_8 \Omega_m^{0.5}$	$0.438^{+0.026}_{-0.039}$	$D_M(0.38)$	$1522^{+24}_{-44}$
$100\theta_{MC}$	$1.04087^{+0.00082}_{-0.00091}$	$\sigma_8 \Omega_m^{0.25}$	$0.587^{+0.031}_{-0.053}$	$H(0.51)$	$90.1^{+2.0}_{-0.94}$
$\tau$	$0.054^{+0.021}_{-0.022}$	$\sigma_8/h^{0.5}$	$0.953^{+0.047}_{-0.084}$	$D_M(0.51)$	$1972^{+28}_{-55}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 1.18$	$r_{\text{drag}} h$	$99.7^{+2.2}_{-2.2}$	$H(0.61)$	$95.8^{+2.0}_{-0.86}$
$N_{\text{eff}}$	$< 3.41$	$\langle d^2 \rangle^{1/2}$	$2.417^{+0.066}_{-0.066}$	$D_M(0.61)$	$2295^{+30}_{-62}$
$\ln(10^{10} A_s)$	$3.042^{+0.046}_{-0.044}$	$z_{\text{re}}$	$7.7^{+2.1}_{-2.4}$	$H(2.33)$	$237.0^{+4.9}_{-2.3}$
$n_s$	$0.969^{+0.015}_{-0.012}$	$10^9 A_s$	$2.095^{+0.098}_{-0.091}$	$D_M(2.33)$	$5737^{+46}_{-120}$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	$1.879^{+0.035}_{-0.029}$	$f\sigma_8(0.15)$	$0.443^{+0.025}_{-0.040}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-70}$	$D_{40}$	$1220^{+33}_{-33}$	$\sigma_8(0.15)$	$0.726^{+0.038}_{-0.066}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5723^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.461^{+0.025}_{-0.041}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2536^{+35}_{-35}$	$\sigma_8(0.38)$	$0.644^{+0.034}_{-0.059}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.459^{+0.024}_{-0.041}$
$A_{143}^{\text{tSZ}}$	$< 8.78$	$D_{2000}$	$229.7^{+4.2}_{-4.2}$	$\sigma_8(0.51)$	$0.603^{+0.032}_{-0.055}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.33}$	$n_{s,0.002}$	$0.969^{+0.015}_{-0.012}$	$f\sigma_8(0.61)$	$0.455^{+0.024}_{-0.041}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.2465^{+0.0038}_{-0.0013}$	$\sigma_8(0.61)$	$0.573^{+0.031}_{-0.053}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.2478^{+0.0038}_{-0.0013}$	$f\sigma_8(2.33)$	$0.289^{+0.016}_{-0.027}$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.61^{+0.10}_{-0.080}$	$\sigma_8(2.33)$	$0.298^{+0.016}_{-0.028}$
$A_{100}^{\text{dust}}$	$1.02^{+0.50}_{-0.51}$	$\text{Age}/\text{Gyr}$	$13.74^{+0.11}_{-0.27}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{143}^{\text{dust}}$	$0.96^{+0.46}_{-0.44}$	$z_*$	$1089.96^{+0.77}_{-0.65}$	$f_{2000}^{217}$	$107.4^{+5.1}_{-5.1}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_*$	$144.0^{+1.3}_{-2.7}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.43}$	$100\theta_*$	$1.04101^{+0.00084}_{-0.0010}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 1.6)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$D_M(z_*)/\text{Gpc}$	$13.84^{+0.12}_{-0.25}$	$\chi_{\text{lowl}}^2$	$22.60 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0039}$	$z_{\text{drag}}$	$1060.1^{+1.2}_{-0.92}$	$\chi_{\text{CamSpec}}^2$	$11516.9 (\nu: 17.8)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$146.7^{+1.3}_{-2.8}$	$\chi_{\text{Aver15}}^2$	$0.61 (\nu: 0.1)$
$c_{EE}$	$0.993^{+0.013}_{-0.013}$	$k_{\text{D}}$	$0.1411^{+0.0023}_{-0.0011}$	$\chi_{6\text{DF}}^2$	$0.058 (\nu: 0.0)$
$H_0$	$68.0^{+2.2}_{-1.3}$	$100\theta_{\text{D}}$	$0.16097^{+0.00088}_{-0.00059}$	$\chi_{\text{MGS}}^2$	$1.29 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.689^{+0.017}_{-0.018}$	$z_{\text{eq}}$	$3316^{+98}_{-280}$	$\chi_{\text{DR12BAO}}^2$	$4.9 (\nu: 1.2)$
$\Omega_{\text{m}}$	$0.311^{+0.018}_{-0.017}$	$k_{\text{eq}}$	$0.01021^{+0.00034}_{-0.00069}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_{\text{m}} h^2$	$0.1434^{+0.0061}_{-0.0033}$	$100\theta_{\text{eq}}$	$0.831^{+0.064}_{-0.020}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.8)$
$\Omega_{\nu} h^2$	$0.0030^{+0.012}_{-0.0025}$	$100\theta_{\text{s,eq}}$	$0.459^{+0.034}_{-0.010}$	$\chi_{\text{CMB}}^2$	$11936.5 (\nu: 17.9)$
$\Omega_{\text{m}} h^3$	$0.0974^{+0.0057}_{-0.0020}$	$H(0.15)$	$73.2^{+2.2}_{-1.2}$		
$\sigma_8$	$0.786^{+0.041}_{-0.071}$	$D_M(0.15)$	$638^{+12}_{-19}$		

$$\bar{\chi}_{\text{eff}}^2 = 11951.21; R - 1 = 0.01810$$



### 8.32 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02240^{+0.00040}_{-0.00037}$	$S_8$	$0.799^{+0.047}_{-0.072}$	$H(0.38)$	$83.4^{+1.9}_{-1.0}$
$\Omega_c h^2$	$0.1179^{+0.0071}_{-0.012}$	$\sigma_8 \Omega_m^{0.5}$	$0.438^{+0.026}_{-0.039}$	$D_M(0.38)$	$1522^{+23}_{-43}$
$100\theta_{MC}$	$1.04087^{+0.00081}_{-0.00089}$	$\sigma_8 \Omega_m^{0.25}$	$0.587^{+0.031}_{-0.053}$	$H(0.51)$	$90.1^{+1.9}_{-0.92}$
$\tau$	$0.054^{+0.021}_{-0.022}$	$\sigma_8/h^{0.5}$	$0.953^{+0.046}_{-0.084}$	$D_M(0.51)$	$1972^{+28}_{-54}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 1.18$	$r_{\text{drag}} h$	$99.7^{+2.2}_{-2.2}$	$H(0.61)$	$95.7^{+2.0}_{-0.85}$
$N_{\text{eff}}$	$< 3.39$	$\langle d^2 \rangle^{1/2}$	$2.417^{+0.066}_{-0.066}$	$D_M(0.61)$	$2295^{+30}_{-61}$
$\ln(10^{10} A_s)$	$3.042^{+0.046}_{-0.044}$	$z_{\text{re}}$	$7.7^{+2.1}_{-2.4}$	$H(2.33)$	$237.0^{+4.6}_{-2.3}$
$n_s$	$0.969^{+0.014}_{-0.012}$	$10^9 A_s$	$2.095^{+0.098}_{-0.091}$	$D_M(2.33)$	$5738^{+45}_{-110}$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	$1.879^{+0.035}_{-0.029}$	$f\sigma_8(0.15)$	$0.443^{+0.025}_{-0.040}$
$A_{100}^{\text{PS}}$	$243^{+60}_{-70}$	$D_{40}$	$1220^{+33}_{-33}$	$\sigma_8(0.15)$	$0.726^{+0.038}_{-0.066}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5722^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.461^{+0.024}_{-0.041}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2535^{+35}_{-35}$	$\sigma_8(0.38)$	$0.644^{+0.034}_{-0.059}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.459^{+0.024}_{-0.041}$
$A_{143}^{\text{tSZ}}$	$< 8.78$	$D_{2000}$	$229.7^{+4.2}_{-4.1}$	$\sigma_8(0.51)$	$0.603^{+0.032}_{-0.055}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.33}$	$n_{s,0.002}$	$0.969^{+0.014}_{-0.012}$	$f\sigma_8(0.61)$	$0.455^{+0.023}_{-0.041}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.2465^{+0.0036}_{-0.0013}$	$\sigma_8(0.61)$	$0.573^{+0.031}_{-0.053}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.2478^{+0.0036}_{-0.0013}$	$f\sigma_8(2.33)$	$0.289^{+0.016}_{-0.027}$
$A^{\text{kSZ}}$	—	$10^5 D/H$	$2.609^{+0.092}_{-0.075}$	$\sigma_8(2.33)$	$0.298^{+0.016}_{-0.028}$
$A_{100}^{\text{dust}}$	$1.02^{+0.50}_{-0.51}$	$\text{Age/Gyr}$	$13.74^{+0.11}_{-0.26}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{143}^{\text{dust}}$	$0.96^{+0.46}_{-0.44}$	$z_*$	$1089.97^{+0.71}_{-0.62}$	$f_{2000}^{217}$	$107.5^{+5.0}_{-5.0}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_*$	$144.0^{+1.2}_{-2.6}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.43}$	$100\theta_*$	$1.04102^{+0.00084}_{-0.00099}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 1.6)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$D_M(z_*)/\text{Gpc}$	$13.84^{+0.12}_{-0.24}$	$\chi_{\text{lowl}}^2$	$22.61 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0039}$	$z_{\text{drag}}$	$1060.1^{+1.2}_{-0.91}$	$\chi_{\text{CamSpec}}^2$	$11516.8 (\nu: 17.6)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$146.7^{+1.3}_{-2.7}$	$\chi_{\text{Aver15}}^2$	$0.60 (\nu: 0.1)$
$c_{EE}$	$0.993^{+0.013}_{-0.013}$	$k_{\text{D}}$	$0.1411^{+0.0022}_{-0.0011}$	$\chi_{\text{Cooke17}}^2$	$0.12 (\nu: 0.0)$
$H_0$	$67.9^{+2.2}_{-1.3}$	$100\theta_{\text{D}}$	$0.16097^{+0.00080}_{-0.00056}$	$\chi_{\text{6DF}}^2$	$0.058 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.689^{+0.017}_{-0.017}$	$z_{\text{eq}}$	$3317^{+98}_{-280}$	$\chi_{\text{MGS}}^2$	$1.28 (\nu: 0.1)$
$\Omega_{\text{m}}$	$0.311^{+0.017}_{-0.017}$	$k_{\text{eq}}$	$0.01021^{+0.00033}_{-0.00069}$	$\chi_{\text{DR12BAO}}^2$	$4.9 (\nu: 1.2)$
$\Omega_{\text{m}} h^2$	$0.1434^{+0.0056}_{-0.0033}$	$100\theta_{\text{eq}}$	$0.831^{+0.065}_{-0.020}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_{\nu} h^2$	$0.0030^{+0.012}_{-0.0025}$	$100\theta_{\text{s,eq}}$	$0.459^{+0.034}_{-0.010}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.8)$
$\Omega_{\text{m}} h^3$	$0.0974^{+0.0054}_{-0.0020}$	$H(0.15)$	$73.2^{+2.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	$11936.5 (\nu: 17.7)$
$\sigma_8$	$0.786^{+0.041}_{-0.072}$	$D_M(0.15)$	$638^{+11}_{-19}$	$\chi_{\text{Abund}}^2$	$0.72 (\nu: 0.2)$

$$\bar{\chi}_{\text{eff}}^2 = 11951.25; R - 1 = 0.01822$$



### 8.33 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02243^{+0.00042}_{-0.00038}$	$\sigma_8$	$0.789^{+0.042}_{-0.070}$	$H(0.15)$	$73.4^{+2.6}_{-1.3}$
$\Omega_c h^2$	$0.1187^{+0.0088}_{-0.012}$	$S_8$	$0.802^{+0.047}_{-0.070}$	$D_M(0.15)$	$637^{+13}_{-23}$
$100\theta_{MC}$	$1.04082^{+0.00086}_{-0.0010}$	$\sigma_8 \Omega_m^{0.5}$	$0.439^{+0.026}_{-0.038}$	$H(0.38)$	$83.6^{+2.5}_{-1.2}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$\sigma_8 \Omega_m^{0.25}$	$0.589^{+0.032}_{-0.051}$	$D_M(0.38)$	$1518^{+27}_{-52}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 1.11$	$\sigma_8/h^{0.5}$	$0.956^{+0.046}_{-0.082}$	$H(0.51)$	$90.3^{+2.5}_{-1.1}$
$N_{\text{eff}}$	$< 3.54$	$r_{\text{drag}} h$	$99.7^{+2.3}_{-2.2}$	$D_M(0.51)$	$1967^{+32}_{-65}$
$\ln(10^{10} A_s)$	$3.046^{+0.042}_{-0.033}$	$\langle d^2 \rangle^{1/2}$	$2.417^{+0.064}_{-0.063}$	$H(0.61)$	$96.0^{+2.6}_{-1.1}$
$n_s$	$0.971^{+0.017}_{-0.013}$	$z_{\text{re}}$	$< 9.52$	$D_M(0.61)$	$2289^{+35}_{-75}$
$y_{\text{cal}}$	$1.0006^{+0.0064}_{-0.0063}$	$10^9 A_s$	$2.103^{+0.091}_{-0.069}$	$H(2.33)$	$237.5^{+5.6}_{-3.0}$
$A_{100}^{\text{PS}}$	$243^{+60}_{-70}$	$10^9 A_s e^{-2\tau}$	$1.881^{+0.040}_{-0.031}$	$D_M(2.33)$	$5725^{+58}_{-150}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{40}$	$1218^{+34}_{-35}$	$f\sigma_8(0.15)$	$0.444^{+0.025}_{-0.039}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40}$	$D_{220}$	$5723^{+99}_{-100}$	$\sigma_8(0.15)$	$0.729^{+0.039}_{-0.066}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$D_{810}$	$2536^{+34}_{-35}$	$f\sigma_8(0.38)$	$0.462^{+0.025}_{-0.040}$
$A_{143}^{\text{tSZ}}$	$< 8.78$	$D_{1420}$	$815^{+12}_{-13}$	$\sigma_8(0.38)$	$0.646^{+0.035}_{-0.059}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.32}_{-0.33}$	$D_{2000}$	$229.6^{+4.3}_{-4.6}$	$f\sigma_8(0.51)$	$0.461^{+0.025}_{-0.040}$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{s,0.002}$	$0.971^{+0.017}_{-0.013}$	$\sigma_8(0.51)$	$0.605^{+0.033}_{-0.055}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P$	$0.2470^{+0.0049}_{-0.0017}$	$f\sigma_8(0.61)$	$0.456^{+0.024}_{-0.040}$
$A^{\text{kSZ}}$	—	$Y_P^{\text{BBN}}$	$0.2483^{+0.0049}_{-0.0017}$	$\sigma_8(0.61)$	$0.576^{+0.032}_{-0.053}$
$A_{100}^{\text{dust}}$	$1.02^{+0.50}_{-0.51}$	$10^5 \text{D}/\text{H}$	$2.62^{+0.13}_{-0.085}$	$f\sigma_8(2.33)$	$0.291^{+0.016}_{-0.027}$
$A_{143}^{\text{dust}}$	$0.97^{+0.45}_{-0.44}$	$\text{Age}/\text{Gyr}$	$13.71^{+0.14}_{-0.35}$	$\sigma_8(2.33)$	$0.300^{+0.017}_{-0.028}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27}$	$z_*$	$1090.01^{+0.92}_{-0.69}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.43}$	$r_*$	$143.7^{+1.5}_{-3.5}$	$f_{2000}^{217}$	$107.6^{+5.1}_{-5.1}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$100\theta_*$	$1.04094^{+0.00090}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$	$D_M(z_*)/\text{Gpc}$	$13.81^{+0.15}_{-0.32}$	$\chi_{\text{small}}^2$	$397.0 (\nu: 1.7)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$z_{\text{drag}}$	$1060.2^{+1.4}_{-0.99}$	$\chi_{\text{lowl}}^2$	$22.48 (\nu: 0.4)$
$c_{EE}$	$0.994^{+0.014}_{-0.013}$	$r_{\text{drag}}$	$146.4^{+1.6}_{-3.6}$	$\chi_{\text{CamSpec}}^2$	$11517.2 (\nu: 18.1)$
$H_0$	$68.1^{+2.6}_{-1.5}$	$k_D$	$0.1413^{+0.0026}_{-0.0015}$	$\chi_{6\text{DF}}^2$	$0.057 (\nu: 0.0)$
$\Omega_\Lambda$	$0.690^{+0.018}_{-0.018}$	$100\theta_D$	$0.1610^{+0.0011}_{-0.00064}$	$\chi_{\text{MGS}}^2$	$1.31 (\nu: 0.1)$
$\Omega_m$	$0.310^{+0.018}_{-0.018}$	$z_{\text{eq}}$	$3321^{+93}_{-270}$	$\chi_{\text{DR12BAO}}^2$	$4.9 (\nu: 1.2)$
$\Omega_m h^2$	$0.1439^{+0.0076}_{-0.0038}$	$k_{\text{eq}}$	$0.01024^{+0.00036}_{-0.00069}$	$\chi_{\text{prior}}^2$	$7.9 (\nu: 6.0)$
$\Omega_\nu h^2$	$0.0028^{+0.012}_{-0.0027}$	$100\theta_{\text{eq}}$	$0.830^{+0.063}_{-0.019}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.8)$
$\Omega_m h^3$	$0.0981^{+0.0074}_{-0.0027}$	$100\theta_{s,\text{eq}}$	$0.458^{+0.033}_{-0.0098}$	$\chi_{\text{CMB}}^2$	$11936.7 (\nu: 17.9)$
$\bar{\chi}_{\text{eff}}^2 = 11950.77; R - 1 = 0.01713$					



### 8.34 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02244^{+0.00043}_{-0.00038}$	$S_8$	$0.801^{+0.047}_{-0.070}$	$H(0.38)$	$83.6^{+2.5}_{-1.2}$
$\Omega_c h^2$	$0.1187^{+0.0089}_{-0.013}$	$\sigma_8 \Omega_m^{0.5}$	$0.439^{+0.026}_{-0.038}$	$D_M(0.38)$	$1517^{+27}_{-51}$
$100\theta_{MC}$	$1.04083^{+0.00086}_{-0.0010}$	$\sigma_8 \Omega_m^{0.25}$	$0.589^{+0.031}_{-0.051}$	$H(0.51)$	$90.4^{+2.5}_{-1.1}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$\sigma_8/h^{0.5}$	$0.956^{+0.045}_{-0.082}$	$D_M(0.51)$	$1965^{+32}_{-64}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 1.10$	$r_{\text{drag}} h$	$99.8^{+2.2}_{-2.1}$	$H(0.61)$	$96.0^{+2.6}_{-1.1}$
$N_{\text{eff}}$	$< 3.54$	$\langle d^2 \rangle^{1/2}$	$2.415^{+0.064}_{-0.062}$	$D_M(0.61)$	$2287^{+36}_{-73}$
$\ln(10^{10} A_s)$	$3.046^{+0.045}_{-0.031}$	$z_{\text{re}}$	$< 9.52$	$H(2.33)$	$237.4^{+5.8}_{-3.0}$
$n_s$	$0.971^{+0.017}_{-0.012}$	$10^9 A_s$	$2.103^{+0.096}_{-0.064}$	$D_M(2.33)$	$5723^{+59}_{-150}$
$y_{\text{cal}}$	$1.0006^{+0.0064}_{-0.0063}$	$10^9 A_s e^{-2\tau}$	$1.881^{+0.040}_{-0.031}$	$f\sigma_8(0.15)$	$0.444^{+0.025}_{-0.039}$
$A_{100}^{\text{PS}}$	$243^{+60}_{-70}$	$D_{40}$	$1218^{+34}_{-35}$	$\sigma_8(0.15)$	$0.730^{+0.039}_{-0.066}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5724^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.462^{+0.025}_{-0.040}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2536^{+34}_{-34}$	$\sigma_8(0.38)$	$0.647^{+0.035}_{-0.059}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$815^{+12}_{-13}$	$f\sigma_8(0.51)$	$0.461^{+0.024}_{-0.040}$
$A_{143}^{\text{tSZ}}$	$< 8.78$	$D_{2000}$	$229.6^{+4.3}_{-4.5}$	$\sigma_8(0.51)$	$0.606^{+0.033}_{-0.055}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.32}$	$n_{s,0.002}$	$0.971^{+0.017}_{-0.012}$	$f\sigma_8(0.61)$	$0.456^{+0.024}_{-0.040}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_P$	$0.2470^{+0.0050}_{-0.0017}$	$\sigma_8(0.61)$	$0.576^{+0.032}_{-0.053}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P^{\text{BBN}}$	$0.2483^{+0.0050}_{-0.0017}$	$f\sigma_8(2.33)$	$0.291^{+0.016}_{-0.027}$
$A^{\text{kSZ}}$	—	$10^5 D/H$	$2.61^{+0.13}_{-0.085}$	$\sigma_8(2.33)$	$0.300^{+0.017}_{-0.028}$
$A_{100}^{\text{dust}}$	$1.02^{+0.50}_{-0.51}$	$\text{Age/Gyr}$	$13.70^{+0.14}_{-0.35}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143}^{\text{dust}}$	$0.96^{+0.46}_{-0.44}$	$z_*$	$1089.99^{+0.93}_{-0.68}$	$f_{2000}^{217}$	$107.6^{+5.1}_{-5.2}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_*$	$143.7^{+1.6}_{-3.5}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.43}$	$100\theta_*$	$1.04095^{+0.00091}_{-0.0012}$	$\chi_{\text{simall}}^2$	$397.0 (\nu: 1.7)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$D_M(z_*)/\text{Gpc}$	$13.81^{+0.15}_{-0.33}$	$\chi_{\text{lowl}}^2$	$22.42 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0039}$	$z_{\text{drag}}$	$1060.2^{+1.5}_{-0.97}$	$\chi_{\text{CamSpec}}^2$	$11517.3 (\nu: 18.1)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$146.4^{+1.6}_{-3.7}$	$\chi_{\text{JLA}}^2$	$1035.04 (\nu: 0.0)$
$c_{EE}$	$0.994^{+0.014}_{-0.013}$	$k_D$	$0.1413^{+0.0027}_{-0.0015}$	$\chi_{6\text{DF}}^2$	$0.047 (\nu: 0.0)$
$H_0$	$68.2^{+2.5}_{-1.5}$	$100\theta_D$	$0.1610^{+0.0011}_{-0.00066}$	$\chi_{\text{MGS}}^2$	$1.37 (\nu: 0.1)$
$\Omega_\Lambda$	$0.691^{+0.017}_{-0.017}$	$z_{\text{eq}}$	$3319^{+90}_{-270}$	$\chi_{\text{DR12BAO}}^2$	$4.6 (\nu: 0.9)$
$\Omega_m$	$0.309^{+0.017}_{-0.017}$	$k_{\text{eq}}$	$0.01024^{+0.00036}_{-0.00069}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_m h^2$	$0.1438^{+0.0078}_{-0.0038}$	$100\theta_{\text{eq}}$	$0.830^{+0.063}_{-0.018}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.6)$
$\Omega_\nu h^2$	$0.0027^{+0.012}_{-0.0026}$	$100\theta_{s,\text{eq}}$	$0.458^{+0.033}_{-0.0094}$	$\chi_{\text{CMB}}^2$	$11936.7 (\nu: 17.9)$
$\Omega_m h^3$	$0.0981^{+0.0076}_{-0.0027}$	$H(0.15)$	$73.5^{+2.6}_{-1.3}$		
$\sigma_8$	$0.789^{+0.042}_{-0.071}$	$D_M(0.15)$	$636^{+13}_{-22}$		

$$\bar{\chi}_{\text{eff}}^2 = 12985.64; R - 1 = 0.01787$$



### 8.35 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02241^{+0.00040}_{-0.00037}$	$S_8$	$0.800^{+0.047}_{-0.069}$	$H(0.38)$	$83.4^{+2.2}_{-0.93}$
$\Omega_c h^2$	$0.1179^{+0.0076}_{-0.012}$	$\sigma_8 \Omega_m^{0.5}$	$0.438^{+0.026}_{-0.038}$	$D_M(0.38)$	$1522^{+24}_{-43}$
$100\theta_{MC}$	$1.04087^{+0.00082}_{-0.00091}$	$\sigma_8 \Omega_m^{0.25}$	$0.587^{+0.031}_{-0.050}$	$H(0.51)$	$90.1^{+2.0}_{-0.93}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$\sigma_8/h^{0.5}$	$0.954^{+0.046}_{-0.081}$	$D_M(0.51)$	$1972^{+28}_{-54}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 1.16$	$r_{\text{drag}} h$	$99.7^{+2.2}_{-2.2}$	$H(0.61)$	$95.8^{+2.0}_{-0.86}$
$N_{\text{eff}}$	$< 3.41$	$\langle d^2 \rangle^{1/2}$	$2.419^{+0.065}_{-0.060}$	$D_M(0.61)$	$2294^{+31}_{-62}$
$\ln(10^{10} A_s)$	$3.044^{+0.044}_{-0.030}$	$z_{\text{re}}$	$< 9.52$	$H(2.33)$	$237.0^{+4.9}_{-2.3}$
$n_s$	$0.969^{+0.015}_{-0.012}$	$10^9 A_s$	$2.100^{+0.088}_{-0.067}$	$D_M(2.33)$	$5737^{+46}_{-110}$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	$1.879^{+0.036}_{-0.029}$	$f\sigma_8(0.15)$	$0.443^{+0.025}_{-0.038}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-70}$	$D_{40}$	$1220^{+33}_{-33}$	$\sigma_8(0.15)$	$0.727^{+0.038}_{-0.064}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5722^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.461^{+0.024}_{-0.040}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2535^{+35}_{-35}$	$\sigma_8(0.38)$	$0.645^{+0.034}_{-0.057}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.460^{+0.024}_{-0.039}$
$A_{143}^{\text{tSZ}}$	$< 8.79$	$D_{2000}$	$229.7^{+4.2}_{-4.3}$	$\sigma_8(0.51)$	$0.603^{+0.032}_{-0.054}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.33}$	$n_{s,0.002}$	$0.969^{+0.015}_{-0.012}$	$f\sigma_8(0.61)$	$0.455^{+0.023}_{-0.039}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.2465^{+0.0038}_{-0.0013}$	$\sigma_8(0.61)$	$0.574^{+0.030}_{-0.051}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.2479^{+0.0038}_{-0.0013}$	$f\sigma_8(2.33)$	$0.290^{+0.015}_{-0.026}$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.61^{+0.10}_{-0.081}$	$\sigma_8(2.33)$	$0.299^{+0.016}_{-0.027}$
$A_{100}^{\text{dust}}$	$1.02^{+0.50}_{-0.50}$	$\text{Age}/\text{Gyr}$	$13.73^{+0.11}_{-0.27}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{143}^{\text{dust}}$	$0.96^{+0.46}_{-0.44}$	$z_*$	$1089.96^{+0.77}_{-0.65}$	$f_{2000}^{217}$	$107.4^{+5.1}_{-5.1}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_*$	$144.0^{+1.3}_{-2.7}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.43}$	$100\theta_*$	$1.04101^{+0.00084}_{-0.0010}$	$\chi_{\text{simall}}^2$	$397.0 (\nu: 1.7)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$D_M(z_*)/\text{Gpc}$	$13.84^{+0.12}_{-0.26}$	$\chi_{\text{lowl}}^2$	$22.61 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0038}$	$z_{\text{drag}}$	$1060.1^{+1.2}_{-0.89}$	$\chi_{\text{CamSpec}}^2$	$11516.7 (\nu: 17.4)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$146.7^{+1.3}_{-2.8}$	$\chi_{\text{Aver15}}^2$	$0.62 (\nu: 0.1)$
$c_{EE}$	$0.993^{+0.013}_{-0.013}$	$k_{\text{D}}$	$0.1411^{+0.0023}_{-0.0011}$	$\chi_{6\text{DF}}^2$	$0.057 (\nu: 0.0)$
$H_0$	$68.0^{+2.2}_{-1.3}$	$100\theta_{\text{D}}$	$0.16097^{+0.00089}_{-0.00059}$	$\chi_{\text{MGS}}^2$	$1.29 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.690^{+0.017}_{-0.018}$	$z_{\text{eq}}$	$3316^{+97}_{-280}$	$\chi_{\text{DR12BAO}}^2$	$4.9 (\nu: 1.2)$
$\Omega_{\text{m}}$	$0.310^{+0.018}_{-0.017}$	$k_{\text{eq}}$	$0.01021^{+0.00034}_{-0.00066}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_{\text{m}} h^2$	$0.1434^{+0.0061}_{-0.0033}$	$100\theta_{\text{eq}}$	$0.831^{+0.063}_{-0.020}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.8)$
$\Omega_{\nu} h^2$	$0.0030^{+0.012}_{-0.0025}$	$100\theta_{\text{s,eq}}$	$0.459^{+0.033}_{-0.010}$	$\chi_{\text{CMB}}^2$	$11936.3 (\nu: 17.4)$
$\Omega_{\text{m}} h^3$	$0.0974^{+0.0057}_{-0.0020}$	$H(0.15)$	$73.3^{+2.2}_{-1.2}$		
$\sigma_8$	$0.787^{+0.041}_{-0.069}$	$D_M(0.15)$	$638^{+12}_{-19}$		

$$\bar{\chi}_{\text{eff}}^2 = 11950.98; R - 1 = 0.01936$$



### 8.36 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02240^{+0.00040}_{-0.00036}$	$S_8$	$0.800^{+0.046}_{-0.069}$	$H(0.38)$	$83.4^{+2.1}_{-0.92}$
$\Omega_c h^2$	$0.1179^{+0.0071}_{-0.012}$	$\sigma_8 \Omega_m^{0.5}$	$0.438^{+0.025}_{-0.038}$	$D_M(0.38)$	$1522^{+23}_{-43}$
$100\theta_{MC}$	$1.04087^{+0.00082}_{-0.00089}$	$\sigma_8 \Omega_m^{0.25}$	$0.587^{+0.030}_{-0.050}$	$H(0.51)$	$90.1^{+1.9}_{-0.92}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$\sigma_8/h^{0.5}$	$0.954^{+0.046}_{-0.081}$	$D_M(0.51)$	$1972^{+28}_{-53}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 1.17$	$r_{\text{drag}} h$	$99.7^{+2.2}_{-2.1}$	$H(0.61)$	$95.8^{+2.0}_{-0.84}$
$N_{\text{eff}}$	$< 3.39$	$\langle d^2 \rangle^{1/2}$	$2.419^{+0.065}_{-0.060}$	$D_M(0.61)$	$2295^{+30}_{-60}$
$\ln(10^{10} A_s)$	$3.044^{+0.044}_{-0.030}$	$z_{\text{re}}$	$< 9.52$	$H(2.33)$	$237.0^{+4.6}_{-2.3}$
$n_s$	$0.969^{+0.015}_{-0.012}$	$10^9 A_s$	$2.100^{+0.088}_{-0.067}$	$D_M(2.33)$	$5737^{+45}_{-110}$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	$1.879^{+0.035}_{-0.029}$	$f\sigma_8(0.15)$	$0.443^{+0.025}_{-0.039}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-70}$	$D_{40}$	$1220^{+33}_{-32}$	$\sigma_8(0.15)$	$0.727^{+0.038}_{-0.065}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5722^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.461^{+0.024}_{-0.040}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2535^{+35}_{-35}$	$\sigma_8(0.38)$	$0.645^{+0.034}_{-0.057}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.460^{+0.023}_{-0.039}$
$A_{143}^{\text{tSZ}}$	$< 8.79$	$D_{2000}$	$229.7^{+4.2}_{-4.2}$	$\sigma_8(0.51)$	$0.603^{+0.032}_{-0.054}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.33}$	$n_{s,0.002}$	$0.969^{+0.015}_{-0.012}$	$f\sigma_8(0.61)$	$0.455^{+0.023}_{-0.039}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.2465^{+0.0036}_{-0.0013}$	$\sigma_8(0.61)$	$0.574^{+0.030}_{-0.051}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.2478^{+0.0036}_{-0.0013}$	$f\sigma_8(2.33)$	$0.290^{+0.015}_{-0.026}$
$A^{\text{kSZ}}$	—	$10^5 D/H$	$2.608^{+0.092}_{-0.075}$	$\sigma_8(2.33)$	$0.299^{+0.016}_{-0.027}$
$A_{100}^{\text{dust}}$	$1.02^{+0.50}_{-0.50}$	$\text{Age/Gyr}$	$13.74^{+0.10}_{-0.26}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{143}^{\text{dust}}$	$0.96^{+0.46}_{-0.44}$	$z_*$	$1089.96^{+0.71}_{-0.62}$	$f_{2000}^{217}$	$107.4^{+5.1}_{-5.0}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_*$	$144.0^{+1.3}_{-2.6}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.41}_{-0.43}$	$100\theta_*$	$1.04101^{+0.00084}_{-0.00099}$	$\chi_{\text{simall}}^2$	$397.0 (\nu: 1.7)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$D_M(z_*)/\text{Gpc}$	$13.84^{+0.12}_{-0.24}$	$\chi_{\text{lowl}}^2$	$22.62 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0038}$	$z_{\text{drag}}$	$1060.1^{+1.2}_{-0.88}$	$\chi_{\text{CamSpec}}^2$	$11516.6 (\nu: 17.3)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$146.7^{+1.3}_{-2.7}$	$\chi_{\text{Aver15}}^2$	$0.61 (\nu: 0.1)$
$c_{EE}$	$0.993^{+0.013}_{-0.013}$	$k_{\text{D}}$	$0.1411^{+0.0022}_{-0.0011}$	$\chi_{\text{Cooke17}}^2$	$0.12 (\nu: 0.0)$
$H_0$	$67.9^{+2.2}_{-1.3}$	$100\theta_{\text{D}}$	$0.16097^{+0.00080}_{-0.00056}$	$\chi_{\text{6DF}}^2$	$0.057 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.689^{+0.017}_{-0.018}$	$z_{\text{eq}}$	$3317^{+98}_{-280}$	$\chi_{\text{MGS}}^2$	$1.29 (\nu: 0.1)$
$\Omega_{\text{m}}$	$0.311^{+0.018}_{-0.017}$	$k_{\text{eq}}$	$0.01021^{+0.00033}_{-0.00067}$	$\chi_{\text{DR12BAO}}^2$	$4.9 (\nu: 1.2)$
$\Omega_{\text{m}} h^2$	$0.1434^{+0.0057}_{-0.0033}$	$100\theta_{\text{eq}}$	$0.831^{+0.064}_{-0.020}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_{\nu} h^2$	$0.0030^{+0.012}_{-0.0025}$	$100\theta_{\text{s,eq}}$	$0.459^{+0.033}_{-0.010}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.8)$
$\Omega_{\text{m}} h^3$	$0.0974^{+0.0054}_{-0.0020}$	$H(0.15)$	$73.2^{+2.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	$11936.2 (\nu: 17.3)$
$\sigma_8$	$0.787^{+0.040}_{-0.069}$	$D_M(0.15)$	$638^{+11}_{-19}$	$\chi_{\text{Abund}}^2$	$0.73 (\nu: 0.2)$

$$\bar{\chi}_{\text{eff}}^2 = 11951.02; R - 1 = 0.01932$$



### 8.37 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02226	$0.02232^{+0.00055}_{-0.00051}$	$\sigma_8 \Omega_m^{0.25}$	0.6054	$0.596^{+0.027}_{-0.042}$	$D_M(0.38)$	1526.2	$1516^{+36}_{-62}$
$\Omega_c h^2$	0.1196	$0.1204^{+0.0096}_{-0.011}$	$\sigma_8/h^{0.5}$	0.985	$0.966^{+0.037}_{-0.065}$	$H(0.51)$	89.86	$90.5^{+3.1}_{-1.6}$
$100\theta_{MC}$	1.04091	$1.0408^{+0.0012}_{-0.0013}$	$r_{drag}h$	99.73	$99.5^{+2.4}_{-2.4}$	$D_M(0.51)$	1977	$1964^{+43}_{-78}$
$\tau$	0.0558	$0.057^{+0.021}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	2.434	$2.427^{+0.058}_{-0.059}$	$H(0.61)$	95.48	$96.2^{+3.2}_{-1.5}$
$m_{\nu, sterile}^{eff} [eV]$	0.000	< 0.801	$z_{re}$	7.85	$8.0^{+2.0}_{-2.1}$	$D_M(0.61)$	2301	$2285^{+48}_{-90}$
$N_{eff}$	3.077	< 3.68	$10^9 A_s$	2.105	$2.116^{+0.097}_{-0.086}$	$H(2.33)$	236.3	$238.3^{+7.6}_{-3.7}$
$\ln(10^{10} A_s)$	3.0467	$3.052^{+0.045}_{-0.041}$	$10^9 A_s e^{-2\tau}$	1.8825	$1.890^{+0.045}_{-0.034}$	$D_M(2.33)$	5754	$5710^{+85}_{-180}$
$n_s$	0.9679	$0.971^{+0.020}_{-0.015}$	$D_{40}$	1225.4	$1221^{+35}_{-36}$	$f\sigma_8(0.15)$	0.4565	$0.450^{+0.021}_{-0.032}$
$y_{cal}$	1.0010	$1.0008^{+0.0065}_{-0.0062}$	$D_{220}$	5725	$5724^{+110}_{-100}$	$\sigma_8(0.15)$	0.7496	$0.737^{+0.037}_{-0.052}$
$A_{217}^{CIB}$	48.8	$49^{+20}_{-20}$	$D_{810}$	2540.4	$2540^{+37}_{-35}$	$f\sigma_8(0.38)$	0.4751	$0.468^{+0.021}_{-0.033}$
$\xi^{tSZ \times CIB}$	0.30	—	$D_{1420}$	816.8	$815^{+14}_{-13}$	$\sigma_8(0.38)$	0.6646	$0.653^{+0.034}_{-0.047}$
$A_{143}^{tSZ}$	7.0	—	$D_{2000}$	230.4	$229.1^{+4.9}_{-5.0}$	$f\sigma_8(0.51)$	0.4739	$0.467^{+0.021}_{-0.033}$
$A_{100}^{PS}$	255	$267^{+70}_{-70}$	$n_{s,0.002}$	0.9679	$0.971^{+0.020}_{-0.015}$	$\sigma_8(0.51)$	0.6220	$0.612^{+0.032}_{-0.044}$
$A_{143}^{PS}$	49.2	$51^{+20}_{-20}$	$Y_P$	0.24576	$0.2476^{+0.0061}_{-0.0024}$	$f\sigma_8(0.61)$	0.4690	$0.462^{+0.021}_{-0.033}$
$A_{143 \times 217}^{PS}$	46.2	$44^{+20}_{-20}$	$Y_P^{BBN}$	0.24709	$0.2489^{+0.0061}_{-0.0024}$	$\sigma_8(0.61)$	0.5919	$0.582^{+0.031}_{-0.042}$
$A_{217}^{PS}$	119.1	$115^{+30}_{-30}$	$10^5 D/H$	2.616	$2.65^{+0.16}_{-0.11}$	$f\sigma_8(2.33)$	0.2985	$0.294^{+0.016}_{-0.022}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.775	$13.67^{+0.20}_{-0.43}$	$\sigma_8(2.33)$	0.3078	$0.303^{+0.017}_{-0.022}$
$A_{100}^{dustTT}$	8.86	$9.0^{+4.7}_{-4.7}$	$z_*$	1090.05	$1090.3^{+1.1}_{-0.84}$	$f_{2000}^{143}$	30.4	$32^{+8}_{-8}$
$A_{143}^{dustTT}$	10.78	$10.7^{+4.7}_{-4.7}$	$r_*$	144.47	$143.3^{+2.0}_{-4.7}$	$f_{2000}^{143 \times 217}$	33.2	$34^{+6}_{-6}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.3^{+8.6}_{-8.6}$	$100\theta_*$	1.04109	$1.0409^{+0.0013}_{-0.0015}$	$f_{2000}^{217}$	107.7	$108.9^{+5.4}_{-5.1}$
$A_{217}^{dustTT}$	94.7	$93^{+20}_{-20}$	$D_M(z_*)/Gpc$	13.877	$13.76^{+0.20}_{-0.40}$	$\chi_{lensing}^2$	8.84	9.5 ( $\nu: 0.5$ )
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.67	$1060.1^{+1.9}_{-1.4}$	$\chi_{small}^2$	396.3	397.5 ( $\nu: 2.4$ )
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$r_{drag}$	147.17	$145.9^{+2.2}_{-4.5}$	$\chi_{lowl}^2$	22.91	22.6 ( $\nu: 0.5$ )
$H_0$	67.77	$68.2^{+3.2}_{-1.9}$	$k_D$	0.14059	$0.1415^{+0.0036}_{-0.0019}$	$\chi_{plik}^2$	759.6	773.6 ( $\nu: 15.5$ )
$\Omega_\Lambda$	0.6897	$0.688^{+0.019}_{-0.019}$	$100\theta_D$	0.16103	$0.1613^{+0.0014}_{-0.00089}$	$\chi_{6DF}^2$	0.024	0.076 ( $\nu: 0.0$ )
$\Omega_m$	0.3103	$0.312^{+0.019}_{-0.019}$	$z_{eq}$	3376	$3337^{+85}_{-210}$	$\chi_{MGS}^2$	1.28	1.21 ( $\nu: 0.1$ )
$\Omega_m h^2$	0.1425	$0.1450^{+0.0093}_{-0.0049}$	$k_{eq}$	0.010324	$0.01032^{+0.00037}_{-0.00059}$	$\chi_{DR12BAO}^2$	4.25	5.3 ( $\nu: 1.8$ )
$\Omega_\nu h^2$	0.00065	$0.0022^{+0.0082}_{-0.0017}$	$100\theta_{eq}$	0.8178	$0.826^{+0.047}_{-0.017}$	$\chi_{prior}^2$	1.5	7.3 ( $\nu: 6.9$ )
$\Omega_m h^3$	0.0966	$0.0989^{+0.0095}_{-0.0040}$	$100\theta_{s,eq}$	0.4518	$0.456^{+0.025}_{-0.0086}$	$\chi_{CMB}^2$	1187.7	1203.3 ( $\nu: 17.0$ )
$\sigma_8$	0.8111	$0.798^{+0.039}_{-0.057}$	$H(0.15)$	73.04	$73.5^{+3.2}_{-1.8}$	$\chi_{BAO}^2$	5.56	6.5 ( $\nu: 1.3$ )
$S_8$	0.8249	$0.813^{+0.040}_{-0.059}$	$D_M(0.15)$	639.8	$636^{+17}_{-27}$			
$\sigma_8 \Omega_m^{0.5}$	0.4518	$0.445^{+0.022}_{-0.033}$	$H(0.38)$	83.15	$83.7^{+3.3}_{-1.6}$			

Best-fit  $\chi_{eff}^2 = 1194.69$ ;  $\bar{\chi}_{eff}^2 = 1217.17$ ;  $R - 1 = 0.01959$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.25 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.84 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.34 commander\_dx12.v3.2.29: 22.91 plik\_rd12\_HM.v22\_TT: 759.57



### 8.38 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02224	$0.02234^{+0.00055}_{-0.00052}$	$\sigma_8 \Omega_m^{0.25}$	0.6042	$0.596^{+0.027}_{-0.042}$	$D_M(0.38)$	1530.2	$1514^{+35}_{-64}$
$\Omega_c h^2$	0.1171	$0.1205^{+0.0096}_{-0.011}$	$\sigma_8/h^{0.5}$	0.984	$0.966^{+0.036}_{-0.065}$	$H(0.51)$	89.66	$90.6^{+3.2}_{-1.6}$
$100\theta_{MC}$	1.04102	$1.0408^{+0.0012}_{-0.0013}$	$r_{drag}h$	99.65	$99.7^{+2.3}_{-2.3}$	$D_M(0.51)$	1982	$1961^{+46}_{-75}$
$\tau$	0.0567	$0.057^{+0.021}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	2.438	$2.426^{+0.057}_{-0.057}$	$H(0.61)$	95.27	$96.3^{+3.2}_{-1.6}$
$m_{\nu, sterile}^{eff} [eV]$	0.193	$< 0.821$	$z_{re}$	7.94	$8.0^{+2.0}_{-2.0}$	$D_M(0.61)$	2307	$2282^{+52}_{-85}$
$N_{eff}$	3.047	$< 3.69$	$10^9 A_s$	2.102	$2.119^{+0.093}_{-0.087}$	$H(2.33)$	235.9	$238.3^{+7.6}_{-3.8}$
$\ln(10^{10} A_s)$	3.0456	$3.053^{+0.043}_{-0.042}$	$10^9 A_s e^{-2\tau}$	1.8768	$1.890^{+0.046}_{-0.034}$	$D_M(2.33)$	5766	$5706^{+89}_{-180}$
$n_s$	0.9661	$0.972^{+0.020}_{-0.015}$	$D_{40}$	1226.6	$1220^{+36}_{-36}$	$f\sigma_8(0.15)$	0.4558	$0.450^{+0.021}_{-0.032}$
$y_{cal}$	1.0001	$1.0008^{+0.0065}_{-0.0063}$	$D_{220}$	5717	$5725^{+110}_{-100}$	$\sigma_8(0.15)$	0.7477	$0.738^{+0.036}_{-0.052}$
$A_{217}^{CIB}$	50.1	$49^{+20}_{-20}$	$D_{810}$	2534.5	$2540^{+38}_{-35}$	$f\sigma_8(0.38)$	0.4742	$0.468^{+0.021}_{-0.033}$
$\xi^{tSZ \times CIB}$	0.18	—	$D_{1420}$	814.9	$815^{+14}_{-13}$	$\sigma_8(0.38)$	0.6628	$0.654^{+0.033}_{-0.047}$
$A_{143}^{tSZ}$	7.2	—	$D_{2000}$	230.0	$229.1^{+5.0}_{-5.1}$	$f\sigma_8(0.51)$	0.4729	$0.467^{+0.021}_{-0.033}$
$A_{100}^{PS}$	256	$267^{+70}_{-70}$	$n_{s,0.002}$	0.9661	$0.972^{+0.020}_{-0.015}$	$\sigma_8(0.51)$	0.6203	$0.613^{+0.031}_{-0.044}$
$A_{143}^{PS}$	47.4	$51^{+20}_{-20}$	$Y_P$	0.24536	$0.2477^{+0.0063}_{-0.0026}$	$f\sigma_8(0.61)$	0.4680	$0.462^{+0.021}_{-0.033}$
$A_{143 \times 217}^{PS}$	42.9	$44^{+20}_{-20}$	$Y_P^{BBN}$	0.24668	$0.2490^{+0.0064}_{-0.0026}$	$\sigma_8(0.61)$	0.5902	$0.583^{+0.030}_{-0.042}$
$A_{217}^{PS}$	116.7	$115^{+30}_{-30}$	$10^5 D/H$	2.611	$2.65^{+0.16}_{-0.11}$	$f\sigma_8(2.33)$	0.2976	$0.294^{+0.016}_{-0.022}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.804	$13.66^{+0.21}_{-0.43}$	$\sigma_8(2.33)$	0.3068	$0.303^{+0.017}_{-0.022}$
$A_{100}^{dustTT}$	8.84	$9.0^{+4.5}_{-4.7}$	$z_*$	1090.01	$1090.3^{+1.1}_{-0.84}$	$f_{2000}^{143}$	30.6	$32^{+8}_{-8}$
$A_{143}^{dustTT}$	10.87	$10.7^{+4.7}_{-4.7}$	$r_*$	144.75	$143.2^{+2.2}_{-4.4}$	$f_{2000}^{143 \times 217}$	33.3	$34^{+6}_{-6}$
$A_{143 \times 217}^{dustTT}$	19.3	$18.3^{+8.5}_{-8.7}$	$100\theta_*$	1.04122	$1.0409^{+0.0013}_{-0.0015}$	$f_{2000}^{217}$	107.6	$108.9^{+5.4}_{-5.2}$
$A_{217}^{dustTT}$	94.2	$93^{+20}_{-20}$	$D_M(z_*)/Gpc$	13.902	$13.76^{+0.20}_{-0.41}$	$\chi_{lensing}^2$	8.78	$9.6 (\nu: 0.5)$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.59	$1060.1^{+1.9}_{-1.4}$	$\chi_{simall}^2$	397	$290 (\nu: 14417.7)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$r_{drag}$	147.46	$145.9^{+2.3}_{-4.5}$	$\chi_{lowl}^2$	23	$131 (\nu: 14415.5)$
$H_0$	67.58	$68.3^{+3.2}_{-1.9}$	$k_D$	0.14038	$0.1415^{+0.0034}_{-0.0021}$	$\chi_{plik}^2$	759.1	$773.8 (\nu: 15.6)$
$\Omega_\Lambda$	0.6890	$0.689^{+0.018}_{-0.018}$	$100\theta_D$	0.16098	$0.1614^{+0.0014}_{-0.00090}$	$\chi_{JLA}^2$	1035.03	$1035.12 (\nu: 0.1)$
$\Omega_m$	0.3110	$0.311^{+0.018}_{-0.018}$	$z_{eq}$	3329	$3334^{+83}_{-210}$	$\chi_{6DF}^2$	0.03	$0.41 (\nu: 0.2)$
$\Omega_m h^2$	0.1420	$0.1450^{+0.0092}_{-0.0049}$	$k_{eq}$	0.010199	$0.01031^{+0.00038}_{-0.00060}$	$\chi_{MGS}^2$	1.22	$0.93 (\nu: 0.2)$
$\Omega_\nu h^2$	0.00269	$0.0022^{+0.0082}_{-0.0016}$	$100\theta_{eq}$	0.8275	$0.827^{+0.048}_{-0.016}$	$\chi_{DR12BAO}^2$	4.37	$5.0 (\nu: 1.4)$
$\Omega_m h^3$	0.0960	$0.0991^{+0.0096}_{-0.0042}$	$100\theta_{s,eq}$	0.4570	$0.456^{+0.025}_{-0.0084}$	$\chi_{prior}^2$	1.5	$7.3 (\nu: 7.0)$
$\sigma_8$	0.8091	$0.799^{+0.038}_{-0.057}$	$H(0.15)$	72.85	$73.6^{+3.3}_{-1.7}$	$\chi_{CMB}^2$	1187.7	$1203.5 (\nu: 17.2)$
$S_8$	0.8238	$0.813^{+0.039}_{-0.060}$	$D_M(0.15)$	641.6	$635^{+16}_{-28}$	$\chi_{BAO}^2$	5.62	$6.3 (\nu: 0.9)$
$\sigma_8 \Omega_m^{0.5}$	0.4512	$0.445^{+0.021}_{-0.033}$	$H(0.38)$	82.95	$83.8^{+3.1}_{-1.7}$			

Best-fit  $\chi_{eff}^2 = 2229.80$ ;  $\bar{\chi}_{eff}^2 = 2252.23$ ;  $R - 1 = 0.01841$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.37 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.78 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.58 comman-  
der\_dx12.v3.2.29: 23.22 plik\_rd12\_HM.v22\_TT: 759.08 SN - JLA Pantheon18: 1035.03



### 8.39 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02229^{+0.00051}_{-0.00049}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.594^{+0.026}_{-0.041}$	$D_{\mathrm{M}}(0.38)$	$1524^{+29}_{-51}$
$\Omega_{\mathrm{c}} h^2$	$0.1192^{+0.0079}_{-0.010}$	$\sigma_8/h^{0.5}$	$0.964^{+0.038}_{-0.064}$	$H(0.51)$	$90.1^{+2.6}_{-1.1}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	$99.4^{+2.4}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	$1973^{+35}_{-64}$
$\tau$	$0.056^{+0.021}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.058}_{-0.056}$	$H(0.61)$	$95.8^{+2.7}_{-1.1}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.868$	$z_{\mathrm{re}}$	$7.9^{+2.0}_{-2.2}$	$D_{\mathrm{M}}(0.61)$	$2296^{+39}_{-73}$
$N_{\mathrm{eff}}$	$< 3.49$	$10^9 A_{\mathrm{s}}$	$2.111^{+0.090}_{-0.086}$	$H(2.33)$	$237.5^{+5.7}_{-3.0}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.050^{+0.042}_{-0.041}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.885^{+0.039}_{-0.031}$	$D_{\mathrm{M}}(2.33)$	$5734^{+63}_{-140}$
$n_{\mathrm{s}}$	$0.969^{+0.016}_{-0.013}$	$D_{40}$	$1224^{+33}_{-34}$	$f\sigma_8(0.15)$	$0.449^{+0.021}_{-0.032}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0064}_{-0.0063}$	$D_{220}$	$5724^{+100}_{-100}$	$\sigma_8(0.15)$	$0.733^{+0.034}_{-0.050}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2539^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.466^{+0.021}_{-0.032}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.650^{+0.031}_{-0.045}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.4^{+4.8}_{-4.7}$	$f\sigma_8(0.51)$	$0.465^{+0.021}_{-0.032}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$n_{\mathrm{s}, 0.002}$	$0.969^{+0.016}_{-0.013}$	$\sigma_8(0.51)$	$0.608^{+0.029}_{-0.042}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2468^{+0.0045}_{-0.0016}$	$f\sigma_8(0.61)$	$0.460^{+0.020}_{-0.031}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2481^{+0.0045}_{-0.0016}$	$\sigma_8(0.61)$	$0.579^{+0.028}_{-0.040}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.64^{+0.13}_{-0.098}$	$f\sigma_8(2.33)$	$0.292^{+0.014}_{-0.020}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.73^{+0.15}_{-0.33}$	$\sigma_8(2.33)$	$0.301^{+0.015}_{-0.021}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.5}_{-4.8}$	$z_*$	$1090.20^{+0.91}_{-0.76}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.7}_{-4.8}$	$r_*$	$143.8^{+1.5}_{-3.5}$	$f_{2000}^{143 \times 217}$	$34^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.4}_{-8.7}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0013}$	$f_{2000}^{217}$	$108.6^{+5.1}_{-5.0}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.82^{+0.14}_{-0.33}$	$\chi_{\mathrm{lensing}}^2$	$9.42 (\nu: 0.5)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.9^{+1.6}_{-1.3}$	$\chi_{\mathrm{small}}^2$	$291 (\nu: 14275.1)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.5^{+1.5}_{-3.7}$	$\chi_{\mathrm{lowl}}^2$	$129 (\nu: 14271.6)$
$H_0$	$67.8^{+2.6}_{-1.6}$	$k_{\mathrm{D}}$	$0.1411^{+0.0027}_{-0.0015}$	$\chi_{\mathrm{plik}}^2$	$773.1 (\nu: 14.9)$
$\Omega_{\Lambda}$	$0.687^{+0.018}_{-0.019}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0011}_{-0.00076}$	$\chi_{\mathrm{Aver15}}^2$	$0.75 (\nu: 0.3)$
$\Omega_{\mathrm{m}}$	$0.313^{+0.019}_{-0.018}$	$z_{\mathrm{eq}}$	$3332^{+91}_{-210}$	$\chi_{6\mathrm{DF}}^2$	$0.39 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1440^{+0.0069}_{-0.0042}$	$k_{\mathrm{eq}}$	$0.01027^{+0.00034}_{-0.00057}$	$\chi_{\mathrm{MGS}}^2$	$0.84 (\nu: 0.2)$
$\Omega_{\nu} h^2$	$0.0026^{+0.0079}_{-0.0020}$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.047}_{-0.018}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.4 (\nu: 1.9)$
$\Omega_{\mathrm{m}} h^3$	$0.0977^{+0.0069}_{-0.0028}$	$100\theta_{\mathrm{s,eq}}$	$0.457^{+0.025}_{-0.0093}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$\sigma_8$	$0.794^{+0.036}_{-0.054}$	$H(0.15)$	$73.2^{+2.6}_{-1.4}$	$\chi_{\mathrm{CMB}}^2$	$1202.9 (\nu: 16.7)$
$S_8$	$0.811^{+0.040}_{-0.058}$	$D_{\mathrm{M}}(0.15)$	$639^{+14}_{-23}$	$\chi_{\mathrm{BAO}}^2$	$6.7 (\nu: 1.4)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.022}_{-0.032}$	$H(0.38)$	$83.4^{+2.6}_{-1.2}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1217.61; R - 1 = 0.02031$$



# 8.40 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Cooke17\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02229^{+0.00050}_{-0.00048}$	$\sigma_8/h^{0.5}$	$0.963^{+0.038}_{-0.064}$	$D_{\mathrm{M}}(0.51)$	$1974^{+34}_{-61}$
$\Omega_{\mathrm{c}} h^2$	$0.1189^{+0.0075}_{-0.0099}$	$r_{\mathrm{drag}} h$	$99.4^{+2.4}_{-2.3}$	$H(0.61)$	$95.7^{+2.5}_{-0.98}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.058}_{-0.056}$	$D_{\mathrm{M}}(0.61)$	$2297^{+37}_{-70}$
$\tau$	$0.056^{+0.021}_{-0.020}$	$z_{\mathrm{re}}$	$7.9^{+2.0}_{-2.1}$	$H(2.33)$	$237.3^{+5.3}_{-2.9}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.873$	$10^9 A_{\mathrm{s}}$	$2.110^{+0.090}_{-0.085}$	$D_{\mathrm{M}}(2.33)$	$5737^{+58}_{-130}$
$N_{\mathrm{eff}}$	$< 3.45$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.885^{+0.037}_{-0.030}$	$f\sigma_8(0.15)$	$0.448^{+0.021}_{-0.032}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.049^{+0.042}_{-0.041}$	$D_{40}$	$1225^{+33}_{-33}$	$\sigma_8(0.15)$	$0.733^{+0.033}_{-0.049}$
$n_{\mathrm{s}}$	$0.968^{+0.016}_{-0.012}$	$D_{220}$	$5726^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.466^{+0.021}_{-0.032}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0063}_{-0.0063}$	$D_{810}$	$2539^{+35}_{-35}$	$\sigma_8(0.38)$	$0.649^{+0.030}_{-0.044}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.51)$	$0.464^{+0.020}_{-0.032}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{2000}$	$229.5^{+4.7}_{-4.4}$	$\sigma_8(0.51)$	$0.608^{+0.029}_{-0.042}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s}, 0.002}$	$0.968^{+0.016}_{-0.012}$	$f\sigma_8(0.61)$	$0.459^{+0.020}_{-0.031}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.2466^{+0.0042}_{-0.0015}$	$\sigma_8(0.61)$	$0.578^{+0.028}_{-0.039}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2480^{+0.0042}_{-0.0015}$	$f\sigma_8(2.33)$	$0.292^{+0.014}_{-0.020}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.11}_{-0.091}$	$\sigma_8(2.33)$	$0.300^{+0.015}_{-0.021}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.73^{+0.14}_{-0.31}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.17^{+0.79}_{-0.72}$	$f_{2000}^{143 \times 217}$	$34^{+5}_{-5}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.5}_{-4.7}$	$r_*$	$143.9^{+1.4}_{-3.3}$	$f_{2000}^{217}$	$108.5^{+5.1}_{-4.9}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.7}_{-4.7}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{lensing}}^2$	$9.40 (\nu: 0.5)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.3}_{-8.7}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.82^{+0.13}_{-0.31}$	$\chi_{\mathrm{simall}}^2$	$289 (\nu: 14462.9)$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.9^{+1.5}_{-1.2}$	$\chi_{\mathrm{lowl}}^2$	$132 (\nu: 14458.1)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.6^{+1.5}_{-3.4}$	$\chi_{\mathrm{plik}}^2$	$772.9 (\nu: 14.7)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1410^{+0.0026}_{-0.0015}$	$\chi_{\mathrm{Aver15}}^2$	$0.68 (\nu: 0.2)$
$H_0$	$67.8^{+2.5}_{-1.5}$	$100\theta_{\mathrm{D}}$	$0.16116^{+0.00094}_{-0.00071}$	$\chi_{\mathrm{Cooke17}}^2$	$0.21 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.687^{+0.018}_{-0.018}$	$z_{\mathrm{eq}}$	$3331^{+92}_{-210}$	$\chi_{6\mathrm{DF}}^2$	$0.39 (\nu: 0.2)$
$\Omega_{\mathrm{m}}$	$0.313^{+0.018}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01026^{+0.00033}_{-0.00056}$	$\chi_{\mathrm{MGS}}^2$	$0.83 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1439^{+0.0064}_{-0.0041}$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.047}_{-0.018}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.4 (\nu: 1.9)$
$\Omega_{\nu} h^2$	$0.0027^{+0.0079}_{-0.0021}$	$100\theta_{\mathrm{s,eq}}$	$0.457^{+0.024}_{-0.0095}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$\Omega_{\mathrm{m}} h^3$	$0.0976^{+0.0065}_{-0.0026}$	$H(0.15)$	$73.1^{+2.5}_{-1.4}$	$\chi_{\mathrm{CMB}}^2$	$1202.7 (\nu: 16.5)$
$\sigma_8$	$0.793^{+0.036}_{-0.053}$	$D_{\mathrm{M}}(0.15)$	$639^{+13}_{-22}$	$\chi_{\mathrm{BAO}}^2$	$6.7 (\nu: 1.4)$
$S_8$	$0.810^{+0.040}_{-0.058}$	$H(0.38)$	$83.3^{+2.5}_{-1.2}$	$\chi_{\mathrm{Abund}}^2$	$0.89 (\nu: 0.4)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.022}_{-0.032}$	$D_{\mathrm{M}}(0.38)$	$1524^{+28}_{-49}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.593^{+0.026}_{-0.041}$	$H(0.51)$	$90.1^{+2.5}_{-1.1}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1217.59; R - 1 = 0.02034$$



# 8.41 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02232^{+0.00055}_{-0.00051}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.596^{+0.027}_{-0.042}$	$D_{\mathrm{M}}(0.38)$	$1516^{+35}_{-62}$
$\Omega_{\mathrm{c}} h^2$	$0.1204^{+0.0097}_{-0.011}$	$\sigma_8/h^{0.5}$	$0.966^{+0.037}_{-0.066}$	$H(0.51)$	$90.5^{+3.1}_{-1.6}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0012}_{-0.0013}$	$r_{\mathrm{drag}} h$	$99.5^{+2.4}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	$1964^{+42}_{-78}$
$\tau$	$0.057^{+0.020}_{-0.015}$	$\langle d^2 \rangle^{1/2}$	$2.428^{+0.057}_{-0.058}$	$H(0.61)$	$96.2^{+3.2}_{-1.5}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.805$	$z_{\mathrm{re}}$	$< 9.82$	$D_{\mathrm{M}}(0.61)$	$2285^{+47}_{-90}$
$N_{\mathrm{eff}}$	$< 3.68$	$10^9 A_{\mathrm{s}}$	$2.118^{+0.096}_{-0.071}$	$H(2.33)$	$238.3^{+7.6}_{-3.7}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.053^{+0.044}_{-0.034}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.890^{+0.045}_{-0.034}$	$D_{\mathrm{M}}(2.33)$	$5710^{+85}_{-180}$
$n_{\mathrm{s}}$	$0.971^{+0.020}_{-0.014}$	$D_{40}$	$1221^{+35}_{-36}$	$f\sigma_8(0.15)$	$0.450^{+0.021}_{-0.032}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0065}_{-0.0062}$	$D_{220}$	$5724^{+110}_{-100}$	$\sigma_8(0.15)$	$0.737^{+0.037}_{-0.053}$
$A_{217}^{\mathrm{CIB}}$	$49^{+20}_{-20}$	$D_{810}$	$2540^{+37}_{-35}$	$f\sigma_8(0.38)$	$0.468^{+0.021}_{-0.033}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.654^{+0.034}_{-0.047}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.1^{+5.0}_{-5.1}$	$f\sigma_8(0.51)$	$0.467^{+0.021}_{-0.033}$
$A_{100}^{\mathrm{PS}}$	$267^{+70}_{-70}$	$n_{\mathrm{s}, 0.002}$	$0.971^{+0.020}_{-0.014}$	$\sigma_8(0.51)$	$0.612^{+0.032}_{-0.044}$
$A_{143}^{\mathrm{PS}}$	$51^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2476^{+0.0061}_{-0.0024}$	$f\sigma_8(0.61)$	$0.462^{+0.021}_{-0.033}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2489^{+0.0061}_{-0.0025}$	$\sigma_8(0.61)$	$0.582^{+0.031}_{-0.042}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.65^{+0.16}_{-0.11}$	$f\sigma_8(2.33)$	$0.294^{+0.016}_{-0.022}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.67^{+0.20}_{-0.43}$	$\sigma_8(2.33)$	$0.303^{+0.017}_{-0.022}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.7}_{-4.7}$	$z_*$	$1090.3^{+1.1}_{-0.84}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.7}_{-4.7}$	$r_*$	$143.3^{+2.1}_{-4.3}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.6}_{-8.6}$	$100\theta_*$	$1.0409^{+0.0013}_{-0.0015}$	$f_{2000}^{217}$	$108.9^{+5.4}_{-5.1}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.76^{+0.20}_{-0.40}$	$\chi_{\mathrm{lensing}}^2$	$9.52 (\nu: 0.5)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1060.1^{+1.9}_{-1.4}$	$\chi_{\mathrm{small}}^2$	$397.5 (\nu: 2.4)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$145.9^{+2.2}_{-4.5}$	$\chi_{\mathrm{lowl}}^2$	$22.6 (\nu: 0.5)$
$H_0$	$68.2^{+3.2}_{-1.8}$	$k_{\mathrm{D}}$	$0.1415^{+0.0036}_{-0.0019}$	$\chi_{\mathrm{plik}}^2$	$773.6 (\nu: 15.4)$
$\Omega_{\Lambda}$	$0.688^{+0.019}_{-0.019}$	$100\theta_{\mathrm{D}}$	$0.1613^{+0.0014}_{-0.00089}$	$\chi_{6\mathrm{DF}}^2$	$0.074 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.019}_{-0.019}$	$z_{\mathrm{eq}}$	$3336^{+84}_{-210}$	$\chi_{\mathrm{MGS}}^2$	$1.22 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1450^{+0.0093}_{-0.0049}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00037}_{-0.00059}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.2 (\nu: 1.7)$
$\Omega_{\nu} h^2$	$0.0023^{+0.0082}_{-0.0017}$	$100\theta_{\mathrm{eq}}$	$0.826^{+0.047}_{-0.016}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$\Omega_{\mathrm{m}} h^3$	$0.0989^{+0.0095}_{-0.0040}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.025}_{-0.0085}$	$\chi_{\mathrm{CMB}}^2$	$1203.2 (\nu: 16.9)$
$\sigma_8$	$0.798^{+0.039}_{-0.057}$	$H(0.15)$	$73.5^{+3.2}_{-1.7}$	$\chi_{\mathrm{BAO}}^2$	$6.5 (\nu: 1.2)$
$S_8$	$0.813^{+0.040}_{-0.060}$	$D_{\mathrm{M}}(0.15)$	$636^{+16}_{-27}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.445^{+0.022}_{-0.033}$	$H(0.38)$	$83.8^{+3.0}_{-1.6}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1217.05; R - 1 = 0.01947$$



# 8.42 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02234^{+0.00055}_{-0.00052}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.596^{+0.027}_{-0.042}$	$D_{\mathrm{M}}(0.38)$	$1514^{+35}_{-64}$
$\Omega_{\mathrm{c}} h^2$	$0.1205^{+0.0096}_{-0.011}$	$\sigma_8/h^{0.5}$	$0.966^{+0.036}_{-0.065}$	$H(0.51)$	$90.6^{+3.2}_{-1.6}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0012}_{-0.0013}$	$r_{\mathrm{drag}} h$	$99.7^{+2.3}_{-2.2}$	$D_{\mathrm{M}}(0.51)$	$1961^{+46}_{-75}$
$\tau$	$0.058^{+0.019}_{-0.016}$	$\langle d^2 \rangle^{1/2}$	$2.427^{+0.057}_{-0.057}$	$H(0.61)$	$96.3^{+3.2}_{-1.6}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.831$	$z_{\mathrm{re}}$	$< 9.83$	$D_{\mathrm{M}}(0.61)$	$2282^{+51}_{-85}$
$N_{\mathrm{eff}}$	$< 3.69$	$10^9 A_{\mathrm{s}}$	$2.121^{+0.092}_{-0.073}$	$H(2.33)$	$238.3^{+7.5}_{-3.8}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.054^{+0.042}_{-0.035}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.890^{+0.046}_{-0.034}$	$D_{\mathrm{M}}(2.33)$	$5705^{+89}_{-180}$
$n_{\mathrm{s}}$	$0.972^{+0.020}_{-0.015}$	$D_{40}$	$1220^{+36}_{-36}$	$f\sigma_8(0.15)$	$0.450^{+0.021}_{-0.032}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0065}_{-0.0063}$	$D_{220}$	$5725^{+110}_{-100}$	$\sigma_8(0.15)$	$0.738^{+0.036}_{-0.053}$
$A_{217}^{\mathrm{CIB}}$	$49^{+20}_{-20}$	$D_{810}$	$2540^{+38}_{-35}$	$f\sigma_8(0.38)$	$0.468^{+0.021}_{-0.033}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.655^{+0.033}_{-0.047}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.1^{+5.0}_{-5.1}$	$f\sigma_8(0.51)$	$0.467^{+0.021}_{-0.034}$
$A_{100}^{\mathrm{PS}}$	$267^{+70}_{-70}$	$n_{\mathrm{s}, 0.002}$	$0.972^{+0.020}_{-0.015}$	$\sigma_8(0.51)$	$0.613^{+0.031}_{-0.045}$
$A_{143}^{\mathrm{PS}}$	$51^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2477^{+0.0063}_{-0.0026}$	$f\sigma_8(0.61)$	$0.462^{+0.021}_{-0.033}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2490^{+0.0064}_{-0.0026}$	$\sigma_8(0.61)$	$0.583^{+0.030}_{-0.043}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.65^{+0.16}_{-0.11}$	$f\sigma_8(2.33)$	$0.294^{+0.015}_{-0.022}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.66^{+0.21}_{-0.43}$	$\sigma_8(2.33)$	$0.303^{+0.017}_{-0.023}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.5}_{-4.7}$	$z_*$	$1090.3^{+1.1}_{-0.83}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.7}_{-4.7}$	$r_*$	$143.2^{+2.2}_{-4.4}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.5}_{-8.7}$	$100\theta_*$	$1.0409^{+0.0013}_{-0.0015}$	$f_{2000}^{217}$	$108.9^{+5.4}_{-5.2}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.76^{+0.20}_{-0.41}$	$\chi_{\mathrm{lensing}}^2$	$9.6 (\nu: 0.5)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1060.1^{+1.9}_{-1.4}$	$\chi_{\mathrm{small}}^2$	$290 (\nu: 14384.6)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$145.9^{+2.3}_{-4.5}$	$\chi_{\mathrm{lowl}}^2$	$130 (\nu: 14382.1)$
$H_0$	$68.3^{+3.2}_{-1.8}$	$k_{\mathrm{D}}$	$0.1415^{+0.0034}_{-0.0021}$	$\chi_{\mathrm{plik}}^2$	$773.7 (\nu: 15.5)$
$\Omega_{\Lambda}$	$0.689^{+0.018}_{-0.018}$	$100\theta_{\mathrm{D}}$	$0.1614^{+0.0014}_{-0.00090}$	$\chi_{\mathrm{JLA}}^2$	$1035.11 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.018}_{-0.018}$	$z_{\mathrm{eq}}$	$3333^{+82}_{-210}$	$\chi_{6\mathrm{DF}}^2$	$0.41 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1450^{+0.0093}_{-0.0049}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00037}_{-0.00060}$	$\chi_{\mathrm{MGS}}^2$	$0.94 (\nu: 0.2)$
$\Omega_{\nu} h^2$	$0.0022^{+0.0082}_{-0.0016}$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.047}_{-0.016}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 (\nu: 1.3)$
$\Omega_{\mathrm{m}} h^3$	$0.0991^{+0.0096}_{-0.0042}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.025}_{-0.0084}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 7.0)$
$\sigma_8$	$0.799^{+0.038}_{-0.057}$	$H(0.15)$	$73.7^{+3.0}_{-1.8}$	$\chi_{\mathrm{CMB}}^2$	$1203.4 (\nu: 17.1)$
$S_8$	$0.813^{+0.039}_{-0.060}$	$D_{\mathrm{M}}(0.15)$	$635^{+16}_{-28}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 0.9)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.445^{+0.021}_{-0.033}$	$H(0.38)$	$83.9^{+3.1}_{-1.7}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2252.12; R - 1 = 0.01798$$



### 8.43 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02229^{+0.00050}_{-0.00049}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.594^{+0.027}_{-0.041}$	$D_{\mathrm{M}}(0.38)$	$1523^{+28}_{-51}$
$\Omega_{\mathrm{c}} h^2$	$0.1191^{+0.0079}_{-0.010}$	$\sigma_8/h^{0.5}$	$0.964^{+0.038}_{-0.064}$	$H(0.51)$	$90.1^{+2.6}_{-1.1}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	$99.4^{+2.4}_{-2.2}$	$D_{\mathrm{M}}(0.51)$	$1973^{+34}_{-64}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.058}_{-0.056}$	$H(0.61)$	$95.8^{+2.4}_{-1.1}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.870$	$z_{\mathrm{re}}$	$< 9.74$	$D_{\mathrm{M}}(0.61)$	$2296^{+38}_{-72}$
$N_{\mathrm{eff}}$	$< 3.49$	$10^9 A_{\mathrm{s}}$	$2.113^{+0.088}_{-0.068}$	$H(2.33)$	$237.5^{+5.7}_{-3.0}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.051^{+0.041}_{-0.032}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.885^{+0.039}_{-0.031}$	$D_{\mathrm{M}}(2.33)$	$5734^{+63}_{-140}$
$n_{\mathrm{s}}$	$0.969^{+0.016}_{-0.012}$	$D_{40}$	$1224^{+33}_{-34}$	$f\sigma_8(0.15)$	$0.449^{+0.021}_{-0.032}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0064}_{-0.0063}$	$D_{220}$	$5724^{+110}_{-100}$	$\sigma_8(0.15)$	$0.734^{+0.034}_{-0.050}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2539^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.466^{+0.021}_{-0.033}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.650^{+0.031}_{-0.045}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.4^{+4.8}_{-4.7}$	$f\sigma_8(0.51)$	$0.465^{+0.020}_{-0.032}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$n_{\mathrm{s}, 0.002}$	$0.969^{+0.016}_{-0.012}$	$\sigma_8(0.51)$	$0.608^{+0.029}_{-0.042}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2468^{+0.0045}_{-0.0016}$	$f\sigma_8(0.61)$	$0.460^{+0.020}_{-0.032}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2481^{+0.0045}_{-0.0016}$	$\sigma_8(0.61)$	$0.579^{+0.028}_{-0.040}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.64^{+0.13}_{-0.097}$	$f\sigma_8(2.33)$	$0.292^{+0.014}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.73^{+0.15}_{-0.33}$	$\sigma_8(2.33)$	$0.301^{+0.015}_{-0.021}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.5}_{-4.8}$	$z_*$	$1090.20^{+0.91}_{-0.76}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.7}_{-4.8}$	$r_*$	$143.8^{+1.5}_{-3.5}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-5}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.4}_{-8.7}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0013}$	$f_{2000}^{217}$	$108.6^{+5.1}_{-5.0}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.82^{+0.14}_{-0.33}$	$\chi_{\mathrm{lensing}}^2$	$9.38 (\nu: 0.4)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.9^{+1.6}_{-1.3}$	$\chi_{\mathrm{simall}}^2$	$292 (\nu: 14223.4)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.5^{+1.5}_{-3.7}$	$\chi_{\mathrm{lowl}}^2$	$129 (\nu: 14219.7)$
$H_0$	$67.9^{+2.6}_{-1.5}$	$k_{\mathrm{D}}$	$0.1411^{+0.0027}_{-0.0015}$	$\chi_{\mathrm{plik}}^2$	$773.1 (\nu: 14.9)$
$\Omega_{\Lambda}$	$0.687^{+0.018}_{-0.018}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0011}_{-0.00076}$	$\chi_{\mathrm{Aver15}}^2$	$0.75 (\nu: 0.3)$
$\Omega_{\mathrm{m}}$	$0.313^{+0.018}_{-0.018}$	$z_{\mathrm{eq}}$	$3331^{+89}_{-210}$	$\chi_{6\mathrm{DF}}^2$	$0.39 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1440^{+0.0069}_{-0.0042}$	$k_{\mathrm{eq}}$	$0.01027^{+0.00034}_{-0.00057}$	$\chi_{\mathrm{MGS}}^2$	$0.85 (\nu: 0.2)$
$\Omega_{\nu} h^2$	$0.0026^{+0.0079}_{-0.0021}$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.047}_{-0.018}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.4 (\nu: 1.8)$
$\Omega_{\mathrm{m}} h^3$	$0.0977^{+0.0069}_{-0.0028}$	$100\theta_{\mathrm{s,eq}}$	$0.457^{+0.025}_{-0.0093}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$\sigma_8$	$0.794^{+0.036}_{-0.054}$	$H(0.15)$	$73.2^{+2.6}_{-1.4}$	$\chi_{\mathrm{CMB}}^2$	$1202.8 (\nu: 16.6)$
$S_8$	$0.811^{+0.040}_{-0.058}$	$D_{\mathrm{M}}(0.15)$	$639^{+14}_{-23}$	$\chi_{\mathrm{BAO}}^2$	$6.6 (\nu: 1.3)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.022}_{-0.032}$	$H(0.38)$	$83.4^{+2.6}_{-1.2}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1217.49; R - 1 = 0.01945$$



# 8.44 base\_nnu\_meffsterile\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Cooke17\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02230^{+0.00049}_{-0.00048}$	$\sigma_8/h^{0.5}$	$0.963^{+0.038}_{-0.064}$	$D_{\mathrm{M}}(0.51)$	$1974^{+33}_{-61}$
$\Omega_{\mathrm{c}} h^2$	$0.1189^{+0.0075}_{-0.0099}$	$r_{\mathrm{drag}} h$	$99.4^{+2.4}_{-2.2}$	$H(0.61)$	$95.7^{+2.3}_{-1.1}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.057}_{-0.056}$	$D_{\mathrm{M}}(0.61)$	$2297^{+36}_{-70}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$z_{\mathrm{re}}$	$< 9.74$	$H(2.33)$	$237.3^{+5.3}_{-2.8}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.873$	$10^9 A_{\mathrm{s}}$	$2.113^{+0.088}_{-0.067}$	$D_{\mathrm{M}}(2.33)$	$5737^{+58}_{-130}$
$N_{\mathrm{eff}}$	$< 3.46$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.885^{+0.037}_{-0.030}$	$f\sigma_8(0.15)$	$0.448^{+0.021}_{-0.032}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.050^{+0.041}_{-0.032}$	$D_{40}$	$1224^{+33}_{-33}$	$\sigma_8(0.15)$	$0.733^{+0.033}_{-0.050}$
$n_{\mathrm{s}}$	$0.968^{+0.016}_{-0.012}$	$D_{220}$	$5725^{+110}_{-100}$	$f\sigma_8(0.38)$	$0.466^{+0.021}_{-0.032}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0063}_{-0.0063}$	$D_{810}$	$2539^{+35}_{-35}$	$\sigma_8(0.38)$	$0.649^{+0.030}_{-0.044}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.51)$	$0.464^{+0.020}_{-0.032}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{2000}$	$229.5^{+4.7}_{-4.5}$	$\sigma_8(0.51)$	$0.608^{+0.029}_{-0.042}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s}, 0.002}$	$0.968^{+0.016}_{-0.012}$	$f\sigma_8(0.61)$	$0.459^{+0.020}_{-0.031}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.2466^{+0.0042}_{-0.0015}$	$\sigma_8(0.61)$	$0.578^{+0.028}_{-0.040}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2480^{+0.0042}_{-0.0015}$	$f\sigma_8(2.33)$	$0.292^{+0.014}_{-0.020}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.11}_{-0.091}$	$\sigma_8(2.33)$	$0.301^{+0.015}_{-0.021}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.73^{+0.14}_{-0.31}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.17^{+0.80}_{-0.72}$	$f_{2000}^{143 \times 217}$	$34^{+5}_{-5}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.5}_{-4.8}$	$r_*$	$143.9^{+1.4}_{-3.3}$	$f_{2000}^{217}$	$108.5^{+5.1}_{-4.8}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.7}_{-4.7}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0013}$	$\chi_{\mathrm{lensing}}^2$	$9.36 (\nu: 0.4)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.3}_{-8.7}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.82^{+0.13}_{-0.31}$	$\chi_{\mathrm{simall}}^2$	$289 (\nu: 14410.8)$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.9^{+1.5}_{-1.2}$	$\chi_{\mathrm{lowl}}^2$	$131 (\nu: 14405.8)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.6^{+1.5}_{-3.4}$	$\chi_{\mathrm{plik}}^2$	$772.9 (\nu: 14.7)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1410^{+0.0026}_{-0.0015}$	$\chi_{\mathrm{Aver15}}^2$	$0.69 (\nu: 0.2)$
$H_0$	$67.8^{+2.5}_{-1.5}$	$100\theta_{\mathrm{D}}$	$0.16116^{+0.00095}_{-0.00071}$	$\chi_{\mathrm{Cooke17}}^2$	$0.21 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.687^{+0.018}_{-0.018}$	$z_{\mathrm{eq}}$	$3330^{+91}_{-210}$	$\chi_{6\mathrm{DF}}^2$	$0.39 (\nu: 0.2)$
$\Omega_{\mathrm{m}}$	$0.313^{+0.018}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01026^{+0.00033}_{-0.00056}$	$\chi_{\mathrm{MGS}}^2$	$0.84 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1439^{+0.0064}_{-0.0041}$	$100\theta_{\mathrm{eq}}$	$0.828^{+0.047}_{-0.018}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.4 (\nu: 1.8)$
$\Omega_{\nu} h^2$	$0.0027^{+0.0079}_{-0.0022}$	$100\theta_{\mathrm{s,eq}}$	$0.457^{+0.024}_{-0.0094}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$\Omega_{\mathrm{m}} h^3$	$0.0976^{+0.0065}_{-0.0026}$	$H(0.15)$	$73.1^{+2.5}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$1202.6 (\nu: 16.5)$
$\sigma_8$	$0.793^{+0.036}_{-0.054}$	$D_{\mathrm{M}}(0.15)$	$639^{+13}_{-22}$	$\chi_{\mathrm{BAO}}^2$	$6.6 (\nu: 1.3)$
$S_8$	$0.810^{+0.040}_{-0.058}$	$H(0.38)$	$83.3^{+2.4}_{-1.1}$	$\chi_{\mathrm{Abund}}^2$	$0.89 (\nu: 0.4)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.022}_{-0.032}$	$D_{\mathrm{M}}(0.38)$	$1524^{+27}_{-49}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.593^{+0.026}_{-0.041}$	$H(0.51)$	$90.1^{+2.3}_{-1.1}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1217.47; R - 1 = 0.01988$



# 8.45 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022461	$0.02249^{+0.00043}_{-0.00037}$ (+0.8 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09644	$0.0976^{+0.0063}_{-0.0021}$ (−0.4 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	640.3	$639^{+11}_{-23}$ (+0.4 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.1134	$0.1187^{+0.0078}_{-0.010}$ (−0.5 $\sigma$ )	$\sigma_8$	0.8100	$0.793^{+0.035}_{-0.062}$ (−0.2 $\sigma$ )	$H(0.38)$	83.10	$83.3^{+2.6}_{-0.93}$ (−0.4 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04106	$1.04091^{+0.00075}_{-0.00089}$ (+0.3 $\sigma$ )	$S_8$	0.824	$0.810^{+0.038}_{-0.063}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1527.3	$1524^{+23}_{-51}$ (+0.4 $\sigma$ )
$\tau$	0.0564	$0.058^{+0.021}_{-0.018}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4514	$0.444^{+0.021}_{-0.035}$ (−0.2 $\sigma$ )	$H(0.51)$	89.81	$90.1^{+2.2}_{-0.97}$ (−0.4 $\sigma$ )
$m_{\nu,\mathrm{sterile}}^{\mathrm{eff}}$ [eV]	0.555	< 0.956 (+0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6047	$0.593^{+0.025}_{-0.046}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1978.6	$1974^{+28}_{-64}$ (+0.4 $\sigma$ )
$N_{\mathrm{eff}}$	3.048	< 3.44 (−0.6 $\sigma$ )	$\sigma_8/h^{0.5}$	0.984	$0.963^{+0.041}_{-0.066}$ (−0.1 $\sigma$ )	$H(0.61)$	95.43	$95.8^{+2.2}_{-0.88}$ (−0.4 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0481	$3.052^{+0.044}_{-0.037}$ (+0.0 $\sigma$ )	$r_{\mathrm{drag}}h$	99.65	$99.3^{+2.1}_{-2.2}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2302	$2297^{+30}_{-74}$ (+0.4 $\sigma$ )
$n_{\mathrm{s}}$	0.9674	$0.968^{+0.017}_{-0.012}$ (−0.4 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.439	$2.437^{+0.056}_{-0.055}$ (+0.4 $\sigma$ )	$H(2.33)$	236.22	$237.4^{+5.6}_{-2.3}$ (−0.4 $\sigma$ )
$y_{\mathrm{cal}}$	1.0011	$1.0009^{+0.0063}_{-0.0063}$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.86	$8.0^{+2.0}_{-1.9}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5756	$5735^{+47}_{-130}$ (+0.4 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	47.2	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.107	$2.116^{+0.095}_{-0.078}$ (+0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4561	$0.448^{+0.020}_{-0.035}$ (−0.2 $\sigma$ )
$\xi^{\mathrm{tSZ}} \times \mathrm{CIB}$	0.46	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8828	$1.886^{+0.035}_{-0.028}$ (−0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7485	$0.733^{+0.034}_{-0.058}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.20	$5.4^{+4.3}_{-4.8}$ (+0.3 $\sigma$ )	$D_{40}$	1228.2	$1227^{+31}_{-32}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4746	$0.466^{+0.020}_{-0.036}$ (−0.2 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	250	$260^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5743	$5741^{+98}_{-94}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6636	$0.650^{+0.031}_{-0.052}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	47.6	$47^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{810}$	2543.4	$2542^{+34}_{-33}$ (+0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4733	$0.465^{+0.020}_{-0.036}$ (−0.2 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	48.0	$43^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	819.4	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6211	$0.608^{+0.029}_{-0.049}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	119.4	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{2000}$	231.83	$230.7^{+4.0}_{-4.0}$ (+0.8 $\sigma$ )	$f\sigma_8(0.61)$	0.4684	$0.460^{+0.020}_{-0.036}$ (−0.2 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$n_{\mathrm{s},0.002}$	0.9674	$0.968^{+0.017}_{-0.012}$ (−0.4 $\sigma$ )	$\sigma_8(0.61)$	0.5910	$0.578^{+0.028}_{-0.046}$ (−0.2 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.81	$8.9^{+4.7}_{-4.6}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}$	0.24546	$0.2465^{+0.0044}_{-0.0012}$ (−0.5 $\sigma$ )	$f\sigma_8(2.33)$	0.2980	$0.292^{+0.015}_{-0.023}$ (−0.3 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.04	$10.9^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.24678	$0.2478^{+0.0044}_{-0.0012}$ (−0.5 $\sigma$ )	$\sigma_8(2.33)$	0.3073	$0.301^{+0.016}_{-0.024}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.8	$18.7^{+8.4}_{-8.4}$ (+0.1 $\sigma$ )	$10^5 \mathrm{D}/\mathrm{H}$	2.569	$2.591^{+0.096}_{-0.068}$ (−1.2 $\sigma$ )	$f_{2000}^{143}$	28.6	$30^{+7}_{-7}$ (−0.7 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.1	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.781	$13.73^{+0.11}_{-0.30}$ (+0.4 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.82	$33^{+5}_{-5}$ (−0.8 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.114^{+0.098}_{-0.095}$	$z_*$	1089.75	$1089.90^{+0.71}_{-0.58}$ (−1.0 $\sigma$ )	$f_{2000}^{217}$	106.47	$107.4^{+4.7}_{-4.8}$ (−0.7 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.076}_{-0.076}$	$r_*$	144.54	$143.8^{+1.3}_{-3.5}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	8.75	9.14 ( $\nu$ : 0.3) (−0.4 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.483	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04123	$1.04104^{+0.00078}_{-0.0011}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.4	397.6 ( $\nu$ : 2.7) (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.881	$13.82^{+0.12}_{-0.32}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.05	23.03 ( $\nu$ : 0.4) (+0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.665	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	1060.09	$1060.3^{+1.5}_{-0.92}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2344.6	2361.3 ( $\nu$ : 18.3) (+285.1 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.07	$2.08^{+0.70}_{-0.68}$	$r_{\mathrm{drag}}$	147.17	$146.5^{+1.3}_{-3.6}$ (+0.4 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.029	0.084 ( $\nu$ : 0.0) (+0.1 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.14085	$0.1414^{+0.0028}_{-0.0011}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	1.22	1.10 ( $\nu$ : 0.1) (−0.2 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16068	$0.16083^{+0.00086}_{-0.00051}$ (−1.1 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	4.42	5.5 ( $\nu$ : 1.7) (+0.1 $\sigma$ )
$H_0$	67.71	$67.8^{+2.6}_{-1.3}$ (−0.4 $\sigma$ )	$z_{\mathrm{eq}}$	3246	$3339^{+87}_{-230}$ (+0.0 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.9	11.6 ( $\nu$ : 10.4) (+1.2 $\sigma$ )
$\Omega_{\Lambda}$	0.6894	$0.687^{+0.016}_{-0.018}$ (−0.2 $\sigma$ )	$k_{\mathrm{eq}}$	0.010016	$0.01027^{+0.00032}_{-0.00057}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2772.9	2791.1 ( $\nu$ : 19.5) (+271.9 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3106	$0.313^{+0.018}_{-0.016}$ (+0.2 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8464	$0.827^{+0.049}_{-0.020}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	5.67	6.7 ( $\nu$ : 1.3) (+0.1 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.1424	$0.1440^{+0.0067}_{-0.0033}$ (−0.4 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4667	$0.456^{+0.026}_{-0.010}$ (+0.0 $\sigma$ )			
$\Omega_{\nu}h^2$	0.0065	$0.0028^{+0.0090}_{-0.0022}$ (+0.3 $\sigma$ )	$H(0.15)$	72.99	$73.1^{+2.5}_{-1.1}$ (−0.4 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2780.39$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.70$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2809.48$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.31$ ;  $R - 1 = 0.02379$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.03 ( $\Delta$  0.01) MGS: 1.22 ( $\Delta$  -0.06) DR12BAO: 4.42 ( $\Delta$  0.17) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.75 ( $\Delta$  -0.09) small\_100x143\_offlike5\_EE\_Aplanck  
396.43 ( $\Delta$  0.09) commander\_dx12\_v3.2.29: 23.05 ( $\Delta$  0.14) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.63



8.46 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02250^{+0.00041}_{-0.00038} \quad (+0.8\sigma)$	$\Omega_{\mathrm{m}} h^3$	$0.0977^{+0.0073}_{-0.0022} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$638^{+11}_{-22} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1188^{+0.0079}_{-0.0099} \quad (-0.4\sigma)$	$\sigma_8$	$0.795^{+0.036}_{-0.060} \quad (-0.2\sigma)$	$H(0.38)$	$83.4^{+2.6}_{-0.92} \quad (-0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00075}_{-0.00091} \quad (+0.3\sigma)$	$S_8$	$0.811^{+0.037}_{-0.061} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1522^{+22}_{-49} \quad (+0.4\sigma)$
$\tau$	$0.058^{+0.021}_{-0.019} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.020}_{-0.033} \quad (-0.1\sigma)$	$H(0.51)$	$90.2^{+2.6}_{-0.84} \quad (-0.4\sigma)$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.884 \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.594^{+0.026}_{-0.045} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1972^{+27}_{-62} \quad (+0.4\sigma)$
$N_{\mathrm{eff}}$	$< 3.46 \quad (-0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.964^{+0.037}_{-0.072} \quad (-0.1\sigma)$	$H(0.61)$	$95.8^{+2.7}_{-0.79} \quad (-0.4\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.052^{+0.043}_{-0.039} \quad (-0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.5^{+2.0}_{-2.0} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2295^{+30}_{-72} \quad (+0.4\sigma)$
$n_{\mathrm{s}}$	$0.969^{+0.017}_{-0.011} \quad (-0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.434^{+0.054}_{-0.055} \quad (+0.4\sigma)$	$H(2.33)$	$237.4^{+5.8}_{-2.3} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0061} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$8.0^{+2.0}_{-2.0} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5733^{+48}_{-130} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.116^{+0.092}_{-0.081} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.449^{+0.020}_{-0.034} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.886^{+0.034}_{-0.028} \quad (-0.3\sigma)$	$\sigma_8(0.15)$	$0.734^{+0.033}_{-0.056} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1226^{+32}_{-32} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.466^{+0.020}_{-0.035} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$260^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5741^{+98}_{-93} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.651^{+0.030}_{-0.050} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.5\sigma)$	$D_{810}$	$2542^{+36}_{-32} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.465^{+0.020}_{-0.035} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.609^{+0.029}_{-0.047} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.7^{+3.9}_{-4.1} \quad (+0.9\sigma)$	$f\sigma_8(0.61)$	$0.460^{+0.020}_{-0.035} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s}, 0.002}$	$0.969^{+0.017}_{-0.011} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.580^{+0.027}_{-0.045} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+5.0}_{-4.7} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2465^{+0.0052}_{-0.0013} \quad (-0.5\sigma)$	$f\sigma_8(2.33)$	$0.292^{+0.014}_{-0.023} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2479^{+0.0052}_{-0.0013} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.301^{+0.015}_{-0.023} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.7^{+8.2}_{-8.6} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.59^{+0.10}_{-0.069} \quad (-1.2\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.72^{+0.11}_{-0.30} \quad (+0.4\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.8\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.10}_{-0.095}$	$z_*$	$1089.89^{+0.73}_{-0.59} \quad (-1.0\sigma)$	$f_{2000}^{217}$	$107.4^{+4.8}_{-4.7} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.076}_{-0.076}$	$r_*$	$143.8^{+1.1}_{-3.6} \quad (+0.4\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.18 \quad (\nu: 0.3) \quad (-0.4\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04104^{+0.00078}_{-0.0011} \quad (+0.3\sigma)$	$\chi_{\mathrm{simall}}^2$	$262 \quad (\nu: 16193.5) \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.82^{+0.11}_{-0.34} \quad (+0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$158 \quad (\nu: 16184.7) \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.22}$	$z_{\mathrm{drag}}$	$1060.3^{+1.5}_{-0.91} \quad (+0.3\sigma)$	$\chi_{\mathrm{plik}}^2$	$2361.5 \quad (\nu: 18.3) \quad (+284.5\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.68}_{-0.69}$	$r_{\mathrm{drag}}$	$146.4^{+1.2}_{-3.8} \quad (+0.4\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.16 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1414^{+0.0028}_{-0.0011} \quad (-0.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.47 \quad (\nu: 0.2) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16083^{+0.00089}_{-0.00052} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$0.76 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$H_0$	$67.9^{+2.5}_{-1.2} \quad (-0.4\sigma)$	$z_{\mathrm{eq}}$	$3340^{+92}_{-200} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.2 \quad (\nu: 1.3) \quad (+0.2\sigma)$
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.016} \quad (-0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01028^{+0.00032}_{-0.00055} \quad (-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.7 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.016}_{-0.016} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.826^{+0.044}_{-0.019} \quad (-0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2791.2 \quad (\nu: 19.0) \quad (+271.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1439^{+0.0070}_{-0.0032} \quad (-0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.023}_{-0.0097} \quad (-0.0\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.5 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$\Omega_{\nu} h^2$	$0.0026^{+0.0091}_{-0.0021} \quad (+0.2\sigma)$	$H(0.15)$	$73.2^{+2.5}_{-1.1} \quad (-0.4\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 3844.44$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.22$ ;  $R - 1 = 0.02316$



8.47 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02248^{+0.00039}_{-0.00036} \quad (+0.9\sigma)$	$\Omega_{\mathrm{m}} h^3$	$0.0974^{+0.0054}_{-0.0015} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+11}_{-17} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1185^{+0.0063}_{-0.0095} \quad (-0.2\sigma)$	$\sigma_8$	$0.793^{+0.033}_{-0.060} \quad (-0.0\sigma)$	$H(0.38)$	$83.2^{+1.9}_{-0.83} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04093^{+0.00073}_{-0.00084} \quad (+0.2\sigma)$	$S_8$	$0.810^{+0.038}_{-0.060} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1526^{+21}_{-39} \quad (+0.1\sigma)$
$\tau$	$0.057^{+0.021}_{-0.018} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.021}_{-0.033} \quad (-0.0\sigma)$	$H(0.51)$	$90.0^{+1.9}_{-0.73} \quad (-0.2\sigma)$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.917 \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.593^{+0.025}_{-0.044} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1976^{+25}_{-48} \quad (+0.2\sigma)$
$N_{\mathrm{eff}}$	$< 3.34 \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.963^{+0.037}_{-0.071} \quad (-0.0\sigma)$	$H(0.61)$	$95.7^{+2.0}_{-0.66} \quad (-0.2\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.051^{+0.042}_{-0.039} \quad (+0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.3^{+2.1}_{-2.1} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2299^{+28}_{-55} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.014}_{-0.011} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.055}_{-0.055} \quad (+0.2\sigma)$	$H(2.33)$	$237.2^{+4.0}_{-2.1} \quad (-0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0060} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$7.9^{+2.0}_{-1.9} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5741^{+36}_{-110} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.113^{+0.090}_{-0.080} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.448^{+0.020}_{-0.033} \quad (-0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.885^{+0.031}_{-0.027} \quad (-0.1\sigma)$	$\sigma_8(0.15)$	$0.733^{+0.032}_{-0.056} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1227^{+31}_{-31} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.466^{+0.020}_{-0.035} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5740^{+99}_{-92} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.649^{+0.028}_{-0.050} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2541^{+35}_{-32} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.464^{+0.019}_{-0.034} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.607^{+0.027}_{-0.046} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.7^{+3.9}_{-4.0} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.459^{+0.019}_{-0.034} \quad (-0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s}, 0.002}$	$0.968^{+0.014}_{-0.011} \quad (-0.2\sigma)$	$\sigma_8(0.61)$	$0.578^{+0.026}_{-0.043} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+5.0}_{-4.6} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2463^{+0.0031}_{-0.00099} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	$0.292^{+0.013}_{-0.022} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2476^{+0.0031}_{-0.0010} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.300^{+0.014}_{-0.023} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.7^{+8.3}_{-8.6} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.589^{+0.085}_{-0.067} \quad (-1.1\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.745^{+0.083}_{-0.26} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.10}_{-0.095}$	$z_*$	$1089.89^{+0.64}_{-0.58} \quad (-1.0\sigma)$	$f_{2000}^{217}$	$107.3^{+4.6}_{-4.7} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.077}$	$r_*$	$143.98^{+0.99}_{-2.5} \quad (+0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.13 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04107^{+0.00075}_{-0.00091} \quad (+0.2\sigma)$	$\chi_{\mathrm{simall}}^2$	$269 \quad (\nu: 15818.2) \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.830^{+0.093}_{-0.23} \quad (+0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$152 \quad (\nu: 15816.3) \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.20}_{-0.21}$	$z_{\mathrm{drag}}$	$1060.3^{+1.1}_{-0.86} \quad (+0.7\sigma)$	$\chi_{\mathrm{plik}}^2$	$2361.0 \quad (\nu: 17.3) \quad (+291.0\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.69}_{-0.68}$	$r_{\mathrm{drag}}$	$146.6^{+1.0}_{-2.6} \quad (+0.1\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.50 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1413^{+0.0019}_{-0.0010} \quad (+0.2\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.44 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16080^{+0.00072}_{-0.00049} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$0.73 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$H_0$	$67.7^{+2.0}_{-1.2} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3340^{+96}_{-200} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.5 \quad (\nu: 1.7) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.687^{+0.016}_{-0.017} \quad (-0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01027^{+0.00029}_{-0.00054} \quad (-0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.313^{+0.017}_{-0.016} \quad (+0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.826^{+0.044}_{-0.019} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2790.7 \quad (\nu: 18.0) \quad (+274.9\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1437^{+0.0049}_{-0.0030} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.023}_{-0.010} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.7 \quad (\nu: 1.2) \quad (+0.0\sigma)$
$\Omega_{\nu} h^2$	$0.0028^{+0.0089}_{-0.0023} \quad (+0.1\sigma)$	$H(0.15)$	$73.1^{+1.9}_{-1.1} \quad (-0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2809.56; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.95; R - 1 = 0.02106$$



## 8.48 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Cooke17\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02247^{+0.00038}_{-0.00035} \quad (+0.9\sigma)$	$\sigma_8$	$0.793^{+0.033}_{-0.060} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1526^{+21}_{-39} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1185^{+0.0061}_{-0.0096} \quad (-0.1\sigma)$	$S_8$	$0.811^{+0.038}_{-0.060} \quad (+0.0\sigma)$	$H(0.51)$	$90.0^{+1.9}_{-0.73} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04092^{+0.00074}_{-0.00084} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.021}_{-0.033} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1977^{+25}_{-49} \quad (+0.1\sigma)$
$\tau$	$0.057^{+0.021}_{-0.018} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.593^{+0.025}_{-0.044} \quad (+0.0\sigma)$	$H(0.61)$	$95.7^{+2.0}_{-0.67} \quad (-0.1\sigma)$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.928 \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.964^{+0.037}_{-0.071} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2300^{+28}_{-55} \quad (+0.1\sigma)$
$N_{\mathrm{eff}}$	$< 3.34 \quad (-0.3\sigma)$	$r_{\mathrm{drag}} h$	$99.3^{+2.1}_{-2.1} \quad (-0.1\sigma)$	$H(2.33)$	$237.2^{+3.9}_{-2.1} \quad (-0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.051^{+0.042}_{-0.039} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.054}_{-0.055} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5741^{+36}_{-110} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.014}_{-0.011} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$7.9^{+2.0}_{-1.9} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.448^{+0.020}_{-0.034} \quad (+0.0\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0060} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.113^{+0.091}_{-0.080} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.733^{+0.032}_{-0.056} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.885^{+0.031}_{-0.027} \quad (-0.0\sigma)$	$f\sigma_8(0.38)$	$0.466^{+0.020}_{-0.035} \quad (+0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{40}$	$1227^{+31}_{-31} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.649^{+0.029}_{-0.050} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{220}$	$5739^{+98}_{-92} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.464^{+0.019}_{-0.035} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$D_{810}$	$2541^{+35}_{-32} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.607^{+0.027}_{-0.046} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.4\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.459^{+0.019}_{-0.034} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$230.7^{+3.8}_{-3.9} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.578^{+0.026}_{-0.043} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$n_{\mathrm{s}, 0.002}$	$0.968^{+0.014}_{-0.011} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.292^{+0.013}_{-0.022} \quad (-0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.2463^{+0.0031}_{-0.0010} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.300^{+0.014}_{-0.023} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+5.0}_{-4.6} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2476^{+0.0031}_{-0.0010} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.590^{+0.078}_{-0.064} \quad (-1.1\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.7^{+8.3}_{-8.6} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.745^{+0.083}_{-0.26} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$107.4^{+4.6}_{-4.7} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.90^{+0.61}_{-0.55} \quad (-0.9\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.14 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.10}_{-0.095}$	$r_*$	$144.0^{+1.0}_{-2.5} \quad (+0.1\sigma)$	$\chi_{\mathrm{simall}}^2$	$270 \quad (\nu: 15754.2) \quad (-0.1\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.077}_{-0.076}$	$100\theta_*$	$1.04107^{+0.00075}_{-0.00090} \quad (+0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$151 \quad (\nu: 15753.4) \quad (+0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.829^{+0.093}_{-0.23} \quad (+0.1\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.9 \quad (\nu: 17.2) \quad (+293.0\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1060.2^{+1.1}_{-0.88} \quad (+0.7\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.51 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.20}_{-0.21}$	$r_{\mathrm{drag}}$	$146.6^{+1.0}_{-2.5} \quad (+0.0\sigma)$	$\chi_{\mathrm{Cooke17}}^2$	$0.16 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.69}_{-0.69}$	$k_{\mathrm{D}}$	$0.1413^{+0.0019}_{-0.0010} \quad (+0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.43 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16081^{+0.00069}_{-0.00048} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$0.73 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3340^{+85}_{-220} \quad (+0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.6 \quad (\nu: 1.7) \quad (+0.1\sigma)$
$H_0$	$67.7^{+2.0}_{-1.2} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01027^{+0.00029}_{-0.00054} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.686^{+0.016}_{-0.017} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.826^{+0.044}_{-0.019} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2790.7 \quad (\nu: 18.0) \quad (+276.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.314^{+0.017}_{-0.016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.023}_{-0.010} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.8 \quad (\nu: 1.3) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1438^{+0.0049}_{-0.0030} \quad (-0.0\sigma)$	$H(0.15)$	$73.0^{+2.0}_{-1.1} \quad (-0.1\sigma)$	$\chi_{\mathrm{Abund}}^2$	$0.67 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$\Omega_{\nu} h^2$	$0.0028^{+0.0089}_{-0.0023} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+11}_{-18} \quad (+0.1\sigma)$		
$\Omega_{\mathrm{m}} h^3$	$0.0974^{+0.0048}_{-0.0017} \quad (-0.1\sigma)$	$H(0.38)$	$83.2^{+1.9}_{-0.84} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2809.72; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.13; R - 1 = 0.02079$$



## 8.49 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02249^{+0.00043}_{-0.00038} \quad (+0.8\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0977^{+0.0064}_{-0.0021} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$639^{+11}_{-22} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1187^{+0.0079}_{-0.010} \quad (-0.4\sigma)$	$\sigma_8$	$0.794^{+0.035}_{-0.061} \quad (-0.2\sigma)$	$H(0.38)$	$83.3^{+2.6}_{-0.92} \quad (-0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00075}_{-0.00089} \quad (+0.3\sigma)$	$S_8$	$0.811^{+0.038}_{-0.062} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1524^{+23}_{-51} \quad (+0.4\sigma)$
$\tau$	$0.058^{+0.020}_{-0.015} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.021}_{-0.034} \quad (-0.1\sigma)$	$H(0.51)$	$90.1^{+2.2}_{-0.96} \quad (-0.4\sigma)$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.948 \quad (+0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.594^{+0.025}_{-0.045} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1974^{+27}_{-65} \quad (+0.4\sigma)$
$N_{\mathrm{eff}}$	$< 3.44 \quad (-0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.964^{+0.040}_{-0.066} \quad (-0.1\sigma)$	$H(0.61)$	$95.8^{+2.2}_{-0.88} \quad (-0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.053^{+0.043}_{-0.032} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.3^{+2.1}_{-2.1} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2297^{+30}_{-74} \quad (+0.4\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.017}_{-0.012} \quad (-0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.056}_{-0.053} \quad (+0.4\sigma)$	$H(2.33)$	$237.4^{+5.6}_{-2.3} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0063}_{-0.0062} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.83 \quad (+0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5735^{+47}_{-130} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.118^{+0.093}_{-0.067} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.449^{+0.020}_{-0.034} \quad (-0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.886^{+0.035}_{-0.028} \quad (-0.3\sigma)$	$\sigma_8(0.15)$	$0.733^{+0.033}_{-0.057} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.4^{+4.3}_{-4.8} \quad (+0.3\sigma)$	$D_{40}$	$1226^{+31}_{-32} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.466^{+0.020}_{-0.035} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$260^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5740^{+97}_{-94} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.650^{+0.031}_{-0.051} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.5\sigma)$	$D_{810}$	$2542^{+34}_{-33} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.465^{+0.020}_{-0.035} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.608^{+0.029}_{-0.048} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.7^{+4.0}_{-4.1} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.460^{+0.020}_{-0.035} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s}, 0.002}$	$0.968^{+0.017}_{-0.012} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.579^{+0.028}_{-0.045} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2465^{+0.0043}_{-0.0012} \quad (-0.5\sigma)$	$f\sigma_8(2.33)$	$0.292^{+0.015}_{-0.023} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2478^{+0.0044}_{-0.0012} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.301^{+0.015}_{-0.024} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.3}_{-8.4} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.591^{+0.097}_{-0.068} \quad (-1.2\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.73^{+0.11}_{-0.30} \quad (+0.4\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.8\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.098}_{-0.095}$	$z_{\ast}$	$1089.90^{+0.71}_{-0.58} \quad (-1.0\sigma)$	$f_{2000}^{217}$	$107.4^{+4.7}_{-4.8} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.076}_{-0.076}$	$r_{\ast}$	$143.8^{+1.3}_{-3.5} \quad (+0.4\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.12 \quad (\nu: 0.3) \quad (-0.4\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_{\ast}$	$1.04104^{+0.00078}_{-0.0011} \quad (+0.3\sigma)$	$\chi_{\mathrm{simall}}^2$	$397.6 \quad (\nu: 2.7) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_{\ast})/\mathrm{Gpc}$	$13.82^{+0.12}_{-0.32} \quad (+0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.03 \quad (\nu: 0.4) \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1060.3^{+1.5}_{-0.92} \quad (+0.4\sigma)$	$\chi_{\mathrm{plik}}^2$	$2361.3 \quad (\nu: 18.3) \quad (+285.7\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.69}_{-0.68}$	$r_{\mathrm{drag}}$	$146.5^{+1.3}_{-3.6} \quad (+0.4\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.084 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1414^{+0.0028}_{-0.0011} \quad (-0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.10 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16083^{+0.00086}_{-0.00051} \quad (-1.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.5 \quad (\nu: 1.7) \quad (+0.2\sigma)$
$H_0$	$67.8^{+2.6}_{-1.3} \quad (-0.4\sigma)$	$z_{\mathrm{eq}}$	$3339^{+87}_{-230} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.4) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.687^{+0.016}_{-0.017} \quad (-0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01027^{+0.00032}_{-0.00057} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2791.1 \quad (\nu: 19.4) \quad (+273.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.313^{+0.017}_{-0.016} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.051}_{-0.017} \quad (+0.0\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.7 \quad (\nu: 1.3) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1440^{+0.0067}_{-0.0033} \quad (-0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.027}_{-0.0090} \quad (+0.0\sigma)$		
$\Omega_{\nu}h^2$	$0.0028^{+0.0089}_{-0.0022} \quad (+0.3\sigma)$	$H(0.15)$	$73.1^{+2.6}_{-1.1} \quad (-0.4\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2809.40; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.35; R - 1 = 0.02345$$



# 8.50 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02250^{+0.00041}_{-0.00038} \quad (+0.8\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0978^{+0.0074}_{-0.0022} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$638^{+11}_{-22} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1188^{+0.0079}_{-0.0099} \quad (-0.4\sigma)$	$\sigma_8$	$0.795^{+0.035}_{-0.060} \quad (-0.2\sigma)$	$H(0.38)$	$83.4^{+2.6}_{-0.92} \quad (-0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00075}_{-0.00091} \quad (+0.3\sigma)$	$S_8$	$0.811^{+0.037}_{-0.061} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1522^{+22}_{-49} \quad (+0.4\sigma)$
$\tau$	$0.058^{+0.020}_{-0.015} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.020}_{-0.033} \quad (-0.1\sigma)$	$H(0.51)$	$90.2^{+2.2}_{-0.95} \quad (-0.4\sigma)$
$m_{\nu,\mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.884 \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.594^{+0.026}_{-0.045} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1972^{+27}_{-63} \quad (+0.4\sigma)$
$N_{\mathrm{eff}}$	$< 3.46 \quad (-0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.965^{+0.037}_{-0.071} \quad (-0.1\sigma)$	$H(0.61)$	$95.8^{+2.2}_{-0.89} \quad (-0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.053^{+0.042}_{-0.032} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$99.5^{+2.0}_{-1.9} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2294^{+30}_{-72} \quad (+0.4\sigma)$
$n_{\mathrm{s}}$	$0.969^{+0.017}_{-0.011} \quad (-0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.054}_{-0.052} \quad (+0.4\sigma)$	$H(2.33)$	$237.4^{+5.8}_{-2.4} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0060} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.82 \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5732^{+48}_{-130} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.117^{+0.091}_{-0.068} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.449^{+0.020}_{-0.034} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.886^{+0.034}_{-0.028} \quad (-0.3\sigma)$	$\sigma_8(0.15)$	$0.735^{+0.033}_{-0.056} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1226^{+32}_{-32} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.467^{+0.020}_{-0.035} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5741^{+98}_{-92} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.651^{+0.030}_{-0.050} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.5\sigma)$	$D_{810}$	$2542^{+35}_{-32} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.465^{+0.020}_{-0.035} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.609^{+0.029}_{-0.047} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.7^{+3.9}_{-4.1} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.460^{+0.020}_{-0.035} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.969^{+0.017}_{-0.011} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.580^{+0.027}_{-0.044} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+5.0}_{-4.7} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2465^{+0.0052}_{-0.0013} \quad (-0.5\sigma)$	$f\sigma_8(2.33)$	$0.293^{+0.014}_{-0.023} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2479^{+0.0052}_{-0.0013} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.301^{+0.015}_{-0.023} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.7^{+8.2}_{-8.6} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.59^{+0.10}_{-0.069} \quad (-1.2\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.72^{+0.11}_{-0.31} \quad (+0.4\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.8\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.10}_{-0.095}$	$z_{*}$	$1089.89^{+0.74}_{-0.59} \quad (-1.0\sigma)$	$f_{2000}^{217}$	$107.4^{+4.8}_{-4.7} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.076}$	$r_{*}$	$143.8^{+1.1}_{-3.6} \quad (+0.4\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.16 \quad (\nu: 0.3) \quad (-0.4\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_{*}$	$1.04104^{+0.00078}_{-0.0011} \quad (+0.3\sigma)$	$\chi_{\mathrm{simall}}^2$	$262 \quad (\nu: 16204.5) \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.13}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.82^{+0.11}_{-0.34} \quad (+0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$158 \quad (\nu: 16195.0) \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.22}$	$z_{\mathrm{drag}}$	$1060.3^{+1.5}_{-0.91} \quad (+0.3\sigma)$	$\chi_{\mathrm{plik}}^2$	$2361.4 \quad (\nu: 18.3) \quad (+285.0\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.68}_{-0.68}$	$r_{\mathrm{drag}}$	$146.4^{+1.2}_{-3.8} \quad (+0.4\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.16 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1414^{+0.0029}_{-0.0011} \quad (-0.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.47 \quad (\nu: 0.2) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16083^{+0.00089}_{-0.00052} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$0.76 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$H_0$	$67.9^{+2.4}_{-1.2} \quad (-0.4\sigma)$	$z_{\mathrm{eq}}$	$3340^{+92}_{-200} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.2 \quad (\nu: 1.3) \quad (+0.2\sigma)$
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.016} \quad (-0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01028^{+0.00032}_{-0.00055} \quad (-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.7 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.016}_{-0.016} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.826^{+0.044}_{-0.019} \quad (-0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2791.1 \quad (\nu: 18.9) \quad (+271.9\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1439^{+0.0070}_{-0.0032} \quad (-0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.023}_{-0.0097} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.4 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$\Omega_{\nu}h^2$	$0.0026^{+0.0091}_{-0.0021} \quad (+0.2\sigma)$	$H(0.15)$	$73.2^{+2.5}_{-1.1} \quad (-0.4\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 3844.37$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.25$ ;  $R - 1 = 0.02468$



# 8.51 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02248^{+0.00038}_{-0.00036} \quad (+0.9\sigma)$	$\Omega_{\mathrm{m}} h^3$	$0.0974^{+0.0048}_{-0.0017} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+10}_{-17} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1185^{+0.0063}_{-0.0095} \quad (-0.2\sigma)$	$\sigma_8$	$0.793^{+0.033}_{-0.058} \quad (-0.0\sigma)$	$H(0.38)$	$83.2^{+1.9}_{-0.82} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04093^{+0.00073}_{-0.00084} \quad (+0.2\sigma)$	$S_8$	$0.810^{+0.038}_{-0.060} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1526^{+21}_{-39} \quad (+0.2\sigma)$
$\tau$	$0.058^{+0.019}_{-0.015} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.021}_{-0.033} \quad (-0.0\sigma)$	$H(0.51)$	$90.0^{+1.9}_{-0.72} \quad (-0.2\sigma)$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.898 \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.593^{+0.025}_{-0.044} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1976^{+25}_{-48} \quad (+0.2\sigma)$
$N_{\mathrm{eff}}$	$< 3.34 \quad (-0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.964^{+0.037}_{-0.070} \quad (-0.0\sigma)$	$H(0.61)$	$95.7^{+2.0}_{-0.66} \quad (-0.2\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.051^{+0.041}_{-0.031} \quad (+0.0\sigma)$	$r_{\mathrm{drag}} h$	$99.3^{+2.1}_{-2.1} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2299^{+27}_{-55} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.014}_{-0.011} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.054}_{-0.052} \quad (+0.2\sigma)$	$H(2.33)$	$237.2^{+4.0}_{-2.1} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0059} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.77 \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5741^{+36}_{-110} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.115^{+0.089}_{-0.066} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.448^{+0.020}_{-0.033} \quad (-0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.885^{+0.031}_{-0.027} \quad (-0.1\sigma)$	$\sigma_8(0.15)$	$0.733^{+0.031}_{-0.054} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1227^{+31}_{-30} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.466^{+0.020}_{-0.035} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5740^{+98}_{-92} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.649^{+0.028}_{-0.048} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2541^{+36}_{-32} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.464^{+0.019}_{-0.034} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.608^{+0.027}_{-0.045} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.7^{+3.9}_{-3.9} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.459^{+0.019}_{-0.034} \quad (-0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s}, 0.002}$	$0.968^{+0.014}_{-0.011} \quad (-0.2\sigma)$	$\sigma_8(0.61)$	$0.578^{+0.026}_{-0.043} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+5.0}_{-4.6} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2463^{+0.0031}_{-0.0010} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	$0.292^{+0.013}_{-0.022} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2476^{+0.0031}_{-0.0010} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.300^{+0.014}_{-0.023} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.7^{+8.3}_{-8.6} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.588^{+0.085}_{-0.067} \quad (-1.1\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.744^{+0.083}_{-0.26} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.10}_{-0.095}$	$z_*$	$1089.89^{+0.64}_{-0.58} \quad (-0.9\sigma)$	$f_{2000}^{217}$	$107.3^{+4.6}_{-4.7} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.076}$	$r_*$	$143.98^{+0.99}_{-2.5} \quad (+0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.11 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04107^{+0.00075}_{-0.00091} \quad (+0.2\sigma)$	$\chi_{\mathrm{simall}}^2$	$268 \quad (\nu: 15831.7) \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.830^{+0.093}_{-0.23} \quad (+0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$152 \quad (\nu: 15829.2) \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.20}_{-0.21}$	$z_{\mathrm{drag}}$	$1060.3^{+1.1}_{-0.86} \quad (+0.7\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.9 \quad (\nu: 17.2) \quad (+291.3\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.69}_{-0.68}$	$r_{\mathrm{drag}}$	$146.6^{+1.0}_{-2.6} \quad (+0.1\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.51 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1413^{+0.0019}_{-0.0010} \quad (+0.2\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.44 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16080^{+0.00073}_{-0.00049} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$0.73 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$H_0$	$67.7^{+2.0}_{-1.2} \quad (-0.2\sigma)$	$z_{\mathrm{eq}}$	$3339^{+86}_{-220} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.5 \quad (\nu: 1.6) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.687^{+0.016}_{-0.017} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01027^{+0.00029}_{-0.00054} \quad (+0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.313^{+0.017}_{-0.016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.044}_{-0.019} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2790.6 \quad (\nu: 17.9) \quad (+275.8\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1437^{+0.0049}_{-0.0030} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.023}_{-0.010} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.7 \quad (\nu: 1.2) \quad (+0.0\sigma)$
$\Omega_{\nu} h^2$	$0.0028^{+0.0089}_{-0.0023} \quad (+0.1\sigma)$	$H(0.15)$	$73.1^{+1.9}_{-1.0} \quad (-0.2\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 2809.47$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.98$ ;  $R - 1 = 0.02226$



## 8.52 base\_nnu\_meffsterile\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Cooke17\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02247^{+0.00038}_{-0.00036} \quad (+0.9\sigma)$	$\sigma_8$	$0.793^{+0.033}_{-0.058} \quad (+0.0\sigma)$	$D_M(0.38)$	$1526^{+21}_{-39} \quad (+0.1\sigma)$
$\Omega_c h^2$	$0.1185^{+0.0062}_{-0.0095} \quad (-0.1\sigma)$	$S_8$	$0.811^{+0.037}_{-0.060} \quad (+0.1\sigma)$	$H(0.51)$	$90.0^{+1.9}_{-0.73} \quad (-0.1\sigma)$
$100\theta_{MC}$	$1.04092^{+0.00074}_{-0.00084} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.444^{+0.021}_{-0.033} \quad (+0.1\sigma)$	$D_M(0.51)$	$1976^{+25}_{-49} \quad (+0.1\sigma)$
$\tau$	$0.057^{+0.019}_{-0.015} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.594^{+0.025}_{-0.044} \quad (+0.0\sigma)$	$H(0.61)$	$95.7^{+2.0}_{-0.66} \quad (-0.1\sigma)$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 0.910 \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.964^{+0.037}_{-0.071} \quad (+0.0\sigma)$	$D_M(0.61)$	$2300^{+27}_{-55} \quad (+0.1\sigma)$
$N_{\text{eff}}$	$< 3.34 \quad (-0.3\sigma)$	$r_{\text{drag}} h$	$99.3^{+2.1}_{-2.1} \quad (-0.1\sigma)$	$H(2.33)$	$237.2^{+3.9}_{-2.1} \quad (-0.1\sigma)$
$\ln(10^{10} A_s)$	$3.051^{+0.042}_{-0.031} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.054}_{-0.052} \quad (+0.2\sigma)$	$D_M(2.33)$	$5741^{+36}_{-110} \quad (+0.1\sigma)$
$n_s$	$0.968^{+0.014}_{-0.011} \quad (-0.1\sigma)$	$z_{\text{re}}$	$< 9.77 \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.449^{+0.020}_{-0.033} \quad (+0.0\sigma)$
$y_{\text{cal}}$	$1.0009^{+0.0064}_{-0.0060} \quad (+0.0\sigma)$	$10^9 A_s$	$2.114^{+0.090}_{-0.066} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.733^{+0.031}_{-0.054} \quad (+0.0\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s e^{-2\tau}$	$1.885^{+0.030}_{-0.027} \quad (-0.0\sigma)$	$f\sigma_8(0.38)$	$0.466^{+0.020}_{-0.035} \quad (+0.0\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{40}$	$1227^{+31}_{-31} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.649^{+0.028}_{-0.048} \quad (-0.0\sigma)$
$A_{143}^{\text{tSZ}}$	—	$D_{220}$	$5739^{+98}_{-91} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.465^{+0.019}_{-0.034} \quad (+0.0\sigma)$
$A_{100}^{\text{PS}}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$D_{810}$	$2541^{+35}_{-32} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.608^{+0.027}_{-0.045} \quad (-0.0\sigma)$
$A_{143}^{\text{PS}}$	$47^{+20}_{-20} \quad (-0.4\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.460^{+0.019}_{-0.034} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$230.7^{+3.8}_{-3.9} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.578^{+0.026}_{-0.043} \quad (-0.0\sigma)$
$A_{217}^{\text{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$n_{s,0.002}$	$0.968^{+0.014}_{-0.011} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.292^{+0.013}_{-0.022} \quad (-0.0\sigma)$
$A^{\text{kSZ}}$	—	$Y_P$	$0.2463^{+0.0031}_{-0.0010} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.300^{+0.014}_{-0.023} \quad (-0.0\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.9}_{-4.6} \quad (+0.0\sigma)$	$Y_P^{\text{BBN}}$	$0.2476^{+0.0031}_{-0.0010} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.6\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$10^5 \text{D/H}$	$2.590^{+0.079}_{-0.064} \quad (-1.1\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.7^{+8.3}_{-8.6} \quad (+0.1\sigma)$	$\text{Age/Gyr}$	$13.744^{+0.083}_{-0.26} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$107.4^{+4.6}_{-4.7} \quad (-0.6\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.90^{+0.61}_{-0.55} \quad (-0.9\sigma)$	$\chi_{\text{lensing}}^2$	$9.11 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.095}$	$r_*$	$144.0^{+1.0}_{-2.5} \quad (+0.1\sigma)$	$\chi_{\text{simall}}^2$	$270 \quad (\nu: 15765.9) \quad (-0.1\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.077}_{-0.076}$	$100\theta_*$	$1.04107^{+0.00075}_{-0.00090} \quad (+0.1\sigma)$	$\chi_{\text{lowl}}^2$	$151 \quad (\nu: 15764.5) \quad (+0.1\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	$13.829^{+0.094}_{-0.23} \quad (+0.1\sigma)$	$\chi_{\text{plik}}^2$	$2360.9 \quad (\nu: 17.2) \quad (+293.2\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$z_{\text{drag}}$	$1060.2^{+1.1}_{-0.89} \quad (+0.7\sigma)$	$\chi_{\text{Aver15}}^2$	$0.51 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$r_{\text{drag}}$	$146.6^{+1.0}_{-2.5} \quad (+0.0\sigma)$	$\chi_{\text{Cooke17}}^2$	$0.16 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.69}_{-0.68}$	$k_D$	$0.1413^{+0.0019}_{-0.0010} \quad (+0.3\sigma)$	$\chi_{6\text{DF}}^2$	$0.43 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$100\theta_D$	$0.16081^{+0.00069}_{-0.00048} \quad (-1.1\sigma)$	$\chi_{\text{MGS}}^2$	$0.73 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016} \quad (-0.1\sigma)$	$z_{\text{eq}}$	$3340^{+86}_{-220} \quad (+0.2\sigma)$	$\chi_{\text{DR12BAO}}^2$	$5.6 \quad (\nu: 1.6) \quad (+0.1\sigma)$
$H_0$	$67.7^{+2.0}_{-1.2} \quad (-0.1\sigma)$	$k_{\text{eq}}$	$0.01027^{+0.00029}_{-0.00054} \quad (+0.1\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_\Lambda$	$0.686^{+0.016}_{-0.017} \quad (-0.1\sigma)$	$100\theta_{\text{eq}}$	$0.826^{+0.044}_{-0.019} \quad (-0.1\sigma)$	$\chi_{\text{CMB}}^2$	$2790.6 \quad (\nu: 17.8) \quad (+276.8\sigma)$
$\Omega_m$	$0.314^{+0.017}_{-0.016} \quad (+0.1\sigma)$	$100\theta_{s,\text{eq}}$	$0.456^{+0.023}_{-0.010} \quad (-0.1\sigma)$	$\chi_{\text{BAO}}^2$	$6.7 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$\Omega_m h^2$	$0.1438^{+0.0049}_{-0.0030} \quad (-0.0\sigma)$	$H(0.15)$	$73.0^{+2.0}_{-1.1} \quad (-0.1\sigma)$	$\chi_{\text{Abund}}^2$	$0.67 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$\Omega_\nu h^2$	$0.0028^{+0.0089}_{-0.0023} \quad (+0.0\sigma)$	$D_M(0.15)$	$640^{+11}_{-18} \quad (+0.1\sigma)$		
$\Omega_m h^3$	$0.0974^{+0.0054}_{-0.0015} \quad (-0.1\sigma)$	$H(0.38)$	$83.2^{+1.9}_{-0.82} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2809.63; \Delta\bar{\chi}_{\text{eff}}^2 = 1592.16; R - 1 = 0.02220$$



### 8.53 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022343	$0.02241^{+0.00042}_{-0.00039}$	$S_8$	0.8223	$0.809^{+0.037}_{-0.061}$	$H(0.38)$	83.00	$83.4^{+3.0}_{-1.1}$
$\Omega_c h^2$	0.1191	$0.1192^{+0.0081}_{-0.011}$	$\sigma_8 \Omega_m^{0.5}$	0.4504	$0.443^{+0.020}_{-0.034}$	$D_M(0.38)$	1529.1	$1522^{+25}_{-58}$
$100\theta_{MC}$	1.04094	$1.04081^{+0.00080}_{-0.00096}$	$\sigma_8 \Omega_m^{0.25}$	0.6032	$0.593^{+0.025}_{-0.045}$	$H(0.51)$	89.71	$90.2^{+3.1}_{-0.96}$
$\tau$	0.0546	$0.056^{+0.021}_{-0.018}$	$\sigma_8/h^{0.5}$	0.982	$0.963^{+0.036}_{-0.072}$	$D_M(0.51)$	1981	$1971^{+30}_{-73}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	0.011	$< 0.972$	$r_{\text{drag}} h$	99.64	$99.5^{+2.1}_{-2.2}$	$H(0.61)$	95.33	$95.9^{+3.2}_{-0.91}$
$N_{\text{eff}}$	3.046	$< 3.52$	$\langle d^2 \rangle^{1/2}$	2.429	$2.427^{+0.053}_{-0.055}$	$D_M(0.61)$	2305	$2294^{+34}_{-83}$
$\ln(10^{10} A_s)$	3.0410	$3.048^{+0.042}_{-0.039}$	$z_{\text{re}}$	7.70	$7.9^{+1.9}_{-1.9}$	$H(2.33)$	235.99	$237.5^{+5.5}_{-2.9}$
$n_s$	0.9673	$0.969^{+0.017}_{-0.012}$	$10^9 A_s$	2.093	$2.109^{+0.089}_{-0.080}$	$D_M(2.33)$	5763	$5731^{+57}_{-150}$
$y_{\text{cal}}$	1.0002	$1.0008^{+0.0062}_{-0.0063}$	$10^9 A_s e^{-2\tau}$	1.8762	$1.883^{+0.038}_{-0.031}$	$f\sigma_8(0.15)$	0.4550	$0.448^{+0.020}_{-0.034}$
$A_{100}^{\text{PS}}$	236	$243^{+60}_{-60}$	$D_{40}$	1223.1	$1222^{+32}_{-35}$	$\sigma_8(0.15)$	0.7466	$0.733^{+0.034}_{-0.058}$
$A_{143}^{\text{PS}}$	47.5	$41^{+20}_{-20}$	$D_{220}$	5717	$5726^{+99}_{-100}$	$f\sigma_8(0.38)$	0.4735	$0.466^{+0.020}_{-0.035}$
$A_{217}^{\text{PS}}$	103.5	$102^{+30}_{-40}$	$D_{810}$	2535.0	$2538^{+33}_{-34}$	$\sigma_8(0.38)$	0.6619	$0.650^{+0.031}_{-0.052}$
$A_{217}^{\text{CIB}}$	39.8	$40^{+20}_{-20}$	$D_{1420}$	816.1	$816^{+12}_{-12}$	$f\sigma_8(0.51)$	0.4722	$0.465^{+0.020}_{-0.035}$
$A_{143}^{\text{tSZ}}$	4.40	$< 8.67$	$D_{2000}$	230.54	$229.8^{+4.1}_{-4.5}$	$\sigma_8(0.51)$	0.6194	$0.608^{+0.030}_{-0.049}$
$r_{143 \times 217}^{\text{PS}}$	0.725	$0.65^{+0.31}_{-0.32}$	$n_{s,0.002}$	0.9673	$0.969^{+0.017}_{-0.012}$	$f\sigma_8(0.61)$	0.4672	$0.460^{+0.020}_{-0.035}$
$r_{143 \times 217}^{\text{CIB}}$	0.73	—	$Y_P$	0.24539	$0.2467^{+0.0049}_{-0.0015}$	$\sigma_8(0.61)$	0.5894	$0.579^{+0.028}_{-0.047}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.94	—	$Y_P^{\text{BBN}}$	0.24671	$0.2481^{+0.0049}_{-0.0015}$	$f\sigma_8(2.33)$	0.2972	$0.292^{+0.015}_{-0.024}$
$A^{\text{kSZ}}$	3.4	—	$10^5 D/H$	2.591	$2.61^{+0.11}_{-0.078}$	$\sigma_8(2.33)$	0.3064	$0.301^{+0.016}_{-0.025}$
$A_{100}^{\text{dust}}$	1.02	$1.01^{+0.50}_{-0.51}$	Age/Gyr	13.796	$13.72^{+0.13}_{-0.35}$	$f_{2000}^{143}$	29.7	$31^{+8}_{-7}$
$A_{143}^{\text{dust}}$	0.975	$0.96^{+0.45}_{-0.46}$	$z_*$	1089.88	$1090.04^{+0.81}_{-0.63}$	$f_{2000}^{217}$	106.4	$107.5^{+5.3}_{-5.0}$
$A_{217}^{\text{dust}}$	0.982	$0.97^{+0.26}_{-0.26}$	$r_*$	144.66	$143.8^{+1.5}_{-3.5}$	$f_{2000}^{143 \times 217}$	32.0	$33^{+6}_{-5}$
$A_{143 \times 217}^{\text{dust}}$	1.019	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	1.04113	$1.04094^{+0.00083}_{-0.0012}$	$\chi_{\text{lensing}}^2$	8.94	$9.5 (\nu: 0.5)$
$c_{100}$	0.99765	$0.9976^{+0.0027}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	13.895	$13.81^{+0.14}_{-0.32}$	$\chi_{\text{small}}^2$	396.07	$397.3 (\nu: 2.1)$
$c_{217}$	1.00128	$1.0012^{+0.0041}_{-0.0041}$	$z_{\text{drag}}$	1059.82	$1060.1^{+1.5}_{-0.98}$	$\chi_{\text{lowl}}^2$	22.86	$22.72 (\nu: 0.4)$
$c_{TE}$	0.9964	$0.997^{+0.013}_{-0.013}$	$r_{\text{drag}}$	147.34	$146.4^{+1.5}_{-3.6}$	$\chi_{\text{CamSpec}}^2$	11500.0	$11516.1 (\nu: 16.9)$
$c_{EE}$	0.9920	$0.993^{+0.013}_{-0.013}$	$k_D$	0.14058	$0.1413^{+0.0027}_{-0.0014}$	$\chi_{6\text{DF}}^2$	0.030	$0.073 (\nu: 0.0)$
$H_0$	67.63	$67.9^{+2.9}_{-1.4}$	$100\theta_D$	0.16083	$0.1610^{+0.0010}_{-0.00059}$	$\chi_{\text{MGS}}^2$	1.22	$1.18 (\nu: 0.1)$
$\Omega_\Lambda$	0.6892	$0.688^{+0.017}_{-0.017}$	$z_{\text{eq}}$	3379	$3338^{+83}_{-240}$	$\chi_{\text{DR12BAO}}^2$	4.42	$5.2 (\nu: 1.5)$
$\Omega_m$	0.3108	$0.312^{+0.017}_{-0.017}$	$k_{\text{eq}}$	0.010315	$0.01028^{+0.00031}_{-0.00060}$	$\chi_{\text{prior}}^2$	2.1	$7.8 (\nu: 5.9)$
$\Omega_m h^2$	0.1422	$0.1440^{+0.0072}_{-0.0036}$	$100\theta_{\text{eq}}$	0.8175	$0.826^{+0.054}_{-0.016}$	$\chi_{\text{CMB}}^2$	11927.8	$11945.6 (\nu: 18.3)$
$\Omega_\nu h^2$	0.0008	$0.0024^{+0.0092}_{-0.0022}$	$100\theta_{s,\text{eq}}$	0.4516	$0.456^{+0.028}_{-0.0085}$	$\chi_{\text{BAO}}^2$	5.67	$6.5 (\nu: 1.1)$
$\Omega_m h^3$	0.0961	$0.0978^{+0.0075}_{-0.0025}$	$H(0.15)$	72.90	$73.3^{+2.9}_{-1.2}$			
$\sigma_8$	0.8079	$0.794^{+0.036}_{-0.062}$	$D_M(0.15)$	641.1	$638^{+12}_{-25}$			

Best-fit  $\chi_{\text{eff}}^2 = 11935.63$ ;  $\bar{\chi}_{\text{eff}}^2 = 11959.89$ ;  $R - 1 = 0.03604$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.42 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.94 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.07 commander\_dx12\_v3.2.29: 22.86 CamSpec like\_10.7HM\_1400\_unified: 11499.95



# 8.54 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.022368	$0.02241^{+0.00043}_{-0.00038}$	$S_8$	0.8213	$0.809^{+0.037}_{-0.061}$	$H(0.38)$	83.34	$83.5^{+3.0}_{-1.0}$
$\Omega_{\mathrm{c}} h^2$	0.1197	$0.1192^{+0.0084}_{-0.011}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4499	$0.443^{+0.020}_{-0.033}$	$D_{\mathrm{M}}(0.38)$	1522.2	$1520^{+25}_{-58}$
$100\theta_{\mathrm{MC}}$	1.04086	$1.04082^{+0.00080}_{-0.00097}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6034	$0.593^{+0.025}_{-0.045}$	$H(0.51)$	90.05	$90.3^{+3.1}_{-0.97}$
$\tau$	0.0548	$0.057^{+0.021}_{-0.018}$	$\sigma_8/h^{0.5}$	0.982	$0.964^{+0.035}_{-0.072}$	$D_{\mathrm{M}}(0.51)$	1972	$1969^{+30}_{-73}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	0.000	$< 0.962$	$r_{\mathrm{drag}} h$	99.87	$99.6^{+2.0}_{-2.1}$	$H(0.61)$	95.67	$95.9^{+2.7}_{-1.1}$
$N_{\mathrm{eff}}$	3.093	$< 3.53$	$\langle d^2 \rangle^{1/2}$	2.428	$2.426^{+0.054}_{-0.054}$	$D_{\mathrm{M}}(0.61)$	2295	$2292^{+34}_{-84}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0433	$3.049^{+0.041}_{-0.038}$	$z_{\mathrm{re}}$	7.73	$7.9^{+2.0}_{-1.9}$	$H(2.33)$	236.54	$237.4^{+5.7}_{-2.9}$
$n_{\mathrm{s}}$	0.9679	$0.970^{+0.017}_{-0.012}$	$10^9 A_{\mathrm{s}}$	2.097	$2.110^{+0.089}_{-0.079}$	$D_{\mathrm{M}}(2.33)$	5743	$5729^{+58}_{-150}$
$y_{\mathrm{cal}}$	1.0005	$1.0008^{+0.0062}_{-0.0064}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8796	$1.883^{+0.038}_{-0.031}$	$f\sigma_8(0.15)$	0.4547	$0.448^{+0.020}_{-0.034}$
$A_{100}^{\mathrm{PS}}$	240	$243^{+60}_{-60}$	$D_{40}$	1224.1	$1221^{+32}_{-34}$	$\sigma_8(0.15)$	0.7481	$0.734^{+0.034}_{-0.059}$
$A_{143}^{\mathrm{PS}}$	40.6	$41^{+20}_{-20}$	$D_{220}$	5725	$5727^{+98}_{-100}$	$f\sigma_8(0.38)$	0.4735	$0.466^{+0.019}_{-0.036}$
$A_{217}^{\mathrm{PS}}$	100.4	$102^{+30}_{-30}$	$D_{810}$	2535.3	$2538^{+33}_{-34}$	$\sigma_8(0.38)$	0.6634	$0.651^{+0.031}_{-0.052}$
$A_{217}^{\mathrm{CIB}}$	44.6	$40^{+20}_{-20}$	$D_{1420}$	815.2	$816^{+12}_{-12}$	$f\sigma_8(0.51)$	0.4724	$0.465^{+0.020}_{-0.036}$
$A_{143}^{\mathrm{tSZ}}$	5.93	$< 8.64$	$D_{2000}$	229.98	$229.8^{+4.0}_{-4.5}$	$\sigma_8(0.51)$	0.6209	$0.609^{+0.030}_{-0.049}$
$r_{143 \times 217}^{\mathrm{PS}}$	0.577	$0.65^{+0.31}_{-0.32}$	$n_{\mathrm{s}, 0.002}$	0.9679	$0.970^{+0.017}_{-0.012}$	$f\sigma_8(0.61)$	0.4677	$0.460^{+0.020}_{-0.035}$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.78	—	$Y_{\mathrm{P}}$	0.24602	$0.2468^{+0.0051}_{-0.0016}$	$\sigma_8(0.61)$	0.5909	$0.580^{+0.028}_{-0.047}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.11	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.24735	$0.2481^{+0.0051}_{-0.0016}$	$f\sigma_8(2.33)$	0.2980	$0.293^{+0.014}_{-0.024}$
$A^{\mathrm{kSZ}}$	1.1	—	$10^5 \mathrm{D}/\mathrm{H}$	2.602	$2.61^{+0.11}_{-0.077}$	$\sigma_8(2.33)$	0.3074	$0.302^{+0.015}_{-0.025}$
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.50}_{-0.51}$	$\mathrm{Age}/\mathrm{Gyr}$	13.750	$13.71^{+0.14}_{-0.36}$	$f_{2000}^{143}$	30.9	$31^{+8}_{-7}$
$A_{143}^{\mathrm{dust}}$	0.980	$0.96^{+0.45}_{-0.45}$	$z_*$	1089.95	$1090.02^{+0.82}_{-0.62}$	$f_{2000}^{217}$	107.3	$107.5^{+5.4}_{-5.0}$
$A_{217}^{\mathrm{dust}}$	0.974	$0.97^{+0.26}_{-0.26}$	$r_*$	144.27	$143.8^{+1.5}_{-3.6}$	$f_{2000}^{143 \times 217}$	32.6	$33^{+6}_{-5}$
$A_{143 \times 217}^{\mathrm{dust}}$	1.006	$1.03^{+0.42}_{-0.40}$	$100\theta_*$	1.04102	$1.04094^{+0.00083}_{-0.0012}$	$\chi_{\mathrm{lensing}}^2$	9.02	$9.5 (\nu: 0.5)$
$c_{100}$	0.99761	$0.9976^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.858	$13.81^{+0.14}_{-0.33}$	$\chi_{\mathrm{small}}^2$	396.12	$397.4 (\nu: 2.2)$
$c_{217}$	1.00143	$1.0012^{+0.0040}_{-0.0041}$	$z_{\mathrm{drag}}$	1059.93	$1060.2^{+1.6}_{-0.99}$	$\chi_{\mathrm{lowl}}^2$	22.86	$22.66 (\nu: 0.4)$
$c_{TE}$	0.9965	$0.997^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	146.93	$146.4^{+1.6}_{-3.7}$	$\chi_{\mathrm{CamSpec}}^2$	11500.0	$11516.2 (\nu: 17.0)$
$c_{EE}$	0.9929	$0.993^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	0.14086	$0.1413^{+0.0028}_{-0.0015}$	$\chi_{\mathrm{JLA}}^2$	1034.94	$1035.11 (\nu: 0.1)$
$H_0$	67.97	$68.0^{+2.9}_{-1.4}$	$100\theta_{\mathrm{D}}$	0.16094	$0.1610^{+0.0010}_{-0.00060}$	$\chi_{6\mathrm{DF}}^2$	0.016	$0.060 (\nu: 0.0)$
$\Omega_{\Lambda}$	0.6910	$0.689^{+0.016}_{-0.017}$	$z_{\mathrm{eq}}$	3375	$3337^{+80}_{-240}$	$\chi_{\mathrm{MGS}}^2$	1.34	$1.25 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	0.3090	$0.311^{+0.017}_{-0.016}$	$k_{\mathrm{eq}}$	0.010332	$0.01028^{+0.00032}_{-0.00060}$	$\chi_{\mathrm{DR12BAO}}^2$	4.09	$5.0 (\nu: 1.2)$
$\Omega_{\mathrm{m}} h^2$	0.1428	$0.1439^{+0.0076}_{-0.0035}$	$100\theta_{\mathrm{eq}}$	0.8182	$0.826^{+0.054}_{-0.016}$	$\chi_{\mathrm{prior}}^2$	2.3	$7.8 (\nu: 6.0)$
$\Omega_{\nu} h^2$	0.0006	$0.0023^{+0.0093}_{-0.0021}$	$100\theta_{\mathrm{s,eq}}$	0.4520	$0.456^{+0.028}_{-0.0083}$	$\chi_{\mathrm{CMB}}^2$	11928.1	$11945.8 (\nu: 18.5)$
$\Omega_{\mathrm{m}} h^3$	0.0970	$0.0979^{+0.0077}_{-0.0026}$	$H(0.15)$	73.24	$73.3^{+2.9}_{-1.2}$	$\chi_{\mathrm{BAO}}^2$	5.45	$6.3 (\nu: 0.8)$
$\sigma_8$	0.8093	$0.795^{+0.036}_{-0.062}$	$D_{\mathrm{M}}(0.15)$	638.0	$637^{+12}_{-25}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 12970.74$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 12994.91$ ;  $R - 1 = 0.03797$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.34 DR12BAO: 4.09 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.02 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.12 commander\_dx12\_v3\_2\_29: 22.86 CamSpec like\_10.7HM\_1400\_unified: 11500.05 SN - JLA Pantheon18: 1034.94



# 8.55 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02239^{+0.00039}_{-0.00038}$	$S_8$	$0.808^{+0.037}_{-0.061}$	$H(0.38)$	$83.3^{+2.1}_{-0.92}$
$\Omega_{\mathrm{c}} h^2$	$0.1186^{+0.0066}_{-0.011}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.443^{+0.020}_{-0.033}$	$D_{\mathrm{M}}(0.38)$	$1525^{+22}_{-41}$
$100\theta_{\mathrm{MC}}$	$1.04085^{+0.00077}_{-0.00086}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.592^{+0.024}_{-0.044}$	$H(0.51)$	$90.0^{+2.1}_{-0.83}$
$\tau$	$0.056^{+0.021}_{-0.018}$	$\sigma_8/h^{0.5}$	$0.962^{+0.035}_{-0.072}$	$D_{\mathrm{M}}(0.51)$	$1975^{+27}_{-51}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.989$	$r_{\mathrm{drag}} h$	$99.4^{+2.1}_{-2.1}$	$H(0.61)$	$95.7^{+2.2}_{-0.78}$
$N_{\mathrm{eff}}$	$< 3.39$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.053}_{-0.054}$	$D_{\mathrm{M}}(0.61)$	$2298^{+30}_{-59}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.040}_{-0.038}$	$z_{\mathrm{re}}$	$7.9^{+1.9}_{-2.0}$	$H(2.33)$	$237.1^{+4.5}_{-2.2}$
$n_{\mathrm{s}}$	$0.968^{+0.014}_{-0.012}$	$10^9 A_{\mathrm{s}}$	$2.106^{+0.087}_{-0.078}$	$D_{\mathrm{M}}(2.33)$	$5741^{+42}_{-120}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0062}_{-0.0064}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.881^{+0.032}_{-0.030}$	$f\sigma_8(0.15)$	$0.447^{+0.020}_{-0.034}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{40}$	$1223^{+31}_{-34}$	$\sigma_8(0.15)$	$0.732^{+0.031}_{-0.057}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5726^{+97}_{-100}$	$f\sigma_8(0.38)$	$0.465^{+0.019}_{-0.035}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2537^{+33}_{-34}$	$\sigma_8(0.38)$	$0.649^{+0.028}_{-0.051}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+12}_{-12}$	$f\sigma_8(0.51)$	$0.464^{+0.019}_{-0.035}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.64$	$D_{2000}$	$229.9^{+4.0}_{-4.2}$	$\sigma_8(0.51)$	$0.607^{+0.026}_{-0.048}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.32}$	$n_{\mathrm{s}, 0.002}$	$0.968^{+0.014}_{-0.012}$	$f\sigma_8(0.61)$	$0.459^{+0.019}_{-0.035}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2464^{+0.0035}_{-0.0012}$	$\sigma_8(0.61)$	$0.578^{+0.025}_{-0.046}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2477^{+0.0035}_{-0.0012}$	$f\sigma_8(2.33)$	$0.292^{+0.013}_{-0.023}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.609^{+0.099}_{-0.072}$	$\sigma_8(2.33)$	$0.300^{+0.014}_{-0.024}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.743^{+0.097}_{-0.29}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.44}_{-0.45}$	$z_*$	$1090.00^{+0.74}_{-0.60}$	$f_{2000}^{217}$	$107.3^{+5.0}_{-5.0}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$	$r_*$	$144.0^{+1.2}_{-2.5}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.42}_{-0.40}$	$100\theta_*$	$1.04100^{+0.00078}_{-0.00097}$	$\chi_{\mathrm{lensing}}^2$	$9.4 (\nu: 0.5)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.83^{+0.12}_{-0.24}$	$\chi_{\mathrm{small}}^2$	$397.3 (\nu: 2.0)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$z_{\mathrm{drag}}$	$1060.1^{+1.2}_{-0.93}$	$\chi_{\mathrm{lowl}}^2$	$22.83 (\nu: 0.4)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$146.7^{+1.3}_{-2.6}$	$\chi_{\mathrm{CamSpec}}^2$	$11515.7 (\nu: 16.2)$
$c_{EE}$	$0.993^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.1411^{+0.0022}_{-0.0011}$	$\chi_{\mathrm{Aver15}}^2$	$0.56 (\nu: 0.1)$
$H_0$	$67.8^{+2.1}_{-1.2}$	$100\theta_{\mathrm{D}}$	$0.16096^{+0.00084}_{-0.00054}$	$\chi_{6\mathrm{DF}}^2$	$0.074 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.017}$	$z_{\mathrm{eq}}$	$3336^{+85}_{-240}$	$\chi_{\mathrm{MGS}}^2$	$1.16 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.017}_{-0.016}$	$k_{\mathrm{eq}}$	$0.01026^{+0.00029}_{-0.00059}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.3 (\nu: 1.5)$
$\Omega_{\mathrm{m}} h^2$	$0.1436^{+0.0056}_{-0.0032}$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.054}_{-0.017}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_{\nu} h^2$	$0.0025^{+0.011}_{-0.0020}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.029}_{-0.0088}$	$\chi_{\mathrm{CMB}}^2$	$11945.3 (\nu: 17.7)$
$\Omega_{\mathrm{m}} h^3$	$0.0973^{+0.0052}_{-0.0020}$	$H(0.15)$	$73.1^{+2.1}_{-1.1}$	$\chi_{\mathrm{BAO}}^2$	$6.5 (\nu: 1.1)$
$\sigma_8$	$0.792^{+0.033}_{-0.061}$	$D_{\mathrm{M}}(0.15)$	$639^{+11}_{-18}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11960.11; R - 1 = 0.03672$$



8.56 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Cooke17\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02238^{+0.00039}_{-0.00037}$	$\sigma_8 \Omega_m^{0.5}$	$0.443^{+0.020}_{-0.033}$	$H(0.51)$	$90.0^{+2.0}_{-0.81}$
$\Omega_c h^2$	$0.1186^{+0.0064}_{-0.010}$	$\sigma_8 \Omega_m^{0.25}$	$0.592^{+0.024}_{-0.044}$	$D_M(0.51)$	$1975^{+26}_{-50}$
$100\theta_{MC}$	$1.04085^{+0.00076}_{-0.00084}$	$\sigma_8/h^{0.5}$	$0.962^{+0.035}_{-0.072}$	$H(0.61)$	$95.7^{+2.1}_{-0.75}$
$\tau$	$0.056^{+0.020}_{-0.018}$	$r_{\text{drag}} h$	$99.4^{+2.1}_{-2.1}$	$D_M(0.61)$	$2298^{+29}_{-57}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 0.991$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.053}_{-0.054}$	$H(2.33)$	$237.1^{+4.3}_{-2.2}$
$N_{\text{eff}}$	$< 3.37$	$z_{\text{re}}$	$7.9^{+1.9}_{-2.0}$	$D_M(2.33)$	$5741^{+41}_{-120}$
$\ln(10^{10} A_s)$	$3.047^{+0.040}_{-0.038}$	$10^9 A_s$	$2.105^{+0.086}_{-0.078}$	$f\sigma_8(0.15)$	$0.447^{+0.020}_{-0.034}$
$n_s$	$0.968^{+0.014}_{-0.011}$	$10^9 A_s e^{-2\tau}$	$1.881^{+0.031}_{-0.030}$	$\sigma_8(0.15)$	$0.732^{+0.031}_{-0.057}$
$y_{\text{cal}}$	$1.0008^{+0.0062}_{-0.0065}$	$D_{40}$	$1223^{+31}_{-34}$	$f\sigma_8(0.38)$	$0.465^{+0.019}_{-0.035}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-60}$	$D_{220}$	$5725^{+98}_{-100}$	$\sigma_8(0.38)$	$0.649^{+0.028}_{-0.051}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2537^{+33}_{-34}$	$f\sigma_8(0.51)$	$0.464^{+0.018}_{-0.035}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30}$	$D_{1420}$	$816^{+12}_{-12}$	$\sigma_8(0.51)$	$0.607^{+0.026}_{-0.048}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{2000}$	$229.9^{+3.9}_{-4.1}$	$f\sigma_8(0.61)$	$0.459^{+0.018}_{-0.035}$
$A_{143}^{\text{tSZ}}$	$< 8.64$	$n_{s,0.002}$	$0.968^{+0.014}_{-0.011}$	$\sigma_8(0.61)$	$0.578^{+0.025}_{-0.046}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.32}$	$Y_{\text{P}}$	$0.2464^{+0.0034}_{-0.0012}$	$f\sigma_8(2.33)$	$0.291^{+0.013}_{-0.023}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.2477^{+0.0034}_{-0.0012}$	$\sigma_8(2.33)$	$0.300^{+0.014}_{-0.024}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^5 \text{D}/\text{H}$	$2.609^{+0.091}_{-0.069}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.745^{+0.095}_{-0.28}$	$f_{2000}^{217}$	$107.4^{+5.0}_{-4.9}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.51}$	$z_*$	$1090.00^{+0.69}_{-0.59}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143}^{\text{dust}}$	$0.96^{+0.44}_{-0.45}$	$r_*$	$144.0^{+1.2}_{-2.4}$	$\chi_{\text{lensing}}^2$	$9.4 (\nu: 0.5)$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.26}$	$100\theta_*$	$1.04100^{+0.00077}_{-0.00094}$	$\chi_{\text{small}}^2$	$397.3 (\nu: 2.0)$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.42}_{-0.40}$	$D_M(z_*)/\text{Gpc}$	$13.84^{+0.11}_{-0.22}$	$\chi_{\text{lowl}}^2$	$22.84 (\nu: 0.4)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0026}$	$z_{\text{drag}}$	$1060.1^{+1.2}_{-0.88}$	$\chi_{\text{CamSpec}}^2$	$11515.6 (\nu: 16.1)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$r_{\text{drag}}$	$146.7^{+1.3}_{-2.5}$	$\chi_{\text{Aver15}}^2$	$0.55 (\nu: 0.1)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$k_{\text{D}}$	$0.1411^{+0.0021}_{-0.0011}$	$\chi_{\text{Cooke17}}^2$	$0.12 (\nu: 0.0)$
$c_{EE}$	$0.993^{+0.013}_{-0.013}$	$100\theta_{\text{D}}$	$0.16096^{+0.00078}_{-0.00052}$	$\chi_{6\text{DF}}^2$	$0.074 (\nu: 0.0)$
$H_0$	$67.8^{+2.1}_{-1.2}$	$z_{\text{eq}}$	$3336^{+85}_{-240}$	$\chi_{\text{MGS}}^2$	$1.16 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.017}$	$k_{\text{eq}}$	$0.01026^{+0.00028}_{-0.00059}$	$\chi_{\text{DR12BAO}}^2$	$5.3 (\nu: 1.5)$
$\Omega_{\text{m}}$	$0.312^{+0.017}_{-0.016}$	$100\theta_{\text{eq}}$	$0.827^{+0.054}_{-0.017}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_{\text{m}} h^2$	$0.1435^{+0.0053}_{-0.0031}$	$100\theta_{\text{s,eq}}$	$0.456^{+0.029}_{-0.0088}$	$\chi_{\text{CMB}}^2$	$11945.2 (\nu: 17.6)$
$\Omega_{\nu} h^2$	$0.0025^{+0.011}_{-0.0020}$	$H(0.15)$	$73.1^{+2.0}_{-1.1}$	$\chi_{\text{BAO}}^2$	$6.5 (\nu: 1.0)$
$\Omega_{\text{m}} h^3$	$0.0973^{+0.0051}_{-0.0020}$	$D_M(0.15)$	$640^{+11}_{-18}$	$\chi_{\text{Abund}}^2$	$0.67 (\nu: 0.1)$
$\sigma_8$	$0.792^{+0.033}_{-0.061}$	$H(0.38)$	$83.3^{+2.0}_{-0.90}$		
$S_8$	$0.808^{+0.037}_{-0.061}$	$D_M(0.38)$	$1525^{+22}_{-40}$		

$$\bar{\chi}_{\text{eff}}^2 = 11960.15; R - 1 = 0.03562$$



# 8.57 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02241^{+0.00043}_{-0.00039}$	$S_8$	$0.810^{+0.037}_{-0.062}$	$H(0.38)$	$83.4^{+3.0}_{-1.1}$
$\Omega_c h^2$	$0.1192^{+0.0082}_{-0.011}$	$\sigma_8 \Omega_m^{0.5}$	$0.443^{+0.020}_{-0.034}$	$D_M(0.38)$	$1522^{+25}_{-58}$
$100\theta_{MC}$	$1.04081^{+0.00079}_{-0.00096}$	$\sigma_8 \Omega_m^{0.25}$	$0.593^{+0.025}_{-0.045}$	$H(0.51)$	$90.2^{+3.1}_{-0.97}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$\sigma_8/h^{0.5}$	$0.963^{+0.036}_{-0.072}$	$D_M(0.51)$	$1971^{+30}_{-73}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 0.972$	$r_{\text{drag}} h$	$99.5^{+2.1}_{-2.2}$	$H(0.61)$	$95.9^{+3.2}_{-0.92}$
$N_{\text{eff}}$	$< 3.52$	$\langle d^2 \rangle^{1/2}$	$2.428^{+0.053}_{-0.054}$	$D_M(0.61)$	$2293^{+33}_{-84}$
$\ln(10^{10} A_s)$	$3.049^{+0.041}_{-0.033}$	$z_{\text{re}}$	$< 9.67$	$H(2.33)$	$237.5^{+5.5}_{-2.9}$
$n_s$	$0.969^{+0.017}_{-0.012}$	$10^9 A_s$	$2.110^{+0.088}_{-0.068}$	$D_M(2.33)$	$5730^{+51}_{-180}$
$y_{\text{cal}}$	$1.0008^{+0.0062}_{-0.0064}$	$10^9 A_s e^{-2\tau}$	$1.883^{+0.038}_{-0.031}$	$f\sigma_8(0.15)$	$0.448^{+0.020}_{-0.034}$
$A_{100}^{\text{PS}}$	$243^{+60}_{-60}$	$D_{40}$	$1222^{+32}_{-34}$	$\sigma_8(0.15)$	$0.734^{+0.034}_{-0.058}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5726^{+99}_{-100}$	$f\sigma_8(0.38)$	$0.466^{+0.020}_{-0.036}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2538^{+33}_{-34}$	$\sigma_8(0.38)$	$0.650^{+0.031}_{-0.052}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+12}_{-12}$	$f\sigma_8(0.51)$	$0.465^{+0.020}_{-0.035}$
$A_{143}^{\text{tSZ}}$	$< 8.68$	$D_{2000}$	$229.8^{+4.1}_{-4.5}$	$\sigma_8(0.51)$	$0.609^{+0.029}_{-0.049}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.32}$	$n_{s,0.002}$	$0.969^{+0.017}_{-0.012}$	$f\sigma_8(0.61)$	$0.460^{+0.020}_{-0.035}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_P$	$0.2468^{+0.0049}_{-0.0015}$	$\sigma_8(0.61)$	$0.579^{+0.028}_{-0.047}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P^{\text{BBN}}$	$0.2481^{+0.0050}_{-0.0016}$	$f\sigma_8(2.33)$	$0.292^{+0.015}_{-0.024}$
$A^{\text{kSZ}}$	—	$10^5 D/H$	$2.61^{+0.11}_{-0.078}$	$\sigma_8(2.33)$	$0.301^{+0.015}_{-0.025}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.51}$	$\text{Age}/\text{Gyr}$	$13.72^{+0.13}_{-0.35}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143}^{\text{dust}}$	$0.96^{+0.45}_{-0.46}$	$z_*$	$1090.04^{+0.81}_{-0.63}$	$f_{2000}^{217}$	$107.5^{+5.3}_{-5.0}$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.26}$	$r_*$	$143.8^{+1.5}_{-3.5}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	$1.04094^{+0.00082}_{-0.0012}$	$\chi_{\text{lensing}}^2$	$9.46 (\nu: 0.5)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	$13.81^{+0.14}_{-0.32}$	$\chi_{\text{small}}^2$	$397.3 (\nu: 2.1)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0041}$	$z_{\text{drag}}$	$1060.2^{+1.5}_{-0.98}$	$\chi_{\text{lowl}}^2$	$22.72 (\nu: 0.4)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$146.4^{+1.5}_{-3.6}$	$\chi_{\text{CamSpec}}^2$	$11516.0 (\nu: 16.9)$
$c_{EE}$	$0.993^{+0.013}_{-0.013}$	$k_D$	$0.1413^{+0.0027}_{-0.0014}$	$\chi_{6\text{DF}}^2$	$0.071 (\nu: 0.0)$
$H_0$	$67.9^{+2.9}_{-1.4}$	$100\theta_D$	$0.1610^{+0.0010}_{-0.00059}$	$\chi_{\text{MGS}}^2$	$1.19 (\nu: 0.1)$
$\Omega_\Lambda$	$0.688^{+0.016}_{-0.017}$	$z_{\text{eq}}$	$3338^{+82}_{-240}$	$\chi_{\text{DR12BAO}}^2$	$5.2 (\nu: 1.5)$
$\Omega_m$	$0.312^{+0.017}_{-0.016}$	$k_{\text{eq}}$	$0.01028^{+0.00032}_{-0.00061}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 5.9)$
$\Omega_m h^2$	$0.1440^{+0.0073}_{-0.0036}$	$100\theta_{\text{eq}}$	$0.826^{+0.054}_{-0.016}$	$\chi_{\text{CMB}}^2$	$11945.5 (\nu: 18.3)$
$\Omega_\nu h^2$	$0.0024^{+0.0091}_{-0.0022}$	$100\theta_{s,\text{eq}}$	$0.456^{+0.029}_{-0.0085}$	$\chi_{\text{BAO}}^2$	$6.5 (\nu: 1.0)$
$\Omega_m h^3$	$0.0979^{+0.0075}_{-0.0025}$	$H(0.15)$	$73.3^{+2.9}_{-1.2}$		
$\sigma_8$	$0.794^{+0.036}_{-0.063}$	$D_M(0.15)$	$638^{+12}_{-25}$		

$$\bar{\chi}_{\text{eff}}^2 = 11959.80; R - 1 = 0.03599$$



8.58 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02242^{+0.00043}_{-0.00039}$	$S_8$	$0.809^{+0.036}_{-0.061}$	$H(0.38)$	$83.5^{+3.0}_{-1.1}$
$\Omega_c h^2$	$0.1192^{+0.0085}_{-0.011}$	$\sigma_8 \Omega_m^{0.5}$	$0.443^{+0.020}_{-0.033}$	$D_M(0.38)$	$1520^{+25}_{-58}$
$100\theta_{MC}$	$1.04082^{+0.00079}_{-0.00098}$	$\sigma_8 \Omega_m^{0.25}$	$0.594^{+0.025}_{-0.045}$	$H(0.51)$	$90.3^{+3.1}_{-0.98}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$\sigma_8/h^{0.5}$	$0.964^{+0.035}_{-0.072}$	$D_M(0.51)$	$1969^{+30}_{-73}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 0.963$	$r_{\text{drag}} h$	$99.6^{+2.0}_{-2.1}$	$H(0.61)$	$95.9^{+2.7}_{-1.1}$
$N_{\text{eff}}$	$< 3.54$	$\langle d^2 \rangle^{1/2}$	$2.426^{+0.053}_{-0.054}$	$D_M(0.61)$	$2291^{+33}_{-84}$
$\ln(10^{10} A_s)$	$3.050^{+0.041}_{-0.033}$	$z_{\text{re}}$	$< 9.68$	$H(2.33)$	$237.4^{+5.7}_{-2.9}$
$n_s$	$0.970^{+0.017}_{-0.012}$	$10^9 A_s$	$2.111^{+0.087}_{-0.068}$	$D_M(2.33)$	$5728^{+59}_{-150}$
$y_{\text{cal}}$	$1.0008^{+0.0062}_{-0.0064}$	$10^9 A_s e^{-2\tau}$	$1.883^{+0.038}_{-0.031}$	$f\sigma_8(0.15)$	$0.448^{+0.020}_{-0.034}$
$A_{100}^{\text{PS}}$	$243^{+60}_{-60}$	$D_{40}$	$1221^{+32}_{-34}$	$\sigma_8(0.15)$	$0.735^{+0.034}_{-0.059}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5727^{+98}_{-100}$	$f\sigma_8(0.38)$	$0.466^{+0.019}_{-0.036}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2538^{+33}_{-34}$	$\sigma_8(0.38)$	$0.651^{+0.031}_{-0.053}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+12}_{-12}$	$f\sigma_8(0.51)$	$0.465^{+0.020}_{-0.036}$
$A_{143}^{\text{tSZ}}$	$< 8.64$	$D_{2000}$	$229.8^{+4.0}_{-4.5}$	$\sigma_8(0.51)$	$0.610^{+0.029}_{-0.049}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.32}$	$n_{s,0.002}$	$0.970^{+0.017}_{-0.012}$	$f\sigma_8(0.61)$	$0.460^{+0.020}_{-0.036}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_P$	$0.2468^{+0.0051}_{-0.0016}$	$\sigma_8(0.61)$	$0.580^{+0.028}_{-0.047}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P^{\text{BBN}}$	$0.2481^{+0.0051}_{-0.0016}$	$f\sigma_8(2.33)$	$0.293^{+0.014}_{-0.024}$
$A^{\text{kSZ}}$	—	$10^5 D/H$	$2.61^{+0.11}_{-0.077}$	$\sigma_8(2.33)$	$0.302^{+0.015}_{-0.025}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.51}$	$\text{Age/Gyr}$	$13.71^{+0.14}_{-0.36}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143}^{\text{dust}}$	$0.96^{+0.45}_{-0.45}$	$z_*$	$1090.02^{+0.82}_{-0.62}$	$f_{2000}^{217}$	$107.4^{+5.4}_{-5.0}$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.26}$	$r_*$	$143.8^{+1.5}_{-3.6}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.40}$	$100\theta_*$	$1.04094^{+0.00082}_{-0.0012}$	$\chi_{\text{lensing}}^2$	$9.5 (\nu: 0.5)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0026}$	$D_M(z_*)/\text{Gpc}$	$13.81^{+0.14}_{-0.33}$	$\chi_{\text{small}}^2$	$397.4 (\nu: 2.2)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$z_{\text{drag}}$	$1060.2^{+1.6}_{-1.0}$	$\chi_{\text{lowl}}^2$	$22.66 (\nu: 0.4)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$146.4^{+1.6}_{-3.7}$	$\chi_{\text{CamSpec}}^2$	$11516.1 (\nu: 17.0)$
$c_{EE}$	$0.993^{+0.013}_{-0.013}$	$k_D$	$0.1413^{+0.0028}_{-0.0015}$	$\chi_{\text{JLA}}^2$	$1035.11 (\nu: 0.1)$
$H_0$	$68.0^{+2.9}_{-1.4}$	$100\theta_D$	$0.1610^{+0.0010}_{-0.00060}$	$\chi_{\text{6DF}}^2$	$0.059 (\nu: 0.0)$
$\Omega_\Lambda$	$0.689^{+0.016}_{-0.017}$	$z_{\text{eq}}$	$3337^{+79}_{-240}$	$\chi_{\text{MGS}}^2$	$1.25 (\nu: 0.1)$
$\Omega_m$	$0.311^{+0.017}_{-0.016}$	$k_{\text{eq}}$	$0.01028^{+0.00032}_{-0.00060}$	$\chi_{\text{DR12BAO}}^2$	$4.9 (\nu: 1.2)$
$\Omega_m h^2$	$0.1439^{+0.0076}_{-0.0036}$	$100\theta_{\text{eq}}$	$0.826^{+0.054}_{-0.016}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_\nu h^2$	$0.0023^{+0.0092}_{-0.0021}$	$100\theta_{s,\text{eq}}$	$0.456^{+0.028}_{-0.0082}$	$\chi_{\text{CMB}}^2$	$11945.7 (\nu: 18.5)$
$\Omega_m h^3$	$0.0979^{+0.0077}_{-0.0026}$	$H(0.15)$	$73.3^{+2.9}_{-1.2}$	$\chi_{\text{BAO}}^2$	$6.3 (\nu: 0.8)$
$\sigma_8$	$0.795^{+0.036}_{-0.063}$	$D_M(0.15)$	$637^{+12}_{-25}$		

$$\bar{\chi}_{\text{eff}}^2 = 12994.82; R - 1 = 0.03782$$



8.59 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02239^{+0.00039}_{-0.00038}$	$S_8$	$0.809^{+0.037}_{-0.061}$	$H(0.38)$	$83.3^{+2.1}_{-0.92}$
$\Omega_c h^2$	$0.1186^{+0.0066}_{-0.011}$	$\sigma_8 \Omega_m^{0.5}$	$0.443^{+0.020}_{-0.033}$	$D_M(0.38)$	$1525^{+22}_{-41}$
$100\theta_{MC}$	$1.04085^{+0.00076}_{-0.00086}$	$\sigma_8 \Omega_m^{0.25}$	$0.592^{+0.024}_{-0.045}$	$H(0.51)$	$90.0^{+2.1}_{-0.83}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$\sigma_8/h^{0.5}$	$0.962^{+0.035}_{-0.072}$	$D_M(0.51)$	$1975^{+27}_{-51}$
$m_{\nu, \text{sterile}}^{\text{eff}} [\text{eV}]$	$< 0.991$	$r_{\text{drag}} h$	$99.5^{+2.1}_{-2.1}$	$H(0.61)$	$95.7^{+2.2}_{-0.79}$
$N_{\text{eff}}$	$< 3.39$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.053}_{-0.052}$	$D_M(0.61)$	$2298^{+30}_{-59}$
$\ln(10^{10} A_s)$	$3.048^{+0.040}_{-0.031}$	$z_{\text{re}}$	$< 9.64$	$H(2.33)$	$237.1^{+4.5}_{-2.2}$
$n_s$	$0.968^{+0.014}_{-0.012}$	$10^9 A_s$	$2.108^{+0.085}_{-0.065}$	$D_M(2.33)$	$5740^{+42}_{-120}$
$y_{\text{cal}}$	$1.0008^{+0.0062}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	$1.881^{+0.032}_{-0.030}$	$f\sigma_8(0.15)$	$0.447^{+0.020}_{-0.034}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-60}$	$D_{40}$	$1223^{+31}_{-34}$	$\sigma_8(0.15)$	$0.732^{+0.031}_{-0.058}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{220}$	$5726^{+98}_{-100}$	$f\sigma_8(0.38)$	$0.465^{+0.019}_{-0.035}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2537^{+33}_{-34}$	$\sigma_8(0.38)$	$0.649^{+0.028}_{-0.051}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+11}_{-12}$	$f\sigma_8(0.51)$	$0.464^{+0.019}_{-0.035}$
$A_{143}^{\text{tSZ}}$	$< 8.64$	$D_{2000}$	$229.9^{+3.9}_{-4.2}$	$\sigma_8(0.51)$	$0.607^{+0.026}_{-0.048}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.32}$	$n_{s,0.002}$	$0.968^{+0.014}_{-0.012}$	$f\sigma_8(0.61)$	$0.459^{+0.018}_{-0.035}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_P$	$0.2464^{+0.0035}_{-0.0012}$	$\sigma_8(0.61)$	$0.578^{+0.025}_{-0.046}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P^{\text{BBN}}$	$0.2477^{+0.0036}_{-0.0012}$	$f\sigma_8(2.33)$	$0.292^{+0.013}_{-0.024}$
$A^{\text{kSZ}}$	—	$10^5 D/H$	$2.61^{+0.10}_{-0.072}$	$\sigma_8(2.33)$	$0.301^{+0.014}_{-0.024}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.51}$	$\text{Age/Gyr}$	$13.743^{+0.097}_{-0.29}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$A_{143}^{\text{dust}}$	$0.96^{+0.44}_{-0.45}$	$z_*$	$1090.00^{+0.74}_{-0.60}$	$f_{2000}^{217}$	$107.3^{+5.0}_{-5.0}$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.26}$	$r_*$	$144.0^{+1.2}_{-2.5}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.42}_{-0.40}$	$100\theta_*$	$1.04099^{+0.00078}_{-0.00097}$	$\chi_{\text{lensing}}^2$	$9.41 (\nu: 0.5)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0026}$	$D_M(z_*)/\text{Gpc}$	$13.83^{+0.12}_{-0.24}$	$\chi_{\text{small}}^2$	$397.3 (\nu: 2.1)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$z_{\text{drag}}$	$1060.1^{+1.2}_{-0.93}$	$\chi_{\text{lowl}}^2$	$22.83 (\nu: 0.4)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$146.7^{+1.3}_{-2.6}$	$\chi_{\text{CamSpec}}^2$	$11515.7 (\nu: 16.2)$
$c_{EE}$	$0.993^{+0.013}_{-0.013}$	$k_D$	$0.1411^{+0.0022}_{-0.0011}$	$\chi_{\text{Aver15}}^2$	$0.57 (\nu: 0.1)$
$H_0$	$67.8^{+2.1}_{-1.2}$	$100\theta_D$	$0.16096^{+0.00085}_{-0.00054}$	$\chi_{\text{6DF}}^2$	$0.072 (\nu: 0.0)$
$\Omega_\Lambda$	$0.688^{+0.016}_{-0.017}$	$z_{\text{eq}}$	$3336^{+85}_{-240}$	$\chi_{\text{MGS}}^2$	$1.17 (\nu: 0.1)$
$\Omega_m$	$0.312^{+0.017}_{-0.016}$	$k_{\text{eq}}$	$0.01026^{+0.00028}_{-0.00059}$	$\chi_{\text{DR12BAO}}^2$	$5.2 (\nu: 1.5)$
$\Omega_m h^2$	$0.1436^{+0.0056}_{-0.0032}$	$100\theta_{\text{eq}}$	$0.827^{+0.054}_{-0.017}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_\nu h^2$	$0.0025^{+0.011}_{-0.0020}$	$100\theta_{s,\text{eq}}$	$0.456^{+0.029}_{-0.0088}$	$\chi_{\text{CMB}}^2$	$11945.2 (\nu: 17.6)$
$\Omega_m h^3$	$0.0973^{+0.0053}_{-0.0020}$	$H(0.15)$	$73.1^{+2.1}_{-1.1}$	$\chi_{\text{BAO}}^2$	$6.5 (\nu: 1.0)$
$\sigma_8$	$0.793^{+0.033}_{-0.062}$	$D_M(0.15)$	$639^{+11}_{-18}$		

$$\bar{\chi}_{\text{eff}}^2 = 11960.01; R - 1 = 0.03614$$



8.60 base\_nnu\_meffsterile\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Cooke17\_Aver15\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02239^{+0.00039}_{-0.00037}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.443^{+0.020}_{-0.033}$	$H(0.51)$	$90.0^{+2.0}_{-0.82}$
$\Omega_{\mathrm{c}} h^2$	$0.1186^{+0.0063}_{-0.010}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.592^{+0.024}_{-0.045}$	$D_{\mathrm{M}}(0.51)$	$1975^{+27}_{-50}$
$100\theta_{\mathrm{MC}}$	$1.04085^{+0.00076}_{-0.00084}$	$\sigma_8/h^{0.5}$	$0.962^{+0.035}_{-0.072}$	$H(0.61)$	$95.7^{+2.1}_{-0.76}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$r_{\mathrm{drag}} h$	$99.4^{+2.1}_{-2.1}$	$D_{\mathrm{M}}(0.61)$	$2298^{+29}_{-57}$
$m_{\nu, \mathrm{sterile}}^{\mathrm{eff}} [\mathrm{eV}]$	$< 0.994$	$\langle d^2 \rangle^{1/2}$	$2.430^{+0.053}_{-0.052}$	$H(2.33)$	$237.1^{+4.3}_{-2.2}$
$N_{\mathrm{eff}}$	$< 3.37$	$z_{\mathrm{re}}$	$< 9.63$	$D_{\mathrm{M}}(2.33)$	$5741^{+41}_{-120}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.048^{+0.040}_{-0.031}$	$10^9 A_{\mathrm{s}}$	$2.107^{+0.085}_{-0.065}$	$f\sigma_8(0.15)$	$0.447^{+0.019}_{-0.034}$
$n_{\mathrm{s}}$	$0.968^{+0.014}_{-0.012}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.881^{+0.031}_{-0.030}$	$\sigma_8(0.15)$	$0.732^{+0.030}_{-0.058}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0062}_{-0.0065}$	$D_{40}$	$1223^{+31}_{-34}$	$f\sigma_8(0.38)$	$0.465^{+0.019}_{-0.035}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{220}$	$5725^{+97}_{-100}$	$\sigma_8(0.38)$	$0.649^{+0.028}_{-0.051}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2537^{+33}_{-34}$	$f\sigma_8(0.51)$	$0.464^{+0.018}_{-0.035}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{1420}$	$816^{+11}_{-12}$	$\sigma_8(0.51)$	$0.607^{+0.026}_{-0.048}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{2000}$	$229.9^{+3.9}_{-4.1}$	$f\sigma_8(0.61)$	$0.459^{+0.018}_{-0.035}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.64$	$n_{\mathrm{s}, 0.002}$	$0.968^{+0.014}_{-0.012}$	$\sigma_8(0.61)$	$0.578^{+0.025}_{-0.046}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.32}$	$Y_{\mathrm{P}}$	$0.2464^{+0.0034}_{-0.0012}$	$f\sigma_8(2.33)$	$0.292^{+0.013}_{-0.024}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2477^{+0.0034}_{-0.0012}$	$\sigma_8(2.33)$	$0.300^{+0.014}_{-0.025}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.609^{+0.091}_{-0.069}$	$f_{2000}^{143}$	$30^{+8}_{-7}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.744^{+0.096}_{-0.28}$	$f_{2000}^{217}$	$107.3^{+5.0}_{-4.9}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51}$	$z_*$	$1090.00^{+0.69}_{-0.58}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.44}_{-0.45}$	$r_*$	$144.0^{+1.2}_{-2.4}$	$\chi_{\mathrm{lensing}}^2$	$9.40 (\nu: 0.5)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$	$100\theta_*$	$1.04100^{+0.00077}_{-0.00094}$	$\chi_{\mathrm{small}}^2$	$397.3 (\nu: 2.1)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.42}_{-0.40}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.84^{+0.11}_{-0.23}$	$\chi_{\mathrm{lowl}}^2$	$22.84 (\nu: 0.4)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0026}$	$z_{\mathrm{drag}}$	$1060.1^{+1.2}_{-0.92}$	$\chi_{\mathrm{CamSpec}}^2$	$11515.6 (\nu: 16.1)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$r_{\mathrm{drag}}$	$146.7^{+1.3}_{-2.5}$	$\chi_{\mathrm{Aver15}}^2$	$0.56 (\nu: 0.1)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.1411^{+0.0021}_{-0.0011}$	$\chi_{\mathrm{Cooke17}}^2$	$0.12 (\nu: 0.0)$
$c_{EE}$	$0.993^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16096^{+0.00078}_{-0.00052}$	$\chi_{6\mathrm{DF}}^2$	$0.073 (\nu: 0.0)$
$H_0$	$67.8^{+2.0}_{-1.2}$	$z_{\mathrm{eq}}$	$3336^{+85}_{-240}$	$\chi_{\mathrm{MGS}}^2$	$1.16 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01026^{+0.00028}_{-0.00059}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.3 (\nu: 1.5)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.017}_{-0.016}$	$100\theta_{\mathrm{eq}}$	$0.827^{+0.054}_{-0.017}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1435^{+0.0053}_{-0.0032}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.029}_{-0.0088}$	$\chi_{\mathrm{CMB}}^2$	$11945.1 (\nu: 17.5)$
$\Omega_{\nu} h^2$	$0.0025^{+0.011}_{-0.0020}$	$H(0.15)$	$73.1^{+2.0}_{-1.1}$	$\chi_{\mathrm{BAO}}^2$	$6.5 (\nu: 1.0)$
$\Omega_{\mathrm{m}} h^3$	$0.0973^{+0.0051}_{-0.0020}$	$D_{\mathrm{M}}(0.15)$	$639^{+11}_{-18}$	$\chi_{\mathrm{Abund}}^2$	$0.67 (\nu: 0.1)$
$\sigma_8$	$0.792^{+0.033}_{-0.062}$	$H(0.38)$	$83.3^{+2.0}_{-0.91}$		
$S_8$	$0.808^{+0.037}_{-0.061}$	$D_{\mathrm{M}}(0.38)$	$1525^{+22}_{-40}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11960.05; R - 1 = 0.03510$$



## 9 nnu+mnu

### 9.1 base\_nnu\_mnu\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02201	$0.02193^{+0.00090}_{-0.0010}$	$S_8$	0.846	$0.836^{+0.068}_{-0.069}$	$100\theta_{s,eq}$	0.4461	$0.446^{+0.018}_{-0.017}$
$\Omega_c h^2$	0.1184	$0.120^{+0.011}_{-0.010}$	$\sigma_8 \Omega_m^{0.5}$	0.4633	$0.458^{+0.037}_{-0.038}$	$H(0.15)$	71.5	$70.1^{+7.5}_{-10}$
$100\theta_{MC}$	1.04105	$1.0408^{+0.0016}_{-0.0015}$	$\sigma_8 \Omega_m^{0.25}$	0.616	$0.597^{+0.044}_{-0.083}$	$D_M(0.15)$	655	$672^{+100}_{-70}$
$\tau$	0.0504	$0.051^{+0.024}_{-0.023}$	$\sigma_8/h^{0.5}$	1.006	$0.969^{+0.066}_{-0.15}$	$H(0.38)$	81.6	$80.7^{+6.9}_{-8.4}$
$\Sigma m_\nu$ [eV]	0.00	< 1.09	$r_{drag} h$	98.5	$95.5^{+8.4}_{-15}$	$D_M(0.38)$	1559	$1592^{+300}_{-200}$
$N_{eff}$	2.87	$2.93^{+0.78}_{-0.75}$	$\langle d^2 \rangle^{1/2}$	2.471	$2.46^{+0.13}_{-0.12}$	$H(0.51)$	88.4	$87.7^{+6.6}_{-7.6}$
$\ln(10^{10} A_s)$	3.031	$3.035^{+0.058}_{-0.057}$	$z_{re}$	7.30	$7.4^{+2.3}_{-2.6}$	$D_M(0.51)$	2018	$2056^{+300}_{-200}$
$n_s$	0.9573	$0.956^{+0.036}_{-0.041}$	$10^9 A_s$	2.071	$2.08^{+0.12}_{-0.12}$	$H(0.61)$	94.0	$93.5^{+6.5}_{-7.1}$
$y_{cal}$	1.0001	$1.0005^{+0.0065}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	1.873	$1.878^{+0.057}_{-0.061}$	$D_M(0.61)$	2347	$2388^{+300}_{-200}$
$A_{217}^{CIB}$	46.7	$48^{+20}_{-20}$	$D_{40}$	1238	$1240^{+62}_{-58}$	$H(2.33)$	234.2	$236.5^{+9.8}_{-9.6}$
$\xi^{tSZ \times CIB}$	0.58	—	$D_{220}$	5704	$5710^{+110}_{-110}$	$D_M(2.33)$	5839	$5869^{+450}_{-360}$
$A_{143}^{tSZ}$	6.9	—	$D_{810}$	2534.3	$2536^{+37}_{-36}$	$f\sigma_8(0.15)$	0.4663	$0.460^{+0.034}_{-0.039}$
$A_{100}^{PS}$	249	$263^{+70}_{-70}$	$D_{1420}$	816.0	$815^{+13}_{-13}$	$\sigma_8(0.15)$	0.755	$0.716^{+0.067}_{-0.17}$
$A_{143}^{PS}$	50.6	$49^{+20}_{-20}$	$D_{2000}$	230.9	$229.6^{+6.1}_{-6.0}$	$f\sigma_8(0.38)$	0.4825	$0.470^{+0.032}_{-0.063}$
$A_{143 \times 217}^{PS}$	51.9	$44^{+20}_{-20}$	$n_{s,0.002}$	0.9573	$0.956^{+0.036}_{-0.041}$	$\sigma_8(0.38)$	0.668	$0.632^{+0.070}_{-0.15}$
$A_{217}^{PS}$	121.0	$115^{+30}_{-30}$	$Y_P$	0.2429	$0.244^{+0.010}_{-0.011}$	$f\sigma_8(0.51)$	0.480	$0.465^{+0.032}_{-0.074}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.2442	$0.245^{+0.010}_{-0.011}$	$\sigma_8(0.51)$	0.624	$0.590^{+0.061}_{-0.15}$
$A_{100}^{dustTT}$	8.76	$8.9^{+4.7}_{-4.7}$	$10^5 D/H$	2.594	$2.63^{+0.19}_{-0.18}$	$f\sigma_8(0.61)$	0.474	$0.458^{+0.033}_{-0.081}$
$A_{143}^{dustTT}$	10.72	$10.7^{+4.6}_{-4.6}$	Age/Gyr	13.98	$14.0^{+1.1}_{-0.85}$	$\sigma_8(0.61)$	0.594	$0.561^{+0.059}_{-0.15}$
$A_{143 \times 217}^{dustTT}$	19.6	$18.3^{+8.4}_{-8.5}$	$z_*$	1090.06	$1090.4^{+1.6}_{-1.4}$	$f\sigma_8(2.33)$	0.298	$0.283^{+0.030}_{-0.072}$
$A_{217}^{dustTT}$	95.0	$93^{+20}_{-20}$	$r_*$	146.0	$145.4^{+7.0}_{-6.5}$	$\sigma_8(2.33)$	0.307	$0.290^{+0.034}_{-0.080}$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04134	$1.0411^{+0.0020}_{-0.0018}$	$f_{2000}^{143}$	28.9	$31^{+9}_{-9}$
$c_{217}$	0.99824	$0.9982^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	14.02	$13.96^{+0.65}_{-0.61}$	$f_{2000}^{143 \times 217}$	32.2	$34^{+7}_{-7}$
$H_0$	66.2	$64^{+8}_{-10}$	$z_{drag}$	1058.83	$1058.8^{+3.0}_{-3.2}$	$f_{2000}^{217}$	106.5	$108.2^{+6.3}_{-6.2}$
$\Omega_\Lambda$	0.679	$0.650^{+0.071}_{-0.18}$	$r_{drag}$	148.8	$148.2^{+7.4}_{-6.8}$	$\chi_{simall}^2$	395.70	$396.9 (\nu: 1.5)$
$\Omega_m$	0.321	$0.350^{+0.18}_{-0.071}$	$k_D$	0.1395	$0.1399^{+0.0050}_{-0.0050}$	$\chi_{lowl}^2$	24.6	$24.9 (\nu: 3.3)$
$\Omega_m h^2$	0.1404	$0.144^{+0.013}_{-0.011}$	$100\theta_D$	0.16067	$0.1609^{+0.0018}_{-0.0017}$	$\chi_{plik}^2$	757.2	$772.7 (\nu: 18.4)$
$\Omega_\nu h^2$	0.0000	< 0.0105	$z_{eq}$	3435	$3442^{+190}_{-180}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.6)$
$\Omega_m h^3$	0.0929	$0.093^{+0.016}_{-0.016}$	$k_{eq}$	0.010361	$0.01042^{+0.00045}_{-0.00042}$	$\chi_{CMB}^2$	1177.4	$1194.5 (\nu: 18.4)$
$\sigma_8$	0.818	$0.778^{+0.069}_{-0.17}$	$100\theta_{eq}$	0.8064	$0.805^{+0.035}_{-0.034}$			

Best-fit  $\chi_{eff}^2 = 1178.71$ ;  $\bar{\chi}_{eff}^2 = 1201.83$ ;  $R - 1 = 0.00661$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.70 commander\_dx12\_v3.2\_29: 24.55 plik\_rd12\_HM\_v22\_TT: 757.19



## 9.2 base\_nnu\_mnu\_plikHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02208	$0.02190^{+0.00087}_{-0.00095}$	$S_8$	0.8336	$0.839^{+0.045}_{-0.044}$	$100\theta_{s,eq}$	0.4479	$0.445^{+0.015}_{-0.016}$
$\Omega_c h^2$	0.1171	$0.119^{+0.011}_{-0.0097}$	$\sigma_8 \Omega_m^{0.5}$	0.4566	$0.460^{+0.024}_{-0.024}$	$H(0.15)$	71.7	$69.8^{+6.8}_{-8.5}$
$100\theta_{MC}$	1.04119	$1.0408^{+0.0016}_{-0.0015}$	$\sigma_8 \Omega_m^{0.25}$	0.6093	$0.599^{+0.029}_{-0.047}$	$D_M(0.15)$	652	$674^{+100}_{-70}$
$\tau$	0.0507	$0.051^{+0.023}_{-0.022}$	$\sigma_8/h^{0.5}$	0.998	$0.973^{+0.043}_{-0.084}$	$H(0.38)$	81.7	$80.4^{+6.3}_{-7.2}$
$\Sigma m_\nu$ [eV]	0.001	< 0.775	$r_{drag} h$	99.2	$95.5^{+7.6}_{-12}$	$D_M(0.38)$	1554	$1597^{+200}_{-100}$
$N_{eff}$	2.85	$2.88^{+0.74}_{-0.69}$	$\langle d^2 \rangle^{1/2}$	2.456	$2.47^{+0.11}_{-0.088}$	$H(0.51)$	88.4	$87.4^{+6.1}_{-6.6}$
$\ln(10^{10} A_s)$	3.028	$3.034^{+0.057}_{-0.056}$	$z_{re}$	7.29	$7.4^{+2.3}_{-2.4}$	$D_M(0.51)$	2013	$2062^{+300}_{-200}$
$n_s$	0.9580	$0.954^{+0.034}_{-0.037}$	$10^9 A_s$	2.066	$2.08^{+0.12}_{-0.11}$	$H(0.61)$	94.0	$93.2^{+6.0}_{-6.3}$
$y_{cal}$	1.0001	$1.0005^{+0.0065}_{-0.0064}$	$10^9 A_s e^{-2\tau}$	1.866	$1.875^{+0.056}_{-0.059}$	$D_M(0.61)$	2342	$2395^{+300}_{-200}$
$A_{217}^{CIB}$	47.1	$47^{+20}_{-20}$	$D_{40}$	1236	$1245^{+54}_{-52}$	$H(2.33)$	233.4	$235.8^{+9.9}_{-9.3}$
$\xi^{tSZ \times CIB}$	0.47	—	$D_{220}$	5713	$5711^{+110}_{-110}$	$D_M(2.33)$	5842	$5887^{+400}_{-340}$
$A_{143}^{tSZ}$	7.0	—	$D_{810}$	2532.6	$2536^{+37}_{-36}$	$f\sigma_8(0.15)$	0.4601	$0.462^{+0.021}_{-0.021}$
$A_{100}^{PS}$	250	$261^{+70}_{-70}$	$D_{1420}$	816.3	$815^{+14}_{-13}$	$\sigma_8(0.15)$	0.751	$0.718^{+0.060}_{-0.11}$
$A_{143}^{PS}$	48.0	$48^{+20}_{-20}$	$D_{2000}$	231.2	$230.0^{+6.0}_{-5.9}$	$f\sigma_8(0.38)$	0.4775	$0.472^{+0.021}_{-0.034}$
$A_{143 \times 217}^{PS}$	48.4	$44^{+20}_{-20}$	$n_{s,0.002}$	0.9580	$0.954^{+0.034}_{-0.037}$	$\sigma_8(0.38)$	0.665	$0.633^{+0.058}_{-0.11}$
$A_{217}^{PS}$	119.5	$115^{+30}_{-30}$	$Y_P$	0.2426	$0.243^{+0.010}_{-0.010}$	$f\sigma_8(0.51)$	0.4755	$0.467^{+0.023}_{-0.043}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.2439	$0.244^{+0.010}_{-0.010}$	$\sigma_8(0.51)$	0.622	$0.592^{+0.056}_{-0.10}$
$A_{100}^{dustTT}$	8.86	$8.9^{+4.7}_{-4.7}$	$10^5 D/H$	2.571	$2.62^{+0.19}_{-0.18}$	$f\sigma_8(0.61)$	0.4702	$0.460^{+0.025}_{-0.049}$
$A_{143}^{dustTT}$	10.81	$10.7^{+4.7}_{-4.7}$	Age/Gyr	13.99	$14.09^{+0.95}_{-0.80}$	$\sigma_8(0.61)$	0.592	$0.562^{+0.055}_{-0.10}$
$A_{143 \times 217}^{dustTT}$	19.5	$18.2^{+8.4}_{-8.5}$	$z_*$	1089.83	$1090.3^{+1.5}_{-1.3}$	$f\sigma_8(2.33)$	0.2973	$0.284^{+0.027}_{-0.050}$
$A_{217}^{dustTT}$	95.0	$93^{+20}_{-20}$	$r_*$	146.4	$145.8^{+6.6}_{-6.5}$	$\sigma_8(2.33)$	0.3068	$0.291^{+0.031}_{-0.057}$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04150	$1.0412^{+0.0019}_{-0.0018}$	$f_{2000}^{143}$	28.6	$31^{+9}_{-9}$
$c_{217}$	0.99824	$0.9982^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	14.06	$14.01^{+0.61}_{-0.60}$	$f_{2000}^{143 \times 217}$	31.9	$33^{+7}_{-7}$
$H_0$	66.4	$64^{+7}_{-9}$	$z_{drag}$	1058.90	$1058.7^{+2.9}_{-3.0}$	$f_{2000}^{217}$	106.4	$107.8^{+6.3}_{-6.3}$
$\Omega_\Lambda$	0.685	$0.651^{+0.064}_{-0.14}$	$r_{drag}$	149.2	$148.7^{+7.0}_{-6.7}$	$\chi^2_{lensing}$	8.74	$9.2 (\nu: 0.6)$
$\Omega_m$	0.315	$0.349^{+0.14}_{-0.064}$	$k_D$	0.13919	$0.1395^{+0.0049}_{-0.0047}$	$\chi^2_{simall}$	395.68	$396.9 (\nu: 1.4)$
$\Omega_m h^2$	0.1392	$0.143^{+0.013}_{-0.011}$	$100\theta_D$	0.16054	$0.1608^{+0.0017}_{-0.0017}$	$\chi^2_{lowl}$	24.3	$25.3 (\nu: 3.0)$
$\Omega_\nu h^2$	0.00001	< 0.00752	$z_{eq}$	3416	$3450^{+190}_{-160}$	$\chi^2_{plik}$	757.7	$771.6 (\nu: 15.5)$
$\Omega_m h^3$	0.0925	$0.092^{+0.015}_{-0.014}$	$k_{eq}$	0.010286	$0.01041^{+0.00045}_{-0.00038}$	$\chi^2_{prior}$	1.4	$7.3 (\nu: 6.6)$
$\sigma_8$	0.813	$0.780^{+0.060}_{-0.11}$	$100\theta_{eq}$	0.8101	$0.804^{+0.031}_{-0.033}$	$\chi^2_{CMB}$	1186.4	$1203.1 (\nu: 17.3)$

Best-fit  $\chi^2_{eff} = 1187.75$ ;  $\bar{\chi}^2_{eff} = 1210.35$ ;  $R - 1 = 0.00978$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.74 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.68 commander\_dx12\_v3.2\_29: 24.31 plik\_rd12\_HM.v22\_TT: 757.67



### 9.3 base\_nnu\_mnu\_plikHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02224	$0.02222^{+0.00057}_{-0.00059}$ (+0.8 $\sigma$ )	$\Omega_m h^2$	0.1394	$0.1416^{+0.0092}_{-0.0079}$ (−0.5 $\sigma$ )	$k_{\text{eq}}$	0.010299	$0.01035^{+0.00033}_{-0.00030}$ (−0.5 $\sigma$ )
$\Omega_c h^2$	0.1171	$0.1183^{+0.0082}_{-0.0074}$ (−0.4 $\sigma$ )	$\Omega_\nu h^2$	0.00000	< 0.00482 (−0.5 $\sigma$ )	$100\theta_{\text{eq}}$	0.8100	$0.809^{+0.018}_{-0.017}$ (+0.3 $\sigma$ )
$100\theta_{\text{MC}}$	1.04128	$1.0411^{+0.0011}_{-0.0011}$ (+0.6 $\sigma$ )	$\Omega_m h^3$	0.0928	$0.0934^{+0.011}_{-0.0096}$ (+0.1 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4477	$0.4475^{+0.0092}_{-0.0088}$ (+0.3 $\sigma$ )
$\tau$	0.0540	$0.054^{+0.022}_{-0.020}$ (+0.3 $\sigma$ )	$\sigma_8$	0.817	$0.799^{+0.043}_{-0.10}$ (+0.4 $\sigma$ )	$H(0.15)$	71.87	$71.3^{+4.2}_{-5.3}$ (+0.4 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.000	< 0.479 (−0.5 $\sigma$ )	$S_8$	0.8355	$0.832^{+0.043}_{-0.047}$ (−0.2 $\sigma$ )	$D_{\text{M}}(0.15)$	650.5	$657^{+58}_{-39}$ (−0.4 $\sigma$ )
$N_{\text{eff}}$	2.852	$2.91^{+0.51}_{-0.47}$ (−0.1 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4576	$0.456^{+0.023}_{-0.026}$ (−0.2 $\sigma$ )	$H(0.38)$	81.91	$81.6^{+4.1}_{-4.6}$ (+0.3 $\sigma$ )
$\ln(10^{10} A_{\text{s}})$	3.0369	$3.038^{+0.049}_{-0.047}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6113	$0.603^{+0.028}_{-0.052}$ (+0.3 $\sigma$ )	$D_{\text{M}}(0.38)$	1551	$1562^{+120}_{-86}$ (−0.4 $\sigma$ )
$n_{\text{s}}$	0.9593	$0.959^{+0.022}_{-0.022}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	1.001	$0.983^{+0.041}_{-0.090}$ (+0.4 $\sigma$ )	$H(0.51)$	88.57	$88.4^{+4.1}_{-4.3}$ (+0.3 $\sigma$ )
$y_{\text{cal}}$	1.0006	$1.0006^{+0.0065}_{-0.0064}$ (+0.1 $\sigma$ )	$r_{\text{drag}} h$	99.3	$97.9^{+4.2}_{-7.4}$ (+0.5 $\sigma$ )	$D_{\text{M}}(0.51)$	2009	$2022^{+150}_{-110}$ (−0.4 $\sigma$ )
$A_{217}^{\text{CIB}}$	43.8	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.463	$2.454^{+0.079}_{-0.079}$ (−0.1 $\sigma$ )	$H(0.61)$	94.15	$94.1^{+4.1}_{-4.1}$ (+0.2 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.88	—	$z_{\text{re}}$	7.60	$7.6^{+2.1}_{-2.2}$ (+0.2 $\sigma$ )	$D_{\text{M}}(0.61)$	2337	$2351^{+160}_{-120}$ (−0.4 $\sigma$ )
$A_{143}^{\text{tSZ}}$	6.91	> 0.982 (+0.2 $\sigma$ )	$10^9 A_{\text{s}}$	2.084	$2.09^{+0.10}_{-0.096}$ (+0.2 $\sigma$ )	$H(2.33)$	233.6	$235.0^{+7.3}_{-6.7}$ (−0.4 $\sigma$ )
$A_{100}^{\text{PS}}$	244	$256^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_{\text{s}} e^{-2\tau}$	1.8708	$1.874^{+0.045}_{-0.047}$ (−0.2 $\sigma$ )	$D_{\text{M}}(2.33)$	5833	$5835^{+250}_{-230}$ (−0.2 $\sigma$ )
$A_{143}^{\text{PS}}$	50.8	$45^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{40}$	1238.0	$1239^{+41}_{-40}$ (−0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4613	$0.459^{+0.022}_{-0.026}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	56.5	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5733	$5732^{+100}_{-98}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.754	$0.737^{+0.041}_{-0.097}$ (+0.4 $\sigma$ )
$A_{217}^{\text{PS}}$	123.6	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{810}$	2539.2	$2538^{+36}_{-36}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4790	$0.474^{+0.021}_{-0.036}$ (+0.2 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	819.6	$818^{+13}_{-13}$ (+0.6 $\sigma$ )	$\sigma_8(0.38)$	0.668	$0.652^{+0.038}_{-0.091}$ (+0.5 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.70	$8.9^{+4.7}_{-4.8}$ (−0.0 $\sigma$ )	$D_{2000}$	232.57	$231.5^{+4.8}_{-4.9}$ (+0.8 $\sigma$ )	$f\sigma_8(0.51)$	0.4772	$0.472^{+0.021}_{-0.041}$ (+0.3 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.91	$10.8^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9593	$0.959^{+0.022}_{-0.022}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.625	$0.609^{+0.036}_{-0.087}$ (+0.5 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.1	$18.5^{+8.4}_{-8.5}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.2427	$0.2434^{+0.0070}_{-0.0068}$ (−0.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4719	$0.466^{+0.021}_{-0.044}$ (+0.4 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.9	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.2440	$0.2447^{+0.0071}_{-0.0068}$ (−0.0 $\sigma$ )	$\sigma_8(0.61)$	0.595	$0.580^{+0.035}_{-0.084}$ (+0.5 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.113	$0.115^{+0.098}_{-0.095}$	$10^5 \text{D/H}$	2.542	$2.56^{+0.12}_{-0.11}$ (−0.9 $\sigma$ )	$f\sigma_8(2.33)$	0.2987	$0.292^{+0.017}_{-0.040}$ (+0.5 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.075}_{-0.076}$	Age/Gyr	13.96	$13.97^{+0.59}_{-0.55}$ (−0.2 $\sigma$ )	$\sigma_8(2.33)$	0.3083	$0.300^{+0.019}_{-0.045}$ (+0.5 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.63	$1089.82^{+0.97}_{-0.90}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	27.0	$29^{+8}_{-8}$ (−0.7 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.226	$0.22^{+0.14}_{-0.14}$	$r_*$	146.28	$145.7^{+4.7}_{-4.8}$ (+0.1 $\sigma$ )	$f_{2000}^{143 \times 217}$	30.7	$32^{+6}_{-5}$ (−0.8 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.665	$0.67^{+0.21}_{-0.21}$	$100\theta_*$	1.04157	$1.0414^{+0.0014}_{-0.0014}$ (+0.4 $\sigma$ )	$f_{2000}^{217}$	105.4	$106.5^{+5.2}_{-5.0}$ (−0.7 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.07	$2.09^{+0.69}_{-0.69}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.044	$13.99^{+0.44}_{-0.45}$ (+0.1 $\sigma$ )	$\chi_{\text{simall}}^2$	396.02	$397.1$ ( $\nu$ : 1.7) (+0.1 $\sigma$ )
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1059.28	$1059.4^{+2.0}_{-2.1}$ (+0.4 $\sigma$ )	$\chi_{\text{lowl}}^2$	24.29	$24.4$ ( $\nu$ : 1.1) (−0.2 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	149.01	$148.4^{+4.9}_{-5.0}$ (+0.1 $\sigma$ )	$\chi_{\text{plik}}^2$	2342.0	$2360.0$ ( $\nu$ : 20.3) (+261.4 $\sigma$ )
$H_0$	66.6	$66.0^{+4.3}_{-5.9}$ (+0.4 $\sigma$ )	$k_{\text{D}}$	0.13952	$0.1399^{+0.0037}_{-0.0035}$ (+0.0 $\sigma$ )	$\chi_{\text{prior}}^2$	1.4	$11.6$ ( $\nu$ : 10.0) (+1.2 $\sigma$ )
$\Omega_\Lambda$	0.686	$0.674^{+0.034}_{-0.070}$ (+0.5 $\sigma$ )	$100\theta_{\text{D}}$	0.16033	$0.1605^{+0.0011}_{-0.0010}$ (−0.6 $\sigma$ )	$\chi_{\text{CMB}}^2$	2762.3	$2781.4$ ( $\nu$ : 20.2) (+261.8 $\sigma$ )
$\Omega_{\text{m}}$	0.314	$0.326^{+0.070}_{-0.034}$ (−0.5 $\sigma$ )	$z_{\text{eq}}$	3419	$3423^{+94}_{-95}$ (−0.3 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 2763.73$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.02$ ;  $\bar{\chi}_{\text{eff}}^2 = 2792.98$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.15$ ;  $R - 1 = 0.00589$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.02 ( $\Delta$  0.32) commander\_dx12\_v3.2.29: 24.29 ( $\Delta$  -0.27) plik\_rd12\_HM\_v22b\_TTTEEE: 2341.98



#### 9.4 base\_nnu\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02224	$0.02221^{+0.00056}_{-0.00058}$ (+0.9 $\sigma$ )	$\Omega_m h^2$	0.1386	$0.1411^{+0.0091}_{-0.0077}$ (-0.4 $\sigma$ )	$k_{\text{eq}}$	0.010263	$0.01033^{+0.00030}_{-0.00028}$ (-0.5 $\sigma$ )
$\Omega_c h^2$	0.1163	$0.1179^{+0.0079}_{-0.0072}$ (-0.3 $\sigma$ )	$\Omega_\nu h^2$	0.00000	< 0.00400 (-0.6 $\sigma$ )	$100\theta_{\text{eq}}$	0.8107	$0.809^{+0.017}_{-0.017}$ (+0.4 $\sigma$ )
$100\theta_{\text{MC}}$	1.04134	$1.0412^{+0.0011}_{-0.0011}$ (+0.6 $\sigma$ )	$\Omega_m h^3$	0.0922	$0.0930^{+0.010}_{-0.0095}$ (+0.2 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4481	$0.4474^{+0.0086}_{-0.0087}$ (+0.4 $\sigma$ )
$\tau$	0.0528	$0.054^{+0.021}_{-0.020}$ (+0.3 $\sigma$ )	$\sigma_8$	0.813	$0.798^{+0.037}_{-0.068}$ (+0.5 $\sigma$ )	$H(0.15)$	71.76	$71.2^{+4.1}_{-4.6}$ (+0.4 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.000	< 0.393 (-0.6 $\sigma$ )	$S_8$	0.8303	$0.831^{+0.033}_{-0.033}$ (-0.5 $\sigma$ )	$D_{\text{M}}(0.15)$	651.4	$658^{+49}_{-38}$ (-0.5 $\sigma$ )
$N_{\text{eff}}$	2.820	$2.88^{+0.50}_{-0.47}$ (-0.0 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4548	$0.455^{+0.018}_{-0.018}$ (-0.5 $\sigma$ )	$H(0.38)$	81.76	$81.5^{+4.0}_{-4.2}$ (+0.4 $\sigma$ )
$\ln(10^{10} A_{\text{s}})$	3.0318	$3.037^{+0.045}_{-0.045}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6080	$0.603^{+0.022}_{-0.031}$ (+0.3 $\sigma$ )	$D_{\text{M}}(0.38)$	1553	$1565^{+100}_{-84}$ (-0.5 $\sigma$ )
$n_{\text{s}}$	0.9587	$0.958^{+0.022}_{-0.022}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9965	$0.983^{+0.031}_{-0.054}$ (+0.4 $\sigma$ )	$H(0.51)$	88.40	$88.3^{+3.9}_{-4.0}$ (+0.3 $\sigma$ )
$y_{\text{cal}}$	1.0004	$1.0006^{+0.0067}_{-0.0063}$ (+0.0 $\sigma$ )	$r_{\text{drag}} h$	99.4	$97.9^{+4.0}_{-6.3}$ (+0.6 $\sigma$ )	$D_{\text{M}}(0.51)$	2012	$2025^{+130}_{-100}$ (-0.4 $\sigma$ )
$A_{217}^{\text{CIB}}$	43.8	$46^{+20}_{-20}$ (-0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.456	$2.454^{+0.062}_{-0.062}$ (-0.3 $\sigma$ )	$H(0.61)$	93.95	$93.9^{+3.9}_{-3.9}$ (+0.3 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.92	—	$z_{\text{re}}$	7.46	$7.6^{+2.0}_{-2.1}$ (+0.2 $\sigma$ )	$D_{\text{M}}(0.61)$	2341	$2354^{+140}_{-120}$ (-0.4 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.00	> 0.998 (+0.2 $\sigma$ )	$10^9 A_{\text{s}}$	2.073	$2.084^{+0.096}_{-0.091}$ (+0.1 $\sigma$ )	$H(2.33)$	232.9	$234.6^{+7.2}_{-6.5}$ (-0.3 $\sigma$ )
$A_{100}^{\text{PS}}$	243	$255^{+70}_{-70}$ (-0.2 $\sigma$ )	$10^9 A_{\text{s}} e^{-2\tau}$	1.8658	$1.872^{+0.044}_{-0.045}$ (-0.1 $\sigma$ )	$D_{\text{M}}(2.33)$	5846	$5845^{+240}_{-230}$ (-0.3 $\sigma$ )
$A_{143}^{\text{PS}}$	51.1	$45^{+20}_{-20}$ (-0.4 $\sigma$ )	$D_{40}$	1237.0	$1240^{+40}_{-38}$ (-0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4585	$0.459^{+0.017}_{-0.017}$ (-0.4 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	57.4	$42^{+20}_{-20}$ (-0.2 $\sigma$ )	$D_{220}$	5731	$5734^{+100}_{-98}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.751	$0.736^{+0.036}_{-0.066}$ (+0.5 $\sigma$ )
$A_{217}^{\text{PS}}$	123.5	$115^{+30}_{-30}$ (-0.0 $\sigma$ )	$D_{810}$	2537.0	$2538^{+37}_{-35}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4763	$0.474^{+0.016}_{-0.021}$ (+0.2 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	819.4	$818^{+13}_{-12}$ (+0.6 $\sigma$ )	$\sigma_8(0.38)$	0.6652	$0.651^{+0.035}_{-0.063}$ (+0.5 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.72	$8.8^{+4.8}_{-4.8}$ (-0.0 $\sigma$ )	$D_{2000}$	232.61	$231.6^{+4.7}_{-4.7}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4747	$0.471^{+0.016}_{-0.025}$ (+0.3 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.93	$10.8^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9587	$0.958^{+0.022}_{-0.022}$ (+0.3 $\sigma$ )	$\sigma_8(0.51)$	0.6223	$0.609^{+0.033}_{-0.060}$ (+0.5 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.2	$18.5^{+8.3}_{-8.5}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.2423	$0.2431^{+0.0069}_{-0.0069}$ (+0.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4695	$0.465^{+0.017}_{-0.028}$ (+0.4 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.8	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.2436	$0.2444^{+0.0069}_{-0.0069}$ (+0.0 $\sigma$ )	$\sigma_8(0.61)$	0.5920	$0.579^{+0.032}_{-0.059}$ (+0.5 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.115^{+0.10}_{-0.094}$	$10^5 \text{D/H}$	2.532	$2.56^{+0.12}_{-0.11}$ (-0.8 $\sigma$ )	$f\sigma_8(2.33)$	0.2975	$0.292^{+0.016}_{-0.028}$ (+0.5 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.074}_{-0.075}$	Age/Gyr	13.99	$13.99^{+0.56}_{-0.53}$ (-0.3 $\sigma$ )	$\sigma_8(2.33)$	0.3071	$0.300^{+0.018}_{-0.032}$ (+0.5 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.21}_{-0.22}$	$z_*$	1089.54	$1089.77^{+0.95}_{-0.85}$ (-1.0 $\sigma$ )	$f_{2000}^{143}$	26.9	$29^{+8}_{-8}$ (-0.6 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.226	$0.23^{+0.14}_{-0.14}$	$r_*$	146.67	$146.0^{+4.7}_{-4.7}$ (+0.0 $\sigma$ )	$f_{2000}^{143 \times 217}$	30.7	$31^{+6}_{-5}$ (-0.7 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.665	$0.67^{+0.21}_{-0.20}$	$100\theta_*$	1.04166	$1.0415^{+0.0014}_{-0.0014}$ (+0.4 $\sigma$ )	$f_{2000}^{217}$	105.2	$106.4^{+5.2}_{-5.0}$ (-0.6 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.07	$2.09^{+0.69}_{-0.70}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.080	$14.02^{+0.44}_{-0.43}$ (+0.0 $\sigma$ )	$\chi_{\text{lensing}}^2$	8.66	9.09 ( $\nu$ : 0.3) (-0.1 $\sigma$ )
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1059.17	$1059.3^{+2.0}_{-2.1}$ (+0.5 $\sigma$ )	$\chi_{\text{small}}^2$	395.84	397.0 ( $\nu$ : 1.5) (+0.0 $\sigma$ )
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0016}$ (-0.1 $\sigma$ )	$r_{\text{drag}}$	149.40	$148.7^{+4.9}_{-4.8}$ (+0.0 $\sigma$ )	$\chi_{\text{lowl}}^2$	24.25	24.5 ( $\nu$ : 1.1) (-0.3 $\sigma$ )
$H_0$	66.54	$65.9^{+4.2}_{-5.0}$ (+0.5 $\sigma$ )	$k_{\text{D}}$	0.13923	$0.1397^{+0.0036}_{-0.0034}$ (+0.1 $\sigma$ )	$\chi_{\text{plik}}^2$	2342.4	2359.4 ( $\nu$ : 18.1) (+285.4 $\sigma$ )
$\Omega_\Lambda$	0.6870	$0.674^{+0.032}_{-0.058}$ (+0.6 $\sigma$ )	$100\theta_{\text{D}}$	0.16026	$0.1605^{+0.0011}_{-0.0010}$ (-0.5 $\sigma$ )	$\chi_{\text{prior}}^2$	1.4	11.5 ( $\nu$ : 9.8) (+1.2 $\sigma$ )
$\Omega_{\text{m}}$	0.3130	$0.326^{+0.058}_{-0.032}$ (-0.6 $\sigma$ )	$z_{\text{eq}}$	3415	$3423^{+92}_{-88}$ (-0.4 $\sigma$ )	$\chi_{\text{CMB}}^2$	2771.2	2790.0 ( $\nu$ : 19.4) (+269.7 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 2772.59$ ;  $\Delta\chi_{\text{eff}}^2 = 1584.84$ ;  $\bar{\chi}_{\text{eff}}^2 = 2801.54$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.19$ ;  $R - 1 = 0.00830$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp-p.teb.consext8: 8.66 ( $\Delta$  -0.08) small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.84 ( $\Delta$  0.16) commander\_dx12\_v3.2.29: 24.25 ( $\Delta$  -0.06) plik\_rd12\_HM\_v22b\_TTTEEE: 2342.41



## 9.5 base\_nnu\_mnu\_CamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02206	$0.02190^{+0.00091}_{-0.0011}$	$\sigma_8$	0.820	$0.776^{+0.073}_{-0.15}$	$100\theta_{\text{eq}}$	0.8085	$0.804^{+0.035}_{-0.034}$
$\Omega_c h^2$	0.1191	$0.119^{+0.011}_{-0.0095}$	$S_8$	0.843	$0.835^{+0.065}_{-0.069}$	$100\theta_{\text{s,eq}}$	0.4471	$0.445^{+0.018}_{-0.017}$
$100\theta_{\text{MC}}$	1.04106	$1.0409^{+0.0016}_{-0.0016}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4619	$0.457^{+0.035}_{-0.038}$	$H(0.15)$	72.0	$69.8^{+7.5}_{-9.8}$
$\tau$	0.0516	$0.051^{+0.022}_{-0.022}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.615	$0.596^{+0.042}_{-0.078}$	$D_{\text{M}}(0.15)$	650	$675^{+100}_{-70}$
$\Sigma m_\nu$ [eV]	0.00	< 1.02	$\sigma_8/h^{0.5}$	1.004	$0.969^{+0.065}_{-0.14}$	$H(0.38)$	82.1	$80.3^{+6.9}_{-8.3}$
$N_{\text{eff}}$	2.93	$2.88^{+0.79}_{-0.72}$	$r_{\text{drag}} h$	98.8	$95.4^{+8.2}_{-14}$	$D_{\text{M}}(0.38)$	1548	$1599^{+200}_{-200}$
$\ln(10^{10} A_{\text{s}})$	3.033	$3.030^{+0.056}_{-0.057}$	$\langle d^2 \rangle^{1/2}$	2.466	$2.46^{+0.13}_{-0.12}$	$H(0.51)$	88.8	$87.3^{+6.7}_{-7.6}$
$n_{\text{s}}$	0.9589	$0.954^{+0.037}_{-0.040}$	$z_{\text{re}}$	7.43	$7.4^{+2.2}_{-2.5}$	$D_{\text{M}}(0.51)$	2005	$2065^{+300}_{-200}$
$y_{\text{cal}}$	0.99999	$1.0004^{+0.0064}_{-0.0065}$	$10^9 A_{\text{s}}$	2.077	$2.07^{+0.12}_{-0.12}$	$H(0.61)$	94.5	$93.1^{+6.5}_{-7.1}$
$A_{100}^{\text{PS}}$	238	$241^{+70}_{-70}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.873	$1.871^{+0.058}_{-0.061}$	$D_{\text{M}}(0.61)$	2332	$2398^{+300}_{-200}$
$A_{143}^{\text{PS}}$	39	$40^{+20}_{-20}$	$D_{40}$	1236	$1240^{+59}_{-57}$	$H(2.33)$	234.9	$235.7^{+9.8}_{-9.0}$
$A_{217}^{\text{PS}}$	100.4	$102^{+30}_{-30}$	$D_{220}$	5701	$5700^{+110}_{-110}$	$D_{\text{M}}(2.33)$	5811	$5892^{+460}_{-370}$
$A_{217}^{\text{CIB}}$	43.8	$40^{+20}_{-20}$	$D_{810}$	2530.1	$2532^{+37}_{-38}$	$f\sigma_8(0.15)$	0.4652	$0.460^{+0.033}_{-0.038}$
$A_{143}^{\text{tSZ}}$	5.44	< 8.78	$D_{1420}$	813.7	$815^{+14}_{-14}$	$\sigma_8(0.15)$	0.757	$0.714^{+0.071}_{-0.15}$
$r_{143 \times 217}^{\text{PS}}$	0.593	$0.65^{+0.31}_{-0.33}$	$D_{2000}$	230.0	$229.9^{+6.0}_{-6.1}$	$f\sigma_8(0.38)$	0.4822	$0.470^{+0.031}_{-0.059}$
$r_{143 \times 217}^{\text{CIB}}$	0.72	—	$n_{\text{s},0.002}$	0.9589	$0.954^{+0.037}_{-0.040}$	$\sigma_8(0.38)$	0.670	$0.630^{+0.063}_{-0.15}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.13	—	$Y_{\text{P}}$	0.2438	$0.243^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	0.480	$0.464^{+0.032}_{-0.068}$
$A^{\text{kSZ}}$	1.9	—	$Y_{\text{P}}^{\text{BBN}}$	0.2451	$0.244^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	0.626	$0.588^{+0.065}_{-0.13}$
$A_{100}^{\text{dust}}$	1.00	$1.01^{+0.50}_{-0.51}$	$10^5 \text{D}/\text{H}$	2.605	$2.61^{+0.18}_{-0.17}$	$f\sigma_8(0.61)$	0.474	$0.457^{+0.032}_{-0.074}$
$A_{143}^{\text{dust}}$	0.978	$0.97^{+0.46}_{-0.45}$	Age/Gyr	13.91	$14.1^{+1.1}_{-0.87}$	$\sigma_8(0.61)$	0.596	$0.559^{+0.059}_{-0.14}$
$A_{217}^{\text{dust}}$	0.957	$0.97^{+0.27}_{-0.26}$	$z_*$	1090.12	$1090.3^{+1.5}_{-1.3}$	$f\sigma_8(2.33)$	0.2992	$0.282^{+0.029}_{-0.067}$
$A_{143 \times 217}^{\text{dust}}$	0.996	$1.03^{+0.42}_{-0.41}$	$r_*$	145.5	$145.9^{+6.7}_{-6.7}$	$\sigma_8(2.33)$	0.309	$0.289^{+0.034}_{-0.074}$
$c_{100}$	0.99751	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_*$	1.04130	$1.0413^{+0.0019}_{-0.0018}$	$f_{2000}^{143}$	30.3	$30^{+10}_{-9}$
$c_{217}$	1.00118	$1.0012^{+0.0040}_{-0.0040}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.97	$14.01^{+0.63}_{-0.63}$	$f_{2000}^{217}$	106.9	$107.3^{+6.5}_{-6.5}$
$H_0$	66.7	$64^{+8}_{-10}$	$z_{\text{drag}}$	1059.06	$1058.6^{+3.1}_{-3.3}$	$f_{2000}^{143 \times 217}$	32.3	$33^{+7}_{-7}$
$\Omega_\Lambda$	0.682	$0.649^{+0.076}_{-0.15}$	$r_{\text{drag}}$	148.3	$148.8^{+7.1}_{-7.0}$	$\chi_{\text{small}}^2$	395.79	$396.9 (\nu: 1.4)$
$\Omega_{\text{m}}$	0.318	$0.351^{+0.15}_{-0.076}$	$k_{\text{D}}$	0.13982	$0.1395^{+0.0051}_{-0.0048}$	$\chi_{\text{lowl}}^2$	24.3	$25.0 (\nu: 3.3)$
$\Omega_{\text{m}} h^2$	0.1411	$0.143^{+0.013}_{-0.011}$	$100\theta_{\text{D}}$	0.16082	$0.1608^{+0.0017}_{-0.0017}$	$\chi_{\text{CamSpec}}^2$	7048.9	$7064.2 (\nu: 18.1)$
$\Omega_\nu h^2$	0.00001	< 0.00971	$z_{\text{eq}}$	3424	$3447^{+200}_{-180}$	$\chi_{\text{prior}}^2$	2.1	$7.6 (\nu: 6.1)$
$\Omega_{\text{m}} h^3$	0.0941	$0.092^{+0.016}_{-0.016}$	$k_{\text{eq}}$	0.010371	$0.01040^{+0.00044}_{-0.00040}$	$\chi_{\text{CMB}}^2$	7469.0	$7486.0 (\nu: 18.0)$

Best-fit  $\chi_{\text{eff}}^2 = 7471.08$ ;  $\bar{\chi}_{\text{eff}}^2 = 7493.68$ ;  $R - 1 = 0.00504$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.79 commander\_dx12\_v3.2\_29: 24.32 CamSpec like\_10.7HM: 7048.88



## 9.6 base\_nnu\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02204	$0.02187^{+0.00089}_{-0.0010}$	$S_8$	0.8351	$0.840^{+0.045}_{-0.045}$	$H(0.15)$	71.8	$69.5^{+7.0}_{-8.3}$
$\Omega_c h^2$	0.1176	$0.118^{+0.011}_{-0.0092}$	$\sigma_8 \Omega_m^{0.5}$	0.4574	$0.460^{+0.024}_{-0.024}$	$D_M(0.15)$	651	$677^{+100}_{-70}$
$100\theta_{MC}$	1.04112	$1.0410^{+0.0016}_{-0.0015}$	$\sigma_8 \Omega_m^{0.25}$	0.6103	$0.599^{+0.029}_{-0.045}$	$H(0.38)$	81.9	$80.0^{+6.5}_{-7.1}$
$\tau$	0.0506	$0.051^{+0.022}_{-0.021}$	$\sigma_8/h^{0.5}$	0.998	$0.975^{+0.043}_{-0.081}$	$D_M(0.38)$	1552	$1605^{+200}_{-100}$
$\Sigma m_\nu$ [eV]	0.002	$< 0.773$	$r_{\text{drag}} h$	99.1	$95.4^{+7.4}_{-12}$	$H(0.51)$	88.6	$87.0^{+6.4}_{-6.5}$
$N_{\text{eff}}$	2.88	$2.82^{+0.75}_{-0.68}$	$\langle d^2 \rangle^{1/2}$	2.457	$2.47^{+0.11}_{-0.091}$	$D_M(0.51)$	2010	$2073^{+200}_{-200}$
$\ln(10^{10} A_s)$	3.028	$3.030^{+0.054}_{-0.055}$	$z_{\text{re}}$	7.30	$7.4^{+2.1}_{-2.4}$	$H(0.61)$	94.1	$92.8^{+6.3}_{-6.2}$
$n_s$	0.9579	$0.952^{+0.034}_{-0.037}$	$10^9 A_s$	2.066	$2.07^{+0.12}_{-0.11}$	$D_M(0.61)$	2339	$2407^{+300}_{-200}$
$y_{\text{cal}}$	1.0002	$1.0004^{+0.0064}_{-0.0066}$	$10^9 A_s e^{-2\tau}$	1.867	$1.869^{+0.057}_{-0.058}$	$H(2.33)$	233.8	$234.9^{+9.6}_{-8.5}$
$A_{100}^{\text{PS}}$	237	$240^{+60}_{-70}$	$D_{40}$	1236	$1245^{+54}_{-51}$	$D_M(2.33)$	5833	$5912^{+400}_{-360}$
$A_{143}^{\text{PS}}$	38	$40^{+20}_{-20}$	$D_{220}$	5706	$5700^{+110}_{-110}$	$f\sigma_8(0.15)$	0.4609	$0.462^{+0.021}_{-0.022}$
$A_{217}^{\text{PS}}$	100.5	$102^{+30}_{-40}$	$D_{810}$	2529.6	$2532^{+37}_{-37}$	$\sigma_8(0.15)$	0.752	$0.717^{+0.060}_{-0.11}$
$A_{217}^{\text{CIB}}$	43.8	$40^{+20}_{-20}$	$D_{1420}$	814.3	$815^{+14}_{-14}$	$f\sigma_8(0.38)$	0.4782	$0.472^{+0.021}_{-0.033}$
$A_{143}^{\text{tSZ}}$	5.73	$< 8.81$	$D_{2000}$	230.3	$230.3^{+5.9}_{-5.8}$	$\sigma_8(0.38)$	0.666	$0.633^{+0.058}_{-0.11}$
$r_{143 \times 217}^{\text{PS}}$	0.594	$0.66^{+0.32}_{-0.34}$	$n_{s,0.002}$	0.9579	$0.952^{+0.034}_{-0.037}$	$f\sigma_8(0.51)$	0.4763	$0.467^{+0.023}_{-0.041}$
$r_{143 \times 217}^{\text{CIB}}$	0.70	—	$Y_{\text{P}}$	0.2430	$0.242^{+0.010}_{-0.010}$	$\sigma_8(0.51)$	0.623	$0.591^{+0.056}_{-0.10}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.08	—	$Y_{\text{P}}^{\text{BBN}}$	0.2443	$0.243^{+0.010}_{-0.010}$	$f\sigma_8(0.61)$	0.4709	$0.459^{+0.024}_{-0.047}$
$A^{\text{kSZ}}$	1.4	—	$10^5 D/H$	2.589	$2.60^{+0.18}_{-0.17}$	$\sigma_8(0.61)$	0.592	$0.561^{+0.054}_{-0.098}$
$A_{100}^{\text{dust}}$	1.01	$1.00^{+0.50}_{-0.50}$	Age/Gyr	13.96	$14.15^{+0.95}_{-0.85}$	$f\sigma_8(2.33)$	0.2976	$0.283^{+0.027}_{-0.049}$
$A_{143}^{\text{dust}}$	0.970	$0.97^{+0.46}_{-0.46}$	$z_*$	1089.96	$1090.2^{+1.5}_{-1.3}$	$\sigma_8(2.33)$	0.3071	$0.290^{+0.031}_{-0.055}$
$A_{217}^{\text{dust}}$	0.962	$0.97^{+0.27}_{-0.27}$	$r_*$	146.2	$146.4^{+6.4}_{-6.5}$	$f_{2000}^{143}$	29.9	$30^{+9}_{-9}$
$A_{143 \times 217}^{\text{dust}}$	1.011	$1.03^{+0.41}_{-0.40}$	$100\theta_*$	1.04142	$1.0414^{+0.0019}_{-0.0019}$	$f_{2000}^{217}$	106.6	$106.9^{+6.5}_{-6.4}$
$c_{100}$	0.99757	$0.9975^{+0.0027}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	14.03	$14.06^{+0.60}_{-0.60}$	$f_{2000}^{143 \times 217}$	32.0	$32^{+7}_{-7}$
$c_{217}$	1.00119	$1.0011^{+0.0039}_{-0.0041}$	$z_{\text{drag}}$	1058.87	$1058.5^{+3.0}_{-3.2}$	$\chi_{\text{lensing}}^2$	8.77	$9.2 (\nu: 0.6)$
$H_0$	66.5	$64^{+7}_{-9}$	$r_{\text{drag}}$	149.0	$149.3^{+6.7}_{-6.8}$	$\chi_{\text{small}}^2$	395.68	$396.9 (\nu: 1.4)$
$\Omega_\Lambda$	0.684	$0.649^{+0.063}_{-0.14}$	$k_{\text{D}}$	0.13931	$0.1391^{+0.0050}_{-0.0045}$	$\chi_{\text{lowl}}^2$	24.3	$25.4 (\nu: 3.1)$
$\Omega_{\text{m}}$	0.316	$0.351^{+0.14}_{-0.063}$	$100\theta_{\text{D}}$	0.16068	$0.1606^{+0.0017}_{-0.0016}$	$\chi_{\text{CamSpec}}^2$	7049.2	$7063.1 (\nu: 15.5)$
$\Omega_{\text{m}} h^2$	0.1397	$0.142^{+0.013}_{-0.010}$	$z_{\text{eq}}$	3415	$3459^{+190}_{-160}$	$\chi_{\text{prior}}^2$	2.0	$7.6 (\nu: 6.0)$
$\Omega_\nu h^2$	0.00002	$< 0.00714$	$k_{\text{eq}}$	0.010304	$0.01039^{+0.00043}_{-0.00037}$	$\chi_{\text{CMB}}^2$	7477.9	$7494.7 (\nu: 17.9)$
$\Omega_{\text{m}} h^3$	0.0930	$0.091^{+0.015}_{-0.014}$	$100\theta_{\text{eq}}$	0.8102	$0.802^{+0.031}_{-0.033}$			
$\sigma_8$	0.814	$0.780^{+0.060}_{-0.11}$	$100\theta_{\text{s,eq}}$	0.4480	$0.444^{+0.016}_{-0.017}$			

Best-fit  $\chi_{\text{eff}}^2 = 7479.93$ ;  $\bar{\chi}_{\text{eff}}^2 = 7502.27$ ;  $R - 1 = 0.00874$

$\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.77 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.68 commander\_dx12\_v3.2\_29: 24.30 CamSpec like\_10.7HM: 7049.15



## 9.7 base\_nnu\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02221	$0.02216^{+0.00063}_{-0.00061}$ (+0.7 $\sigma$ )	$\Omega_{\text{m}}h^3$	0.0934	$0.093^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )	$100\theta_{\text{eq}}$	0.8125	$0.811^{+0.020}_{-0.020}$ (+0.5 $\sigma$ )
$\Omega_{\text{c}}h^2$	0.1173	$0.1178^{+0.0093}_{-0.0082}$ (−0.3 $\sigma$ )	$\sigma_8$	0.815	$0.789^{+0.050}_{-0.11}$ (+0.3 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4491	$0.4485^{+0.0099}_{-0.010}$ (+0.5 $\sigma$ )
$100\theta_{\text{MC}}$	1.04115	$1.0411^{+0.0013}_{-0.0013}$ (+0.3 $\sigma$ )	$S_8$	0.8299	$0.823^{+0.047}_{-0.049}$ (−0.5 $\sigma$ )	$H(0.15)$	72.2	$71.2^{+4.9}_{-5.8}$ (+0.4 $\sigma$ )
$\tau$	0.0522	$0.052^{+0.022}_{-0.022}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4546	$0.451^{+0.026}_{-0.027}$ (−0.5 $\sigma$ )	$D_{\text{M}}(0.15)$	647	$659^{+64}_{-46}$ (−0.4 $\sigma$ )
$\Sigma m_{\nu}$ [eV]	0.001	< 0.587 (−0.4 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.6086	$0.596^{+0.032}_{-0.055}$ (+0.0 $\sigma$ )	$H(0.38)$	82.20	$81.4^{+4.7}_{-5.1}$ (+0.4 $\sigma$ )
$N_{\text{eff}}$	2.89	$2.90^{+0.62}_{-0.55}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.996	$0.972^{+0.047}_{-0.094}$ (+0.1 $\sigma$ )	$D_{\text{M}}(0.38)$	1544	$1567^{+130}_{-100}$ (−0.4 $\sigma$ )
$\ln(10^{10}A_{\text{s}})$	3.032	$3.032^{+0.052}_{-0.051}$ (+0.1 $\sigma$ )	$r_{\text{drag}}h$	99.6	$97.8^{+4.7}_{-8.2}$ (+0.5 $\sigma$ )	$H(0.51)$	88.85	$88.2^{+4.7}_{-4.8}$ (+0.3 $\sigma$ )
$n_{\text{s}}$	0.9615	$0.960^{+0.025}_{-0.025}$ (+0.4 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.448	$2.437^{+0.084}_{-0.082}$ (−0.5 $\sigma$ )	$D_{\text{M}}(0.51)$	2000	$2027^{+160}_{-130}$ (−0.4 $\sigma$ )
$y_{\text{cal}}$	1.0005	$1.0005^{+0.0066}_{-0.0067}$ (+0.0 $\sigma$ )	$z_{\text{re}}$	7.43	$7.4^{+2.2}_{-2.4}$ (+0.1 $\sigma$ )	$H(0.61)$	94.42	$93.9^{+4.7}_{-4.6}$ (+0.3 $\sigma$ )
$A_{100}^{\text{PS}}$	227	$237^{+60}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_{\text{s}}$	2.074	$2.07^{+0.11}_{-0.10}$ (+0.1 $\sigma$ )	$D_{\text{M}}(0.61)$	2328	$2357^{+180}_{-140}$ (−0.4 $\sigma$ )
$A_{143}^{\text{PS}}$	44.4	$38^{+20}_{-20}$ (−0.3 $\sigma$ )	$10^9 A_{\text{s}}e^{-2\tau}$	1.868	$1.868^{+0.051}_{-0.051}$ (−0.1 $\sigma$ )	$H(2.33)$	233.8	$234.8^{+8.5}_{-7.7}$ (−0.2 $\sigma$ )
$A_{217}^{\text{PS}}$	105.7	$103^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{40}$	1230.8	$1233^{+42}_{-42}$ (−0.3 $\sigma$ )	$D_{\text{M}}(2.33)$	5818	$5846^{+280}_{-270}$ (−0.3 $\sigma$ )
$A_{217}^{\text{CIB}}$	41.2	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5717	$5717^{+100}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.15)$	0.4584	$0.455^{+0.024}_{-0.027}$ (−0.4 $\sigma$ )
$A_{143}^{\text{tSZ}}$	6.46	< 8.83 (+0.1 $\sigma$ )	$D_{810}$	2534.3	$2533^{+37}_{-37}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.753	$0.727^{+0.047}_{-0.10}$ (+0.3 $\sigma$ )
$r_{143 \times 217}^{\text{PS}}$	0.695	$0.66^{+0.31}_{-0.34}$ (+0.1 $\sigma$ )	$D_{1420}$	817.4	$817^{+13}_{-14}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4767	$0.469^{+0.024}_{-0.038}$ (−0.0 $\sigma$ )
$r_{143 \times 217}^{\text{CIB}}$	0.82	—	$D_{2000}$	231.6	$230.9^{+5.3}_{-5.6}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.667	$0.643^{+0.044}_{-0.096}$ (+0.3 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.58	—	$n_{\text{s},0.002}$	0.9615	$0.960^{+0.025}_{-0.025}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4753	$0.466^{+0.024}_{-0.044}$ (+0.1 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$Y_{\text{P}}$	0.2433	$0.2433^{+0.0083}_{-0.0079}$ (+0.1 $\sigma$ )	$\sigma_8(0.51)$	0.624	$0.602^{+0.042}_{-0.092}$ (+0.3 $\sigma$ )
$A_{100}^{\text{dust}}$	1.00	$1.01^{+0.52}_{-0.51}$ (+0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.2446	$0.2446^{+0.0083}_{-0.0080}$ (+0.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4702	$0.460^{+0.024}_{-0.047}$ (+0.2 $\sigma$ )
$A_{143}^{\text{dust}}$	0.970	$0.96^{+0.45}_{-0.45}$ (−0.1 $\sigma$ )	$10^5 \text{D/H}$	2.563	$2.57^{+0.15}_{-0.14}$ (−0.6 $\sigma$ )	$\sigma_8(0.61)$	0.594	$0.572^{+0.041}_{-0.089}$ (+0.3 $\sigma$ )
$A_{217}^{\text{dust}}$	0.984	$0.98^{+0.27}_{-0.27}$ (+0.0 $\sigma$ )	Age/Gyr	13.93	$13.99^{+0.67}_{-0.63}$ (−0.3 $\sigma$ )	$f\sigma_8(2.33)$	0.2985	$0.289^{+0.020}_{-0.042}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{\text{dust}}$	1.005	$1.02^{+0.41}_{-0.42}$ (−0.0 $\sigma$ )	$z_*$	1089.73	$1089.9^{+1.2}_{-1.0}$ (−0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3082	$0.297^{+0.023}_{-0.048}$ (+0.4 $\sigma$ )
$c_{100}$	0.99775	$0.9975^{+0.0027}_{-0.0028}$ (+0.1 $\sigma$ )	$r_*$	146.0	$145.9^{+5.4}_{-5.6}$ (−0.0 $\sigma$ )	$f_{2000}^{143}$	28.4	$29^{+9}_{-8}$ (−0.4 $\sigma$ )
$c_{217}$	1.00114	$1.0010^{+0.0042}_{-0.0041}$ (−0.1 $\sigma$ )	$100\theta_*$	1.04142	$1.0414^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$f_{2000}^{217}$	105.6	$106.3^{+6.0}_{-5.9}$ (−0.4 $\sigma$ )
$c_{TE}$	0.9954	$0.996^{+0.013}_{-0.013}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.02	$14.01^{+0.50}_{-0.52}$ (−0.0 $\sigma$ )	$f_{2000}^{143 \times 217}$	30.8	$31^{+7}_{-6}$ (−0.4 $\sigma$ )
$c_{EE}$	0.9902	$0.990^{+0.015}_{-0.015}$	$z_{\text{drag}}$	1059.25	$1059.2^{+2.3}_{-2.2}$ (+0.4 $\sigma$ )	$\chi_{\text{simall}}^2$	395.79	$396.9 (\nu: 1.4)$ (−0.0 $\sigma$ )
$H_0$	67.0	$65.8^{+5.1}_{-6.4}$ (+0.4 $\sigma$ )	$r_{\text{drag}}$	148.8	$148.7^{+5.6}_{-5.8}$ (−0.0 $\sigma$ )	$\chi_{\text{lowl}}^2$	23.66	$23.9 (\nu: 1.2)$ (−0.4 $\sigma$ )
$\Omega_{\Lambda}$	0.689	$0.672^{+0.038}_{-0.079}$ (+0.5 $\sigma$ )	$k_{\text{D}}$	0.13956	$0.1396^{+0.0042}_{-0.0039}$ (+0.1 $\sigma$ )	$\chi_{\text{CamSpec}}^2$	11498.0	$11515.4 (\nu: 18.9)$ (+739.4 $\sigma$ )
$\Omega_{\text{m}}$	0.311	$0.328^{+0.079}_{-0.038}$ (−0.5 $\sigma$ )	$100\theta_{\text{D}}$	0.16052	$0.1606^{+0.0014}_{-0.0013}$ (−0.3 $\sigma$ )	$\chi_{\text{prior}}^2$	2.0	$8.0 (\nu: 6.2)$ (+0.1 $\sigma$ )
$\Omega_{\text{m}}h^2$	0.1395	$0.141^{+0.010}_{-0.0089}$ (−0.4 $\sigma$ )	$z_{\text{eq}}$	3404	$3411^{+110}_{-100}$ (−0.5 $\sigma$ )	$\chi_{\text{CMB}}^2$	11917.5	$11936.2 (\nu: 19.2)$ (+742.2 $\sigma$ )
$\Omega_{\nu}h^2$	0.00001	< 0.00594 (−0.4 $\sigma$ )	$k_{\text{eq}}$	0.010283	$0.01031^{+0.00035}_{-0.00032}$ (−0.6 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 11919.53$ ;  $\Delta\chi_{\text{eff}}^2 = 4448.46$ ;  $\bar{\chi}_{\text{eff}}^2 = 11944.15$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 4450.47$ ;  $R - 1 = 0.00883$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.79 ( $\Delta$  0.00) commander\_dx12\_v3.2.29: 23.66 ( $\Delta$  -0.66) CamSpec like\_10.7HM\_1400\_unified: 11498.05



## 9.8 base\_nnu\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02217	$0.02215^{+0.00060}_{-0.00058}$ (+0.8 $\sigma$ )	$\Omega_m h^3$	0.0921	$0.093^{+0.012}_{-0.010}$ (+0.3 $\sigma$ )	$100\theta_{\text{eq}}$	0.8111	$0.810^{+0.019}_{-0.019}$ (+0.6 $\sigma$ )
$\Omega_c h^2$	0.1163	$0.1175^{+0.0089}_{-0.0080}$ (−0.2 $\sigma$ )	$\sigma_8$	0.811	$0.795^{+0.039}_{-0.068}$ (+0.4 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4484	$0.4479^{+0.0094}_{-0.0099}$ (+0.6 $\sigma$ )
$100\theta_{\text{MC}}$	1.04128	$1.0411^{+0.0013}_{-0.0012}$ (+0.3 $\sigma$ )	$S_8$	0.8283	$0.828^{+0.034}_{-0.033}$ (−0.7 $\sigma$ )	$H(0.15)$	71.73	$71.1^{+4.5}_{-5.0}$ (+0.5 $\sigma$ )
$\tau$	0.0509	$0.053^{+0.021}_{-0.020}$ (+0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4537	$0.453^{+0.019}_{-0.018}$ (−0.7 $\sigma$ )	$D_{\text{M}}(0.15)$	651.8	$659^{+54}_{-42}$ (−0.6 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.000	< 0.416 (−0.5 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6065	$0.600^{+0.023}_{-0.031}$ (+0.1 $\sigma$ )	$H(0.38)$	81.72	$81.4^{+4.4}_{-4.6}$ (+0.5 $\sigma$ )
$N_{\text{eff}}$	2.82	$2.87^{+0.59}_{-0.53}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9942	$0.980^{+0.032}_{-0.055}$ (+0.2 $\sigma$ )	$D_{\text{M}}(0.38)$	1554	$1567^{+110}_{-93}$ (−0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0266	$3.034^{+0.050}_{-0.047}$ (+0.2 $\sigma$ )	$r_{\text{drag}} h$	99.4	$98.0^{+4.2}_{-6.8}$ (+0.7 $\sigma$ )	$H(0.51)$	88.36	$88.1^{+4.4}_{-4.3}$ (+0.4 $\sigma$ )
$n_s$	0.9585	$0.958^{+0.024}_{-0.023}$ (+0.5 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.450	$2.447^{+0.068}_{-0.066}$ (−0.6 $\sigma$ )	$D_{\text{M}}(0.51)$	2013	$2028^{+140}_{-110}$ (−0.5 $\sigma$ )
$y_{\text{cal}}$	1.0005	$1.0006^{+0.0066}_{-0.0068}$ (+0.1 $\sigma$ )	$z_{\text{re}}$	7.28	$7.5^{+2.1}_{-2.2}$ (+0.2 $\sigma$ )	$H(0.61)$	93.91	$93.8^{+4.4}_{-4.1}$ (+0.4 $\sigma$ )
$A_{100}^{\text{PS}}$	227	$236^{+60}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.063	$2.08^{+0.11}_{-0.095}$ (+0.2 $\sigma$ )	$D_{\text{M}}(0.61)$	2342	$2358^{+150}_{-130}$ (−0.5 $\sigma$ )
$A_{143}^{\text{PS}}$	45.0	$37^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.863	$1.868^{+0.049}_{-0.050}$ (−0.0 $\sigma$ )	$H(2.33)$	232.9	$234.3^{+8.2}_{-7.5}$ (−0.2 $\sigma$ )
$A_{217}^{\text{PS}}$	105.5	$103^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{40}$	1234.8	$1237^{+40}_{-40}$ (−0.4 $\sigma$ )	$D_{\text{M}}(2.33)$	5848	$5854^{+260}_{-250}$ (−0.4 $\sigma$ )
$A_{217}^{\text{CIB}}$	41.1	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5720	$5719^{+100}_{-100}$ (+0.5 $\sigma$ )	$f\sigma_8(0.15)$	0.4574	$0.457^{+0.017}_{-0.017}$ (−0.6 $\sigma$ )
$A_{143}^{\text{tSZ}}$	6.43	< 8.75 (+0.1 $\sigma$ )	$D_{810}$	2532.9	$2534^{+37}_{-38}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.749	$0.733^{+0.039}_{-0.067}$ (+0.5 $\sigma$ )
$r_{143 \times 217}^{\text{PS}}$	0.713	$0.67^{+0.31}_{-0.34}$ (+0.1 $\sigma$ )	$D_{1420}$	817.6	$817^{+13}_{-14}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4752	$0.472^{+0.017}_{-0.021}$ (+0.0 $\sigma$ )
$r_{143 \times 217}^{\text{CIB}}$	0.83	—	$D_{2000}$	231.9	$231.2^{+5.5}_{-5.6}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.663	$0.649^{+0.037}_{-0.065}$ (+0.5 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.66	—	$n_{\text{s},0.002}$	0.9585	$0.958^{+0.024}_{-0.023}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4735	$0.469^{+0.017}_{-0.024}$ (+0.2 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$Y_{\text{P}}$	0.2423	$0.2429^{+0.0079}_{-0.0078}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6207	$0.607^{+0.036}_{-0.062}$ (+0.5 $\sigma$ )
$A_{100}^{\text{dust}}$	1.01	$1.00^{+0.53}_{-0.50}$ (+0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.2436	$0.2442^{+0.0079}_{-0.0078}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4683	$0.463^{+0.018}_{-0.027}$ (+0.3 $\sigma$ )
$A_{143}^{\text{dust}}$	0.977	$0.95^{+0.45}_{-0.47}$ (−0.1 $\sigma$ )	$10^5 \text{D/H}$	2.546	$2.57^{+0.15}_{-0.14}$ (−0.5 $\sigma$ )	$\sigma_8(0.61)$	0.5905	$0.577^{+0.035}_{-0.060}$ (+0.5 $\sigma$ )
$A_{217}^{\text{dust}}$	0.982	$0.98^{+0.27}_{-0.26}$ (+0.0 $\sigma$ )	Age/Gyr	14.00	$14.01^{+0.60}_{-0.59}$ (−0.4 $\sigma$ )	$f\sigma_8(2.33)$	0.2967	$0.291^{+0.017}_{-0.028}$ (+0.5 $\sigma$ )
$A_{143 \times 217}^{\text{dust}}$	1.005	$1.02^{+0.41}_{-0.43}$ (−0.0 $\sigma$ )	$z_*$	1089.63	$1089.8^{+1.1}_{-1.0}$ (−0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3063	$0.299^{+0.020}_{-0.033}$ (+0.5 $\sigma$ )
$c_{100}$	0.99776	$0.9976^{+0.0028}_{-0.0027}$ (+0.1 $\sigma$ )	$r_*$	146.7	$146.2^{+5.3}_{-5.3}$ (−0.1 $\sigma$ )	$f_{2000}^{143}$	28.1	$28^{+9}_{-8}$ (−0.4 $\sigma$ )
$c_{217}$	1.00115	$1.0010^{+0.0042}_{-0.0040}$ (−0.1 $\sigma$ )	$100\theta_*$	1.04160	$1.0415^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$f_{2000}^{217}$	105.4	$106.0^{+6.1}_{-5.7}$ (−0.3 $\sigma$ )
$c_{TE}$	0.9951	$0.996^{+0.013}_{-0.013}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.085	$14.04^{+0.49}_{-0.50}$ (−0.1 $\sigma$ )	$f_{2000}^{143 \times 217}$	30.6	$31^{+6}_{-6}$ (−0.4 $\sigma$ )
$c_{EE}$	0.9894	$0.990^{+0.014}_{-0.015}$	$z_{\text{drag}}$	1059.02	$1059.1^{+2.2}_{-2.2}$ (+0.5 $\sigma$ )	$\chi_{\text{lensing}}^2$	8.57	9.19 ( $\nu$ : 0.4) (−0.0 $\sigma$ )
$H_0$	66.5	$65.8^{+4.6}_{-5.3}$ (+0.6 $\sigma$ )	$r_{\text{drag}}$	149.5	$149.0^{+5.5}_{-5.6}$ (−0.1 $\sigma$ )	$\chi_{\text{small}}^2$	395.68	$397.0$ ( $\nu$ : 1.5) (+0.0 $\sigma$ )
$\Omega_\Lambda$	0.6869	$0.674^{+0.034}_{-0.064}$ (+0.6 $\sigma$ )	$k_{\text{D}}$	0.13909	$0.1395^{+0.0040}_{-0.0038}$ (+0.2 $\sigma$ )	$\chi_{\text{lowl}}^2$	24.10	$24.2$ ( $\nu$ : 1.1) (−0.5 $\sigma$ )
$\Omega_{\text{m}}$	0.3131	$0.326^{+0.064}_{-0.034}$ (−0.6 $\sigma$ )	$100\theta_{\text{D}}$	0.16036	$0.1605^{+0.0013}_{-0.0013}$ (−0.2 $\sigma$ )	$\chi_{\text{CamSpec}}^2$	11497.8	$11514.2$ ( $\nu$ : 16.6) (+800.5 $\sigma$ )
$\Omega_{\text{m}} h^2$	0.1385	$0.141^{+0.010}_{-0.0086}$ (−0.3 $\sigma$ )	$z_{\text{eq}}$	3412	$3417^{+100}_{-97}$ (−0.6 $\sigma$ )	$\chi_{\text{prior}}^2$	2.1	8.0 ( $\nu$ : 6.1) (+0.1 $\sigma$ )
$\Omega_\nu h^2$	0.00000	< 0.00418 (−0.5 $\sigma$ )	$k_{\text{eq}}$	0.010255	$0.01030^{+0.00033}_{-0.00031}$ (−0.6 $\sigma$ )	$\chi_{\text{CMB}}^2$	11926.1	$11944.6$ ( $\nu$ : 18.9) (+744.0 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 11928.16$ ;  $\Delta\chi_{\text{eff}}^2 = 4448.23$ ;  $\bar{\chi}_{\text{eff}}^2 = 11952.59$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 4450.32$ ;  $R - 1 = 0.01252$

$\chi_{\text{eff}}^2$ : CMB - smicadx12.Dec5.ftl.mv2.ndclpp.p.teb.consext8: 8.57 ( $\Delta$  -0.20) small.100x143\_offlike5.EE.Aplanck.B: 395.68 ( $\Delta$  -0.00) commander.dx12.v3.2.29: 24.10 ( $\Delta$  -0.20) CamSpec like.10.7HM.1400.unified: 11497.75



## 9.9 base\_nnu\_mnu\_plikHM\_TT\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02226^{+0.00061}_{-0.00062}$	$\sigma_8 \Omega_m^{0.5}$	0.4562	$0.451^{+0.025}_{-0.028}$	$D_M(0.15)$	639.9	$636^{+35}_{-33}$
$\Omega_c h^2$	0.1194	$0.120^{+0.010}_{-0.010}$	$\sigma_8 \Omega_m^{0.25}$	0.6122	$0.605^{+0.030}_{-0.037}$	$H(0.38)$	83.07	$83.6^{+4.0}_{-3.9}$
$100\theta_{MC}$	1.04094	$1.0408^{+0.0015}_{-0.0014}$	$\sigma_8/h^{0.5}$	0.9980	$0.983^{+0.040}_{-0.058}$	$D_M(0.38)$	1527	$1519^{+79}_{-75}$
$\tau$	0.0529	$0.054^{+0.023}_{-0.021}$	$r_{drag} h$	99.99	$99.96^{+2.8}_{-2.7}$	$H(0.51)$	89.75	$90.3^{+4.1}_{-4.1}$
$\Sigma m_\nu$ [eV]	0.001	$< 0.242$	$\langle d^2 \rangle^{1/2}$	2.446	$2.425^{+0.081}_{-0.090}$	$D_M(0.51)$	1978	$1968^{+100}_{-95}$
$N_{eff}$	3.03	$3.14^{+0.62}_{-0.60}$	$z_{re}$	7.56	$7.6^{+2.2}_{-2.3}$	$H(0.61)$	95.34	$95.9^{+4.2}_{-4.2}$
$\ln(10^{10} A_s)$	3.040	$3.043^{+0.055}_{-0.053}$	$10^9 A_s$	2.090	$2.10^{+0.12}_{-0.11}$	$D_M(0.61)$	2303	$2290^{+120}_{-110}$
$n_s$	0.9653	$0.969^{+0.023}_{-0.023}$	$10^9 A_s e^{-2\tau}$	1.880	$1.884^{+0.054}_{-0.057}$	$H(2.33)$	235.6	$237.0^{+8.9}_{-8.9}$
$y_{cal}$	1.0005	$1.0006^{+0.0064}_{-0.0063}$	$D_{40}$	1227.9	$1223^{+40}_{-41}$	$D_M(2.33)$	5763	$5730^{+250}_{-230}$
$A_{217}^{CIB}$	49.2	$48^{+20}_{-20}$	$D_{220}$	5716	$5719^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4603	$0.456^{+0.024}_{-0.026}$
$\xi^{tSZ \times CIB}$	0.19	—	$D_{810}$	2536.7	$2537^{+37}_{-36}$	$\sigma_8(0.15)$	0.7594	$0.750^{+0.038}_{-0.048}$
$A_{143}^{tSZ}$	7.2	—	$D_{1420}$	815.7	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4795	$0.475^{+0.023}_{-0.027}$
$A_{100}^{PS}$	254	$265^{+70}_{-70}$	$D_{2000}$	230.2	$229.4^{+5.7}_{-5.7}$	$\sigma_8(0.38)$	0.6733	$0.665^{+0.034}_{-0.043}$
$A_{143}^{PS}$	46.9	$50^{+20}_{-20}$	$n_{s,0.002}$	0.9653	$0.969^{+0.023}_{-0.023}$	$f\sigma_8(0.51)$	0.4783	$0.474^{+0.023}_{-0.027}$
$A_{143 \times 217}^{PS}$	43.2	$44^{+20}_{-20}$	$Y_P$	0.2452	$0.2465^{+0.0080}_{-0.0084}$	$\sigma_8(0.51)$	0.6301	$0.623^{+0.033}_{-0.040}$
$A_{217}^{PS}$	118.1	$115^{+30}_{-30}$	$Y_P^{BBN}$	0.2465	$0.2479^{+0.0081}_{-0.0085}$	$f\sigma_8(0.61)$	0.4735	$0.469^{+0.022}_{-0.027}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.618	$2.64^{+0.18}_{-0.17}$	$\sigma_8(0.61)$	0.5996	$0.593^{+0.031}_{-0.038}$
$A_{100}^{dustTT}$	8.92	$9.0^{+4.7}_{-4.6}$	Age/Gyr	13.80	$13.72^{+0.60}_{-0.56}$	$f\sigma_8(2.33)$	0.3015	$0.299^{+0.015}_{-0.018}$
$A_{143}^{dustTT}$	10.74	$10.8^{+4.6}_{-4.6}$	$z_*$	1090.09	$1090.2^{+1.3}_{-1.3}$	$\sigma_8(2.33)$	0.3114	$0.308^{+0.017}_{-0.020}$
$A_{143 \times 217}^{dustTT}$	19.2	$18.3^{+8.4}_{-8.5}$	$r_*$	144.8	$144.0^{+6.0}_{-5.5}$	$f_{2000}^{143}$	30.2	$32^{+9}_{-9}$
$A_{217}^{dustTT}$	94.4	$93^{+20}_{-20}$	$100\theta_*$	1.04113	$1.0410^{+0.0018}_{-0.0017}$	$f_{2000}^{143 \times 217}$	33.0	$34^{+6}_{-6}$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.91	$13.83^{+0.56}_{-0.52}$	$f_{2000}^{217}$	107.6	$108.4^{+5.8}_{-5.9}$
$c_{217}$	0.99824	$0.9983^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.44	$1059.8^{+2.3}_{-2.3}$	$\chi_{small}^2$	395.86	$397.1 (\nu: 1.7)$
$H_0$	67.78	$68.2^{+3.9}_{-3.7}$	$r_{drag}$	147.5	$146.7^{+6.2}_{-5.7}$	$\chi_{lowl}^2$	23.31	$22.8 (\nu: 0.8)$
$\Omega_\Lambda$	0.6917	$0.691^{+0.021}_{-0.022}$	$k_D$	0.14030	$0.1409^{+0.0043}_{-0.0044}$	$\chi_{plik}^2$	758.4	$773.3 (\nu: 17.5)$
$\Omega_m$	0.3083	$0.309^{+0.022}_{-0.021}$	$100\theta_D$	0.16100	$0.1612^{+0.0015}_{-0.0015}$	$\chi_{6DF}^2$	0.010	$0.057 (\nu: 0.0)$
$\Omega_m h^2$	0.1416	$0.143^{+0.011}_{-0.010}$	$z_{eq}$	3389	$3368^{+84}_{-94}$	$\chi_{MGS}^2$	1.41	$1.47 (\nu: 0.2)$
$\Omega_\nu h^2$	0.00002	$< 0.00260$	$k_{eq}$	0.010336	$0.01034^{+0.00039}_{-0.00039}$	$\chi_{DR12BAO}^2$	3.91	$4.6 (\nu: 1.3)$
$\Omega_m h^3$	0.0960	$0.098^{+0.012}_{-0.011}$	$100\theta_{eq}$	0.8150	$0.819^{+0.018}_{-0.015}$	$\chi_{prior}^2$	1.5	$7.4 (\nu: 6.8)$
$\sigma_8$	0.8216	$0.812^{+0.041}_{-0.052}$	$100\theta_{s,eq}$	0.4504	$0.4525^{+0.0093}_{-0.0079}$	$\chi_{BAO}^2$	5.32	$6.2 (\nu: 0.9)$
$S_8$	0.8329	$0.823^{+0.046}_{-0.051}$	$H(0.15)$	73.02	$73.4^{+3.9}_{-3.7}$	$\chi_{CMB}^2$	1177.6	$1193.2 (\nu: 16.7)$

Best-fit  $\chi_{eff}^2 = 1184.40$ ;  $\bar{\chi}_{eff}^2 = 1206.70$ ;  $R - 1 = 0.00673$

$\chi_{eff}^2$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.91 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2.29: 23.31 plik\_rd12\_HM\_v22.TT: 758.38



## 9.10 base\_nnu\_mnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.02227^{+0.00060}_{-0.00061}$	$\sigma_8 \Omega_m^{0.25}$	0.6119	$0.605^{+0.030}_{-0.036}$	$D_M(0.38)$	1524	$1516^{+76}_{-73}$
$\Omega_c h^2$	0.1195	$0.121^{+0.010}_{-0.0099}$	$\sigma_8/h^{0.5}$	0.9973	$0.983^{+0.039}_{-0.056}$	$H(0.51)$	89.87	$90.4^{+4.0}_{-4.0}$
$100\theta_{MC}$	1.04097	$1.0408^{+0.0015}_{-0.0014}$	$r_{drag}h$	100.11	$100.1^{+2.6}_{-2.5}$	$D_M(0.51)$	1975	$1964^{+98}_{-92}$
$\tau$	0.0530	$0.054^{+0.023}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.444	$2.423^{+0.080}_{-0.089}$	$H(0.61)$	95.46	$96.0^{+4.1}_{-4.1}$
$\Sigma m_\nu$ [eV]	0.002	< 0.237	$z_{re}$	7.57	$7.7^{+2.2}_{-2.4}$	$D_M(0.61)$	2299	$2286^{+110}_{-110}$
$N_{eff}$	3.05	$3.15^{+0.61}_{-0.61}$	$10^9 A_s$	2.091	$2.10^{+0.12}_{-0.11}$	$H(2.33)$	235.8	$237.2^{+8.9}_{-8.9}$
$\ln(10^{10} A_s)$	3.040	$3.044^{+0.055}_{-0.053}$	$10^9 A_s e^{-2\tau}$	1.881	$1.885^{+0.054}_{-0.056}$	$D_M(2.33)$	5756	$5724^{+250}_{-230}$
$n_s$	0.9661	$0.970^{+0.022}_{-0.022}$	$D_{40}$	1226.8	$1222^{+40}_{-40}$	$f\sigma_8(0.15)$	0.4598	$0.455^{+0.024}_{-0.026}$
$y_{cal}$	1.0004	$1.0006^{+0.0063}_{-0.0062}$	$D_{220}$	5717	$5719^{+100}_{-100}$	$\sigma_8(0.15)$	0.7597	$0.751^{+0.038}_{-0.047}$
$A_{217}^{CIB}$	48.8	$48^{+20}_{-20}$	$D_{810}$	2537.1	$2537^{+36}_{-36}$	$f\sigma_8(0.38)$	0.4792	$0.475^{+0.023}_{-0.026}$
$\xi^{tSZ \times CIB}$	0.31	—	$D_{1420}$	815.8	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6737	$0.666^{+0.034}_{-0.042}$
$A_{143}^{tSZ}$	7.0	—	$D_{2000}$	230.2	$229.3^{+5.7}_{-5.8}$	$f\sigma_8(0.51)$	0.4782	$0.474^{+0.022}_{-0.026}$
$A_{100}^{PS}$	254	$265^{+70}_{-70}$	$n_{s,0.002}$	0.9661	$0.970^{+0.022}_{-0.022}$	$\sigma_8(0.51)$	0.6306	$0.624^{+0.032}_{-0.039}$
$A_{143}^{PS}$	49.0	$50^{+20}_{-20}$	$Y_P$	0.2453	$0.2467^{+0.0079}_{-0.0084}$	$f\sigma_8(0.61)$	0.4734	$0.469^{+0.022}_{-0.026}$
$A_{143 \times 217}^{PS}$	46.5	$44^{+20}_{-20}$	$Y_P^{BBN}$	0.2467	$0.2481^{+0.0079}_{-0.0084}$	$\sigma_8(0.61)$	0.6000	$0.594^{+0.031}_{-0.037}$
$A_{217}^{PS}$	119.0	$115^{+30}_{-30}$	$10^5 D/H$	2.616	$2.64^{+0.18}_{-0.17}$	$f\sigma_8(2.33)$	0.3017	$0.300^{+0.015}_{-0.017}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.78	$13.70^{+0.59}_{-0.55}$	$\sigma_8(2.33)$	0.3117	$0.309^{+0.016}_{-0.019}$
$A_{100}^{dustTT}$	8.87	$9.0^{+4.7}_{-4.7}$	$z_*$	1090.08	$1090.2^{+1.3}_{-1.3}$	$f_{2000}^{143}$	30.2	$32^{+9}_{-9}$
$A_{143}^{dustTT}$	10.81	$10.8^{+4.5}_{-4.7}$	$r_*$	144.7	$143.9^{+6.0}_{-5.5}$	$f_{2000}^{143 \times 217}$	33.1	$34^{+6}_{-6}$
$A_{143 \times 217}^{dustTT}$	19.3	$18.3^{+8.3}_{-8.4}$	$100\theta_*$	1.04113	$1.0410^{+0.0019}_{-0.0017}$	$f_{2000}^{217}$	107.6	$108.5^{+5.8}_{-5.9}$
$A_{217}^{dustTT}$	94.4	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.90	$13.82^{+0.55}_{-0.51}$	$\chi_{small}^2$	395.88	$397.1 (\nu: 1.7)$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.51	$1059.8^{+2.2}_{-2.2}$	$\chi_{lowl}^2$	23.21	$22.7 (\nu: 0.7)$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$r_{drag}$	147.4	$146.6^{+6.2}_{-5.7}$	$\chi_{plik}^2$	758.6	$773.4 (\nu: 17.4)$
$H_0$	67.91	$68.3^{+3.7}_{-3.5}$	$k_D$	0.14041	$0.1410^{+0.0043}_{-0.0043}$	$\chi_{JLA}^2$	1034.88	$1035.01 (\nu: 0.1)$
$\Omega_\Lambda$	0.6927	$0.692^{+0.020}_{-0.020}$	$100\theta_D$	0.16101	$0.1613^{+0.0015}_{-0.0015}$	$\chi_{6DF}^2$	0.006	$0.047 (\nu: 0.0)$
$\Omega_m$	0.3073	$0.308^{+0.020}_{-0.020}$	$z_{eq}$	3387	$3365^{+80}_{-91}$	$\chi_{MGS}^2$	1.47	$1.55 (\nu: 0.2)$
$\Omega_m h^2$	0.1417	$0.143^{+0.011}_{-0.010}$	$k_{eq}$	0.010336	$0.01034^{+0.00039}_{-0.00039}$	$\chi_{DR12BAO}^2$	3.78	$4.4 (\nu: 0.9)$
$\Omega_\nu h^2$	0.00002	< 0.00253	$100\theta_{eq}$	0.8156	$0.820^{+0.018}_{-0.015}$	$\chi_{prior}^2$	1.4	$7.3 (\nu: 6.7)$
$\Omega_m h^3$	0.0963	$0.098^{+0.012}_{-0.012}$	$100\theta_{s,eq}$	0.4507	$0.4529^{+0.0089}_{-0.0076}$	$\chi_{BAO}^2$	5.26	$6.0 (\nu: 0.6)$
$\sigma_8$	0.8219	$0.812^{+0.040}_{-0.050}$	$H(0.15)$	73.15	$73.6^{+3.8}_{-3.6}$	$\chi_{CMB}^2$	1177.7	$1193.2 (\nu: 16.6)$
$S_8$	0.8318	$0.822^{+0.045}_{-0.050}$	$D_M(0.15)$	638.7	$635^{+33}_{-32}$			
$\sigma_8 \Omega_m^{0.5}$	0.4556	$0.450^{+0.025}_{-0.027}$	$H(0.38)$	83.19	$83.7^{+3.9}_{-3.8}$			

Best-fit  $\chi_{eff}^2 = 2219.27$ ;  $\bar{\chi}_{eff}^2 = 2241.49$ ;  $R - 1 = 0.00842$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 3.78 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.88 commander\_dx12\_v3.2.29: 23.21 plik\_rd12\_HM\_v22.TT: 758.62  
SN - JLA Pantheon18: 1034.88



### 9.11 base\_nnu\_mnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02217	$0.02221^{+0.00056}_{-0.00057}$	$\sigma_8 \Omega_m^{0.25}$	0.6093	$0.604^{+0.028}_{-0.035}$	$D_M(0.38)$	1531	$1528^{+63}_{-61}$
$\Omega_c h^2$	0.1183	$0.1192^{+0.0083}_{-0.0080}$	$\sigma_8/h^{0.5}$	0.9952	$0.983^{+0.039}_{-0.055}$	$H(0.51)$	89.46	$89.7^{+3.2}_{-3.1}$
$100\theta_{MC}$	1.04110	$1.0410^{+0.0014}_{-0.0013}$	$r_{drag}h$	100.10	$99.8^{+2.7}_{-2.5}$	$D_M(0.51)$	1984	$1980^{+79}_{-77}$
$\tau$	0.0530	$0.053^{+0.022}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.442	$2.428^{+0.079}_{-0.089}$	$H(0.61)$	95.02	$95.3^{+3.3}_{-3.2}$
$\Sigma m_\nu$ [eV]	0.002	< 0.226	$z_{re}$	7.55	$7.6^{+2.1}_{-2.4}$	$D_M(0.61)$	2310	$2304^{+91}_{-88}$
$N_{eff}$	2.981	$3.06^{+0.48}_{-0.46}$	$10^9 A_s$	2.083	$2.09^{+0.11}_{-0.10}$	$H(2.33)$	234.7	$235.9^{+7.1}_{-7.0}$
$\ln(10^{10} A_s)$	3.036	$3.039^{+0.050}_{-0.050}$	$10^9 A_s e^{-2\tau}$	1.8734	$1.878^{+0.046}_{-0.048}$	$D_M(2.33)$	5783	$5763^{+190}_{-190}$
$n_s$	0.9646	$0.967^{+0.019}_{-0.019}$	$D_{40}$	1226.6	$1226^{+38}_{-38}$	$f\sigma_8(0.15)$	0.4579	$0.455^{+0.023}_{-0.026}$
$y_{cal}$	1.0001	$1.0006^{+0.0063}_{-0.0062}$	$D_{220}$	5711	$5720^{+100}_{-100}$	$\sigma_8(0.15)$	0.7563	$0.748^{+0.033}_{-0.046}$
$A_{217}^{CIB}$	48.0	$48^{+20}_{-20}$	$D_{810}$	2534.3	$2536^{+36}_{-36}$	$f\sigma_8(0.38)$	0.4771	$0.474^{+0.022}_{-0.026}$
$\xi^{tSZ \times CIB}$	0.38	—	$D_{1420}$	815.9	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6706	$0.663^{+0.030}_{-0.041}$
$A_{143}^{tSZ}$	7.0	—	$D_{2000}$	230.5	$229.9^{+5.3}_{-5.1}$	$f\sigma_8(0.51)$	0.4761	$0.472^{+0.021}_{-0.025}$
$A_{100}^{PS}$	253	$263^{+70}_{-70}$	$n_{s,0.002}$	0.9646	$0.967^{+0.019}_{-0.019}$	$\sigma_8(0.51)$	0.6276	$0.620^{+0.028}_{-0.038}$
$A_{143}^{PS}$	48.8	$49^{+20}_{-20}$	$Y_P$	0.2444	$0.2454^{+0.0063}_{-0.0065}$	$f\sigma_8(0.61)$	0.4714	$0.468^{+0.020}_{-0.025}$
$A_{143 \times 217}^{PS}$	47.3	$43^{+20}_{-20}$	$Y_P^{BBN}$	0.2458	$0.2468^{+0.0064}_{-0.0065}$	$\sigma_8(0.61)$	0.5973	$0.590^{+0.027}_{-0.036}$
$A_{217}^{PS}$	119.3	$115^{+30}_{-30}$	$10^5 D/H$	2.601	$2.62^{+0.15}_{-0.15}$	$f\sigma_8(2.33)$	0.3003	$0.298^{+0.013}_{-0.017}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.845	$13.80^{+0.46}_{-0.45}$	$\sigma_8(2.33)$	0.3102	$0.307^{+0.014}_{-0.019}$
$A_{100}^{dustTT}$	8.87	$9.0^{+4.7}_{-4.7}$	$z_*$	1089.95	$1090.1^{+1.1}_{-1.1}$	$f_{2000}^{143}$	29.6	$31^{+8}_{-8}$
$A_{143}^{dustTT}$	10.77	$10.7^{+4.5}_{-4.7}$	$r_*$	145.36	$144.8^{+4.6}_{-4.4}$	$f_{2000}^{143 \times 217}$	32.6	$33^{+6}_{-6}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.3^{+8.3}_{-8.3}$	$100\theta_*$	1.04131	$1.0412^{+0.0016}_{-0.0015}$	$f_{2000}^{217}$	107.1	$108.0^{+5.5}_{-5.5}$
$A_{217}^{dustTT}$	94.6	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.959	$13.90^{+0.43}_{-0.41}$	$\chi_{small}^2$	395.85	$397.0 (\nu: 1.6)$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0015}$	$z_{drag}$	1059.28	$1059.5^{+1.9}_{-1.9}$	$\chi_{lowl}^2$	23.32	$23.1 (\nu: 0.7)$
$c_{217}$	0.99825	$0.9983^{+0.0017}_{-0.0016}$	$r_{drag}$	148.10	$147.5^{+4.8}_{-4.6}$	$\chi_{plik}^2$	758.7	$772.5 (\nu: 16.4)$
$H_0$	67.59	$67.7^{+3.1}_{-2.9}$	$k_D$	0.13990	$0.1403^{+0.0035}_{-0.0034}$	$\chi_{Aver15}^2$	0.05	$0.60 (\nu: 0.3)$
$\Omega_\Lambda$	0.6924	$0.690^{+0.020}_{-0.021}$	$100\theta_D$	0.16087	$0.1611^{+0.0013}_{-0.0012}$	$\chi_{6DF}^2$	0.006	$0.061 (\nu: 0.0)$
$\Omega_m$	0.3076	$0.310^{+0.021}_{-0.020}$	$z_{eq}$	3387	$3374^{+80}_{-88}$	$\chi_{MGS}^2$	1.47	$1.39 (\nu: 0.2)$
$\Omega_m h^2$	0.1405	$0.1420^{+0.0085}_{-0.0083}$	$k_{eq}$	0.010291	$0.01030^{+0.00034}_{-0.00034}$	$\chi_{DR12BAO}^2$	3.76	$4.8 (\nu: 1.4)$
$\Omega_\nu h^2$	0.00002	< 0.00242	$100\theta_{eq}$	0.8155	$0.818^{+0.017}_{-0.015}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.7)$
$\Omega_m h^3$	0.0950	$0.0962^{+0.0094}_{-0.0088}$	$100\theta_{s,eq}$	0.4507	$0.4520^{+0.0085}_{-0.0076}$	$\chi_{BAO}^2$	5.24	$6.2 (\nu: 1.0)$
$\sigma_8$	0.8182	$0.809^{+0.036}_{-0.049}$	$H(0.15)$	72.81	$73.0^{+3.1}_{-2.9}$	$\chi_{CMB}^2$	1177.9	$1192.6 (\nu: 15.9)$
$S_8$	0.8284	$0.822^{+0.045}_{-0.050}$	$D_M(0.15)$	641.7	$641^{+28}_{-27}$			
$\sigma_8 \Omega_m^{0.5}$	0.4537	$0.450^{+0.025}_{-0.028}$	$H(0.38)$	82.81	$83.0^{+3.1}_{-3.0}$			

Best-fit  $\chi_{eff}^2 = 1184.46$ ;  $\bar{\chi}_{eff}^2 = 1206.76$ ;  $R - 1 = 0.00900$   
 $\chi_{eff}^2$ : Abund - Yp\_Aver2015: 0.05 BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 3.76 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 commander\_dx12\_v3.2.29: 23.32  
plik\_rd12\_HM\_v22\_TT: 758.69



## 9.12 base\_nnu\_mnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02221^{+0.00055}_{-0.00057}$	$\sigma_8 \Omega_m^{0.25}$	0.6113	$0.604^{+0.028}_{-0.035}$	$D_M(0.38)$	1530	$1528^{+61}_{-59}$
$\Omega_c h^2$	0.1189	$0.1191^{+0.0076}_{-0.0074}$	$\sigma_8/h^{0.5}$	0.9974	$0.983^{+0.038}_{-0.055}$	$H(0.51)$	89.58	$89.7^{+3.0}_{-2.9}$
$100\theta_{MC}$	1.04103	$1.0410^{+0.0013}_{-0.0012}$	$r_{drag}h$	99.99	$99.8^{+2.7}_{-2.5}$	$D_M(0.51)$	1982	$1980^{+76}_{-74}$
$\tau$	0.0535	$0.053^{+0.022}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.446	$2.428^{+0.079}_{-0.090}$	$H(0.61)$	95.16	$95.3^{+3.1}_{-3.0}$
$\Sigma m_\nu$ [eV]	0.004	< 0.225	$z_{re}$	7.60	$7.6^{+2.2}_{-2.4}$	$D_M(0.61)$	2307	$2304^{+86}_{-84}$
$N_{eff}$	3.005	$3.06^{+0.44}_{-0.42}$	$10^9 A_s$	2.089	$2.09^{+0.11}_{-0.10}$	$H(2.33)$	235.2	$235.8^{+6.5}_{-6.5}$
$\ln(10^{10} A_s)$	3.0393	$3.040^{+0.050}_{-0.049}$	$10^9 A_s e^{-2\tau}$	1.8772	$1.878^{+0.044}_{-0.045}$	$D_M(2.33)$	5774	$5763^{+180}_{-180}$
$n_s$	0.9649	$0.967^{+0.019}_{-0.018}$	$D_{40}$	1227.7	$1226^{+37}_{-38}$	$f\sigma_8(0.15)$	0.4597	$0.455^{+0.023}_{-0.025}$
$y_{cal}$	1.0005	$1.0006^{+0.0063}_{-0.0062}$	$D_{220}$	5715	$5720^{+100}_{-100}$	$\sigma_8(0.15)$	0.7582	$0.748^{+0.032}_{-0.045}$
$A_{217}^{CIB}$	48.9	$48^{+20}_{-20}$	$D_{810}$	2536.3	$2536^{+36}_{-36}$	$f\sigma_8(0.38)$	0.4788	$0.474^{+0.021}_{-0.026}$
$\xi^{tSZ \times CIB}$	0.28	—	$D_{1420}$	816.1	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6722	$0.663^{+0.029}_{-0.040}$
$A_{143}^{tSZ}$	7.0	—	$D_{2000}$	230.52	$229.9^{+4.9}_{-4.7}$	$f\sigma_8(0.51)$	0.4776	$0.473^{+0.021}_{-0.025}$
$A_{100}^{PS}$	254	$263^{+70}_{-70}$	$n_{s,0.002}$	0.9649	$0.967^{+0.019}_{-0.018}$	$\sigma_8(0.51)$	0.6291	$0.621^{+0.027}_{-0.038}$
$A_{143}^{PS}$	47.6	$49^{+20}_{-20}$	$Y_P$	0.2448	$0.2454^{+0.0058}_{-0.0058}$	$f\sigma_8(0.61)$	0.4728	$0.468^{+0.020}_{-0.025}$
$A_{143 \times 217}^{PS}$	44.9	$43^{+20}_{-20}$	$Y_P^{BBN}$	0.2461	$0.2467^{+0.0058}_{-0.0058}$	$\sigma_8(0.61)$	0.5987	$0.590^{+0.026}_{-0.036}$
$A_{217}^{PS}$	118.3	$115^{+30}_{-30}$	$10^5 D/H$	2.607	$2.62^{+0.13}_{-0.13}$	$f\sigma_8(2.33)$	0.3010	$0.298^{+0.013}_{-0.016}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.823	$13.80^{+0.43}_{-0.42}$	$\sigma_8(2.33)$	0.3109	$0.307^{+0.014}_{-0.018}$
$A_{100}^{dustTT}$	8.89	$9.0^{+4.7}_{-4.7}$	$z_*$	1090.01	$1090.05^{+0.95}_{-0.97}$	$f_{2000}^{143}$	29.8	$31^{+8}_{-8}$
$A_{143}^{dustTT}$	10.79	$10.7^{+4.5}_{-4.7}$	$r_*$	145.08	$144.8^{+4.2}_{-4.1}$	$f_{2000}^{143 \times 217}$	32.8	$33^{+6}_{-6}$
$A_{143 \times 217}^{dustTT}$	19.2	$18.3^{+8.2}_{-8.3}$	$100\theta_*$	1.04123	$1.0412^{+0.0015}_{-0.0014}$	$f_{2000}^{217}$	107.3	$108.0^{+5.1}_{-5.3}$
$A_{217}^{dustTT}$	94.4	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.933	$13.90^{+0.39}_{-0.38}$	$\chi_{small}^2$	395.94	$397.0 (\nu: 1.6)$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0015}$	$z_{drag}$	1059.40	$1059.5^{+1.8}_{-1.9}$	$\chi_{lowl}^2$	23.33	$23.1 (\nu: 0.7)$
$c_{217}$	0.99825	$0.9983^{+0.0017}_{-0.0016}$	$r_{drag}$	147.81	$147.5^{+4.4}_{-4.3}$	$\chi_{plik}^2$	758.4	$772.3 (\nu: 16.0)$
$H_0$	67.65	$67.7^{+3.0}_{-2.9}$	$k_D$	0.14012	$0.1403^{+0.0033}_{-0.0032}$	$\chi_{Aver15}^2$	0.09	$0.54 (\nu: 0.2)$
$\Omega_\Lambda$	0.6917	$0.690^{+0.020}_{-0.021}$	$100\theta_D$	0.16092	$0.1610^{+0.0011}_{-0.0011}$	$\chi_{Cooke17}^2$	0.01	$0.28 (\nu: 0.1)$
$\Omega_m$	0.3083	$0.310^{+0.021}_{-0.020}$	$z_{eq}$	3390	$3374^{+80}_{-87}$	$\chi_{6DF}^2$	0.010	$0.061 (\nu: 0.0)$
$\Omega_m h^2$	0.1411	$0.1420^{+0.0079}_{-0.0077}$	$k_{eq}$	0.010317	$0.01030^{+0.00032}_{-0.00033}$	$\chi_{MGS}^2$	1.41	$1.39 (\nu: 0.2)$
$\Omega_\nu h^2$	0.00004	< 0.00242	$100\theta_{eq}$	0.8150	$0.818^{+0.017}_{-0.015}$	$\chi_{DR12BAO}^2$	3.89	$4.8 (\nu: 1.4)$
$\Omega_m h^3$	0.0955	$0.0961^{+0.0088}_{-0.0081}$	$100\theta_{s,eq}$	0.4504	$0.4520^{+0.0085}_{-0.0076}$	$\chi_{prior}^2$	1.4	$7.3 (\nu: 6.7)$
$\sigma_8$	0.8203	$0.809^{+0.035}_{-0.049}$	$H(0.15)$	72.88	$73.0^{+3.0}_{-2.8}$	$\chi_{BAO}^2$	5.31	$6.2 (\nu: 0.9)$
$S_8$	0.8316	$0.822^{+0.044}_{-0.050}$	$D_M(0.15)$	641.1	$641^{+27}_{-26}$	$\chi_{CMB}^2$	1177.7	$1192.4 (\nu: 15.5)$
$\sigma_8 \Omega_m^{0.5}$	0.4555	$0.450^{+0.024}_{-0.027}$	$H(0.38)$	82.91	$83.0^{+3.0}_{-2.9}$	$\chi_{Abund}^2$	0.10	$0.82 (\nu: 0.4)$

Best-fit  $\chi_{eff}^2 = 1184.51$ ;  $\bar{\chi}_{eff}^2 = 1206.75$ ;  $R - 1 = 0.01022$   
 $\chi_{eff}^2$ : Abund - Yp\_Aver2015: 0.09 D\_Cooke2017: 0.01 BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.89 CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.94 comman-  
der\_dx12.v3.2.29: 23.33 plik\_rd12\_HM.v22\_TT: 758.40



### 9.13 base\_nnu\_mnu\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02228^{+0.00061}_{-0.00061}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.029}_{-0.036}$	$D_{\mathrm{M}}(0.38)$	$1515^{+76}_{-73}$
$\Omega_{\mathrm{c}}h^2$	$0.121^{+0.010}_{-0.0098}$	$\sigma_8/h^{0.5}$	$0.984^{+0.038}_{-0.057}$	$H(0.51)$	$90.4^{+4.0}_{-3.9}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0015}_{-0.0014}$	$r_{\mathrm{drag}}h$	$100.1^{+2.6}_{-2.5}$	$D_{\mathrm{M}}(0.51)$	$1963^{+97}_{-92}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.426^{+0.079}_{-0.088}$	$H(0.61)$	$96.1^{+4.1}_{-4.1}$
$\Sigma m_{\nu}$ [eV]	$< 0.240$	$z_{\mathrm{re}}$	$< 9.66$	$D_{\mathrm{M}}(0.61)$	$2285^{+110}_{-100}$
$N_{\mathrm{eff}}$	$3.16^{+0.61}_{-0.60}$	$10^9 A_{\mathrm{s}}$	$2.11^{+0.11}_{-0.087}$	$H(2.33)$	$237.2^{+8.9}_{-8.9}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.052}_{-0.042}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.885^{+0.053}_{-0.056}$	$D_{\mathrm{M}}(2.33)$	$5721^{+250}_{-230}$
$n_{\mathrm{s}}$	$0.970^{+0.022}_{-0.022}$	$D_{40}$	$1222^{+40}_{-40}$	$f\sigma_8(0.15)$	$0.456^{+0.024}_{-0.026}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0062}$	$D_{220}$	$5719^{+100}_{-100}$	$\sigma_8(0.15)$	$0.752^{+0.037}_{-0.047}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+36}_{-36}$	$f\sigma_8(0.38)$	$0.475^{+0.023}_{-0.027}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.667^{+0.033}_{-0.043}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.4^{+5.7}_{-5.8}$	$f\sigma_8(0.51)$	$0.474^{+0.022}_{-0.026}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.970^{+0.022}_{-0.022}$	$\sigma_8(0.51)$	$0.625^{+0.032}_{-0.040}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2468^{+0.0079}_{-0.0084}$	$f\sigma_8(0.61)$	$0.470^{+0.022}_{-0.026}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2481^{+0.0079}_{-0.0084}$	$\sigma_8(0.61)$	$0.594^{+0.030}_{-0.038}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.64^{+0.18}_{-0.17}$	$f\sigma_8(2.33)$	$0.300^{+0.015}_{-0.017}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.70^{+0.59}_{-0.54}$	$\sigma_8(2.33)$	$0.309^{+0.016}_{-0.019}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.7}_{-4.7}$	$z_{*}$	$1090.2^{+1.3}_{-1.3}$	$f_{2000}^{143}$	$32^{+9}_{-9}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.6}_{-4.7}$	$r_{*}$	$143.8^{+5.9}_{-5.5}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.4}_{-8.4}$	$100\theta_{*}$	$1.0410^{+0.0019}_{-0.0017}$	$f_{2000}^{217}$	$108.5^{+5.8}_{-5.9}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.82^{+0.54}_{-0.51}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.7)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.9^{+2.2}_{-2.3}$	$\chi_{\mathrm{lowl}}^2$	$22.7 (\nu: 0.7)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.5^{+6.1}_{-5.6}$	$\chi_{\mathrm{plik}}^2$	$773.2 (\nu: 17.2)$
$H_0$	$68.4^{+3.7}_{-3.6}$	$k_{\mathrm{D}}$	$0.1410^{+0.0042}_{-0.0043}$	$\chi_{\mathrm{JLA}}^2$	$1035.00 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.693^{+0.020}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.1613^{+0.0015}_{-0.0015}$	$\chi_{6\mathrm{DF}}^2$	$0.046 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.307^{+0.020}_{-0.020}$	$z_{\mathrm{eq}}$	$3364^{+80}_{-90}$	$\chi_{\mathrm{MGS}}^2$	$1.56 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.144^{+0.011}_{-0.010}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00039}_{-0.00038}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 0.9)$
$\Omega_{\nu}h^2$	$< 0.00257$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.017}_{-0.015}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.7)$
$\Omega_{\mathrm{m}}h^3$	$0.098^{+0.012}_{-0.011}$	$100\theta_{\mathrm{s,eq}}$	$0.4529^{+0.0089}_{-0.0076}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.6)$
$\sigma_8$	$0.814^{+0.040}_{-0.051}$	$H(0.15)$	$73.6^{+3.7}_{-3.6}$	$\chi_{\mathrm{CMB}}^2$	$1192.9 (\nu: 16.2)$
$S_8$	$0.823^{+0.045}_{-0.050}$	$D_{\mathrm{M}}(0.15)$	$635^{+33}_{-32}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.025}_{-0.028}$	$H(0.38)$	$83.7^{+3.9}_{-3.8}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2241.24; R - 1 = 0.00999$$



## 9.14 base\_nnu\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022344	$0.02237^{+0.00049}_{-0.00046}$ (+0.5 $\sigma$ )	$\Omega_\nu h^2$	0.00000	< 0.00185 (−0.3 $\sigma$ )	$100\theta_{s,eq}$	0.4497	$0.4503^{+0.0064}_{-0.0064}$ (−0.7 $\sigma$ )
$\Omega_c h^2$	0.1178	$0.1184^{+0.0079}_{-0.0077}$ (−0.5 $\sigma$ )	$\Omega_m h^3$	0.0945	$0.0953^{+0.0096}_{-0.0088}$ (−0.6 $\sigma$ )	$H(0.15)$	72.64	$72.7^{+3.2}_{-3.0}$ (−0.5 $\sigma$ )
$100\theta_{MC}$	1.04122	$1.0411^{+0.0011}_{-0.0011}$ (+0.5 $\sigma$ )	$\sigma_8$	0.8179	$0.811^{+0.033}_{-0.039}$ (−0.0 $\sigma$ )	$D_M(0.15)$	643.2	$643^{+28}_{-28}$ (+0.5 $\sigma$ )
$\tau$	0.0545	$0.055^{+0.022}_{-0.020}$ (+0.2 $\sigma$ )	$S_8$	0.8290	$0.826^{+0.036}_{-0.036}$ (+0.1 $\sigma$ )	$H(0.38)$	82.64	$82.7^{+3.2}_{-3.1}$ (−0.5 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.000	< 0.175 (−0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4541	$0.452^{+0.020}_{-0.020}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1535	$1534^{+64}_{-64}$ (+0.5 $\sigma$ )
$N_{eff}$	2.935	$2.98^{+0.48}_{-0.45}$ (−0.7 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6094	$0.606^{+0.023}_{-0.027}$ (+0.1 $\sigma$ )	$H(0.51)$	89.28	$89.4^{+3.3}_{-3.2}$ (−0.6 $\sigma$ )
$\ln(10^{10} A_s)$	3.0394	$3.042^{+0.049}_{-0.048}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9961	$0.988^{+0.031}_{-0.040}$ (+0.3 $\sigma$ )	$D_M(0.51)$	1989	$1988^{+81}_{-81}$ (+0.5 $\sigma$ )
$n_s$	0.9629	$0.964^{+0.019}_{-0.018}$ (−0.6 $\sigma$ )	$r_{drag} h$	99.99	$99.7^{+2.4}_{-2.3}$ (−0.3 $\sigma$ )	$H(0.61)$	94.84	$95.0^{+3.4}_{-3.2}$ (−0.6 $\sigma$ )
$y_{cal}$	1.0006	$1.0006^{+0.0066}_{-0.0064}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.450	$2.441^{+0.067}_{-0.070}$ (+0.5 $\sigma$ )	$D_M(0.61)$	2314	$2313^{+93}_{-92}$ (+0.5 $\sigma$ )
$A_{217}^{CIB}$	46.9	$46^{+20}_{-20}$ (−0.3 $\sigma$ )	$z_{re}$	7.65	$7.7^{+2.1}_{-2.1}$ (+0.1 $\sigma$ )	$H(2.33)$	234.4	$235.2^{+7.1}_{-6.9}$ (−0.5 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.43	—	$10^9 A_s$	2.089	$2.09^{+0.10}_{-0.098}$ (−0.1 $\sigma$ )	$D_M(2.33)$	5793	$5782^{+200}_{-200}$ (+0.6 $\sigma$ )
$A_{143}^{tSZ}$	7.2	—	$10^9 A_s e^{-2\tau}$	1.8735	$1.876^{+0.045}_{-0.045}$ (−0.4 $\sigma$ )	$f\sigma_8(0.15)$	0.4582	$0.457^{+0.019}_{-0.019}$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	248	$257^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{40}$	1232.7	$1231^{+34}_{-36}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.7560	$0.750^{+0.031}_{-0.037}$ (−0.0 $\sigma$ )
$A_{143}^{PS}$	45.5	$45^{+20}_{-20}$ (−0.6 $\sigma$ )	$D_{220}$	5737	$5736^{+99}_{-95}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4773	$0.475^{+0.018}_{-0.019}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{PS}$	46.0	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{810}$	2538.3	$2538^{+36}_{-34}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6703	$0.665^{+0.028}_{-0.033}$ (−0.1 $\sigma$ )
$A_{217}^{PS}$	118.9	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{1420}$	818.6	$818^{+13}_{-12}$ (+0.6 $\sigma$ )	$f\sigma_8(0.51)$	0.4762	$0.474^{+0.018}_{-0.019}$ (+0.0 $\sigma$ )
$A^{kSZ}$	0.0	—	$D_{2000}$	231.94	$231.4^{+4.8}_{-4.6}$ (+0.9 $\sigma$ )	$\sigma_8(0.51)$	0.6273	$0.622^{+0.027}_{-0.031}$ (−0.1 $\sigma$ )
$A_{100}^{dustTT}$	8.81	$8.9^{+4.7}_{-4.7}$ (−0.1 $\sigma$ )	$n_{s,0.002}$	0.9629	$0.964^{+0.019}_{-0.018}$ (−0.6 $\sigma$ )	$f\sigma_8(0.61)$	0.4714	$0.469^{+0.017}_{-0.019}$ (−0.0 $\sigma$ )
$A_{143}^{dustTT}$	10.98	$10.8^{+4.6}_{-4.6}$ (+0.0 $\sigma$ )	$Y_P$	0.2439	$0.2445^{+0.0064}_{-0.0064}$ (−0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5969	$0.592^{+0.026}_{-0.030}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.6	$18.6^{+8.5}_{-8.6}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.2452	$0.2458^{+0.0064}_{-0.0065}$ (−0.6 $\sigma$ )	$f\sigma_8(2.33)$	0.3001	$0.298^{+0.013}_{-0.014}$ (−0.1 $\sigma$ )
$A_{217}^{dustTT}$	94.9	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.552	$2.56^{+0.11}_{-0.12}$ (−1.1 $\sigma$ )	$\sigma_8(2.33)$	0.3100	$0.308^{+0.014}_{-0.016}$ (−0.1 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.099}_{-0.095}$	Age/Gyr	13.870	$13.84^{+0.47}_{-0.46}$ (+0.6 $\sigma$ )	$f_{2000}^{143}$	28.0	$29^{+8}_{-7}$ (−0.8 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.134^{+0.076}_{-0.075}$	$z_*$	1089.64	$1089.72^{+0.87}_{-0.89}$ (−1.0 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.3	$32^{+5}_{-5}$ (−0.9 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.481	$0.48^{+0.21}_{-0.21}$	$r_*$	145.60	$145.2^{+4.6}_{-4.5}$ (+0.5 $\sigma$ )	$f_{2000}^{217}$	106.0	$106.5^{+5.1}_{-5.1}$ (−0.8 $\sigma$ )
$A_{143}^{dustTE}$	0.224	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04145	$1.0413^{+0.0014}_{-0.0013}$ (+0.5 $\sigma$ )	$\chi_{small}^2$	396.06	$397.2$ ( $\nu$ : 2.1) (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.664	$0.66^{+0.21}_{-0.21}$	$D_M(z_*)/\text{Gpc}$	13.981	$13.94^{+0.43}_{-0.42}$ (+0.5 $\sigma$ )	$\chi_{lowl}^2$	23.72	$23.6$ ( $\nu$ : 0.7) (+0.6 $\sigma$ )
$A_{217}^{dustTE}$	2.09	$2.08^{+0.68}_{-0.68}$	$z_{drag}$	1059.63	$1059.8^{+1.8}_{-1.8}$ (−0.0 $\sigma$ )	$\chi_{plik}^2$	2342.8	$2359.7$ ( $\nu$ : 19.6) (+267.9 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{drag}$	148.29	$147.9^{+4.8}_{-4.7}$ (+0.5 $\sigma$ )	$\chi_{6DF}^2$	0.010	$0.062$ ( $\nu$ : 0.0) (+0.1 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$k_D$	0.14001	$0.1403^{+0.0035}_{-0.0034}$ (−0.3 $\sigma$ )	$\chi_{MGS}^2$	1.41	$1.29$ ( $\nu$ : 0.1) (−0.3 $\sigma$ )
$H_0$	67.43	$67.4^{+3.2}_{-3.0}$ (−0.5 $\sigma$ )	$100\theta_D$	0.16049	$0.1606^{+0.0010}_{-0.0011}$ (−1.1 $\sigma$ )	$\chi_{DR12BAO}^2$	3.91	$4.9$ ( $\nu$ : 1.3) (+0.1 $\sigma$ )
$\Omega_\Lambda$	0.6918	$0.689^{+0.018}_{-0.020}$ (−0.3 $\sigma$ )	$z_{eq}$	3399	$3393^{+69}_{-65}$ (+0.7 $\sigma$ )	$\chi_{prior}^2$	1.8	$11.5$ ( $\nu$ : 10.2) (+1.1 $\sigma$ )
$\Omega_m$	0.3082	$0.311^{+0.020}_{-0.018}$ (+0.3 $\sigma$ )	$k_{eq}$	0.010296	$0.01031^{+0.00031}_{-0.00030}$ (−0.2 $\sigma$ )	$\chi_{BAO}^2$	5.33	$6.2$ ( $\nu$ : 0.9) (+0.0 $\sigma$ )
$\Omega_m h^2$	0.1401	$0.1413^{+0.0085}_{-0.0081}$ (−0.5 $\sigma$ )	$100\theta_{eq}$	0.8139	$0.815^{+0.013}_{-0.013}$ (−0.6 $\sigma$ )	$\chi_{CMB}^2$	2762.6	$2780.5$ ( $\nu$ : 18.6) (+274.6 $\sigma$ )

Best-fit  $\chi_{eff}^2 = 2769.67$ ;  $\Delta\chi_{eff}^2 = 1585.27$ ;  $\bar{\chi}_{eff}^2 = 2798.17$ ;  $\Delta\bar{\chi}_{eff}^2 = 1591.47$ ;  $R - 1 = 0.00732$

$\chi_{eff}^2$ : BAO - 6DF: 0.01 ( $\Delta$  0.00) MGS: 1.41 ( $\Delta$  0.00) DR12BAO: 3.91 ( $\Delta$  0.01) CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 396.06 ( $\Delta$  0.19) commander\_dx12\_v3\_2\_29: 23.72 ( $\Delta$  0.40) plik\_rd12\_HM\_v22b\_TTTEEE: 2342.81



### 9.15 base\_nnu\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022340	$0.02239^{+0.00048}_{-0.00045}$ (+0.5 $\sigma$ )	$\Omega_m h^3$	0.0945	$0.0955^{+0.0096}_{-0.0088}$ (−0.6 $\sigma$ )	$D_M(0.15)$	643.0	$642^{+28}_{-27}$ (+0.6 $\sigma$ )
$\Omega_c h^2$	0.1178	$0.1185^{+0.0080}_{-0.0077}$ (−0.5 $\sigma$ )	$\sigma_8$	0.8170	$0.812^{+0.033}_{-0.038}$ (−0.0 $\sigma$ )	$H(0.38)$	82.66	$82.9^{+3.1}_{-3.0}$ (−0.6 $\sigma$ )
$100\theta_{MC}$	1.04120	$1.0411^{+0.0011}_{-0.0011}$ (+0.5 $\sigma$ )	$S_8$	0.8281	$0.825^{+0.035}_{-0.036}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1534	$1532^{+62}_{-61}$ (+0.6 $\sigma$ )
$\tau$	0.0531	$0.055^{+0.022}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4536	$0.452^{+0.019}_{-0.020}$ (+0.1 $\sigma$ )	$H(0.51)$	89.30	$89.5^{+3.3}_{-3.1}$ (−0.6 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.001	< 0.165 (−0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6088	$0.606^{+0.023}_{-0.027}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1988	$1984^{+79}_{-77}$ (+0.6 $\sigma$ )
$N_{\text{eff}}$	2.939	$3.00^{+0.48}_{-0.45}$ (−0.7 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9949	$0.988^{+0.031}_{-0.040}$ (+0.3 $\sigma$ )	$H(0.61)$	94.87	$95.1^{+3.4}_{-3.2}$ (−0.6 $\sigma$ )
$\ln(10^{10} A_s)$	3.0367	$3.042^{+0.049}_{-0.047}$ (−0.1 $\sigma$ )	$r_{\text{drag}} h$	99.99	$99.8^{+2.2}_{-2.2}$ (−0.3 $\sigma$ )	$D_M(0.61)$	2314	$2309^{+90}_{-89}$ (+0.6 $\sigma$ )
$n_s$	0.9633	$0.965^{+0.019}_{-0.018}$ (−0.6 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.446	$2.439^{+0.066}_{-0.071}$ (+0.5 $\sigma$ )	$H(2.33)$	234.4	$235.3^{+7.1}_{-6.9}$ (−0.5 $\sigma$ )
$y_{\text{cal}}$	1.0004	$1.0006^{+0.0066}_{-0.0063}$ (+0.0 $\sigma$ )	$z_{\text{re}}$	7.51	$7.7^{+2.1}_{-2.1}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5792	$5776^{+200}_{-190}$ (+0.6 $\sigma$ )
$A_{217}^{\text{CIB}}$	46.0	$46^{+20}_{-20}$ (−0.3 $\sigma$ )	$10^9 A_s$	2.084	$2.10^{+0.11}_{-0.096}$ (−0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4577	$0.456^{+0.018}_{-0.019}$ (+0.1 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.55	—	$10^9 A_s e^{-2\tau}$	1.8736	$1.876^{+0.045}_{-0.045}$ (−0.4 $\sigma$ )	$\sigma_8(0.15)$	0.7552	$0.750^{+0.031}_{-0.036}$ (−0.0 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.2	—	$D_{40}$	1231.1	$1230^{+34}_{-35}$ (+0.6 $\sigma$ )	$f\sigma_8(0.38)$	0.4767	$0.475^{+0.018}_{-0.019}$ (+0.0 $\sigma$ )
$A_{100}^{\text{PS}}$	247	$257^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{220}$	5734	$5736^{+98}_{-95}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6695	$0.665^{+0.028}_{-0.032}$ (−0.1 $\sigma$ )
$A_{143}^{\text{PS}}$	47.4	$45^{+20}_{-20}$ (−0.6 $\sigma$ )	$D_{810}$	2538.1	$2538^{+37}_{-35}$ (+0.0 $\sigma$ )	$f\sigma_8(0.51)$	0.4756	$0.474^{+0.018}_{-0.019}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	49.5	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	818.6	$818^{+13}_{-12}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6266	$0.623^{+0.027}_{-0.030}$ (−0.1 $\sigma$ )
$A_{217}^{\text{PS}}$	120.5	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.90	$231.4^{+4.9}_{-4.6}$ (+0.9 $\sigma$ )	$f\sigma_8(0.61)$	0.4708	$0.469^{+0.017}_{-0.019}$ (−0.0 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$n_{s,0.002}$	0.9633	$0.965^{+0.019}_{-0.018}$ (−0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5963	$0.593^{+0.025}_{-0.029}$ (−0.1 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.78	$8.9^{+4.7}_{-4.7}$ (−0.1 $\sigma$ )	$Y_P$	0.2439	$0.2447^{+0.0064}_{-0.0064}$ (−0.7 $\sigma$ )	$f\sigma_8(2.33)$	0.2998	$0.299^{+0.013}_{-0.013}$ (−0.2 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.96	$10.8^{+4.5}_{-4.6}$ (+0.0 $\sigma$ )	$Y_P^{\text{BBN}}$	0.2453	$0.2460^{+0.0064}_{-0.0064}$ (−0.7 $\sigma$ )	$\sigma_8(2.33)$	0.3097	$0.308^{+0.014}_{-0.015}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.6^{+8.4}_{-8.7}$ (+0.1 $\sigma$ )	$10^5 \text{D/H}$	2.554	$2.56^{+0.12}_{-0.12}$ (−1.1 $\sigma$ )	$f_{2000}^{143}$	27.9	$29^{+8}_{-7}$ (−0.8 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.2	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.867	$13.83^{+0.47}_{-0.46}$ (+0.6 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.3	$32^{+5}_{-5}$ (−0.9 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.115	$0.114^{+0.099}_{-0.094}$	$z_*$	1089.66	$1089.71^{+0.88}_{-0.88}$ (−1.0 $\sigma$ )	$f_{2000}^{217}$	105.9	$106.5^{+5.1}_{-5.0}$ (−0.8 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.134^{+0.076}_{-0.075}$	$r_*$	145.57	$145.1^{+4.6}_{-4.5}$ (+0.6 $\sigma$ )	$\chi_{\text{small}}^2$	395.86	$397.2$ ( $\nu$ : 2.1) (+0.1 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.480	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	1.04142	$1.0413^{+0.0014}_{-0.0013}$ (+0.5 $\sigma$ )	$\chi_{\text{lowl}}^2$	23.60	$23.5$ ( $\nu$ : 0.7) (+0.6 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.226	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.978	$13.93^{+0.43}_{-0.42}$ (+0.5 $\sigma$ )	$\chi_{\text{plik}}^2$	2343.2	$2359.9$ ( $\nu$ : 19.6) (+269.2 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.663	$0.66^{+0.21}_{-0.21}$	$z_{\text{drag}}$	1059.63	$1059.8^{+1.8}_{-1.8}$ (−0.0 $\sigma$ )	$\chi_{\text{JLA}}^2$	1034.91	$1035.07$ ( $\nu$ : 0.1) (+0.2 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.07	$2.07^{+0.68}_{-0.69}$	$r_{\text{drag}}$	148.25	$147.8^{+4.8}_{-4.6}$ (+0.5 $\sigma$ )	$\chi_{\text{6DF}}^2$	0.010	$0.049$ ( $\nu$ : 0.0) (+0.0 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14003	$0.1404^{+0.0035}_{-0.0034}$ (−0.4 $\sigma$ )	$\chi_{\text{MGS}}^2$	1.41	$1.36$ ( $\nu$ : 0.1) (−0.3 $\sigma$ )
$c_{217}$	0.99815	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.16050	$0.1606^{+0.0010}_{-0.0011}$ (−1.1 $\sigma$ )	$\chi_{\text{DR12BAO}}^2$	3.92	$4.6$ ( $\nu$ : 0.9) (+0.2 $\sigma$ )
$H_0$	67.44	$67.6^{+3.1}_{-2.9}$ (−0.6 $\sigma$ )	$z_{\text{eq}}$	3399	$3390^{+66}_{-62}$ (+0.8 $\sigma$ )	$\chi_{\text{prior}}^2$	1.6	$11.4$ ( $\nu$ : 10.4) (+1.1 $\sigma$ )
$\Omega_\Lambda$	0.6918	$0.690^{+0.017}_{-0.019}$ (−0.3 $\sigma$ )	$k_{\text{eq}}$	0.010298	$0.01031^{+0.00030}_{-0.00030}$ (−0.2 $\sigma$ )	$\chi_{\text{BAO}}^2$	5.34	$6.0$ ( $\nu$ : 0.6) (+0.0 $\sigma$ )
$\Omega_m$	0.3082	$0.310^{+0.019}_{-0.017}$ (+0.3 $\sigma$ )	$100\theta_{\text{eq}}$	0.8139	$0.816^{+0.012}_{-0.012}$ (−0.7 $\sigma$ )	$\chi_{\text{CMB}}^2$	2762.7	$2780.6$ ( $\nu$ : 18.7) (+275.7 $\sigma$ )
$\Omega_m h^2$	0.1402	$0.1413^{+0.0084}_{-0.0081}$ (−0.5 $\sigma$ )	$100\theta_{s,\text{eq}}$	0.4497	$0.4506^{+0.0061}_{-0.0062}$ (−0.7 $\sigma$ )			
$\Omega_\nu h^2$	0.00001	< 0.00175 (−0.3 $\sigma$ )	$H(0.15)$	72.66	$72.8^{+3.0}_{-2.9}$ (−0.6 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 3804.54$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.27$ ;  $\bar{\chi}_{\text{eff}}^2 = 3833.11$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.62$ ;  $R - 1 = 0.00833$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.01 ( $\Delta$  0.00) MGS: 1.41 ( $\Delta$  -0.07) DR12BAO: 3.92 ( $\Delta$  0.14) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 ( $\Delta$  -0.02) commander\_dx12\_v3\_2\_29: 23.60 ( $\Delta$  0.39) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.21 SN - JLA Pantheon18: 1034.91 ( $\Delta$  0.03)



# 9.16 base\_nnu\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022317	$0.02236^{+0.00045}_{-0.00042}$ (+0.7 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.0940	$0.0949^{+0.0081}_{-0.0076}$ (−0.4 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	644.9	$644^{+25}_{-24}$ (+0.3 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.1175	$0.1181^{+0.0069}_{-0.0067}$ (−0.3 $\sigma$ )	$\sigma_8$	0.8174	$0.810^{+0.031}_{-0.038}$ (+0.1 $\sigma$ )	$H(0.38)$	82.46	$82.6^{+2.7}_{-2.6}$ (−0.4 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04129	$1.0412^{+0.0010}_{-0.0010}$ (+0.4 $\sigma$ )	$S_8$	0.8298	$0.825^{+0.035}_{-0.036}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1539	$1537^{+56}_{-54}$ (+0.3 $\sigma$ )
$\tau$	0.0545	$0.055^{+0.021}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4545	$0.452^{+0.019}_{-0.020}$ (+0.2 $\sigma$ )	$H(0.51)$	89.10	$89.3^{+2.8}_{-2.7}$ (−0.4 $\sigma$ )
$\Sigma m_{\nu}$ [eV]	0.001	< 0.173 (−0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6095	$0.605^{+0.023}_{-0.026}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1993	$1991^{+70}_{-68}$ (+0.4 $\sigma$ )
$N_{\mathrm{eff}}$	2.910	$2.96^{+0.40}_{-0.39}$ (−0.5 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9969	$0.988^{+0.031}_{-0.041}$ (+0.3 $\sigma$ )	$H(0.61)$	94.66	$94.9^{+2.9}_{-2.8}$ (−0.4 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0384	$3.041^{+0.047}_{-0.046}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	99.88	$99.6^{+2.3}_{-2.3}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2320	$2316^{+80}_{-78}$ (+0.4 $\sigma$ )
$n_{\mathrm{s}}$	0.9630	$0.964^{+0.017}_{-0.017}$ (−0.4 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.450	$2.442^{+0.066}_{-0.070}$ (+0.4 $\sigma$ )	$H(2.33)$	234.1	$234.9^{+6.1}_{-5.9}$ (−0.3 $\sigma$ )
$y_{\mathrm{cal}}$	1.0004	$1.0006^{+0.0066}_{-0.0063}$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.65	$7.7^{+2.1}_{-2.1}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5804	$5790^{+170}_{-170}$ (+0.4 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	44.7	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.087	$2.09^{+0.10}_{-0.094}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4586	$0.457^{+0.019}_{-0.019}$ (+0.2 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.73	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8718	$1.874^{+0.043}_{-0.041}$ (−0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7554	$0.749^{+0.029}_{-0.035}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.08	> 0.934 (+0.2 $\sigma$ )	$D_{40}$	1231.1	$1232^{+33}_{-34}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4774	$0.475^{+0.017}_{-0.019}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	244	$257^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5730	$5736^{+98}_{-95}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6697	$0.664^{+0.026}_{-0.032}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	49.1	$45^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{810}$	2538.4	$2538^{+36}_{-34}$ (+0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4762	$0.474^{+0.017}_{-0.019}$ (+0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	53.4	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	819.3	$818^{+13}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6267	$0.621^{+0.025}_{-0.030}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	122.3	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	232.29	$231.5^{+4.7}_{-4.6}$ (+0.8 $\sigma$ )	$f\sigma_8(0.61)$	0.4713	$0.469^{+0.017}_{-0.019}$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$n_{\mathrm{s},0.002}$	0.9630	$0.964^{+0.017}_{-0.017}$ (−0.4 $\sigma$ )	$\sigma_8(0.61)$	0.5963	$0.591^{+0.024}_{-0.029}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.78	$8.9^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}$	0.2435	$0.2443^{+0.0054}_{-0.0055}$ (−0.5 $\sigma$ )	$f\sigma_8(2.33)$	0.2998	$0.298^{+0.012}_{-0.013}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	10.93	$10.8^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2449	$0.2456^{+0.0054}_{-0.0055}$ (−0.5 $\sigma$ )	$\sigma_8(2.33)$	0.3096	$0.307^{+0.013}_{-0.015}$ (+0.0 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	20.0	$18.5^{+8.5}_{-8.6}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.548	$2.56^{+0.11}_{-0.11}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	27.3	$29^{+8}_{-7}$ (−0.7 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.7	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.896	$13.86^{+0.41}_{-0.40}$ (+0.4 $\sigma$ )	$f_{2000}^{143\times 217}$	30.9	$32^{+5}_{-5}$ (−0.8 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.114^{+0.099}_{-0.093}$	$z_{\ast}$	1089.63	$1089.69^{+0.80}_{-0.81}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	105.60	$106.4^{+5.0}_{-4.9}$ (−0.7 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	0.135	$0.134^{+0.076}_{-0.075}$	$r_{\ast}$	145.83	$145.4^{+4.0}_{-3.9}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.06	$397.2$ ( $\nu$ : 2.0) (+0.1 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$100\theta_{\ast}$	1.04153	$1.0414^{+0.0012}_{-0.0012}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.64	$23.6$ ( $\nu$ : 0.6) (+0.4 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.227	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_{\ast})/\mathrm{Gpc}$	14.001	$13.96^{+0.37}_{-0.36}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2342.9	$2359.4$ ( $\nu$ : 18.9) (+277.0 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	0.666	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	1059.51	$1059.7^{+1.6}_{-1.6}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{Aver15}}^2$	0.00	$0.31$ ( $\nu$ : 0.1) (−0.4 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.08	$2.07^{+0.68}_{-0.69}$	$r_{\mathrm{drag}}$	148.53	$148.1^{+4.2}_{-4.0}$ (+0.3 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.016	$0.062$ ( $\nu$ : 0.0) (+0.0 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.13984	$0.1402^{+0.0030}_{-0.0030}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	1.34	$1.27$ ( $\nu$ : 0.1) (−0.2 $\sigma$ )
$c_{217}$	0.99814	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16045	$0.16056^{+0.00092}_{-0.00093}$ (−1.0 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	4.05	$4.9$ ( $\nu$ : 1.3) (+0.1 $\sigma$ )
$H_0$	67.24	$67.3^{+2.7}_{-2.6}$ (−0.3 $\sigma$ )	$z_{\mathrm{eq}}$	3403	$3394^{+66}_{-64}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.6	$11.4$ ( $\nu$ : 10.3) (+1.1 $\sigma$ )
$\Omega_{\Lambda}$	0.6908	$0.689^{+0.018}_{-0.019}$ (−0.2 $\sigma$ )	$k_{\mathrm{eq}}$	0.010289	$0.01030^{+0.00028}_{-0.00027}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	5.40	$6.2$ ( $\nu$ : 0.9) (+0.0 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3092	$0.311^{+0.019}_{-0.018}$ (+0.2 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8132	$0.815^{+0.012}_{-0.012}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2762.5	$2780.2$ ( $\nu$ : 18.3) (+281.9 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.1398	$0.1410^{+0.0072}_{-0.0069}$ (−0.3 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4494	$0.4502^{+0.0063}_{-0.0062}$ (−0.6 $\sigma$ )			
$\Omega_{\nu}h^2$	0.00001	< 0.00181 (−0.3 $\sigma$ )	$H(0.15)$	72.46	$72.6^{+2.7}_{-2.6}$ (−0.3 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2769.50$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.04$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2798.18$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.42$ ;  $R - 1 = 0.00755$   
 $\chi_{\mathrm{eff}}^2$ : Abund - Yp\_Aver2015: 0.00 ( $\Delta$  -0.05) BAO - 6DF: 0.02 ( $\Delta$  0.01) MGS: 1.34 ( $\Delta$  -0.13) DR12BAO: 4.05 ( $\Delta$  0.29) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.06 ( $\Delta$  0.21) commander\_dx12.v3.2.29: 23.64 ( $\Delta$  0.32) plik\_rd12\_HM.v22b\_TTTEEE: 2342.85



# 9.17 base\_nnu\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022321	$0.02236^{+0.00045}_{-0.00042}$ $(+0.7\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.0946	$0.0954^{+0.0078}_{-0.0073}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	643.4	$643^{+24}_{-23}$ $(+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.1181	$0.1186^{+0.0066}_{-0.0064}$ $(-0.2\sigma)$	$\sigma_8$	0.8187	$0.812^{+0.031}_{-0.038}$ $(+0.2\sigma)$	$H(0.38)$	82.64	$82.8^{+2.6}_{-2.6}$ $(-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	1.04115	$1.0411^{+0.0010}_{-0.00095}$ $(+0.3\sigma)$	$S_8$	0.8310	$0.827^{+0.035}_{-0.036}$ $(+0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	1535	$1534^{+54}_{-53}$ $(+0.2\sigma)$
$\tau$	0.0543	$0.055^{+0.021}_{-0.020}$ $(+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4552	$0.453^{+0.019}_{-0.019}$ $(+0.3\sigma)$	$H(0.51)$	89.30	$89.5^{+2.7}_{-2.6}$ $(-0.2\sigma)$
$\Sigma m_{\nu}$ [eV]	0.002	$< 0.173$ $(-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6104	$0.606^{+0.022}_{-0.026}$ $(+0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	1989	$1987^{+68}_{-66}$ $(+0.2\sigma)$
$N_{\mathrm{eff}}$	2.945	$2.99^{+0.38}_{-0.37}$ $(-0.4\sigma)$	$\sigma_8/h^{0.5}$	0.9973	$0.989^{+0.030}_{-0.041}$ $(+0.3\sigma)$	$H(0.61)$	94.87	$95.1^{+2.8}_{-2.7}$ $(-0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0396	$3.042^{+0.047}_{-0.045}$ $(+0.1\sigma)$	$r_{\mathrm{drag}}h$	99.88	$99.6^{+2.2}_{-2.3}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	2315	$2312^{+78}_{-75}$ $(+0.2\sigma)$
$n_{\mathrm{s}}$	0.9632	$0.965^{+0.016}_{-0.016}$ $(-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	2.451	$2.442^{+0.066}_{-0.071}$ $(+0.4\sigma)$	$H(2.33)$	234.6	$235.4^{+5.7}_{-5.7}$ $(-0.2\sigma)$
$y_{\mathrm{cal}}$	1.0005	$1.0006^{+0.0066}_{-0.0063}$ $(+0.0\sigma)$	$z_{\mathrm{re}}$	7.64	$7.7^{+2.0}_{-2.1}$ $(+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	5791	$5779^{+160}_{-160}$ $(+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	45.9	$46^{+20}_{-20}$ $(-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	2.090	$2.09^{+0.10}_{-0.093}$ $(+0.1\sigma)$	$f\sigma_8(0.15)$	0.4592	$0.457^{+0.018}_{-0.018}$ $(+0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.55	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8746	$1.876^{+0.041}_{-0.039}$ $(-0.1\sigma)$	$\sigma_8(0.15)$	0.7566	$0.750^{+0.029}_{-0.035}$ $(+0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	7.15	$> 0.929$ $(+0.2\sigma)$	$D_{40}$	1232.0	$1231^{+33}_{-34}$ $(+0.3\sigma)$	$f\sigma_8(0.38)$	0.4781	$0.476^{+0.017}_{-0.019}$ $(+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	247	$258^{+70}_{-70}$ $(-0.2\sigma)$	$D_{220}$	5732	$5734^{+98}_{-93}$ $(+0.4\sigma)$	$\sigma_8(0.38)$	0.6708	$0.665^{+0.026}_{-0.032}$ $(+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	47.7	$45^{+20}_{-20}$ $(-0.4\sigma)$	$D_{810}$	2538.3	$2538^{+36}_{-34}$ $(+0.1\sigma)$	$f\sigma_8(0.51)$	0.4769	$0.474^{+0.017}_{-0.019}$ $(+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	49.4	$42^{+20}_{-20}$ $(-0.1\sigma)$	$D_{1420}$	818.4	$818^{+13}_{-12}$ $(+0.5\sigma)$	$\sigma_8(0.51)$	0.6277	$0.622^{+0.024}_{-0.030}$ $(+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	120.7	$115^{+30}_{-30}$ $(+0.0\sigma)$	$D_{2000}$	231.81	$231.3^{+4.6}_{-4.4}$ $(+0.8\sigma)$	$f\sigma_8(0.61)$	0.4720	$0.469^{+0.016}_{-0.019}$ $(+0.2\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$n_{\mathrm{s},0.002}$	0.9632	$0.965^{+0.016}_{-0.016}$ $(-0.3\sigma)$	$\sigma_8(0.61)$	0.5973	$0.592^{+0.023}_{-0.029}$ $(+0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	8.81	$8.9^{+4.7}_{-4.7}$ $(-0.0\sigma)$	$Y_{\mathrm{P}}$	0.2440	$0.2446^{+0.0052}_{-0.0052}$ $(-0.3\sigma)$	$f\sigma_8(2.33)$	0.3003	$0.298^{+0.012}_{-0.013}$ $(+0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	10.92	$10.8^{+4.6}_{-4.6}$ $(+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2453	$0.2460^{+0.0052}_{-0.0052}$ $(-0.3\sigma)$	$\sigma_8(2.33)$	0.3101	$0.308^{+0.013}_{-0.015}$ $(+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.9	$18.6^{+8.5}_{-8.7}$ $(+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	2.560	$2.570^{+0.096}_{-0.097}$ $(-1.0\sigma)$	$f_{2000}^{143}$	28.0	$29^{+7}_{-7}$ $(-0.6\sigma)$
$A_{217}^{\mathrm{dustTT}}$	95.5	$94^{+20}_{-20}$ $(+0.0\sigma)$	Age/Gyr	13.865	$13.84^{+0.39}_{-0.38}$ $(+0.2\sigma)$	$f_{2000}^{143 \times 217}$	31.3	$32^{+5}_{-5}$ $(-0.7\sigma)$
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.114^{+0.099}_{-0.093}$	$z_*$	1089.70	$1089.76^{+0.74}_{-0.77}$ $(-0.8\sigma)$	$f_{2000}^{217}$	106.04	$106.6^{+4.9}_{-4.8}$ $(-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.135	$0.134^{+0.076}_{-0.075}$	$r_*$	145.49	$145.1^{+3.8}_{-3.7}$ $(+0.2\sigma)$	$\chi_{\mathrm{small}}^2$	396.03	$397.2$ ( $\nu$ : 2.0) $(+0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04138	$1.0413^{+0.0012}_{-0.0011}$ $(+0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	23.67	$23.5$ ( $\nu$ : 0.6) $(+0.3\sigma)$
$A_{143}^{\mathrm{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.971	$13.93^{+0.35}_{-0.34}$ $(+0.2\sigma)$	$\chi_{\mathrm{plik}}^2$	2342.9	$2359.4$ ( $\nu$ : 18.9) $(+280.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.666	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	1059.59	$1059.8^{+1.6}_{-1.5}$ $(+0.3\sigma)$	$\chi_{\mathrm{Aver15}}^2$	0.01	$0.32$ ( $\nu$ : 0.1) $(-0.3\sigma)$
$A_{217}^{\mathrm{dustTE}}$	2.08	$2.08^{+0.67}_{-0.70}$	$r_{\mathrm{drag}}$	148.19	$147.8^{+4.0}_{-3.9}$ $(+0.2\sigma)$	$\chi_{\mathrm{Cooke17}}^2$	0.39	$0.43$ ( $\nu$ : 0.1) $(+0.4\sigma)$
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ $(+0.1\sigma)$	$k_{\mathrm{D}}$	0.14007	$0.1404^{+0.0029}_{-0.0029}$ $(+0.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	0.016	$0.062$ ( $\nu$ : 0.0) $(+0.0\sigma)$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ $(-0.1\sigma)$	$100\theta_{\mathrm{D}}$	0.16054	$0.16064^{+0.00084}_{-0.00085}$ $(-1.0\sigma)$	$\chi_{\mathrm{MGS}}^2$	1.34	$1.27$ ( $\nu$ : 0.1) $(-0.2\sigma)$
$H_0$	67.40	$67.4^{+2.7}_{-2.6}$ $(-0.2\sigma)$	$z_{\mathrm{eq}}$	3401	$3393^{+66}_{-64}$ $(+0.6\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	4.06	$4.9$ ( $\nu$ : 1.3) $(+0.1\sigma)$
$\Omega_{\Lambda}$	0.6909	$0.689^{+0.018}_{-0.019}$ $(-0.2\sigma)$	$k_{\mathrm{eq}}$	0.010309	$0.01032^{+0.00027}_{-0.00026}$ $(+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	1.6	$11.4$ ( $\nu$ : 10.3) $(+1.1\sigma)$
$\Omega_{\mathrm{m}}$	0.3091	$0.311^{+0.019}_{-0.018}$ $(+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	0.8134	$0.815^{+0.012}_{-0.012}$ $(-0.5\sigma)$	$\chi_{\mathrm{BAO}}^2$	5.42	$6.2$ ( $\nu$ : 0.9) $(+0.0\sigma)$
$\Omega_{\mathrm{m}}h^2$	0.1404	$0.1415^{+0.0068}_{-0.0067}$ $(-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4495	$0.4502^{+0.0062}_{-0.0063}$ $(-0.5\sigma)$	$\chi_{\mathrm{CMB}}^2$	2762.6	$2780.1$ ( $\nu$ : 18.2) $(+285.5\sigma)$
$\Omega_{\nu}h^2$	0.00002	$< 0.00183$ $(-0.3\sigma)$	$H(0.15)$	72.63	$72.7^{+2.6}_{-2.5}$ $(-0.2\sigma)$	$\chi_{\mathrm{Abund}}^2$	0.40	$0.75$ ( $\nu$ : 0.2) $(-0.1\sigma)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 2770.02$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.51$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2798.56$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.81$ ;  $R - 1 = 0.00801$   
 $\chi_{\mathrm{eff}}^2$ : Abund - Yp\_Aver2015: 0.01 ( $\Delta$  -0.08) D\_Cooke2017: 0.39 ( $\Delta$  0.37) BAO - 6DF: 0.02 ( $\Delta$  0.01) MGS: 1.34 ( $\Delta$  -0.06) DR12BAO: 4.06 ( $\Delta$  0.17) CMB - small.100x143\_offlike5\_EE\_Aplanck\_B: 396.03 ( $\Delta$  0.09) commander\_dx12\_v3.2.29: 23.67 ( $\Delta$  0.34) plik\_rd12\_HM\_v22b.TTTEEE: 2342.87



9.18 base\_nnu\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00047}_{-0.00045} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0956^{+0.0096}_{-0.0088} \quad (-0.6\sigma)$	$D_{\mathrm{M}}(0.15)$	$642^{+28}_{-27} \quad (+0.6\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1185^{+0.0079}_{-0.0078} \quad (-0.5\sigma)$	$\sigma_8$	$0.813^{+0.032}_{-0.038} \quad (-0.1\sigma)$	$H(0.38)$	$82.9^{+3.2}_{-3.0} \quad (-0.6\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0011} \quad (+0.5\sigma)$	$S_8$	$0.826^{+0.035}_{-0.036} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1531^{+62}_{-61} \quad (+0.6\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.019}_{-0.020} \quad (+0.1\sigma)$	$H(0.51)$	$89.6^{+3.3}_{-3.1} \quad (-0.6\sigma)$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.167 \quad (-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.023}_{-0.026} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1984^{+78}_{-77} \quad (+0.6\sigma)$
$N_{\mathrm{eff}}$	$3.00^{+0.48}_{-0.45} \quad (-0.7\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.030}_{-0.039} \quad (+0.3\sigma)$	$H(0.61)$	$95.2^{+3.4}_{-3.2} \quad (-0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.047}_{-0.038} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$99.8^{+2.2}_{-2.2} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	$2309^{+91}_{-88} \quad (+0.6\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.019}_{-0.018} \quad (-0.6\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.065}_{-0.067} \quad (+0.5\sigma)$	$H(2.33)$	$235.3^{+7.1}_{-6.9} \quad (-0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0067}_{-0.0063} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.62 \quad (+0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5775^{+200}_{-190} \quad (+0.6\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.3\sigma)$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.079} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.018}_{-0.018} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.876^{+0.044}_{-0.046} \quad (-0.4\sigma)$	$\sigma_8(0.15)$	$0.751^{+0.031}_{-0.036} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1230^{+34}_{-35} \quad (+0.6\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.017}_{-0.019} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5737^{+98}_{-95} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.666^{+0.028}_{-0.032} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.6\sigma)$	$D_{810}$	$2538^{+37}_{-35} \quad (+0.0\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.018}_{-0.019} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+13}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.623^{+0.026}_{-0.030} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.4^{+4.9}_{-4.6} \quad (+0.9\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.017}_{-0.019} \quad (-0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.019}_{-0.018} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.593^{+0.025}_{-0.029} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2447^{+0.0064}_{-0.0064} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.299^{+0.013}_{-0.014} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.5}_{-4.6} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2460^{+0.0065}_{-0.0065} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.308^{+0.014}_{-0.015} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+8.4}_{-8.7} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.57^{+0.12}_{-0.12} \quad (-1.1\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-7} \quad (-0.8\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.83^{+0.47}_{-0.46} \quad (+0.6\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.9\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.098}_{-0.093}$	$z_*$	$1089.71^{+0.88}_{-0.88} \quad (-1.0\sigma)$	$f_{2000}^{217}$	$106.5^{+5.1}_{-5.1} \quad (-0.8\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.134^{+0.076}_{-0.075}$	$r_*$	$145.1^{+4.7}_{-4.5} \quad (+0.6\sigma)$	$\chi_{\mathrm{small}}^2$	$397.2 \quad (\nu: 2.2) \quad (+0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.0413^{+0.0014}_{-0.0013} \quad (+0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.5 \quad (\nu: 0.6) \quad (+0.6\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.93^{+0.43}_{-0.42} \quad (+0.6\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.7 \quad (\nu: 19.5) \quad (+270.6\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.8^{+1.8}_{-1.8} \quad (-0.0\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.06 \quad (\nu: 0.1) \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.07^{+0.69}_{-0.70}$	$r_{\mathrm{drag}}$	$147.7^{+4.8}_{-4.6} \quad (+0.5\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.048 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1404^{+0.0034}_{-0.0034} \quad (-0.4\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.37 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.1606^{+0.0010}_{-0.0010} \quad (-1.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 0.9) \quad (+0.2\sigma)$
$H_0$	$67.6^{+3.1}_{-2.9} \quad (-0.6\sigma)$	$z_{\mathrm{eq}}$	$3389^{+65}_{-62} \quad (+0.8\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.4 \quad (\nu: 10.4) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.017}_{-0.019} \quad (-0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01031^{+0.00030}_{-0.00030} \quad (-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.0 \quad (\nu: 0.6) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.019}_{-0.017} \quad (+0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.012}_{-0.012} \quad (-0.7\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2780.4 \quad (\nu: 18.5) \quad (+279.3\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1414^{+0.0084}_{-0.0080} \quad (-0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4507^{+0.0060}_{-0.0062} \quad (-0.7\sigma)$		
$\Omega_{\nu}h^2$	$< 0.00176 \quad (-0.3\sigma)$	$H(0.15)$	$72.8^{+3.0}_{-2.9} \quad (-0.6\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 3832.93$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.68$ ;  $R - 1 = 0.00910$



## 9.19 base\_nnu\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02224^{+0.00062}_{-0.00061}$	$\sigma_8 \Omega_m^{0.5}$	0.4540	$0.450^{+0.026}_{-0.027}$	$H(0.38)$	83.24	$83.2^{+4.0}_{-4.0}$
$\Omega_c h^2$	0.1195	$0.120^{+0.011}_{-0.010}$	$\sigma_8 \Omega_m^{0.25}$	0.6101	$0.603^{+0.031}_{-0.036}$	$D_M(0.38)$	1523	$1525^{+83}_{-75}$
$100\theta_{MC}$	1.04098	$1.0410^{+0.0016}_{-0.0015}$	$\sigma_8/h^{0.5}$	0.9945	$0.982^{+0.042}_{-0.056}$	$H(0.51)$	89.91	$90.0^{+4.1}_{-4.2}$
$\tau$	0.0520	$0.054^{+0.021}_{-0.021}$	$r_{drag} h$	100.22	$99.9^{+2.7}_{-2.7}$	$D_M(0.51)$	1974	$1975^{+100}_{-95}$
$\Sigma m_\nu$ [eV]	0.000	< 0.244	$\langle d^2 \rangle^{1/2}$	2.438	$2.422^{+0.081}_{-0.088}$	$H(0.61)$	95.49	$95.6^{+4.2}_{-4.3}$
$N_{eff}$	3.05	$3.09^{+0.63}_{-0.63}$	$z_{re}$	7.47	$7.6^{+2.1}_{-2.3}$	$D_M(0.61)$	2297	$2299^{+120}_{-110}$
$\ln(10^{10} A_s)$	3.036	$3.040^{+0.053}_{-0.052}$	$10^9 A_s$	2.082	$2.09^{+0.11}_{-0.11}$	$H(2.33)$	235.7	$236.3^{+9.1}_{-9.2}$
$n_s$	0.9659	$0.969^{+0.023}_{-0.023}$	$10^9 A_s e^{-2\tau}$	1.876	$1.877^{+0.057}_{-0.059}$	$D_M(2.33)$	5755	$5751^{+270}_{-240}$
$y_{cal}$	1.0002	$1.0005^{+0.0064}_{-0.0064}$	$D_{40}$	1224.3	$1221^{+40}_{-40}$	$f\sigma_8(0.15)$	0.4582	$0.455^{+0.025}_{-0.026}$
$A_{100}^{PS}$	243	$243^{+60}_{-70}$	$D_{220}$	5705	$5709^{+100}_{-100}$	$\sigma_8(0.15)$	0.7581	$0.748^{+0.038}_{-0.047}$
$A_{143}^{PS}$	40	$41^{+20}_{-20}$	$D_{810}$	2531.3	$2534^{+37}_{-37}$	$f\sigma_8(0.38)$	0.4777	$0.473^{+0.024}_{-0.026}$
$A_{217}^{PS}$	98.0	$101^{+30}_{-40}$	$D_{1420}$	813.6	$815^{+14}_{-14}$	$\sigma_8(0.38)$	0.6723	$0.663^{+0.034}_{-0.042}$
$A_{217}^{CIB}$	45.0	$41^{+20}_{-20}$	$D_{2000}$	229.4	$229.7^{+6.2}_{-5.9}$	$f\sigma_8(0.51)$	0.4768	$0.472^{+0.023}_{-0.026}$
$A_{143}^{tSZ}$	5.21	< 8.81	$n_{s,0.002}$	0.9659	$0.969^{+0.023}_{-0.023}$	$\sigma_8(0.51)$	0.6293	$0.620^{+0.032}_{-0.039}$
$r_{143 \times 217}^{PS}$	0.582	$0.65^{+0.31}_{-0.33}$	$Y_P$	0.2454	$0.2458^{+0.0083}_{-0.0089}$	$f\sigma_8(0.61)$	0.4722	$0.467^{+0.023}_{-0.025}$
$r_{143 \times 217}^{CIB}$	0.71	—	$Y_P^{BBN}$	0.2467	$0.2472^{+0.0083}_{-0.0089}$	$\sigma_8(0.61)$	0.5988	$0.590^{+0.031}_{-0.037}$
$\xi^{tSZ \times CIB}$	0.09	—	$10^5 D/H$	2.624	$2.62^{+0.18}_{-0.18}$	$f\sigma_8(2.33)$	0.3012	$0.298^{+0.015}_{-0.017}$
$A^{kSZ}$	2.3	—	Age/Gyr	13.78	$13.77^{+0.63}_{-0.57}$	$\sigma_8(2.33)$	0.3111	$0.307^{+0.016}_{-0.019}$
$A_{100}^{dust}$	1.01	$1.01^{+0.51}_{-0.50}$	$z_*$	1090.12	$1090.1^{+1.3}_{-1.3}$	$f_{2000}^{143}$	31.1	$31^{+9}_{-9}$
$A_{143}^{dust}$	0.979	$0.98^{+0.45}_{-0.46}$	$r_*$	144.7	$144.5^{+6.2}_{-5.7}$	$f_{2000}^{217}$	107.6	$107.6^{+6.3}_{-6.4}$
$A_{217}^{dust}$	0.966	$0.97^{+0.28}_{-0.27}$	$100\theta_*$	1.04115	$1.0412^{+0.0019}_{-0.0018}$	$f_{2000}^{143 \times 217}$	33.1	$33^{+7}_{-7}$
$A_{143 \times 217}^{dust}$	1.023	$1.03^{+0.42}_{-0.42}$	$D_M(z_*)/\text{Gpc}$	13.90	$13.88^{+0.58}_{-0.53}$	$\chi_{simall}^2$	395.81	$397.0 (\nu: 1.5)$
$c_{100}$	0.99757	$0.9975^{+0.0027}_{-0.0027}$	$z_{drag}$	1059.44	$1059.6^{+2.2}_{-2.4}$	$\chi_{lowl}^2$	23.10	$22.8 (\nu: 0.8)$
$c_{217}$	1.00164	$1.0012^{+0.0040}_{-0.0040}$	$r_{drag}$	147.4	$147.2^{+6.5}_{-5.9}$	$\chi_{CamSpec}^2$	7050.2	$7064.9 (\nu: 17.1)$
$H_0$	67.98	$67.9^{+3.8}_{-3.8}$	$k_D$	0.14033	$0.1405^{+0.0044}_{-0.0045}$	$\chi_{6DF}^2$	0.003	$0.060 (\nu: 0.0)$
$\Omega_\Lambda$	0.6935	$0.691^{+0.020}_{-0.023}$	$100\theta_D$	0.16108	$0.1611^{+0.0016}_{-0.0016}$	$\chi_{MGS}^2$	1.54	$1.44 (\nu: 0.2)$
$\Omega_m$	0.3065	$0.309^{+0.023}_{-0.020}$	$z_{eq}$	3382	$3371^{+87}_{-90}$	$\chi_{DR12BAO}^2$	3.66	$4.7 (\nu: 1.4)$
$\Omega_m h^2$	0.1416	$0.143^{+0.011}_{-0.011}$	$k_{eq}$	0.010327	$0.01031^{+0.00040}_{-0.00038}$	$\chi_{prior}^2$	2.4	$7.7 (\nu: 6.1)$
$\Omega_\nu h^2$	0.00000	< 0.00261	$100\theta_{eq}$	0.8163	$0.819^{+0.017}_{-0.016}$	$\chi_{BAO}^2$	5.20	$6.2 (\nu: 1.0)$
$\Omega_m h^3$	0.0963	$0.097^{+0.012}_{-0.012}$	$100\theta_{s,eq}$	0.4511	$0.4523^{+0.0089}_{-0.0083}$	$\chi_{CMB}^2$	7469.1	$7484.7 (\nu: 16.3)$
$\sigma_8$	0.8200	$0.809^{+0.041}_{-0.050}$	$H(0.15)$	73.21	$73.2^{+3.8}_{-3.9}$			
$S_8$	0.8289	$0.821^{+0.047}_{-0.050}$	$D_M(0.15)$	638.1	$639^{+37}_{-33}$			

Best-fit  $\chi_{eff}^2 = 7476.70$ ;  $\bar{\chi}_{eff}^2 = 7498.64$ ;  $R - 1 = 0.00711$

$\chi_{eff}^2$ : BAO - 6DF: 0.00 MGS: 1.54 DR12BAO: 3.66 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.81 commander\_dx12\_v3.2.29: 23.10 CamSpec like\_10.7HM: 7050.23



## 9.20 base\_nnu\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02223	$0.02226^{+0.00060}_{-0.00060}$	$\sigma_8 \Omega_m^{0.5}$	0.4538	$0.449^{+0.025}_{-0.026}$	$H(0.38)$	83.49	$83.4^{+3.9}_{-3.9}$
$\Omega_c h^2$	0.1197	$0.120^{+0.011}_{-0.010}$	$\sigma_8 \Omega_m^{0.25}$	0.6107	$0.603^{+0.030}_{-0.035}$	$D_M(0.38)$	1518	$1521^{+80}_{-73}$
$100\theta_{MC}$	1.04101	$1.0410^{+0.0015}_{-0.0015}$	$\sigma_8/h^{0.5}$	0.9950	$0.981^{+0.041}_{-0.055}$	$H(0.51)$	90.16	$90.1^{+4.0}_{-4.1}$
$\tau$	0.0532	$0.054^{+0.021}_{-0.021}$	$r_{drag} h$	100.44	$100.1^{+2.5}_{-2.5}$	$D_M(0.51)$	1967	$1971^{+100}_{-93}$
$\Sigma m_\nu$ [eV]	0.000	$< 0.238$	$\langle d^2 \rangle^{1/2}$	2.435	$2.420^{+0.079}_{-0.086}$	$H(0.61)$	95.74	$95.7^{+4.1}_{-4.3}$
$N_{eff}$	3.08	$3.10^{+0.62}_{-0.61}$	$z_{re}$	7.59	$7.6^{+2.1}_{-2.4}$	$D_M(0.61)$	2290	$2294^{+120}_{-110}$
$\ln(10^{10} A_s)$	3.039	$3.040^{+0.053}_{-0.052}$	$10^9 A_s$	2.089	$2.09^{+0.11}_{-0.11}$	$H(2.33)$	236.0	$236.4^{+8.9}_{-9.1}$
$n_s$	0.9682	$0.969^{+0.022}_{-0.023}$	$10^9 A_s e^{-2\tau}$	1.879	$1.878^{+0.057}_{-0.059}$	$D_M(2.33)$	5741	$5744^{+260}_{-230}$
$y_{cal}$	1.0004	$1.0005^{+0.0065}_{-0.0063}$	$D_{40}$	1220.8	$1220^{+39}_{-39}$	$f\sigma_8(0.15)$	0.4582	$0.454^{+0.024}_{-0.025}$
$A_{100}^{PS}$	238	$243^{+60}_{-70}$	$D_{220}$	5704	$5709^{+100}_{-100}$	$\sigma_8(0.15)$	0.7601	$0.748^{+0.038}_{-0.045}$
$A_{143}^{PS}$	40	$41^{+20}_{-20}$	$D_{810}$	2533.4	$2534^{+36}_{-36}$	$f\sigma_8(0.38)$	0.4781	$0.473^{+0.023}_{-0.025}$
$A_{217}^{PS}$	100.6	$101^{+30}_{-40}$	$D_{1420}$	814.6	$815^{+14}_{-13}$	$\sigma_8(0.38)$	0.6743	$0.664^{+0.034}_{-0.041}$
$A_{217}^{CIB}$	45.5	$41^{+20}_{-20}$	$D_{2000}$	229.8	$229.6^{+6.1}_{-5.9}$	$f\sigma_8(0.51)$	0.4774	$0.472^{+0.023}_{-0.025}$
$A_{143}^{tSZ}$	6.22	$< 8.73$	$n_{s,0.002}$	0.9682	$0.969^{+0.022}_{-0.023}$	$\sigma_8(0.51)$	0.6312	$0.621^{+0.032}_{-0.038}$
$r_{143 \times 217}^{PS}$	0.571	$0.65^{+0.32}_{-0.34}$	$Y_P$	0.2458	$0.2460^{+0.0081}_{-0.0085}$	$f\sigma_8(0.61)$	0.4729	$0.468^{+0.022}_{-0.025}$
$r_{143 \times 217}^{CIB}$	0.77	—	$Y_P^{BBN}$	0.2471	$0.2474^{+0.0081}_{-0.0085}$	$\sigma_8(0.61)$	0.6007	$0.591^{+0.030}_{-0.036}$
$\xi^{tSZ \times CIB}$	0.02	—	$10^5 D/H$	2.624	$2.63^{+0.18}_{-0.18}$	$f\sigma_8(2.33)$	0.3022	$0.298^{+0.015}_{-0.017}$
$A^{kSZ}$	0.5	—	Age/Gyr	13.75	$13.75^{+0.61}_{-0.56}$	$\sigma_8(2.33)$	0.3123	$0.308^{+0.016}_{-0.019}$
$A_{100}^{dust}$	1.01	$1.01^{+0.51}_{-0.50}$	$z_*$	1090.10	$1090.1^{+1.3}_{-1.3}$	$f_{2000}^{143}$	30.9	$31^{+9}_{-9}$
$A_{143}^{dust}$	0.990	$0.98^{+0.46}_{-0.46}$	$r_*$	144.5	$144.4^{+6.2}_{-5.6}$	$f_{2000}^{217}$	107.4	$107.6^{+6.2}_{-6.4}$
$A_{217}^{dust}$	0.963	$0.97^{+0.28}_{-0.27}$	$100\theta_*$	1.04115	$1.0411^{+0.0019}_{-0.0018}$	$f_{2000}^{143 \times 217}$	32.8	$33^{+7}_{-7}$
$A_{143 \times 217}^{dust}$	1.000	$1.03^{+0.41}_{-0.43}$	$D_M(z_*)/\text{Gpc}$	13.87	$13.87^{+0.57}_{-0.52}$	$\chi_{simall}^2$	395.87	$397.0 (\nu: 1.5)$
$c_{100}$	0.99755	$0.9975^{+0.0027}_{-0.0028}$	$z_{drag}$	1059.59	$1059.7^{+2.1}_{-2.3}$	$\chi_{lowl}^2$	22.77	$22.7 (\nu: 0.7)$
$c_{217}$	1.00139	$1.0012^{+0.0041}_{-0.0040}$	$r_{drag}$	147.2	$147.1^{+6.4}_{-5.9}$	$\chi_{CamSpec}^2$	7050.7	$7065.1 (\nu: 16.9)$
$H_0$	68.25	$68.1^{+3.7}_{-3.6}$	$k_D$	0.14055	$0.1406^{+0.0043}_{-0.0045}$	$\chi_{JLA}^2$	1034.80	$1035.02 (\nu: 0.1)$
$\Omega_\Lambda$	0.6952	$0.692^{+0.019}_{-0.021}$	$100\theta_D$	0.16111	$0.1611^{+0.0015}_{-0.0016}$	$\chi_{6DF}^2$	0.000	$0.048 (\nu: 0.0)$
$\Omega_m$	0.3048	$0.308^{+0.021}_{-0.019}$	$z_{eq}$	3377	$3367^{+82}_{-84}$	$\chi_{MGS}^2$	1.68	$1.52 (\nu: 0.2)$
$\Omega_m h^2$	0.1420	$0.143^{+0.011}_{-0.011}$	$k_{eq}$	0.010331	$0.01031^{+0.00040}_{-0.00037}$	$\chi_{DR12BAO}^2$	3.50	$4.4 (\nu: 1.0)$
$\Omega_\nu h^2$	0.00000	$< 0.00255$	$100\theta_{eq}$	0.8174	$0.819^{+0.017}_{-0.015}$	$\chi_{prior}^2$	2.1	$7.7 (\nu: 6.1)$
$\Omega_m h^3$	0.0969	$0.097^{+0.012}_{-0.012}$	$100\theta_{s,eq}$	0.4516	$0.4527^{+0.0085}_{-0.0078}$	$\chi_{BAO}^2$	5.18	$6.0 (\nu: 0.6)$
$\sigma_8$	0.8220	$0.809^{+0.040}_{-0.048}$	$H(0.15)$	73.47	$73.3^{+3.7}_{-3.7}$	$\chi_{CMB}^2$	7469.3	$7484.8 (\nu: 16.3)$
$S_8$	0.8285	$0.820^{+0.046}_{-0.048}$	$D_M(0.15)$	635.7	$638^{+35}_{-32}$			

Best-fit  $\chi_{eff}^2 = 8511.44$ ;  $\bar{\chi}_{eff}^2 = 8533.53$ ;  $R - 1 = 0.00839$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.50 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2.29: 22.77 CamSpec like\_10.7HM: 7050.67  
SN - JLA Pantheon18: 1034.80



## 9.21 base\_nnu\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_post\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02217	$0.02221^{+0.00057}_{-0.00056}$	$\sigma_8 \Omega_m^{0.5}$	0.4537	$0.449^{+0.025}_{-0.027}$	$H(0.38)$	82.82	$82.8^{+3.2}_{-3.1}$
$\Omega_c h^2$	0.1184	$0.1185^{+0.0085}_{-0.0080}$	$\sigma_8 \Omega_m^{0.25}$	0.6092	$0.602^{+0.029}_{-0.034}$	$D_M(0.38)$	1531	$1532^{+65}_{-62}$
$100\theta_{MC}$	1.04116	$1.0411^{+0.0014}_{-0.0014}$	$\sigma_8/h^{0.5}$	0.9949	$0.981^{+0.041}_{-0.054}$	$H(0.51)$	89.47	$89.5^{+3.2}_{-3.2}$
$\tau$	0.0531	$0.054^{+0.021}_{-0.021}$	$r_{\text{drag}} h$	100.10	$99.8^{+2.6}_{-2.7}$	$D_M(0.51)$	1984	$1985^{+82}_{-78}$
$\Sigma m_\nu$ [eV]	0.001	< 0.229	$\langle d^2 \rangle^{1/2}$	2.441	$2.425^{+0.079}_{-0.086}$	$H(0.61)$	95.04	$95.1^{+3.3}_{-3.3}$
$N_{\text{eff}}$	2.982	$3.02^{+0.49}_{-0.47}$	$z_{\text{re}}$	7.56	$7.6^{+2.0}_{-2.3}$	$D_M(0.61)$	2309	$2310^{+93}_{-89}$
$\ln(10^{10} A_s)$	3.0354	$3.037^{+0.049}_{-0.049}$	$10^9 A_s$	2.081	$2.08^{+0.10}_{-0.10}$	$H(2.33)$	234.8	$235.3^{+7.4}_{-7.1}$
$n_s$	0.9643	$0.966^{+0.019}_{-0.019}$	$10^9 A_s e^{-2\tau}$	1.8713	$1.873^{+0.047}_{-0.049}$	$D_M(2.33)$	5782	$5777^{+200}_{-190}$
$y_{\text{cal}}$	1.0003	$1.0005^{+0.0064}_{-0.0063}$	$D_{40}$	1226.0	$1223^{+37}_{-37}$	$f\sigma_8(0.15)$	0.4578	$0.454^{+0.024}_{-0.025}$
$A_{100}^{\text{PS}}$	238	$241^{+60}_{-60}$	$D_{220}$	5705	$5709^{+100}_{-100}$	$\sigma_8(0.15)$	0.7561	$0.745^{+0.034}_{-0.045}$
$A_{143}^{\text{PS}}$	38	$40^{+20}_{-20}$	$D_{810}$	2531.0	$2533^{+35}_{-36}$	$f\sigma_8(0.38)$	0.4770	$0.472^{+0.023}_{-0.025}$
$A_{217}^{\text{PS}}$	99.4	$101^{+30}_{-30}$	$D_{1420}$	814.7	$815^{+14}_{-13}$	$\sigma_8(0.38)$	0.6705	$0.661^{+0.031}_{-0.040}$
$A_{217}^{\text{CIB}}$	44.4	$41^{+20}_{-20}$	$D_{2000}$	230.1	$230.1^{+5.5}_{-5.4}$	$f\sigma_8(0.51)$	0.4760	$0.471^{+0.022}_{-0.025}$
$A_{143}^{\text{tSZ}}$	5.35	< 8.68	$n_{s,0.002}$	0.9643	$0.966^{+0.019}_{-0.019}$	$\sigma_8(0.51)$	0.6275	$0.619^{+0.029}_{-0.038}$
$r_{143 \times 217}^{\text{PS}}$	0.573	$0.65^{+0.32}_{-0.35}$	$Y_P$	0.2445	$0.2449^{+0.0066}_{-0.0066}$	$f\sigma_8(0.61)$	0.4713	$0.466^{+0.021}_{-0.025}$
$r_{143 \times 217}^{\text{CIB}}$	0.70	—	$Y_P^{\text{BBN}}$	0.2458	$0.2463^{+0.0066}_{-0.0066}$	$\sigma_8(0.61)$	0.5971	$0.589^{+0.028}_{-0.036}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.05	—	$10^5 \text{D/H}$	2.602	$2.61^{+0.16}_{-0.15}$	$f\sigma_8(2.33)$	0.3002	$0.297^{+0.013}_{-0.016}$
$A^{\text{kSZ}}$	1.8	—	Age/Gyr	13.842	$13.83^{+0.48}_{-0.46}$	$\sigma_8(2.33)$	0.3102	$0.306^{+0.015}_{-0.018}$
$A_{100}^{\text{dust}}$	1.01	$1.01^{+0.51}_{-0.51}$	$z_*$	1089.97	$1090.0^{+1.1}_{-1.1}$	$f_{2000}^{143}$	30.3	$30^{+9}_{-9}$
$A_{143}^{\text{dust}}$	0.981	$0.98^{+0.45}_{-0.46}$	$r_*$	145.33	$145.1^{+4.8}_{-4.6}$	$f_{2000}^{217}$	106.9	$107.2^{+6.0}_{-6.0}$
$A_{217}^{\text{dust}}$	0.956	$0.97^{+0.28}_{-0.26}$	$100\theta_*$	1.04137	$1.0413^{+0.0016}_{-0.0016}$	$f_{2000}^{143 \times 217}$	32.2	$33^{+6}_{-6}$
$A_{143 \times 217}^{\text{dust}}$	1.003	$1.03^{+0.41}_{-0.43}$	$D_M(z_*)/\text{Gpc}$	13.956	$13.94^{+0.44}_{-0.43}$	$\chi_{\text{simall}}^2$	395.88	$397.0 (\nu: 1.5)$
$c_{100}$	0.99744	$0.9975^{+0.0027}_{-0.0028}$	$z_{\text{drag}}$	1059.28	$1059.4^{+1.9}_{-2.0}$	$\chi_{\text{lowl}}^2$	23.28	$23.0 (\nu: 0.7)$
$c_{217}$	1.00128	$1.0012^{+0.0040}_{-0.0040}$	$r_{\text{drag}}$	148.08	$147.8^{+4.9}_{-4.8}$	$\chi_{\text{CamSpec}}^2$	7050.0	$7064.4 (\nu: 16.3)$
$H_0$	67.60	$67.5^{+3.1}_{-3.0}$	$k_D$	0.13992	$0.1401^{+0.0035}_{-0.0036}$	$\chi_{\text{Aver15}}^2$	0.05	$0.52 (\nu: 0.3)$
$\Omega_\Lambda$	0.6924	$0.690^{+0.020}_{-0.022}$	$100\theta_D$	0.16089	$0.1610^{+0.0013}_{-0.0013}$	$\chi_{6\text{DF}}^2$	0.006	$0.063 (\nu: 0.0)$
$\Omega_m$	0.3076	$0.310^{+0.022}_{-0.020}$	$z_{\text{eq}}$	3388	$3375^{+83}_{-86}$	$\chi_{\text{MGS}}^2$	1.47	$1.38 (\nu: 0.2)$
$\Omega_m h^2$	0.1406	$0.1414^{+0.0089}_{-0.0084}$	$k_{\text{eq}}$	0.010296	$0.01028^{+0.00034}_{-0.00033}$	$\chi_{\text{DR12BAO}}^2$	3.76	$4.8 (\nu: 1.5)$
$\Omega_\nu h^2$	0.00001	< 0.00244	$100\theta_{\text{eq}}$	0.8154	$0.818^{+0.016}_{-0.015}$	$\chi_{\text{prior}}^2$	2.2	$7.7 (\nu: 6.0)$
$\Omega_m h^3$	0.0950	$0.0955^{+0.0097}_{-0.0090}$	$100\theta_{s,\text{eq}}$	0.4506	$0.4519^{+0.0084}_{-0.0079}$	$\chi_{\text{BAO}}^2$	5.23	$6.2 (\nu: 1.0)$
$\sigma_8$	0.8180	$0.806^{+0.037}_{-0.048}$	$H(0.15)$	72.82	$72.8^{+3.1}_{-3.0}$	$\chi_{\text{CMB}}^2$	7469.2	$7484.4 (\nu: 15.7)$
$S_8$	0.8283	$0.820^{+0.046}_{-0.049}$	$D_M(0.15)$	641.6	$642^{+29}_{-27}$			

Best-fit  $\chi_{\text{eff}}^2 = 7476.67$ ;  $\bar{\chi}_{\text{eff}}^2 = 7498.80$ ;  $R - 1 = 0.00899$   
 $\chi_{\text{eff}}^2$ : Abund - Yp\_Aver2015: 0.05 BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 3.76 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.88 commander\_dx12\_v3.2.29: 23.28  
CamSpec like\_10.7HM: 7050.02



## 9.22 base\_nnu\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02220^{+0.00056}_{-0.00057}$	$\sigma_8 \Omega_m^{0.25}$	0.6102	$0.602^{+0.029}_{-0.035}$	$H(0.51)$	89.46	$89.6^{+3.0}_{-3.0}$
$\Omega_c h^2$	0.1185	$0.1186^{+0.0077}_{-0.0074}$	$\sigma_8/h^{0.5}$	0.9962	$0.982^{+0.041}_{-0.055}$	$D_M(0.51)$	1985	$1984^{+79}_{-74}$
$100\theta_{MC}$	1.04111	$1.0411^{+0.0013}_{-0.0013}$	$r_{drag} h$	99.99	$99.8^{+2.6}_{-2.6}$	$H(0.61)$	95.03	$95.2^{+3.1}_{-3.1}$
$\tau$	0.0530	$0.053^{+0.021}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.445	$2.425^{+0.079}_{-0.086}$	$D_M(0.61)$	2310	$2309^{+90}_{-84}$
$\Sigma m_\nu$ [eV]	0.002	< 0.229	$z_{re}$	7.55	$7.6^{+2.0}_{-2.3}$	$H(2.33)$	234.9	$235.4^{+6.7}_{-6.5}$
$N_{eff}$	2.983	$3.03^{+0.44}_{-0.44}$	$10^9 A_s$	2.084	$2.08^{+0.10}_{-0.099}$	$D_M(2.33)$	5782	$5774^{+190}_{-180}$
$\ln(10^{10} A_s)$	3.0367	$3.037^{+0.048}_{-0.049}$	$10^9 A_s e^{-2\tau}$	1.8742	$1.873^{+0.045}_{-0.046}$	$f\sigma_8(0.15)$	0.4588	$0.454^{+0.023}_{-0.025}$
$n_s$	0.9642	$0.967^{+0.018}_{-0.019}$	$D_{40}$	1227.8	$1223^{+36}_{-36}$	$\sigma_8(0.15)$	0.7568	$0.746^{+0.033}_{-0.045}$
$y_{cal}$	1.0006	$1.0005^{+0.0064}_{-0.0063}$	$D_{220}$	5712	$5709^{+100}_{-100}$	$f\sigma_8(0.38)$	0.4779	$0.473^{+0.022}_{-0.025}$
$A_{100}^{PS}$	234	$242^{+60}_{-60}$	$D_{810}$	2534.3	$2533^{+35}_{-36}$	$\sigma_8(0.38)$	0.6710	$0.661^{+0.030}_{-0.040}$
$A_{143}^{PS}$	45.4	$40^{+20}_{-20}$	$D_{1420}$	815.8	$815^{+13}_{-13}$	$f\sigma_8(0.51)$	0.4768	$0.471^{+0.021}_{-0.025}$
$A_{217}^{PS}$	103.4	$101^{+30}_{-30}$	$D_{2000}$	230.5	$230.0^{+5.1}_{-4.9}$	$\sigma_8(0.51)$	0.6280	$0.619^{+0.028}_{-0.038}$
$A_{217}^{CIB}$	41.7	$41^{+20}_{-20}$	$n_{s,0.002}$	0.9642	$0.967^{+0.018}_{-0.019}$	$f\sigma_8(0.61)$	0.4719	$0.467^{+0.020}_{-0.025}$
$A_{143}^{tSZ}$	5.45	< 8.67	$Y_P$	0.2445	$0.2450^{+0.0059}_{-0.0062}$	$\sigma_8(0.61)$	0.5975	$0.589^{+0.027}_{-0.036}$
$r_{143 \times 217}^{PS}$	0.695	$0.65^{+0.32}_{-0.35}$	$Y_P^{BBN}$	0.2458	$0.2464^{+0.0059}_{-0.0062}$	$f\sigma_8(2.33)$	0.3004	$0.297^{+0.013}_{-0.016}$
$r_{143 \times 217}^{CIB}$	0.76	—	$10^5 D/H$	2.600	$2.61^{+0.13}_{-0.13}$	$\sigma_8(2.33)$	0.3103	$0.306^{+0.014}_{-0.018}$
$\xi^{tSZ \times CIB}$	0.63	—	Age/Gyr	13.842	$13.82^{+0.45}_{-0.43}$	$f_{2000}^{143}$	29.9	$30^{+8}_{-8}$
$A^{kSZ}$	2.1	—	$z_*$	1089.97	$1089.99^{+0.95}_{-0.96}$	$f_{2000}^{217}$	106.8	$107.3^{+5.6}_{-5.6}$
$A_{100}^{dust}$	1.01	$1.01^{+0.51}_{-0.51}$	$r_*$	145.28	$145.0^{+4.4}_{-4.2}$	$f_{2000}^{143 \times 217}$	32.2	$33^{+6}_{-6}$
$A_{143}^{dust}$	0.984	$0.98^{+0.45}_{-0.46}$	$100\theta_*$	1.04132	$1.0413^{+0.0015}_{-0.0014}$	$\chi_{small}^2$	395.86	$397.0 (\nu: 1.4)$
$A_{217}^{dust}$	0.975	$0.97^{+0.28}_{-0.26}$	$D_M(z_*)/\text{Gpc}$	13.952	$13.93^{+0.41}_{-0.39}$	$\chi_{lowl}^2$	23.35	$23.0 (\nu: 0.7)$
$A_{143 \times 217}^{dust}$	1.017	$1.03^{+0.41}_{-0.43}$	$z_{drag}$	1059.32	$1059.4^{+1.9}_{-1.9}$	$\chi_{CamSpec}^2$	7050.2	$7064.2 (\nu: 15.9)$
$c_{100}$	0.99769	$0.9975^{+0.0027}_{-0.0027}$	$r_{drag}$	148.02	$147.8^{+4.6}_{-4.4}$	$\chi_{Aver15}^2$	0.05	$0.47 (\nu: 0.2)$
$c_{217}$	1.00127	$1.0012^{+0.0040}_{-0.0039}$	$k_D$	0.13998	$0.1401^{+0.0033}_{-0.0034}$	$\chi_{Cooke17}^2$	0.04	$0.29 (\nu: 0.1)$
$H_0$	67.55	$67.6^{+2.9}_{-2.9}$	$100\theta_D$	0.16086	$0.1610^{+0.0011}_{-0.0011}$	$\chi_{6DF}^2$	0.010	$0.063 (\nu: 0.0)$
$\Omega_\Lambda$	0.6916	$0.690^{+0.020}_{-0.022}$	$z_{eq}$	3391	$3375^{+83}_{-85}$	$\chi_{MGS}^2$	1.41	$1.39 (\nu: 0.2)$
$\Omega_m$	0.3084	$0.310^{+0.022}_{-0.020}$	$k_{eq}$	0.010306	$0.01028^{+0.00033}_{-0.00031}$	$\chi_{DR12BAO}^2$	3.89	$4.8 (\nu: 1.5)$
$\Omega_m h^2$	0.1407	$0.1415^{+0.0081}_{-0.0079}$	$100\theta_{eq}$	0.8148	$0.818^{+0.016}_{-0.015}$	$\chi_{prior}^2$	2.0	$7.7 (\nu: 5.9)$
$\Omega_\nu h^2$	0.00002	< 0.00243	$100\theta_{s,eq}$	0.4503	$0.4519^{+0.0083}_{-0.0078}$	$\chi_{BAO}^2$	5.30	$6.2 (\nu: 1.0)$
$\Omega_m h^3$	0.0951	$0.0956^{+0.0089}_{-0.0085}$	$H(0.15)$	72.78	$72.8^{+2.9}_{-2.9}$	$\chi_{CMB}^2$	7469.4	$7484.2 (\nu: 15.3)$
$\sigma_8$	0.8188	$0.807^{+0.036}_{-0.048}$	$D_M(0.15)$	642.0	$642^{+28}_{-26}$	$\chi_{Abund}^2$	0.09	$0.76 (\nu: 0.4)$
$S_8$	0.8302	$0.820^{+0.044}_{-0.048}$	$H(0.38)$	82.80	$82.9^{+3.0}_{-3.0}$			
$\sigma_8 \Omega_m^{0.5}$	0.4547	$0.449^{+0.024}_{-0.026}$	$D_M(0.38)$	1532	$1531^{+62}_{-59}$			

Best-fit  $\chi_{eff}^2 = 7476.77$ ;  $\bar{\chi}_{eff}^2 = 7498.82$ ;  $R - 1 = 0.00839$

$\chi_{eff}^2$ : Abund - Yp\_Aver2015: 0.05 D\_Cooke2017: 0.04 BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.88 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3.2.29: 23.35 CamSpec like\_10.7HM: 7050.16



### 9.23 base\_nnu\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02227^{+0.00060}_{-0.00059}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.025}_{-0.026}$	$H(0.38)$	$83.4^{+3.9}_{-3.9}$
$\Omega_{\mathrm{c}} h^2$	$0.120^{+0.011}_{-0.010}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.030}_{-0.035}$	$D_{\mathrm{M}}(0.38)$	$1521^{+79}_{-73}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0015}_{-0.0015}$	$\sigma_8/h^{0.5}$	$0.982^{+0.040}_{-0.055}$	$H(0.51)$	$90.1^{+4.0}_{-4.1}$
$\tau$	$0.055^{+0.019}_{-0.014}$	$r_{\mathrm{drag}} h$	$100.1^{+2.5}_{-2.5}$	$D_{\mathrm{M}}(0.51)$	$1971^{+100}_{-93}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.239$	$\langle d^2 \rangle^{1/2}$	$2.423^{+0.078}_{-0.083}$	$H(0.61)$	$95.7^{+4.1}_{-4.2}$
$N_{\mathrm{eff}}$	$3.10^{+0.62}_{-0.60}$	$z_{\mathrm{re}}$	$< 9.56$	$D_{\mathrm{M}}(0.61)$	$2294^{+120}_{-110}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.050}_{-0.042}$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.11}_{-0.087}$	$H(2.33)$	$236.4^{+8.9}_{-9.0}$
$n_{\mathrm{s}}$	$0.970^{+0.022}_{-0.023}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.056}_{-0.059}$	$D_{\mathrm{M}}(2.33)$	$5742^{+260}_{-230}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0063}$	$D_{40}$	$1220^{+39}_{-39}$	$f\sigma_8(0.15)$	$0.455^{+0.024}_{-0.025}$
$A_{100}^{\mathrm{PS}}$	$243^{+60}_{-70}$	$D_{220}$	$5709^{+100}_{-100}$	$\sigma_8(0.15)$	$0.749^{+0.037}_{-0.045}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2534^{+36}_{-36}$	$f\sigma_8(0.38)$	$0.474^{+0.023}_{-0.026}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.665^{+0.033}_{-0.040}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.6^{+6.1}_{-5.9}$	$f\sigma_8(0.51)$	$0.473^{+0.022}_{-0.025}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.71$	$n_{\mathrm{s},0.002}$	$0.970^{+0.022}_{-0.023}$	$\sigma_8(0.51)$	$0.622^{+0.031}_{-0.038}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.34}$	$Y_{\mathrm{P}}$	$0.2461^{+0.0081}_{-0.0085}$	$f\sigma_8(0.61)$	$0.468^{+0.022}_{-0.025}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2474^{+0.0081}_{-0.0085}$	$\sigma_8(0.61)$	$0.592^{+0.030}_{-0.036}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.18}_{-0.18}$	$f\sigma_8(2.33)$	$0.299^{+0.015}_{-0.017}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.75^{+0.61}_{-0.55}$	$\sigma_8(2.33)$	$0.308^{+0.016}_{-0.019}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.51}$	$z_*$	$1090.1^{+1.3}_{-1.3}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.46}$	$r_*$	$144.4^{+6.1}_{-5.6}$	$f_{2000}^{217}$	$107.6^{+6.2}_{-6.4}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.28}_{-0.27}$	$100\theta_*$	$1.0411^{+0.0019}_{-0.0018}$	$f_{2000}^{143 \times 217}$	$33^{+7}_{-7}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.42}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.87^{+0.57}_{-0.52}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.6)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.7^{+2.1}_{-2.3}$	$\chi_{\mathrm{lowl}}^2$	$22.7 (\nu: 0.7)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.1^{+6.3}_{-5.8}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.9 (\nu: 16.7)$
$H_0$	$68.1^{+3.7}_{-3.6}$	$k_{\mathrm{D}}$	$0.1406^{+0.0043}_{-0.0045}$	$\chi_{\mathrm{JLA}}^2$	$1035.02 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.692^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0015}_{-0.0016}$	$\chi_{6\mathrm{DF}}^2$	$0.047 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.308^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3366^{+83}_{-86}$	$\chi_{\mathrm{MGS}}^2$	$1.54 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.143^{+0.011}_{-0.011}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00039}_{-0.00037}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 0.9)$
$\Omega_{\nu} h^2$	$< 0.00257$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.017}_{-0.015}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 6.1)$
$\Omega_{\mathrm{m}} h^3$	$0.097^{+0.012}_{-0.012}$	$100\theta_{\mathrm{s,eq}}$	$0.4528^{+0.0084}_{-0.0078}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.6)$
$\sigma_8$	$0.810^{+0.040}_{-0.049}$	$H(0.15)$	$73.3^{+3.7}_{-3.7}$	$\chi_{\mathrm{CMB}}^2$	$7484.6 (\nu: 15.9)$
$S_8$	$0.821^{+0.046}_{-0.048}$	$D_{\mathrm{M}}(0.15)$	$637^{+35}_{-32}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 8533.27; R - 1 = 0.00802$$



## 9.24 base\_nnu\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02224	$0.02230^{+0.00050}_{-0.00052}$ $(+0.2\sigma)$	$\sigma_8$	0.8138	$0.806^{+0.036}_{-0.044}$ $(-0.2\sigma)$	$H(0.15)$	72.47	$72.7^{+3.6}_{-3.3}$ $(-0.3\sigma)$
$\Omega_c h^2$	0.1169	$0.1181^{+0.0090}_{-0.0088}$ $(-0.4\sigma)$	$S_8$	0.8240	$0.819^{+0.037}_{-0.040}$ $(-0.1\sigma)$	$D_M(0.15)$	644.7	$643^{+32}_{-31}$ $(+0.3\sigma)$
$100\theta_{MC}$	1.04122	$1.0411^{+0.0013}_{-0.0012}$ $(+0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4513	$0.449^{+0.020}_{-0.022}$ $(-0.1\sigma)$	$H(0.38)$	82.42	$82.7^{+3.6}_{-3.5}$ $(-0.3\sigma)$
$\tau$	0.0531	$0.053^{+0.022}_{-0.020}$ $(-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6060	$0.601^{+0.025}_{-0.030}$ $(-0.1\sigma)$	$D_M(0.38)$	1539	$1534^{+73}_{-71}$ $(+0.3\sigma)$
$\Sigma m_\nu$ [eV]	0.002	$< 0.211$ $(-0.1\sigma)$	$\sigma_8/h^{0.5}$	0.9922	$0.981^{+0.034}_{-0.048}$ $(-0.0\sigma)$	$H(0.51)$	89.04	$89.4^{+3.7}_{-3.6}$ $(-0.3\sigma)$
$N_{\text{eff}}$	2.90	$2.99^{+0.56}_{-0.52}$ $(-0.4\sigma)$	$r_{\text{drag}} h$	100.10	$99.8^{+2.5}_{-2.4}$ $(-0.1\sigma)$	$D_M(0.51)$	1994	$1988^{+92}_{-90}$ $(+0.3\sigma)$
$\ln(10^{10} A_s)$	3.033	$3.036^{+0.051}_{-0.049}$ $(-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	2.439	$2.426^{+0.073}_{-0.078}$ $(+0.1\sigma)$	$H(0.61)$	94.58	$95.0^{+3.9}_{-3.7}$ $(-0.3\sigma)$
$n_s$	0.9633	$0.966^{+0.020}_{-0.020}$ $(-0.3\sigma)$	$z_{\text{re}}$	7.51	$7.5^{+2.2}_{-2.2}$ $(-0.1\sigma)$	$D_M(0.61)$	2320	$2313^{+100}_{-100}$ $(+0.3\sigma)$
$y_{\text{cal}}$	1.0004	$1.0005^{+0.0063}_{-0.0064}$ $(+0.0\sigma)$	$10^9 A_s$	2.075	$2.08^{+0.11}_{-0.099}$ $(-0.2\sigma)$	$H(2.33)$	233.6	$235.1^{+8.0}_{-7.9}$ $(-0.3\sigma)$
$A_{100}^{\text{PS}}$	227	$238^{+60}_{-70}$ $(-0.2\sigma)$	$10^9 A_s e^{-2\tau}$	1.866	$1.872^{+0.050}_{-0.052}$ $(-0.3\sigma)$	$D_M(2.33)$	5810	$5784^{+230}_{-220}$ $(+0.3\sigma)$
$A_{143}^{\text{PS}}$	47.3	$38^{+20}_{-20}$ $(-0.3\sigma)$	$D_{40}$	1227.0	$1226^{+37}_{-36}$ $(+0.3\sigma)$	$f\sigma_8(0.15)$	0.4555	$0.453^{+0.020}_{-0.021}$ $(-0.1\sigma)$
$A_{217}^{\text{PS}}$	105.8	$102^{+30}_{-40}$ $(+0.1\sigma)$	$D_{220}$	5716	$5721^{+100}_{-97}$ $(+0.3\sigma)$	$\sigma_8(0.15)$	0.7522	$0.745^{+0.034}_{-0.041}$ $(-0.2\sigma)$
$A_{217}^{\text{CIB}}$	40.9	$39^{+20}_{-20}$ $(-0.2\sigma)$	$D_{810}$	2533.4	$2534^{+36}_{-36}$ $(+0.0\sigma)$	$f\sigma_8(0.38)$	0.4746	$0.472^{+0.019}_{-0.022}$ $(-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	6.33	$< 8.82$ $(+0.1\sigma)$	$D_{1420}$	817.5	$816^{+13}_{-13}$ $(+0.3\sigma)$	$\sigma_8(0.38)$	0.6670	$0.660^{+0.031}_{-0.038}$ $(-0.2\sigma)$
$r_{143 \times 217}^{\text{PS}}$	0.725	$0.66^{+0.31}_{-0.34}$ $(+0.1\sigma)$	$D_{2000}$	231.6	$230.7^{+5.3}_{-5.3}$ $(+0.5\sigma)$	$f\sigma_8(0.51)$	0.4736	$0.471^{+0.019}_{-0.022}$ $(-0.2\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	0.85	—	$n_{s,0.002}$	0.9633	$0.966^{+0.020}_{-0.020}$ $(-0.3\sigma)$	$\sigma_8(0.51)$	0.6243	$0.618^{+0.029}_{-0.036}$ $(-0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.76	—	$Y_P$	0.2434	$0.2446^{+0.0075}_{-0.0074}$ $(-0.4\sigma)$	$f\sigma_8(0.61)$	0.4689	$0.466^{+0.019}_{-0.022}$ $(-0.2\sigma)$
$A^{\text{kSZ}}$	0.2	—	$Y_P^{\text{BBN}}$	0.2447	$0.2459^{+0.0075}_{-0.0074}$ $(-0.4\sigma)$	$\sigma_8(0.61)$	0.5941	$0.588^{+0.028}_{-0.034}$ $(-0.2\sigma)$
$A_{100}^{\text{dust}}$	1.02	$1.01^{+0.51}_{-0.50}$ $(-0.0\sigma)$	$10^5 \text{D/H}$	2.560	$2.58^{+0.15}_{-0.14}$ $(-0.6\sigma)$	$f\sigma_8(2.33)$	0.2987	$0.297^{+0.014}_{-0.016}$ $(-0.2\sigma)$
$A_{143}^{\text{dust}}$	0.984	$0.96^{+0.46}_{-0.46}$ $(-0.1\sigma)$	Age/Gyr	13.91	$13.85^{+0.54}_{-0.53}$ $(+0.3\sigma)$	$\sigma_8(2.33)$	0.3086	$0.306^{+0.015}_{-0.018}$ $(-0.2\sigma)$
$A_{217}^{\text{dust}}$	0.988	$0.98^{+0.27}_{-0.26}$ $(+0.1\sigma)$	$z_*$	1089.67	$1089.8^{+1.0}_{-1.1}$ $(-0.6\sigma)$	$f_{2000}^{143}$	28.5	$29^{+9}_{-8}$ $(-0.4\sigma)$
$A_{143 \times 217}^{\text{dust}}$	1.012	$1.02^{+0.41}_{-0.41}$ $(-0.0\sigma)$	$r_*$	146.1	$145.3^{+5.3}_{-5.2}$ $(+0.3\sigma)$	$f_{2000}^{217}$	105.6	$106.5^{+5.8}_{-5.8}$ $(-0.4\sigma)$
$c_{100}$	0.99774	$0.9975^{+0.0027}_{-0.0027}$ $(+0.0\sigma)$	$100\theta_*$	1.04148	$1.0413^{+0.0016}_{-0.0015}$ $(+0.2\sigma)$	$f_{2000}^{143 \times 217}$	30.9	$32^{+6}_{-6}$ $(-0.5\sigma)$
$c_{217}$	1.00116	$1.0011^{+0.0040}_{-0.0040}$ $(-0.1\sigma)$	$D_M(z_*)/\text{Gpc}$	14.024	$13.95^{+0.50}_{-0.48}$ $(+0.3\sigma)$	$\chi_{\text{small}}^2$	395.84	$396.9 (\nu: 1.5)$ $(-0.1\sigma)$
$c_{TE}$	0.9957	$0.997^{+0.013}_{-0.013}$	$z_{\text{drag}}$	1059.28	$1059.6^{+2.0}_{-2.0}$ $(-0.1\sigma)$	$\chi_{\text{lowl}}^2$	23.33	$23.1 (\nu: 0.7)$ $(+0.3\sigma)$
$c_{EE}$	0.9908	$0.992^{+0.014}_{-0.014}$	$r_{\text{drag}}$	148.8	$148.0^{+5.5}_{-5.4}$ $(+0.3\sigma)$	$\chi_{\text{CamSpec}}^2$	11498.5	$11515.1 (\nu: 18.1)$ $(+761.3\sigma)$
$H_0$	67.27	$67.4^{+3.5}_{-3.3}$ $(-0.3\sigma)$	$k_D$	0.13954	$0.1401^{+0.0039}_{-0.0039}$ $(-0.2\sigma)$	$\chi_{6\text{DF}}^2$	0.006	$0.059 (\nu: 0.0)$ $(-0.0\sigma)$
$\Omega_\Lambda$	0.6924	$0.690^{+0.019}_{-0.020}$ $(-0.1\sigma)$	$100\theta_D$	0.16054	$0.1607^{+0.0013}_{-0.0013}$ $(-0.6\sigma)$	$\chi_{\text{MGS}}^2$	1.47	$1.36 (\nu: 0.1)$ $(-0.1\sigma)$
$\Omega_m$	0.3076	$0.310^{+0.020}_{-0.019}$ $(+0.1\sigma)$	$z_{\text{eq}}$	3391	$3380^{+73}_{-74}$ $(+0.3\sigma)$	$\chi_{\text{DR12BAO}}^2$	3.77	$4.8 (\nu: 1.3)$ $(+0.0\sigma)$
$\Omega_m h^2$	0.1392	$0.1411^{+0.0096}_{-0.0092}$ $(-0.3\sigma)$	$k_{\text{eq}}$	0.010249	$0.01028^{+0.00033}_{-0.00032}$ $(-0.2\sigma)$	$\chi_{\text{prior}}^2$	2.0	$7.8 (\nu: 5.9)$ $(+0.0\sigma)$
$\Omega_\nu h^2$	0.00002	$< 0.00225$ $(-0.1\sigma)$	$100\theta_{\text{eq}}$	0.8151	$0.817^{+0.014}_{-0.014}$ $(-0.2\sigma)$	$\chi_{\text{BAO}}^2$	5.25	$6.2 (\nu: 0.9)$ $(-0.0\sigma)$
$\Omega_m h^3$	0.0936	$0.095^{+0.011}_{-0.010}$ $(-0.3\sigma)$	$100\theta_{s,\text{eq}}$	0.4504	$0.4514^{+0.0072}_{-0.0070}$ $(-0.3\sigma)$	$\chi_{\text{CMB}}^2$	11917.7	$11935.2 (\nu: 17.8)$ $(+778.7\sigma)$

Best-fit  $\chi_{\text{eff}}^2 = 11924.95$ ;  $\Delta\chi_{\text{eff}}^2 = 4448.26$ ;  $\bar{\chi}_{\text{eff}}^2 = 11949.25$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 4450.61$ ;  $R - 1 = 0.00978$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.01 ( $\Delta$  0.00) MGS: 1.47 ( $\Delta$  -0.07) DR12BAO: 3.77 ( $\Delta$  0.10) CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.84 ( $\Delta$  0.03) commander\_dx12\_v3\_2\_29: 23.33 ( $\Delta$  0.23) CamSpec like\_10.7HM.1400.unified: 11498.54



**9.25 base\_nnu\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Pantheon18**

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022281	$0.02232^{+0.00048}_{-0.00050}$ (+0.2 $\sigma$ )	$S_8$	0.8234	$0.818^{+0.037}_{-0.039}$ (−0.1 $\sigma$ )	$H(0.38)$	82.67	$82.9^{+3.5}_{-3.4}$ (−0.3 $\sigma$ )
$\Omega_c h^2$	0.1174	$0.1183^{+0.0090}_{-0.0089}$ (−0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4510	$0.448^{+0.020}_{-0.022}$ (−0.1 $\sigma$ )	$D_M(0.38)$	1533	$1531^{+69}_{-68}$ (+0.3 $\sigma$ )
$100\theta_{MC}$	1.04116	$1.0411^{+0.0013}_{-0.0012}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6061	$0.601^{+0.025}_{-0.029}$ (−0.1 $\sigma$ )	$H(0.51)$	89.30	$89.6^{+3.6}_{-3.5}$ (−0.3 $\sigma$ )
$\tau$	0.0525	$0.053^{+0.022}_{-0.020}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9914	$0.981^{+0.034}_{-0.047}$ (−0.0 $\sigma$ )	$D_M(0.51)$	1987	$1984^{+88}_{-86}$ (+0.3 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.000	< 0.206 (−0.1 $\sigma$ )	$r_{drag} h$	100.22	$99.9^{+2.4}_{-2.3}$ (−0.1 $\sigma$ )	$H(0.61)$	94.84	$95.1^{+3.7}_{-3.7}$ (−0.3 $\sigma$ )
$N_{eff}$	2.94	$3.01^{+0.54}_{-0.52}$ (−0.4 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.436	$2.424^{+0.071}_{-0.076}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2313	$2309^{+100}_{-99}$ (+0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.033	$3.037^{+0.051}_{-0.049}$ (−0.2 $\sigma$ )	$z_{re}$	7.45	$7.6^{+2.2}_{-2.2}$ (−0.1 $\sigma$ )	$H(2.33)$	234.1	$235.2^{+8.0}_{-7.9}$ (−0.3 $\sigma$ )
$n_s$	0.9640	$0.966^{+0.020}_{-0.020}$ (−0.3 $\sigma$ )	$10^9 A_s$	2.076	$2.08^{+0.11}_{-0.10}$ (−0.2 $\sigma$ )	$D_M(2.33)$	5794	$5776^{+230}_{-220}$ (+0.3 $\sigma$ )
$y_{cal}$	1.0004	$1.0006^{+0.0063}_{-0.0065}$ (+0.0 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.869	$1.872^{+0.050}_{-0.051}$ (−0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4552	$0.453^{+0.019}_{-0.021}$ (−0.1 $\sigma$ )
$A_{100}^{PS}$	229	$239^{+60}_{-60}$ (−0.2 $\sigma$ )	$D_{40}$	1226.8	$1225^{+37}_{-36}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7531	$0.746^{+0.034}_{-0.040}$ (−0.2 $\sigma$ )
$A_{143}^{PS}$	43.1	$39^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{220}$	5720	$5722^{+99}_{-97}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4746	$0.472^{+0.019}_{-0.021}$ (−0.1 $\sigma$ )
$A_{217}^{PS}$	104.4	$102^{+30}_{-40}$ (+0.1 $\sigma$ )	$D_{810}$	2533.7	$2534^{+36}_{-36}$ (+0.0 $\sigma$ )	$\sigma_8(0.38)$	0.6679	$0.661^{+0.030}_{-0.036}$ (−0.2 $\sigma$ )
$A_{217}^{CIB}$	42.2	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	817.1	$816^{+13}_{-13}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4737	$0.471^{+0.019}_{-0.021}$ (−0.2 $\sigma$ )
$A_{143}^{tSZ}$	6.53	< 8.85 (+0.1 $\sigma$ )	$D_{2000}$	231.3	$230.7^{+5.3}_{-5.4}$ (+0.4 $\sigma$ )	$\sigma_8(0.51)$	0.6251	$0.619^{+0.029}_{-0.034}$ (−0.2 $\sigma$ )
$r_{143 \times 217}^{PS}$	0.675	$0.66^{+0.31}_{-0.34}$ (+0.1 $\sigma$ )	$n_{s,0.002}$	0.9640	$0.966^{+0.020}_{-0.020}$ (−0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4691	$0.466^{+0.019}_{-0.021}$ (−0.2 $\sigma$ )
$r_{143 \times 217}^{CIB}$	0.80	—	$Y_P$	0.2439	$0.2448^{+0.0073}_{-0.0074}$ (−0.4 $\sigma$ )	$\sigma_8(0.61)$	0.5949	$0.589^{+0.028}_{-0.033}$ (−0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.45	—	$Y_P^{BBN}$	0.2452	$0.2461^{+0.0073}_{-0.0074}$ (−0.4 $\sigma$ )	$f\sigma_8(2.33)$	0.2992	$0.297^{+0.014}_{-0.015}$ (−0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.565	$2.58^{+0.15}_{-0.15}$ (−0.6 $\sigma$ )	$\sigma_8(2.33)$	0.3091	$0.306^{+0.015}_{-0.017}$ (−0.2 $\sigma$ )
$A_{100}^{dust}$	1.01	$1.01^{+0.51}_{-0.51}$ (−0.0 $\sigma$ )	Age/Gyr	13.87	$13.83^{+0.54}_{-0.51}$ (+0.3 $\sigma$ )	$f_{2000}^{143}$	28.8	$29^{+9}_{-9}$ (−0.4 $\sigma$ )
$A_{143}^{dust}$	0.974	$0.96^{+0.45}_{-0.46}$ (−0.1 $\sigma$ )	$z_*$	1089.70	$1089.8^{+1.0}_{-1.1}$ (−0.6 $\sigma$ )	$f_{2000}^{217}$	105.9	$106.6^{+5.7}_{-5.8}$ (−0.4 $\sigma$ )
$A_{217}^{dust}$	0.980	$0.98^{+0.27}_{-0.26}$ (+0.1 $\sigma$ )	$r_*$	145.7	$145.2^{+5.3}_{-5.1}$ (+0.3 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.2	$32^{+6}_{-6}$ (−0.5 $\sigma$ )
$A_{143 \times 217}^{dust}$	1.011	$1.03^{+0.41}_{-0.41}$ (−0.0 $\sigma$ )	$100\theta_*$	1.04140	$1.0413^{+0.0016}_{-0.0015}$ (+0.2 $\sigma$ )	$\chi_{small}^2$	395.79	$397.0$ ( $\nu$ : 1.5) (−0.0 $\sigma$ )
$c_{100}$	0.99775	$0.9975^{+0.0027}_{-0.0027}$ (+0.0 $\sigma$ )	$D_M(z_*)/\text{Gpc}$	13.993	$13.94^{+0.49}_{-0.47}$ (+0.3 $\sigma$ )	$\chi_{lowl}^2$	23.28	$23.0$ ( $\nu$ : 0.7) (+0.3 $\sigma$ )
$c_{217}$	1.00120	$1.0011^{+0.0040}_{-0.0040}$ (−0.1 $\sigma$ )	$z_{drag}$	1059.44	$1059.6^{+2.0}_{-1.9}$ (−0.1 $\sigma$ )	$\chi_{CamSpec}^2$	11498.6	$11515.2$ ( $\nu$ : 18.1) (+764.5 $\sigma$ )
$c_{TE}$	0.9957	$0.997^{+0.013}_{-0.013}$	$r_{drag}$	148.4	$147.9^{+5.5}_{-5.3}$ (+0.3 $\sigma$ )	$\chi_{JLA}^2$	1034.85	$1035.05$ ( $\nu$ : 0.1) (+0.1 $\sigma$ )
$c_{EE}$	0.9909	$0.992^{+0.014}_{-0.014}$	$k_D$	0.13981	$0.1402^{+0.0039}_{-0.0038}$ (−0.2 $\sigma$ )	$\chi_{6DF}^2$	0.003	$0.047$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$H_0$	67.52	$67.6^{+3.4}_{-3.2}$ (−0.3 $\sigma$ )	$100\theta_D$	0.16059	$0.1608^{+0.0013}_{-0.0013}$ (−0.6 $\sigma$ )	$\chi_{MGS}^2$	1.54	$1.44$ ( $\nu$ : 0.1) (−0.2 $\sigma$ )
$\Omega_\Lambda$	0.6935	$0.691^{+0.018}_{-0.019}$ (−0.1 $\sigma$ )	$z_{eq}$	3388	$3377^{+70}_{-71}$ (+0.3 $\sigma$ )	$\chi_{DR12BAO}^2$	3.67	$4.5$ ( $\nu$ : 0.9) (+0.0 $\sigma$ )
$\Omega_m$	0.3065	$0.309^{+0.019}_{-0.018}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010265	$0.01028^{+0.00033}_{-0.00032}$ (−0.2 $\sigma$ )	$\chi_{prior}^2$	2.0	$7.9$ ( $\nu$ : 6.0) (+0.0 $\sigma$ )
$\Omega_m h^2$	0.1397	$0.1412^{+0.0096}_{-0.0092}$ (−0.3 $\sigma$ )	$100\theta_{eq}$	0.8156	$0.818^{+0.014}_{-0.013}$ (−0.3 $\sigma$ )	$\chi_{BAO}^2$	5.21	$6.0$ ( $\nu$ : 0.6) (−0.0 $\sigma$ )
$\Omega_\nu h^2$	0.00000	< 0.00218 (−0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4507	$0.4518^{+0.0069}_{-0.0067}$ (−0.3 $\sigma$ )	$\chi_{CMB}^2$	11917.7	$11935.2$ ( $\nu$ : 17.9) (+778.3 $\sigma$ )
$\Omega_m h^3$	0.0943	$0.095^{+0.011}_{-0.010}$ (−0.3 $\sigma$ )	$H(0.15)$	72.71	$72.8^{+3.4}_{-3.2}$ (−0.3 $\sigma$ )			
$\sigma_8$	0.8146	$0.807^{+0.036}_{-0.043}$ (−0.2 $\sigma$ )	$D_M(0.15)$	642.5	$642^{+31}_{-30}$ (+0.3 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 12959.81$ ;  $\Delta\chi_{eff}^2 = 4448.37$ ;  $\bar{\chi}_{eff}^2 = 12984.10$ ;  $\Delta\bar{\chi}_{eff}^2 = 4450.57$ ;  $R - 1 = 0.01027$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  0.00) MGS: 1.54 ( $\Delta$  -0.14) DR12BAO: 3.67 ( $\Delta$  0.16) CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.79 ( $\Delta$  -0.08) commander\_dx12\_v3\_2\_29: 23.28 ( $\Delta$  0.52) CamSpec like\_10.7HM.1400.unified: 11498.65 SN - JLA Pantheon18: 1034.85 ( $\Delta$  0.05)



## 9.26 base\_nnu\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022260	$0.02228^{+0.00046}_{-0.00048}$ (+0.4 $\sigma$ )	$S_8$	0.8258	$0.819^{+0.037}_{-0.039}$ (−0.1 $\sigma$ )	$H(0.38)$	82.46	$82.6^{+2.9}_{-2.8}$ (−0.2 $\sigma$ )
$\Omega_c h^2$	0.1173	$0.1177^{+0.0076}_{-0.0070}$ (−0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4523	$0.448^{+0.020}_{-0.022}$ (−0.1 $\sigma$ )	$D_M(0.38)$	1538	$1537^{+59}_{-58}$ (+0.2 $\sigma$ )
$100\theta_{MC}$	1.04116	$1.0411^{+0.0011}_{-0.0011}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6070	$0.601^{+0.024}_{-0.029}$ (−0.1 $\sigma$ )	$H(0.51)$	89.09	$89.2^{+3.0}_{-2.9}$ (−0.2 $\sigma$ )
$\tau$	0.0529	$0.053^{+0.022}_{-0.021}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9931	$0.981^{+0.034}_{-0.048}$ (−0.0 $\sigma$ )	$D_M(0.51)$	1993	$1991^{+75}_{-74}$ (+0.2 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.003	< 0.209 (−0.1 $\sigma$ )	$r_{drag} h$	99.99	$99.7^{+2.4}_{-2.4}$ (−0.1 $\sigma$ )	$H(0.61)$	94.64	$94.8^{+3.1}_{-3.0}$ (−0.2 $\sigma$ )
$N_{eff}$	2.915	$2.97^{+0.45}_{-0.42}$ (−0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.442	$2.427^{+0.072}_{-0.076}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2320	$2317^{+85}_{-84}$ (+0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0333	$3.035^{+0.048}_{-0.046}$ (−0.1 $\sigma$ )	$z_{re}$	7.49	$7.5^{+2.1}_{-2.2}$ (−0.1 $\sigma$ )	$H(2.33)$	233.9	$234.7^{+6.6}_{-6.3}$ (−0.2 $\sigma$ )
$n_s$	0.9630	$0.965^{+0.017}_{-0.017}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.077	$2.08^{+0.10}_{-0.094}$ (−0.1 $\sigma$ )	$D_M(2.33)$	5806	$5794^{+180}_{-180}$ (+0.2 $\sigma$ )
$y_{cal}$	1.0004	$1.0006^{+0.0063}_{-0.0065}$ (+0.0 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8682	$1.870^{+0.044}_{-0.044}$ (−0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4564	$0.453^{+0.019}_{-0.020}$ (−0.1 $\sigma$ )
$A_{100}^{PS}$	228	$238^{+60}_{-60}$ (−0.1 $\sigma$ )	$D_{40}$	1228.6	$1226^{+36}_{-35}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7529	$0.744^{+0.031}_{-0.040}$ (−0.1 $\sigma$ )
$A_{143}^{PS}$	44.6	$38^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5720	$5721^{+100}_{-96}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4754	$0.471^{+0.019}_{-0.021}$ (−0.1 $\sigma$ )
$A_{217}^{PS}$	104.8	$102^{+30}_{-40}$ (+0.1 $\sigma$ )	$D_{810}$	2534.0	$2533^{+36}_{-35}$ (+0.0 $\sigma$ )	$\sigma_8(0.38)$	0.6675	$0.659^{+0.028}_{-0.036}$ (−0.1 $\sigma$ )
$A_{217}^{CIB}$	41.7	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	817.4	$817^{+13}_{-13}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4743	$0.470^{+0.018}_{-0.021}$ (−0.1 $\sigma$ )
$A_{143}^{tSZ}$	6.48	< 8.84 (+0.1 $\sigma$ )	$D_{2000}$	231.5	$230.9^{+4.9}_{-5.1}$ (+0.4 $\sigma$ )	$\sigma_8(0.51)$	0.6248	$0.617^{+0.026}_{-0.034}$ (−0.1 $\sigma$ )
$r_{143 \times 217}^{PS}$	0.700	$0.66^{+0.31}_{-0.34}$ (+0.1 $\sigma$ )	$n_{s,0.002}$	0.9630	$0.965^{+0.017}_{-0.017}$ (−0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4695	$0.465^{+0.018}_{-0.021}$ (−0.1 $\sigma$ )
$r_{143 \times 217}^{CIB}$	0.82	—	$Y_P$	0.2436	$0.2443^{+0.0060}_{-0.0060}$ (−0.3 $\sigma$ )	$\sigma_8(0.61)$	0.5945	$0.587^{+0.025}_{-0.033}$ (−0.1 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.59	—	$Y_P^{BBN}$	0.2449	$0.2456^{+0.0060}_{-0.0060}$ (−0.3 $\sigma$ )	$f\sigma_8(2.33)$	0.2989	$0.296^{+0.012}_{-0.015}$ (−0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.561	$2.57^{+0.13}_{-0.12}$ (−0.6 $\sigma$ )	$\sigma_8(2.33)$	0.3087	$0.305^{+0.014}_{-0.017}$ (−0.1 $\sigma$ )
$A_{100}^{dust}$	1.01	$1.01^{+0.51}_{-0.51}$ (−0.0 $\sigma$ )	Age/Gyr	13.899	$13.87^{+0.43}_{-0.43}$ (+0.2 $\sigma$ )	$f_{2000}^{143}$	28.5	$29^{+8}_{-8}$ (−0.4 $\sigma$ )
$A_{143}^{dust}$	0.973	$0.96^{+0.45}_{-0.46}$ (−0.1 $\sigma$ )	$z_*$	1089.68	$1089.75^{+0.94}_{-0.93}$ (−0.5 $\sigma$ )	$f_{2000}^{217}$	105.6	$106.4^{+5.6}_{-5.5}$ (−0.4 $\sigma$ )
$A_{217}^{dust}$	0.981	$0.98^{+0.27}_{-0.26}$ (+0.1 $\sigma$ )	$r_*$	145.90	$145.5^{+4.3}_{-4.2}$ (+0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	30.9	$32^{+6}_{-6}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{dust}$	1.006	$1.02^{+0.41}_{-0.41}$ (−0.0 $\sigma$ )	$100\theta_*$	1.04141	$1.0414^{+0.0013}_{-0.0013}$ (+0.1 $\sigma$ )	$\chi_{small}^2$	395.83	$396.9$ ( $\nu$ : 1.5) (−0.0 $\sigma$ )
$c_{100}$	0.99779	$0.9975^{+0.0027}_{-0.0027}$ (+0.0 $\sigma$ )	$D_M(z_*)/\text{Gpc}$	14.010	$13.97^{+0.40}_{-0.39}$ (+0.2 $\sigma$ )	$\chi_{lowl}^2$	23.45	$23.2$ ( $\nu$ : 0.6) (+0.2 $\sigma$ )
$c_{217}$	1.00120	$1.0011^{+0.0040}_{-0.0040}$ (−0.1 $\sigma$ )	$z_{drag}$	1059.36	$1059.5^{+1.7}_{-1.7}$ (+0.1 $\sigma$ )	$\chi_{CamSpec}^2$	11498.3	$11514.7$ ( $\nu$ : 17.3) (+780.2 $\sigma$ )
$c_{TE}$	0.9955	$0.996^{+0.013}_{-0.013}$	$r_{drag}$	148.62	$148.2^{+4.4}_{-4.4}$ (+0.2 $\sigma$ )	$\chi_{Aver15}^2$	0.00	$0.37$ ( $\nu$ : 0.1) (−0.2 $\sigma$ )
$c_{EE}$	0.9906	$0.992^{+0.014}_{-0.014}$	$k_D$	0.13968	$0.1399^{+0.0032}_{-0.0031}$ (−0.1 $\sigma$ )	$\chi_{6DF}^2$	0.010	$0.060$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$H_0$	67.28	$67.3^{+2.9}_{-2.8}$ (−0.2 $\sigma$ )	$100\theta_D$	0.16053	$0.1607^{+0.0011}_{-0.0011}$ (−0.6 $\sigma$ )	$\chi_{MGS}^2$	1.41	$1.33$ ( $\nu$ : 0.1) (−0.1 $\sigma$ )
$\Omega_\Lambda$	0.6917	$0.689^{+0.019}_{-0.020}$ (−0.1 $\sigma$ )	$z_{eq}$	3394	$3382^{+70}_{-70}$ (+0.2 $\sigma$ )	$\chi_{DR12BAO}^2$	3.90	$4.8$ ( $\nu$ : 1.3) (+0.0 $\sigma$ )
$\Omega_m$	0.3083	$0.311^{+0.020}_{-0.019}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010268	$0.01027^{+0.00029}_{-0.00028}$ (−0.1 $\sigma$ )	$\chi_{prior}^2$	2.0	$7.8$ ( $\nu$ : 5.9) (+0.1 $\sigma$ )
$\Omega_m h^2$	0.1396	$0.1406^{+0.0080}_{-0.0074}$ (−0.2 $\sigma$ )	$100\theta_{eq}$	0.8144	$0.817^{+0.014}_{-0.013}$ (−0.2 $\sigma$ )	$\chi_{BAO}^2$	5.31	$6.2$ ( $\nu$ : 0.9) (−0.0 $\sigma$ )
$\Omega_\nu h^2$	0.00003	< 0.00222 (−0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4501	$0.4513^{+0.0069}_{-0.0067}$ (−0.2 $\sigma$ )	$\chi_{CMB}^2$	11917.6	$11934.8$ ( $\nu$ : 17.2) (+794.3 $\sigma$ )
$\Omega_m h^3$	0.0939	$0.0947^{+0.0088}_{-0.0081}$ (−0.2 $\sigma$ )	$H(0.15)$	72.48	$72.5^{+2.9}_{-2.7}$ (−0.2 $\sigma$ )			
$\sigma_8$	0.8146	$0.805^{+0.033}_{-0.043}$ (−0.1 $\sigma$ )	$D_M(0.15)$	644.6	$644^{+26}_{-26}$ (+0.2 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 11924.93$ ;  $\Delta\chi_{eff}^2 = 4448.25$ ;  $\bar{\chi}_{eff}^2 = 11949.22$ ;  $\Delta\bar{\chi}_{eff}^2 = 4450.42$ ;  $R - 1 = 0.01005$   
 $\chi_{eff}^2$ : Abund - Yp\_Aver2015: 0.00 ( $\Delta$  -0.05) BAO - 6DF: 0.01 ( $\Delta$  0.00) MGS: 1.41 ( $\Delta$  -0.07) DR12BAO: 3.90 ( $\Delta$  0.14) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.83 ( $\Delta$  -0.04) commander\_dx12\_v3.2\_29: 23.45 ( $\Delta$  0.17) CamSpec like\_10.7HM\_1400\_unified: 11498.32



**9.27 base\_nnu\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Cooke17\_Aver15**

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022251	$0.02228^{+0.00046}_{-0.00047} \quad (+0.4\sigma)$	$S_8$	0.8282	$0.820^{+0.036}_{-0.040} \quad (-0.0\sigma)$	$H(0.38)$	82.70	$82.7^{+2.8}_{-2.7} \quad (-0.1\sigma)$
$\Omega_c h^2$	0.1181	$0.1182^{+0.0070}_{-0.0065} \quad (-0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4536	$0.449^{+0.020}_{-0.022} \quad (-0.0\sigma)$	$D_M(0.38)$	1534	$1535^{+57}_{-56} \quad (+0.1\sigma)$
$100\theta_{MC}$	1.04108	$1.0410^{+0.0011}_{-0.0010} \quad (-0.0\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6088	$0.601^{+0.024}_{-0.030} \quad (-0.0\sigma)$	$H(0.51)$	89.35	$89.4^{+2.9}_{-2.7} \quad (-0.1\sigma)$
$\tau$	0.0531	$0.053^{+0.021}_{-0.021} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	0.9946	$0.981^{+0.034}_{-0.049} \quad (-0.0\sigma)$	$D_M(0.51)$	1987	$1988^{+72}_{-71} \quad (+0.1\sigma)$
$\Sigma m_\nu$ [eV]	0.003	$< 0.211 \quad (-0.1\sigma)$	$r_{drag} h$	99.99	$99.7^{+2.4}_{-2.4} \quad (-0.1\sigma)$	$H(0.61)$	94.92	$95.0^{+3.0}_{-2.8} \quad (-0.1\sigma)$
$N_{eff}$	2.959	$2.99^{+0.42}_{-0.39} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	2.442	$2.427^{+0.073}_{-0.077} \quad (+0.1\sigma)$	$D_M(0.61)$	2313	$2313^{+82}_{-80} \quad (+0.1\sigma)$
$\ln(10^{10} A_s)$	3.0355	$3.036^{+0.048}_{-0.046} \quad (-0.1\sigma)$	$z_{re}$	7.53	$7.5^{+2.1}_{-2.3} \quad (-0.1\sigma)$	$H(2.33)$	234.6	$235.1^{+6.1}_{-5.8} \quad (-0.1\sigma)$
$n_s$	0.9642	$0.965^{+0.017}_{-0.017} \quad (-0.2\sigma)$	$10^9 A_s$	2.081	$2.08^{+0.10}_{-0.094} \quad (-0.1\sigma)$	$D_M(2.33)$	5789	$5784^{+170}_{-170} \quad (+0.1\sigma)$
$y_{cal}$	1.0003	$1.0005^{+0.0063}_{-0.0064} \quad (+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	1.8715	$1.872^{+0.042}_{-0.042} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	0.4578	$0.454^{+0.019}_{-0.021} \quad (-0.0\sigma)$
$A_{100}^{PS}$	230	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{40}$	1226.9	$1226^{+36}_{-34} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	0.7552	$0.745^{+0.030}_{-0.041} \quad (-0.1\sigma)$
$A_{143}^{PS}$	44.4	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	5715	$5720^{+100}_{-96} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	0.4768	$0.472^{+0.018}_{-0.021} \quad (-0.1\sigma)$
$A_{217}^{PS}$	103.9	$102^{+30}_{-40} \quad (+0.1\sigma)$	$D_{810}$	2533.7	$2534^{+36}_{-35} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	0.6695	$0.660^{+0.027}_{-0.037} \quad (-0.1\sigma)$
$A_{217}^{CIB}$	42.7	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	816.5	$816^{+13}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	0.4757	$0.471^{+0.018}_{-0.021} \quad (-0.1\sigma)$
$A_{143}^{tSZ}$	6.51	$< 8.82 \quad (+0.1\sigma)$	$D_{2000}$	231.02	$230.6^{+4.7}_{-4.8} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	0.6266	$0.618^{+0.026}_{-0.035} \quad (-0.1\sigma)$
$r_{143 \times 217}^{PS}$	0.676	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$n_{s,0.002}$	0.9642	$0.965^{+0.017}_{-0.017} \quad (-0.2\sigma)$	$f\sigma_8(0.61)$	0.4709	$0.466^{+0.017}_{-0.022} \quad (-0.1\sigma)$
$r_{143 \times 217}^{CIB}$	0.83	—	$Y_P$	0.2442	$0.2446^{+0.0056}_{-0.0056} \quad (-0.2\sigma)$	$\sigma_8(0.61)$	0.5963	$0.588^{+0.024}_{-0.033} \quad (-0.1\sigma)$
$\xi^{tSZ \times CIB}$	0.49	—	$Y_P^{BBN}$	0.2455	$0.2459^{+0.0056}_{-0.0056} \quad (-0.2\sigma)$	$f\sigma_8(2.33)$	0.2998	$0.297^{+0.012}_{-0.015} \quad (-0.1\sigma)$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.578	$2.58^{+0.11}_{-0.11} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	0.3097	$0.306^{+0.013}_{-0.017} \quad (-0.1\sigma)$
$A_{100}^{dust}$	1.01	$1.01^{+0.51}_{-0.51} \quad (-0.0\sigma)$	Age/Gyr	13.859	$13.85^{+0.40}_{-0.40} \quad (+0.1\sigma)$	$f_{2000}^{143}$	29.1	$29^{+8}_{-8} \quad (-0.3\sigma)$
$A_{143}^{dust}$	0.974	$0.96^{+0.45}_{-0.46} \quad (-0.1\sigma)$	$z_*$	1089.81	$1089.81^{+0.84}_{-0.84} \quad (-0.5\sigma)$	$f_{2000}^{217}$	106.1	$106.6^{+5.5}_{-5.4} \quad (-0.3\sigma)$
$A_{217}^{dust}$	0.978	$0.98^{+0.28}_{-0.26} \quad (+0.1\sigma)$	$r_*$	145.46	$145.3^{+3.9}_{-3.9} \quad (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	31.4	$32^{+6}_{-6} \quad (-0.4\sigma)$
$A_{143 \times 217}^{dust}$	1.000	$1.03^{+0.41}_{-0.41} \quad (-0.0\sigma)$	$100\theta_*$	1.04130	$1.0413^{+0.0013}_{-0.0012} \quad (-0.0\sigma)$	$\chi_{simall}^2$	395.85	$396.9 \quad (\nu: 1.4) \quad (-0.0\sigma)$
$c_{100}$	0.99775	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$D_M(z_*)/\text{Gpc}$	13.970	$13.95^{+0.36}_{-0.36} \quad (+0.1\sigma)$	$\chi_{lowl}^2$	23.31	$23.1 \quad (\nu: 0.6) \quad (+0.2\sigma)$
$c_{217}$	1.00127	$1.0011^{+0.0041}_{-0.0040} \quad (-0.1\sigma)$	$z_{drag}$	1059.44	$1059.6^{+1.6}_{-1.6} \quad (+0.2\sigma)$	$\chi_{CamSpec}^2$	11498.5	$11514.7 \quad (\nu: 17.2) \quad (+788.8\sigma)$
$c_{TE}$	0.9960	$0.997^{+0.013}_{-0.012}$	$r_{drag}$	148.18	$148.0^{+4.1}_{-4.1} \quad (+0.1\sigma)$	$\chi_{Aver15}^2$	0.02	$0.36 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$c_{EE}$	0.9914	$0.992^{+0.014}_{-0.013}$	$k_D$	0.13996	$0.1401^{+0.0030}_{-0.0029} \quad (-0.0\sigma)$	$\chi_{Cooke17}^2$	0.18	$0.35 \quad (\nu: 0.1) \quad (+0.2\sigma)$
$H_0$	67.48	$67.4^{+2.8}_{-2.7} \quad (-0.1\sigma)$	$100\theta_D$	0.16068	$0.16075^{+0.00099}_{-0.00097} \quad (-0.5\sigma)$	$\chi_{6DF}^2$	0.010	$0.059 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$\Omega_\Lambda$	0.6917	$0.689^{+0.019}_{-0.020} \quad (-0.0\sigma)$	$z_{eq}$	3393	$3381^{+71}_{-70} \quad (+0.2\sigma)$	$\chi_{MGS}^2$	1.41	$1.33 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\Omega_m$	0.3083	$0.311^{+0.020}_{-0.019} \quad (+0.0\sigma)$	$k_{eq}$	0.010295	$0.01028^{+0.00028}_{-0.00027} \quad (-0.0\sigma)$	$\chi_{DR12BAO}^2$	3.90	$4.8 \quad (\nu: 1.3) \quad (+0.0\sigma)$
$\Omega_m h^2$	0.1404	$0.1411^{+0.0073}_{-0.0069} \quad (-0.1\sigma)$	$100\theta_{eq}$	0.8146	$0.817^{+0.014}_{-0.013} \quad (-0.2\sigma)$	$\chi_{prior}^2$	2.0	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\Omega_\nu h^2$	0.00004	$< 0.00225 \quad (-0.1\sigma)$	$100\theta_{s,eq}$	0.4502	$0.4514^{+0.0069}_{-0.0067} \quad (-0.2\sigma)$	$\chi_{BAO}^2$	5.32	$6.2 \quad (\nu: 0.9) \quad (-0.0\sigma)$
$\Omega_m h^3$	0.0947	$0.0951^{+0.0082}_{-0.0075} \quad (-0.1\sigma)$	$H(0.15)$	72.70	$72.7^{+2.8}_{-2.7} \quad (-0.1\sigma)$	$\chi_{CMB}^2$	11917.6	$11934.7 \quad (\nu: 17.0) \quad (+803.3\sigma)$
$\sigma_8$	0.8170	$0.806^{+0.032}_{-0.044} \quad (-0.1\sigma)$	$D_M(0.15)$	642.7	$643^{+25}_{-25} \quad (+0.1\sigma)$	$\chi_{Abund}^2$	0.20	$0.71 \quad (\nu: 0.2) \quad (-0.1\sigma)$

Best-fit  $\chi_{eff}^2 = 11925.20$ ;  $\Delta\chi_{eff}^2 = 4448.43$ ;  $\bar{\chi}_{eff}^2 = 11949.45$ ;  $\Delta\bar{\chi}_{eff}^2 = 4450.64$ ;  $R - 1 = 0.01051$   
 $\chi_{eff}^2$ : Abund - Yp\_Aver2015: 0.02 ( $\Delta$  -0.03) D\_Cooke2017: 0.18 ( $\Delta$  0.15) BAO - 6DF: 0.01 ( $\Delta$  0.00) MGS: 1.41 ( $\Delta$  0.00) DR12BAO: 3.90 ( $\Delta$  0.02) CMB - simall\_100x143\_offlike5\_EE\_Aplan  
395.85 ( $\Delta$  -0.02) commander\_dx12\_v3.2\_29: 23.31 ( $\Delta$  -0.04) CamSpec like\_10.7HM\_1400\_unified: 11498.48



## 9.28 base\_nnu\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02232^{+0.00048}_{-0.00050} \quad (+0.2\sigma)$	$S_8$	$0.819^{+0.036}_{-0.038} \quad (-0.1\sigma)$	$H(0.38)$	$82.9^{+3.6}_{-3.4} \quad (-0.3\sigma)$
$\Omega_c h^2$	$0.1183^{+0.0090}_{-0.0089} \quad (-0.3\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.449^{+0.020}_{-0.021} \quad (-0.1\sigma)$	$D_M(0.38)$	$1531^{+69}_{-68} \quad (+0.3\sigma)$
$100\theta_{MC}$	$1.0410^{+0.0013}_{-0.0012} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.602^{+0.025}_{-0.029} \quad (-0.1\sigma)$	$H(0.51)$	$89.6^{+3.6}_{-3.5} \quad (-0.3\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.982^{+0.033}_{-0.045} \quad (-0.0\sigma)$	$D_M(0.51)$	$1983^{+88}_{-87} \quad (+0.3\sigma)$
$\Sigma m_\nu$ [eV]	$< 0.207 \quad (-0.1\sigma)$	$r_{\text{drag}} h$	$99.9^{+2.4}_{-2.3} \quad (-0.1\sigma)$	$H(0.61)$	$95.2^{+3.8}_{-3.7} \quad (-0.3\sigma)$
$N_{\text{eff}}$	$3.01^{+0.54}_{-0.52} \quad (-0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.427^{+0.069}_{-0.071} \quad (+0.1\sigma)$	$D_M(0.61)$	$2308^{+100}_{-99} \quad (+0.3\sigma)$
$\ln(10^{10} A_s)$	$3.039^{+0.050}_{-0.038} \quad (-0.2\sigma)$	$z_{\text{re}}$	$< 9.51 \quad (-0.1\sigma)$	$H(2.33)$	$235.2^{+8.0}_{-7.9} \quad (-0.3\sigma)$
$n_s$	$0.966^{+0.020}_{-0.020} \quad (-0.4\sigma)$	$10^9 A_s$	$2.09^{+0.11}_{-0.078} \quad (-0.2\sigma)$	$D_M(2.33)$	$5775^{+230}_{-220} \quad (+0.3\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0064}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	$1.872^{+0.050}_{-0.051} \quad (-0.3\sigma)$	$f\sigma_8(0.15)$	$0.454^{+0.019}_{-0.020} \quad (-0.1\sigma)$
$A_{100}^{\text{PS}}$	$239^{+60}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1224^{+37}_{-36} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.033}_{-0.040} \quad (-0.2\sigma)$
$A_{143}^{\text{PS}}$	$38^{+20}_{-20} \quad (-0.3\sigma)$	$D_{220}$	$5722^{+100}_{-97} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.019}_{-0.021} \quad (-0.1\sigma)$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2534^{+36}_{-36} \quad (+0.0\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.030}_{-0.036} \quad (-0.2\sigma)$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.019}_{-0.021} \quad (-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.86 \quad (+0.1\sigma)$	$D_{2000}$	$230.7^{+5.3}_{-5.4} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.028}_{-0.034} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$n_{s,0.002}$	$0.966^{+0.020}_{-0.020} \quad (-0.4\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.019}_{-0.021} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_P$	$0.2449^{+0.0072}_{-0.0074} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.027}_{-0.032} \quad (-0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P^{\text{BBN}}$	$0.2462^{+0.0073}_{-0.0074} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.014}_{-0.015} \quad (-0.2\sigma)$
$A^{\text{kSZ}}$	—	$10^5 D/H$	$2.58^{+0.14}_{-0.15} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.307^{+0.015}_{-0.017} \quad (-0.2\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.51} \quad (-0.0\sigma)$	$\text{Age/Gyr}$	$13.83^{+0.54}_{-0.52} \quad (+0.3\sigma)$	$f_{2000}^{143}$	$29^{+9}_{-8} \quad (-0.4\sigma)$
$A_{143}^{\text{dust}}$	$0.96^{+0.46}_{-0.46} \quad (-0.1\sigma)$	$z_*$	$1089.8^{+1.0}_{-1.1} \quad (-0.6\sigma)$	$f_{2000}^{217}$	$106.5^{+5.8}_{-5.8} \quad (-0.4\sigma)$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.26} \quad (+0.1\sigma)$	$r_*$	$145.1^{+5.3}_{-5.1} \quad (+0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.41}_{-0.41} \quad (-0.0\sigma)$	$100\theta_*$	$1.0413^{+0.0016}_{-0.0015} \quad (+0.2\sigma)$	$\chi_{\text{small}}^2$	$396.9 \quad (\nu: 1.6) \quad (-0.0\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.94^{+0.49}_{-0.47} \quad (+0.3\sigma)$	$\chi_{\text{lowl}}^2$	$23.0 \quad (\nu: 0.7) \quad (+0.3\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040} \quad (-0.1\sigma)$	$z_{\text{drag}}$	$1059.7^{+1.9}_{-1.9} \quad (-0.1\sigma)$	$\chi_{\text{CamSpec}}^2$	$11515.1 \quad (\nu: 17.9) \quad (+770.7\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$147.8^{+5.5}_{-5.3} \quad (+0.3\sigma)$	$\chi_{\text{JLA}}^2$	$1035.04 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{EE}$	$0.992^{+0.015}_{-0.014}$	$k_D$	$0.1402^{+0.0039}_{-0.0038} \quad (-0.2\sigma)$	$\chi_{6\text{DF}}^2$	$0.046 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$H_0$	$67.6^{+3.4}_{-3.2} \quad (-0.3\sigma)$	$100\theta_D$	$0.1608^{+0.0013}_{-0.0013} \quad (-0.6\sigma)$	$\chi_{\text{MGS}}^2$	$1.45 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_\Lambda$	$0.691^{+0.018}_{-0.019} \quad (-0.1\sigma)$	$z_{\text{eq}}$	$3376^{+70}_{-70} \quad (+0.3\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.5 \quad (\nu: 0.9) \quad (+0.0\sigma)$
$\Omega_m$	$0.309^{+0.019}_{-0.018} \quad (+0.1\sigma)$	$k_{\text{eq}}$	$0.01028^{+0.00033}_{-0.00032} \quad (-0.2\sigma)$	$\chi_{\text{prior}}^2$	$7.9 \quad (\nu: 6.0) \quad (+0.1\sigma)$
$\Omega_m h^2$	$0.1412^{+0.0096}_{-0.0093} \quad (-0.3\sigma)$	$100\theta_{\text{eq}}$	$0.818^{+0.014}_{-0.013} \quad (-0.3\sigma)$	$\chi_{\text{BAO}}^2$	$6.0 \quad (\nu: 0.6) \quad (-0.0\sigma)$
$\Omega_\nu h^2$	$< 0.00220 \quad (-0.1\sigma)$	$100\theta_{s,\text{eq}}$	$0.4518^{+0.0069}_{-0.0066} \quad (-0.3\sigma)$	$\chi_{\text{CMB}}^2$	$11935.0 \quad (\nu: 17.5) \quad (+789.4\sigma)$
$\Omega_m h^3$	$0.096^{+0.011}_{-0.010} \quad (-0.3\sigma)$	$H(0.15)$	$72.9^{+3.4}_{-3.2} \quad (-0.3\sigma)$		
$\sigma_8$	$0.808^{+0.035}_{-0.042} \quad (-0.2\sigma)$	$D_M(0.15)$	$641^{+31}_{-30} \quad (+0.3\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 12983.89; \Delta\bar{\chi}_{\text{eff}}^2 = 4450.62; R - 1 = 0.01046$$



## 9.29 base\_nnu\_mnu\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02218	$0.02223^{+0.00063}_{-0.00061}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6092	$0.606^{+0.022}_{-0.024}$	$D_{\mathrm{M}}(0.38)$	1531	$1524^{+80}_{-75}$
$\Omega_{\mathrm{c}} h^2$	0.1183	$0.1199^{+0.0097}_{-0.0094}$	$\sigma_8/h^{0.5}$	0.9952	$0.986^{+0.027}_{-0.036}$	$H(0.51)$	89.45	$90.0^{+4.1}_{-4.0}$
$100\theta_{\mathrm{MC}}$	1.04106	$1.0409^{+0.0015}_{-0.0014}$	$r_{\mathrm{drag}} h$	100.10	$99.9^{+2.7}_{-2.7}$	$D_{\mathrm{M}}(0.51)$	1985	$1974^{+100}_{-95}$
$\tau$	0.0530	$0.054^{+0.021}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	2.442	$2.433^{+0.062}_{-0.062}$	$H(0.61)$	95.01	$95.6^{+4.2}_{-4.1}$
$\Sigma m_{\nu} [\mathrm{eV}]$	0.000	$< 0.199$	$z_{\mathrm{re}}$	7.55	$7.7^{+2.0}_{-2.1}$	$D_{\mathrm{M}}(0.61)$	2310	$2298^{+120}_{-110}$
$N_{\mathrm{eff}}$	2.98	$3.09^{+0.61}_{-0.59}$	$10^9 A_{\mathrm{s}}$	2.083	$2.10^{+0.10}_{-0.095}$	$H(2.33)$	234.7	$236.4^{+8.8}_{-8.6}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0366	$3.044^{+0.049}_{-0.046}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.874	$1.882^{+0.051}_{-0.054}$	$D_{\mathrm{M}}(2.33)$	5783	$5748^{+250}_{-240}$
$n_{\mathrm{s}}$	0.9646	$0.967^{+0.023}_{-0.023}$	$D_{40}$	1227.2	$1226^{+38}_{-39}$	$f\sigma_8(0.15)$	0.4578	$0.457^{+0.017}_{-0.018}$
$y_{\mathrm{cal}}$	1.0003	$1.0006^{+0.0064}_{-0.0063}$	$D_{220}$	5715	$5722^{+110}_{-100}$	$\sigma_8(0.15)$	0.7563	$0.751^{+0.031}_{-0.035}$
$A_{217}^{\mathrm{CIB}}$	47.4	$48^{+20}_{-20}$	$D_{810}$	2535.4	$2537^{+37}_{-36}$	$f\sigma_8(0.38)$	0.4771	$0.476^{+0.017}_{-0.018}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.46	—	$D_{1420}$	816.3	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6706	$0.666^{+0.029}_{-0.032}$
$A_{143}^{\mathrm{tSZ}}$	7.0	—	$D_{2000}$	230.7	$229.7^{+5.6}_{-5.7}$	$f\sigma_8(0.51)$	0.4761	$0.475^{+0.017}_{-0.018}$
$A_{100}^{\mathrm{PS}}$	251	$264^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	0.9646	$0.967^{+0.023}_{-0.023}$	$\sigma_8(0.51)$	0.6276	$0.624^{+0.027}_{-0.031}$
$A_{143}^{\mathrm{PS}}$	49.7	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	0.2444	$0.2459^{+0.0080}_{-0.0083}$	$f\sigma_8(0.61)$	0.4713	$0.470^{+0.016}_{-0.018}$
$A_{143 \times 217}^{\mathrm{PS}}$	49.4	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2457	$0.2472^{+0.0081}_{-0.0083}$	$\sigma_8(0.61)$	0.5972	$0.593^{+0.026}_{-0.029}$
$A_{217}^{\mathrm{PS}}$	120.2	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	2.597	$2.63^{+0.18}_{-0.17}$	$f\sigma_8(2.33)$	0.3003	$0.299^{+0.013}_{-0.014}$
$A^{\mathrm{kSZ}}$	0.0	—	Age/Gyr	13.85	$13.76^{+0.60}_{-0.56}$	$\sigma_8(2.33)$	0.3102	$0.309^{+0.015}_{-0.016}$
$A_{100}^{\mathrm{dustTT}}$	8.87	$8.9^{+4.7}_{-4.7}$	$z_*$	1089.93	$1090.1^{+1.2}_{-1.2}$	$f_{2000}^{143}$	29.4	$31^{+9}_{-9}$
$A_{143}^{\mathrm{dustTT}}$	10.82	$10.7^{+4.7}_{-4.6}$	$r_*$	145.4	$144.4^{+5.8}_{-5.5}$	$f_{2000}^{143 \times 217}$	32.5	$34^{+6}_{-6}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.6	$18.3^{+8.4}_{-8.6}$	$100\theta_*$	1.04128	$1.0411^{+0.0018}_{-0.0017}$	$f_{2000}^{217}$	106.9	$108.2^{+5.9}_{-5.8}$
$A_{217}^{\mathrm{dustTT}}$	95.1	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.96	$13.87^{+0.54}_{-0.51}$	$\chi_{\mathrm{lensing}}^2$	8.81	$9.52 (\nu: 0.4)$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	1059.32	$1059.6^{+2.3}_{-2.3}$	$\chi_{\mathrm{small}}^2$	395.85	$397.1 (\nu: 1.6)$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	148.1	$147.1^{+6.1}_{-5.7}$	$\chi_{\mathrm{lowl}}^2$	23.32	$23.2 (\nu: 0.8)$
$H_0$	67.58	$67.9^{+3.8}_{-3.7}$	$k_{\mathrm{D}}$	0.13991	$0.1406^{+0.0043}_{-0.0043}$	$\chi_{\mathrm{plik}}^2$	758.7	$772.4 (\nu: 15.5)$
$\Omega_{\Lambda}$	0.6925	$0.691^{+0.021}_{-0.022}$	$100\theta_{\mathrm{D}}$	0.16084	$0.1611^{+0.0015}_{-0.0015}$	$\chi_{6\mathrm{DF}}^2$	0.006	$0.060 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	0.3075	$0.309^{+0.022}_{-0.021}$	$z_{\mathrm{eq}}$	3387	$3375^{+81}_{-81}$	$\chi_{\mathrm{MGS}}^2$	1.47	$1.42 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	0.1404	$0.143^{+0.011}_{-0.010}$	$k_{\mathrm{eq}}$	0.010290	$0.01033^{+0.00035}_{-0.00035}$	$\chi_{\mathrm{DR12BAO}}^2$	3.77	$4.7 (\nu: 1.4)$
$\Omega_{\nu} h^2$	0.00000	$< 0.00213$	$100\theta_{\mathrm{eq}}$	0.8155	$0.818^{+0.016}_{-0.015}$	$\chi_{\mathrm{prior}}^2$	1.3	$7.3 (\nu: 6.6)$
$\Omega_{\mathrm{m}} h^3$	0.0949	$0.097^{+0.012}_{-0.011}$	$100\theta_{\mathrm{s,eq}}$	0.4507	$0.4519^{+0.0080}_{-0.0075}$	$\chi_{\mathrm{CMB}}^2$	1186.6	$1202.1 (\nu: 16.5)$
$\sigma_8$	0.8181	$0.813^{+0.033}_{-0.037}$	$H(0.15)$	72.80	$73.2^{+3.8}_{-3.7}$	$\chi_{\mathrm{BAO}}^2$	5.24	$6.2 (\nu: 1.0)$
$S_8$	0.8283	$0.825^{+0.033}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	641.7	$639^{+35}_{-33}$			
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4537	$0.452^{+0.018}_{-0.019}$	$H(0.38)$	82.80	$83.3^{+3.9}_{-3.9}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 1193.21$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 1215.63$ ;  $R - 1 = 0.00858$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 3.77 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.81 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 comman-  
der\_dx12\_v3\_2\_29: 23.32 plik\_rd12\_HM\_v22\_TT: 758.66



### 9.30 base\_nnu\_mnu\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02223	$0.02225^{+0.00062}_{-0.00059}$	$\sigma_8 \Omega_m^{0.25}$	0.6090	$0.606^{+0.022}_{-0.024}$	$D_M(0.38)$	1528	$1521^{+77}_{-72}$
$\Omega_c h^2$	0.1185	$0.1200^{+0.0094}_{-0.0095}$	$\sigma_8/h^{0.5}$	0.9943	$0.986^{+0.027}_{-0.036}$	$H(0.51)$	89.63	$90.1^{+3.9}_{-3.9}$
$100\theta_{MC}$	1.04103	$1.0409^{+0.0015}_{-0.0014}$	$r_{drag}h$	100.22	$100.0^{+2.6}_{-2.5}$	$D_M(0.51)$	1980	$1970^{+97}_{-91}$
$\tau$	0.0531	$0.055^{+0.021}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	2.441	$2.431^{+0.061}_{-0.062}$	$H(0.61)$	95.19	$95.8^{+4.0}_{-4.0}$
$\Sigma m_\nu$ [eV]	0.001	< 0.192	$z_{re}$	7.55	$7.7^{+2.0}_{-2.1}$	$D_M(0.61)$	2304	$2293^{+110}_{-100}$
$N_{eff}$	3.00	$3.11^{+0.60}_{-0.58}$	$10^9 A_s$	2.085	$2.10^{+0.10}_{-0.093}$	$H(2.33)$	235.0	$236.6^{+8.6}_{-8.6}$
$\ln(10^{10} A_s)$	3.0373	$3.045^{+0.048}_{-0.045}$	$10^9 A_s e^{-2\tau}$	1.875	$1.883^{+0.050}_{-0.053}$	$D_M(2.33)$	5773	$5740^{+240}_{-230}$
$n_s$	0.9649	$0.968^{+0.022}_{-0.022}$	$D_{40}$	1227.5	$1225^{+38}_{-38}$	$f\sigma_8(0.15)$	0.4574	$0.457^{+0.017}_{-0.018}$
$y_{cal}$	1.0003	$1.0006^{+0.0063}_{-0.0063}$	$D_{220}$	5720	$5723^{+110}_{-100}$	$\sigma_8(0.15)$	0.7567	$0.752^{+0.030}_{-0.035}$
$A_{217}^{CIB}$	49.4	$48^{+20}_{-20}$	$D_{810}$	2534.8	$2537^{+37}_{-35}$	$f\sigma_8(0.38)$	0.4769	$0.476^{+0.017}_{-0.018}$
$\xi^{tSZ \times CIB}$	0.22	—	$D_{1420}$	815.8	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6711	$0.667^{+0.028}_{-0.031}$
$A_{143}^{tSZ}$	7.2	—	$D_{2000}$	230.5	$229.7^{+5.7}_{-5.7}$	$f\sigma_8(0.51)$	0.4760	$0.475^{+0.017}_{-0.018}$
$A_{100}^{PS}$	254	$264^{+70}_{-70}$	$n_{s,0.002}$	0.9649	$0.968^{+0.022}_{-0.022}$	$\sigma_8(0.51)$	0.6282	$0.625^{+0.027}_{-0.030}$
$A_{143}^{PS}$	46.4	$49^{+20}_{-20}$	$Y_P$	0.2447	$0.2461^{+0.0078}_{-0.0080}$	$f\sigma_8(0.61)$	0.4713	$0.470^{+0.016}_{-0.018}$
$A_{143 \times 217}^{PS}$	43.2	$43^{+20}_{-20}$	$Y_P^{BBN}$	0.2460	$0.2475^{+0.0079}_{-0.0081}$	$\sigma_8(0.61)$	0.5978	$0.594^{+0.026}_{-0.028}$
$A_{217}^{PS}$	117.1	$115^{+30}_{-30}$	$10^5 D/H$	2.597	$2.63^{+0.17}_{-0.17}$	$f\sigma_8(2.33)$	0.3006	$0.300^{+0.013}_{-0.014}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.82	$13.74^{+0.58}_{-0.54}$	$\sigma_8(2.33)$	0.3106	$0.309^{+0.014}_{-0.015}$
$A_{100}^{dustTT}$	8.87	$8.9^{+4.7}_{-4.7}$	$z_*$	1089.92	$1090.1^{+1.2}_{-1.2}$	$f_{2000}^{143}$	29.8	$31^{+9}_{-9}$
$A_{143}^{dustTT}$	10.86	$10.7^{+4.7}_{-4.6}$	$r_*$	145.2	$144.3^{+5.8}_{-5.4}$	$f_{2000}^{143 \times 217}$	32.7	$34^{+6}_{-6}$
$A_{143 \times 217}^{dustTT}$	19.3	$18.3^{+8.5}_{-8.6}$	$100\theta_*$	1.04123	$1.0410^{+0.0018}_{-0.0017}$	$f_{2000}^{217}$	107.2	$108.2^{+6.0}_{-5.7}$
$A_{217}^{dustTT}$	94.4	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.94	$13.86^{+0.53}_{-0.50}$	$\chi^2_{lensing}$	8.80	$9.54 (\nu: 0.4)$
$c_{100}$	0.99961	$0.9996^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.44	$1059.7^{+2.3}_{-2.2}$	$\chi^2_{small}$	395.86	$397.1 (\nu: 1.6)$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$r_{drag}$	147.9	$147.0^{+6.0}_{-5.6}$	$\chi^2_{lowl}$	23.32	$23.1 (\nu: 0.7)$
$H_0$	67.77	$68.1^{+3.6}_{-3.5}$	$k_D$	0.14010	$0.1407^{+0.0042}_{-0.0042}$	$\chi^2_{plik}$	758.5	$772.5 (\nu: 15.4)$
$\Omega_\Lambda$	0.6935	$0.692^{+0.020}_{-0.021}$	$100\theta_D$	0.16085	$0.1612^{+0.0015}_{-0.0015}$	$\chi^2_{JLA}$	1034.85	$1035.03 (\nu: 0.1)$
$\Omega_m$	0.3065	$0.308^{+0.021}_{-0.020}$	$z_{eq}$	3384	$3371^{+75}_{-78}$	$\chi^2_{6DF}$	0.003	$0.048 (\nu: 0.0)$
$\Omega_m h^2$	0.1408	$0.143^{+0.010}_{-0.010}$	$k_{eq}$	0.010297	$0.01033^{+0.00035}_{-0.00035}$	$\chi^2_{MGS}$	1.54	$1.51 (\nu: 0.2)$
$\Omega_\nu h^2$	0.00001	< 0.00206	$100\theta_{eq}$	0.8161	$0.819^{+0.015}_{-0.014}$	$\chi^2_{DR12BAO}$	3.67	$4.5 (\nu: 0.9)$
$\Omega_m h^3$	0.0954	$0.097^{+0.012}_{-0.011}$	$100\theta_{s,eq}$	0.4509	$0.4523^{+0.0076}_{-0.0071}$	$\chi^2_{prior}$	1.6	$7.3 (\nu: 6.6)$
$\sigma_8$	0.8185	$0.814^{+0.032}_{-0.036}$	$H(0.15)$	72.98	$73.4^{+3.6}_{-3.6}$	$\chi^2_{CMB}$	1186.5	$1202.2 (\nu: 16.4)$
$S_8$	0.8273	$0.825^{+0.033}_{-0.034}$	$D_M(0.15)$	640.1	$637^{+34}_{-31}$	$\chi^2_{BAO}$	5.21	$6.0 (\nu: 0.6)$
$\sigma_8 \Omega_m^{0.5}$	0.4531	$0.452^{+0.018}_{-0.019}$	$H(0.38)$	82.98	$83.4^{+3.8}_{-3.7}$			

Best-fit  $\chi^2_{eff} = 2228.14$ ;  $\bar{\chi}^2_{eff} = 2250.50$ ;  $R - 1 = 0.00908$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.00 MGS: 1.54 DR12BAO: 3.67 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.80 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3\_2\_29: 23.32 plik\_rd12\_HM\_v22\_TT: 758.53 SN - JLA Pantheon18: 1034.85



### 9.31 base\_nnu\_mnu\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02216	$0.02219^{+0.00059}_{-0.00056}$	$\sigma_8 \Omega_m^{0.25}$	0.6078	$0.605^{+0.020}_{-0.023}$	$D_M(0.38)$	1539	$1532^{+64}_{-63}$
$\Omega_c h^2$	0.1174	$0.1188^{+0.0080}_{-0.0077}$	$\sigma_8/h^{0.5}$	0.9945	$0.987^{+0.027}_{-0.035}$	$H(0.51)$	89.07	$89.6^{+3.2}_{-3.1}$
$100\theta_{MC}$	1.04116	$1.0410^{+0.0013}_{-0.0013}$	$r_{drag}h$	99.99	$99.8^{+2.5}_{-2.6}$	$D_M(0.51)$	1994	$1984^{+81}_{-79}$
$\tau$	0.0529	$0.054^{+0.021}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	2.444	$2.436^{+0.060}_{-0.061}$	$H(0.61)$	94.62	$95.2^{+3.3}_{-3.2}$
$\Sigma m_\nu$ [eV]	0.002	< 0.181	$z_{re}$	7.52	$7.7^{+2.0}_{-2.0}$	$D_M(0.61)$	2320	$2309^{+92}_{-90}$
$N_{eff}$	2.922	$3.03^{+0.48}_{-0.46}$	$10^9 A_s$	2.079	$2.092^{+0.096}_{-0.087}$	$H(2.33)$	233.9	$235.5^{+7.0}_{-6.9}$
$\ln(10^{10} A_s)$	3.0345	$3.041^{+0.045}_{-0.042}$	$10^9 A_s e^{-2\tau}$	1.8701	$1.877^{+0.045}_{-0.045}$	$D_M(2.33)$	5807	$5774^{+200}_{-190}$
$n_s$	0.9625	$0.965^{+0.019}_{-0.019}$	$D_{40}$	1230.2	$1229^{+35}_{-35}$	$f\sigma_8(0.15)$	0.4571	$0.456^{+0.017}_{-0.017}$
$y_{cal}$	1.0003	$1.0006^{+0.0063}_{-0.0062}$	$D_{220}$	5719	$5723^{+110}_{-100}$	$\sigma_8(0.15)$	0.7537	$0.749^{+0.027}_{-0.033}$
$A_{217}^{CIB}$	46.4	$48^{+20}_{-20}$	$D_{810}$	2535.3	$2536^{+36}_{-35}$	$f\sigma_8(0.38)$	0.4760	$0.475^{+0.016}_{-0.017}$
$\xi^{tSZ \times CIB}$	0.63	—	$D_{1420}$	816.9	$816^{+13}_{-13}$	$\sigma_8(0.38)$	0.6682	$0.664^{+0.025}_{-0.030}$
$A_{143}^{tSZ}$	6.9	—	$D_{2000}$	231.1	$230.1^{+5.2}_{-5.3}$	$f\sigma_8(0.51)$	0.4749	$0.474^{+0.015}_{-0.017}$
$A_{100}^{PS}$	249	$262^{+70}_{-70}$	$n_{s,0.002}$	0.9625	$0.965^{+0.019}_{-0.019}$	$\sigma_8(0.51)$	0.6254	$0.622^{+0.024}_{-0.028}$
$A_{143}^{PS}$	51.2	$48^{+20}_{-20}$	$Y_P$	0.2436	$0.2450^{+0.0064}_{-0.0064}$	$f\sigma_8(0.61)$	0.4701	$0.469^{+0.015}_{-0.017}$
$A_{143 \times 217}^{PS}$	53.0	$43^{+20}_{-20}$	$Y_P^{BBN}$	0.2449	$0.2463^{+0.0064}_{-0.0064}$	$\sigma_8(0.61)$	0.5951	$0.592^{+0.023}_{-0.027}$
$A_{217}^{PS}$	121.6	$115^{+30}_{-30}$	$10^5 D/H$	2.583	$2.61^{+0.15}_{-0.14}$	$f\sigma_8(2.33)$	0.2992	$0.298^{+0.012}_{-0.013}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.903	$13.82^{+0.47}_{-0.45}$	$\sigma_8(2.33)$	0.3090	$0.308^{+0.013}_{-0.014}$
$A_{100}^{dustTT}$	8.75	$8.9^{+4.7}_{-4.7}$	$z_*$	1089.83	$1090.0^{+1.1}_{-1.0}$	$f_{2000}^{143}$	28.9	$31^{+8}_{-8}$
$A_{143}^{dustTT}$	10.75	$10.7^{+4.7}_{-4.6}$	$r_*$	145.92	$145.0^{+4.6}_{-4.5}$	$f_{2000}^{143 \times 217}$	32.2	$33^{+6}_{-6}$
$A_{143 \times 217}^{dustTT}$	19.6	$18.3^{+8.5}_{-8.6}$	$100\theta_*$	1.04142	$1.0412^{+0.0015}_{-0.0015}$	$f_{2000}^{217}$	106.6	$107.8^{+5.5}_{-5.4}$
$A_{217}^{dustTT}$	95.1	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	14.012	$13.93^{+0.43}_{-0.42}$	$\chi^2_{lensing}$	8.70	$9.39 (\nu: 0.4)$
$c_{100}$	0.99968	$0.9996^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.13	$1059.4^{+1.9}_{-1.9}$	$\chi^2_{small}$	395.86	$397.0 (\nu: 1.5)$
$c_{217}$	0.99823	$0.9983^{+0.0016}_{-0.0016}$	$r_{drag}$	148.68	$147.7^{+4.8}_{-4.6}$	$\chi^2_{lowl}$	23.62	$23.4 (\nu: 0.7)$
$H_0$	67.25	$67.5^{+3.1}_{-3.0}$	$k_D$	0.13951	$0.1401^{+0.0035}_{-0.0034}$	$\chi^2_{plik}$	758.6	$771.8 (\nu: 14.4)$
$\Omega_\Lambda$	0.6914	$0.690^{+0.020}_{-0.021}$	$100\theta_D$	0.16071	$0.1610^{+0.0013}_{-0.0012}$	$\chi^2_{Aver15}$	0.00	$0.52 (\nu: 0.2)$
$\Omega_m$	0.3086	$0.310^{+0.021}_{-0.020}$	$z_{eq}$	3391	$3379^{+76}_{-73}$	$\chi^2_{6DF}$	0.010	$0.063 (\nu: 0.0)$
$\Omega_m h^2$	0.1395	$0.1416^{+0.0085}_{-0.0081}$	$k_{eq}$	0.010261	$0.01030^{+0.00031}_{-0.00030}$	$\chi^2_{MGS}$	1.41	$1.35 (\nu: 0.2)$
$\Omega_\nu h^2$	0.00002	< 0.00194	$100\theta_{eq}$	0.8148	$0.817^{+0.014}_{-0.014}$	$\chi^2_{DR12BAO}$	3.88	$4.8 (\nu: 1.5)$
$\Omega_m h^3$	0.0938	$0.0956^{+0.0095}_{-0.0088}$	$100\theta_{s,eq}$	0.4503	$0.4514^{+0.0072}_{-0.0071}$	$\chi^2_{prior}$	1.2	$7.3 (\nu: 6.5)$
$\sigma_8$	0.8155	$0.811^{+0.029}_{-0.035}$	$H(0.15)$	72.45	$72.8^{+3.1}_{-3.0}$	$\chi^2_{CMB}$	1186.8	$1201.6 (\nu: 15.5)$
$S_8$	0.8271	$0.825^{+0.033}_{-0.033}$	$D_M(0.15)$	644.9	$642^{+28}_{-28}$	$\chi^2_{BAO}$	5.29	$6.2 (\nu: 1.0)$
$\sigma_8 \Omega_m^{0.5}$	0.4530	$0.452^{+0.018}_{-0.018}$	$H(0.38)$	82.43	$82.9^{+3.2}_{-3.1}$			

Best-fit  $\chi^2_{eff} = 1193.28$ ;  $\bar{\chi}^2_{eff} = 1215.62$ ;  $R - 1 = 0.00900$   
 $\chi^2_{eff}$ : Abund - Yp\_Aver2015: 0.00 BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.88 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.70 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3\_2\_29: 23.62 plik\_rd12\_HM\_v22\_TT: 758.65



### 9.32 base\_nnu\_mnu\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Cooke17\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02217	$0.02219^{+0.00058}_{-0.00056}$	$\sigma_8/h^{0.5}$	0.9946	$0.987^{+0.027}_{-0.035}$	$D_M(0.51)$	1987	$1984^{+77}_{-75}$
$\Omega_c h^2$	0.1179	$0.1189^{+0.0073}_{-0.0071}$	$r_{\text{drag}} h$	100.10	$99.8^{+2.5}_{-2.5}$	$H(0.61)$	94.89	$95.2^{+3.1}_{-3.1}$
$100\theta_{\text{MC}}$	1.04107	$1.0410^{+0.0013}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	2.442	$2.436^{+0.060}_{-0.061}$	$D_M(0.61)$	2313	$2309^{+88}_{-86}$
$\tau$	0.0530	$0.054^{+0.021}_{-0.019}$	$z_{\text{re}}$	7.55	$7.7^{+2.0}_{-2.0}$	$H(2.33)$	234.4	$235.5^{+6.5}_{-6.4}$
$\Sigma m_\nu$ [eV]	0.003	< 0.180	$10^9 A_s$	2.083	$2.092^{+0.095}_{-0.085}$	$D_M(2.33)$	5791	$5773^{+190}_{-180}$
$N_{\text{eff}}$	2.962	$3.03^{+0.44}_{-0.42}$	$10^9 A_s e^{-2\tau}$	1.8734	$1.877^{+0.043}_{-0.043}$	$f\sigma_8(0.15)$	0.4574	$0.456^{+0.017}_{-0.017}$
$\ln(10^{10} A_s)$	3.0364	$3.041^{+0.045}_{-0.041}$	$D_{40}$	1227.8	$1229^{+35}_{-35}$	$\sigma_8(0.15)$	0.7554	$0.749^{+0.027}_{-0.032}$
$n_s$	0.9643	$0.965^{+0.018}_{-0.018}$	$D_{220}$	5717	$5722^{+100}_{-100}$	$f\sigma_8(0.38)$	0.4766	$0.475^{+0.015}_{-0.016}$
$y_{\text{cal}}$	1.0006	$1.0006^{+0.0064}_{-0.0062}$	$D_{810}$	2536.5	$2536^{+36}_{-35}$	$\sigma_8(0.38)$	0.6698	$0.664^{+0.025}_{-0.029}$
$A_{217}^{\text{CIB}}$	47.3	$48^{+20}_{-20}$	$D_{1420}$	816.9	$815^{+13}_{-13}$	$f\sigma_8(0.51)$	0.4756	$0.474^{+0.015}_{-0.016}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.47	—	$D_{2000}$	230.94	$230.0^{+4.9}_{-4.9}$	$\sigma_8(0.51)$	0.6269	$0.622^{+0.023}_{-0.028}$
$A_{143}^{\text{tSZ}}$	7.0	—	$n_{\text{s},0.002}$	0.9643	$0.965^{+0.018}_{-0.018}$	$f\sigma_8(0.61)$	0.4708	$0.469^{+0.015}_{-0.016}$
$A_{100}^{\text{PS}}$	251	$263^{+70}_{-70}$	$Y_{\text{P}}$	0.2442	$0.2451^{+0.0059}_{-0.0060}$	$\sigma_8(0.61)$	0.5965	$0.592^{+0.023}_{-0.027}$
$A_{143}^{\text{PS}}$	49.6	$48^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.2455	$0.2464^{+0.0059}_{-0.0060}$	$f\sigma_8(2.33)$	0.3000	$0.298^{+0.011}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	49.5	$43^{+20}_{-20}$	$10^5 \text{D}/\text{H}$	2.594	$2.61^{+0.13}_{-0.13}$	$\sigma_8(2.33)$	0.3099	$0.308^{+0.013}_{-0.014}$
$A_{217}^{\text{PS}}$	120.4	$115^{+30}_{-30}$	Age/Gyr	13.864	$13.82^{+0.44}_{-0.43}$	$f_{2000}^{143}$	29.3	$31^{+8}_{-8}$
$A^{\text{kSZ}}$	0.0	—	$z_*$	1089.90	$1090.03^{+0.93}_{-0.91}$	$f_{2000}^{143 \times 217}$	32.4	$33^{+6}_{-5}$
$A_{100}^{\text{dustTT}}$	8.81	$8.9^{+4.7}_{-4.7}$	$r_*$	145.56	$145.0^{+4.3}_{-4.2}$	$f_{2000}^{217}$	106.9	$107.8^{+5.2}_{-5.1}$
$A_{143}^{\text{dustTT}}$	10.80	$10.7^{+4.7}_{-4.6}$	$100\theta_*$	1.04131	$1.0412^{+0.0015}_{-0.0014}$	$\chi_{\text{lensing}}^2$	8.77	$9.39 (\nu: 0.3)$
$A_{143 \times 217}^{\text{dustTT}}$	19.5	$18.3^{+8.5}_{-8.6}$	$D_M(z_*)/\text{Gpc}$	13.978	$13.92^{+0.40}_{-0.39}$	$\chi_{\text{small}}^2$	395.85	$397.0 (\nu: 1.5)$
$A_{217}^{\text{dustTT}}$	95.0	$93^{+20}_{-20}$	$z_{\text{drag}}$	1059.25	$1059.4^{+1.9}_{-1.9}$	$\chi_{\text{lowl}}^2$	23.32	$23.4 (\nu: 0.6)$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	148.30	$147.7^{+4.5}_{-4.3}$	$\chi_{\text{plik}}^2$	758.7	$771.6 (\nu: 14.1)$
$c_{217}$	0.99824	$0.9983^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	0.13976	$0.1402^{+0.0033}_{-0.0032}$	$\chi_{\text{Aver15}}^2$	0.02	$0.47 (\nu: 0.2)$
$H_0$	67.50	$67.6^{+3.0}_{-2.9}$	$100\theta_{\text{D}}$	0.16081	$0.1610^{+0.0011}_{-0.0011}$	$\chi_{\text{Cooke17}}^2$	0.06	$0.27 (\nu: 0.1)$
$\Omega_\Lambda$	0.6924	$0.690^{+0.019}_{-0.021}$	$z_{\text{eq}}$	3386	$3379^{+74}_{-73}$	$\chi_{6\text{DF}}^2$	0.006	$0.063 (\nu: 0.0)$
$\Omega_{\text{m}}$	0.3076	$0.310^{+0.021}_{-0.019}$	$k_{\text{eq}}$	0.010276	$0.01030^{+0.00029}_{-0.00029}$	$\chi_{\text{MGS}}^2$	1.47	$1.36 (\nu: 0.2)$
$\Omega_{\text{m}} h^2$	0.1401	$0.1416^{+0.0079}_{-0.0075}$	$100\theta_{\text{eq}}$	0.8156	$0.817^{+0.014}_{-0.014}$	$\chi_{\text{DR12BAO}}^2$	3.76	$4.8 (\nu: 1.5)$
$\Omega_\nu h^2$	0.00003	< 0.00192	$100\theta_{\text{s,eq}}$	0.4507	$0.4515^{+0.0071}_{-0.0071}$	$\chi_{\text{prior}}^2$	1.3	$7.3 (\nu: 6.5)$
$\Omega_{\text{m}} h^3$	0.0946	$0.0957^{+0.0089}_{-0.0083}$	$H(0.15)$	72.71	$72.8^{+3.0}_{-2.8}$	$\chi_{\text{CMB}}^2$	1186.7	$1201.4 (\nu: 15.1)$
$\sigma_8$	0.8172	$0.811^{+0.028}_{-0.034}$	$D_M(0.15)$	642.6	$642^{+27}_{-27}$	$\chi_{\text{BAO}}^2$	5.24	$6.2 (\nu: 1.0)$
$S_8$	0.8274	$0.825^{+0.032}_{-0.033}$	$H(0.38)$	82.69	$82.9^{+3.0}_{-2.9}$	$\chi_{\text{Abund}}^2$	0.09	$0.74 (\nu: 0.3)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4532	$0.452^{+0.018}_{-0.018}$	$D_M(0.38)$	1533	$1531^{+61}_{-60}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6086	$0.605^{+0.020}_{-0.023}$	$H(0.51)$	89.34	$89.6^{+3.1}_{-3.0}$			

Best-fit  $\chi_{\text{eff}}^2 = 1193.33$ ;  $\bar{\chi}_{\text{eff}}^2 = 1215.63$ ;  $R - 1 = 0.00841$

$\chi_{\text{eff}}^2$ : Abund - Yp\_Aver2015: 0.02 D\_Cooke2017: 0.06 BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 3.76 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.77  
small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 commander\_dx12\_v3\_2\_29: 23.32 plik\_rd12\_HM\_v22\_TT: 758.73



### 9.33 base\_nnu\_mnu\_plikHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02226^{+0.00062}_{-0.00059}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.022}_{-0.024}$	$D_{\mathrm{M}}(0.38)$	$1520^{+76}_{-71}$
$\Omega_{\mathrm{c}}h^2$	$0.1200^{+0.0094}_{-0.0095}$	$\sigma_8/h^{0.5}$	$0.987^{+0.027}_{-0.036}$	$H(0.51)$	$90.2^{+3.9}_{-3.8}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0015}_{-0.0014}$	$r_{\mathrm{drag}}h$	$100.1^{+2.6}_{-2.5}$	$D_{\mathrm{M}}(0.51)$	$1970^{+96}_{-91}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.060}_{-0.060}$	$H(0.61)$	$95.8^{+4.0}_{-4.0}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.193$	$z_{\mathrm{re}}$	$< 9.56$	$D_{\mathrm{M}}(0.61)$	$2292^{+110}_{-100}$
$N_{\mathrm{eff}}$	$3.11^{+0.60}_{-0.57}$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.080}$	$H(2.33)$	$236.6^{+8.6}_{-8.5}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.046^{+0.046}_{-0.039}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.050}_{-0.053}$	$D_{\mathrm{M}}(2.33)$	$5739^{+240}_{-230}$
$n_{\mathrm{s}}$	$0.968^{+0.022}_{-0.022}$	$D_{40}$	$1225^{+38}_{-38}$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0063}$	$D_{220}$	$5723^{+110}_{-100}$	$\sigma_8(0.15)$	$0.753^{+0.030}_{-0.035}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+37}_{-35}$	$f\sigma_8(0.38)$	$0.476^{+0.017}_{-0.018}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.668^{+0.028}_{-0.031}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.7^{+5.7}_{-5.7}$	$f\sigma_8(0.51)$	$0.475^{+0.016}_{-0.018}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.022}_{-0.022}$	$\sigma_8(0.51)$	$0.625^{+0.026}_{-0.030}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2462^{+0.0078}_{-0.0080}$	$f\sigma_8(0.61)$	$0.470^{+0.016}_{-0.018}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2475^{+0.0078}_{-0.0080}$	$\sigma_8(0.61)$	$0.595^{+0.025}_{-0.028}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.17}_{-0.17}$	$f\sigma_8(2.33)$	$0.300^{+0.013}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.74^{+0.57}_{-0.54}$	$\sigma_8(2.33)$	$0.309^{+0.014}_{-0.015}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.7}$	$z_*$	$1090.1^{+1.2}_{-1.2}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.7}_{-4.6}$	$r_*$	$144.3^{+5.7}_{-5.3}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.5}_{-8.6}$	$100\theta_*$	$1.0410^{+0.0018}_{-0.0017}$	$f_{2000}^{217}$	$108.2^{+6.0}_{-5.7}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.86^{+0.53}_{-0.50}$	$\chi_{\mathrm{lensing}}^2$	$9.51 (\nu: 0.4)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.7^{+2.2}_{-2.2}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.7)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.0^{+6.0}_{-5.6}$	$\chi_{\mathrm{lowl}}^2$	$23.0 (\nu: 0.7)$
$H_0$	$68.1^{+3.6}_{-3.5}$	$k_{\mathrm{D}}$	$0.1407^{+0.0042}_{-0.0042}$	$\chi_{\mathrm{plik}}^2$	$772.4 (\nu: 15.3)$
$\Omega_{\Lambda}$	$0.692^{+0.020}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0015}_{-0.0015}$	$\chi_{\mathrm{JLA}}^2$	$1035.02 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.308^{+0.020}_{-0.020}$	$z_{\mathrm{eq}}$	$3370^{+75}_{-77}$	$\chi_{6\mathrm{DF}}^2$	$0.046 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.143^{+0.010}_{-0.010}$	$k_{\mathrm{eq}}$	$0.01033^{+0.00034}_{-0.00035}$	$\chi_{\mathrm{MGS}}^2$	$1.52 (\nu: 0.2)$
$\Omega_{\nu}h^2$	$< 0.00207$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.015}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 0.9)$
$\Omega_{\mathrm{m}}h^3$	$0.097^{+0.012}_{-0.011}$	$100\theta_{\mathrm{s,eq}}$	$0.4524^{+0.0076}_{-0.0071}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.6)$
$\sigma_8$	$0.814^{+0.032}_{-0.036}$	$H(0.15)$	$73.4^{+3.6}_{-3.6}$	$\chi_{\mathrm{CMB}}^2$	$1202.0 (\nu: 16.2)$
$S_8$	$0.825^{+0.033}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$637^{+33}_{-31}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.019}$	$H(0.38)$	$83.5^{+3.8}_{-3.7}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2250.35; R - 1 = 0.00891$$



### 9.34 base\_nnu\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022329	$0.02236^{+0.00047}_{-0.00048}$ (+0.5 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.0936	$0.0948^{+0.0093}_{-0.0086}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	645.3	$644^{+28}_{-27}$ (+0.4 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.1169	$0.1180^{+0.0077}_{-0.0072}$ (−0.5 $\sigma$ )	$\sigma_8$	0.8158	$0.811^{+0.028}_{-0.031}$ (−0.2 $\sigma$ )	$H(0.38)$	82.38	$82.6^{+3.1}_{-3.0}$ (−0.4 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04128	$1.0412^{+0.0011}_{-0.0011}$ (+0.5 $\sigma$ )	$S_8$	0.8271	$0.825^{+0.029}_{-0.029}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1540	$1537^{+63}_{-61}$ (+0.4 $\sigma$ )
$\tau$	0.0546	$0.055^{+0.021}_{-0.019}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4530	$0.452^{+0.016}_{-0.016}$ (−0.0 $\sigma$ )	$H(0.51)$	89.00	$89.3^{+3.2}_{-3.1}$ (−0.5 $\sigma$ )
$\Sigma m_{\nu}$ [eV]	0.000	< 0.158 (−0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6079	$0.605^{+0.019}_{-0.020}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1995	$1991^{+79}_{-77}$ (+0.4 $\sigma$ )
$N_{\mathrm{eff}}$	2.890	$2.96^{+0.47}_{-0.44}$ (−0.6 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9952	$0.988^{+0.025}_{-0.030}$ (+0.2 $\sigma$ )	$H(0.61)$	94.55	$94.9^{+3.3}_{-3.2}$ (−0.5 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0376	$3.041^{+0.045}_{-0.043}$ (−0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	99.98	$99.7^{+2.2}_{-2.3}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2322	$2317^{+91}_{-88}$ (+0.4 $\sigma$ )
$n_{\mathrm{s}}$	0.9627	$0.964^{+0.018}_{-0.019}$ (−0.4 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.448	$2.442^{+0.055}_{-0.056}$ (+0.4 $\sigma$ )	$H(2.33)$	233.7	$234.8^{+6.8}_{-6.6}$ (−0.5 $\sigma$ )
$y_{\mathrm{cal}}$	1.0006	$1.0006^{+0.0065}_{-0.0061}$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.64	$7.7^{+2.0}_{-2.0}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5811	$5791^{+190}_{-190}$ (+0.5 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	43.5	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.086	$2.093^{+0.097}_{-0.087}$ (−0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4571	$0.457^{+0.015}_{-0.015}$ (−0.0 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.98	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8698	$1.874^{+0.044}_{-0.044}$ (−0.4 $\sigma$ )	$\sigma_8(0.15)$	0.7540	$0.749^{+0.027}_{-0.029}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.02	> 0.999 (+0.3 $\sigma$ )	$D_{40}$	1231.5	$1232^{+35}_{-34}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4761	$0.475^{+0.014}_{-0.015}$ (−0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	242	$256^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{220}$	5734	$5738^{+100}_{-96}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6685	$0.664^{+0.025}_{-0.027}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	52.2	$44^{+20}_{-20}$ (−0.6 $\sigma$ )	$D_{810}$	2538.6	$2538^{+36}_{-34}$ (+0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4750	$0.474^{+0.014}_{-0.015}$ (−0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	59.1	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	819.8	$818^{+13}_{-12}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6257	$0.622^{+0.023}_{-0.025}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	124.3	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	232.54	$231.6^{+4.7}_{-4.7}$ (+0.9 $\sigma$ )	$f\sigma_8(0.61)$	0.4702	$0.469^{+0.014}_{-0.015}$ (−0.2 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$n_{\mathrm{s},0.002}$	0.9627	$0.964^{+0.018}_{-0.019}$ (−0.4 $\sigma$ )	$\sigma_8(0.61)$	0.5954	$0.591^{+0.023}_{-0.024}$ (−0.2 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.77	$8.9^{+4.8}_{-4.7}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}$	0.2433	$0.2442^{+0.0063}_{-0.0063}$ (−0.5 $\sigma$ )	$f\sigma_8(2.33)$	0.2993	$0.298^{+0.011}_{-0.012}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	10.97	$10.8^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2446	$0.2455^{+0.0063}_{-0.0063}$ (−0.5 $\sigma$ )	$\sigma_8(2.33)$	0.3092	$0.307^{+0.012}_{-0.013}$ (−0.2 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	20.5	$18.5^{+8.4}_{-8.4}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.539	$2.56^{+0.12}_{-0.11}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	27.1	$29^{+8}_{-8}$ (−0.8 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	96.2	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.913	$13.87^{+0.46}_{-0.45}$ (+0.5 $\sigma$ )	$f_{2000}^{143\times 217}$	30.8	$31^{+5}_{-5}$ (−0.9 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.114^{+0.098}_{-0.095}$	$z_{\ast}$	1089.54	$1089.67^{+0.88}_{-0.84}$ (−1.0 $\sigma$ )	$f_{2000}^{217}$	105.3	$106.4^{+5.2}_{-5.1}$ (−0.8 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.076}_{-0.075}$	$r_{\ast}$	146.06	$145.4^{+4.5}_{-4.4}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	8.66	9.11 ( $\nu$ : 0.2) (−0.4 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$100\theta_{\ast}$	1.04154	$1.0414^{+0.0014}_{-0.0014}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.05	397.1 ( $\nu$ : 1.8) (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_{\ast})/\mathrm{Gpc}$	14.024	$13.97^{+0.42}_{-0.41}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.64	23.7 ( $\nu$ : 0.7) (+0.4 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	0.665	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	1059.47	$1059.7^{+1.8}_{-1.8}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2343.0	2359.2 ( $\nu$ : 17.5) (+285.2 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.07	$2.08^{+0.70}_{-0.69}$	$r_{\mathrm{drag}}$	148.76	$148.1^{+4.7}_{-4.5}$ (+0.4 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.011	0.060 ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.13969	$0.1401^{+0.0034}_{-0.0034}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	1.41	1.29 ( $\nu$ : 0.1) (−0.2 $\sigma$ )
$c_{217}$	0.99814	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16037	$0.1605^{+0.0011}_{-0.0010}$ (−1.0 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	3.91	4.9 ( $\nu$ : 1.3) (+0.1 $\sigma$ )
$H_0$	67.21	$67.3^{+3.0}_{-2.9}$ (−0.4 $\sigma$ )	$z_{\mathrm{eq}}$	3399	$3394^{+64}_{-61}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.5	11.5 ( $\nu$ : 10.2) (+1.2 $\sigma$ )
$\Omega_{\Lambda}$	0.6917	$0.689^{+0.018}_{-0.019}$ (−0.2 $\sigma$ )	$k_{\mathrm{eq}}$	0.010266	$0.01030^{+0.00028}_{-0.00027}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2771.4	2789.1 ( $\nu$ : 18.0) (+276.3 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3083	$0.311^{+0.019}_{-0.018}$ (+0.2 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8138	$0.815^{+0.012}_{-0.012}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	5.33	6.2 ( $\nu$ : 0.9) (−0.0 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.1393	$0.1408^{+0.0081}_{-0.0076}$ (−0.5 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4497	$0.4502^{+0.0060}_{-0.0061}$ (−0.6 $\sigma$ )			
$\Omega_{\nu}h^2$	0.00000	< 0.00167 (−0.3 $\sigma$ )	$H(0.15)$	72.41	$72.6^{+3.0}_{-2.9}$ (−0.4 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2778.17$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1584.95$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2806.81$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.19$ ;  $R - 1 = 0.00810$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.01 ( $\Delta$  0.00) MGS: 1.41 ( $\Delta$  -0.07) DR12BAO: 3.91 ( $\Delta$  0.15) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.66 ( $\Delta$  -0.15) small\_100x143\_offlike5\_EE\_Aplanck  
396.05 ( $\Delta$  0.20) commander\_dx12.v3.2.29: 23.64 ( $\Delta$  0.32) plik.rd12\_HM.v22b\_TTTEEE: 2343.02



### 9.35 base\_nnu\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022338	$0.02238^{+0.00046}_{-0.00047} (+0.5\sigma)$	$\Omega_m h^3$	0.0936	$0.0951^{+0.0092}_{-0.0086} (-0.5\sigma)$	$D_M(0.15)$	644.6	$643^{+27}_{-26} (+0.5\sigma)$
$\Omega_c h^2$	0.1168	$0.1181^{+0.0078}_{-0.0072} (-0.5\sigma)$	$\sigma_8$	0.8146	$0.812^{+0.028}_{-0.030} (-0.2\sigma)$	$H(0.38)$	82.43	$82.7^{+3.0}_{-2.9} (-0.5\sigma)$
$100\theta_{MC}$	1.04130	$1.0412^{+0.0011}_{-0.0011} (+0.5\sigma)$	$S_8$	0.8245	$0.825^{+0.028}_{-0.029} (+0.0\sigma)$	$D_M(0.38)$	1538	$1534^{+61}_{-59} (+0.5\sigma)$
$\tau$	0.0537	$0.055^{+0.021}_{-0.019} (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4516	$0.452^{+0.015}_{-0.016} (+0.0\sigma)$	$H(0.51)$	89.04	$89.4^{+3.2}_{-3.0} (-0.5\sigma)$
$\Sigma m_\nu$ [eV]	0.001	$< 0.153 (-0.3\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6065	$0.605^{+0.019}_{-0.020} (-0.1\sigma)$	$D_M(0.51)$	1993	$1987^{+77}_{-75} (+0.5\sigma)$
$N_{\text{eff}}$	2.891	$2.97^{+0.46}_{-0.44} (-0.6\sigma)$	$\sigma_8/h^{0.5}$	0.9930	$0.988^{+0.024}_{-0.029} (+0.2\sigma)$	$H(0.61)$	94.58	$95.0^{+3.3}_{-3.1} (-0.5\sigma)$
$\ln(10^{10} A_s)$	3.0354	$3.042^{+0.045}_{-0.043} (-0.2\sigma)$	$r_{\text{drag}} h$	100.11	$99.8^{+2.1}_{-2.2} (-0.2\sigma)$	$D_M(0.61)$	2320	$2313^{+88}_{-86} (+0.5\sigma)$
$n_s$	0.9631	$0.964^{+0.018}_{-0.018} (-0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	2.443	$2.441^{+0.055}_{-0.056} (+0.4\sigma)$	$H(2.33)$	233.6	$234.9^{+6.8}_{-6.5} (-0.5\sigma)$
$y_{\text{cal}}$	1.0005	$1.0006^{+0.0066}_{-0.0062} (-0.0\sigma)$	$z_{\text{re}}$	7.55	$7.7^{+2.0}_{-2.0} (+0.0\sigma)$	$D_M(2.33)$	5810	$5785^{+190}_{-190} (+0.5\sigma)$
$A_{217}^{\text{CIB}}$	43.5	$46^{+20}_{-20} (-0.2\sigma)$	$10^9 A_s$	2.081	$2.095^{+0.096}_{-0.088} (-0.2\sigma)$	$f\sigma_8(0.15)$	0.4558	$0.456^{+0.014}_{-0.015} (-0.0\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.95	—	$10^9 A_s e^{-2\tau}$	1.8692	$1.875^{+0.044}_{-0.045} (-0.4\sigma)$	$\sigma_8(0.15)$	0.7530	$0.750^{+0.026}_{-0.029} (-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	6.93	$> 0.992 (+0.3\sigma)$	$D_{40}$	1230.2	$1231^{+35}_{-34} (+0.4\sigma)$	$f\sigma_8(0.38)$	0.4749	$0.475^{+0.014}_{-0.015} (-0.1\sigma)$
$A_{100}^{\text{PS}}$	243	$256^{+70}_{-70} (-0.3\sigma)$	$D_{220}$	5734	$5739^{+99}_{-95} (+0.4\sigma)$	$\sigma_8(0.38)$	0.6677	$0.665^{+0.024}_{-0.026} (-0.2\sigma)$
$A_{143}^{\text{PS}}$	51.6	$44^{+20}_{-20} (-0.6\sigma)$	$D_{810}$	2538.6	$2538^{+36}_{-34} (+0.0\sigma)$	$f\sigma_8(0.51)$	0.4739	$0.474^{+0.014}_{-0.015} (-0.1\sigma)$
$A_{143 \times 217}^{\text{PS}}$	58.1	$42^{+20}_{-20} (-0.2\sigma)$	$D_{1420}$	819.9	$818^{+13}_{-12} (+0.6\sigma)$	$\sigma_8(0.51)$	0.6249	$0.622^{+0.023}_{-0.025} (-0.2\sigma)$
$A_{217}^{\text{PS}}$	124.1	$115^{+30}_{-30} (+0.0\sigma)$	$D_{2000}$	232.56	$231.6^{+4.7}_{-4.6} (+0.9\sigma)$	$f\sigma_8(0.61)$	0.4692	$0.469^{+0.015}_{-0.015} (-0.2\sigma)$
$A^{\text{kSZ}}$	0.0	—	$n_{s,0.002}$	0.9631	$0.964^{+0.018}_{-0.018} (-0.5\sigma)$	$\sigma_8(0.61)$	0.5947	$0.592^{+0.022}_{-0.024} (-0.2\sigma)$
$A_{100}^{\text{dustTT}}$	8.79	$8.9^{+4.7}_{-4.7} (-0.0\sigma)$	$Y_P$	0.2433	$0.2444^{+0.0062}_{-0.0063} (-0.6\sigma)$	$f\sigma_8(2.33)$	0.2990	$0.298^{+0.011}_{-0.011} (-0.3\sigma)$
$A_{143}^{\text{dustTT}}$	10.96	$10.8^{+4.6}_{-4.6} (+0.0\sigma)$	$Y_P^{\text{BBN}}$	0.2446	$0.2457^{+0.0062}_{-0.0063} (-0.6\sigma)$	$\sigma_8(2.33)$	0.3089	$0.308^{+0.012}_{-0.013} (-0.2\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	20.3	$18.5^{+8.3}_{-8.4} (+0.1\sigma)$	$10^5 D/H$	2.538	$2.56^{+0.12}_{-0.11} (-1.1\sigma)$	$f_{2000}^{143}$	26.9	$29^{+8}_{-8} (-0.8\sigma)$
$A_{217}^{\text{dustTT}}$	96.1	$94^{+20}_{-20} (+0.1\sigma)$	Age/Gyr	13.910	$13.85^{+0.46}_{-0.45} (+0.5\sigma)$	$f_{2000}^{143 \times 217}$	30.7	$31^{+5}_{-5} (-0.9\sigma)$
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.098}_{-0.095}$	$z_*$	1089.52	$1089.67^{+0.89}_{-0.84} (-1.0\sigma)$	$f_{2000}^{217}$	105.3	$106.4^{+5.2}_{-5.1} (-0.8\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.075}_{-0.075}$	$r_*$	146.09	$145.3^{+4.5}_{-4.4} (+0.5\sigma)$	$\chi_{\text{lensing}}^2$	8.61	$9.12 (\nu: 0.2) (-0.5\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	0.481	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	1.04156	$1.0414^{+0.0014}_{-0.0014} (+0.5\sigma)$	$\chi_{\text{small}}^2$	395.92	$397.2 (\nu: 1.9) (+0.1\sigma)$
$A_{143}^{\text{dustTE}}$	0.225	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	14.026	$13.96^{+0.42}_{-0.40} (+0.5\sigma)$	$\chi_{\text{lowl}}^2$	23.52	$23.6 (\nu: 0.6) (+0.4\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	0.664	$0.66^{+0.21}_{-0.20}$	$z_{\text{drag}}$	1059.51	$1059.7^{+1.7}_{-1.8} (+0.0\sigma)$	$\chi_{\text{plik}}^2$	2343.5	$2359.3 (\nu: 17.7) (+285.9\sigma)$
$A_{217}^{\text{dustTE}}$	2.07	$2.08^{+0.71}_{-0.69}$	$r_{\text{drag}}$	148.78	$148.0^{+4.7}_{-4.5} (+0.5\sigma)$	$\chi_{\text{JLA}}^2$	1034.88	$1035.07 (\nu: 0.1) (+0.1\sigma)$
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0016} (+0.1\sigma)$	$k_D$	0.13967	$0.1402^{+0.0034}_{-0.0034} (-0.3\sigma)$	$\chi_{\text{6DF}}^2$	0.006	$0.048 (\nu: 0.0) (+0.0\sigma)$
$c_{217}$	0.99815	$0.9982^{+0.0016}_{-0.0016} (-0.1\sigma)$	$100\theta_D$	0.16037	$0.1606^{+0.0011}_{-0.00099} (-1.0\sigma)$	$\chi_{\text{MGS}}^2$	1.47	$1.37 (\nu: 0.1) (-0.2\sigma)$
$H_0$	67.28	$67.4^{+2.9}_{-2.8} (-0.5\sigma)$	$z_{\text{eq}}$	3396	$3391^{+61}_{-59} (+0.7\sigma)$	$\chi_{\text{DR12BAO}}^2$	3.77	$4.6 (\nu: 0.9) (+0.1\sigma)$
$\Omega_\Lambda$	0.6926	$0.690^{+0.017}_{-0.018} (-0.2\sigma)$	$k_{\text{eq}}$	0.010256	$0.01030^{+0.00029}_{-0.00027} (-0.2\sigma)$	$\chi_{\text{prior}}^2$	1.4	$11.5 (\nu: 10.1) (+1.1\sigma)$
$\Omega_m$	0.3074	$0.310^{+0.018}_{-0.017} (+0.2\sigma)$	$100\theta_{\text{eq}}$	0.8145	$0.815^{+0.012}_{-0.012} (-0.6\sigma)$	$\chi_{\text{CMB}}^2$	2771.6	$2789.2 (\nu: 18.1) (+277.0\sigma)$
$\Omega_m h^2$	0.1392	$0.1409^{+0.0081}_{-0.0075} (-0.5\sigma)$	$100\theta_{s,\text{eq}}$	0.4500	$0.4505^{+0.0058}_{-0.0059} (-0.6\sigma)$	$\chi_{\text{BAO}}^2$	5.25	$6.0 (\nu: 0.6) (-0.0\sigma)$
$\Omega_\nu h^2$	0.00001	$< 0.00162 (-0.3\sigma)$	$H(0.15)$	72.48	$72.7^{+2.9}_{-2.8} (-0.5\sigma)$			

Best-fit  $\chi_{\text{eff}}^2 = 3813.11$ ;  $\Delta\chi_{\text{eff}}^2 = 1584.97$ ;  $\bar{\chi}_{\text{eff}}^2 = 3841.73$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.23$ ;  $R - 1 = 0.00935$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.01 ( $\Delta$  0.00) MGS: 1.47 ( $\Delta$  -0.07) DR12BAO: 3.77 ( $\Delta$  0.11) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.61 ( $\Delta$  -0.20) small\_100x143\_offlike5\_EE\_Aplanck  
395.92 ( $\Delta$  0.07) commander\_dx12.v3.2.29: 23.52 ( $\Delta$  0.20) plik\_rdl2\_HM.v22b\_TTTEEE: 2343.54 SN - JLA Pantheon18: 1034.88 ( $\Delta$  0.03)



### 9.36 base\_nnu\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022306	$0.02235^{+0.00044}_{-0.00044}$ (+0.7 $\sigma$ )	$\Omega_m h^3$	0.0935	$0.0946^{+0.0079}_{-0.0073}$ (−0.3 $\sigma$ )	$D_M(0.15)$	646.2	$645^{+24}_{-23}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.1169	$0.1178^{+0.0067}_{-0.0062}$ (−0.3 $\sigma$ )	$\sigma_8$	0.8147	$0.810^{+0.026}_{-0.030}$ (−0.0 $\sigma$ )	$H(0.38)$	82.29	$82.5^{+2.7}_{-2.6}$ (−0.3 $\sigma$ )
$100\theta_{MC}$	1.04130	$1.0412^{+0.0010}_{-0.0010}$ (+0.3 $\sigma$ )	$S_8$	0.8271	$0.825^{+0.028}_{-0.029}$ (+0.0 $\sigma$ )	$D_M(0.38)$	1542	$1538^{+55}_{-53}$ (+0.3 $\sigma$ )
$\tau$	0.0531	$0.055^{+0.021}_{-0.019}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4530	$0.452^{+0.016}_{-0.016}$ (+0.0 $\sigma$ )	$H(0.51)$	88.92	$89.2^{+2.7}_{-2.6}$ (−0.3 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.001	< 0.155 (−0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6075	$0.605^{+0.018}_{-0.019}$ (+0.0 $\sigma$ )	$D_M(0.51)$	1997	$1993^{+68}_{-67}$ (+0.3 $\sigma$ )
$N_{\text{eff}}$	2.883	$2.95^{+0.40}_{-0.37}$ (−0.4 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9945	$0.988^{+0.025}_{-0.030}$ (+0.1 $\sigma$ )	$H(0.61)$	94.47	$94.8^{+2.8}_{-2.7}$ (−0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0346	$3.041^{+0.044}_{-0.041}$ (−0.0 $\sigma$ )	$r_{\text{drag}} h$	99.88	$99.7^{+2.2}_{-2.3}$ (−0.1 $\sigma$ )	$D_M(0.61)$	2325	$2319^{+78}_{-76}$ (+0.3 $\sigma$ )
$n_s$	0.9620	$0.963^{+0.016}_{-0.017}$ (−0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.447	$2.443^{+0.055}_{-0.056}$ (+0.3 $\sigma$ )	$H(2.33)$	233.6	$234.7^{+5.9}_{-5.6}$ (−0.3 $\sigma$ )
$y_{\text{cal}}$	1.0006	$1.0006^{+0.0066}_{-0.0062}$ (+0.0 $\sigma$ )	$z_{\text{re}}$	7.50	$7.7^{+2.0}_{-2.0}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5816	$5796^{+170}_{-160}$ (+0.3 $\sigma$ )
$A_{217}^{\text{CIB}}$	44.4	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.079	$2.092^{+0.093}_{-0.085}$ (−0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4571	$0.456^{+0.014}_{-0.015}$ (+0.0 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.84	—	$10^9 A_s e^{-2\tau}$	1.8698	$1.873^{+0.041}_{-0.041}$ (−0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7529	$0.749^{+0.025}_{-0.028}$ (−0.0 $\sigma$ )
$A_{143}^{\text{tSZ}}$	6.99	> 1.01 (+0.2 $\sigma$ )	$D_{40}$	1232.3	$1233^{+33}_{-32}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4758	$0.475^{+0.014}_{-0.015}$ (−0.0 $\sigma$ )
$A_{100}^{\text{PS}}$	244	$255^{+70}_{-70}$ (−0.3 $\sigma$ )	$D_{220}$	5734	$5738^{+98}_{-94}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6675	$0.664^{+0.023}_{-0.026}$ (−0.1 $\sigma$ )
$A_{143}^{\text{PS}}$	50.4	$44^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{810}$	2538.7	$2538^{+36}_{-34}$ (+0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4746	$0.473^{+0.014}_{-0.014}$ (−0.0 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	55.7	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	819.7	$818^{+13}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6246	$0.621^{+0.022}_{-0.025}$ (−0.1 $\sigma$ )
$A_{217}^{\text{PS}}$	122.9	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	232.49	$231.7^{+4.6}_{-4.4}$ (+0.8 $\sigma$ )	$f\sigma_8(0.61)$	0.4698	$0.468^{+0.014}_{-0.014}$ (−0.0 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$n_{s,0.002}$	0.9620	$0.963^{+0.016}_{-0.017}$ (−0.3 $\sigma$ )	$\sigma_8(0.61)$	0.5943	$0.591^{+0.021}_{-0.024}$ (−0.1 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.71	$8.9^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	$Y_P$	0.2432	$0.2440^{+0.0054}_{-0.0053}$ (−0.4 $\sigma$ )	$f\sigma_8(2.33)$	0.2988	$0.298^{+0.011}_{-0.011}$ (−0.1 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.92	$10.8^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$Y_P^{\text{BBN}}$	0.2445	$0.2453^{+0.0054}_{-0.0053}$ (−0.4 $\sigma$ )	$\sigma_8(2.33)$	0.3086	$0.307^{+0.012}_{-0.013}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.1	$18.5^{+8.3}_{-8.3}$ (+0.1 $\sigma$ )	$10^5 \text{D/H}$	2.541	$2.56^{+0.11}_{-0.10}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	27.2	$29^{+8}_{-7}$ (−0.7 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.5	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.923	$13.88^{+0.39}_{-0.39}$ (+0.3 $\sigma$ )	$f_{2000}^{143 \times 217}$	30.8	$31^{+5}_{-5}$ (−0.8 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.113	$0.114^{+0.098}_{-0.096}$	$z_*$	1089.56	$1089.65^{+0.83}_{-0.77}$ (−0.9 $\sigma$ )	$f_{2000}^{217}$	105.5	$106.3^{+5.1}_{-5.0}$ (−0.7 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.074}_{-0.075}$	$r_*$	146.12	$145.6^{+3.8}_{-3.8}$ (+0.3 $\sigma$ )	$\chi^2_{\text{lensing}}$	8.65	9.09 ( $\nu$ : 0.2) (−0.4 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.483	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	1.04157	$1.0414^{+0.0012}_{-0.0012}$ (+0.4 $\sigma$ )	$\chi^2_{\text{simall}}$	395.86	397.1 ( $\nu$ : 1.8) (+0.1 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	14.029	$13.98^{+0.35}_{-0.35}$ (+0.3 $\sigma$ )	$\chi^2_{\text{lowl}}$	23.71	23.7 ( $\nu$ : 0.6) (+0.3 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.665	$0.66^{+0.21}_{-0.20}$	$z_{\text{drag}}$	1059.44	$1059.6^{+1.6}_{-1.6}$ (+0.3 $\sigma$ )	$\chi^2_{\text{plik}}$	2343.0	2358.9 ( $\nu$ : 17.0) (+295.7 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.09	$2.08^{+0.72}_{-0.70}$	$r_{\text{drag}}$	148.83	$148.2^{+4.0}_{-3.9}$ (+0.3 $\sigma$ )	$\chi^2_{\text{Aver15}}$	0.01	0.28 ( $\nu$ : 0.1) (−0.3 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.13963	$0.1400^{+0.0029}_{-0.0029}$ (−0.1 $\sigma$ )	$\chi^2_{6\text{DF}}$	0.015	0.060 ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$c_{217}$	0.99815	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.16038	$0.16052^{+0.00094}_{-0.00089}$ (−0.9 $\sigma$ )	$\chi^2_{\text{MGS}}$	1.34	1.28 ( $\nu$ : 0.1) (−0.1 $\sigma$ )
$H_0$	67.11	$67.2^{+2.6}_{-2.6}$ (−0.3 $\sigma$ )	$z_{\text{eq}}$	3402	$3395^{+63}_{-60}$ (+0.5 $\sigma$ )	$\chi^2_{\text{DR12BAO}}$	4.04	4.9 ( $\nu$ : 1.3) (+0.0 $\sigma$ )
$\Omega_\Lambda$	0.6908	$0.689^{+0.017}_{-0.019}$ (−0.1 $\sigma$ )	$k_{\text{eq}}$	0.010269	$0.01029^{+0.00026}_{-0.00025}$ (−0.1 $\sigma$ )	$\chi^2_{\text{prior}}$	1.5	11.4 ( $\nu$ : 10.0) (+1.2 $\sigma$ )
$\Omega_m$	0.3092	$0.311^{+0.019}_{-0.017}$ (+0.1 $\sigma$ )	$100\theta_{\text{eq}}$	0.8133	$0.815^{+0.012}_{-0.012}$ (−0.4 $\sigma$ )	$\chi^2_{\text{CMB}}$	2771.3	2788.8 ( $\nu$ : 17.6) (+285.4 $\sigma$ )
$\Omega_m h^2$	0.1393	$0.1406^{+0.0071}_{-0.0066}$ (−0.3 $\sigma$ )	$100\theta_{s,\text{eq}}$	0.4494	$0.4501^{+0.0058}_{-0.0060}$ (−0.5 $\sigma$ )	$\chi^2_{\text{BAO}}$	5.40	6.2 ( $\nu$ : 0.9) (−0.0 $\sigma$ )
$\Omega_\nu h^2$	0.00001	< 0.00165 (−0.2 $\sigma$ )	$H(0.15)$	72.32	$72.5^{+2.6}_{-2.5}$ (−0.3 $\sigma$ )			

Best-fit  $\chi^2_{\text{eff}} = 2778.19$ ;  $\Delta\chi^2_{\text{eff}} = 1584.91$ ;  $\bar{\chi}^2_{\text{eff}} = 2806.77$ ;  $\Delta\bar{\chi}^2_{\text{eff}} = 1591.16$ ;  $R - 1 = 0.00843$   
 $\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.01 ( $\Delta$  0.01) BAO - 6DF: 0.01 ( $\Delta$  0.00) MGS: 1.34 ( $\Delta$  -0.06) DR12BAO: 4.04 ( $\Delta$  0.16) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.65 ( $\Delta$  -0.05) simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 ( $\Delta$  0.00) commander\_dx12\_v3.2.29: 23.71 ( $\Delta$  0.09) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.05



### 9.37 base\_nnu\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Cooke17\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022312	$0.02235^{+0.00044}_{-0.00044}$ (+0.7 $\sigma$ )	$\sigma_8$	0.8166	$0.812^{+0.026}_{-0.030}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1537	$1535^{+54}_{-51}$ (+0.2 $\sigma$ )
$\Omega_c h^2$	0.1178	$0.1183^{+0.0063}_{-0.0060}$ (-0.2 $\sigma$ )	$S_8$	0.8290	$0.826^{+0.028}_{-0.029}$ (+0.1 $\sigma$ )	$H(0.51)$	89.20	$89.4^{+2.6}_{-2.5}$ (-0.2 $\sigma$ )
$100\theta_{MC}$	1.04119	$1.0411^{+0.0010}_{-0.00099}$ (+0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4540	$0.453^{+0.015}_{-0.016}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1991	$1989^{+67}_{-65}$ (+0.2 $\sigma$ )
$\tau$	0.0531	$0.055^{+0.021}_{-0.019}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6089	$0.606^{+0.018}_{-0.020}$ (+0.1 $\sigma$ )	$H(0.61)$	94.77	$95.0^{+2.7}_{-2.6}$ (-0.2 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.003	< 0.157 (-0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9952	$0.989^{+0.024}_{-0.030}$ (+0.2 $\sigma$ )	$D_M(0.61)$	2317	$2315^{+77}_{-74}$ (+0.2 $\sigma$ )
$N_{\text{eff}}$	2.930	$2.97^{+0.38}_{-0.36}$ (-0.3 $\sigma$ )	$r_{\text{drag}} h$	99.87	$99.7^{+2.2}_{-2.3}$ (-0.1 $\sigma$ )	$H(2.33)$	234.3	$235.1^{+5.6}_{-5.4}$ (-0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0358	$3.041^{+0.044}_{-0.041}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.446	$2.443^{+0.056}_{-0.056}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5797	$5786^{+160}_{-160}$ (+0.2 $\sigma$ )
$n_s$	0.9630	$0.964^{+0.016}_{-0.016}$ (-0.2 $\sigma$ )	$z_{\text{re}}$	7.51	$7.7^{+2.0}_{-2.0}$ (+0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4581	$0.457^{+0.014}_{-0.015}$ (+0.1 $\sigma$ )
$y_{\text{cal}}$	1.0002	$1.0006^{+0.0066}_{-0.0061}$ (+0.0 $\sigma$ )	$10^9 A_s$	2.082	$2.094^{+0.093}_{-0.085}$ (+0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7547	$0.750^{+0.024}_{-0.028}$ (+0.0 $\sigma$ )
$A_{217}^{\text{CIB}}$	45.5	$46^{+20}_{-20}$ (-0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8720	$1.875^{+0.039}_{-0.040}$ (-0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4769	$0.475^{+0.014}_{-0.014}$ (+0.1 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.63	—	$D_{40}$	1230.6	$1232^{+34}_{-32}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6690	$0.665^{+0.023}_{-0.026}$ (+0.0 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.08	> 0.982 (+0.2 $\sigma$ )	$D_{220}$	5727	$5736^{+99}_{-94}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4757	$0.474^{+0.013}_{-0.014}$ (+0.1 $\sigma$ )
$A_{100}^{\text{PS}}$	247	$256^{+70}_{-70}$ (-0.2 $\sigma$ )	$D_{810}$	2536.6	$2538^{+36}_{-34}$ (+0.1 $\sigma$ )	$\sigma_8(0.51)$	0.6261	$0.622^{+0.021}_{-0.025}$ (+0.0 $\sigma$ )
$A_{143}^{\text{PS}}$	48.9	$45^{+20}_{-20}$ (-0.4 $\sigma$ )	$D_{1420}$	818.2	$818^{+13}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.61)$	0.4708	$0.469^{+0.013}_{-0.014}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	51.3	$42^{+20}_{-20}$ (-0.1 $\sigma$ )	$D_{2000}$	231.78	$231.4^{+4.5}_{-4.3}$ (+0.7 $\sigma$ )	$\sigma_8(0.61)$	0.5957	$0.592^{+0.021}_{-0.024}$ (+0.0 $\sigma$ )
$A_{217}^{\text{PS}}$	121.3	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$n_{s,0.002}$	0.9630	$0.964^{+0.016}_{-0.016}$ (-0.2 $\sigma$ )	$f\sigma_8(2.33)$	0.2995	$0.298^{+0.010}_{-0.011}$ (-0.0 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$Y_P$	0.2438	$0.2444^{+0.0051}_{-0.0050}$ (-0.3 $\sigma$ )	$\sigma_8(2.33)$	0.3093	$0.308^{+0.011}_{-0.013}$ (-0.0 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.79	$8.9^{+4.8}_{-4.7}$ (-0.0 $\sigma$ )	$Y_P^{\text{BBN}}$	0.2451	$0.2457^{+0.0051}_{-0.0051}$ (-0.3 $\sigma$ )	$f_{2000}^{143}$	28.0	$29^{+8}_{-7}$ (-0.6 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.98	$10.8^{+4.7}_{-4.7}$ (+0.1 $\sigma$ )	$10^5 \text{D/H}$	2.556	$2.56^{+0.10}_{-0.094}$ (-1.0 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.3	$32^{+5}_{-5}$ (-0.7 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.0	$18.6^{+8.3}_{-8.4}$ (+0.1 $\sigma$ )	Age/Gyr	13.879	$13.85^{+0.37}_{-0.37}$ (+0.2 $\sigma$ )	$f_{2000}^{217}$	105.90	$106.5^{+5.0}_{-4.8}$ (-0.6 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.6	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_*$	1089.68	$1089.72^{+0.77}_{-0.72}$ (-0.9 $\sigma$ )	$\chi^2_{\text{lensing}}$	8.75	9.14 ( $\nu$ : 0.2) (-0.3 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.098}_{-0.096}$	$r_*$	145.65	$145.3^{+3.6}_{-3.6}$ (+0.2 $\sigma$ )	$\chi^2_{\text{simall}}$	395.85	397.1 ( $\nu$ : 1.7) (+0.1 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.074}_{-0.075}$	$100\theta_*$	1.04143	$1.0413^{+0.0012}_{-0.0012}$ (+0.2 $\sigma$ )	$\chi^2_{\text{lowl}}$	23.62	23.6 ( $\nu$ : 0.6) (+0.2 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.481	$0.48^{+0.21}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	13.986	$13.95^{+0.34}_{-0.33}$ (+0.2 $\sigma$ )	$\chi^2_{\text{plik}}$	2343.2	2358.9 ( $\nu$ : 16.9) (+299.0 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$z_{\text{drag}}$	1059.55	$1059.7^{+1.6}_{-1.6}$ (+0.4 $\sigma$ )	$\chi^2_{\text{Aver15}}$	0.00	0.29 ( $\nu$ : 0.1) (-0.3 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.662	$0.67^{+0.21}_{-0.20}$	$r_{\text{drag}}$	148.35	$148.0^{+3.8}_{-3.7}$ (+0.1 $\sigma$ )	$\chi^2_{\text{Cooke17}}$	0.43	0.48 ( $\nu$ : 0.1) (+0.5 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.07	$2.08^{+0.71}_{-0.70}$	$k_D$	0.13995	$0.1402^{+0.0028}_{-0.0027}$ (+0.1 $\sigma$ )	$\chi^2_{6\text{DF}}$	0.016	0.061 ( $\nu$ : 0.0) (-0.0 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_D$	0.16051	$0.16060^{+0.00087}_{-0.00083}$ (-0.9 $\sigma$ )	$\chi^2_{\text{MGS}}$	1.34	1.28 ( $\nu$ : 0.1) (-0.1 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (-0.1 $\sigma$ )	$z_{\text{eq}}$	3401	$3394^{+63}_{-59}$ (+0.5 $\sigma$ )	$\chi^2_{\text{DR12BAO}}$	4.06	4.9 ( $\nu$ : 1.3) (+0.0 $\sigma$ )
$H_0$	67.32	$67.4^{+2.6}_{-2.6}$ (-0.2 $\sigma$ )	$k_{\text{eq}}$	0.010298	$0.01031^{+0.00024}_{-0.00024}$ (+0.1 $\sigma$ )	$\chi^2_{\text{prior}}$	1.6	11.5 ( $\nu$ : 10.1) (+1.2 $\sigma$ )
$\Omega_\Lambda$	0.6909	$0.689^{+0.017}_{-0.020}$ (-0.1 $\sigma$ )	$100\theta_{\text{eq}}$	0.8134	$0.815^{+0.012}_{-0.012}$ (-0.4 $\sigma$ )	$\chi^2_{\text{CMB}}$	2771.4	2788.8 ( $\nu$ : 17.4) (+288.6 $\sigma$ )
$\Omega_m$	0.3091	$0.311^{+0.020}_{-0.017}$ (+0.1 $\sigma$ )	$100\theta_{s,\text{eq}}$	0.4495	$0.4502^{+0.0058}_{-0.0060}$ (-0.4 $\sigma$ )	$\chi^2_{\text{BAO}}$	5.41	6.2 ( $\nu$ : 0.9) (-0.0 $\sigma$ )
$\Omega_m h^2$	0.1401	$0.1411^{+0.0067}_{-0.0063}$ (-0.2 $\sigma$ )	$H(0.15)$	72.55	$72.6^{+2.5}_{-2.5}$ (-0.2 $\sigma$ )	$\chi^2_{\text{Abund}}$	0.44	0.77 ( $\nu$ : 0.2) (+0.0 $\sigma$ )
$\Omega_\nu h^2$	0.00003	< 0.00167 (-0.2 $\sigma$ )	$D_M(0.15)$	644.1	$644^{+24}_{-23}$ (+0.2 $\sigma$ )			
$\Omega_m h^3$	0.0943	$0.0951^{+0.0075}_{-0.0070}$ (-0.2 $\sigma$ )	$H(0.38)$	82.55	$82.7^{+2.6}_{-2.5}$ (-0.2 $\sigma$ )			

Best-fit  $\chi^2_{\text{eff}} = 2778.82$ ;  $\Delta\chi^2_{\text{eff}} = 1585.49$ ;  $\bar{\chi}^2_{\text{eff}} = 2807.26$ ;  $\Delta\bar{\chi}^2_{\text{eff}} = 1591.63$ ;  $R - 1 = 0.00868$   
 $\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.00 ( $\Delta$  -0.02) D\_Cooke2017: 0.43 ( $\Delta$  0.37) BAO - 6DF: 0.02 ( $\Delta$  0.01) MGS: 1.34 ( $\Delta$  -0.13) DR12BAO: 4.06 ( $\Delta$  0.30) CMB - smi-cadx12.Dec5.ftl.mv2.ndclpp\_p.teb.consext8: 8.75 ( $\Delta$  -0.02) simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 ( $\Delta$  -0.00) commander\_dx12.v3.2.29: 23.62 ( $\Delta$  0.30) plik\_rd12\_HM.v22b\_TTTEEE 2343.18



### 9.38 base\_nnu\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02238^{+0.00045}_{-0.00047} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0951^{+0.0093}_{-0.0086} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+27}_{-26} \quad (+0.5\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1181^{+0.0078}_{-0.0071} \quad (-0.5\sigma)$	$\sigma_8$	$0.812^{+0.027}_{-0.030} \quad (-0.2\sigma)$	$H(0.38)$	$82.7^{+3.0}_{-2.9} \quad (-0.5\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0011}_{-0.0011} \quad (+0.5\sigma)$	$S_8$	$0.825^{+0.028}_{-0.029} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1534^{+60}_{-59} \quad (+0.5\sigma)$
$\tau$	$0.056^{+0.018}_{-0.014} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.015}_{-0.016} \quad (+0.0\sigma)$	$H(0.51)$	$89.4^{+3.2}_{-3.0} \quad (-0.5\sigma)$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.154 \quad (-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.019}_{-0.020} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1987^{+76}_{-75} \quad (+0.5\sigma)$
$N_{\mathrm{eff}}$	$2.97^{+0.46}_{-0.44} \quad (-0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.024}_{-0.029} \quad (+0.2\sigma)$	$H(0.61)$	$95.0^{+3.3}_{-3.1} \quad (-0.5\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.044}_{-0.035} \quad (-0.2\sigma)$	$r_{\mathrm{drag}}h$	$99.8^{+2.1}_{-2.2} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2312^{+87}_{-86} \quad (+0.5\sigma)$
$n_{\mathrm{s}}$	$0.964^{+0.018}_{-0.018} \quad (-0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.442^{+0.054}_{-0.053} \quad (+0.4\sigma)$	$H(2.33)$	$234.9^{+6.8}_{-6.5} \quad (-0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0066}_{-0.0061} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.50 \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5784^{+190}_{-190} \quad (+0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.098^{+0.094}_{-0.072} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.014}_{-0.015} \quad (-0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.874^{+0.044}_{-0.044} \quad (-0.4\sigma)$	$\sigma_8(0.15)$	$0.751^{+0.026}_{-0.028} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 0.992 \quad (+0.3\sigma)$	$D_{40}$	$1231^{+35}_{-34} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.014}_{-0.015} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$256^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5738^{+99}_{-95} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.665^{+0.024}_{-0.025} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$44^{+20}_{-20} \quad (-0.6\sigma)$	$D_{810}$	$2538^{+36}_{-34} \quad (+0.0\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.014}_{-0.014} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+13}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.623^{+0.023}_{-0.024} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.6^{+4.7}_{-4.7} \quad (+0.9\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.014}_{-0.014} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.964^{+0.018}_{-0.018} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.593^{+0.022}_{-0.023} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2444^{+0.0062}_{-0.0062} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.299^{+0.011}_{-0.011} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.6}_{-4.6} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2457^{+0.0062}_{-0.0063} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.308^{+0.012}_{-0.012} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+8.3}_{-8.4} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.56^{+0.12}_{-0.11} \quad (-1.1\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.8\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.85^{+0.46}_{-0.45} \quad (+0.5\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.9\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.098}_{-0.095}$	$z_*$	$1089.66^{+0.89}_{-0.83} \quad (-1.0\sigma)$	$f_{2000}^{217}$	$106.4^{+5.2}_{-5.1} \quad (-0.8\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.075}_{-0.075}$	$r_*$	$145.3^{+4.5}_{-4.4} \quad (+0.5\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.10 \quad (\nu: 0.2) \quad (-0.5\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	$1.0414^{+0.0014}_{-0.0014} \quad (+0.5\sigma)$	$\chi_{\mathrm{small}}^2$	$397.2 \quad (\nu: 1.9) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.96^{+0.42}_{-0.41} \quad (+0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.6 \quad (\nu: 0.6) \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.20}$	$z_{\mathrm{drag}}$	$1059.8^{+1.7}_{-1.8} \quad (+0.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.2 \quad (\nu: 17.6) \quad (+286.4\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.72}_{-0.69}$	$r_{\mathrm{drag}}$	$148.0^{+4.7}_{-4.6} \quad (+0.5\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.06 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1402^{+0.0034}_{-0.0034} \quad (-0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.047 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.1606^{+0.0011}_{-0.00099} \quad (-1.0\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.38 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$H_0$	$67.5^{+2.9}_{-2.8} \quad (-0.5\sigma)$	$z_{\mathrm{eq}}$	$3390^{+60}_{-59} \quad (+0.7\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.017}_{-0.018} \quad (-0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01029^{+0.00029}_{-0.00027} \quad (-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.0) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.018}_{-0.017} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.011}_{-0.012} \quad (-0.6\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.0 \quad (\nu: 17.9) \quad (+278.7\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1409^{+0.0081}_{-0.0075} \quad (-0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4506^{+0.0058}_{-0.0057} \quad (-0.6\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.0 \quad (\nu: 0.6) \quad (-0.0\sigma)$
$\Omega_{\nu}h^2$	$< 0.00164 \quad (-0.3\sigma)$	$H(0.15)$	$72.7^{+2.9}_{-2.8} \quad (-0.5\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3841.56; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.21; R - 1 = 0.01012$$



### 9.39 base\_nnu\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.02221^{+0.00059}_{-0.00061}$	$\sigma_8 \Omega_m^{0.5}$	0.4546	$0.452^{+0.018}_{-0.018}$	$H(0.38)$	83.07	$83.0^{+4.0}_{-3.8}$
$\Omega_c h^2$	0.1191	$0.119^{+0.010}_{-0.0093}$	$\sigma_8 \Omega_m^{0.25}$	0.6104	$0.606^{+0.023}_{-0.023}$	$D_M(0.38)$	1527	$1530^{+80}_{-77}$
$100\theta_{MC}$	1.04103	$1.0410^{+0.0015}_{-0.0015}$	$\sigma_8/h^{0.5}$	0.9955	$0.987^{+0.028}_{-0.034}$	$H(0.51)$	89.74	$89.7^{+4.1}_{-4.0}$
$\tau$	0.0530	$0.055^{+0.021}_{-0.019}$	$r_{drag} h$	100.10	$99.8^{+2.6}_{-2.6}$	$D_M(0.51)$	1978	$1982^{+100}_{-98}$
$\Sigma m_\nu$ [eV]	0.003	$< 0.182$	$\langle d^2 \rangle^{1/2}$	2.443	$2.434^{+0.062}_{-0.062}$	$H(0.61)$	95.32	$95.3^{+4.2}_{-4.1}$
$N_{eff}$	3.02	$3.04^{+0.62}_{-0.58}$	$z_{re}$	7.56	$7.7^{+2.1}_{-2.0}$	$D_M(0.61)$	2302	$2306^{+120}_{-110}$
$\ln(10^{10} A_s)$	3.0373	$3.041^{+0.049}_{-0.045}$	$10^9 A_s$	2.085	$2.09^{+0.10}_{-0.092}$	$H(2.33)$	235.4	$235.7^{+8.8}_{-8.5}$
$n_s$	0.9647	$0.966^{+0.023}_{-0.022}$	$10^9 A_s e^{-2\tau}$	1.875	$1.876^{+0.051}_{-0.053}$	$D_M(2.33)$	5765	$5768^{+250}_{-240}$
$y_{cal}$	1.0004	$1.0006^{+0.0062}_{-0.0062}$	$D_{40}$	1227.0	$1225^{+38}_{-38}$	$f\sigma_8(0.15)$	0.4588	$0.457^{+0.018}_{-0.017}$
$A_{100}^{PS}$	244	$242^{+60}_{-70}$	$D_{220}$	5710	$5713^{+100}_{-100}$	$\sigma_8(0.15)$	0.7578	$0.750^{+0.032}_{-0.032}$
$A_{143}^{PS}$	37	$40^{+20}_{-20}$	$D_{810}$	2531.6	$2534^{+35}_{-35}$	$f\sigma_8(0.38)$	0.4781	$0.475^{+0.017}_{-0.017}$
$A_{217}^{PS}$	99.5	$101^{+30}_{-40}$	$D_{1420}$	814.0	$815^{+14}_{-14}$	$\sigma_8(0.38)$	0.6719	$0.665^{+0.030}_{-0.029}$
$A_{217}^{CIB}$	42.6	$41^{+20}_{-20}$	$D_{2000}$	229.8	$230.0^{+5.9}_{-5.9}$	$f\sigma_8(0.51)$	0.4770	$0.474^{+0.017}_{-0.017}$
$A_{143}^{tSZ}$	4.28	$< 8.80$	$n_{s,0.002}$	0.9647	$0.966^{+0.023}_{-0.022}$	$\sigma_8(0.51)$	0.6289	$0.623^{+0.028}_{-0.028}$
$r_{143 \times 217}^{PS}$	0.542	$0.65^{+0.32}_{-0.33}$	$Y_P$	0.2450	$0.2452^{+0.0081}_{-0.0082}$	$f\sigma_8(0.61)$	0.4723	$0.469^{+0.017}_{-0.017}$
$r_{143 \times 217}^{CIB}$	0.66	—	$Y_P^{BBN}$	0.2464	$0.2465^{+0.0082}_{-0.0082}$	$\sigma_8(0.61)$	0.5984	$0.592^{+0.027}_{-0.026}$
$\xi^{tSZ \times CIB}$	0.00	—	$10^5 D/H$	2.611	$2.61^{+0.18}_{-0.17}$	$f\sigma_8(2.33)$	0.3010	$0.299^{+0.014}_{-0.013}$
$A^{kSZ}$	3.7	—	Age/Gyr	13.80	$13.81^{+0.59}_{-0.57}$	$\sigma_8(2.33)$	0.3109	$0.308^{+0.015}_{-0.014}$
$A_{100}^{dust}$	0.999	$1.01^{+0.50}_{-0.50}$	$z_*$	1090.04	$1090.0^{+1.3}_{-1.2}$	$f_{2000}^{143}$	30.8	$30^{+9}_{-9}$
$A_{143}^{dust}$	0.977	$0.97^{+0.46}_{-0.46}$	$r_*$	144.9	$144.9^{+5.8}_{-5.6}$	$f_{2000}^{217}$	107.4	$107.3^{+6.3}_{-6.1}$
$A_{217}^{dust}$	0.974	$0.97^{+0.27}_{-0.27}$	$100\theta_*$	1.04122	$1.0412^{+0.0018}_{-0.0018}$	$f_{2000}^{143 \times 217}$	32.6	$33^{+7}_{-7}$
$A_{143 \times 217}^{dust}$	1.009	$1.03^{+0.41}_{-0.42}$	$D_M(z_*)/\text{Gpc}$	13.92	$13.91^{+0.54}_{-0.52}$	$\chi_{lensing}^2$	8.90	$9.51 (\nu: 0.4)$
$c_{100}$	0.99736	$0.9975^{+0.0027}_{-0.0027}$	$z_{drag}$	1059.44	$1059.5^{+2.2}_{-2.3}$	$\chi_{small}^2$	395.85	$397.1 (\nu: 1.7)$
$c_{217}$	1.00127	$1.0012^{+0.0041}_{-0.0040}$	$r_{drag}$	147.6	$147.6^{+6.0}_{-5.8}$	$\chi_{lowl}^2$	23.31	$23.2 (\nu: 0.8)$
$H_0$	67.80	$67.6^{+3.9}_{-3.7}$	$k_D$	0.14025	$0.1403^{+0.0043}_{-0.0042}$	$\chi_{CamSpec}^2$	7049.9	$7063.7 (\nu: 14.8)$
$\Omega_\Lambda$	0.6925	$0.690^{+0.020}_{-0.022}$	$100\theta_D$	0.16096	$0.1610^{+0.0015}_{-0.0015}$	$\chi_{6DF}^2$	0.006	$0.062 (\nu: 0.0)$
$\Omega_m$	0.3075	$0.310^{+0.022}_{-0.020}$	$z_{eq}$	3387	$3380^{+78}_{-82}$	$\chi_{MGS}^2$	1.47	$1.38 (\nu: 0.2)$
$\Omega_m h^2$	0.1414	$0.142^{+0.011}_{-0.0098}$	$k_{eq}$	0.010324	$0.01031^{+0.00035}_{-0.00034}$	$\chi_{DR12BAO}^2$	3.77	$4.8 (\nu: 1.4)$
$\Omega_\nu h^2$	0.00003	$< 0.00194$	$100\theta_{eq}$	0.8155	$0.817^{+0.016}_{-0.014}$	$\chi_{prior}^2$	2.3	$7.6 (\nu: 5.9)$
$\Omega_m h^3$	0.0959	$0.096^{+0.012}_{-0.011}$	$100\theta_{s,eq}$	0.4506	$0.4515^{+0.0080}_{-0.0073}$	$\chi_{CMB}^2$	7478.0	$7493.5 (\nu: 16.0)$
$\sigma_8$	0.8198	$0.812^{+0.034}_{-0.033}$	$H(0.15)$	73.04	$72.9^{+3.9}_{-3.7}$	$\chi_{BAO}^2$	5.25	$6.2 (\nu: 1.0)$
$S_8$	0.8299	$0.825^{+0.034}_{-0.033}$	$D_M(0.15)$	639.7	$641^{+35}_{-34}$			

Best-fit  $\chi_{eff}^2 = 7485.59$ ;  $\bar{\chi}_{eff}^2 = 7507.28$ ;  $R - 1 = 0.00494$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 3.77 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.90 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 commander\_dx12\_v3\_2\_29: 23.31 CamSpec like\_10.7HM: 7049.94



#### 9.40 base\_nnu\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02219	$0.02223^{+0.00058}_{-0.00058}$	$\sigma_8 \Omega_m^{0.5}$	0.4533	$0.451^{+0.018}_{-0.018}$	$H(0.38)$	83.01	$83.1^{+3.9}_{-3.7}$
$\Omega_c h^2$	0.1187	$0.119^{+0.010}_{-0.0093}$	$\sigma_8 \Omega_m^{0.25}$	0.6092	$0.606^{+0.022}_{-0.023}$	$D_M(0.38)$	1527	$1526^{+77}_{-74}$
$100\theta_{MC}$	1.04110	$1.0410^{+0.0015}_{-0.0015}$	$\sigma_8/h^{0.5}$	0.9944	$0.987^{+0.027}_{-0.034}$	$H(0.51)$	89.66	$89.8^{+4.0}_{-3.9}$
$\tau$	0.0530	$0.055^{+0.021}_{-0.019}$	$r_{drag} h$	100.22	$99.97^{+2.5}_{-2.4}$	$D_M(0.51)$	1979	$1977^{+97}_{-93}$
$\Sigma m_\nu$ [eV]	0.001	$< 0.177$	$\langle d^2 \rangle^{1/2}$	2.440	$2.432^{+0.060}_{-0.061}$	$H(0.61)$	95.23	$95.4^{+4.2}_{-4.0}$
$N_{eff}$	3.01	$3.06^{+0.61}_{-0.57}$	$z_{re}$	7.56	$7.8^{+2.0}_{-2.0}$	$D_M(0.61)$	2304	$2301^{+110}_{-110}$
$\ln(10^{10} A_s)$	3.0365	$3.042^{+0.048}_{-0.044}$	$10^9 A_s$	2.083	$2.10^{+0.10}_{-0.091}$	$H(2.33)$	235.1	$235.9^{+8.8}_{-8.4}$
$n_s$	0.9648	$0.967^{+0.022}_{-0.021}$	$10^9 A_s e^{-2\tau}$	1.874	$1.877^{+0.051}_{-0.053}$	$D_M(2.33)$	5771	$5759^{+240}_{-240}$
$y_{cal}$	1.0004	$1.0006^{+0.0061}_{-0.0061}$	$D_{40}$	1226.4	$1224^{+37}_{-38}$	$f\sigma_8(0.15)$	0.4576	$0.456^{+0.017}_{-0.017}$
$A_{100}^{PS}$	239	$242^{+60}_{-70}$	$D_{220}$	5711	$5714^{+100}_{-100}$	$\sigma_8(0.15)$	0.7569	$0.751^{+0.032}_{-0.031}$
$A_{143}^{PS}$	39	$41^{+20}_{-20}$	$D_{810}$	2532.1	$2534^{+35}_{-35}$	$f\sigma_8(0.38)$	0.4770	$0.475^{+0.017}_{-0.017}$
$A_{217}^{PS}$	99.7	$101^{+30}_{-40}$	$D_{1420}$	814.6	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6712	$0.666^{+0.029}_{-0.028}$
$A_{217}^{CIB}$	45.3	$41^{+20}_{-20}$	$D_{2000}$	230.0	$229.9^{+5.9}_{-5.9}$	$f\sigma_8(0.51)$	0.4761	$0.474^{+0.017}_{-0.017}$
$A_{143}^{tSZ}$	6.10	$< 8.79$	$n_{s,0.002}$	0.9648	$0.967^{+0.022}_{-0.021}$	$\sigma_8(0.51)$	0.6283	$0.623^{+0.028}_{-0.027}$
$r_{143 \times 217}^{PS}$	0.559	$0.65^{+0.32}_{-0.33}$	$Y_P$	0.2448	$0.2454^{+0.0080}_{-0.0081}$	$f\sigma_8(0.61)$	0.4714	$0.469^{+0.017}_{-0.017}$
$r_{143 \times 217}^{CIB}$	0.76	—	$Y_P^{BBN}$	0.2461	$0.2468^{+0.0080}_{-0.0081}$	$\sigma_8(0.61)$	0.5979	$0.593^{+0.027}_{-0.026}$
$\xi^{tSZ \times CIB}$	0.01	—	$10^5 D/H$	2.607	$2.62^{+0.18}_{-0.17}$	$f\sigma_8(2.33)$	0.3007	$0.299^{+0.013}_{-0.013}$
$A^{kSZ}$	0.9	—	Age/Gyr	13.82	$13.79^{+0.58}_{-0.56}$	$\sigma_8(2.33)$	0.3106	$0.309^{+0.014}_{-0.014}$
$A_{100}^{dust}$	1.02	$1.01^{+0.50}_{-0.50}$	$z_*$	1089.99	$1090.0^{+1.3}_{-1.2}$	$f_{2000}^{143}$	30.8	$31^{+9}_{-9}$
$A_{143}^{dust}$	0.986	$0.97^{+0.45}_{-0.47}$	$r_*$	145.1	$144.7^{+5.7}_{-5.5}$	$f_{2000}^{217}$	107.3	$107.4^{+6.2}_{-6.1}$
$A_{217}^{dust}$	0.963	$0.97^{+0.26}_{-0.27}$	$100\theta_*$	1.04129	$1.0412^{+0.0018}_{-0.0018}$	$f_{2000}^{143 \times 217}$	32.6	$33^{+7}_{-7}$
$A_{143 \times 217}^{dust}$	1.004	$1.03^{+0.42}_{-0.41}$	$D_M(z_*)/\text{Gpc}$	13.94	$13.90^{+0.53}_{-0.52}$	$\chi_{lensing}^2$	8.87	$9.55 (\nu: 0.4)$
$c_{100}$	0.99757	$0.9975^{+0.0027}_{-0.0027}$	$z_{drag}$	1059.40	$1059.6^{+2.2}_{-2.2}$	$\chi_{small}^2$	395.9	$397.1 (\nu: 1.7)$
$c_{217}$	1.00137	$1.0012^{+0.0042}_{-0.0040}$	$r_{drag}$	147.8	$147.4^{+5.9}_{-5.8}$	$\chi_{lowl}^2$	23.25	$23.0 (\nu: 0.7)$
$H_0$	67.79	$67.8^{+3.7}_{-3.5}$	$k_D$	0.14008	$0.1404^{+0.0042}_{-0.0042}$	$\chi_{CamSpec}^2$	7050.1	$7063.8 (\nu: 14.9)$
$\Omega_\Lambda$	0.6934	$0.691^{+0.019}_{-0.020}$	$100\theta_D$	0.16094	$0.1610^{+0.0015}_{-0.0015}$	$\chi_{JLA}^2$	1034.86	$1035.05 (\nu: 0.1)$
$\Omega_m$	0.3066	$0.309^{+0.020}_{-0.019}$	$z_{eq}$	3384	$3376^{+74}_{-79}$	$\chi_{6DF}^2$	0.003	$0.049 (\nu: 0.0)$
$\Omega_m h^2$	0.1409	$0.142^{+0.010}_{-0.0098}$	$k_{eq}$	0.010301	$0.01031^{+0.00035}_{-0.00034}$	$\chi_{MGS}^2$	1.54	$1.47 (\nu: 0.1)$
$\Omega_\nu h^2$	0.00001	$< 0.00189$	$100\theta_{eq}$	0.8161	$0.818^{+0.015}_{-0.014}$	$\chi_{DR12BAO}^2$	3.65	$4.5 (\nu: 1.0)$
$\Omega_m h^3$	0.0955	$0.096^{+0.012}_{-0.011}$	$100\theta_{s,eq}$	0.4510	$0.4518^{+0.0077}_{-0.0070}$	$\chi_{prior}^2$	2.2	$7.6 (\nu: 5.9)$
$\sigma_8$	0.8187	$0.813^{+0.033}_{-0.032}$	$H(0.15)$	73.00	$73.1^{+3.8}_{-3.6}$	$\chi_{CMB}^2$	7478.0	$7493.5 (\nu: 16.0)$
$S_8$	0.8277	$0.824^{+0.033}_{-0.033}$	$D_M(0.15)$	639.9	$640^{+34}_{-33}$	$\chi_{BAO}^2$	5.20	$6.0 (\nu: 0.6)$

Best-fit  $\chi_{eff}^2 = 8520.27$ ;  $\bar{\chi}_{eff}^2 = 8542.17$ ;  $R - 1 = 0.00504$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 MGS: 1.54 DR12BAO: 3.65 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.87 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 comman-  
der\_dx12\_v3\_2\_29: 23.25 CamSpec like\_10.7HM: 7050.07 SN - JLA Pantheon18: 1034.86



# 9.41 base\_nnu\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02213	$0.02219^{+0.00055}_{-0.00055}$	$\sigma_8 \Omega_m^{0.5}$	0.4536	$0.452^{+0.018}_{-0.018}$	$H(0.38)$	82.61	$82.7^{+3.2}_{-3.0}$
$\Omega_c h^2$	0.1180	$0.1183^{+0.0080}_{-0.0076}$	$\sigma_8 \Omega_m^{0.25}$	0.6086	$0.605^{+0.021}_{-0.022}$	$D_M(0.38)$	1536	$1536^{+64}_{-63}$
$100\theta_{MC}$	1.04120	$1.0411^{+0.0014}_{-0.0013}$	$\sigma_8/h^{0.5}$	0.9947	$0.987^{+0.027}_{-0.033}$	$H(0.51)$	89.25	$89.4^{+3.3}_{-3.1}$
$\tau$	0.0529	$0.055^{+0.021}_{-0.018}$	$r_{drag} h$	99.98	$99.7^{+2.5}_{-2.6}$	$D_M(0.51)$	1990	$1989^{+81}_{-79}$
$\Sigma m_\nu$ [eV]	0.001	< 0.172	$\langle d^2 \rangle^{1/2}$	2.444	$2.436^{+0.060}_{-0.060}$	$H(0.61)$	94.82	$94.9^{+3.3}_{-3.2}$
$N_{eff}$	2.953	$2.99^{+0.49}_{-0.45}$	$z_{re}$	7.54	$7.7^{+2.0}_{-1.9}$	$D_M(0.61)$	2316	$2315^{+92}_{-91}$
$\ln(10^{10} A_s)$	3.0338	$3.039^{+0.045}_{-0.042}$	$10^9 A_s$	2.078	$2.089^{+0.096}_{-0.086}$	$H(2.33)$	234.4	$235.0^{+7.1}_{-6.7}$
$n_s$	0.9628	$0.965^{+0.019}_{-0.019}$	$10^9 A_s e^{-2\tau}$	1.8690	$1.872^{+0.045}_{-0.045}$	$D_M(2.33)$	5795	$5787^{+190}_{-190}$
$y_{cal}$	1.0002	$1.0006^{+0.0062}_{-0.0062}$	$D_{40}$	1228.0	$1227^{+36}_{-35}$	$f\sigma_8(0.15)$	0.4577	$0.456^{+0.017}_{-0.017}$
$A_{100}^{PS}$	239	$241^{+60}_{-70}$	$D_{220}$	5705	$5713^{+100}_{-100}$	$\sigma_8(0.15)$	0.7547	$0.749^{+0.027}_{-0.030}$
$A_{143}^{PS}$	38	$40^{+20}_{-20}$	$D_{810}$	2529.9	$2533^{+34}_{-35}$	$f\sigma_8(0.38)$	0.4766	$0.475^{+0.016}_{-0.016}$
$A_{217}^{PS}$	99.8	$101^{+30}_{-40}$	$D_{1420}$	814.4	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6691	$0.664^{+0.025}_{-0.027}$
$A_{217}^{CIB}$	44.5	$40^{+20}_{-20}$	$D_{2000}$	230.1	$230.3^{+5.4}_{-5.3}$	$f\sigma_8(0.51)$	0.4755	$0.473^{+0.016}_{-0.016}$
$A_{143}^{tSZ}$	5.75	< 8.82	$n_{s,0.002}$	0.9628	$0.965^{+0.019}_{-0.019}$	$\sigma_8(0.51)$	0.6262	$0.621^{+0.024}_{-0.026}$
$r_{143 \times 217}^{PS}$	0.568	$0.65^{+0.32}_{-0.34}$	$Y_P$	0.2440	$0.2446^{+0.0065}_{-0.0064}$	$f\sigma_8(0.61)$	0.4707	$0.468^{+0.016}_{-0.016}$
$r_{143 \times 217}^{CIB}$	0.74	—	$Y_P^{BBN}$	0.2454	$0.2459^{+0.0065}_{-0.0064}$	$\sigma_8(0.61)$	0.5958	$0.591^{+0.023}_{-0.025}$
$\xi^{tSZ \times CIB}$	0.04	—	$10^5 D/H$	2.598	$2.60^{+0.15}_{-0.14}$	$f\sigma_8(2.33)$	0.2996	$0.298^{+0.012}_{-0.012}$
$A^{kSZ}$	1.4	—	Age/Gyr	13.873	$13.85^{+0.46}_{-0.46}$	$\sigma_8(2.33)$	0.3094	$0.307^{+0.013}_{-0.013}$
$A_{100}^{dust}$	1.01	$1.01^{+0.51}_{-0.50}$	$z_*$	1089.94	$1089.9^{+1.1}_{-1.0}$	$f_{2000}^{143}$	30.4	$30^{+9}_{-8}$
$A_{143}^{dust}$	0.992	$0.97^{+0.45}_{-0.46}$	$r_*$	145.61	$145.3^{+4.5}_{-4.5}$	$f_{2000}^{217}$	107.0	$107.0^{+5.9}_{-5.7}$
$A_{217}^{dust}$	0.961	$0.97^{+0.26}_{-0.27}$	$100\theta_*$	1.04143	$1.0413^{+0.0016}_{-0.0015}$	$f_{2000}^{143 \times 217}$	32.3	$32^{+6}_{-6}$
$A_{143 \times 217}^{dust}$	0.9998	$1.03^{+0.42}_{-0.41}$	$D_M(z_*)/\text{Gpc}$	13.982	$13.95^{+0.42}_{-0.42}$	$\chi_{lensing}^2$	8.80	$9.41 (\nu: 0.4)$
$c_{100}$	0.99755	$0.9975^{+0.0028}_{-0.0027}$	$z_{drag}$	1059.17	$1059.3^{+1.9}_{-1.9}$	$\chi_{small}^2$	395.9	$397.1 (\nu: 1.7)$
$c_{217}$	1.00120	$1.0012^{+0.0042}_{-0.0040}$	$r_{drag}$	148.37	$148.1^{+4.7}_{-4.7}$	$\chi_{lowl}^2$	23.49	$23.3 (\nu: 0.7)$
$H_0$	67.39	$67.4^{+3.1}_{-3.0}$	$k_D$	0.13970	$0.1399^{+0.0034}_{-0.0034}$	$\chi_{CamSpec}^2$	7050.0	$7063.3 (\nu: 14.2)$
$\Omega_\Lambda$	0.6914	$0.689^{+0.019}_{-0.021}$	$100\theta_D$	0.16084	$0.1609^{+0.0013}_{-0.0012}$	$\chi_{Aver15}^2$	0.01	$0.45 (\nu: 0.2)$
$\Omega_m$	0.3086	$0.311^{+0.021}_{-0.019}$	$z_{eq}$	3391	$3383^{+74}_{-75}$	$\chi_{6DF}^2$	0.010	$0.064 (\nu: 0.0)$
$\Omega_m h^2$	0.1401	$0.1410^{+0.0085}_{-0.0080}$	$k_{eq}$	0.010284	$0.01029^{+0.00030}_{-0.00030}$	$\chi_{MGS}^2$	1.41	$1.33 (\nu: 0.1)$
$\Omega_\nu h^2$	0.00001	< 0.00182	$100\theta_{eq}$	0.8148	$0.816^{+0.014}_{-0.013}$	$\chi_{DR12BAO}^2$	3.87	$4.8 (\nu: 1.5)$
$\Omega_m h^3$	0.0944	$0.0950^{+0.0095}_{-0.0086}$	$100\theta_{s,eq}$	0.4503	$0.4511^{+0.0073}_{-0.0069}$	$\chi_{prior}^2$	2.1	$7.5 (\nu: 5.9)$
$\sigma_8$	0.8166	$0.810^{+0.029}_{-0.031}$	$H(0.15)$	72.61	$72.6^{+3.1}_{-3.0}$	$\chi_{CMB}^2$	7478.1	$7493.1 (\nu: 15.4)$
$S_8$	0.8282	$0.825^{+0.033}_{-0.033}$	$D_M(0.15)$	643.5	$644^{+29}_{-28}$	$\chi_{BAO}^2$	5.29	$6.2 (\nu: 1.0)$

Best-fit  $\chi_{eff}^2 = 7485.47$ ;  $\bar{\chi}_{eff}^2 = 7507.32$ ;  $R - 1 = 0.00578$   
 $\chi_{eff}^2$ : Abund - Yp\_Aver2015: 0.01 BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.88 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.80 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3\_2\_29: 23.49 CamSpec like\_10.7HM: 7049.95



# 9.42 base\_nnu\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Cooke17\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02216	$0.02218^{+0.00055}_{-0.00055}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6086	$0.605^{+0.020}_{-0.021}$	$H(0.51)$	89.40	$89.4^{+3.1}_{-2.9}$
$\Omega_{\mathrm{c}}h^2$	0.1182	$0.1185^{+0.0072}_{-0.0070}$	$\sigma_8/h^{0.5}$	0.9943	$0.987^{+0.027}_{-0.033}$	$D_{\mathrm{M}}(0.51)$	1986	$1988^{+77}_{-75}$
$100\theta_{\mathrm{MC}}$	1.04111	$1.0411^{+0.0013}_{-0.0013}$	$r_{\mathrm{drag}}h$	100.09	$99.7^{+2.5}_{-2.6}$	$H(0.61)$	94.97	$95.0^{+3.1}_{-3.0}$
$\tau$	0.0530	$0.055^{+0.021}_{-0.018}$	$\langle d^2 \rangle^{1/2}$	2.442	$2.436^{+0.060}_{-0.059}$	$D_{\mathrm{M}}(0.61)$	2311	$2313^{+88}_{-86}$
$\Sigma m_{\nu}$ [eV]	0.002	< 0.173	$z_{\mathrm{re}}$	7.55	$7.7^{+2.0}_{-1.9}$	$H(2.33)$	234.6	$235.2^{+6.5}_{-6.3}$
$N_{\mathrm{eff}}$	2.973	$3.00^{+0.44}_{-0.42}$	$10^9 A_{\mathrm{s}}$	2.080	$2.090^{+0.097}_{-0.085}$	$D_{\mathrm{M}}(2.33)$	5786	$5783^{+180}_{-180}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0351	$3.039^{+0.045}_{-0.042}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8711	$1.873^{+0.043}_{-0.042}$	$f\sigma_8(0.15)$	0.4574	$0.456^{+0.017}_{-0.017}$
$n_{\mathrm{s}}$	0.9638	$0.965^{+0.018}_{-0.018}$	$D_{40}$	1227.1	$1227^{+35}_{-34}$	$\sigma_8(0.15)$	0.7554	$0.749^{+0.026}_{-0.029}$
$y_{\mathrm{cal}}$	1.0006	$1.0006^{+0.0062}_{-0.0062}$	$D_{220}$	5709	$5712^{+99}_{-100}$	$f\sigma_8(0.38)$	0.4766	$0.475^{+0.016}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	238	$242^{+60}_{-60}$	$D_{810}$	2531.7	$2533^{+34}_{-35}$	$\sigma_8(0.38)$	0.6698	$0.664^{+0.024}_{-0.027}$
$A_{143}^{\mathrm{PS}}$	38	$40^{+20}_{-20}$	$D_{1420}$	814.9	$815^{+13}_{-13}$	$f\sigma_8(0.51)$	0.4756	$0.473^{+0.015}_{-0.015}$
$A_{217}^{\mathrm{PS}}$	99.2	$101^{+30}_{-40}$	$D_{2000}$	230.21	$230.2^{+5.0}_{-4.9}$	$\sigma_8(0.51)$	0.6269	$0.621^{+0.023}_{-0.025}$
$A_{217}^{\mathrm{CIB}}$	45.2	$40^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	0.9638	$0.965^{+0.018}_{-0.018}$	$f\sigma_8(0.61)$	0.4708	$0.469^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	6.05	< 8.82	$Y_{\mathrm{P}}$	0.2443	$0.2447^{+0.0060}_{-0.0059}$	$\sigma_8(0.61)$	0.5965	$0.591^{+0.022}_{-0.024}$
$r_{143 \times 217}^{\mathrm{PS}}$	0.542	$0.65^{+0.32}_{-0.33}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2457	$0.2460^{+0.0060}_{-0.0059}$	$f\sigma_8(2.33)$	0.3000	$0.298^{+0.011}_{-0.012}$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.79	—	$10^5 \mathrm{D}/\mathrm{H}$	2.600	$2.61^{+0.13}_{-0.13}$	$\sigma_8(2.33)$	0.3099	$0.307^{+0.012}_{-0.013}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.01	—	Age/Gyr	13.853	$13.85^{+0.43}_{-0.43}$	$f_{2000}^{143}$	30.4	$30^{+8}_{-8}$
$A^{\mathrm{kSZ}}$	1.1	—	$z_*$	1089.95	$1089.98^{+0.93}_{-0.92}$	$f_{2000}^{217}$	107.0	$107.1^{+5.6}_{-5.4}$
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.51}_{-0.51}$	$r_*$	145.44	$145.2^{+4.2}_{-4.1}$	$f_{2000}^{143 \times 217}$	32.2	$32^{+6}_{-6}$
$A_{143}^{\mathrm{dust}}$	0.995	$0.97^{+0.45}_{-0.46}$	$100\theta_*$	1.04133	$1.0413^{+0.0015}_{-0.0014}$	$\chi_{\mathrm{lensing}}^2$	8.82	$9.42 (\nu: 0.4)$
$A_{217}^{\mathrm{dust}}$	0.963	$0.97^{+0.26}_{-0.27}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.967	$13.95^{+0.39}_{-0.39}$	$\chi_{\mathrm{small}}^2$	395.8	$397.0 (\nu: 1.7)$
$A_{143 \times 217}^{\mathrm{dust}}$	0.982	$1.03^{+0.42}_{-0.41}$	$z_{\mathrm{drag}}$	1059.25	$1059.3^{+1.8}_{-1.9}$	$\chi_{\mathrm{lowl}}^2$	23.32	$23.3 (\nu: 0.6)$
$c_{100}$	0.99752	$0.9975^{+0.0028}_{-0.0027}$	$r_{\mathrm{drag}}$	148.19	$148.0^{+4.4}_{-4.3}$	$\chi_{\mathrm{CamSpec}}^2$	7050.0	$7063.1 (\nu: 13.8)$
$c_{217}$	1.00128	$1.0012^{+0.0042}_{-0.0040}$	$k_{\mathrm{D}}$	0.13983	$0.1400^{+0.0032}_{-0.0032}$	$\chi_{\mathrm{Aver15}}^2$	0.04	$0.41 (\nu: 0.2)$
$H_0$	67.54	$67.4^{+3.0}_{-2.9}$	$100\theta_{\mathrm{D}}$	0.16086	$0.1609^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{Cooke17}}^2$	0.04	$0.29 (\nu: 0.1)$
$\Omega_{\Lambda}$	0.6923	$0.689^{+0.019}_{-0.022}$	$z_{\mathrm{eq}}$	3387	$3382^{+73}_{-74}$	$\chi_{6\mathrm{DF}}^2$	0.006	$0.064 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	0.3077	$0.311^{+0.022}_{-0.019}$	$k_{\mathrm{eq}}$	0.010286	$0.01029^{+0.00028}_{-0.00029}$	$\chi_{\mathrm{MGS}}^2$	1.47	$1.33 (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^2$	0.1404	$0.1412^{+0.0078}_{-0.0074}$	$100\theta_{\mathrm{eq}}$	0.8155	$0.816^{+0.014}_{-0.013}$	$\chi_{\mathrm{DR12BAO}}^2$	3.76	$4.8 (\nu: 1.5)$
$\Omega_{\nu}h^2$	0.00003	< 0.00182	$100\theta_{\mathrm{s,eq}}$	0.4507	$0.4512^{+0.0072}_{-0.0067}$	$\chi_{\mathrm{prior}}^2$	2.2	$7.6 (\nu: 5.9)$
$\Omega_{\mathrm{m}}h^3$	0.0948	$0.0952^{+0.0088}_{-0.0081}$	$H(0.15)$	72.76	$72.7^{+3.0}_{-2.9}$	$\chi_{\mathrm{CMB}}^2$	7478.0	$7492.9 (\nu: 14.9)$
$\sigma_8$	0.8172	$0.810^{+0.028}_{-0.030}$	$D_{\mathrm{M}}(0.15)$	642.1	$643^{+28}_{-27}$	$\chi_{\mathrm{BAO}}^2$	5.24	$6.2 (\nu: 1.0)$
$S_8$	0.8276	$0.825^{+0.032}_{-0.032}$	$H(0.38)$	82.76	$82.7^{+3.0}_{-2.9}$	$\chi_{\mathrm{Abund}}^2$	0.07	$0.70 (\nu: 0.3)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4533	$0.452^{+0.018}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	1532	$1534^{+62}_{-60}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 7485.51$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 7507.35$ ;  $R - 1 = 0.00593$   
 $\chi_{\mathrm{eff}}^2$ : Abund - Yp\_Aver2015: 0.04 D\_Cooke2017: 0.04 BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 3.76 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.82  
small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 commander\_dx12\_v3\_2\_29: 23.32 CamSpec like\_10.7HM: 7049.98



### 9.43 base\_nnu\_mnu\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02224^{+0.00058}_{-0.00058}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.018}$	$H(0.38)$	$83.2^{+3.8}_{-3.7}$
$\Omega_{\mathrm{c}} h^2$	$0.119^{+0.010}_{-0.0093}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.022}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1526^{+77}_{-74}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0015}_{-0.0015}$	$\sigma_8/h^{0.5}$	$0.987^{+0.027}_{-0.035}$	$H(0.51)$	$89.9^{+4.0}_{-3.9}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$r_{\mathrm{drag}} h$	$100.0^{+2.5}_{-2.4}$	$D_{\mathrm{M}}(0.51)$	$1977^{+98}_{-93}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.178$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.060}_{-0.060}$	$H(0.61)$	$95.5^{+4.1}_{-4.0}$
$N_{\mathrm{eff}}$	$3.06^{+0.61}_{-0.57}$	$z_{\mathrm{re}}$	$< 9.57$	$D_{\mathrm{M}}(0.61)$	$2301^{+110}_{-110}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.047}_{-0.039}$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.081}$	$H(2.33)$	$235.9^{+8.8}_{-8.4}$
$n_{\mathrm{s}}$	$0.967^{+0.022}_{-0.021}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.051}_{-0.053}$	$D_{\mathrm{M}}(2.33)$	$5758^{+240}_{-230}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0061}_{-0.0061}$	$D_{40}$	$1224^{+37}_{-38}$	$f\sigma_8(0.15)$	$0.456^{+0.018}_{-0.018}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-70}$	$D_{220}$	$5713^{+100}_{-100}$	$\sigma_8(0.15)$	$0.752^{+0.032}_{-0.031}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2534^{+35}_{-35}$	$f\sigma_8(0.38)$	$0.475^{+0.017}_{-0.017}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.666^{+0.029}_{-0.028}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.9^{+5.9}_{-5.9}$	$f\sigma_8(0.51)$	$0.474^{+0.017}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.79$	$n_{\mathrm{s},0.002}$	$0.967^{+0.022}_{-0.021}$	$\sigma_8(0.51)$	$0.624^{+0.027}_{-0.027}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.33}$	$Y_{\mathrm{P}}$	$0.2455^{+0.0080}_{-0.0081}$	$f\sigma_8(0.61)$	$0.470^{+0.017}_{-0.017}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2468^{+0.0080}_{-0.0081}$	$\sigma_8(0.61)$	$0.594^{+0.026}_{-0.026}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.18}_{-0.17}$	$f\sigma_8(2.33)$	$0.299^{+0.013}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.79^{+0.58}_{-0.56}$	$\sigma_8(2.33)$	$0.309^{+0.014}_{-0.014}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$z_*$	$1090.0^{+1.3}_{-1.2}$	$f_{2000}^{143}$	$30^{+9}_{-9}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.46}$	$r_*$	$144.7^{+5.8}_{-5.5}$	$f_{2000}^{217}$	$107.4^{+6.2}_{-6.1}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$100\theta_*$	$1.0412^{+0.0018}_{-0.0018}$	$f_{2000}^{143 \times 217}$	$33^{+7}_{-7}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.90^{+0.53}_{-0.51}$	$\chi_{\mathrm{lensing}}^2$	$9.52 (\nu: 0.4)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.6^{+2.2}_{-2.2}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.8)$
$c_{217}$	$1.0012^{+0.0042}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.4^{+6.0}_{-5.8}$	$\chi_{\mathrm{lowl}}^2$	$23.0 (\nu: 0.7)$
$H_0$	$67.8^{+3.7}_{-3.6}$	$k_{\mathrm{D}}$	$0.1404^{+0.0042}_{-0.0042}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.8 (\nu: 14.9)$
$\Omega_{\Lambda}$	$0.691^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0015}_{-0.0014}$	$\chi_{\mathrm{JLA}}^2$	$1035.04 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3374^{+73}_{-79}$	$\chi_{6\mathrm{DF}}^2$	$0.047 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.142^{+0.010}_{-0.0098}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00035}_{-0.00035}$	$\chi_{\mathrm{MGS}}^2$	$1.48 (\nu: 0.1)$
$\Omega_{\nu} h^2$	$< 0.00190$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.015}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 (\nu: 0.9)$
$\Omega_{\mathrm{m}} h^3$	$0.096^{+0.012}_{-0.011}$	$100\theta_{\mathrm{s,eq}}$	$0.4520^{+0.0077}_{-0.0069}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 6.0)$
$\sigma_8$	$0.813^{+0.033}_{-0.032}$	$H(0.15)$	$73.1^{+3.8}_{-3.6}$	$\chi_{\mathrm{CMB}}^2$	$7493.4 (\nu: 15.9)$
$S_8$	$0.824^{+0.034}_{-0.033}$	$D_{\mathrm{M}}(0.15)$	$639^{+34}_{-33}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.6)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 8542.04; R - 1 = 0.00589$$



#### 9.44 base\_nnu\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022261	$0.02228^{+0.00049}_{-0.00048} \quad (+0.3\sigma)$	$S_8$	0.8250	$0.822^{+0.030}_{-0.030} \quad (-0.2\sigma)$	$H(0.38)$	82.32	$82.6^{+3.6}_{-3.2} \quad (-0.3\sigma)$
$\Omega_c h^2$	0.1168	$0.1178^{+0.0086}_{-0.0079} \quad (-0.3\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4519	$0.450^{+0.016}_{-0.016} \quad (-0.2\sigma)$	$D_M(0.38)$	1541	$1537^{+69}_{-70} \quad (+0.3\sigma)$
$100\theta_{MC}$	1.04121	$1.0411^{+0.0012}_{-0.0012} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6064	$0.603^{+0.020}_{-0.022} \quad (-0.3\sigma)$	$H(0.51)$	88.94	$89.2^{+3.7}_{-3.4} \quad (-0.3\sigma)$
$\tau$	0.0531	$0.054^{+0.020}_{-0.019} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9929	$0.985^{+0.026}_{-0.033} \quad (-0.1\sigma)$	$D_M(0.51)$	1996	$1992^{+86}_{-88} \quad (+0.3\sigma)$
$\Sigma m_\nu$ [eV]	0.001	$< 0.176 \quad (-0.1\sigma)$	$r_{\text{drag}} h$	99.99	$99.7^{+2.4}_{-2.4} \quad (-0.1\sigma)$	$H(0.61)$	94.48	$94.8^{+3.7}_{-3.5} \quad (-0.3\sigma)$
$N_{\text{eff}}$	2.89	$2.96^{+0.54}_{-0.49} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	2.443	$2.435^{+0.057}_{-0.058} \quad (+0.1\sigma)$	$D_M(0.61)$	2324	$2318^{+99}_{-100} \quad (+0.3\sigma)$
$\ln(10^{10} A_s)$	3.0331	$3.038^{+0.047}_{-0.044} \quad (-0.2\sigma)$	$z_{\text{re}}$	7.51	$7.7^{+2.0}_{-2.0} \quad (-0.1\sigma)$	$H(2.33)$	233.5	$234.7^{+7.7}_{-7.2} \quad (-0.3\sigma)$
$n_s$	0.9621	$0.964^{+0.020}_{-0.019} \quad (-0.2\sigma)$	$10^9 A_s$	2.076	$2.09^{+0.10}_{-0.089} \quad (-0.2\sigma)$	$D_M(2.33)$	5815	$5794^{+210}_{-220} \quad (+0.3\sigma)$
$y_{\text{cal}}$	1.0007	$1.0007^{+0.0063}_{-0.0061} \quad (+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	1.8669	$1.871^{+0.047}_{-0.047} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	0.4559	$0.455^{+0.015}_{-0.016} \quad (-0.2\sigma)$
$A_{100}^{\text{PS}}$	227	$238^{+60}_{-70} \quad (-0.2\sigma)$	$D_{40}$	1230.5	$1229^{+34}_{-35} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	0.7521	$0.747^{+0.029}_{-0.032} \quad (-0.3\sigma)$
$A_{143}^{\text{PS}}$	45.8	$38^{+20}_{-20} \quad (-0.3\sigma)$	$D_{220}$	5725	$5725^{+97}_{-94} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	0.4749	$0.473^{+0.015}_{-0.016} \quad (-0.3\sigma)$
$A_{217}^{\text{PS}}$	105.8	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	2534.8	$2535^{+35}_{-34} \quad (+0.0\sigma)$	$\sigma_8(0.38)$	0.6668	$0.662^{+0.026}_{-0.030} \quad (-0.3\sigma)$
$A_{217}^{\text{CIB}}$	41.1	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	818.0	$817^{+13}_{-13} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	0.4737	$0.472^{+0.015}_{-0.016} \quad (-0.3\sigma)$
$A_{143}^{\text{tSZ}}$	6.50	$< 8.82 \quad (+0.1\sigma)$	$D_{2000}$	231.8	$231.0^{+5.1}_{-5.2} \quad (+0.4\sigma)$	$\sigma_8(0.51)$	0.6240	$0.620^{+0.025}_{-0.028} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\text{PS}}$	0.715	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$n_{s,0.002}$	0.9621	$0.964^{+0.020}_{-0.019} \quad (-0.2\sigma)$	$f\sigma_8(0.61)$	0.4690	$0.467^{+0.015}_{-0.016} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	0.84	—	$Y_P$	0.2432	$0.2442^{+0.0072}_{-0.0070} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	0.5938	$0.590^{+0.024}_{-0.027} \quad (-0.3\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.69	—	$Y_P^{\text{BBN}}$	0.2445	$0.2455^{+0.0072}_{-0.0070} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	0.2985	$0.297^{+0.012}_{-0.013} \quad (-0.3\sigma)$
$A^{\text{kSZ}}$	0.0	—	$10^5 \text{D/H}$	2.552	$2.57^{+0.15}_{-0.14} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	0.3084	$0.307^{+0.014}_{-0.014} \quad (-0.3\sigma)$
$A_{100}^{\text{dust}}$	1.00	$1.01^{+0.50}_{-0.50} \quad (-0.0\sigma)$	Age/Gyr	13.92	$13.87^{+0.51}_{-0.51} \quad (+0.3\sigma)$	$f_{2000}^{143}$	28.3	$29^{+9}_{-8} \quad (-0.4\sigma)$
$A_{143}^{\text{dust}}$	0.973	$0.96^{+0.44}_{-0.45} \quad (-0.1\sigma)$	$z_*$	1089.62	$1089.8^{+1.0}_{-0.98} \quad (-0.6\sigma)$	$f_{2000}^{217}$	105.5	$106.3^{+5.8}_{-5.6} \quad (-0.4\sigma)$
$A_{217}^{\text{dust}}$	0.983	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$r_*$	146.15	$145.5^{+4.9}_{-5.0} \quad (+0.3\sigma)$	$f_{2000}^{143 \times 217}$	30.7	$31^{+6}_{-6} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\text{dust}}$	1.001	$1.02^{+0.42}_{-0.42} \quad (-0.0\sigma)$	$100\theta_*$	1.04148	$1.0414^{+0.0015}_{-0.0015} \quad (+0.2\sigma)$	$\chi_{\text{lensing}}^2$	8.62	$9.27 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$c_{100}$	0.99780	$0.9976^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$D_M(z_*)/\text{Gpc}$	14.033	$13.97^{+0.46}_{-0.46} \quad (+0.3\sigma)$	$\chi_{\text{simall}}^2$	395.85	$397.0 \quad (\nu: 1.4) \quad (-0.1\sigma)$
$c_{217}$	1.00113	$1.0011^{+0.0040}_{-0.0040} \quad (-0.1\sigma)$	$z_{\text{drag}}$	1059.32	$1059.5^{+1.9}_{-1.9} \quad (+0.0\sigma)$	$\chi_{\text{lowl}}^2$	23.58	$23.4 \quad (\nu: 0.7) \quad (+0.2\sigma)$
$c_{TE}$	0.9954	$0.996^{+0.013}_{-0.013}$	$r_{\text{drag}}$	148.9	$148.2^{+5.1}_{-5.2} \quad (+0.3\sigma)$	$\chi_{\text{CamSpec}}^2$	11498.2	$11514.1 \quad (\nu: 16.3) \quad (+817.0\sigma)$
$c_{EE}$	0.9901	$0.991^{+0.014}_{-0.014}$	$k_D$	0.13952	$0.1400^{+0.0038}_{-0.0036} \quad (-0.2\sigma)$	$\chi_{6\text{DF}}^2$	0.010	$0.059 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$H_0$	67.16	$67.3^{+3.5}_{-3.1} \quad (-0.2\sigma)$	$100\theta_D$	0.16045	$0.1607^{+0.0013}_{-0.0012} \quad (-0.6\sigma)$	$\chi_{\text{MGS}}^2$	1.41	$1.33 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\Omega_\Lambda$	0.6916	$0.689^{+0.019}_{-0.020} \quad (-0.1\sigma)$	$z_{\text{eq}}$	3395	$3386^{+66}_{-69} \quad (+0.2\sigma)$	$\chi_{\text{DR12BAO}}^2$	3.90	$4.8 \quad (\nu: 1.3) \quad (+0.0\sigma)$
$\Omega_m$	0.3084	$0.311^{+0.020}_{-0.019} \quad (+0.1\sigma)$	$k_{\text{eq}}$	0.010252	$0.01028^{+0.00030}_{-0.00028} \quad (-0.2\sigma)$	$\chi_{\text{prior}}^2$	2.0	$7.8 \quad (\nu: 5.7) \quad (+0.1\sigma)$
$\Omega_m h^2$	0.1391	$0.1406^{+0.0091}_{-0.0082} \quad (-0.3\sigma)$	$100\theta_{\text{eq}}$	0.8143	$0.816^{+0.013}_{-0.012} \quad (-0.2\sigma)$	$\chi_{\text{CMB}}^2$	11926.3	$11943.7 \quad (\nu: 17.3) \quad (+787.6\sigma)$
$\Omega_\nu h^2$	0.00001	$< 0.00186 \quad (-0.1\sigma)$	$100\theta_{s,\text{eq}}$	0.4500	$0.4509^{+0.0067}_{-0.0063} \quad (-0.2\sigma)$	$\chi_{\text{BAO}}^2$	5.31	$6.2 \quad (\nu: 0.9) \quad (-0.0\sigma)$
$\Omega_m h^3$	0.0934	$0.0947^{+0.011}_{-0.0093} \quad (-0.3\sigma)$	$H(0.15)$	72.36	$72.5^{+3.5}_{-3.2} \quad (-0.3\sigma)$			
$\sigma_8$	0.8137	$0.808^{+0.030}_{-0.034} \quad (-0.3\sigma)$	$D_M(0.15)$	645.7	$645^{+30}_{-31} \quad (+0.2\sigma)$			

Best-fit  $\chi_{\text{eff}}^2 = 11933.58$ ;  $\Delta\chi_{\text{eff}}^2 = 4448.00$ ;  $\bar{\chi}_{\text{eff}}^2 = 11957.66$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 4450.38$ ;  $R - 1 = 0.00614$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.01 ( $\Delta$  0.00) MGS: 1.41 ( $\Delta$  -0.07) DR12BAO: 3.90 ( $\Delta$  0.12) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.62 ( $\Delta$  -0.29) simall\_100x143\_offlike5\_EE\_Aplanck  
395.85 ( $\Delta$  -0.01) commander\_dx12\_v3.2\_29: 23.58 ( $\Delta$  0.27) CamSpec like\_10.7HM\_1400\_unified: 11498.22



# 9.45 base\_nnu\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022256	$0.02230^{+0.00048}_{-0.00047}$ $(+0.3\sigma)$	$S_8$	0.8240	$0.822^{+0.029}_{-0.030}$ $(-0.2\sigma)$	$H(0.38)$	82.43	$82.7^{+3.5}_{-3.2}$ $(-0.3\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.1169	$0.1180^{+0.0087}_{-0.0079}$ $(-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4513	$0.450^{+0.016}_{-0.016}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	1538	$1534^{+67}_{-68}$ $(+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	1.04122	$1.0411^{+0.0012}_{-0.0012}$ $(+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6061	$0.603^{+0.020}_{-0.021}$ $(-0.3\sigma)$	$H(0.51)$	89.05	$89.4^{+3.6}_{-3.3}$ $(-0.3\sigma)$
$\tau$	0.0532	$0.055^{+0.020}_{-0.019}$ $(-0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9922	$0.985^{+0.025}_{-0.032}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	1993	$1988^{+85}_{-86}$ $(+0.3\sigma)$
$\Sigma m_{\nu}$ [eV]	0.001	$< 0.168$ $(-0.1\sigma)$	$r_{\mathrm{drag}}h$	100.10	$99.9^{+2.3}_{-2.3}$ $(-0.1\sigma)$	$H(0.61)$	94.58	$95.0^{+3.7}_{-3.4}$ $(-0.3\sigma)$
$N_{\mathrm{eff}}$	2.90	$2.98^{+0.53}_{-0.49}$ $(-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	2.440	$2.434^{+0.056}_{-0.057}$ $(+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	2320	$2313^{+97}_{-98}$ $(+0.3\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0331	$3.039^{+0.047}_{-0.043}$ $(-0.2\sigma)$	$z_{\mathrm{re}}$	7.52	$7.7^{+1.9}_{-2.0}$ $(-0.1\sigma)$	$H(2.33)$	233.6	$234.8^{+7.6}_{-7.2}$ $(-0.3\sigma)$
$n_{\mathrm{s}}$	0.9629	$0.965^{+0.020}_{-0.019}$ $(-0.3\sigma)$	$10^9 A_{\mathrm{s}}$	2.076	$2.09^{+0.10}_{-0.088}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	5810	$5787^{+210}_{-210}$ $(+0.3\sigma)$
$y_{\mathrm{cal}}$	1.0005	$1.0007^{+0.0062}_{-0.0060}$ $(+0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8665	$1.872^{+0.047}_{-0.046}$ $(-0.2\sigma)$	$f\sigma_8(0.15)$	0.4554	$0.455^{+0.015}_{-0.016}$ $(-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	228	$238^{+60}_{-70}$ $(-0.2\sigma)$	$D_{40}$	1228.3	$1228^{+34}_{-35}$ $(+0.2\sigma)$	$\sigma_8(0.15)$	0.7523	$0.748^{+0.028}_{-0.030}$ $(-0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	42.6	$38^{+20}_{-20}$ $(-0.3\sigma)$	$D_{220}$	5720	$5726^{+97}_{-95}$ $(+0.3\sigma)$	$f\sigma_8(0.38)$	0.4746	$0.473^{+0.015}_{-0.015}$ $(-0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	104.7	$103^{+30}_{-30}$ $(+0.1\sigma)$	$D_{810}$	2533.7	$2535^{+35}_{-34}$ $(+0.0\sigma)$	$\sigma_8(0.38)$	0.6671	$0.663^{+0.026}_{-0.028}$ $(-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	41.7	$39^{+20}_{-20}$ $(-0.2\sigma)$	$D_{1420}$	817.5	$817^{+13}_{-13}$ $(+0.3\sigma)$	$f\sigma_8(0.51)$	0.4736	$0.472^{+0.015}_{-0.016}$ $(-0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	6.47	$< 8.78$ $(+0.1\sigma)$	$D_{2000}$	231.6	$231.0^{+5.2}_{-5.2}$ $(+0.5\sigma)$	$\sigma_8(0.51)$	0.6244	$0.621^{+0.025}_{-0.027}$ $(-0.3\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	0.680	$0.66^{+0.31}_{-0.33}$ $(+0.1\sigma)$	$n_{\mathrm{s},0.002}$	0.9629	$0.965^{+0.020}_{-0.019}$ $(-0.3\sigma)$	$f\sigma_8(0.61)$	0.4689	$0.467^{+0.015}_{-0.016}$ $(-0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.79	—	$Y_{\mathrm{P}}$	0.2434	$0.2444^{+0.0071}_{-0.0069}$ $(-0.3\sigma)$	$\sigma_8(0.61)$	0.5941	$0.591^{+0.024}_{-0.026}$ $(-0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.47	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2447	$0.2457^{+0.0071}_{-0.0069}$ $(-0.3\sigma)$	$f\sigma_8(2.33)$	0.2988	$0.298^{+0.012}_{-0.012}$ $(-0.3\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$10^5 \mathrm{D}/\mathrm{H}$	2.557	$2.58^{+0.15}_{-0.14}$ $(-0.6\sigma)$	$\sigma_8(2.33)$	0.3086	$0.307^{+0.013}_{-0.014}$ $(-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.50}_{-0.51}$ $(-0.0\sigma)$	Age/Gyr	13.91	$13.86^{+0.50}_{-0.51}$ $(+0.3\sigma)$	$f_{2000}^{143}$	28.4	$29^{+8}_{-8}$ $(-0.4\sigma)$
$A_{143}^{\mathrm{dust}}$	0.967	$0.96^{+0.45}_{-0.44}$ $(-0.1\sigma)$	$z_*$	1089.65	$1089.8^{+1.0}_{-0.99}$ $(-0.6\sigma)$	$f_{2000}^{217}$	105.6	$106.4^{+5.9}_{-5.6}$ $(-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	0.982	$0.98^{+0.27}_{-0.27}$ $(+0.1\sigma)$	$r_*$	146.06	$145.4^{+4.9}_{-4.9}$ $(+0.3\sigma)$	$f_{2000}^{143 \times 217}$	30.8	$31^{+6}_{-6}$ $(-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	1.011	$1.03^{+0.43}_{-0.43}$ $(-0.0\sigma)$	$100\theta_*$	1.04147	$1.0413^{+0.0015}_{-0.0015}$ $(+0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	8.66	$9.30$ ( $\nu$ : 0.3) $(-0.3\sigma)$
$c_{100}$	0.99774	$0.9976^{+0.0027}_{-0.0027}$ $(+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	14.024	$13.96^{+0.46}_{-0.46}$ $(+0.3\sigma)$	$\chi_{\mathrm{small}}^2$	395.86	$397.0$ ( $\nu$ : 1.5) $(-0.1\sigma)$
$c_{217}$	1.00119	$1.0011^{+0.0041}_{-0.0041}$ $(-0.1\sigma)$	$z_{\mathrm{drag}}$	1059.32	$1059.6^{+1.9}_{-1.8}$ $(-0.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	23.43	$23.3$ ( $\nu$ : 0.6) $(+0.2\sigma)$
$c_{TE}$	0.9954	$0.996^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	148.8	$148.1^{+5.1}_{-5.1}$ $(+0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	11498.3	$11514.2$ ( $\nu$ : 16.2) $(+816.5\sigma)$
$c_{EE}$	0.9904	$0.992^{+0.014}_{-0.014}$	$k_{\mathrm{D}}$	0.13956	$0.1400^{+0.0038}_{-0.0035}$ $(-0.2\sigma)$	$\chi_{\mathrm{JLA}}^2$	1034.88	$1035.06$ ( $\nu$ : 0.1) $(+0.0\sigma)$
$H_0$	67.28	$67.5^{+3.3}_{-3.1}$ $(-0.3\sigma)$	$100\theta_{\mathrm{D}}$	0.16051	$0.1607^{+0.0013}_{-0.0012}$ $(-0.6\sigma)$	$\chi_{\mathrm{6DF}}^2$	0.006	$0.047$ ( $\nu$ : 0.0) $(-0.0\sigma)$
$\Omega_{\Lambda}$	0.6925	$0.691^{+0.018}_{-0.019}$ $(-0.1\sigma)$	$z_{\mathrm{eq}}$	3391	$3383^{+64}_{-67}$ $(+0.3\sigma)$	$\chi_{\mathrm{MGS}}^2$	1.47	$1.40$ ( $\nu$ : 0.1) $(-0.1\sigma)$
$\Omega_{\mathrm{m}}$	0.3075	$0.309^{+0.019}_{-0.018}$ $(+0.1\sigma)$	$k_{\mathrm{eq}}$	0.010250	$0.01028^{+0.00030}_{-0.00028}$ $(-0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	3.77	$4.5$ ( $\nu$ : 0.9) $(+0.0\sigma)$
$\Omega_{\mathrm{m}}h^2$	0.1392	$0.1407^{+0.0091}_{-0.0082}$ $(-0.3\sigma)$	$100\theta_{\mathrm{eq}}$	0.8150	$0.817^{+0.013}_{-0.012}$ $(-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	2.1	$7.8$ ( $\nu$ : 5.8) $(+0.1\sigma)$
$\Omega_{\nu}h^2$	0.00001	$< 0.00178$ $(-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4504	$0.4512^{+0.0065}_{-0.0061}$ $(-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	11926.3	$11943.8$ ( $\nu$ : 17.3) $(+785.8\sigma)$
$\Omega_{\mathrm{m}}h^3$	0.0936	$0.0950^{+0.011}_{-0.0093}$ $(-0.3\sigma)$	$H(0.15)$	72.47	$72.7^{+3.4}_{-3.1}$ $(-0.3\sigma)$	$\chi_{\mathrm{BAO}}^2$	5.25	$6.0$ ( $\nu$ : 0.6) $(-0.0\sigma)$
$\sigma_8$	0.8139	$0.809^{+0.030}_{-0.032}$ $(-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	644.6	$643^{+29}_{-29}$ $(+0.3\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 12968.49$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4448.22$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 12992.58$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.41$ ;  $R - 1 = 0.00612$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.01 ( $\Delta$  0.00) MGS: 1.47 ( $\Delta$  -0.07) DR12BAO: 3.77 ( $\Delta$  0.11) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.66 ( $\Delta$  -0.21) simall\_100x143\_offlike5\_EE\_Aplanck 395.86 ( $\Delta$  0.01) commander\_dx12\_v3\_2.29: 23.43 ( $\Delta$  0.18) CamSpec like\_10.7HM\_1400\_unified: 11498.34 SN - JLA Pantheon18: 1034.88 ( $\Delta$  0.03)



**9.46 base\_nnu\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Aver15**

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022234	$0.02227^{+0.00045}_{-0.00045}$ $(+0.4\sigma)$	$S_8$	0.8245	$0.822^{+0.029}_{-0.030}$ $(-0.2\sigma)$	$H(0.38)$	82.26	$82.5^{+2.9}_{-2.8}$ $(-0.2\sigma)$
$\Omega_c h^2$	0.1167	$0.1176^{+0.0072}_{-0.0067}$ $(-0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4516	$0.450^{+0.016}_{-0.016}$ $(-0.2\sigma)$	$D_M(0.38)$	1542	$1539^{+59}_{-58}$ $(+0.2\sigma)$
$100\theta_{MC}$	1.04126	$1.0411^{+0.0011}_{-0.0011}$ $(+0.0\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6059	$0.603^{+0.019}_{-0.021}$ $(-0.2\sigma)$	$H(0.51)$	88.88	$89.1^{+3.0}_{-2.8}$ $(-0.2\sigma)$
$\tau$	0.0531	$0.054^{+0.020}_{-0.019}$ $(-0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9925	$0.985^{+0.026}_{-0.032}$ $(-0.1\sigma)$	$D_M(0.51)$	1998	$1994^{+74}_{-74}$ $(+0.2\sigma)$
$\Sigma m_\nu$ [eV]	0.002	$< 0.172$ $(-0.0\sigma)$	$r_{drag} h$	99.99	$99.7^{+2.3}_{-2.4}$ $(-0.0\sigma)$	$H(0.61)$	94.41	$94.7^{+3.1}_{-2.9}$ $(-0.2\sigma)$
$N_{eff}$	2.881	$2.95^{+0.44}_{-0.41}$ $(-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	2.442	$2.436^{+0.055}_{-0.057}$ $(-0.0\sigma)$	$D_M(0.61)$	2325	$2320^{+84}_{-84}$ $(+0.2\sigma)$
$\ln(10^{10} A_s)$	3.0323	$3.037^{+0.045}_{-0.042}$ $(-0.1\sigma)$	$z_{re}$	7.51	$7.6^{+1.9}_{-2.0}$ $(-0.1\sigma)$	$H(2.33)$	233.4	$234.5^{+6.4}_{-6.0}$ $(-0.2\sigma)$
$n_s$	0.9621	$0.964^{+0.017}_{-0.017}$ $(-0.2\sigma)$	$10^9 A_s$	2.074	$2.085^{+0.095}_{-0.085}$ $(-0.1\sigma)$	$D_M(2.33)$	5820	$5801^{+180}_{-180}$ $(+0.2\sigma)$
$y_{cal}$	1.0004	$1.0007^{+0.0063}_{-0.0060}$ $(+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	1.8653	$1.870^{+0.042}_{-0.041}$ $(-0.2\sigma)$	$f\sigma_8(0.15)$	0.4557	$0.455^{+0.015}_{-0.016}$ $(-0.2\sigma)$
$A_{100}^{PS}$	225	$237^{+60}_{-60}$ $(-0.2\sigma)$	$D_{40}$	1229.3	$1229^{+32}_{-33}$ $(+0.2\sigma)$	$\sigma_8(0.15)$	0.7515	$0.746^{+0.026}_{-0.031}$ $(-0.2\sigma)$
$A_{143}^{PS}$	49.7	$38^{+20}_{-20}$ $(-0.2\sigma)$	$D_{220}$	5720	$5725^{+97}_{-94}$ $(+0.3\sigma)$	$f\sigma_8(0.38)$	0.4746	$0.473^{+0.014}_{-0.015}$ $(-0.2\sigma)$
$A_{217}^{PS}$	106.4	$103^{+30}_{-30}$ $(+0.1\sigma)$	$D_{810}$	2533.7	$2534^{+35}_{-33}$ $(+0.1\sigma)$	$\sigma_8(0.38)$	0.6663	$0.662^{+0.024}_{-0.028}$ $(-0.2\sigma)$
$A_{217}^{CIB}$	40.5	$39^{+20}_{-20}$ $(-0.2\sigma)$	$D_{1420}$	817.7	$817^{+13}_{-12}$ $(+0.3\sigma)$	$f\sigma_8(0.51)$	0.4734	$0.472^{+0.014}_{-0.015}$ $(-0.2\sigma)$
$A_{143}^{tSZ}$	6.50	$< 8.78$ $(+0.1\sigma)$	$D_{2000}$	231.74	$231.1^{+4.9}_{-4.9}$ $(+0.4\sigma)$	$\sigma_8(0.51)$	0.6236	$0.619^{+0.023}_{-0.027}$ $(-0.2\sigma)$
$r_{143 \times 217}^{PS}$	0.752	$0.66^{+0.31}_{-0.33}$ $(+0.1\sigma)$	$n_{s,0.002}$	0.9621	$0.964^{+0.017}_{-0.017}$ $(-0.2\sigma)$	$f\sigma_8(0.61)$	0.4686	$0.467^{+0.014}_{-0.016}$ $(-0.2\sigma)$
$r_{143 \times 217}^{CIB}$	0.89	—	$Y_P$	0.2431	$0.2440^{+0.0060}_{-0.0059}$ $(-0.2\sigma)$	$\sigma_8(0.61)$	0.5933	$0.589^{+0.022}_{-0.026}$ $(-0.2\sigma)$
$\xi^{tSZ \times CIB}$	0.93	—	$Y_P^{BBN}$	0.2444	$0.2453^{+0.0060}_{-0.0059}$ $(-0.2\sigma)$	$f\sigma_8(2.33)$	0.2983	$0.297^{+0.011}_{-0.012}$ $(-0.2\sigma)$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.554	$2.57^{+0.13}_{-0.12}$ $(-0.6\sigma)$	$\sigma_8(2.33)$	0.3081	$0.306^{+0.012}_{-0.014}$ $(-0.2\sigma)$
$A_{100}^{dust}$	1.01	$1.01^{+0.50}_{-0.51}$ $(-0.0\sigma)$	Age/Gyr	13.933	$13.89^{+0.43}_{-0.43}$ $(+0.2\sigma)$	$f_{2000}^{143}$	28.4	$29^{+8}_{-8}$ $(-0.4\sigma)$
$A_{143}^{dust}$	0.979	$0.96^{+0.45}_{-0.44}$ $(-0.1\sigma)$	$z_*$	1089.63	$1089.73^{+0.92}_{-0.87}$ $(-0.5\sigma)$	$f_{2000}^{217}$	105.4	$106.2^{+5.5}_{-5.4}$ $(-0.4\sigma)$
$A_{217}^{dust}$	0.991	$0.98^{+0.27}_{-0.27}$ $(+0.1\sigma)$	$r_*$	146.26	$145.7^{+4.1}_{-4.1}$ $(+0.2\sigma)$	$f_{2000}^{143 \times 217}$	30.8	$31^{+6}_{-6}$ $(-0.4\sigma)$
$A_{143 \times 217}^{dust}$	1.005	$1.03^{+0.43}_{-0.42}$ $(-0.0\sigma)$	$100\theta_*$	1.04153	$1.0414^{+0.0013}_{-0.0013}$ $(+0.1\sigma)$	$\chi^2_{lensing}$	8.62	$9.24 (\nu: 0.3)$ $(-0.2\sigma)$
$c_{100}$	0.99787	$0.9976^{+0.0027}_{-0.0027}$ $(+0.0\sigma)$	$D_M(z_*)/Gpc$	14.043	$13.99^{+0.38}_{-0.39}$ $(+0.2\sigma)$	$\chi^2_{small}$	395.85	$397.0 (\nu: 1.4)$ $(-0.1\sigma)$
$c_{217}$	1.00123	$1.0011^{+0.0040}_{-0.0040}$ $(-0.1\sigma)$	$z_{drag}$	1059.25	$1059.4^{+1.7}_{-1.6}$ $(+0.2\sigma)$	$\chi^2_{lowl}$	23.55	$23.5 (\nu: 0.6)$ $(+0.1\sigma)$
$c_{TE}$	0.9956	$0.996^{+0.013}_{-0.013}$	$r_{drag}$	149.00	$148.4^{+4.3}_{-4.3}$ $(+0.2\sigma)$	$\chi^2_{CamSpec}$	11498.3	$11513.7 (\nu: 15.6)$ $(+834.9\sigma)$
$c_{EE}$	0.9905	$0.991^{+0.013}_{-0.014}$	$k_D$	0.13941	$0.1398^{+0.0031}_{-0.0030}$ $(-0.1\sigma)$	$\chi^2_{Aver15}$	0.01	$0.35 (\nu: 0.1)$ $(-0.2\sigma)$
$H_0$	67.11	$67.2^{+2.9}_{-2.7}$ $(-0.1\sigma)$	$100\theta_D$	0.16047	$0.1606^{+0.0011}_{-0.0011}$ $(-0.5\sigma)$	$\chi^2_{6DF}$	0.010	$0.058 (\nu: 0.0)$ $(-0.1\sigma)$
$\Omega_\Lambda$	0.6916	$0.689^{+0.018}_{-0.020}$ $(-0.0\sigma)$	$z_{eq}$	3394	$3387^{+64}_{-64}$ $(+0.2\sigma)$	$\chi^2_{MGS}$	1.41	$1.31 (\nu: 0.1)$ $(-0.0\sigma)$
$\Omega_m$	0.3084	$0.311^{+0.020}_{-0.018}$ $(+0.0\sigma)$	$k_{eq}$	0.010244	$0.01027^{+0.00027}_{-0.00025}$ $(-0.2\sigma)$	$\chi^2_{DR12BAO}$	3.88	$4.8 (\nu: 1.2)$ $(-0.0\sigma)$
$\Omega_m h^2$	0.1389	$0.1404^{+0.0076}_{-0.0070}$ $(-0.2\sigma)$	$100\theta_{eq}$	0.8144	$0.816^{+0.012}_{-0.012}$ $(-0.1\sigma)$	$\chi^2_{prior}$	1.9	$7.8 (\nu: 5.8)$ $(+0.1\sigma)$
$\Omega_\nu h^2$	0.00002	$< 0.00182$ $(-0.0\sigma)$	$100\theta_{s,eq}$	0.4501	$0.4507^{+0.0062}_{-0.0061}$ $(-0.1\sigma)$	$\chi^2_{CMB}$	11926.4	$11943.4 (\nu: 16.8)$ $(+802.2\sigma)$
$\Omega_m h^3$	0.0932	$0.0943^{+0.0087}_{-0.0079}$ $(-0.2\sigma)$	$H(0.15)$	72.30	$72.4^{+2.9}_{-2.7}$ $(-0.2\sigma)$	$\chi^2_{BAO}$	5.30	$6.1 (\nu: 0.8)$ $(-0.1\sigma)$
$\sigma_8$	0.8131	$0.808^{+0.027}_{-0.033}$ $(-0.2\sigma)$	$D_M(0.15)$	646.2	$645^{+26}_{-26}$ $(+0.1\sigma)$			

Best-fit  $\chi^2_{eff} = 11933.58$ ;  $\Delta\chi^2_{eff} = 4448.11$ ;  $\bar{\chi}^2_{eff} = 11957.68$ ;  $\Delta\bar{\chi}^2_{eff} = 4450.36$ ;  $R - 1 = 0.00718$   
 $\chi^2_{eff}$ : Abund - Yp\_Aver2015: 0.01 ( $\Delta$  0.00) BAO - 6DF: 0.01 ( $\Delta$  0.00) MGS: 1.41 ( $\Delta$  0.00) DR12BAO: 3.88 ( $\Delta$  0.00) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.62 ( $\Delta$  -0.18) simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 ( $\Delta$  -0.01) commander\_dx12.v3.2.29: 23.55 ( $\Delta$  0.06) CamSpec like\_10.7HM\_1400\_unified: 11498.33



**9.47 base\_nnu\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Cooke17\_Aver15**

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022234	$0.02227^{+0.00046}_{-0.00045}$ (+0.4 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4525	$0.451^{+0.016}_{-0.016}$ (−0.1 $\sigma$ )	$H(0.51)$	89.13	$89.3^{+2.8}_{-2.7}$ (−0.1 $\sigma$ )
$\Omega_c h^2$	0.1174	$0.1181^{+0.0067}_{-0.0064}$ (−0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6073	$0.604^{+0.018}_{-0.020}$ (−0.2 $\sigma$ )	$D_M(0.51)$	1992	$1990^{+71}_{-70}$ (+0.1 $\sigma$ )
$100\theta_{MC}$	1.04113	$1.0411^{+0.0010}_{-0.0010}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9934	$0.986^{+0.026}_{-0.032}$ (−0.1 $\sigma$ )	$H(0.61)$	94.69	$94.9^{+2.9}_{-2.8}$ (−0.1 $\sigma$ )
$\tau$	0.0531	$0.054^{+0.020}_{-0.019}$ (−0.0 $\sigma$ )	$r_{drag}h$	99.99	$99.7^{+2.3}_{-2.4}$ (−0.0 $\sigma$ )	$D_M(0.61)$	2318	$2316^{+81}_{-80}$ (+0.1 $\sigma$ )
$\Sigma m_\nu$ [eV]	0.001	< 0.174 (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.442	$2.435^{+0.056}_{-0.057}$ (−0.0 $\sigma$ )	$H(2.33)$	234.0	$234.9^{+5.9}_{-5.8}$ (−0.1 $\sigma$ )
$N_{eff}$	2.925	$2.98^{+0.41}_{-0.39}$ (−0.2 $\sigma$ )	$z_{re}$	7.52	$7.6^{+1.9}_{-2.0}$ (−0.1 $\sigma$ )	$D_M(2.33)$	5803	$5790^{+170}_{-170}$ (+0.1 $\sigma$ )
$\ln(10^{10} A_s)$	3.0332	$3.038^{+0.045}_{-0.041}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.076	$2.087^{+0.095}_{-0.085}$ (−0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4566	$0.455^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )
$n_s$	0.9629	$0.964^{+0.017}_{-0.016}$ (−0.1 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8672	$1.872^{+0.040}_{-0.040}$ (−0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7533	$0.748^{+0.025}_{-0.030}$ (−0.1 $\sigma$ )
$y_{cal}$	1.0001	$1.0006^{+0.0063}_{-0.0060}$ (+0.0 $\sigma$ )	$D_{40}$	1227.8	$1228^{+32}_{-33}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4756	$0.474^{+0.014}_{-0.015}$ (−0.2 $\sigma$ )
$A_{100}^{PS}$	231	$238^{+60}_{-60}$ (−0.1 $\sigma$ )	$D_{220}$	5714	$5723^{+97}_{-93}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6679	$0.663^{+0.023}_{-0.028}$ (−0.1 $\sigma$ )
$A_{143}^{PS}$	42.3	$38^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{810}$	2531.4	$2534^{+35}_{-33}$ (+0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4745	$0.473^{+0.014}_{-0.015}$ (−0.2 $\sigma$ )
$A_{217}^{PS}$	103.4	$103^{+30}_{-40}$ (+0.1 $\sigma$ )	$D_{1420}$	816.1	$816^{+13}_{-12}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6250	$0.620^{+0.022}_{-0.026}$ (−0.1 $\sigma$ )
$A_{217}^{CIB}$	42.8	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{2000}$	231.02	$230.8^{+4.8}_{-4.6}$ (+0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4697	$0.468^{+0.014}_{-0.015}$ (−0.2 $\sigma$ )
$A_{143}^{tSZ}$	6.50	< 8.78 (+0.1 $\sigma$ )	$n_{s,0.002}$	0.9629	$0.964^{+0.017}_{-0.016}$ (−0.1 $\sigma$ )	$\sigma_8(0.61)$	0.5947	$0.590^{+0.021}_{-0.025}$ (−0.1 $\sigma$ )
$r_{143 \times 217}^{PS}$	0.661	$0.66^{+0.30}_{-0.33}$ (+0.1 $\sigma$ )	$Y_P$	0.2437	$0.2444^{+0.0055}_{-0.0055}$ (−0.1 $\sigma$ )	$f\sigma_8(2.33)$	0.2990	$0.297^{+0.011}_{-0.012}$ (−0.1 $\sigma$ )
$r_{143 \times 217}^{CIB}$	0.79	—	$Y_P^{BBN}$	0.2450	$0.2457^{+0.0055}_{-0.0055}$ (−0.1 $\sigma$ )	$\sigma_8(2.33)$	0.3089	$0.307^{+0.012}_{-0.014}$ (−0.1 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.38	—	$10^5 D/H$	2.569	$2.58^{+0.11}_{-0.11}$ (−0.5 $\sigma$ )	$f_{2000}^{143}$	29.0	$29^{+8}_{-8}$ (−0.3 $\sigma$ )
$A^{kSZ}$	0.0	—	Age/Gyr	13.893	$13.86^{+0.40}_{-0.40}$ (+0.1 $\sigma$ )	$f_{2000}^{217}$	105.9	$106.4^{+5.3}_{-5.3}$ (−0.3 $\sigma$ )
$A_{100}^{dust}$	0.998	$1.01^{+0.51}_{-0.51}$ (+0.0 $\sigma$ )	$z_*$	1089.74	$1089.80^{+0.82}_{-0.80}$ (−0.5 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.3	$32^{+6}_{-6}$ (−0.4 $\sigma$ )
$A_{143}^{dust}$	0.972	$0.96^{+0.45}_{-0.44}$ (−0.1 $\sigma$ )	$r_*$	145.83	$145.4^{+3.9}_{-3.8}$ (+0.1 $\sigma$ )	$\chi^2_{lensing}$	8.70	$9.28 (\nu: 0.3)$ (−0.2 $\sigma$ )
$A_{217}^{dust}$	0.974	$0.98^{+0.27}_{-0.27}$ (+0.1 $\sigma$ )	$100\theta_*$	1.04138	$1.0413^{+0.0012}_{-0.0012}$ (−0.0 $\sigma$ )	$\chi^2_{small}$	395.85	$396.9 (\nu: 1.4)$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{dust}$	1.008	$1.03^{+0.43}_{-0.42}$ (−0.0 $\sigma$ )	$D_M(z_*)/\text{Gpc}$	14.003	$13.96^{+0.36}_{-0.36}$ (+0.1 $\sigma$ )	$\chi^2_{lowl}$	23.46	$23.4 (\nu: 0.5)$ (+0.1 $\sigma$ )
$c_{100}$	0.99768	$0.9976^{+0.0027}_{-0.0028}$ (+0.0 $\sigma$ )	$z_{drag}$	1059.32	$1059.5^{+1.6}_{-1.6}$ (+0.2 $\sigma$ )	$\chi^2_{CamSpec}$	11498.3	$11513.7 (\nu: 15.5)$ (+846.8 $\sigma$ )
$c_{217}$	1.00121	$1.0011^{+0.0040}_{-0.0040}$ (−0.1 $\sigma$ )	$r_{drag}$	148.55	$148.1^{+4.1}_{-4.0}$ (+0.1 $\sigma$ )	$\chi^2_{Aver15}$	0.00	$0.33 (\nu: 0.1)$ (−0.1 $\sigma$ )
$c_{TE}$	0.9958	$0.996^{+0.013}_{-0.013}$	$k_D$	0.13969	$0.1400^{+0.0029}_{-0.0029}$ (+0.0 $\sigma$ )	$\chi^2_{Cooke17}$	0.27	$0.38 (\nu: 0.1)$ (+0.2 $\sigma$ )
$c_{EE}$	0.9910	$0.992^{+0.013}_{-0.013}$	$100\theta_D$	0.16060	$0.16071^{+0.00099}_{-0.00095}$ (−0.5 $\sigma$ )	$\chi^2_{6DF}$	0.010	$0.057 (\nu: 0.0)$ (−0.1 $\sigma$ )
$H_0$	67.31	$67.3^{+2.8}_{-2.7}$ (−0.1 $\sigma$ )	$z_{eq}$	3393	$3386^{+64}_{-63}$ (+0.1 $\sigma$ )	$\chi^2_{MGS}$	1.41	$1.32 (\nu: 0.1)$ (−0.0 $\sigma$ )
$\Omega_\Lambda$	0.6917	$0.689^{+0.018}_{-0.020}$ (+0.0 $\sigma$ )	$k_{eq}$	0.010271	$0.01028^{+0.00025}_{-0.00025}$ (−0.1 $\sigma$ )	$\chi^2_{DR12BAO}$	3.89	$4.8 (\nu: 1.2)$ (−0.0 $\sigma$ )
$\Omega_m$	0.3083	$0.311^{+0.020}_{-0.018}$ (−0.0 $\sigma$ )	$100\theta_{eq}$	0.8146	$0.816^{+0.012}_{-0.012}$ (−0.1 $\sigma$ )	$\chi^2_{prior}$	2.1	$7.8 (\nu: 5.8)$ (+0.1 $\sigma$ )
$\Omega_m h^2$	0.1397	$0.1408^{+0.0071}_{-0.0067}$ (−0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4502	$0.4509^{+0.0062}_{-0.0060}$ (−0.1 $\sigma$ )	$\chi^2_{CMB}$	11926.3	$11943.3 (\nu: 16.7)$ (+814.0 $\sigma$ )
$\Omega_\nu h^2$	0.00001	< 0.00184 (−0.0 $\sigma$ )	$H(0.15)$	72.52	$72.6^{+2.8}_{-2.6}$ (−0.1 $\sigma$ )	$\chi^2_{BAO}$	5.31	$6.1 (\nu: 0.8)$ (−0.1 $\sigma$ )
$\Omega_m h^3$	0.0940	$0.0949^{+0.0081}_{-0.0075}$ (−0.1 $\sigma$ )	$D_M(0.15)$	644.3	$644^{+25}_{-25}$ (+0.1 $\sigma$ )	$\chi^2_{Abund}$	0.27	$0.72 (\nu: 0.2)$ (+0.0 $\sigma$ )
$\sigma_8$	0.8150	$0.809^{+0.026}_{-0.032}$ (−0.1 $\sigma$ )	$H(0.38)$	82.50	$82.6^{+2.8}_{-2.7}$ (−0.1 $\sigma$ )			
$S_8$	0.8262	$0.823^{+0.029}_{-0.029}$ (−0.1 $\sigma$ )	$D_M(0.38)$	1537	$1536^{+57}_{-56}$ (+0.1 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 11933.95$ ;  $\Delta\chi^2_{eff} = 4448.44$ ;  $\bar{\chi}^2_{eff} = 11957.95$ ;  $\Delta\bar{\chi}^2_{eff} = 4450.60$ ;  $R - 1 = 0.00786$   
 $\chi^2_{eff}$ : Abund - Yp\_Aver2015: 0.00 ( $\Delta$  -0.03) D\_Cooke2017: 0.27 ( $\Delta$  0.23) BAO - 6DF: 0.01 ( $\Delta$  0.00) MGS: 1.41 ( $\Delta$  -0.07) DR12BAO: 3.89 ( $\Delta$  0.13) CMB - smi-cadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.70 ( $\Delta$  -0.12) small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 ( $\Delta$  0.00) commander\_dx12\_v3.2.29: 23.46 ( $\Delta$  0.14) CamSpec like\_10.7HM\_1400\_unified: 11498.26



9.48 base\_nnu\_mnu\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_BAO\_post\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02230^{+0.00047}_{-0.00047} \quad (+0.3\sigma)$	$S_8$	$0.822^{+0.028}_{-0.030} \quad (-0.2\sigma)$	$H(0.38)$	$82.7^{+3.5}_{-3.2} \quad (-0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1180^{+0.0086}_{-0.0078} \quad (-0.3\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.016}_{-0.016} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1534^{+67}_{-67} \quad (+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0012}_{-0.0012} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.020}_{-0.021} \quad (-0.2\sigma)$	$H(0.51)$	$89.4^{+3.6}_{-3.3} \quad (-0.3\sigma)$
$\tau$	$0.056^{+0.018}_{-0.013} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.986^{+0.025}_{-0.032} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1987^{+84}_{-86} \quad (+0.3\sigma)$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.169 \quad (-0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.9^{+2.3}_{-2.3} \quad (-0.1\sigma)$	$H(0.61)$	$95.0^{+3.7}_{-3.4} \quad (-0.3\sigma)$
$N_{\mathrm{eff}}$	$2.98^{+0.53}_{-0.49} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.055}_{-0.056} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2313^{+96}_{-98} \quad (+0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.040^{+0.046}_{-0.037} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.43 \quad (-0.1\sigma)$	$H(2.33)$	$234.8^{+7.6}_{-7.2} \quad (-0.3\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.020}_{-0.019} \quad (-0.3\sigma)$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.098}_{-0.076} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5786^{+210}_{-210} \quad (+0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0062}_{-0.0060} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.047}_{-0.046} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.015}_{-0.016} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1228^{+33}_{-35} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.028}_{-0.031} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20} \quad (-0.3\sigma)$	$D_{220}$	$5725^{+97}_{-94} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.015}_{-0.015} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-40} \quad (+0.1\sigma)$	$D_{810}$	$2535^{+35}_{-34} \quad (+0.0\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.025}_{-0.028} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$817^{+13}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.015}_{-0.015} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.78 \quad (+0.1\sigma)$	$D_{2000}$	$231.0^{+5.2}_{-5.2} \quad (+0.4\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.024}_{-0.027} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.965^{+0.020}_{-0.019} \quad (-0.3\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.015}_{-0.016} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2444^{+0.0071}_{-0.0069} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.024}_{-0.026} \quad (-0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2458^{+0.0071}_{-0.0069} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	$0.298^{+0.012}_{-0.012} \quad (-0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.58^{+0.15}_{-0.13} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.307^{+0.013}_{-0.014} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.85^{+0.50}_{-0.50} \quad (+0.3\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.44} \quad (-0.1\sigma)$	$z_*$	$1089.8^{+1.0}_{-0.98} \quad (-0.6\sigma)$	$f_{2000}^{217}$	$106.4^{+5.8}_{-5.6} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$r_*$	$145.4^{+4.9}_{-4.9} \quad (+0.3\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.43} \quad (-0.0\sigma)$	$100\theta_*$	$1.0413^{+0.0015}_{-0.0015} \quad (+0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.25 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0028} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.96^{+0.45}_{-0.46} \quad (+0.3\sigma)$	$\chi_{\mathrm{small}}^2$	$397.0 \quad (\nu: 1.5) \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041} \quad (-0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.6^{+1.9}_{-1.9} \quad (-0.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.3 \quad (\nu: 0.6) \quad (+0.2\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$148.1^{+5.1}_{-5.1} \quad (+0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.1 \quad (\nu: 16.2) \quad (+815.9\sigma)$
$c_{EE}$	$0.992^{+0.014}_{-0.014}$	$k_{\mathrm{D}}$	$0.1401^{+0.0038}_{-0.0035} \quad (-0.2\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.05 \quad (\nu: 0.1) \quad (+0.0\sigma)$
$H_0$	$67.5^{+3.4}_{-3.1} \quad (-0.3\sigma)$	$100\theta_{\mathrm{D}}$	$0.1607^{+0.0013}_{-0.0012} \quad (-0.6\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.045 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.691^{+0.018}_{-0.019} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3382^{+64}_{-66} \quad (+0.3\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.41 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.019}_{-0.018} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01027^{+0.00030}_{-0.00028} \quad (-0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 \quad (\nu: 0.9) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1408^{+0.0090}_{-0.0082} \quad (-0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.012} \quad (-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\Omega_{\nu} h^2$	$< 0.00180 \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4513^{+0.0065}_{-0.0061} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11943.7 \quad (\nu: 17.2) \quad (+788.0\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0950^{+0.011}_{-0.0092} \quad (-0.3\sigma)$	$H(0.15)$	$72.7^{+3.4}_{-3.1} \quad (-0.3\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.9 \quad (\nu: 0.5) \quad (-0.0\sigma)$
$\sigma_8$	$0.810^{+0.029}_{-0.032} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+29}_{-30} \quad (+0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12992.45; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.41; R - 1 = 0.00689$$



# 9.49 base\_nnu\_mnu\_lensing\_lenspriors\_BAO\_Cooke17\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02194	$0.0221^{+0.0019}_{-0.0017}$	$D_{810}$	2560	$2159^{+1000}_{-1000}$	$D_{\mathrm{M}}(0.51)$	1929	$1862^{+200}_{-200}$
$\Omega_{\mathrm{c}}h^2$	0.135	$0.155^{+0.081}_{-0.055}$	$D_{1420}$	790	$629^{+500}_{-400}$	$H(0.61)$	99.8	$105^{+20}_{-10}$
$100\theta_{\mathrm{MC}}$	1.084	$1.110^{+0.079}_{-0.083}$	$D_{2000}$	230	$182^{+100}_{-100}$	$D_{\mathrm{M}}(0.61)$	2239	$2158^{+300}_{-300}$
$\Sigma m_{\nu}$ [eV]	0.95	—	$n_{\mathrm{s},0.002}$	0.962	$0.960^{+0.051}_{-0.051}$	$H(2.33)$	254	$273^{+70}_{-50}$
$N_{\mathrm{eff}}$	2.91	$2.96^{+0.77}_{-0.69}$	$Y_{\mathrm{P}}$	0.2433	$0.244^{+0.011}_{-0.010}$	$D_{\mathrm{M}}(2.33)$	5486	$5224^{+900}_{-900}$
$\ln(10^{10}A_{\mathrm{s}})$	3.103	$3.02^{+0.29}_{-0.32}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2447	$0.245^{+0.011}_{-0.010}$	$f\sigma_8(0.15)$	0.4566	$0.457^{+0.046}_{-0.046}$
$n_{\mathrm{s}}$	0.962	$0.960^{+0.051}_{-0.051}$	$10^5\mathrm{D}/\mathrm{H}$	2.618	$2.61^{+0.24}_{-0.24}$	$\sigma_8(0.15)$	0.694	$0.668^{+0.094}_{-0.099}$
$H_0$	68.4	$70^{+8}_{-6}$	Age/Gyr	13.13	$12.5^{+2.1}_{-2.0}$	$f\sigma_8(0.38)$	0.4655	$0.458^{+0.043}_{-0.049}$
$\Omega_{\Lambda}$	0.644	$0.61^{+0.10}_{-0.13}$	$z_*$	1091.9	$1093.8^{+6.9}_{-5.3}$	$\sigma_8(0.38)$	0.612	$0.586^{+0.089}_{-0.093}$
$\Omega_{\mathrm{m}}$	0.356	$0.39^{+0.13}_{-0.10}$	$r_*$	141.3	$136^{+20}_{-20}$	$f\sigma_8(0.51)$	0.4599	$0.450^{+0.044}_{-0.053}$
$\Omega_{\mathrm{m}}h^2$	0.167	$0.195^{+0.098}_{-0.075}$	$100\theta_*$	1.085	$1.111^{+0.080}_{-0.084}$	$\sigma_8(0.51)$	0.572	$0.547^{+0.086}_{-0.089}$
$\Omega_{\nu}h^2$	0.0098	$< 0.0467$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.02	$12.3^{+2.5}_{-2.3}$	$f\sigma_8(0.61)$	0.452	$0.441^{+0.045}_{-0.055}$
$\Omega_{\mathrm{m}}h^3$	0.114	$0.137^{+0.086}_{-0.062}$	$z_{\mathrm{drag}}$	1060.1	$1062.1^{+8.3}_{-7.1}$	$\sigma_8(0.61)$	0.543	$0.519^{+0.083}_{-0.086}$
$\sigma_8$	0.754	$0.729^{+0.096}_{-0.10}$	$r_{\mathrm{drag}}$	144.0	$139^{+20}_{-20}$	$f\sigma_8(2.33)$	0.2799	$0.266^{+0.040}_{-0.046}$
$S_8$	0.822	$0.830^{+0.097}_{-0.092}$	$k_{\mathrm{D}}$	0.1446	$0.151^{+0.024}_{-0.018}$	$\sigma_8(2.33)$	0.2826	$0.268^{+0.047}_{-0.048}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.450	$0.455^{+0.053}_{-0.050}$	$100\theta_{\mathrm{D}}$	0.1668	$0.170^{+0.011}_{-0.011}$	$\chi^2_{\mathrm{lensing}}$	7.6	$10.0 (\nu: 2.2)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.583	$0.576^{+0.056}_{-0.060}$	$z_{\mathrm{eq}}$	3818	$4281^{+2000}_{-1000}$	$\chi^2_{\mathrm{Aver15}}$	0.00	$1.0 (\nu: 1.1)$
$\sigma_8/h^{0.5}$	0.912	$0.87^{+0.13}_{-0.14}$	$k_{\mathrm{eq}}$	0.01156	$0.0131^{+0.0052}_{-0.0043}$	$\chi^2_{\mathrm{Cooke17}}$	0.00	$1.0 (\nu: 1.0)$
$r_{\mathrm{drag}}h$	98.5	$97.2^{+5.0}_{-5.0}$	$100\theta_{\mathrm{eq}}$	0.779	$0.74^{+0.14}_{-0.12}$	$\chi^2_{6\mathrm{DF}}$	0.11	$0.41 (\nu: 0.1)$
$\langle d^2 \rangle^{1/2}$	2.519	$2.50^{+0.14}_{-0.14}$	$100\theta_{\mathrm{s,eq}}$	0.433	$0.415^{+0.070}_{-0.065}$	$\chi^2_{\mathrm{MGS}}$	0.93	$0.70 (\nu: 0.2)$
$z_{\mathrm{re}}$	8.27	$8.7^{+1.4}_{-1.2}$	$H(0.15)$	74.5	$77^{+10}_{-8}$	$\chi^2_{\mathrm{DR12BAO}}$	2.11	$3.8 (\nu: 1.3)$
$10^9A_{\mathrm{s}}$	2.23	$2.07^{+0.69}_{-0.58}$	$D_{\mathrm{M}}(0.15)$	631	$613^{+63}_{-69}$	$\chi^2_{\mathrm{prior}}$	0.01	$1.0 (\nu: 1.0)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	1.99	$1.85^{+0.61}_{-0.52}$	$H(0.38)$	86.0	$90^{+10}_{-10}$	$\chi^2_{\mathrm{BAO}}$	3.14	$4.9 (\nu: 1.6)$
$D_{40}$	1268	$1153^{+500}_{-400}$	$D_{\mathrm{M}}(0.38)$	1494	$1445^{+200}_{-200}$	$\chi^2_{\mathrm{Abund}}$	0.00	$2.1 (\nu: 2.1)$
$D_{220}$	5675	$4980^{+3000}_{-2000}$	$H(0.51)$	93.5	$98^{+20}_{-10}$			

Best-fit  $\chi^2_{\mathrm{eff}} = 10.70$ ;  $\bar{\chi}^2_{\mathrm{eff}} = 17.95$ ;  $R - 1 = 0.01127$   
 $\chi^2_{\mathrm{eff}}$ : Abund - Yp\_Aver2015: 0.00 D\_Cooke2017: 0.00 BAO - 6DF: 0.11 MGS: 0.93 DR12BAO: 2.11 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged:  
7.55



## 9.50 base\_nnu\_mnu\_lensing\_lenspriors\_BAO\_Cooke17\_Aver15\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02206	$0.0221^{+0.0018}_{-0.0017}$	$D_{810}$	2768	$2842^{+900}_{-700}$	$D_M(0.51)$	1983	$1972^{+160}_{-160}$
$\Omega_c h^2$	0.1173	$0.119^{+0.032}_{-0.027}$	$D_{1420}$	886	$902^{+300}_{-300}$	$H(0.61)$	95.3	$96.2^{+10}_{-7.7}$
$100\theta_{MC}$	1.0487	$1.054^{+0.047}_{-0.038}$	$D_{2000}$	250	$257^{+80}_{-70}$	$D_M(0.61)$	2308	$2294^{+180}_{-190}$
$\Sigma m_\nu$ [eV]	0.30	< 1.33	$n_{s,0.002}$	0.957	$0.960^{+0.053}_{-0.049}$	$H(2.33)$	236.1	$239^{+30}_{-20}$
$N_{\text{eff}}$	2.95	$2.99^{+0.79}_{-0.66}$	$Y_P$	0.2440	$0.244^{+0.011}_{-0.0098}$	$D_M(2.33)$	5765	$5715^{+500}_{-560}$
$\ln(10^{10} A_s)$	3.128	$3.16^{+0.23}_{-0.24}$	$Y_P^{\text{BBN}}$	0.2453	$0.246^{+0.011}_{-0.0099}$	$f\sigma_8(0.15)$	0.4501	$0.445^{+0.041}_{-0.040}$
$n_s$	0.957	$0.960^{+0.053}_{-0.049}$	$10^5 D/H$	2.610	$2.61^{+0.24}_{-0.26}$	$\sigma_8(0.15)$	0.732	$0.717^{+0.063}_{-0.071}$
$H_0$	67.5	$67.8^{+5.5}_{-5.1}$	Age/Gyr	13.80	$13.7^{+1.2}_{-1.3}$	$f\sigma_8(0.38)$	0.4684	$0.462^{+0.038}_{-0.039}$
$\Omega_\Lambda$	0.6874	$0.682^{+0.041}_{-0.052}$	$z_*$	1090.01	$1090.2^{+3.1}_{-2.4}$	$\sigma_8(0.38)$	0.650	$0.635^{+0.057}_{-0.065}$
$\Omega_m$	0.3126	$0.318^{+0.052}_{-0.041}$	$r_*$	145.8	$145^{+11}_{-11}$	$f\sigma_8(0.51)$	0.4672	$0.460^{+0.036}_{-0.038}$
$\Omega_m h^2$	0.1424	$0.147^{+0.039}_{-0.032}$	$100\theta_*$	1.0491	$1.055^{+0.047}_{-0.038}$	$\sigma_8(0.51)$	0.608	$0.595^{+0.054}_{-0.062}$
$\Omega_\nu h^2$	0.0031	< 0.0140	$D_M(z_*)/\text{Gpc}$	13.90	$13.8^{+1.4}_{-1.5}$	$f\sigma_8(0.61)$	0.4624	$0.455^{+0.035}_{-0.037}$
$\Omega_m h^3$	0.0962	$0.0998^{+0.034}_{-0.027}$	$z_{\text{drag}}$	1059.0	$1059.3^{+6.0}_{-5.8}$	$\sigma_8(0.61)$	0.579	$0.566^{+0.051}_{-0.059}$
$\sigma_8$	0.792	$0.775^{+0.068}_{-0.074}$	$r_{\text{drag}}$	148.6	$148^{+11}_{-12}$	$f\sigma_8(2.33)$	0.2954	$0.290^{+0.022}_{-0.027}$
$S_8$	0.808	$0.798^{+0.081}_{-0.076}$	$k_D$	0.1394	$0.140^{+0.012}_{-0.010}$	$\sigma_8(2.33)$	0.3025	$0.296^{+0.026}_{-0.031}$
$\sigma_8 \Omega_m^{0.5}$	0.4428	$0.437^{+0.045}_{-0.042}$	$100\theta_D$	0.1621	$0.1629^{+0.0064}_{-0.0051}$	$\chi^2_{\text{lensing}}$	7.6	9.4 ( $\nu$ : 2.0)
$\sigma_8 \Omega_m^{0.25}$	0.592	$0.582^{+0.052}_{-0.052}$	$z_{\text{eq}}$	3373	$3409^{+700}_{-500}$	$\chi^2_{\text{Aver15}}$	0.01	1.0 ( $\nu$ : 1.1)
$\sigma_8/h^{0.5}$	0.964	$0.942^{+0.082}_{-0.096}$	$k_{\text{eq}}$	0.01023	$0.0104^{+0.0022}_{-0.0018}$	$\chi^2_{\text{Cooke17}}$	0.01	0.99 ( $\nu$ : 1.0)
$r_{\text{drag}} h$	100.32	$100.2^{+3.1}_{-2.9}$	$100\theta_{\text{eq}}$	0.824	$0.825^{+0.077}_{-0.081}$	$\chi^2_{\text{JLA}}$	1035.11	1036.1 ( $\nu$ : 1.6)
$\langle d^2 \rangle^{1/2}$	2.506	$2.53^{+0.16}_{-0.14}$	$100\theta_{s,\text{eq}}$	0.4554	$0.456^{+0.039}_{-0.042}$	$\chi^2_{6\text{DF}}$	0.000	0.054 ( $\nu$ : 0.0)
$z_{\text{re}}$	7.81	$7.87^{+0.66}_{-0.51}$	$H(0.15)$	72.8	$73.3^{+6.4}_{-5.5}$	$\chi^2_{\text{MGS}}$	1.68	1.71 ( $\nu$ : 0.2)
$10^9 A_s$	2.28	$2.37^{+0.60}_{-0.51}$	$D_M(0.15)$	642	$639^{+51}_{-50}$	$\chi^2_{\text{DR12BAO}}$	2.98	3.8 ( $\nu$ : 1.0)
$10^9 A_s e^{-2\tau}$	2.045	$2.12^{+0.54}_{-0.45}$	$H(0.38)$	82.9	$83.6^{+8.0}_{-6.4}$	$\chi^2_{\text{prior}}$	0.02	1.0 ( $\nu$ : 1.0)
$D_{40}$	1365	$1397^{+400}_{-300}$	$D_M(0.38)$	1531	$1523^{+120}_{-120}$	$\chi^2_{\text{BAO}}$	4.66	5.6 ( $\nu$ : 1.4)
$D_{220}$	6296	$6494^{+2000}_{-2000}$	$H(0.51)$	89.7	$90.5^{+9.1}_{-7.1}$	$\chi^2_{\text{Abund}}$	0.02	2.0 ( $\nu$ : 2.0)

Best-fit  $\chi^2_{\text{eff}} = 1047.43$ ;  $\bar{\chi}^2_{\text{eff}} = 1054.19$ ;  $R - 1 = 0.07982$

$\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.01 D\_Cooke2017: 0.01 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 2.98 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.62 SN - JLA Pantheon18: 1035.11



# 9.51 base\_nnu\_mnu\_lensing\_lenspriors\_BAO\_Cooke17\_Aver15\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02194	$0.0220^{+0.0019}_{-0.0017}$	$D_{810}$	2908	$2928^{+700}_{-600}$	$D_{\mathrm{M}}(0.51)$	2012	$2010^{+130}_{-130}$
$\Omega_{\mathrm{c}}h^2$	0.1114	$0.112^{+0.017}_{-0.015}$	$D_{1420}$	931	$938^{+200}_{-200}$	$H(0.61)$	93.6	$93.8^{+6.0}_{-5.6}$
$100\theta_{\mathrm{MC}}$	1.04089	$1.0409^{+0.0015}_{-0.0015}$	$D_{2000}$	262	$264^{+80}_{-50}$	$D_{\mathrm{M}}(0.61)$	2342	$2340^{+150}_{-150}$
$\Sigma m_{\nu} [\mathrm{eV}]$	0.267	$< 0.726$	$n_{\mathrm{s},0.002}$	0.960	$0.962^{+0.051}_{-0.049}$	$H(2.33)$	231.1	$232^{+14}_{-13}$
$N_{\mathrm{eff}}$	2.91	$2.94^{+0.77}_{-0.70}$	$Y_{\mathrm{P}}$	0.2434	$0.244^{+0.011}_{-0.011}$	$D_{\mathrm{M}}(2.33)$	5868	$5860^{+370}_{-350}$
$\ln(10^{10}A_{\mathrm{s}})$	3.169	$3.17^{+0.22}_{-0.17}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2447	$0.245^{+0.011}_{-0.011}$	$f\sigma_8(0.15)$	0.4442	$0.442^{+0.030}_{-0.034}$
$n_{\mathrm{s}}$	0.960	$0.962^{+0.051}_{-0.049}$	$10^5\mathrm{D}/\mathrm{H}$	2.619	$2.62^{+0.24}_{-0.24}$	$\sigma_8(0.15)$	0.730	$0.727^{+0.053}_{-0.063}$
$H_0$	66.69	$66.8^{+4.9}_{-4.5}$	Age/Gyr	14.05	$14.03^{+0.88}_{-0.84}$	$f\sigma_8(0.38)$	0.4638	$0.462^{+0.030}_{-0.036}$
$\Omega_{\Lambda}$	0.6939	$0.693^{+0.022}_{-0.023}$	$z_*$	1089.59	$1089.6^{+1.6}_{-1.6}$	$\sigma_8(0.38)$	0.648	$0.645^{+0.047}_{-0.057}$
$\Omega_{\mathrm{m}}$	0.3061	$0.307^{+0.023}_{-0.022}$	$r_*$	147.7	$147.5^{+9.0}_{-8.7}$	$f\sigma_8(0.51)$	0.4633	$0.461^{+0.029}_{-0.035}$
$\Omega_{\mathrm{m}}h^2$	0.1362	$0.137^{+0.017}_{-0.015}$	$100\theta_*$	1.04133	$1.0413^{+0.0017}_{-0.0016}$	$\sigma_8(0.51)$	0.6074	$0.604^{+0.045}_{-0.053}$
$\Omega_{\nu}h^2$	0.00278	$< 0.00763$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	14.19	$14.16^{+0.86}_{-0.83}$	$f\sigma_8(0.61)$	0.4591	$0.457^{+0.029}_{-0.035}$
$\Omega_{\mathrm{m}}h^3$	0.0908	$0.092^{+0.018}_{-0.015}$	$z_{\mathrm{drag}}$	1058.2	$1058.5^{+5.7}_{-5.5}$	$\sigma_8(0.61)$	0.5783	$0.575^{+0.043}_{-0.051}$
$\sigma_8$	0.789	$0.785^{+0.057}_{-0.068}$	$r_{\mathrm{drag}}$	150.6	$150.3^{+9.8}_{-9.4}$	$f\sigma_8(2.33)$	0.2951	$0.294^{+0.019}_{-0.022}$
$S_8$	0.797	$0.794^{+0.060}_{-0.067}$	$k_{\mathrm{D}}$	0.1375	$0.1378^{+0.0085}_{-0.0079}$	$\sigma_8(2.33)$	0.3027	$0.301^{+0.022}_{-0.025}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4367	$0.435^{+0.033}_{-0.037}$	$100\theta_{\mathrm{D}}$	0.16109	$0.1611^{+0.0019}_{-0.0019}$	$\chi^2_{\mathrm{lensing}}$	7.51	$9.2 (\nu: 1.5)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.5870	$0.585^{+0.041}_{-0.049}$	$z_{\mathrm{eq}}$	3247	$3245^{+190}_{-220}$	$\chi^2_{\mathrm{Aver15}}$	0.00	$1.0 (\nu: 1.1)$
$\sigma_8/h^{0.5}$	0.966	$0.961^{+0.069}_{-0.081}$	$k_{\mathrm{eq}}$	0.00982	$0.00983^{+0.00087}_{-0.00084}$	$\chi^2_{\mathrm{Cooke17}}$	0.00	$0.97 (\nu: 0.9)$
$r_{\mathrm{drag}}h$	100.43	$100.3^{+3.0}_{-2.9}$	$100\theta_{\mathrm{eq}}$	0.8412	$0.842^{+0.044}_{-0.034}$	$\chi^2_{6\mathrm{DF}}$	0.000	$0.057 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	2.523	$2.52^{+0.14}_{-0.12}$	$100\theta_{\mathrm{s,eq}}$	0.4642	$0.465^{+0.023}_{-0.018}$	$\chi^2_{\mathrm{MGS}}$	1.68	$1.70 (\nu: 0.2)$
$z_{\mathrm{re}}$	7.716	$7.71^{+0.28}_{-0.29}$	$H(0.15)$	71.81	$71.9^{+5.1}_{-4.6}$	$\chi^2_{\mathrm{DR12BAO}}$	3.39	$4.3 (\nu: 1.0)$
$10^9A_{\mathrm{s}}$	2.379	$2.39^{+0.54}_{-0.41}$	$D_{\mathrm{M}}(0.15)$	650.5	$650^{+45}_{-44}$	$\chi^2_{\mathrm{prior}}$	0.00	$1.9 (\nu: 1.8)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	2.131	$2.14^{+0.49}_{-0.37}$	$H(0.38)$	81.6	$81.8^{+5.5}_{-5.0}$	$\chi^2_{\mathrm{BAO}}$	5.07	$6.1 (\nu: 0.9)$
$D_{40}$	1426	$1426^{+300}_{-200}$	$D_{\mathrm{M}}(0.38)$	1553	$1551^{+100}_{-100}$	$\chi^2_{\mathrm{Abund}}$	0.00	$2.0 (\nu: 1.9)$
$D_{220}$	6689	$6733^{+2000}_{-1000}$	$H(0.51)$	88.2	$88.3^{+5.7}_{-5.3}$			

Best-fit  $\chi^2_{\mathrm{eff}} = 12.58$ ;  $\bar{\chi}^2_{\mathrm{eff}} = 19.19$ ;  $R - 1 = 0.00759$   
 $\chi^2_{\mathrm{eff}}$ : Abund - Yp\_Aver2015: 0.00 D\_Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.39 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged:  
7.51



## 9.52 base\_nnu\_mnu\_lensing\_lenspriors\_BAO\_Cooke17\_Aver15\_theta\_post\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02198	$0.0220^{+0.0019}_{-0.0017}$	$D_{810}$	2893	$2928^{+700}_{-600}$	$D_M(0.51)$	2008	$2007^{+130}_{-130}$
$\Omega_c h^2$	0.1117	$0.112^{+0.017}_{-0.015}$	$D_{1420}$	926	$938^{+200}_{-200}$	$H(0.61)$	93.8	$93.9^{+6.1}_{-5.7}$
$100\theta_{MC}$	1.04090	$1.0409^{+0.0015}_{-0.0015}$	$D_{2000}$	261	$264^{+80}_{-50}$	$D_M(0.61)$	2337	$2337^{+150}_{-150}$
$\Sigma m_\nu$ [eV]	0.261	$< 0.717$	$n_{s,0.002}$	0.9608	$0.962^{+0.049}_{-0.049}$	$H(2.33)$	231.3	$232^{+15}_{-13}$
$N_{\text{eff}}$	2.92	$2.95^{+0.79}_{-0.72}$	$Y_P$	0.2436	$0.244^{+0.011}_{-0.011}$	$D_M(2.33)$	5859	$5856^{+370}_{-360}$
$\ln(10^{10} A_s)$	3.165	$3.17^{+0.22}_{-0.17}$	$Y_P^{\text{BBN}}$	0.2449	$0.245^{+0.011}_{-0.011}$	$f\sigma_8(0.15)$	0.4436	$0.442^{+0.030}_{-0.035}$
$n_s$	0.9608	$0.962^{+0.049}_{-0.049}$	$10^5 D/H$	2.616	$2.61^{+0.23}_{-0.23}$	$\sigma_8(0.15)$	0.730	$0.728^{+0.053}_{-0.064}$
$H_0$	66.85	$66.9^{+4.9}_{-4.4}$	Age/Gyr	14.03	$14.02^{+0.89}_{-0.86}$	$f\sigma_8(0.38)$	0.4634	$0.462^{+0.030}_{-0.036}$
$\Omega_\Lambda$	0.6948	$0.694^{+0.021}_{-0.022}$	$z_*$	1089.57	$1089.6^{+1.6}_{-1.7}$	$\sigma_8(0.38)$	0.649	$0.646^{+0.047}_{-0.057}$
$\Omega_m$	0.3052	$0.306^{+0.022}_{-0.021}$	$r_*$	147.5	$147.4^{+9.1}_{-8.8}$	$f\sigma_8(0.51)$	0.4630	$0.461^{+0.029}_{-0.036}$
$\Omega_m h^2$	0.1364	$0.137^{+0.018}_{-0.016}$	$100\theta_*$	1.04132	$1.0413^{+0.0017}_{-0.0016}$	$\sigma_8(0.51)$	0.6077	$0.605^{+0.044}_{-0.053}$
$\Omega_\nu h^2$	0.00272	$< 0.00756$	$D_M(z_*)/\text{Gpc}$	14.17	$14.16^{+0.86}_{-0.85}$	$f\sigma_8(0.61)$	0.4588	$0.457^{+0.028}_{-0.036}$
$\Omega_m h^3$	0.0912	$0.092^{+0.018}_{-0.015}$	$z_{\text{drag}}$	1058.3	$1058.5^{+5.8}_{-5.6}$	$\sigma_8(0.61)$	0.5786	$0.576^{+0.042}_{-0.050}$
$\sigma_8$	0.789	$0.786^{+0.057}_{-0.069}$	$r_{\text{drag}}$	150.4	$150.2^{+9.8}_{-9.5}$	$f\sigma_8(2.33)$	0.2952	$0.294^{+0.019}_{-0.022}$
$S_8$	0.796	$0.794^{+0.059}_{-0.066}$	$k_D$	0.1376	$0.1379^{+0.0087}_{-0.0079}$	$\sigma_8(2.33)$	0.3029	$0.302^{+0.021}_{-0.025}$
$\sigma_8 \Omega_m^{0.5}$	0.4360	$0.435^{+0.032}_{-0.036}$	$100\theta_D$	0.16109	$0.1611^{+0.0018}_{-0.0020}$	$\chi^2_{\text{lensing}}$	7.51	$9.2 (\nu: 1.5)$
$\sigma_8 \Omega_m^{0.25}$	0.5867	$0.585^{+0.041}_{-0.050}$	$z_{\text{eq}}$	3247	$3243^{+200}_{-220}$	$\chi^2_{\text{Aver15}}$	0.00	$1.0 (\nu: 1.1)$
$\sigma_8/h^{0.5}$	0.965	$0.962^{+0.068}_{-0.082}$	$k_{\text{eq}}$	0.00983	$0.00983^{+0.00087}_{-0.00084}$	$\chi^2_{\text{Cooke17}}$	0.00	$0.96 (\nu: 0.9)$
$r_{\text{drag}} h$	100.54	$100.5^{+2.8}_{-2.6}$	$100\theta_{\text{eq}}$	0.8411	$0.843^{+0.045}_{-0.034}$	$\chi^2_{\text{JLA}}$	1034.81	$1034.97 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	2.516	$2.52^{+0.14}_{-0.13}$	$100\theta_{s,\text{eq}}$	0.4642	$0.465^{+0.023}_{-0.019}$	$\chi^2_{6\text{DF}}$	0.000	$0.049 (\nu: 0.0)$
$z_{\text{re}}$	7.713	$7.71^{+0.27}_{-0.28}$	$H(0.15)$	71.97	$72.0^{+5.1}_{-4.6}$	$\chi^2_{\text{MGS}}$	1.75	$1.77 (\nu: 0.2)$
$10^9 A_s$	2.368	$2.39^{+0.57}_{-0.39}$	$D_M(0.15)$	649.0	$649^{+45}_{-44}$	$\chi^2_{\text{DR12BAO}}$	3.35	$4.2 (\nu: 0.7)$
$10^9 A_s e^{-2\tau}$	2.122	$2.15^{+0.51}_{-0.35}$	$H(0.38)$	81.8	$81.9^{+5.4}_{-5.1}$	$\chi^2_{\text{prior}}$	0.00	$1.9 (\nu: 1.8)$
$D_{40}$	1418	$1427^{+300}_{-200}$	$D_M(0.38)$	1549	$1549^{+100}_{-100}$	$\chi^2_{\text{BAO}}$	5.10	$6.0 (\nu: 0.7)$
$D_{220}$	6655	$6737^{+2000}_{-1000}$	$H(0.51)$	88.3	$88.4^{+5.8}_{-5.4}$	$\chi^2_{\text{Abund}}$	0.00	$2.0 (\nu: 2.0)$

Best-fit  $\chi^2_{\text{eff}} = 1047.43$ ;  $\bar{\chi}^2_{\text{eff}} = 1054.04$ ;  $R - 1 = 0.00615$

$\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.00 D\_Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.35 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8\_CMBmarged: 7.51 SN - JLA Pantheon18: 1034.81



### 9.53 base\_nnu\_mnu\_BAO\_Cooke17\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02201	$0.0221^{+0.0019}_{-0.0017}$	Age/Gyr	12.45	$12.6^{+3.3}_{-3.1}$	$H(0.38)$	90.1	$89^{+20}_{-20}$
$\Omega_{\text{c}}h^2$	0.164	$0.15^{+0.19}_{-0.11}$	$z_*$	1094.0	$1094^{+12}_{-8.4}$	$D_{\text{M}}(0.38)$	1432	$1460^{+300}_{-300}$
$100\theta_{\text{MC}}$	1.099	$1.111^{+0.097}_{-0.10}$	$r_*$	135.1	$138^{+30}_{-30}$	$H(0.51)$	98.3	$98^{+30}_{-20}$
$\Sigma m_{\nu}$ [eV]	0.31	—	$100\theta_*$	1.100	$1.112^{+0.097}_{-0.10}$	$D_{\text{M}}(0.51)$	1846	$1880^{+400}_{-400}$
$N_{\text{eff}}$	2.94	$2.97^{+0.72}_{-0.69}$	$D_{\text{M}}(z_*)/\text{Gpc}$	12.28	$12.4^{+3.9}_{-3.4}$	$H(0.61)$	105.1	$105^{+30}_{-20}$
$H_0$	71.0	$70^{+10}_{-10}$	$z_{\text{drag}}$	1062.0	$1062^{+11}_{-8.8}$	$D_{\text{M}}(0.61)$	2141	$2179^{+400}_{-500}$
$\Omega_{\Lambda}$	0.625	$0.61^{+0.13}_{-0.16}$	$r_{\text{drag}}$	137.6	$140^{+30}_{-30}$	$H(2.33)$	270	$272^{+100}_{-70}$
$\Omega_{\text{m}}$	0.375	$0.39^{+0.16}_{-0.13}$	$k_{\text{D}}$	0.1515	$0.150^{+0.038}_{-0.027}$	$D_{\text{M}}(2.33)$	5205	$5276^{+1000}_{-1000}$
$\Omega_{\text{m}}h^2$	0.189	$0.195^{+0.18}_{-0.095}$	$100\theta_{\text{D}}$	0.1689	$0.170^{+0.015}_{-0.014}$	$\chi^2_{\text{Aver15}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\nu}h^2$	0.0032	$< 0.0524$	$z_{\text{eq}}$	4509	$4100^{+4000}_{-3000}$	$\chi^2_{\text{Cooke17}}$	0.00	$1.0 (\nu: 1.1)$
$\Omega_{\text{m}}h^3$	0.134	$0.138^{+0.16}_{-0.086}$	$k_{\text{eq}}$	0.0137	$0.0126^{+0.014}_{-0.0076}$	$\chi^2_{6\text{DF}}$	0.20	$0.45 (\nu: 0.1)$
$r_{\text{drag}}h$	97.7	$97.1^{+5.6}_{-5.9}$	$100\theta_{\text{eq}}$	0.70	$0.82^{+0.65}_{-0.36}$	$\chi^2_{\text{MGS}}$	0.67	$0.71 (\nu: 0.2)$
$Y_{\text{P}}$	0.2438	$0.2442^{+0.0099}_{-0.010}$	$100\theta_{\text{s,eq}}$	0.390	$0.45^{+0.37}_{-0.17}$	$\chi^2_{\text{DR12BAO}}$	2.11	$4.0 (\nu: 1.8)$
$Y_{\text{P}}^{\text{BBN}}$	0.2451	$0.245^{+0.010}_{-0.010}$	$H(0.15)$	77.6	$77^{+20}_{-10}$	$\chi^2_{\text{BAO}}$	3.0	$5.1 (\nu: 2.2)$
$10^5\text{D}/\text{H}$	2.618	$2.61^{+0.24}_{-0.25}$	$D_{\text{M}}(0.15)$	606	$619^{+100}_{-100}$	$\chi^2_{\text{Abund}}$	0.00	$2.0 (\nu: 2.1)$

Best-fit  $\chi^2_{\text{eff}} = 2.99$ ;  $\bar{\chi}^2_{\text{eff}} = 7.18$ ;  $R - 1 = 0.00490$

$\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.00 D\_Cooke2017: 0.00 BAO - 6DF: 0.20 MGS: 0.67 DR12BAO: 2.11

### 9.54 base\_nnu\_mnu\_BAO\_Cooke17\_Aver15\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02200	$0.0221^{+0.0018}_{-0.0017}$	$z_*$	1090.45	$1088.5^{+5.0}_{-4.2}$	$H(0.51)$	90.3	$86^{+10}_{-10}$
$\Omega_{\text{c}}h^2$	0.122	$0.085^{+0.070}_{-0.058}$	$r_*$	144.8	$152^{+20}_{-20}$	$D_{\text{M}}(0.51)$	1970	$2071^{+300}_{-200}$
$100\theta_{\text{MC}}$	1.050	$1.050^{+0.051}_{-0.057}$	$100\theta_*$	1.050	$1.051^{+0.051}_{-0.057}$	$H(0.61)$	96.0	$92^{+10}_{-10}$
$\Sigma m_{\nu}$ [eV]	0.06	—	$D_{\text{M}}(z_*)/\text{Gpc}$	13.79	$14.5^{+2.5}_{-2.2}$	$D_{\text{M}}(0.61)$	2292	$2410^{+300}_{-300}$
$N_{\text{eff}}$	2.93	$2.96^{+0.72}_{-0.69}$	$z_{\text{drag}}$	1059.1	$1057.8^{+6.7}_{-6.7}$	$H(2.33)$	237.9	$227^{+40}_{-40}$
$H_0$	68.0	$65^{+8}_{-7}$	$r_{\text{drag}}$	147.6	$155^{+20}_{-20}$	$D_{\text{M}}(2.33)$	5723	$6017^{+900}_{-800}$
$\Omega_{\Lambda}$	0.687	$0.685^{+0.053}_{-0.056}$	$k_{\text{D}}$	0.1405	$0.134^{+0.017}_{-0.016}$	$\chi^2_{\text{Aver15}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\text{m}}$	0.313	$0.315^{+0.056}_{-0.053}$	$100\theta_{\text{D}}$	0.1621	$0.1619^{+0.0070}_{-0.0075}$	$\chi^2_{\text{Cooke17}}$	0.00	$0.96 (\nu: 0.9)$
$\Omega_{\text{m}}h^2$	0.1446	$0.133^{+0.053}_{-0.041}$	$z_{\text{eq}}$	3497	$2592^{+2000}_{-1000}$	$\chi^2_{\text{JLA}}$	1035.14	$1036.1 (\nu: 1.6)$
$\Omega_{\nu}h^2$	0.0006	$< 0.0525$	$k_{\text{eq}}$	0.01059	$0.0081^{+0.0049}_{-0.0038}$	$\chi^2_{6\text{DF}}$	0.000	$0.053 (\nu: 0.0)$
$\Omega_{\text{m}}h^3$	0.0983	$0.086^{+0.047}_{-0.033}$	$100\theta_{\text{eq}}$	0.80	$1.07^{+0.65}_{-0.38}$	$\chi^2_{\text{MGS}}$	1.68	$1.75 (\nu: 0.2)$
$r_{\text{drag}}h$	100.32	$100.3^{+3.1}_{-3.0}$	$100\theta_{\text{s,eq}}$	0.444	$0.58^{+0.32}_{-0.20}$	$\chi^2_{\text{DR12BAO}}$	2.95	$4.0 (\nu: 1.3)$
$Y_{\text{P}}$	0.2436	$0.244^{+0.010}_{-0.010}$	$H(0.15)$	73.3	$70^{+9}_{-8}$	$\chi^2_{\text{BAO}}$	4.63	$5.8 (\nu: 1.7)$
$Y_{\text{P}}^{\text{BBN}}$	0.2449	$0.245^{+0.010}_{-0.010}$	$D_{\text{M}}(0.15)$	638	$671^{+80}_{-80}$	$\chi^2_{\text{Abund}}$	0.00	$2.0 (\nu: 1.8)$
$10^5\text{D}/\text{H}$	2.614	$2.61^{+0.23}_{-0.24}$	$H(0.38)$	83.5	$80^{+10}_{-10}$			
Age/Gyr	13.70	$14.4^{+2.2}_{-1.9}$	$D_{\text{M}}(0.38)$	1521	$1599^{+200}_{-200}$			

Best-fit  $\chi^2_{\text{eff}} = 1039.77$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.83$ ;  $R - 1 = 0.00972$

$\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.00 D\_Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 2.95 SN - JLA Pantheon18: 1035.14



### 9.55 base\_nnu\_mnu\_BAO\_Cooke17\_Aver15\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02187	$0.0221^{+0.0018}_{-0.0017}$	$z_*$	1089.32	$1087.9^{+2.9}_{-2.4}$	$H(0.51)$	87.4	$84.5^{+7.7}_{-6.2}$
$\Omega_{\text{c}}h^2$	0.1072	$0.078^{+0.045}_{-0.040}$	$r_*$	149.0	$154^{+11}_{-13}$	$D_{\text{M}}(0.51)$	2030	$2102^{+160}_{-190}$
$100\theta_{\text{MC}}$	1.04087	$1.0409^{+0.0016}_{-0.0015}$	$100\theta_*$	1.04143	$1.0417^{+0.0017}_{-0.0018}$	$H(0.61)$	92.8	$89.8^{+8.2}_{-6.6}$
$\Sigma m_{\nu}$ [eV]	0.47	—	$D_{\text{M}}(z_*)/\text{Gpc}$	14.31	$14.8^{+1.1}_{-1.3}$	$D_{\text{M}}(0.61)$	2363	$2447^{+180}_{-220}$
$N_{\text{eff}}$	2.88	$2.96^{+0.77}_{-0.66}$	$z_{\text{drag}}$	1057.8	$1057.2^{+6.0}_{-5.5}$	$H(2.33)$	229.1	$222^{+20}_{-16}$
$H_0$	66.1	$63.9^{+6.4}_{-4.8}$	$r_{\text{drag}}$	151.9	$157^{+12}_{-14}$	$D_{\text{M}}(2.33)$	5920	$6128^{+440}_{-530}$
$\Omega_{\Lambda}$	0.6935	$0.693^{+0.023}_{-0.024}$	$k_{\text{D}}$	0.1362	$0.132^{+0.012}_{-0.0087}$	$\chi^2_{\text{Aver15}}$	0.02	$1.0 (\nu: 1.0)$
$\Omega_{\text{m}}$	0.3065	$0.307^{+0.024}_{-0.023}$	$100\theta_{\text{D}}$	0.16117	$0.1608^{+0.0020}_{-0.0022}$	$\chi^2_{\text{Cooke17}}$	0.00	$1.0 (\nu: 1.1)$
$\Omega_{\text{m}}h^2$	0.1339	$0.126^{+0.023}_{-0.018}$	$z_{\text{eq}}$	3153	$2429^{+1000}_{-900}$	$\chi^2_{6\text{DF}}$	0.000	$0.058 (\nu: 0.0)$
$\Omega_{\nu}h^2$	0.0048	$< 0.0524$	$k_{\text{eq}}$	0.00952	$0.0076^{+0.0029}_{-0.0025}$	$\chi^2_{\text{MGS}}$	1.68	$1.71 (\nu: 0.2)$
$\Omega_{\text{m}}h^3$	0.0885	$0.080^{+0.023}_{-0.017}$	$100\theta_{\text{eq}}$	0.860	$1.10^{+0.45}_{-0.31}$	$\chi^2_{\text{DR12BAO}}$	3.37	$4.3 (\nu: 1.1)$
$r_{\text{drag}}h$	100.42	$100.3^{+3.1}_{-3.0}$	$100\theta_{\text{s,eq}}$	0.474	$0.60^{+0.22}_{-0.16}$	$\chi^2_{\text{prior}}$	0.00	$0.98 (\nu: 1.0)$
$Y_{\text{P}}$	0.2430	$0.244^{+0.010}_{-0.0098}$	$H(0.15)$	71.2	$68.8^{+6.7}_{-5.0}$	$\chi^2_{\text{BAO}}$	5.04	$6.1 (\nu: 1.1)$
$Y_{\text{P}}^{\text{BBN}}$	0.2443	$0.245^{+0.011}_{-0.0099}$	$D_{\text{M}}(0.15)$	656	$680^{+53}_{-62}$	$\chi^2_{\text{Abund}}$	0.03	$2.1 (\nu: 2.1)$
$10^5\text{D}/\text{H}$	2.623	$2.61^{+0.24}_{-0.25}$	$H(0.38)$	80.9	$78.3^{+7.4}_{-5.5}$			
Age/Gyr	14.17	$14.7^{+1.1}_{-1.3}$	$D_{\text{M}}(0.38)$	1567	$1622^{+120}_{-140}$			

Best-fit  $\chi^2_{\text{eff}} = 5.07$ ;  $\bar{\chi}^2_{\text{eff}} = 9.13$ ;  $R - 1 = 0.00353$

$\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.02 D\_Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.37

### 9.56 base\_nnu\_mnu\_BAO\_Cooke17\_Aver15\_Pantheon18\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02193	$0.0220^{+0.0018}_{-0.0017}$	$z_*$	1089.73	$1087.8^{+2.9}_{-2.2}$	$H(0.51)$	88.5	$84.4^{+8.1}_{-6.0}$
$\Omega_{\text{c}}h^2$	0.1130	$0.078^{+0.045}_{-0.040}$	$r_*$	147.3	$155^{+11}_{-13}$	$D_{\text{M}}(0.51)$	2005	$2104^{+160}_{-190}$
$100\theta_{\text{MC}}$	1.04090	$1.0409^{+0.0014}_{-0.0015}$	$100\theta_*$	1.04129	$1.0417^{+0.0016}_{-0.0018}$	$H(0.61)$	94.0	$89.7^{+8.5}_{-6.3}$
$\Sigma m_{\nu}$ [eV]	0.18	—	$D_{\text{M}}(z_*)/\text{Gpc}$	14.14	$14.8^{+1.0}_{-1.3}$	$D_{\text{M}}(0.61)$	2334	$2449^{+190}_{-220}$
$N_{\text{eff}}$	2.92	$2.94^{+0.73}_{-0.67}$	$z_{\text{drag}}$	1058.3	$1057.1^{+5.9}_{-5.4}$	$H(2.33)$	231.7	$221^{+20}_{-15}$
$H_0$	67.0	$63.9^{+6.5}_{-5.0}$	$r_{\text{drag}}$	150.2	$158^{+12}_{-14}$	$D_{\text{M}}(2.33)$	5850	$6137^{+450}_{-540}$
$\Omega_{\Lambda}$	0.6949	$0.694^{+0.021}_{-0.022}$	$k_{\text{D}}$	0.1379	$0.132^{+0.012}_{-0.0085}$	$\chi^2_{\text{Aver15}}$	0.00	$0.98 (\nu: 0.9)$
$\Omega_{\text{m}}$	0.3051	$0.306^{+0.022}_{-0.021}$	$100\theta_{\text{D}}$	0.16109	$0.1607^{+0.0021}_{-0.0020}$	$\chi^2_{\text{Cooke17}}$	0.00	$0.97 (\nu: 1.0)$
$\Omega_{\text{m}}h^2$	0.1368	$0.125^{+0.024}_{-0.016}$	$z_{\text{eq}}$	3281	$2422^{+1000}_{-900}$	$\chi^2_{\text{JLA}}$	1034.81	$1034.98 (\nu: 0.1)$
$\Omega_{\nu}h^2$	0.0019	$< 0.0521$	$k_{\text{eq}}$	0.00993	$0.0075^{+0.0029}_{-0.0025}$	$\chi^2_{6\text{DF}}$	0.000	$0.049 (\nu: 0.0)$
$\Omega_{\text{m}}h^3$	0.0916	$0.080^{+0.023}_{-0.016}$	$100\theta_{\text{eq}}$	0.834	$1.11^{+0.44}_{-0.30}$	$\chi^2_{\text{MGS}}$	1.75	$1.81 (\nu: 0.2)$
$r_{\text{drag}}h$	100.54	$100.5^{+2.8}_{-2.7}$	$100\theta_{\text{s,eq}}$	0.461	$0.60^{+0.22}_{-0.16}$	$\chi^2_{\text{DR12BAO}}$	3.35	$4.1 (\nu: 0.7)$
$Y_{\text{P}}$	0.2435	$0.244^{+0.010}_{-0.010}$	$H(0.15)$	72.1	$68.8^{+6.8}_{-5.2}$	$\chi^2_{\text{prior}}$	0.00	$0.9 (\nu: 0.8)$
$Y_{\text{P}}^{\text{BBN}}$	0.2448	$0.245^{+0.010}_{-0.010}$	$D_{\text{M}}(0.15)$	648	$680^{+55}_{-63}$	$\chi^2_{\text{BAO}}$	5.10	$5.9 (\nu: 0.8)$
$10^5\text{D}/\text{H}$	2.623	$2.61^{+0.24}_{-0.24}$	$H(0.38)$	81.9	$78.2^{+7.5}_{-5.6}$	$\chi^2_{\text{Abund}}$	0.00	$1.9 (\nu: 1.9)$
Age/Gyr	14.01	$14.7^{+1.1}_{-1.3}$	$D_{\text{M}}(0.38)$	1547	$1623^{+130}_{-150}$			

Best-fit  $\chi^2_{\text{eff}} = 1039.91$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.81$ ;  $R - 1 = 0.00806$

$\chi^2_{\text{eff}}$ : Abund - Yp\_Aver2015: 0.00 D\_Cooke2017: 0.00 BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.35 SN - JLA Pantheon18: 1034.81



### 9.57 base\_nnu\_mnu\_BAO\_Cooke17Marc\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02175	$0.0219^{+0.0015}_{-0.0014}$	Age/Gyr	13.23	$12.7^{+3.5}_{-2.8}$	$H(0.38)$	84.9	$89^{+20}_{-20}$
$\Omega_{\text{c}}h^2$	0.118	$0.14^{+0.16}_{-0.10}$	$z_*$	1091.9	$1093.7^{+9.9}_{-8.5}$	$D_{\text{M}}(0.38)$	1520	$1467^{+300}_{-300}$
$100\theta_{\text{MC}}$	1.097	$1.110^{+0.089}_{-0.11}$	$r_*$	143.3	$138^{+30}_{-30}$	$H(0.51)$	92.6	$97^{+30}_{-20}$
$\Sigma m_{\nu}$ [eV]	2.67	—	$100\theta_*$	1.098	$1.111^{+0.089}_{-0.11}$	$D_{\text{M}}(0.51)$	1960	$1890^{+400}_{-300}$
$N_{\text{eff}}$	2.92	$2.98^{+0.74}_{-0.68}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.06	$12.5^{+4.2}_{-3.1}$	$H(0.61)$	98.9	$104^{+30}_{-20}$
$H_0$	66.9	$69^{+10}_{-10}$	$z_{\text{drag}}$	1059.5	$1061.3^{+9.8}_{-8.8}$	$D_{\text{M}}(0.61)$	2274	$2191^{+500}_{-400}$
$\Omega_{\Lambda}$	0.626	$0.61^{+0.13}_{-0.14}$	$r_{\text{drag}}$	146.1	$141^{+30}_{-30}$	$H(2.33)$	254	$270^{+90}_{-70}$
$\Omega_{\text{m}}$	0.374	$0.39^{+0.14}_{-0.13}$	$k_{\text{D}}$	0.1430	$0.149^{+0.033}_{-0.028}$	$D_{\text{M}}(2.33)$	5530	$5305^{+1000}_{-1000}$
$\Omega_{\text{m}}h^2$	0.167	$0.192^{+0.15}_{-0.096}$	$100\theta_{\text{D}}$	0.1682	$0.170^{+0.013}_{-0.014}$	$\chi^2_{\text{Cooke17Marc}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\nu}h^2$	0.0279	$< 0.0526$	$z_{\text{eq}}$	3391	$4018^{+4000}_{-2000}$	$\chi^2_{\text{Aver15}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\text{m}}h^3$	0.112	$0.135^{+0.14}_{-0.077}$	$k_{\text{eq}}$	0.0104	$0.0124^{+0.011}_{-0.0073}$	$\chi^2_{6\text{DF}}$	0.20	$0.43 (\nu: 0.1)$
$r_{\text{drag}}h$	97.8	$97.2^{+5.7}_{-5.3}$	$100\theta_{\text{eq}}$	0.869	$0.82^{+0.59}_{-0.34}$	$\chi^2_{\text{MGS}}$	0.67	$0.70 (\nu: 0.2)$
$Y_{\text{P}}$	0.2435	$0.244^{+0.010}_{-0.010}$	$100\theta_{\text{s,eq}}$	0.481	$0.46^{+0.30}_{-0.18}$	$\chi^2_{\text{DR12BAO}}$	2.11	$3.9 (\nu: 1.6)$
$Y_{\text{P}}^{\text{BBN}}$	0.2448	$0.245^{+0.010}_{-0.010}$	$H(0.15)$	73.1	$76^{+20}_{-10}$	$\chi^2_{\text{BAO}}$	3.0	$5.0 (\nu: 2.0)$
$10^5\text{D}/\text{H}$	2.661	$2.66^{+0.11}_{-0.11}$	$D_{\text{M}}(0.15)$	644	$623^{+100}_{-100}$	$\chi^2_{\text{Abund}}$	0.00	$2.0 (\nu: 2.0)$

Best-fit  $\chi^2_{\text{eff}} = 2.99$ ;  $\bar{\chi}^2_{\text{eff}} = 7.06$ ;  $R - 1 = 0.00313$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_marcucci: 0.00 Yp\_Aver2015: 0.00 BAO - 6DF: 0.20 MGS: 0.67 DR12BAO: 2.11

### 9.58 base\_nnu\_mnu\_BAO\_Cooke17Marc\_Aver15\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02179	$0.0219^{+0.0014}_{-0.0014}$	$z_*$	1090.16	$1088.8^{+4.3}_{-3.6}$	$H(0.51)$	89.1	$86^{+10}_{-10}$
$\Omega_{\text{c}}h^2$	0.115	$0.085^{+0.067}_{-0.054}$	$r_*$	146.7	$152^{+16}_{-17}$	$D_{\text{M}}(0.51)$	1996	$2073^{+230}_{-240}$
$100\theta_{\text{MC}}$	1.0475	$1.050^{+0.047}_{-0.051}$	$100\theta_*$	1.0479	$1.051^{+0.047}_{-0.050}$	$H(0.61)$	94.6	$91^{+10}_{-10}$
$\Sigma m_{\nu}$ [eV]	0.35	—	$D_{\text{M}}(z_*)/\text{Gpc}$	14.00	$14.5^{+2.1}_{-2.0}$	$D_{\text{M}}(0.61)$	2323	$2412^{+300}_{-300}$
$N_{\text{eff}}$	2.94	$2.98^{+0.74}_{-0.70}$	$z_{\text{drag}}$	1058.1	$1057.2^{+6.2}_{-5.7}$	$H(2.33)$	234.5	$227^{+40}_{-30}$
$H_0$	67.1	$65^{+8}_{-6}$	$r_{\text{drag}}$	149.6	$155^{+17}_{-17}$	$D_{\text{M}}(2.33)$	5803	$6021^{+800}_{-800}$
$\Omega_{\Lambda}$	0.6879	$0.685^{+0.049}_{-0.050}$	$k_{\text{D}}$	0.1383	$0.134^{+0.016}_{-0.014}$	$\chi^2_{\text{Cooke17Marc}}$	0.00	$1.0 (\nu: 1.0)$
$\Omega_{\text{m}}$	0.3121	$0.315^{+0.050}_{-0.049}$	$100\theta_{\text{D}}$	0.1623	$0.1623^{+0.0061}_{-0.0064}$	$\chi^2_{\text{Aver15}}$	0.00	$0.97 (\nu: 1.0)$
$\Omega_{\text{m}}h^2$	0.1404	$0.132^{+0.047}_{-0.036}$	$z_{\text{eq}}$	3317	$2585^{+2000}_{-1000}$	$\chi^2_{\text{JLA}}$	1035.09	$1036.0 (\nu: 1.3)$
$\Omega_{\nu}h^2$	0.0036	$< 0.0523$	$k_{\text{eq}}$	0.01005	$0.0080^{+0.0046}_{-0.0035}$	$\chi^2_{6\text{DF}}$	0.000	$0.054 (\nu: 0.0)$
$\Omega_{\text{m}}h^3$	0.0942	$0.086^{+0.043}_{-0.029}$	$100\theta_{\text{eq}}$	0.833	$1.07^{+0.59}_{-0.36}$	$\chi^2_{\text{MGS}}$	1.68	$1.74 (\nu: 0.2)$
$r_{\text{drag}}h$	100.34	$100.3^{+3.1}_{-2.9}$	$100\theta_{\text{s,eq}}$	0.460	$0.58^{+0.29}_{-0.19}$	$\chi^2_{\text{DR12BAO}}$	3.00	$3.9 (\nu: 1.2)$
$Y_{\text{P}}$	0.2437	$0.244^{+0.010}_{-0.011}$	$H(0.15)$	72.3	$70^{+9}_{-7}$	$\chi^2_{\text{BAO}}$	4.68	$5.7 (\nu: 1.6)$
$Y_{\text{P}}^{\text{BBN}}$	0.2450	$0.245^{+0.010}_{-0.011}$	$D_{\text{M}}(0.15)$	646	$672^{+71}_{-75}$	$\chi^2_{\text{Abund}}$	0.00	$2.0 (\nu: 2.0)$
$10^5\text{D}/\text{H}$	2.660	$2.66^{+0.11}_{-0.11}$	$H(0.38)$	82.4	$80^{+10}_{-9}$			
Age/Gyr	13.89	$14.4^{+1.9}_{-1.8}$	$D_{\text{M}}(0.38)$	1541	$1601^{+170}_{-180}$			

Best-fit  $\chi^2_{\text{eff}} = 1039.76$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.75$ ;  $R - 1 = 0.00814$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_marcucci: 0.00 Yp\_Aver2015: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.00 SN - JLA Pantheon18: 1035.09



### 9.59 base\_nnu\_mnu\_BAO\_Cooke17Marc\_Aver15\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02173	$0.0218^{+0.0015}_{-0.0014}$	$z_*$	1088.67	$1088.1^{+2.5}_{-1.7}$	$H(0.51)$	85.5	$84.2^{+8.3}_{-6.0}$
$\Omega_{\text{c}}h^2$	0.0931	$0.077^{+0.045}_{-0.039}$	$r_*$	152.3	$155^{+12}_{-14}$	$D_{\text{M}}(0.51)$	2077	$2112^{+160}_{-200}$
$100\theta_{\text{MC}}$	1.04086	$1.0409^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04167	$1.0418^{+0.0018}_{-0.0018}$	$H(0.61)$	90.8	$89.4^{+8.7}_{-6.3}$
$\Sigma m_{\nu}$ [eV]	1.31	—	$D_{\text{M}}(z_*)/\text{Gpc}$	14.62	$14.9^{+1.1}_{-1.3}$	$D_{\text{M}}(0.61)$	2417	$2458^{+190}_{-230}$
$N_{\text{eff}}$	2.91	$2.95^{+0.79}_{-0.67}$	$z_{\text{drag}}$	1056.7	$1056.5^{+5.3}_{-4.9}$	$H(2.33)$	224.4	$221^{+21}_{-16}$
$H_0$	64.6	$63.6^{+6.6}_{-4.8}$	$r_{\text{drag}}$	155.3	$158^{+12}_{-14}$	$D_{\text{M}}(2.33)$	6051	$6152^{+460}_{-550}$
$\Omega_{\Lambda}$	0.6919	$0.692^{+0.022}_{-0.025}$	$k_{\text{D}}$	0.1331	$0.131^{+0.012}_{-0.0086}$	$\chi^2_{\text{Cooke17Marc}}$	0.00	$0.99 (\nu: 1.0)$
$\Omega_{\text{m}}$	0.3081	$0.308^{+0.025}_{-0.022}$	$100\theta_{\text{D}}$	0.16148	$0.1611^{+0.0013}_{-0.0013}$	$\chi^2_{\text{Aver15}}$	0.01	$1.0 (\nu: 1.1)$
$\Omega_{\text{m}}h^2$	0.1284	$0.125^{+0.025}_{-0.017}$	$z_{\text{eq}}$	2794	$2388^{+1000}_{-900}$	$\chi^2_{6\text{DF}}$	0.001	$0.057 (\nu: 0.0)$
$\Omega_{\nu}h^2$	0.0136	$< 0.0525$	$k_{\text{eq}}$	0.00850	$0.0075^{+0.0029}_{-0.0025}$	$\chi^2_{\text{MGS}}$	1.61	$1.69 (\nu: 0.2)$
$\Omega_{\text{m}}h^3$	0.0829	$0.079^{+0.023}_{-0.017}$	$100\theta_{\text{eq}}$	0.946	$1.12^{+0.44}_{-0.32}$	$\chi^2_{\text{DR12BAO}}$	3.37	$4.3 (\nu: 1.1)$
$r_{\text{drag}}h$	100.30	$100.3^{+2.9}_{-3.0}$	$100\theta_{\text{s,eq}}$	0.519	$0.61^{+0.22}_{-0.16}$	$\chi^2_{\text{prior}}$	0.00	$1.0 (\nu: 1.1)$
$Y_{\text{P}}$	0.2433	$0.244^{+0.011}_{-0.010}$	$H(0.15)$	69.6	$68.5^{+6.6}_{-5.3}$	$\chi^2_{\text{BAO}}$	4.98	$6.0 (\nu: 1.1)$
$Y_{\text{P}}^{\text{BBN}}$	0.2446	$0.245^{+0.011}_{-0.010}$	$D_{\text{M}}(0.15)$	672	$683^{+53}_{-65}$	$\chi^2_{\text{Abund}}$	0.01	$2.0 (\nu: 2.1)$
$10^5\text{D}/\text{H}$	2.662	$2.66^{+0.11}_{-0.10}$	$H(0.38)$	79.1	$77.9^{+7.8}_{-5.6}$			
Age/Gyr	14.49	$14.7^{+1.1}_{-1.3}$	$D_{\text{M}}(0.38)$	1603	$1630^{+120}_{-150}$			

Best-fit  $\chi^2_{\text{eff}} = 4.99$ ;  $\bar{\chi}^2_{\text{eff}} = 9.06$ ;  $R - 1 = 0.01055$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_marcucci: 0.00 Yp\_Aver2015: 0.01 BAO - 6DF: 0.00 MGS: 1.61 DR12BAO: 3.37

### 9.60 base\_nnu\_mnu\_BAO\_Cooke17Marc\_Aver15\_Pantheon18\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02176	$0.0218^{+0.0015}_{-0.0014}$	$z_*$	1089.95	$1088.1^{+2.4}_{-1.7}$	$H(0.51)$	88.3	$84.4^{+8.1}_{-6.0}$
$\Omega_{\text{c}}h^2$	0.1127	$0.078^{+0.046}_{-0.041}$	$r_*$	147.4	$155^{+12}_{-14}$	$D_{\text{M}}(0.51)$	2009	$2104^{+160}_{-190}$
$100\theta_{\text{MC}}$	1.04093	$1.0409^{+0.0015}_{-0.0016}$	$100\theta_*$	1.04136	$1.0418^{+0.0017}_{-0.0018}$	$H(0.61)$	93.8	$89.7^{+8.7}_{-6.4}$
$\Sigma m_{\nu}$ [eV]	0.22	—	$D_{\text{M}}(z_*)/\text{Gpc}$	14.16	$14.8^{+1.1}_{-1.3}$	$D_{\text{M}}(0.61)$	2338	$2449^{+190}_{-220}$
$N_{\text{eff}}$	2.93	$2.97^{+0.82}_{-0.69}$	$z_{\text{drag}}$	1057.9	$1056.6^{+5.7}_{-4.8}$	$H(2.33)$	231.6	$221^{+21}_{-16}$
$H_0$	66.8	$63.8^{+6.6}_{-4.8}$	$r_{\text{drag}}$	150.3	$158^{+12}_{-14}$	$D_{\text{M}}(2.33)$	5857	$6136^{+460}_{-550}$
$\Omega_{\Lambda}$	0.6935	$0.693^{+0.021}_{-0.021}$	$k_{\text{D}}$	0.1375	$0.132^{+0.012}_{-0.0086}$	$\chi^2_{\text{Cooke17Marc}}$	0.00	$0.96 (\nu: 0.9)$
$\Omega_{\text{m}}$	0.3065	$0.307^{+0.021}_{-0.021}$	$100\theta_{\text{D}}$	0.16141	$0.1611^{+0.0012}_{-0.0014}$	$\chi^2_{\text{Aver15}}$	0.00	$1.0 (\nu: 1.1)$
$\Omega_{\text{m}}h^2$	0.1367	$0.125^{+0.024}_{-0.017}$	$z_{\text{eq}}$	3265	$2414^{+1000}_{-900}$	$\chi^2_{\text{JLA}}$	1034.85	$1034.99 (\nu: 0.1)$
$\Omega_{\nu}h^2$	0.0022	$< 0.0527$	$k_{\text{eq}}$	0.00989	$0.0075^{+0.0030}_{-0.0025}$	$\chi^2_{6\text{DF}}$	0.000	$0.048 (\nu: 0.0)$
$\Omega_{\text{m}}h^3$	0.0913	$0.080^{+0.024}_{-0.017}$	$100\theta_{\text{eq}}$	0.837	$1.11^{+0.45}_{-0.31}$	$\chi^2_{\text{MGS}}$	1.68	$1.79 (\nu: 0.2)$
$r_{\text{drag}}h$	100.42	$100.5^{+2.8}_{-2.7}$	$100\theta_{\text{s,eq}}$	0.462	$0.60^{+0.22}_{-0.16}$	$\chi^2_{\text{DR12BAO}}$	3.37	$4.1 (\nu: 0.7)$
$Y_{\text{P}}$	0.2436	$0.244^{+0.011}_{-0.010}$	$H(0.15)$	71.9	$68.8^{+7.0}_{-5.0}$	$\chi^2_{\text{prior}}$	0.00	$1.0 (\nu: 1.0)$
$Y_{\text{P}}^{\text{BBN}}$	0.2449	$0.245^{+0.011}_{-0.010}$	$D_{\text{M}}(0.15)$	649	$680^{+53}_{-64}$	$\chi^2_{\text{BAO}}$	5.04	$5.9 (\nu: 0.8)$
$10^5\text{D}/\text{H}$	2.662	$2.66^{+0.11}_{-0.11}$	$H(0.38)$	81.8	$78.2^{+7.6}_{-5.6}$	$\chi^2_{\text{Abund}}$	0.00	$2.0 (\nu: 1.9)$
Age/Gyr	14.02	$14.7^{+1.1}_{-1.3}$	$D_{\text{M}}(0.38)$	1550	$1624^{+130}_{-150}$			

Best-fit  $\chi^2_{\text{eff}} = 1039.90$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.87$ ;  $R - 1 = 0.00926$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_marcucci: 0.00 Yp\_Aver2015: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 3.37 SN - JLA Pantheon18: 1034.85



### 9.61 base\_nnu\_mnu\_BAO\_Cooke17Adel\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02251	$0.0225^{+0.0017}_{-0.0016}$	Age/Gyr	12.33	$12.6^{+3.5}_{-3.0}$	$H(0.38)$	91.0	$89^{+20}_{-20}$
$\Omega_{\text{c}}h^2$	0.168	$0.15^{+0.17}_{-0.11}$	$z_*$	1093.5	$1093^{+11}_{-8.3}$	$D_{\text{M}}(0.38)$	1419	$1459^{+300}_{-300}$
$100\theta_{\text{MC}}$	1.102	$1.110^{+0.097}_{-0.11}$	$r_*$	134.0	$138^{+30}_{-30}$	$H(0.51)$	99.3	$98^{+30}_{-20}$
$\Sigma m_{\nu}$ [eV]	0.26	—	$100\theta_*$	1.102	$1.111^{+0.097}_{-0.11}$	$D_{\text{M}}(0.51)$	1829	$1880^{+400}_{-400}$
$N_{\text{eff}}$	2.93	$2.94^{+0.76}_{-0.70}$	$D_{\text{M}}(z_*)/\text{Gpc}$	12.16	$12.4^{+4.1}_{-3.2}$	$H(0.61)$	106.1	$105^{+30}_{-20}$
$H_0$	71.7	$70^{+10}_{-10}$	$z_{\text{drag}}$	1063.4	$1063^{+10}_{-8.7}$	$D_{\text{M}}(0.61)$	2121	$2179^{+500}_{-400}$
$\Omega_{\Lambda}$	0.624	$0.61^{+0.13}_{-0.15}$	$r_{\text{drag}}$	136.4	$140^{+30}_{-30}$	$H(2.33)$	273	$271^{+100}_{-70}$
$\Omega_{\text{m}}$	0.376	$0.39^{+0.15}_{-0.13}$	$k_{\text{D}}$	0.1535	$0.151^{+0.036}_{-0.029}$	$D_{\text{M}}(2.33)$	5155	$5280^{+1000}_{-1000}$
$\Omega_{\text{m}}h^2$	0.193	$0.194^{+0.17}_{-0.096}$	$100\theta_{\text{D}}$	0.1684	$0.169^{+0.014}_{-0.014}$	$\chi^2_{\text{Cooke17Adel}}$	0.01	$1.0 (\nu: 1.0)$
$\Omega_{\nu}h^2$	0.0027	$< 0.0524$	$z_{\text{eq}}$	4622	$4096^{+4000}_{-3000}$	$\chi^2_{\text{Aver15}}$	0.01	$1.0 (\nu: 1.1)$
$\Omega_{\text{m}}h^3$	0.138	$0.138^{+0.14}_{-0.086}$	$k_{\text{eq}}$	0.0140	$0.0126^{+0.012}_{-0.0076}$	$\chi^2_{6\text{DF}}$	0.21	$0.43 (\nu: 0.1)$
$r_{\text{drag}}h$	97.7	$97.2^{+5.8}_{-5.7}$	$100\theta_{\text{eq}}$	0.688	$0.82^{+0.62}_{-0.36}$	$\chi^2_{\text{MGS}}$	0.67	$0.74 (\nu: 0.2)$
$Y_{\text{P}}$	0.2439	$0.244^{+0.010}_{-0.011}$	$100\theta_{\text{s,eq}}$	0.384	$0.45^{+0.32}_{-0.19}$	$\chi^2_{\text{DR12BAO}}$	2.11	$3.9 (\nu: 1.8)$
$Y_{\text{P}}^{\text{BBN}}$	0.2453	$0.245^{+0.010}_{-0.011}$	$H(0.15)$	78.4	$77^{+20}_{-10}$	$\chi^2_{\text{BAO}}$	2.98	$5.1 (\nu: 2.2)$
$10^5\text{D}/\text{H}$	2.522	$2.52^{+0.17}_{-0.17}$	$D_{\text{M}}(0.15)$	601	$619^{+100}_{-100}$	$\chi^2_{\text{Abund}}$	0.01	$2.0 (\nu: 2.1)$

Best-fit  $\chi^2_{\text{eff}} = 3.00$ ;  $\bar{\chi}^2_{\text{eff}} = 7.14$ ;  $R - 1 = 0.00205$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_adelberger: 0.01 Yp\_Aver2015: 0.01 BAO - 6DF: 0.21 MGS: 0.67 DR12BAO: 2.11

### 9.62 base\_nnu\_mnu\_BAO\_Cooke17Adel\_Aver15\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02246	$0.0225^{+0.0016}_{-0.0016}$	$z_*$	1089.95	$1088.0^{+4.7}_{-4.0}$	$H(0.51)$	90.8	$87^{+10}_{-10}$
$\Omega_{\text{c}}h^2$	0.123	$0.086^{+0.071}_{-0.057}$	$r_*$	144.2	$152^{+20}_{-20}$	$D_{\text{M}}(0.51)$	1959	$2063^{+300}_{-300}$
$100\theta_{\text{MC}}$	1.051	$1.052^{+0.051}_{-0.053}$	$100\theta_*$	1.051	$1.052^{+0.051}_{-0.053}$	$H(0.61)$	96.5	$92^{+10}_{-10}$
$\Sigma m_{\nu}$ [eV]	0.05	—	$D_{\text{M}}(z_*)/\text{Gpc}$	13.72	$14.4^{+2.5}_{-2.2}$	$D_{\text{M}}(0.61)$	2279	$2400^{+300}_{-300}$
$N_{\text{eff}}$	2.92	$2.94^{+0.75}_{-0.73}$	$z_{\text{drag}}$	1060.3	$1058.8^{+6.6}_{-7.0}$	$H(2.33)$	239.1	$228^{+40}_{-40}$
$H_0$	68.3	$65^{+8}_{-7}$	$r_{\text{drag}}$	146.8	$155^{+20}_{-20}$	$D_{\text{M}}(2.33)$	5693	$5991^{+900}_{-800}$
$\Omega_{\Lambda}$	0.687	$0.685^{+0.051}_{-0.055}$	$k_{\text{D}}$	0.1417	$0.135^{+0.018}_{-0.016}$	$\chi^2_{\text{Cooke17Adel}}$	0.00	$1.0 (\nu: 1.1)$
$\Omega_{\text{m}}$	0.313	$0.315^{+0.055}_{-0.051}$	$100\theta_{\text{D}}$	0.1616	$0.1614^{+0.0068}_{-0.0069}$	$\chi^2_{\text{Aver15}}$	0.00	$1.1 (\nu: 1.1)$
$\Omega_{\text{m}}h^2$	0.1460	$0.134^{+0.053}_{-0.041}$	$z_{\text{eq}}$	3538	$2625^{+2000}_{-1000}$	$\chi^2_{\text{JLA}}$	1035.12	$1036.1 (\nu: 1.6)$
$\Omega_{\nu}h^2$	0.0005	$< 0.0524$	$k_{\text{eq}}$	0.01071	$0.0082^{+0.0049}_{-0.0039}$	$\chi^2_{6\text{DF}}$	0.000	$0.053 (\nu: 0.0)$
$\Omega_{\text{m}}h^3$	0.0998	$0.087^{+0.048}_{-0.033}$	$100\theta_{\text{eq}}$	0.80	$1.06^{+0.63}_{-0.38}$	$\chi^2_{\text{MGS}}$	1.68	$1.74 (\nu: 0.2)$
$r_{\text{drag}}h$	100.33	$100.3^{+3.1}_{-3.0}$	$100\theta_{\text{s,eq}}$	0.441	$0.58^{+0.31}_{-0.19}$	$\chi^2_{\text{DR12BAO}}$	2.97	$4.0 (\nu: 1.2)$
$Y_{\text{P}}$	0.2437	$0.244^{+0.010}_{-0.011}$	$H(0.15)$	73.7	$70^{+9}_{-8}$	$\chi^2_{\text{BAO}}$	4.64	$5.7 (\nu: 1.6)$
$Y_{\text{P}}^{\text{BBN}}$	0.2451	$0.245^{+0.010}_{-0.011}$	$D_{\text{M}}(0.15)$	634	$668^{+80}_{-80}$	$\chi^2_{\text{Abund}}$	0.00	$2.1 (\nu: 2.2)$
$10^5\text{D}/\text{H}$	2.526	$2.52^{+0.18}_{-0.17}$	$H(0.38)$	84.0	$80^{+10}_{-10}$			
Age/Gyr	13.63	$14.3^{+2.2}_{-2.0}$	$D_{\text{M}}(0.38)$	1512	$1593^{+200}_{-200}$			

Best-fit  $\chi^2_{\text{eff}} = 1039.76$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.96$ ;  $R - 1 = 0.00624$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_adelberger: 0.00 Yp\_Aver2015: 0.00 BAO - 6DF: 0.00 MGS: 1.68 DR12BAO: 2.96 SN - JLA Pantheon18: 1035.12



### 9.63 base\_nnu\_mnu\_BAO\_Cooke17Adel\_Aver15\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02240	$0.0225^{+0.0016}_{-0.0016}$	$z_*$	1088.62	$1087.3^{+2.5}_{-1.9}$	$H(0.51)$	87.6	$84.7^{+7.6}_{-6.1}$
$\Omega_{\text{c}}h^2$	0.1061	$0.079^{+0.044}_{-0.040}$	$r_*$	148.8	$154^{+11}_{-13}$	$D_{\text{M}}(0.51)$	2026	$2096^{+160}_{-180}$
$100\theta_{\text{MC}}$	1.04089	$1.0409^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04141	$1.0417^{+0.0017}_{-0.0018}$	$H(0.61)$	93.0	$90.0^{+8.0}_{-6.4}$
$\Sigma m_{\nu}$ [eV]	0.56	—	$D_{\text{M}}(z_*)/\text{Gpc}$	14.29	$14.8^{+1.1}_{-1.2}$	$D_{\text{M}}(0.61)$	2359	$2440^{+190}_{-210}$
$N_{\text{eff}}$	2.90	$2.94^{+0.75}_{-0.67}$	$z_{\text{drag}}$	1058.9	$1058.2^{+5.3}_{-5.2}$	$H(2.33)$	229.5	$222^{+19}_{-15}$
$H_0$	66.2	$64.1^{+6.2}_{-5.1}$	$r_{\text{drag}}$	151.5	$157^{+12}_{-13}$	$D_{\text{M}}(2.33)$	5909	$6114^{+460}_{-500}$
$\Omega_{\Lambda}$	0.6936	$0.694^{+0.022}_{-0.024}$	$k_{\text{D}}$	0.1370	$0.133^{+0.011}_{-0.0087}$	$\chi^2_{\text{Cooke17Adel}}$	0.00	$1.0 (\nu: 1.1)$
$\Omega_{\text{m}}$	0.3064	$0.306^{+0.024}_{-0.022}$	$100\theta_{\text{D}}$	0.16049	$0.1601^{+0.0016}_{-0.0017}$	$\chi^2_{\text{Aver15}}$	0.00	$1.0 (\nu: 0.9)$
$\Omega_{\text{m}}h^2$	0.1343	$0.126^{+0.023}_{-0.017}$	$z_{\text{eq}}$	3134	$2456^{+900}_{-900}$	$\chi^2_{6\text{DF}}$	0.001	$0.056 (\nu: 0.0)$
$\Omega_{\nu}h^2$	0.0058	$< 0.0522$	$k_{\text{eq}}$	0.00948	$0.0076^{+0.0028}_{-0.0025}$	$\chi^2_{\text{MGS}}$	1.61	$1.74 (\nu: 0.2)$
$\Omega_{\text{m}}h^3$	0.0890	$0.081^{+0.023}_{-0.016}$	$100\theta_{\text{eq}}$	0.866	$1.09^{+0.44}_{-0.30}$	$\chi^2_{\text{DR12BAO}}$	3.51	$4.3 (\nu: 1.0)$
$r_{\text{drag}}h$	100.32	$100.4^{+3.0}_{-2.9}$	$100\theta_{\text{s,eq}}$	0.477	$0.59^{+0.22}_{-0.15}$	$\chi^2_{\text{prior}}$	0.00	$1.0 (\nu: 1.1)$
$Y_{\text{P}}$	0.2434	$0.244^{+0.010}_{-0.010}$	$H(0.15)$	71.3	$69.0^{+6.5}_{-5.2}$	$\chi^2_{\text{BAO}}$	5.12	$6.1 (\nu: 1.0)$
$Y_{\text{P}}^{\text{BBN}}$	0.2447	$0.245^{+0.010}_{-0.010}$	$D_{\text{M}}(0.15)$	655	$678^{+56}_{-60}$	$\chi^2_{\text{Abund}}$	0.00	$2.0 (\nu: 2.0)$
$10^5\text{D}/\text{H}$	2.529	$2.53^{+0.17}_{-0.18}$	$H(0.38)$	81.1	$78.5^{+7.1}_{-5.7}$			
Age/Gyr	14.15	$14.6^{+1.1}_{-1.2}$	$D_{\text{M}}(0.38)$	1564	$1618^{+130}_{-140}$			

Best-fit  $\chi^2_{\text{eff}} = 5.12$ ;  $\bar{\chi}^2_{\text{eff}} = 9.16$ ;  $R - 1 = 0.00663$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_adelberger: 0.00 Yp\_Aver2015: 0.00 BAO - 6DF: 0.00 MGS: 1.61 DR12BAO: 3.51

### 9.64 base\_nnu\_mnu\_BAO\_Cooke17Adel\_Aver15\_Pantheon18\_theta

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02241	$0.0225^{+0.0015}_{-0.0014}$	$z_*$	1089.11	$1087.3^{+2.5}_{-1.8}$	$H(0.51)$	88.7	$84.5^{+7.7}_{-5.6}$
$\Omega_{\text{c}}h^2$	0.1128	$0.077^{+0.046}_{-0.040}$	$r_*$	147.0	$154^{+11}_{-13}$	$D_{\text{M}}(0.51)$	2000	$2100^{+150}_{-180}$
$100\theta_{\text{MC}}$	1.04095	$1.0409^{+0.0014}_{-0.0015}$	$100\theta_*$	1.04130	$1.0417^{+0.0016}_{-0.0017}$	$H(0.61)$	94.2	$89.8^{+8.1}_{-6.0}$
$\Sigma m_{\nu}$ [eV]	0.19	—	$D_{\text{M}}(z_*)/\text{Gpc}$	14.12	$14.8^{+1.0}_{-1.2}$	$D_{\text{M}}(0.61)$	2328	$2445^{+180}_{-210}$
$N_{\text{eff}}$	2.90	$2.93^{+0.75}_{-0.65}$	$z_{\text{drag}}$	1059.40	$1058.1^{+5.2}_{-4.7}$	$H(2.33)$	232.0	$221^{+19}_{-15}$
$H_0$	67.2	$64.0^{+6.3}_{-4.5}$	$r_{\text{drag}}$	149.7	$157^{+11}_{-13}$	$D_{\text{M}}(2.33)$	5838	$6130^{+420}_{-510}$
$\Omega_{\Lambda}$	0.6957	$0.695^{+0.021}_{-0.021}$	$k_{\text{D}}$	0.1387	$0.132^{+0.011}_{-0.0080}$	$\chi^2_{\text{Cooke17Adel}}$	0.00	$0.9 (\nu: 0.9)$
$\Omega_{\text{m}}$	0.3043	$0.305^{+0.021}_{-0.021}$	$100\theta_{\text{D}}$	0.16038	$0.1601^{+0.0016}_{-0.0016}$	$\chi^2_{\text{Aver15}}$	0.00	$0.97 (\nu: 0.9)$
$\Omega_{\text{m}}h^2$	0.1372	$0.125^{+0.023}_{-0.016}$	$z_{\text{eq}}$	3297	$2409^{+1000}_{-900}$	$\chi^2_{\text{JLA}}$	1034.79	$1034.94 (\nu: 0.0)$
$\Omega_{\nu}h^2$	0.0020	$< 0.0525$	$k_{\text{eq}}$	0.00996	$0.0075^{+0.0030}_{-0.0025}$	$\chi^2_{6\text{DF}}$	0.000	$0.048 (\nu: 0.0)$
$\Omega_{\text{m}}h^3$	0.0921	$0.080^{+0.023}_{-0.015}$	$100\theta_{\text{eq}}$	0.833	$1.11^{+0.44}_{-0.32}$	$\chi^2_{\text{MGS}}$	1.75	$1.82 (\nu: 0.2)$
$r_{\text{drag}}h$	100.55	$100.5^{+2.9}_{-2.6}$	$100\theta_{\text{s,eq}}$	0.459	$0.60^{+0.22}_{-0.17}$	$\chi^2_{\text{DR12BAO}}$	3.42	$4.1 (\nu: 0.6)$
$Y_{\text{P}}$	0.2434	$0.244^{+0.010}_{-0.0096}$	$H(0.15)$	72.3	$68.9^{+6.6}_{-4.8}$	$\chi^2_{\text{prior}}$	0.01	$0.96 (\nu: 0.9)$
$Y_{\text{P}}^{\text{BBN}}$	0.2447	$0.245^{+0.010}_{-0.0096}$	$D_{\text{M}}(0.15)$	646	$679^{+50}_{-61}$	$\chi^2_{\text{BAO}}$	5.17	$6.0 (\nu: 0.8)$
$10^5\text{D}/\text{H}$	2.528	$2.53^{+0.16}_{-0.17}$	$H(0.38)$	82.1	$78.3^{+7.3}_{-5.2}$	$\chi^2_{\text{Abund}}$	0.00	$1.9 (\nu: 1.6)$
Age/Gyr	13.98	$14.7^{+1.0}_{-1.2}$	$D_{\text{M}}(0.38)$	1543	$1620^{+120}_{-140}$			

Best-fit  $\chi^2_{\text{eff}} = 1039.97$ ;  $\bar{\chi}^2_{\text{eff}} = 1043.82$ ;  $R - 1 = 0.01456$

$\chi^2_{\text{eff}}$ : Abund - D.Cooke2017\_adelberger: 0.00 Yp\_Aver2015: 0.00 BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.42 SN - JLA Pantheon18: 1034.79



# 10 nnu+nrn

## 10.1 base\_nnu\_nrn\_plikHM\_TTTEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02213	$0.02216^{+0.00057}_{-0.00060}$	$\Omega_m h^2$	0.1385	$0.1390^{+0.0089}_{-0.0085}$	$100\theta_{\text{eq}}$	0.8044	$0.805^{+0.019}_{-0.020}$
$\Omega_c h^2$	0.1157	$0.1162^{+0.0086}_{-0.0081}$	$\Omega_m h^3$	0.0899	$0.091^{+0.012}_{-0.010}$	$100\theta_{\text{s,eq}}$	0.4449	$0.4452^{+0.0098}_{-0.0099}$
$100\theta_{\text{MC}}$	1.04144	$1.0414^{+0.0013}_{-0.0012}$	$\sigma_8$	0.7989	$0.800^{+0.031}_{-0.029}$	$H(0.15)$	70.25	$70.5^{+4.2}_{-4.0}$
$\tau$	0.0548	$0.055^{+0.021}_{-0.021}$	$S_8$	0.8365	$0.836^{+0.042}_{-0.040}$	$D_{\text{M}}(0.15)$	666.7	$665^{+42}_{-40}$
$N_{\text{eff}}$	2.71	$2.74^{+0.59}_{-0.53}$	$\sigma_8 \Omega_m^{0.5}$	0.4582	$0.458^{+0.023}_{-0.022}$	$H(0.38)$	80.43	$80.7^{+4.2}_{-3.9}$
$\ln(10^{10} A_s)$	3.0364	$3.037^{+0.049}_{-0.047}$	$\sigma_8 \Omega_m^{0.25}$	0.6050	$0.605^{+0.023}_{-0.022}$	$D_{\text{M}}(0.38)$	1586	$1582^{+92}_{-89}$
$n_s$	0.9500	$0.950^{+0.026}_{-0.028}$	$\sigma_8/h^{0.5}$	0.9917	$0.991^{+0.031}_{-0.029}$	$H(0.51)$	87.17	$87.4^{+4.3}_{-4.0}$
$dn_s/d \ln k$	-0.0105	$-0.012^{+0.020}_{-0.021}$	$r_{\text{drag}} h$	97.52	$97.6^{+3.4}_{-3.6}$	$D_{\text{M}}(0.51)$	2051	$2046^{+110}_{-110}$
$y_{\text{cal}}$	1.0005	$1.0005^{+0.0067}_{-0.0062}$	$\langle d^2 \rangle^{1/2}$	2.458	$2.455^{+0.078}_{-0.075}$	$H(0.61)$	92.79	$93.0^{+4.4}_{-4.0}$
$A_{217}^{\text{CIB}}$	46.8	$47^{+20}_{-20}$	$z_{\text{re}}$	7.68	$7.7^{+2.0}_{-2.2}$	$D_{\text{M}}(0.61)$	2385	$2379^{+130}_{-130}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.49	—	$10^9 A_s$	2.083	$2.08^{+0.10}_{-0.097}$	$H(2.33)$	232.4	$232.9^{+7.8}_{-7.4}$
$A_{143}^{\text{tSZ}}$	7.1	—	$10^9 A_s e^{-2\tau}$	1.8666	$1.868^{+0.047}_{-0.048}$	$D_{\text{M}}(2.33)$	5912	$5899^{+250}_{-260}$
$A_{100}^{\text{PS}}$	250	$261^{+70}_{-70}$	$D_{40}$	1225.2	$1223^{+48}_{-48}$	$f\sigma_8(0.15)$	0.4613	$0.461^{+0.021}_{-0.020}$
$A_{143}^{\text{PS}}$	48.8	$47^{+20}_{-20}$	$D_{220}$	5729	$5729^{+100}_{-100}$	$\sigma_8(0.15)$	0.7366	$0.737^{+0.030}_{-0.027}$
$A_{143 \times 217}^{\text{PS}}$	49.0	$42^{+20}_{-20}$	$D_{810}$	2540.0	$2539^{+36}_{-35}$	$f\sigma_8(0.38)$	0.4755	$0.475^{+0.018}_{-0.017}$
$A_{217}^{\text{PS}}$	120.4	$115^{+30}_{-30}$	$D_{1420}$	817.6	$816^{+13}_{-13}$	$\sigma_8(0.38)$	0.6511	$0.652^{+0.028}_{-0.026}$
$A^{\text{kSZ}}$	0.0	—	$D_{2000}$	231.55	$230.8^{+4.8}_{-4.9}$	$f\sigma_8(0.51)$	0.4721	$0.472^{+0.017}_{-0.016}$
$A_{100}^{\text{dustTT}}$	8.71	$8.8^{+4.7}_{-4.7}$	$n_{\text{s},0.002}$	0.984	$0.988^{+0.055}_{-0.054}$	$\sigma_8(0.51)$	0.6086	$0.609^{+0.027}_{-0.025}$
$A_{143}^{\text{dustTT}}$	10.87	$10.8^{+4.7}_{-4.7}$	$Y_{\text{P}}$	0.2407	$0.2411^{+0.0081}_{-0.0079}$	$f\sigma_8(0.61)$	0.4659	$0.466^{+0.017}_{-0.016}$
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.5^{+8.8}_{-8.5}$	$Y_{\text{P}}^{\text{BBN}}$	0.2420	$0.2424^{+0.0081}_{-0.0079}$	$\sigma_8(0.61)$	0.5787	$0.579^{+0.026}_{-0.024}$
$A_{217}^{\text{dustTT}}$	95.1	$94^{+20}_{-20}$	$10^5 \text{D/H}$	2.513	$2.52^{+0.14}_{-0.13}$	$f\sigma_8(2.33)$	0.2912	$0.291^{+0.014}_{-0.013}$
$A_{100}^{\text{dustTE}}$	0.115	$0.114^{+0.10}_{-0.094}$	Age/Gyr	14.15	$14.12^{+0.60}_{-0.61}$	$\sigma_8(2.33)$	0.2994	$0.300^{+0.015}_{-0.014}$
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.134^{+0.075}_{-0.077}$	$z_*$	1089.51	$1089.6^{+1.0}_{-0.93}$	$f_{2000}^{143}$	28.8	$30^{+8}_{-8}$
$A_{100 \times 217}^{\text{dustTE}}$	0.484	$0.48^{+0.22}_{-0.22}$	$r_*$	147.5	$147.2^{+5.5}_{-5.4}$	$f_{2000}^{143 \times 217}$	31.9	$33^{+6}_{-6}$
$A_{143}^{\text{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04186	$1.0418^{+0.0016}_{-0.0016}$	$f_{2000}^{217}$	106.5	$107.3^{+5.1}_{-5.1}$
$A_{143 \times 217}^{\text{dustTE}}$	0.665	$0.67^{+0.21}_{-0.20}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.15	$14.13^{+0.50}_{-0.50}$	$\chi_{\text{small}}^2$	396.09	$397.1 (\nu: 1.5)$
$A_{217}^{\text{dustTE}}$	2.09	$2.08^{+0.69}_{-0.70}$	$z_{\text{drag}}$	1058.83	$1058.9^{+2.2}_{-2.2}$	$\chi_{\text{lowl}}^2$	22.41	$22.5 (\nu: 1.1)$
$c_{100}$	0.99976	$0.9997^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	150.2	$150.0^{+5.7}_{-5.6}$	$\chi_{\text{plik}}^2$	2343.2	$2360.1 (\nu: 18.4)$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	0.13872	$0.1389^{+0.0041}_{-0.0039}$	$\chi_{\text{prior}}^2$	1.5	$11.4 (\nu: 10.1)$
$H_0$	64.90	$65.1^{+4.3}_{-4.1}$	$100\theta_{\text{D}}$	0.16000	$0.1601^{+0.0013}_{-0.0013}$	$\chi_{\text{CMB}}^2$	2761.7	$2779.7 (\nu: 18.5)$
$\Omega_{\Lambda}$	0.6712	$0.672^{+0.028}_{-0.033}$	$z_{\text{eq}}$	3450	$3448^{+110}_{-100}$			
$\Omega_{\text{m}}$	0.3288	$0.328^{+0.033}_{-0.028}$	$k_{\text{eq}}$	0.010290	$0.01031^{+0.00031}_{-0.00030}$			

Best-fit  $\chi_{\text{eff}}^2 = 2763.19$ ;  $\bar{\chi}_{\text{eff}}^2 = 2791.11$ ;  $R - 1 = 0.01356$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.09 commander\_dx12\_v3.2.29: 22.41 plik\_rd12\_HM\_v22b\_TTTEE: 2343.18



## 10.2 base\_nnu\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022331	$0.02236^{+0.00047}_{-0.00046}$	$\Omega_m h^3$	0.0929	$0.0937^{+0.010}_{-0.0098}$	$H(0.15)$	71.85	$72.1^{+3.4}_{-3.2}$
$\Omega_c h^2$	0.1166	$0.1172^{+0.0084}_{-0.0087}$	$\sigma_8$	0.8022	$0.803^{+0.031}_{-0.027}$	$D_M(0.15)$	650.8	$649^{+31}_{-31}$
$100\theta_{MC}$	1.04131	$1.0413^{+0.0012}_{-0.0012}$	$S_8$	0.8217	$0.822^{+0.036}_{-0.032}$	$H(0.38)$	81.90	$82.1^{+3.5}_{-3.3}$
$\tau$	0.0568	$0.057^{+0.020}_{-0.021}$	$\sigma_8 \Omega_m^{0.5}$	0.4500	$0.450^{+0.019}_{-0.018}$	$D_M(0.38)$	1551	$1547^{+71}_{-70}$
$N_{\text{eff}}$	2.87	$2.91^{+0.51}_{-0.51}$	$\sigma_8 \Omega_m^{0.25}$	0.6008	$0.601^{+0.023}_{-0.021}$	$H(0.51)$	88.58	$88.8^{+3.5}_{-3.5}$
$\ln(10^{10} A_s)$	3.0423	$3.043^{+0.046}_{-0.041}$	$\sigma_8/h^{0.5}$	0.9830	$0.982^{+0.028}_{-0.025}$	$D_M(0.51)$	2009	$2003^{+89}_{-89}$
$n_s$	0.9605	$0.960^{+0.021}_{-0.022}$	$r_{\text{drag}} h$	99.19	$99.3^{+2.0}_{-2.3}$	$H(0.61)$	94.16	$94.4^{+3.7}_{-3.6}$
$dn_s/d \ln k$	-0.0064	$-0.008^{+0.017}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	2.433	$2.431^{+0.066}_{-0.063}$	$D_M(0.61)$	2337	$2331^{+100}_{-100}$
$y_{\text{cal}}$	1.0006	$1.0006^{+0.0066}_{-0.0061}$	$z_{\text{re}}$	7.86	$7.8^{+1.9}_{-2.2}$	$H(2.33)$	233.7	$234.3^{+7.2}_{-7.8}$
$A_{217}^{\text{CIB}}$	47.1	$47^{+20}_{-20}$	$10^9 A_s$	2.095	$2.098^{+0.099}_{-0.085}$	$D_M(2.33)$	5832	$5817^{+220}_{-220}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.51	—	$10^9 A_s e^{-2\tau}$	1.8705	$1.873^{+0.046}_{-0.044}$	$f\sigma_8(0.15)$	0.4543	$0.454^{+0.019}_{-0.017}$
$A_{143}^{\text{tSZ}}$	7.11	$5.3^{+4.5}_{-4.6}$	$D_{40}$	1219.0	$1217^{+47}_{-45}$	$\sigma_8(0.15)$	0.7409	$0.742^{+0.030}_{-0.026}$
$A_{100}^{\text{PS}}$	249	$262^{+80}_{-70}$	$D_{220}$	5735	$5738^{+95}_{-96}$	$f\sigma_8(0.38)$	0.4718	$0.472^{+0.018}_{-0.016}$
$A_{143}^{\text{PS}}$	48.7	$47^{+20}_{-20}$	$D_{810}$	2540.2	$2539^{+34}_{-34}$	$\sigma_8(0.38)$	0.6564	$0.657^{+0.028}_{-0.023}$
$A_{143 \times 217}^{\text{PS}}$	49.4	$42^{+20}_{-20}$	$D_{1420}$	818.5	$817^{+12}_{-13}$	$f\sigma_8(0.51)$	0.4700	$0.470^{+0.018}_{-0.016}$
$A_{217}^{\text{PS}}$	120.0	$115^{+20}_{-30}$	$D_{2000}$	231.61	$230.8^{+4.5}_{-4.7}$	$\sigma_8(0.51)$	0.6142	$0.615^{+0.026}_{-0.022}$
$A^{\text{kSZ}}$	0.0	—	$n_{\text{s},0.002}$	0.981	$0.986^{+0.053}_{-0.051}$	$f\sigma_8(0.61)$	0.4648	$0.465^{+0.018}_{-0.015}$
$A_{100}^{\text{dustTT}}$	8.80	$8.8^{+4.6}_{-4.6}$	$Y_{\text{P}}$	0.2430	$0.2435^{+0.0070}_{-0.0074}$	$\sigma_8(0.61)$	0.5843	$0.585^{+0.025}_{-0.021}$
$A_{143}^{\text{dustTT}}$	10.95	$10.9^{+4.6}_{-4.7}$	$Y_{\text{P}}^{\text{BBN}}$	0.2443	$0.2448^{+0.0070}_{-0.0074}$	$f\sigma_8(2.33)$	0.2945	$0.295^{+0.013}_{-0.011}$
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.5^{+7.7}_{-8.2}$	$10^5 D/H$	2.532	$2.54^{+0.13}_{-0.13}$	$\sigma_8(2.33)$	0.3035	$0.304^{+0.014}_{-0.012}$
$A_{217}^{\text{dustTT}}$	94.8	$94^{+20}_{-20}$	Age/Gyr	13.96	$13.93^{+0.53}_{-0.51}$	$f_{2000}^{143}$	28.7	$30^{+8}_{-8}$
$A_{100}^{\text{dustTE}}$	0.114	$0.115^{+0.10}_{-0.097}$	$z_*$	1089.50	$1089.5^{+1.0}_{-0.95}$	$f_{2000}^{143 \times 217}$	31.9	$33^{+6}_{-6}$
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.134^{+0.077}_{-0.077}$	$r_*$	146.3	$145.9^{+5.4}_{-5.0}$	$f_{2000}^{217}$	106.5	$107.3^{+5.8}_{-5.3}$
$A_{100 \times 217}^{\text{dustTE}}$	0.479	$0.48^{+0.21}_{-0.23}$	$100\theta_*$	1.04162	$1.0415^{+0.0015}_{-0.0015}$	$\chi_{\text{small}}^2$	396.4	$397.2 (\nu: 1.8)$
$A_{143}^{\text{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	14.041	$14.01^{+0.49}_{-0.46}$	$\chi_{\text{lowl}}^2$	22.08	$22.2 (\nu: 1.1)$
$A_{143 \times 217}^{\text{dustTE}}$	0.664	$0.66^{+0.21}_{-0.20}$	$z_{\text{drag}}$	1059.47	$1059.6^{+2.0}_{-1.9}$	$\chi_{\text{plik}}^2$	2344.7	$2361.1 (\nu: 19.5)$
$A_{217}^{\text{dustTE}}$	2.07	$2.06^{+0.66}_{-0.66}$	$r_{\text{drag}}$	149.0	$148.6^{+5.6}_{-5.2}$	$\chi_{6\text{DF}}^2$	0.070	$0.095 (\nu: 0.0)$
$c_{100}$	0.99975	$0.9997^{+0.0017}_{-0.0016}$	$k_{\text{D}}$	0.13957	$0.1399^{+0.0039}_{-0.0038}$	$\chi_{\text{MGS}}^2$	0.98	$1.07 (\nu: 0.1)$
$c_{217}$	0.99820	$0.9982^{+0.0015}_{-0.0017}$	$100\theta_{\text{D}}$	0.16031	$0.1604^{+0.0012}_{-0.0012}$	$\chi_{\text{DR12BAO}}^2$	5.26	$5.6 (\nu: 2.0)$
$H_0$	66.59	$66.8^{+3.4}_{-3.2}$	$z_{\text{eq}}$	3400	$3399^{+69}_{-64}$	$\chi_{\text{prior}}^2$	1.6	$11.6 (\nu: 10.8)$
$\Omega_{\Lambda}$	0.6852	$0.686^{+0.016}_{-0.019}$	$k_{\text{eq}}$	0.010255	$0.01028^{+0.00031}_{-0.00034}$	$\chi_{\text{BAO}}^2$	6.31	$6.8 (\nu: 1.5)$
$\Omega_{\text{m}}$	0.3148	$0.314^{+0.019}_{-0.016}$	$100\theta_{\text{eq}}$	0.8137	$0.814^{+0.012}_{-0.013}$	$\chi_{\text{CMB}}^2$	2763.1	$2780.6 (\nu: 19.1)$
$\Omega_{\text{m}} h^2$	0.1396	$0.1402^{+0.0087}_{-0.0090}$	$100\theta_{\text{s,eq}}$	0.4496	$0.4497^{+0.0060}_{-0.0065}$			

Best-fit  $\chi_{\text{eff}}^2 = 2770.98$ ;  $\bar{\chi}_{\text{eff}}^2 = 2798.94$ ;  $R - 1 = 0.03824$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.07 MGS: 0.98 DR12BAO: 5.26 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.37 commander\_dx12\_v3\_2\_29: 22.08 plik\_rd12\_HM\_v22b\_TTTEEE: 2344.66



### 10.3 base\_nnu\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02211	$0.02216^{+0.00055}_{-0.00057}$	$\Omega_{\text{m}}h^2$	0.1376	$0.1385^{+0.0090}_{-0.0082}$	$100\theta_{\text{eq}}$	0.8049	$0.806^{+0.018}_{-0.017}$
$\Omega_{\text{c}}h^2$	0.1149	$0.1157^{+0.0086}_{-0.0078}$	$\Omega_{\text{m}}h^3$	0.0891	$0.0903^{+0.011}_{-0.0098}$	$100\theta_{\text{s,eq}}$	0.4452	$0.4457^{+0.0090}_{-0.0088}$
$100\theta_{\text{MC}}$	1.04153	$1.0414^{+0.0012}_{-0.0013}$	$\sigma_8$	0.7952	$0.797^{+0.030}_{-0.028}$	$H(0.15)$	70.08	$70.5^{+4.2}_{-3.8}$
$\tau$	0.0536	$0.054^{+0.020}_{-0.020}$	$S_8$	0.8317	$0.831^{+0.033}_{-0.032}$	$D_{\text{M}}(0.15)$	668.2	$665^{+40}_{-39}$
$N_{\text{eff}}$	2.67	$2.73^{+0.57}_{-0.52}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4556	$0.455^{+0.018}_{-0.017}$	$H(0.38)$	80.22	$80.6^{+4.2}_{-3.8}$
$\ln(10^{10}A_{\text{s}})$	3.0309	$3.034^{+0.046}_{-0.044}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.6019	$0.602^{+0.019}_{-0.019}$	$D_{\text{M}}(0.38)$	1590	$1581^{+89}_{-88}$
$n_{\text{s}}$	0.9494	$0.950^{+0.026}_{-0.026}$	$\sigma_8/h^{0.5}$	0.9881	$0.988^{+0.023}_{-0.022}$	$H(0.51)$	86.94	$87.4^{+4.2}_{-3.8}$
$\text{d}n_{\text{s}}/\text{d}\ln k$	-0.0098	$-0.011^{+0.020}_{-0.020}$	$r_{\text{drag}}h$	97.61	$97.8^{+3.1}_{-3.1}$	$D_{\text{M}}(0.51)$	2056	$2046^{+110}_{-110}$
$y_{\text{cal}}$	1.0003	$1.0004^{+0.0064}_{-0.0062}$	$\langle d^2 \rangle^{1/2}$	2.453	$2.450^{+0.062}_{-0.062}$	$H(0.61)$	92.54	$93.0^{+4.3}_{-3.9}$
$A_{217}^{\text{CIB}}$	45.6	$47^{+20}_{-20}$	$z_{\text{re}}$	7.53	$7.6^{+1.9}_{-2.1}$	$D_{\text{M}}(0.61)$	2391	$2379^{+120}_{-130}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.68	—	$10^9 A_{\text{s}}$	2.072	$2.078^{+0.096}_{-0.091}$	$H(2.33)$	231.7	$232.5^{+7.8}_{-7.3}$
$A_{143}^{\text{tSZ}}$	7.0	—	$10^9 A_{\text{s}} e^{-2\tau}$	1.8611	$1.865^{+0.046}_{-0.047}$	$D_{\text{M}}(2.33)$	5928	$5903^{+250}_{-250}$
$A_{100}^{\text{PS}}$	247	$261^{+70}_{-70}$	$D_{40}$	1225.8	$1223^{+46}_{-48}$	$f\sigma_8(0.15)$	0.4587	$0.459^{+0.016}_{-0.016}$
$A_{143}^{\text{PS}}$	50.6	$46^{+20}_{-20}$	$D_{220}$	5727	$5731^{+96}_{-100}$	$\sigma_8(0.15)$	0.7332	$0.735^{+0.028}_{-0.026}$
$A_{143 \times 217}^{\text{PS}}$	53.1	$42^{+20}_{-20}$	$D_{810}$	2538.1	$2537^{+36}_{-34}$	$f\sigma_8(0.38)$	0.4730	$0.473^{+0.015}_{-0.015}$
$A_{217}^{\text{PS}}$	121.8	$115^{+30}_{-30}$	$D_{1420}$	817.9	$816^{+13}_{-13}$	$\sigma_8(0.38)$	0.6482	$0.650^{+0.027}_{-0.025}$
$A^{\text{kSZ}}$	0.0	—	$D_{2000}$	231.82	$230.9^{+4.6}_{-4.8}$	$f\sigma_8(0.51)$	0.4697	$0.470^{+0.015}_{-0.014}$
$A_{100}^{\text{dust}TT}$	8.72	$8.8^{+4.6}_{-4.5}$	$n_{\text{s},0.002}$	0.981	$0.986^{+0.054}_{-0.053}$	$\sigma_8(0.51)$	0.6059	$0.608^{+0.026}_{-0.024}$
$A_{143}^{\text{dust}TT}$	10.90	$10.8^{+4.5}_{-4.9}$	$Y_{\text{P}}$	0.2401	$0.2410^{+0.0080}_{-0.0077}$	$f\sigma_8(0.61)$	0.4636	$0.464^{+0.015}_{-0.014}$
$A_{143 \times 217}^{\text{dust}TT}$	20.0	$18.5^{+8.8}_{-8.1}$	$Y_{\text{P}}^{\text{BBN}}$	0.2415	$0.2423^{+0.0080}_{-0.0078}$	$\sigma_8(0.61)$	0.5761	$0.578^{+0.025}_{-0.023}$
$A_{217}^{\text{dust}TT}$	95.4	$94^{+20}_{-20}$	$10^5 \text{D}/\text{H}$	2.503	$2.51^{+0.14}_{-0.13}$	$f\sigma_8(2.33)$	0.2899	$0.291^{+0.013}_{-0.012}$
$A_{100}^{\text{dust}TE}$	0.113	$0.115^{+0.10}_{-0.094}$	Age/Gyr	14.19	$14.13^{+0.59}_{-0.59}$	$\sigma_8(2.33)$	0.2981	$0.299^{+0.014}_{-0.013}$
$A_{100 \times 143}^{\text{dust}TE}$	0.135	$0.134^{+0.078}_{-0.079}$	$z_*$	1089.42	$1089.49^{+0.98}_{-0.91}$	$f_{2000}^{143}$	28.3	$30^{+8}_{-8}$
$A_{100 \times 217}^{\text{dust}TE}$	0.479	$0.48^{+0.21}_{-0.22}$	$r_*$	147.9	$147.4^{+5.4}_{-5.4}$	$f_{2000}^{143 \times 217}$	31.6	$32^{+6}_{-6}$
$A_{143}^{\text{dust}TE}$	0.226	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04198	$1.0419^{+0.0016}_{-0.0016}$	$f_{2000}^{217}$	106.1	$107.1^{+5.4}_{-5.2}$
$A_{143 \times 217}^{\text{dust}TE}$	0.664	$0.66^{+0.21}_{-0.20}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.197	$14.15^{+0.50}_{-0.50}$	$\chi_{\text{lensing}}^2$	8.63	$9.17 (\nu: 0.3)$
$A_{217}^{\text{dust}TE}$	2.07	$2.07^{+0.71}_{-0.69}$	$z_{\text{drag}}$	1058.67	$1058.9^{+2.2}_{-2.1}$	$\chi_{\text{small}}^2$	395.91	$396.8 (\nu: 1.1)$
$c_{100}$	0.99976	$0.9997^{+0.0015}_{-0.0016}$	$r_{\text{drag}}$	150.7	$150.2^{+5.6}_{-5.6}$	$\chi_{\text{lowl}}^2$	22.56	$22.6 (\nu: 1.2)$
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	0.13837	$0.1388^{+0.0040}_{-0.0038}$	$\chi_{\text{plik}}^2$	2343.4	$2359.8 (\nu: 17.4)$
$H_0$	64.76	$65.2^{+4.2}_{-3.9}$	$100\theta_{\text{D}}$	0.15992	$0.1600^{+0.0013}_{-0.0012}$	$\chi_{\text{prior}}^2$	1.4	$11.4 (\nu: 10.1)$
$\Omega_{\Lambda}$	0.6718	$0.673^{+0.026}_{-0.028}$	$z_{\text{eq}}$	3447	$3441^{+94}_{-94}$	$\chi_{\text{CMB}}^2$	2770.6	$2788.4 (\nu: 18.5)$
$\Omega_{\text{m}}$	0.3282	$0.327^{+0.028}_{-0.026}$	$k_{\text{eq}}$	0.010253	$0.01028^{+0.00029}_{-0.00029}$			

Best-fit  $\chi_{\text{eff}}^2 = 2771.94$ ;  $\bar{\chi}_{\text{eff}}^2 = 2799.77$ ;  $R - 1 = 0.01835$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.63 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.92 commander\_dx12\_v3.2.29: 22.56 plik\_rd12\_HM\_v22b\_TTTEEE: 2343.45



#### 10.4 base\_nnu\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02235^{+0.00047}_{-0.00046}$	$\Omega_{\mathrm{m}}h^3$	$0.0934^{+0.010}_{-0.0098}$	$H(0.15)$	$71.9^{+3.4}_{-3.2}$
$\Omega_{\mathrm{c}}h^2$	$0.1169^{+0.0082}_{-0.0086}$	$\sigma_8$	$0.803^{+0.029}_{-0.026}$	$D_{\mathrm{M}}(0.15)$	$650^{+32}_{-31}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0013}_{-0.0012}$	$S_8$	$0.822^{+0.029}_{-0.028}$	$H(0.38)$	$82.0^{+3.4}_{-3.5}$
$\tau$	$0.057^{+0.018}_{-0.019}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.016}_{-0.015}$	$D_{\mathrm{M}}(0.38)$	$1550^{+71}_{-69}$
$N_{\mathrm{eff}}$	$2.89^{+0.52}_{-0.52}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.019}_{-0.018}$	$H(0.51)$	$88.7^{+3.6}_{-3.5}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.042}_{-0.040}$	$\sigma_8/h^{0.5}$	$0.983^{+0.022}_{-0.021}$	$D_{\mathrm{M}}(0.51)$	$2007^{+91}_{-86}$
$n_{\mathrm{s}}$	$0.959^{+0.021}_{-0.022}$	$r_{\mathrm{drag}}h$	$99.2^{+2.1}_{-2.2}$	$H(0.61)$	$94.3^{+3.7}_{-3.7}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.008^{+0.019}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	$2.434^{+0.057}_{-0.054}$	$D_{\mathrm{M}}(0.61)$	$2335^{+110}_{-98}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0067}_{-0.0061}$	$z_{\mathrm{re}}$	$7.9^{+1.7}_{-2.0}$	$H(2.33)$	$234.0^{+7.4}_{-7.7}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$10^9 A_{\mathrm{s}}$	$2.099^{+0.090}_{-0.083}$	$D_{\mathrm{M}}(2.33)$	$5826^{+230}_{-210}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.872^{+0.044}_{-0.043}$	$f\sigma_8(0.15)$	$0.455^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$5.3^{+4.4}_{-4.6}$	$D_{40}$	$1220^{+46}_{-47}$	$\sigma_8(0.15)$	$0.741^{+0.027}_{-0.025}$
$A_{100}^{\mathrm{PS}}$	$261^{+70}_{-70}$	$D_{220}$	$5741^{+98}_{-95}$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.014}$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20}$	$D_{810}$	$2540^{+34}_{-34}$	$\sigma_8(0.38)$	$0.657^{+0.026}_{-0.023}$
$A_{143\times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$D_{1420}$	$817^{+12}_{-13}$	$f\sigma_8(0.51)$	$0.470^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30}$	$D_{2000}$	$231.0^{+4.3}_{-4.8}$	$\sigma_8(0.51)$	$0.615^{+0.024}_{-0.022}$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.984^{+0.052}_{-0.053}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.014}$
$A_{100}^{\mathrm{dust}TT}$	$8.8^{+4.7}_{-4.7}$	$Y_{\mathrm{P}}$	$0.2432^{+0.0070}_{-0.0074}$	$\sigma_8(0.61)$	$0.585^{+0.023}_{-0.021}$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.5}_{-4.6}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2445^{+0.0070}_{-0.0075}$	$f\sigma_8(2.33)$	$0.295^{+0.012}_{-0.011}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.5^{+7.6}_{-8.1}$	$10^5\mathrm{D}/\mathrm{H}$	$2.54^{+0.13}_{-0.13}$	$\sigma_8(2.33)$	$0.304^{+0.013}_{-0.012}$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.95^{+0.54}_{-0.50}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.10}_{-0.097}$	$z_*$	$1089.52^{+0.96}_{-0.97}$	$f_{2000}^{143\times 217}$	$32^{+6}_{-6}$
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.134^{+0.078}_{-0.077}$	$r_*$	$146.1^{+5.3}_{-4.9}$	$f_{2000}^{217}$	$107.2^{+5.6}_{-5.2}$
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.21}_{-0.23}$	$100\theta_*$	$1.0416^{+0.0015}_{-0.0015}$	$\chi_{\mathrm{lensing}}^2$	$9.09\ (\nu: 0.2)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.03^{+0.49}_{-0.46}$	$\chi_{\mathrm{simall}}^2$	$397.2\ (\nu: 1.6)$
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.20}$	$z_{\mathrm{drag}}$	$1059.5^{+2.0}_{-1.9}$	$\chi_{\mathrm{lowl}}^2$	$22.4\ (\nu: 1.2)$
$A_{217}^{\mathrm{dust}TE}$	$2.06^{+0.67}_{-0.65}$	$r_{\mathrm{drag}}$	$148.8^{+5.5}_{-5.1}$	$\chi_{\mathrm{plik}}^2$	$2360.6\ (\nu: 18.6)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1397^{+0.0037}_{-0.0038}$	$\chi_{6\mathrm{DF}}^2$	$0.099\ (\nu: 0.0)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016}$	$100\theta_{\mathrm{D}}$	$0.1603^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{MGS}}^2$	$1.04\ (\nu: 0.1)$
$H_0$	$66.7^{+3.4}_{-3.2}$	$z_{\mathrm{eq}}$	$3401^{+66}_{-62}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.7\ (\nu: 1.9)$
$\Omega_{\Lambda}$	$0.685^{+0.016}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01027^{+0.00029}_{-0.00033}$	$\chi_{\mathrm{prior}}^2$	$11.5\ (\nu: 10.4)$
$\Omega_{\mathrm{m}}$	$0.315^{+0.019}_{-0.016}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.012}_{-0.012}$	$\chi_{\mathrm{CMB}}^2$	$2789.2\ (\nu: 19.4)$
$\Omega_{\mathrm{m}}h^2$	$0.1399^{+0.0085}_{-0.0089}$	$100\theta_{\mathrm{s,eq}}$	$0.4496^{+0.0058}_{-0.0062}$	$\chi_{\mathrm{BAO}}^2$	$6.8\ (\nu: 1.4)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2807.63; R - 1 = 0.03868$$



# 10.5 base\_nnu\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02216^{+0.00057}_{-0.00060}$	$\Omega_{\mathrm{m}}h^2$	$0.1390^{+0.0087}_{-0.0085}$	$100\theta_{\mathrm{eq}}$	$0.805^{+0.019}_{-0.020}$
$\Omega_{\mathrm{c}}h^2$	$0.1162^{+0.0084}_{-0.0081}$	$\Omega_{\mathrm{m}}h^3$	$0.091^{+0.012}_{-0.010}$	$100\theta_{\mathrm{s,eq}}$	$0.4452^{+0.0098}_{-0.010}$
$100\theta_{\mathrm{MC}}$	$1.0414^{+0.0013}_{-0.0012}$	$\sigma_8$	$0.800^{+0.031}_{-0.028}$	$H(0.15)$	$70.5^{+4.2}_{-4.0}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$S_8$	$0.837^{+0.042}_{-0.040}$	$D_{\mathrm{M}}(0.15)$	$665^{+42}_{-39}$
$N_{\mathrm{eff}}$	$2.75^{+0.58}_{-0.53}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.458^{+0.023}_{-0.022}$	$H(0.38)$	$80.7^{+4.2}_{-3.9}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.039^{+0.047}_{-0.037}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1581^{+92}_{-89}$
$n_{\mathrm{s}}$	$0.950^{+0.026}_{-0.028}$	$\sigma_8/h^{0.5}$	$0.992^{+0.030}_{-0.028}$	$H(0.51)$	$87.4^{+4.3}_{-4.0}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.012^{+0.020}_{-0.020}$	$r_{\mathrm{drag}}h$	$97.6^{+3.5}_{-3.6}$	$D_{\mathrm{M}}(0.51)$	$2045^{+110}_{-110}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0066}_{-0.0062}$	$\langle d^2 \rangle^{1/2}$	$2.457^{+0.077}_{-0.074}$	$H(0.61)$	$93.1^{+4.3}_{-4.0}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$z_{\mathrm{re}}$	$< 9.53$	$D_{\mathrm{M}}(0.61)$	$2378^{+130}_{-130}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.09^{+0.10}_{-0.076}$	$H(2.33)$	$232.9^{+7.7}_{-7.5}$
$A_{143}^{\mathrm{tSZ}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.868^{+0.047}_{-0.049}$	$D_{\mathrm{M}}(2.33)$	$5898^{+250}_{-250}$
$A_{100}^{\mathrm{PS}}$	$261^{+70}_{-70}$	$D_{40}$	$1222^{+48}_{-48}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.020}$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20}$	$D_{220}$	$5729^{+100}_{-100}$	$\sigma_8(0.15)$	$0.738^{+0.029}_{-0.027}$
$A_{143\times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$D_{810}$	$2538^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.476^{+0.018}_{-0.017}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$D_{1420}$	$816^{+12}_{-13}$	$\sigma_8(0.38)$	$0.652^{+0.027}_{-0.024}$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$230.8^{+4.7}_{-4.8}$	$f\sigma_8(0.51)$	$0.473^{+0.017}_{-0.016}$
$A_{100}^{\mathrm{dust}TT}$	$8.8^{+4.7}_{-4.7}$	$n_{\mathrm{s},0.002}$	$0.989^{+0.054}_{-0.054}$	$\sigma_8(0.51)$	$0.610^{+0.026}_{-0.023}$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.7}_{-4.6}$	$Y_{\mathrm{P}}$	$0.2412^{+0.0080}_{-0.0079}$	$f\sigma_8(0.61)$	$0.466^{+0.016}_{-0.015}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.5^{+8.8}_{-8.5}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2425^{+0.0081}_{-0.0079}$	$\sigma_8(0.61)$	$0.580^{+0.025}_{-0.023}$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$10^5\mathrm{D}/\mathrm{H}$	$2.52^{+0.14}_{-0.13}$	$f\sigma_8(2.33)$	$0.292^{+0.013}_{-0.012}$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.10}_{-0.094}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.12^{+0.60}_{-0.60}$	$\sigma_8(2.33)$	$0.300^{+0.015}_{-0.013}$
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.134^{+0.076}_{-0.077}$	$z_*$	$1089.5^{+1.0}_{-0.93}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$147.2^{+5.5}_{-5.3}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-6}$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.0418^{+0.0016}_{-0.0015}$	$f_{2000}^{217}$	$107.3^{+5.1}_{-5.2}$
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.13^{+0.51}_{-0.50}$	$\chi_{\mathrm{simall}}^2$	$397.0\ (\nu: 1.6)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.68}_{-0.70}$	$z_{\mathrm{drag}}$	$1058.9^{+2.2}_{-2.2}$	$\chi_{\mathrm{lowl}}^2$	$22.5\ (\nu: 1.1)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$149.9^{+5.7}_{-5.6}$	$\chi_{\mathrm{plik}}^2$	$2360.0\ (\nu: 18.3)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1390^{+0.0040}_{-0.0039}$	$\chi_{\mathrm{prior}}^2$	$11.4\ (\nu: 10.1)$
$H_0$	$65.1^{+4.3}_{-4.1}$	$100\theta_{\mathrm{D}}$	$0.1601^{+0.0014}_{-0.0013}$	$\chi_{\mathrm{CMB}}^2$	$2779.5\ (\nu: 18.1)$
$\Omega_{\Lambda}$	$0.672^{+0.028}_{-0.033}$	$z_{\mathrm{eq}}$	$3447^{+110}_{-100}$		
$\Omega_{\mathrm{m}}$	$0.328^{+0.033}_{-0.028}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00030}_{-0.00031}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2790.91; R - 1 = 0.01332$$



## 10.6 base\_nnu\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02236^{+0.00051}_{-0.00046}$	$\Omega_{\mathrm{m}} h^3$	$0.0937^{+0.010}_{-0.0098}$	$H(0.15)$	$72.1^{+3.3}_{-3.2}$
$\Omega_{\mathrm{c}} h^2$	$0.1172^{+0.0084}_{-0.0086}$	$\sigma_8$	$0.803^{+0.031}_{-0.027}$	$D_{\mathrm{M}}(0.15)$	$649^{+31}_{-30}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0012}_{-0.0012}$	$S_8$	$0.822^{+0.035}_{-0.033}$	$H(0.38)$	$82.1^{+3.4}_{-3.3}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.019}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1547^{+71}_{-67}$
$N_{\mathrm{eff}}$	$2.91^{+0.50}_{-0.51}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.023}_{-0.020}$	$H(0.51)$	$88.8^{+3.5}_{-3.5}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.045^{+0.045}_{-0.038}$	$\sigma_8/h^{0.5}$	$0.983^{+0.027}_{-0.024}$	$D_{\mathrm{M}}(0.51)$	$2003^{+89}_{-84}$
$n_{\mathrm{s}}$	$0.960^{+0.022}_{-0.022}$	$r_{\mathrm{drag}} h$	$99.3^{+2.1}_{-2.3}$	$H(0.61)$	$94.4^{+3.6}_{-3.6}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.008^{+0.017}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.065}_{-0.056}$	$D_{\mathrm{M}}(0.61)$	$2331^{+100}_{-97}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0066}_{-0.0061}$	$z_{\mathrm{re}}$	$< 9.58$	$H(2.33)$	$234.2^{+7.1}_{-7.8}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$10^9 A_{\mathrm{s}}$	$2.100^{+0.096}_{-0.078}$	$D_{\mathrm{M}}(2.33)$	$5818^{+220}_{-210}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.873^{+0.046}_{-0.044}$	$f\sigma_8(0.15)$	$0.455^{+0.019}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	$5.2^{+4.5}_{-4.6}$	$D_{40}$	$1217^{+48}_{-45}$	$\sigma_8(0.15)$	$0.742^{+0.030}_{-0.025}$
$A_{100}^{\mathrm{PS}}$	$262^{+80}_{-70}$	$D_{220}$	$5737^{+95}_{-96}$	$f\sigma_8(0.38)$	$0.472^{+0.018}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20}$	$D_{810}$	$2539^{+34}_{-34}$	$\sigma_8(0.38)$	$0.658^{+0.027}_{-0.023}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$D_{1420}$	$817^{+11}_{-13}$	$f\sigma_8(0.51)$	$0.471^{+0.018}_{-0.016}$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30}$	$D_{2000}$	$230.8^{+4.1}_{-4.7}$	$\sigma_8(0.51)$	$0.615^{+0.026}_{-0.022}$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.986^{+0.052}_{-0.052}$	$f\sigma_8(0.61)$	$0.465^{+0.017}_{-0.015}$
$A_{100}^{\mathrm{dust}TT}$	$8.8^{+4.7}_{-4.5}$	$Y_{\mathrm{P}}$	$0.2435^{+0.0068}_{-0.0074}$	$\sigma_8(0.61)$	$0.585^{+0.025}_{-0.021}$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.7}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2448^{+0.0068}_{-0.0074}$	$f\sigma_8(2.33)$	$0.295^{+0.013}_{-0.011}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+7.6}_{-8.1}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.54^{+0.13}_{-0.13}$	$\sigma_8(2.33)$	$0.304^{+0.014}_{-0.012}$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.93^{+0.53}_{-0.49}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.10}_{-0.097}$	$z_*$	$1089.5^{+1.0}_{-0.95}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.134^{+0.077}_{-0.077}$	$r_*$	$145.9^{+5.4}_{-4.9}$	$f_{2000}^{217}$	$107.3^{+5.5}_{-5.3}$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.21}_{-0.23}$	$100\theta_*$	$1.0416^{+0.0015}_{-0.0014}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 1.8)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.01^{+0.49}_{-0.45}$	$\chi_{\mathrm{lowl}}^2$	$22.2 (\nu: 1.1)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.20}$	$z_{\mathrm{drag}}$	$1059.6^{+1.9}_{-1.9}$	$\chi_{\mathrm{plik}}^2$	$2361.0 (\nu: 19.2)$
$A_{217}^{\mathrm{dust}TE}$	$2.06^{+0.66}_{-0.66}$	$r_{\mathrm{drag}}$	$148.6^{+5.6}_{-5.1}$	$\chi_{6\mathrm{DF}}^2$	$0.094 (\nu: 0.0)$
$c_{100}$	$0.9997^{+0.0017}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1398^{+0.0038}_{-0.0038}$	$\chi_{\mathrm{MGS}}^2$	$1.08 (\nu: 0.1)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0017}$	$100\theta_{\mathrm{D}}$	$0.1604^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.6 (\nu: 1.9)$
$H_0$	$66.8^{+3.4}_{-3.2}$	$z_{\mathrm{eq}}$	$3399^{+69}_{-64}$	$\chi_{\mathrm{prior}}^2$	$11.6 (\nu: 10.8)$
$\Omega_{\Lambda}$	$0.686^{+0.017}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00030}_{-0.00034}$	$\chi_{\mathrm{BAO}}^2$	$6.8 (\nu: 1.4)$
$\Omega_{\mathrm{m}}$	$0.314^{+0.019}_{-0.017}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.012}_{-0.013}$	$\chi_{\mathrm{CMB}}^2$	$2780.4 (\nu: 18.8)$
$\Omega_{\mathrm{m}} h^2$	$0.1402^{+0.0085}_{-0.0089}$	$100\theta_{\mathrm{s,eq}}$	$0.4498^{+0.0060}_{-0.0065}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2798.78; R - 1 = 0.04433$$



## 10.7 base\_nnu\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02217^{+0.00055}_{-0.00057}$	$\Omega_{\mathrm{m}}h^2$	$0.1385^{+0.0089}_{-0.0081}$	$100\theta_{\mathrm{eq}}$	$0.806^{+0.017}_{-0.017}$
$\Omega_{\mathrm{c}}h^2$	$0.1157^{+0.0085}_{-0.0078}$	$\Omega_{\mathrm{m}}h^3$	$0.0904^{+0.011}_{-0.0098}$	$100\theta_{\mathrm{s,eq}}$	$0.4459^{+0.0089}_{-0.0087}$
$100\theta_{\mathrm{MC}}$	$1.0414^{+0.0012}_{-0.0012}$	$\sigma_8$	$0.798^{+0.029}_{-0.026}$	$H(0.15)$	$70.5^{+4.2}_{-3.8}$
$\tau$	$0.055^{+0.018}_{-0.013}$	$S_8$	$0.832^{+0.033}_{-0.032}$	$D_{\mathrm{M}}(0.15)$	$664^{+40}_{-39}$
$N_{\mathrm{eff}}$	$2.73^{+0.58}_{-0.52}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.018}_{-0.018}$	$H(0.38)$	$80.7^{+4.2}_{-3.8}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.036^{+0.044}_{-0.035}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.019}_{-0.019}$	$D_{\mathrm{M}}(0.38)$	$1580^{+88}_{-88}$
$n_{\mathrm{s}}$	$0.950^{+0.026}_{-0.026}$	$\sigma_8/h^{0.5}$	$0.988^{+0.023}_{-0.022}$	$H(0.51)$	$87.4^{+4.2}_{-3.8}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.011^{+0.020}_{-0.020}$	$r_{\mathrm{drag}}h$	$97.9^{+3.0}_{-3.1}$	$D_{\mathrm{M}}(0.51)$	$2045^{+110}_{-110}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0064}_{-0.0062}$	$\langle d^2 \rangle^{1/2}$	$2.451^{+0.062}_{-0.062}$	$H(0.61)$	$93.0^{+4.2}_{-3.9}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$z_{\mathrm{re}}$	$< 9.29$	$D_{\mathrm{M}}(0.61)$	$2377^{+120}_{-130}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.082^{+0.093}_{-0.071}$	$H(2.33)$	$232.5^{+7.7}_{-7.4}$
$A_{143}^{\mathrm{tSZ}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.865^{+0.046}_{-0.048}$	$D_{\mathrm{M}}(2.33)$	$5901^{+250}_{-250}$
$A_{100}^{\mathrm{PS}}$	$261^{+70}_{-70}$	$D_{40}$	$1223^{+46}_{-47}$	$f\sigma_8(0.15)$	$0.459^{+0.017}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20}$	$D_{220}$	$5731^{+96}_{-100}$	$\sigma_8(0.15)$	$0.736^{+0.028}_{-0.025}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$D_{810}$	$2537^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.474^{+0.015}_{-0.015}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$D_{1420}$	$816^{+12}_{-13}$	$\sigma_8(0.38)$	$0.651^{+0.026}_{-0.024}$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$230.9^{+4.5}_{-4.8}$	$f\sigma_8(0.51)$	$0.471^{+0.014}_{-0.014}$
$A_{100}^{\mathrm{dust}TT}$	$8.8^{+4.6}_{-4.6}$	$n_{\mathrm{s},0.002}$	$0.986^{+0.054}_{-0.053}$	$\sigma_8(0.51)$	$0.608^{+0.025}_{-0.023}$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.5}_{-4.9}$	$Y_{\mathrm{P}}$	$0.2410^{+0.0079}_{-0.0078}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.014}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+8.8}_{-8.1}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2423^{+0.0079}_{-0.0078}$	$\sigma_8(0.61)$	$0.579^{+0.025}_{-0.022}$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.51^{+0.14}_{-0.13}$	$f\sigma_8(2.33)$	$0.291^{+0.013}_{-0.012}$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.10}_{-0.094}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.12^{+0.59}_{-0.59}$	$\sigma_8(2.33)$	$0.300^{+0.014}_{-0.013}$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.134^{+0.078}_{-0.080}$	$z_*$	$1089.48^{+0.98}_{-0.90}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.21}_{-0.22}$	$r_*$	$147.4^{+5.4}_{-5.3}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.0419^{+0.0016}_{-0.0016}$	$f_{2000}^{217}$	$107.1^{+5.3}_{-5.2}$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.14^{+0.50}_{-0.49}$	$\chi_{\mathrm{lensing}}^2$	$9.18 (\nu: 0.3)$
$A_{217}^{\mathrm{dust}TE}$	$2.07^{+0.70}_{-0.68}$	$z_{\mathrm{drag}}$	$1058.9^{+2.2}_{-2.1}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.1)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$150.1^{+5.6}_{-5.5}$	$\chi_{\mathrm{lowl}}^2$	$22.6 (\nu: 1.1)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1388^{+0.0040}_{-0.0038}$	$\chi_{\mathrm{plik}}^2$	$2359.6 (\nu: 17.3)$
$H_0$	$65.2^{+4.2}_{-3.9}$	$100\theta_{\mathrm{D}}$	$0.1600^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{prior}}^2$	$11.4 (\nu: 10.1)$
$\Omega_{\Lambda}$	$0.674^{+0.025}_{-0.028}$	$z_{\mathrm{eq}}$	$3440^{+94}_{-93}$	$\chi_{\mathrm{CMB}}^2$	$2788.2 (\nu: 18.0)$
$\Omega_{\mathrm{m}}$	$0.326^{+0.028}_{-0.025}$	$k_{\mathrm{eq}}$	$0.01027^{+0.00029}_{-0.00028}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2799.54; R - 1 = 0.01748$$



# 10.8 base\_nnu\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02235^{+0.00047}_{-0.00046}$	$\Omega_{\mathrm{m}}h^3$	$0.0933^{+0.010}_{-0.0098}$	$H(0.15)$	$72.0^{+3.4}_{-3.2}$
$\Omega_{\mathrm{c}}h^2$	$0.1169^{+0.0082}_{-0.0086}$	$\sigma_8$	$0.803^{+0.029}_{-0.026}$	$D_{\mathrm{M}}(0.15)$	$650^{+32}_{-31}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0013}_{-0.0012}$	$S_8$	$0.822^{+0.029}_{-0.027}$	$H(0.38)$	$82.0^{+3.4}_{-3.4}$
$\tau$	$0.057^{+0.018}_{-0.015}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.016}_{-0.015}$	$D_{\mathrm{M}}(0.38)$	$1550^{+71}_{-69}$
$N_{\mathrm{eff}}$	$2.89^{+0.52}_{-0.52}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.019}_{-0.018}$	$H(0.51)$	$88.7^{+3.6}_{-3.5}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.041}_{-0.036}$	$\sigma_8/h^{0.5}$	$0.983^{+0.022}_{-0.020}$	$D_{\mathrm{M}}(0.51)$	$2007^{+91}_{-86}$
$n_{\mathrm{s}}$	$0.959^{+0.021}_{-0.022}$	$r_{\mathrm{drag}}h$	$99.2^{+2.1}_{-2.1}$	$H(0.61)$	$94.3^{+3.7}_{-3.6}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.008^{+0.019}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.057}_{-0.054}$	$D_{\mathrm{M}}(0.61)$	$2335^{+110}_{-98}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0067}_{-0.0061}$	$z_{\mathrm{re}}$	$< 9.54$	$H(2.33)$	$234.0^{+7.4}_{-7.7}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$10^9 A_{\mathrm{s}}$	$2.100^{+0.088}_{-0.074}$	$D_{\mathrm{M}}(2.33)$	$5826^{+230}_{-210}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.872^{+0.044}_{-0.043}$	$f\sigma_8(0.15)$	$0.455^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$5.3^{+4.5}_{-4.6}$	$D_{40}$	$1219^{+47}_{-46}$	$\sigma_8(0.15)$	$0.742^{+0.027}_{-0.025}$
$A_{100}^{\mathrm{PS}}$	$261^{+70}_{-70}$	$D_{220}$	$5741^{+99}_{-95}$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.014}$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20}$	$D_{810}$	$2539^{+34}_{-34}$	$\sigma_8(0.38)$	$0.657^{+0.026}_{-0.023}$
$A_{143\times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$D_{1420}$	$817^{+11}_{-13}$	$f\sigma_8(0.51)$	$0.470^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30}$	$D_{2000}$	$231.0^{+4.0}_{-4.8}$	$\sigma_8(0.51)$	$0.615^{+0.024}_{-0.022}$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.984^{+0.052}_{-0.052}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.014}$
$A_{100}^{\mathrm{dust}TT}$	$8.8^{+4.7}_{-4.6}$	$Y_{\mathrm{P}}$	$0.2432^{+0.0070}_{-0.0074}$	$\sigma_8(0.61)$	$0.585^{+0.023}_{-0.021}$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.5}_{-4.6}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2445^{+0.0070}_{-0.0075}$	$f\sigma_8(2.33)$	$0.295^{+0.012}_{-0.011}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.6^{+7.6}_{-8.1}$	$10^5\mathrm{D}/\mathrm{H}$	$2.53^{+0.13}_{-0.13}$	$\sigma_8(2.33)$	$0.304^{+0.013}_{-0.012}$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.95^{+0.54}_{-0.50}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.10}_{-0.097}$	$z_*$	$1089.52^{+0.97}_{-0.96}$	$f_{2000}^{143\times 217}$	$32^{+6}_{-6}$
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.134^{+0.078}_{-0.077}$	$r_*$	$146.1^{+5.3}_{-4.9}$	$f_{2000}^{217}$	$107.2^{+5.4}_{-5.2}$
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.21}_{-0.23}$	$100\theta_*$	$1.0416^{+0.0015}_{-0.0015}$	$\chi_{\mathrm{lensing}}^2$	$9.07\ (\nu: 0.2)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.03^{+0.49}_{-0.45}$	$\chi_{\mathrm{simall}}^2$	$397.2\ (\nu: 1.6)$
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.19}$	$z_{\mathrm{drag}}$	$1059.5^{+2.0}_{-1.9}$	$\chi_{\mathrm{lowl}}^2$	$22.4\ (\nu: 1.2)$
$A_{217}^{\mathrm{dust}TE}$	$2.06^{+0.66}_{-0.65}$	$r_{\mathrm{drag}}$	$148.8^{+5.5}_{-5.1}$	$\chi_{\mathrm{plik}}^2$	$2360.5\ (\nu: 18.5)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1397^{+0.0037}_{-0.0038}$	$\chi_{6\mathrm{DF}}^2$	$0.097\ (\nu: 0.0)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016}$	$100\theta_{\mathrm{D}}$	$0.1603^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{MGS}}^2$	$1.05\ (\nu: 0.1)$
$H_0$	$66.7^{+3.4}_{-3.2}$	$z_{\mathrm{eq}}$	$3401^{+66}_{-61}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.7\ (\nu: 1.8)$
$\Omega_{\Lambda}$	$0.685^{+0.016}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01027^{+0.00029}_{-0.00033}$	$\chi_{\mathrm{prior}}^2$	$11.5\ (\nu: 10.4)$
$\Omega_{\mathrm{m}}$	$0.315^{+0.018}_{-0.016}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.012}_{-0.012}$	$\chi_{\mathrm{CMB}}^2$	$2789.2\ (\nu: 19.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1399^{+0.0084}_{-0.0089}$	$100\theta_{\mathrm{s,eq}}$	$0.4496^{+0.0058}_{-0.0061}$	$\chi_{\mathrm{BAO}}^2$	$6.8\ (\nu: 1.3)$

$\bar{\chi}_{\mathrm{eff}}^2 = 2807.49$ ;  $R - 1 = 0.04192$



# 11 nnu+yhe

## 11.1 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02200	$0.02207^{+0.00083}_{-0.00083}$	$S_8$	0.846	$0.841^{+0.066}_{-0.061}$	$100\theta_{s,eq}$	0.4442	$0.447^{+0.020}_{-0.019}$
$\Omega_c h^2$	0.1168	$0.119^{+0.023}_{-0.016}$	$\sigma_8 \Omega_m^{0.5}$	0.4635	$0.461^{+0.036}_{-0.034}$	$H(0.15)$	70.2	$71^{+9}_{-8}$
$100\theta_{MC}$	1.0415	$1.0413^{+0.0049}_{-0.0053}$	$\sigma_8 \Omega_m^{0.25}$	0.6107	$0.610^{+0.033}_{-0.030}$	$D_M(0.15)$	667	$657^{+80}_{-80}$
$\tau$	0.0521	$0.052^{+0.022}_{-0.022}$	$\sigma_8/h^{0.5}$	0.9994	$0.994^{+0.043}_{-0.043}$	$H(0.38)$	80.5	$82^{+9}_{-8}$
$N_{eff}$	2.74	$2.9^{+1.6}_{-1.2}$	$r_{drag} h$	97.2	$98.0^{+6.2}_{-6.0}$	$D_M(0.38)$	1586	$1562^{+200}_{-200}$
$Y_P$	0.253	$0.251^{+0.074}_{-0.093}$	$\langle d^2 \rangle^{1/2}$	2.474	$2.46^{+0.12}_{-0.12}$	$H(0.51)$	87.3	$88.5^{+9.6}_{-7.8}$
$\ln(10^{10} A_s)$	3.033	$3.036^{+0.059}_{-0.060}$	$z_{re}$	7.50	$7.4^{+2.2}_{-2.5}$	$D_M(0.51)$	2051	$2022^{+200}_{-200}$
$n_s$	0.9561	$0.960^{+0.035}_{-0.035}$	$10^9 A_s$	2.077	$2.08^{+0.13}_{-0.12}$	$H(0.61)$	92.9	$94.1^{+9.8}_{-8.0}$
$y_{cal}$	1.0005	$1.0005^{+0.0066}_{-0.0066}$	$10^9 A_s e^{-2\tau}$	1.871	$1.878^{+0.071}_{-0.070}$	$D_M(0.61)$	2384	$2351^{+260}_{-260}$
$A_{217}^{CIB}$	47.0	$48^{+20}_{-20}$	$D_{40}$	1240	$1236^{+58}_{-56}$	$H(2.33)$	233.1	$235^{+20}_{-15}$
$\xi^{tSZ \times CIB}$	0.57	—	$D_{220}$	5708	$5712^{+110}_{-110}$	$D_M(2.33)$	5903	$5837^{+510}_{-540}$
$A_{143}^{tSZ}$	6.9	—	$D_{810}$	2537.2	$2536^{+37}_{-38}$	$f\sigma_8(0.15)$	0.4664	$0.464^{+0.033}_{-0.031}$
$A_{100}^{PS}$	251	$264^{+70}_{-70}$	$D_{1420}$	816.5	$814^{+13}_{-14}$	$\sigma_8(0.15)$	0.7417	$0.745^{+0.046}_{-0.040}$
$A_{143}^{PS}$	51.7	$50^{+20}_{-20}$	$D_{2000}$	230.8	$229.5^{+6.1}_{-6.2}$	$f\sigma_8(0.38)$	0.4801	$0.479^{+0.026}_{-0.024}$
$A_{143 \times 217}^{PS}$	52.6	$44^{+20}_{-20}$	$n_{s,0.002}$	0.9561	$0.960^{+0.035}_{-0.035}$	$\sigma_8(0.38)$	0.6553	$0.659^{+0.044}_{-0.039}$
$A_{217}^{PS}$	121.7	$115^{+30}_{-30}$	$Y_P$	0.253	$0.251^{+0.074}_{-0.093}$	$f\sigma_8(0.51)$	0.4763	$0.476^{+0.025}_{-0.022}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.254	$0.253^{+0.075}_{-0.093}$	$\sigma_8(0.51)$	0.6124	$0.616^{+0.042}_{-0.037}$
$A_{100}^{dustTT}$	8.82	$8.9^{+4.7}_{-4.7}$	Age/Gyr	14.13	$14.0^{+1.2}_{-1.3}$	$f\sigma_8(0.61)$	0.4698	$0.470^{+0.025}_{-0.021}$
$A_{143}^{dustTT}$	10.74	$10.7^{+4.6}_{-4.6}$	$z_*$	1090.28	$1090.4^{+1.9}_{-1.8}$	$\sigma_8(0.61)$	0.5822	$0.586^{+0.041}_{-0.036}$
$A_{143 \times 217}^{dustTT}$	19.6	$18.3^{+8.6}_{-8.5}$	$r_*$	147.1	$146^{+11}_{-12}$	$f\sigma_8(2.33)$	0.2928	$0.295^{+0.022}_{-0.019}$
$A_{217}^{dustTT}$	95.0	$93^{+20}_{-20}$	$100\theta_*$	1.04163	$1.0414^{+0.0035}_{-0.0037}$	$\sigma_8(2.33)$	0.3010	$0.304^{+0.025}_{-0.021}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	14.12	$14.0^{+1.0}_{-1.1}$	$f_{2000}^{143}$	29.4	$31^{+10}_{-10}$
$c_{217}$	0.99824	$0.9983^{+0.0016}_{-0.0016}$	$z_{drag}$	1058.98	$1059.3^{+3.1}_{-3.1}$	$f_{2000}^{143 \times 217}$	32.7	$34^{+7}_{-7}$
$H_0$	64.8	$66^{+9}_{-8}$	$r_{drag}$	149.9	$149^{+11}_{-13}$	$f_{2000}^{217}$	107.1	$108.3^{+6.9}_{-6.7}$
$\Omega_\Lambda$	0.668	$0.675^{+0.049}_{-0.057}$	$k_D$	0.1384	$0.139^{+0.013}_{-0.0094}$	$\chi_{simall}^2$	395.90	$396.9 (\nu: 1.3)$
$\Omega_m$	0.332	$0.325^{+0.057}_{-0.049}$	$100\theta_D$	0.16080	$0.1611^{+0.0020}_{-0.0020}$	$\chi_{lowl}^2$	24.6	$24.3 (\nu: 2.6)$
$\Omega_m h^2$	0.1395	$0.142^{+0.024}_{-0.016}$	$z_{eq}$	3457	$3432^{+220}_{-210}$	$\chi_{plik}^2$	757.4	$772.6 (\nu: 18.9)$
$\Omega_m h^3$	0.0904	$0.094^{+0.029}_{-0.020}$	$k_{eq}$	0.01034	$0.01037^{+0.00067}_{-0.00050}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.6)$
$\sigma_8$	0.8047	$0.808^{+0.047}_{-0.040}$	$100\theta_{eq}$	0.8028	$0.808^{+0.038}_{-0.037}$	$\chi_{CMB}^2$	1177.9	$1193.8 (\nu: 17.5)$

Best-fit  $\chi_{eff}^2 = 1179.18$ ;  $\bar{\chi}_{eff}^2 = 1201.13$ ;  $R - 1 = 0.01463$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.90 commander\_dx12\_v3.2\_29: 24.59 plik\_rd12\_HM\_v22\_TT: 757.43



## 11.2 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02226	$0.02226^{+0.00064}_{-0.00065}$	$\sigma_8 \Omega_m^{0.25}$	0.6026	$0.606^{+0.031}_{-0.028}$	$D_M(0.38)$	1526	$1516^{+120}_{-120}$
$\Omega_c h^2$	0.1192	$0.121^{+0.021}_{-0.016}$	$\sigma_8/h^{0.5}$	0.9814	$0.983^{+0.031}_{-0.029}$	$H(0.51)$	89.8	$90.5^{+7.5}_{-5.9}$
$100\theta_{MC}$	1.04105	$1.0408^{+0.0046}_{-0.0050}$	$r_{drag}h$	99.88	$99.9^{+2.8}_{-2.7}$	$D_M(0.51)$	1977	$1964^{+150}_{-160}$
$\tau$	0.0533	$0.054^{+0.022}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.423	$2.426^{+0.072}_{-0.071}$	$H(0.61)$	95.4	$96.1^{+7.8}_{-6.2}$
$N_{eff}$	3.06	$3.2^{+1.3}_{-1.0}$	$z_{re}$	7.60	$7.7^{+2.3}_{-2.4}$	$D_M(0.61)$	2301	$2286^{+170}_{-180}$
$Y_P$	0.247	$0.245^{+0.079}_{-0.089}$	$10^9 A_s$	2.091	$2.10^{+0.12}_{-0.11}$	$H(2.33)$	236.0	$238^{+17}_{-13}$
$\ln(10^{10} A_s)$	3.040	$3.044^{+0.058}_{-0.054}$	$10^9 A_s e^{-2\tau}$	1.880	$1.886^{+0.066}_{-0.062}$	$D_M(2.33)$	5757	$5721^{+380}_{-430}$
$n_s$	0.9685	$0.970^{+0.022}_{-0.022}$	$D_{40}$	1221.8	$1222^{+46}_{-43}$	$f\sigma_8(0.15)$	0.4541	$0.456^{+0.024}_{-0.022}$
$y_{cal}$	1.0005	$1.0006^{+0.0064}_{-0.0067}$	$D_{220}$	5718	$5719^{+100}_{-110}$	$\sigma_8(0.15)$	0.7469	$0.751^{+0.043}_{-0.037}$
$A_{217}^{CIB}$	50.2	$48^{+20}_{-20}$	$D_{810}$	2537.1	$2537^{+38}_{-37}$	$f\sigma_8(0.38)$	0.4729	$0.475^{+0.024}_{-0.021}$
$\xi^{tSZ \times CIB}$	0.11	—	$D_{1420}$	815.9	$815^{+13}_{-14}$	$\sigma_8(0.38)$	0.6623	$0.666^{+0.039}_{-0.033}$
$A_{143}^{tSZ}$	7.1	—	$D_{2000}$	229.9	$229.3^{+6.2}_{-6.2}$	$f\sigma_8(0.51)$	0.4718	$0.474^{+0.025}_{-0.021}$
$A_{100}^{PS}$	256	$266^{+80}_{-70}$	$n_{s,0.002}$	0.9685	$0.970^{+0.022}_{-0.022}$	$\sigma_8(0.51)$	0.6199	$0.623^{+0.037}_{-0.032}$
$A_{143}^{PS}$	46.6	$50^{+20}_{-20}$	$Y_P$	0.247	$0.245^{+0.079}_{-0.089}$	$f\sigma_8(0.61)$	0.4670	$0.469^{+0.024}_{-0.021}$
$A_{143 \times 217}^{PS}$	41	$44^{+20}_{-20}$	$Y_P^{BBN}$	0.249	$0.246^{+0.080}_{-0.089}$	$\sigma_8(0.61)$	0.5899	$0.593^{+0.036}_{-0.031}$
$A_{217}^{PS}$	116.9	$115^{+30}_{-30}$	Age/Gyr	13.78	$13.70^{+0.90}_{-1.0}$	$f\sigma_8(2.33)$	0.2975	$0.299^{+0.018}_{-0.016}$
$A^{kSZ}$	0.0	—	$z_*$	1090.08	$1090.2^{+1.8}_{-1.8}$	$\sigma_8(2.33)$	0.3068	$0.309^{+0.019}_{-0.017}$
$A_{100}^{dustTT}$	8.95	$9.0^{+5.0}_{-4.7}$	$r_*$	144.6	$143.7^{+9.2}_{-10}$	$f_{2000}^{143}$	30.7	$32^{+10}_{-10}$
$A_{143}^{dustTT}$	10.80	$10.8^{+4.5}_{-4.5}$	$100\theta_*$	1.04118	$1.0409^{+0.0031}_{-0.0035}$	$f_{2000}^{143 \times 217}$	33.4	$34^{+7}_{-8}$
$A_{143 \times 217}^{dustTT}$	19.1	$18.4^{+8.6}_{-8.6}$	$D_M(z_*)/\text{Gpc}$	13.89	$13.81^{+0.85}_{-0.96}$	$f_{2000}^{217}$	107.9	$108.4^{+6.8}_{-7.1}$
$A_{217}^{dustTT}$	94.1	$93^{+20}_{-20}$	$z_{drag}$	1059.70	$1059.8^{+2.8}_{-2.8}$	$\chi_{small}^2$	395.9	$397.0 (\nu: 1.6)$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$r_{drag}$	147.3	$146.4^{+9.4}_{-11}$	$\chi_{lowl}^2$	22.69	$22.8 (\nu: 0.9)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$k_D$	0.1404	$0.141^{+0.011}_{-0.0087}$	$\chi_{plik}^2$	760.2	$774.2 (\nu: 17.6)$
$H_0$	67.8	$68.3^{+6.2}_{-5.2}$	$100\theta_D$	0.16110	$0.1613^{+0.0019}_{-0.0019}$	$\chi_{6DF}^2$	0.015	$0.059 (\nu: 0.0)$
$\Omega_\Lambda$	0.6908	$0.691^{+0.022}_{-0.023}$	$z_{eq}$	3372	$3368^{+120}_{-110}$	$\chi_{MGS}^2$	1.34	$1.45 (\nu: 0.2)$
$\Omega_m$	0.3092	$0.309^{+0.023}_{-0.022}$	$k_{eq}$	0.01031	$0.01037^{+0.00066}_{-0.00051}$	$\chi_{DR12BAO}^2$	4.04	$4.7 (\nu: 1.3)$
$\Omega_m h^2$	0.1421	$0.144^{+0.021}_{-0.016}$	$100\theta_{eq}$	0.8185	$0.819^{+0.019}_{-0.019}$	$\chi_{prior}^2$	1.5	$7.3 (\nu: 6.6)$
$\Omega_m h^3$	0.0964	$0.099^{+0.024}_{-0.017}$	$100\theta_{s,eq}$	0.4522	$0.4525^{+0.0099}_{-0.0096}$	$\chi_{BAO}^2$	5.39	$6.2 (\nu: 0.9)$
$\sigma_8$	0.8080	$0.813^{+0.045}_{-0.039}$	$H(0.15)$	73.1	$73.6^{+6.4}_{-5.4}$	$\chi_{CMB}^2$	1178.8	$1194.0 (\nu: 17.1)$
$S_8$	0.8204	$0.824^{+0.045}_{-0.041}$	$D_M(0.15)$	640	$635^{+50}_{-52}$			
$\sigma_8 \Omega_m^{0.5}$	0.4493	$0.451^{+0.024}_{-0.022}$	$H(0.38)$	83.1	$83.7^{+6.9}_{-5.7}$			

Best-fit  $\chi_{eff}^2 = 1185.69$ ;  $\bar{\chi}_{eff}^2 = 1207.58$ ;  $R - 1 = 0.02042$

$\chi_{eff}^2$ : BAO - 6DF: 0.01 MGS: 1.34 DR12BAO: 4.04 CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 395.88 commander\_dx12\_v3.2.29: 22.69 plik\_rd12\_HM\_v22.TT: 760.21



### 11.3 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02200	$0.02207^{+0.00077}_{-0.00080}$	$\sigma_8 \Omega_m^{0.5}$	0.4582	$0.458^{+0.023}_{-0.023}$	$D_M(0.15)$	672	$661^{+80}_{-70}$
$\Omega_c h^2$	0.1145	$0.117^{+0.020}_{-0.015}$	$\sigma_8 \Omega_m^{0.25}$	0.6043	$0.606^{+0.023}_{-0.022}$	$H(0.38)$	79.9	$81.1^{+8.6}_{-7.1}$
$100\theta_{MC}$	1.04200	$1.0417^{+0.0047}_{-0.0050}$	$\sigma_8/h^{0.5}$	0.9930	$0.992^{+0.031}_{-0.031}$	$D_M(0.38)$	1597	$1573^{+170}_{-170}$
$\tau$	0.0502	$0.051^{+0.022}_{-0.022}$	$r_{drag} h$	97.4	$98.0^{+5.1}_{-5.0}$	$H(0.51)$	86.6	$87.8^{+8.8}_{-7.2}$
$N_{eff}$	2.63	$2.8^{+1.4}_{-1.1}$	$\langle d^2 \rangle^{1/2}$	2.462	$2.455^{+0.081}_{-0.081}$	$D_M(0.51)$	2066	$2036^{+210}_{-210}$
$Y_P$	0.256	$0.256^{+0.070}_{-0.087}$	$z_{re}$	7.27	$7.4^{+2.2}_{-2.4}$	$H(0.61)$	92.2	$93.5^{+9.1}_{-7.3}$
$\ln(10^{10} A_s)$	3.024	$3.031^{+0.056}_{-0.057}$	$10^9 A_s$	2.058	$2.07^{+0.12}_{-0.12}$	$D_M(0.61)$	2401	$2367^{+240}_{-240}$
$n_s$	0.9547	$0.959^{+0.031}_{-0.031}$	$10^9 A_s e^{-2\tau}$	1.861	$1.871^{+0.064}_{-0.068}$	$H(2.33)$	231.3	$233^{+18}_{-14}$
$y_{cal}$	1.0003	$1.0004^{+0.0066}_{-0.0066}$	$D_{40}$	1239.1	$1235^{+50}_{-48}$	$D_M(2.33)$	5948	$5878^{+470}_{-510}$
$A_{217}^{CIB}$	46.5	$48^{+20}_{-20}$	$D_{220}$	5711	$5714^{+110}_{-110}$	$f\sigma_8(0.15)$	0.4612	$0.461^{+0.021}_{-0.021}$
$\xi^{tSZ \times CIB}$	0.62	—	$D_{810}$	2534.9	$2535^{+38}_{-38}$	$\sigma_8(0.15)$	0.7346	$0.741^{+0.042}_{-0.038}$
$A_{143}^{tSZ}$	6.9	—	$D_{1420}$	816.6	$814^{+14}_{-14}$	$f\sigma_8(0.38)$	0.4750	$0.476^{+0.018}_{-0.017}$
$A_{100}^{PS}$	250	$263^{+70}_{-70}$	$D_{2000}$	230.9	$229.6^{+6.1}_{-6.1}$	$\sigma_8(0.38)$	0.6492	$0.655^{+0.041}_{-0.037}$
$A_{143}^{PS}$	52.2	$49^{+20}_{-20}$	$n_{s,0.002}$	0.9547	$0.959^{+0.031}_{-0.031}$	$f\sigma_8(0.51)$	0.4714	$0.473^{+0.019}_{-0.017}$
$A_{143 \times 217}^{PS}$	53.5	$44^{+20}_{-20}$	$Y_P$	0.256	$0.256^{+0.070}_{-0.087}$	$\sigma_8(0.51)$	0.6067	$0.613^{+0.039}_{-0.036}$
$A_{217}^{PS}$	122.2	$115^{+20}_{-30}$	$Y_P^{BBN}$	0.258	$0.257^{+0.070}_{-0.087}$	$f\sigma_8(0.61)$	0.4651	$0.467^{+0.019}_{-0.018}$
$A^{kSZ}$	0.0	—	Age/Gyr	14.23	$14.1^{+1.1}_{-1.2}$	$\sigma_8(0.61)$	0.5768	$0.583^{+0.038}_{-0.035}$
$A_{100}^{dustTT}$	8.83	$8.9^{+4.7}_{-4.6}$	$z_*$	1090.17	$1090.4^{+1.9}_{-1.8}$	$f\sigma_8(2.33)$	0.2902	$0.293^{+0.020}_{-0.019}$
$A_{143}^{dustTT}$	10.81	$10.7^{+4.5}_{-4.4}$	$r_*$	148.3	$147^{+11}_{-12}$	$\sigma_8(2.33)$	0.2983	$0.302^{+0.023}_{-0.021}$
$A_{143 \times 217}^{dustTT}$	19.8	$18.3^{+8.7}_{-8.6}$	$100\theta_*$	1.04205	$1.0417^{+0.0035}_{-0.0035}$	$f_{2000}^{143}$	29.4	$31^{+10}_{-10}$
$A_{217}^{dustTT}$	95.4	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	14.23	$14.09^{+0.96}_{-1.1}$	$f_{2000}^{143 \times 217}$	32.6	$34^{+7}_{-7}$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$z_{drag}$	1058.90	$1059.3^{+3.0}_{-2.9}$	$f_{2000}^{217}$	106.9	$108.2^{+6.8}_{-6.8}$
$c_{217}$	0.99822	$0.9983^{+0.0016}_{-0.0016}$	$r_{drag}$	151.1	$150^{+11}_{-12}$	$\chi_{lensing}^2$	8.48	$9.3 (\nu: 0.5)$
$H_0$	64.4	$66^{+8}_{-7}$	$k_D$	0.1374	$0.139^{+0.011}_{-0.0088}$	$\chi_{small}^2$	395.70	$396.8 (\nu: 1.1)$
$\Omega_\Lambda$	0.6694	$0.675^{+0.041}_{-0.047}$	$100\theta_D$	0.16070	$0.1610^{+0.0020}_{-0.0019}$	$\chi_{lowl}^2$	24.56	$24.3 (\nu: 1.9)$
$\Omega_m$	0.3306	$0.325^{+0.047}_{-0.041}$	$z_{eq}$	3457	$3435^{+190}_{-180}$	$\chi_{plik}^2$	757.9	$772.0 (\nu: 16.8)$
$\Omega_m h^2$	0.1372	$0.140^{+0.021}_{-0.016}$	$k_{eq}$	0.01025	$0.01031^{+0.00057}_{-0.00043}$	$\chi_{prior}^2$	1.2	$7.3 (\nu: 6.5)$
$\Omega_m h^3$	0.0884	$0.092^{+0.026}_{-0.018}$	$100\theta_{eq}$	0.8031	$0.807^{+0.033}_{-0.031}$	$\chi_{CMB}^2$	1186.7	$1202.4 (\nu: 17.5)$
$\sigma_8$	0.7969	$0.803^{+0.042}_{-0.038}$	$100\theta_{s,eq}$	0.4443	$0.446^{+0.017}_{-0.016}$			
$S_8$	0.8366	$0.836^{+0.043}_{-0.042}$	$H(0.15)$	69.7	$71^{+8}_{-7}$			

Best-fit  $\chi_{eff}^2 = 1187.84$ ;  $\bar{\chi}_{eff}^2 = 1209.69$ ;  $R - 1 = 0.01748$   
 $\chi_{eff}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.48 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.70 commander\_dx12\_v3.2\_29: 24.56 plik\_rd12\_HM\_v22\_TT: 757.94



#### 11.4 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02225	$0.02226^{+0.00063}_{-0.00065}$	$\sigma_8 \Omega_m^{0.5}$	0.4511	$0.452^{+0.019}_{-0.018}$	$D_M(0.15)$	641.9	$639^{+49}_{-49}$
$\Omega_c h^2$	0.1190	$0.120^{+0.019}_{-0.015}$	$\sigma_8 \Omega_m^{0.25}$	0.6040	$0.605^{+0.024}_{-0.022}$	$H(0.38)$	82.9	$83.3^{+6.4}_{-5.4}$
$100\theta_{MC}$	1.04108	$1.0410^{+0.0044}_{-0.0047}$	$\sigma_8/h^{0.5}$	0.9842	$0.985^{+0.024}_{-0.024}$	$D_M(0.38)$	1531	$1525^{+110}_{-110}$
$\tau$	0.0544	$0.055^{+0.020}_{-0.019}$	$r_{drag} h$	99.65	$99.8^{+2.8}_{-2.6}$	$H(0.51)$	89.6	$90.0^{+6.8}_{-5.6}$
$N_{eff}$	3.04	$3.10^{+1.2}_{-0.92}$	$\langle d^2 \rangle^{1/2}$	2.431	$2.432^{+0.059}_{-0.059}$	$D_M(0.51)$	1983	$1976^{+140}_{-150}$
$Y_P$	0.247	$0.247^{+0.075}_{-0.089}$	$z_{re}$	7.71	$7.8^{+2.0}_{-2.0}$	$H(0.61)$	95.2	$95.6^{+7.0}_{-5.8}$
$\ln(10^{10} A_s)$	3.0425	$3.045^{+0.045}_{-0.045}$	$10^9 A_s$	2.096	$2.102^{+0.097}_{-0.092}$	$D_M(0.61)$	2308	$2299^{+160}_{-170}$
$n_s$	0.9675	$0.968^{+0.021}_{-0.022}$	$10^9 A_s e^{-2\tau}$	1.880	$1.883^{+0.056}_{-0.055}$	$H(2.33)$	235.8	$237^{+16}_{-12}$
$y_{cal}$	1.0005	$1.0007^{+0.0064}_{-0.0065}$	$D_{40}$	1224.0	$1225^{+43}_{-43}$	$D_M(2.33)$	5769	$5749^{+360}_{-390}$
$A_{217}^{CIB}$	48.4	$48^{+20}_{-20}$	$D_{220}$	5720	$5723^{+100}_{-110}$	$f\sigma_8(0.15)$	0.4557	$0.456^{+0.018}_{-0.018}$
$\xi^{tSZ \times CIB}$	0.34	—	$D_{810}$	2538.3	$2538^{+38}_{-36}$	$\sigma_8(0.15)$	0.7475	$0.750^{+0.035}_{-0.031}$
$A_{143}^{tSZ}$	7.1	—	$D_{1420}$	816.5	$815^{+14}_{-14}$	$f\sigma_8(0.38)$	0.4741	$0.475^{+0.019}_{-0.018}$
$A_{100}^{PS}$	253	$266^{+80}_{-70}$	$D_{2000}$	230.3	$229.6^{+6.3}_{-6.3}$	$\sigma_8(0.38)$	0.6626	$0.665^{+0.032}_{-0.030}$
$A_{143}^{PS}$	49.2	$50^{+20}_{-20}$	$n_{s,0.002}$	0.9675	$0.968^{+0.021}_{-0.022}$	$f\sigma_8(0.51)$	0.4728	$0.474^{+0.019}_{-0.018}$
$A_{143 \times 217}^{PS}$	47.3	$44^{+20}_{-20}$	$Y_P$	0.247	$0.247^{+0.075}_{-0.089}$	$\sigma_8(0.51)$	0.6201	$0.622^{+0.030}_{-0.028}$
$A_{217}^{PS}$	119.8	$115^{+30}_{-30}$	$Y_P^{BBN}$	0.249	$0.249^{+0.076}_{-0.090}$	$f\sigma_8(0.61)$	0.4678	$0.469^{+0.019}_{-0.018}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.81	$13.76^{+0.85}_{-0.94}$	$\sigma_8(0.61)$	0.5901	$0.592^{+0.029}_{-0.027}$
$A_{100}^{dustTT}$	8.90	$8.9^{+5.0}_{-4.7}$	$z_*$	1090.07	$1090.2^{+1.7}_{-1.8}$	$f\sigma_8(2.33)$	0.2975	$0.299^{+0.015}_{-0.014}$
$A_{143}^{dustTT}$	10.75	$10.7^{+4.4}_{-4.4}$	$r_*$	144.8	$144.4^{+8.6}_{-9.6}$	$\sigma_8(2.33)$	0.3068	$0.308^{+0.016}_{-0.015}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.3^{+8.7}_{-8.6}$	$100\theta_*$	1.04123	$1.0411^{+0.0030}_{-0.0031}$	$\chi_{lensing}^2$	8.87	$9.43 (\nu: 0.4)$
$A_{217}^{dustTT}$	94.6	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.91	$13.87^{+0.79}_{-0.88}$	$\chi_{small}^2$	396.08	$397.1 (\nu: 1.5)$
$c_{100}$	0.99968	$0.9996^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.63	$1059.8^{+2.7}_{-2.9}$	$\chi_{lowl}^2$	22.88	$23.0 (\nu: 0.9)$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$r_{drag}$	147.5	$147.1^{+8.8}_{-9.7}$	$\chi_{plik}^2$	759.9	$773.4 (\nu: 16.6)$
$H_0$	67.5	$67.9^{+5.7}_{-5.0}$	$k_D$	0.1403	$0.1406^{+0.0097}_{-0.0081}$	$\chi_{6DF}^2$	0.029	$0.064 (\nu: 0.0)$
$\Omega_\Lambda$	0.6890	$0.690^{+0.022}_{-0.022}$	$100\theta_D$	0.16104	$0.1612^{+0.0019}_{-0.0019}$	$\chi_{MGS}^2$	1.22	$1.36 (\nu: 0.2)$
$\Omega_m$	0.3110	$0.310^{+0.022}_{-0.022}$	$z_{eq}$	3380	$3376^{+110}_{-110}$	$\chi_{DR12BAO}^2$	4.36	$4.9 (\nu: 1.4)$
$\Omega_m h^2$	0.1419	$0.143^{+0.019}_{-0.015}$	$k_{eq}$	0.01031	$0.01034^{+0.00057}_{-0.00046}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.7)$
$\Omega_m h^3$	0.0958	$0.097^{+0.022}_{-0.016}$	$100\theta_{eq}$	0.8171	$0.818^{+0.019}_{-0.018}$	$\chi_{CMB}^2$	1187.7	$1202.9 (\nu: 17.4)$
$\sigma_8$	0.8088	$0.811^{+0.036}_{-0.033}$	$100\theta_{s,eq}$	0.4515	$0.4518^{+0.0099}_{-0.0095}$	$\chi_{BAO}^2$	5.61	$6.3 (\nu: 1.0)$
$S_8$	0.8236	$0.825^{+0.034}_{-0.033}$	$H(0.15)$	72.8	$73.2^{+5.9}_{-5.1}$			

Best-fit  $\chi_{eff}^2 = 1194.67$ ;  $\bar{\chi}_{eff}^2 = 1216.49$ ;  $R - 1 = 0.01644$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.36 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.87 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.08 comman-  
der\_dx12\_v3\_2\_29: 22.88 plik\_rd12\_HM\_v22\_TT: 759.91



# 11.5 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02210^{+0.00082}_{-0.00080}$	$S_8$	$0.841^{+0.067}_{-0.061}$	$100\theta_{\mathrm{s,eq}}$	$0.447^{+0.019}_{-0.019}$
$\Omega_{\mathrm{c}}h^2$	$0.119^{+0.023}_{-0.016}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.460^{+0.037}_{-0.034}$	$H(0.15)$	$72^{+9}_{-8}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0049}_{-0.0052}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.033}_{-0.030}$	$D_{\mathrm{M}}(0.15)$	$655^{+80}_{-80}$
$\tau$	$0.053^{+0.019}_{-0.012}$	$\sigma_8/h^{0.5}$	$0.995^{+0.043}_{-0.042}$	$H(0.38)$	$82^{+9}_{-8}$
$N_{\mathrm{eff}}$	$2.9^{+1.6}_{-1.2}$	$r_{\mathrm{drag}}h$	$98.2^{+6.2}_{-5.9}$	$D_{\mathrm{M}}(0.38)$	$1558^{+200}_{-200}$
$Y_{\mathrm{P}}$	$0.251^{+0.074}_{-0.092}$	$\langle d^2 \rangle^{1/2}$	$2.46^{+0.12}_{-0.12}$	$H(0.51)$	$88.7^{+9.5}_{-7.7}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.040^{+0.057}_{-0.048}$	$z_{\mathrm{re}}$	$< 9.45$	$D_{\mathrm{M}}(0.51)$	$2017^{+220}_{-230}$
$n_{\mathrm{s}}$	$0.961^{+0.035}_{-0.034}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.12}_{-0.099}$	$H(0.61)$	$94.3^{+9.7}_{-7.8}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0067}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.071}_{-0.069}$	$D_{\mathrm{M}}(0.61)$	$2345^{+250}_{-260}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{40}$	$1235^{+59}_{-56}$	$H(2.33)$	$235^{+19}_{-15}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{220}$	$5712^{+110}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5827^{+500}_{-540}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{810}$	$2536^{+38}_{-38}$	$f\sigma_8(0.15)$	$0.464^{+0.033}_{-0.031}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-70}$	$D_{1420}$	$814^{+13}_{-14}$	$\sigma_8(0.15)$	$0.747^{+0.045}_{-0.039}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$D_{2000}$	$229.5^{+6.1}_{-6.2}$	$f\sigma_8(0.38)$	$0.479^{+0.026}_{-0.024}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.035}_{-0.034}$	$\sigma_8(0.38)$	$0.661^{+0.043}_{-0.037}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}$	$0.251^{+0.074}_{-0.092}$	$f\sigma_8(0.51)$	$0.477^{+0.025}_{-0.022}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.253^{+0.074}_{-0.092}$	$\sigma_8(0.51)$	$0.618^{+0.042}_{-0.035}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.7}$	Age/Gyr	$13.9^{+1.2}_{-1.3}$	$f\sigma_8(0.61)$	$0.471^{+0.025}_{-0.021}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.6}$	$z_*$	$1090.4^{+1.9}_{-1.8}$	$\sigma_8(0.61)$	$0.588^{+0.041}_{-0.035}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.8}_{-8.5}$	$r_*$	$146^{+11}_{-12}$	$f\sigma_8(2.33)$	$0.296^{+0.022}_{-0.018}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0413^{+0.0035}_{-0.0036}$	$\sigma_8(2.33)$	$0.305^{+0.024}_{-0.021}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.0^{+1.0}_{-1.1}$	$f_{2000}^{143}$	$31^{+10}_{-10}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.4^{+3.1}_{-3.0}$	$f_{2000}^{143 \times 217}$	$34^{+7}_{-7}$
$H_0$	$66^{+9}_{-8}$	$r_{\mathrm{drag}}$	$148^{+11}_{-13}$	$f_{2000}^{217}$	$108.3^{+6.9}_{-6.8}$
$\Omega_{\Lambda}$	$0.676^{+0.049}_{-0.056}$	$k_{\mathrm{D}}$	$0.140^{+0.013}_{-0.0094}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.324^{+0.056}_{-0.049}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0020}_{-0.0020}$	$\chi_{\mathrm{lowl}}^2$	$24.2 (\nu: 2.5)$
$\Omega_{\mathrm{m}}h^2$	$0.142^{+0.023}_{-0.017}$	$z_{\mathrm{eq}}$	$3427^{+220}_{-210}$	$\chi_{\mathrm{plik}}^2$	$772.5 (\nu: 19.0)$
$\Omega_{\mathrm{m}}h^3$	$0.094^{+0.029}_{-0.020}$	$k_{\mathrm{eq}}$	$0.01037^{+0.00066}_{-0.00050}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.6)$
$\sigma_8$	$0.810^{+0.046}_{-0.040}$	$100\theta_{\mathrm{eq}}$	$0.809^{+0.038}_{-0.037}$	$\chi_{\mathrm{CMB}}^2$	$1193.5 (\nu: 17.1)$

$\bar{\chi}_{\mathrm{eff}}^2 = 1200.83$ ;  $R - 1 = 0.01329$



## 11.6 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02227^{+0.00064}_{-0.00065}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.031}_{-0.026}$	$D_{\mathrm{M}}(0.38)$	$1516^{+120}_{-120}$
$\Omega_{\mathrm{c}} h^2$	$0.121^{+0.021}_{-0.016}$	$\sigma_8/h^{0.5}$	$0.984^{+0.030}_{-0.027}$	$H(0.51)$	$90.5^{+7.5}_{-5.9}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0046}_{-0.0048}$	$r_{\mathrm{drag}} h$	$99.96^{+2.8}_{-2.7}$	$D_{\mathrm{M}}(0.51)$	$1964^{+150}_{-160}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.071}_{-0.070}$	$H(0.61)$	$96.1^{+7.8}_{-6.1}$
$N_{\mathrm{eff}}$	$3.2^{+1.3}_{-1.0}$	$z_{\mathrm{re}}$	$< 9.69$	$D_{\mathrm{M}}(0.61)$	$2286^{+170}_{-180}$
$Y_{\mathrm{P}}$	$0.245^{+0.078}_{-0.088}$	$10^9 A_{\mathrm{s}}$	$2.11^{+0.12}_{-0.089}$	$H(2.33)$	$238^{+17}_{-13}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.056}_{-0.043}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.886^{+0.066}_{-0.061}$	$D_{\mathrm{M}}(2.33)$	$5721^{+380}_{-430}$
$n_{\mathrm{s}}$	$0.970^{+0.021}_{-0.022}$	$D_{40}$	$1222^{+46}_{-44}$	$f\sigma_8(0.15)$	$0.457^{+0.024}_{-0.021}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0066}$	$D_{220}$	$5719^{+110}_{-110}$	$\sigma_8(0.15)$	$0.752^{+0.043}_{-0.036}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+38}_{-37}$	$f\sigma_8(0.38)$	$0.476^{+0.024}_{-0.020}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+14}_{-14}$	$\sigma_8(0.38)$	$0.667^{+0.039}_{-0.033}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.3^{+6.3}_{-6.2}$	$f\sigma_8(0.51)$	$0.475^{+0.024}_{-0.020}$
$A_{100}^{\mathrm{PS}}$	$266^{+80}_{-70}$	$n_{\mathrm{s},0.002}$	$0.970^{+0.021}_{-0.022}$	$\sigma_8(0.51)$	$0.624^{+0.036}_{-0.031}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.245^{+0.078}_{-0.088}$	$f\sigma_8(0.61)$	$0.470^{+0.024}_{-0.020}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.247^{+0.079}_{-0.088}$	$\sigma_8(0.61)$	$0.594^{+0.035}_{-0.030}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	Age/Gyr	$13.70^{+0.90}_{-1.0}$	$f\sigma_8(2.33)$	$0.300^{+0.018}_{-0.015}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.2^{+1.8}_{-1.8}$	$\sigma_8(2.33)$	$0.309^{+0.019}_{-0.016}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+5.0}_{-4.7}$	$r_*$	$143.7^{+9.2}_{-10}$	$f_{2000}^{143}$	$32^{+10}_{-10}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.5}_{-4.4}$	$100\theta_*$	$1.0409^{+0.0031}_{-0.0034}$	$f_{2000}^{143 \times 217}$	$34^{+7}_{-8}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.4^{+8.6}_{-8.6}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.81^{+0.85}_{-0.96}$	$f_{2000}^{217}$	$108.4^{+6.7}_{-7.2}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.8^{+2.7}_{-2.8}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.6)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.4^{+9.4}_{-11}$	$\chi_{\mathrm{lowl}}^2$	$22.8 (\nu: 0.9)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.141^{+0.011}_{-0.0087}$	$\chi_{\mathrm{plik}}^2$	$774.0 (\nu: 17.6)$
$H_0$	$68.3^{+6.2}_{-5.2}$	$100\theta_{\mathrm{D}}$	$0.1613^{+0.0019}_{-0.0020}$	$\chi_{6\mathrm{DF}}^2$	$0.058 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.691^{+0.022}_{-0.023}$	$z_{\mathrm{eq}}$	$3368^{+120}_{-110}$	$\chi_{\mathrm{MGS}}^2$	$1.47 (\nu: 0.2)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.023}_{-0.022}$	$k_{\mathrm{eq}}$	$0.01036^{+0.00065}_{-0.00051}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.3)$
$\Omega_{\mathrm{m}} h^2$	$0.144^{+0.021}_{-0.016}$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.019}_{-0.019}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.6)$
$\Omega_{\mathrm{m}} h^3$	$0.099^{+0.024}_{-0.017}$	$100\theta_{\mathrm{s,eq}}$	$0.4526^{+0.0099}_{-0.0096}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.9)$
$\sigma_8$	$0.813^{+0.045}_{-0.038}$	$H(0.15)$	$73.6^{+6.4}_{-5.3}$	$\chi_{\mathrm{CMB}}^2$	$1193.8 (\nu: 16.7)$
$S_8$	$0.825^{+0.044}_{-0.040}$	$D_{\mathrm{M}}(0.15)$	$635^{+50}_{-52}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.024}_{-0.022}$	$H(0.38)$	$83.8^{+6.9}_{-5.7}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1207.34; R - 1 = 0.02392$$



## 11.7 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02210^{+0.00076}_{-0.00074}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.457^{+0.023}_{-0.023}$	$D_{\text{M}}(0.15)$	$659^{+70}_{-70}$
$\Omega_{\text{c}}h^2$	$0.117^{+0.020}_{-0.016}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.606^{+0.023}_{-0.022}$	$H(0.38)$	$81.3^{+8.5}_{-7.0}$
$100\theta_{\text{MC}}$	$1.0416^{+0.0047}_{-0.0050}$	$\sigma_8/h^{0.5}$	$0.992^{+0.031}_{-0.030}$	$D_{\text{M}}(0.38)$	$1568^{+160}_{-160}$
$\tau$	$0.053^{+0.019}_{-0.012}$	$r_{\text{drag}}h$	$98.3^{+5.0}_{-4.7}$	$H(0.51)$	$88.0^{+8.7}_{-7.1}$
$N_{\text{eff}}$	$2.8^{+1.4}_{-1.1}$	$\langle d^2 \rangle^{1/2}$	$2.455^{+0.081}_{-0.080}$	$D_{\text{M}}(0.51)$	$2030^{+210}_{-210}$
$Y_{\text{P}}$	$0.255^{+0.070}_{-0.085}$	$z_{\text{re}}$	$< 9.35$	$H(0.61)$	$93.7^{+8.9}_{-7.4}$
$\ln(10^{10}A_{\text{s}})$	$3.036^{+0.053}_{-0.049}$	$10^9 A_{\text{s}}$	$2.08^{+0.11}_{-0.10}$	$D_{\text{M}}(0.61)$	$2360^{+230}_{-230}$
$n_{\text{s}}$	$0.960^{+0.030}_{-0.030}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.871^{+0.064}_{-0.068}$	$H(2.33)$	$234^{+17}_{-14}$
$y_{\text{cal}}$	$1.0005^{+0.0064}_{-0.0067}$	$D_{40}$	$1234^{+49}_{-48}$	$D_{\text{M}}(2.33)$	$5866^{+480}_{-500}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5714^{+110}_{-110}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{810}$	$2535^{+38}_{-38}$	$\sigma_8(0.15)$	$0.742^{+0.041}_{-0.037}$
$A_{143}^{\text{tSZ}}$	—	$D_{1420}$	$814^{+14}_{-14}$	$f\sigma_8(0.38)$	$0.476^{+0.018}_{-0.018}$
$A_{100}^{\text{PS}}$	$264^{+70}_{-70}$	$D_{2000}$	$229.6^{+6.1}_{-6.0}$	$\sigma_8(0.38)$	$0.657^{+0.040}_{-0.036}$
$A_{143}^{\text{PS}}$	$49^{+20}_{-20}$	$n_{\text{s},0.002}$	$0.960^{+0.030}_{-0.030}$	$f\sigma_8(0.51)$	$0.474^{+0.019}_{-0.017}$
$A_{143 \times 217}^{\text{PS}}$	$44^{+20}_{-20}$	$Y_{\text{P}}$	$0.255^{+0.070}_{-0.085}$	$\sigma_8(0.51)$	$0.614^{+0.039}_{-0.034}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$Y_{\text{P}}^{\text{BBN}}$	$0.257^{+0.070}_{-0.085}$	$f\sigma_8(0.61)$	$0.468^{+0.019}_{-0.018}$
$A^{\text{kSZ}}$	—	Age/Gyr	$14.0^{+1.1}_{-1.2}$	$\sigma_8(0.61)$	$0.584^{+0.038}_{-0.033}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.6}_{-4.6}$	$z_*$	$1090.3^{+1.9}_{-1.8}$	$f\sigma_8(2.33)$	$0.294^{+0.020}_{-0.018}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.5}_{-4.4}$	$r_*$	$147^{+11}_{-11}$	$\sigma_8(2.33)$	$0.303^{+0.022}_{-0.020}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.7}_{-8.5}$	$100\theta_*$	$1.0416^{+0.0036}_{-0.0034}$	$f_{2000}^{143}$	$31^{+10}_{-10}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$14.08^{+0.97}_{-1.1}$	$f_{2000}^{143 \times 217}$	$34^{+7}_{-7}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.4^{+3.0}_{-2.9}$	$f_{2000}^{217}$	$108.2^{+6.8}_{-6.9}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	$149^{+11}_{-12}$	$\chi_{\text{lensing}}^2$	$9.3 (\nu: 0.5)$
$H_0$	$66^{+8}_{-7}$	$k_{\text{D}}$	$0.139^{+0.011}_{-0.0088}$	$\chi_{\text{simall}}^2$	$396.7 (\nu: 1.1)$
$\Omega_{\Lambda}$	$0.677^{+0.040}_{-0.044}$	$100\theta_{\text{D}}$	$0.1611^{+0.0020}_{-0.0019}$	$\chi_{\text{lowl}}^2$	$24.1 (\nu: 1.8)$
$\Omega_{\text{m}}$	$0.323^{+0.044}_{-0.040}$	$z_{\text{eq}}$	$3428^{+180}_{-180}$	$\chi_{\text{plik}}^2$	$772.0 (\nu: 16.8)$
$\Omega_{\text{m}}h^2$	$0.140^{+0.020}_{-0.016}$	$k_{\text{eq}}$	$0.01030^{+0.00056}_{-0.00044}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.5)$
$\Omega_{\text{m}}h^3$	$0.092^{+0.025}_{-0.019}$	$100\theta_{\text{eq}}$	$0.809^{+0.032}_{-0.030}$	$\chi_{\text{CMB}}^2$	$1202.1 (\nu: 17.0)$
$\sigma_8$	$0.805^{+0.041}_{-0.038}$	$100\theta_{\text{s,eq}}$	$0.447^{+0.016}_{-0.015}$		
$S_8$	$0.835^{+0.043}_{-0.042}$	$H(0.15)$	$71^{+8}_{-7}$		

$$\bar{\chi}_{\text{eff}}^2 = 1209.43; R - 1 = 0.01928$$



## 11.8 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02226^{+0.00062}_{-0.00065}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.024}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1525^{+110}_{-110}$
$\Omega_{\mathrm{c}} h^2$	$0.120^{+0.019}_{-0.015}$	$\sigma_8 / h^{0.5}$	$0.985^{+0.024}_{-0.023}$	$H(0.51)$	$90.0^{+6.7}_{-5.6}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0044}_{-0.0046}$	$r_{\mathrm{drag}} h$	$99.8^{+2.8}_{-2.6}$	$D_{\mathrm{M}}(0.51)$	$1976^{+140}_{-150}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.059}_{-0.059}$	$H(0.61)$	$95.6^{+7.0}_{-5.8}$
$N_{\mathrm{eff}}$	$3.10^{+1.2}_{-0.91}$	$z_{\mathrm{re}}$	$< 9.61$	$D_{\mathrm{M}}(0.61)$	$2299^{+160}_{-170}$
$Y_{\mathrm{P}}$	$0.248^{+0.076}_{-0.089}$	$10^9 A_{\mathrm{s}}$	$2.105^{+0.095}_{-0.082}$	$H(2.33)$	$237^{+15}_{-12}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.044}_{-0.039}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.056}_{-0.055}$	$D_{\mathrm{M}}(2.33)$	$5750^{+360}_{-390}$
$n_{\mathrm{s}}$	$0.968^{+0.021}_{-0.021}$	$D_{40}$	$1225^{+43}_{-43}$	$f\sigma_8(0.15)$	$0.456^{+0.018}_{-0.018}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0065}$	$D_{220}$	$5723^{+100}_{-110}$	$\sigma_8(0.15)$	$0.750^{+0.035}_{-0.032}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2538^{+37}_{-35}$	$f\sigma_8(0.38)$	$0.475^{+0.019}_{-0.017}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+14}_{-14}$	$\sigma_8(0.38)$	$0.665^{+0.032}_{-0.029}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.6^{+6.3}_{-6.3}$	$f\sigma_8(0.51)$	$0.474^{+0.019}_{-0.018}$
$A_{100}^{\mathrm{PS}}$	$266^{+80}_{-70}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.021}_{-0.021}$	$\sigma_8(0.51)$	$0.622^{+0.030}_{-0.028}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.248^{+0.076}_{-0.089}$	$f\sigma_8(0.61)$	$0.469^{+0.019}_{-0.018}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.249^{+0.076}_{-0.090}$	$\sigma_8(0.61)$	$0.592^{+0.029}_{-0.027}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	Age/Gyr	$13.77^{+0.85}_{-0.92}$	$f\sigma_8(2.33)$	$0.299^{+0.015}_{-0.014}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.2^{+1.8}_{-1.8}$	$\sigma_8(2.33)$	$0.308^{+0.016}_{-0.015}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+5.0}_{-4.7}$	$r_*$	$144.4^{+8.5}_{-9.4}$	$f_{2000}^{143}$	$32^{+10}_{-10}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.4}_{-4.4}$	$100\theta_*$	$1.0411^{+0.0030}_{-0.0031}$	$f_{2000}^{143 \times 217}$	$34^{+7}_{-8}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.8}_{-8.6}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.87^{+0.79}_{-0.87}$	$f_{2000}^{217}$	$108.3^{+6.7}_{-7.1}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.8^{+2.7}_{-2.9}$	$\chi_{\mathrm{lensing}}^2$	$9.39 (\nu: 0.3)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.1^{+8.7}_{-9.6}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.5)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1406^{+0.0097}_{-0.0081}$	$\chi_{\mathrm{lowl}}^2$	$23.0 (\nu: 0.9)$
$H_0$	$67.9^{+5.7}_{-5.0}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0019}$	$\chi_{\mathrm{plik}}^2$	$773.3 (\nu: 16.5)$
$\Omega_{\Lambda}$	$0.690^{+0.022}_{-0.022}$	$z_{\mathrm{eq}}$	$3376^{+110}_{-110}$	$\chi_{6\mathrm{DF}}^2$	$0.062 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.022}_{-0.022}$	$k_{\mathrm{eq}}$	$0.01033^{+0.00056}_{-0.00045}$	$\chi_{\mathrm{MGS}}^2$	$1.37 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.143^{+0.019}_{-0.014}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.019}_{-0.018}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.4)$
$\Omega_{\mathrm{m}} h^3$	$0.097^{+0.021}_{-0.016}$	$100\theta_{\mathrm{s,eq}}$	$0.4519^{+0.0099}_{-0.0095}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.7)$
$\sigma_8$	$0.812^{+0.036}_{-0.033}$	$H(0.15)$	$73.2^{+5.9}_{-5.1}$	$\chi_{\mathrm{CMB}}^2$	$1202.8 (\nu: 17.1)$
$S_8$	$0.825^{+0.034}_{-0.032}$	$D_{\mathrm{M}}(0.15)$	$639^{+49}_{-49}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.9)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.019}_{-0.018}$	$H(0.38)$	$83.3^{+6.3}_{-5.4}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1216.32; R - 1 = 0.01882$$



## 11.9 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02222	$0.02225^{+0.00057}_{-0.00057}$ (+0.6 $\sigma$ )	$\Omega_m$	0.3227	$0.321^{+0.029}_{-0.027}$ (−0.2 $\sigma$ )	$k_{\text{eq}}$	0.010297	$0.01033^{+0.00042}_{-0.00038}$ (−0.2 $\sigma$ )
$\Omega_c h^2$	0.1167	$0.118^{+0.013}_{-0.011}$ (−0.1 $\sigma$ )	$\Omega_m h^2$	0.1395	$0.141^{+0.013}_{-0.011}$ (−0.1 $\sigma$ )	$100\theta_{\text{eq}}$	0.8083	$0.809^{+0.020}_{-0.019}$ (+0.1 $\sigma$ )
$100\theta_{\text{MC}}$	1.04140	$1.0413^{+0.0031}_{-0.0031}$ (+0.0 $\sigma$ )	$\Omega_m h^3$	0.0918	$0.093^{+0.015}_{-0.012}$ (−0.1 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4469	$0.447^{+0.010}_{-0.0099}$ (+0.1 $\sigma$ )
$\tau$	0.0539	$0.054^{+0.021}_{-0.022}$ (+0.3 $\sigma$ )	$\sigma_8$	0.8029	$0.806^{+0.033}_{-0.032}$ (−0.1 $\sigma$ )	$H(0.15)$	71.08	$71.6^{+5.0}_{-4.4}$ (+0.0 $\sigma$ )
$N_{\text{eff}}$	2.81	$2.89^{+0.83}_{-0.70}$ (−0.1 $\sigma$ )	$S_8$	0.8327	$0.833^{+0.043}_{-0.043}$ (−0.3 $\sigma$ )	$D_{\text{M}}(0.15)$	658.4	$654^{+44}_{-45}$ (−0.1 $\sigma$ )
$Y_{\text{P}}$	0.2449	$0.246^{+0.043}_{-0.049}$ (−0.2 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4561	$0.456^{+0.024}_{-0.023}$ (−0.3 $\sigma$ )	$H(0.38)$	81.22	$81.7^{+5.1}_{-4.5}$ (+0.0 $\sigma$ )
$\ln(10^{10} A_{\text{s}})$	3.036	$3.038^{+0.052}_{-0.049}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6051	$0.606^{+0.024}_{-0.025}$ (−0.3 $\sigma$ )	$D_{\text{M}}(0.38)$	1568	$1558^{+99}_{-100}$ (−0.1 $\sigma$ )
$n_{\text{s}}$	0.9584	$0.960^{+0.022}_{-0.022}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9901	$0.990^{+0.030}_{-0.033}$ (−0.3 $\sigma$ )	$H(0.51)$	87.95	$88.5^{+5.2}_{-4.5}$ (+0.0 $\sigma$ )
$y_{\text{cal}}$	1.0005	$1.0007^{+0.0066}_{-0.0062}$ (+0.1 $\sigma$ )	$r_{\text{drag}} h$	98.23	$98.4^{+3.4}_{-3.3}$ (+0.2 $\sigma$ )	$D_{\text{M}}(0.51)$	2029	$2017^{+120}_{-130}$ (−0.1 $\sigma$ )
$A_{217}^{\text{CIB}}$	43.8	$46^{+20}_{-20}$ (−0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.457	$2.456^{+0.076}_{-0.080}$ (−0.1 $\sigma$ )	$H(0.61)$	93.6	$94.1^{+5.4}_{-4.7}$ (−0.0 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.89	—	$z_{\text{re}}$	7.60	$7.6^{+2.0}_{-2.3}$ (+0.2 $\sigma$ )	$D_{\text{M}}(0.61)$	2359	$2345^{+140}_{-150}$ (−0.1 $\sigma$ )
$A_{143}^{\text{tSZ}}$	6.90	$> 0.937$ (+0.2 $\sigma$ )	$10^9 A_{\text{s}}$	2.082	$2.09^{+0.11}_{-0.10}$ (+0.1 $\sigma$ )	$H(2.33)$	233.5	$235^{+11}_{-9.6}$ (−0.1 $\sigma$ )
$A_{100}^{\text{PS}}$	244	$257^{+70}_{-70}$ (−0.3 $\sigma$ )	$10^9 A_{\text{s}} e^{-2\tau}$	1.869	$1.874^{+0.051}_{-0.053}$ (−0.1 $\sigma$ )	$D_{\text{M}}(2.33)$	5865	$5834^{+290}_{-310}$ (−0.0 $\sigma$ )
$A_{143}^{\text{PS}}$	51.4	$45^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{40}$	1238.1	$1238^{+43}_{-40}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4597	$0.460^{+0.022}_{-0.022}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	57.2	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5730	$5733^{+96}_{-96}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.7408	$0.743^{+0.031}_{-0.030}$ (−0.1 $\sigma$ )
$A_{217}^{\text{PS}}$	124.0	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{810}$	2539.1	$2538^{+36}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4754	$0.476^{+0.019}_{-0.020}$ (−0.3 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	819.7	$818^{+12}_{-12}$ (+0.7 $\sigma$ )	$\sigma_8(0.38)$	0.6555	$0.658^{+0.029}_{-0.028}$ (−0.1 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.69	$8.9^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	$D_{2000}$	232.45	$231.5^{+4.6}_{-4.7}$ (+0.8 $\sigma$ )	$f\sigma_8(0.51)$	0.4727	$0.474^{+0.019}_{-0.019}$ (−0.3 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.86	$10.8^{+4.7}_{-4.6}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9584	$0.960^{+0.022}_{-0.022}$ (−0.0 $\sigma$ )	$\sigma_8(0.51)$	0.6130	$0.615^{+0.028}_{-0.026}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.1	$18.5^{+8.5}_{-8.5}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.2449	$0.246^{+0.043}_{-0.049}$ (−0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4669	$0.468^{+0.018}_{-0.018}$ (−0.2 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.8	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.2463	$0.247^{+0.043}_{-0.049}$ (−0.2 $\sigma$ )	$\sigma_8(0.61)$	0.5829	$0.585^{+0.027}_{-0.026}$ (−0.1 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.115	$0.115^{+0.097}_{-0.096}$	Age/Gyr	14.04	$13.97^{+0.70}_{-0.74}$ (−0.0 $\sigma$ )	$f\sigma_8(2.33)$	0.2935	$0.295^{+0.014}_{-0.013}$ (−0.0 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.078}_{-0.075}$	$z_*$	1089.70	$1089.9^{+1.2}_{-1.1}$ (−0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3021	$0.303^{+0.015}_{-0.014}$ (−0.0 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$r_*$	146.6	$145.9^{+6.8}_{-7.1}$ (+0.0 $\sigma$ )	$f_{2000}^{143}$	27.2	$29^{+8}_{-8}$ (−0.7 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.222	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04168	$1.0415^{+0.0023}_{-0.0023}$ (+0.1 $\sigma$ )	$f_{2000}^{143 \times 217}$	30.9	$32^{+6}_{-6}$ (−0.7 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.665	$0.67^{+0.21}_{-0.21}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.08	$14.01^{+0.62}_{-0.66}$ (+0.0 $\sigma$ )	$f_{2000}^{217}$	105.5	$106.6^{+5.3}_{-5.3}$ (−0.6 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.09	$2.09^{+0.68}_{-0.69}$	$z_{\text{drag}}$	1059.25	$1059.5^{+2.1}_{-2.2}$ (+0.1 $\sigma$ )	$\chi_{\text{small}}^2$	396.03	$397.1$ ( $\nu$ : 1.6) (+0.1 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{\text{drag}}$	149.4	$148.7^{+7.0}_{-7.4}$ (+0.0 $\sigma$ )	$\chi_{\text{lowl}}^2$	24.26	$24.3$ ( $\nu$ : 1.2) (−0.0 $\sigma$ )
$c_{217}$	0.99814	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$k_{\text{D}}$	0.1392	$0.1397^{+0.0067}_{-0.0059}$ (+0.1 $\sigma$ )	$\chi_{\text{plik}}^2$	2343.1	$2360.3$ ( $\nu$ : 19.0) (+258.3 $\sigma$ )
$H_0$	65.76	$66.2^{+5.0}_{-4.4}$ (+0.0 $\sigma$ )	$100\theta_{\text{D}}$	0.16035	$0.1606^{+0.0012}_{-0.0012}$ (−0.7 $\sigma$ )	$\chi_{\text{prior}}^2$	1.4	$11.5$ ( $\nu$ : 10.3) (+1.2 $\sigma$ )
$\Omega_{\Lambda}$	0.6773	$0.679^{+0.027}_{-0.029}$ (+0.2 $\sigma$ )	$z_{\text{eq}}$	3429	$3424^{+110}_{-110}$ (−0.1 $\sigma$ )	$\chi_{\text{CMB}}^2$	2763.3	$2781.7$ ( $\nu$ : 18.8) (+268.3 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 2764.72$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.54$ ;  $\bar{\chi}_{\text{eff}}^2 = 2793.18$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1592.05$ ;  $R - 1 = 0.01243$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.03 ( $\Delta$  0.13) commander\_dx12\_v3.2.29: 24.26 ( $\Delta$  -0.33) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.05



### 11.10 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022350	$0.02239^{+0.00048}_{-0.00048}$ $(+0.5\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.0946	$0.096^{+0.014}_{-0.013}$ $(-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	645.7	$643^{+37}_{-36}$ $(+0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.1179	$0.119^{+0.013}_{-0.012}$ $(-0.3\sigma)$	$\sigma_8$	0.8053	$0.807^{+0.033}_{-0.033}$ $(-0.3\sigma)$	$H(0.38)$	82.48	$82.8^{+4.5}_{-4.2}$ $(-0.4\sigma)$
$100\theta_{\mathrm{MC}}$	1.04108	$1.0411^{+0.0030}_{-0.0030}$ $(+0.2\sigma)$	$S_8$	0.8222	$0.823^{+0.037}_{-0.038}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	1540	$1534^{+86}_{-84}$ $(+0.4\sigma)$
$\tau$	0.0551	$0.055^{+0.020}_{-0.020}$ $(+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4503	$0.451^{+0.020}_{-0.021}$ $(-0.1\sigma)$	$H(0.51)$	89.17	$89.5^{+4.7}_{-4.4}$ $(-0.4\sigma)$
$N_{\mathrm{eff}}$	2.96	$3.01^{+0.78}_{-0.70}$ $(-0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6022	$0.603^{+0.024}_{-0.025}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	1994	$1987^{+110}_{-110}$ $(+0.4\sigma)$
$Y_{\mathrm{P}}$	0.2422	$0.244^{+0.042}_{-0.049}$ $(-0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9829	$0.983^{+0.028}_{-0.029}$ $(+0.0\sigma)$	$H(0.61)$	94.77	$95.1^{+4.9}_{-4.5}$ $(-0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0401	$3.043^{+0.049}_{-0.049}$ $(-0.1\sigma)$	$r_{\mathrm{drag}}h$	99.42	$99.5^{+2.2}_{-2.2}$ $(-0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	2320	$2313^{+130}_{-120}$ $(+0.4\sigma)$
$n_{\mathrm{s}}$	0.9648	$0.965^{+0.017}_{-0.018}$ $(-0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	2.435	$2.437^{+0.068}_{-0.066}$ $(+0.4\sigma)$	$H(2.33)$	234.9	$236^{+11}_{-10}$ $(-0.3\sigma)$
$y_{\mathrm{cal}}$	1.0003	$1.0007^{+0.0062}_{-0.0063}$ $(+0.1\sigma)$	$z_{\mathrm{re}}$	7.71	$7.7^{+2.0}_{-2.2}$ $(+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	5796	$5779^{+280}_{-280}$ $(+0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	44.5	$46^{+20}_{-20}$ $(-0.3\sigma)$	$10^9 A_{\mathrm{s}}$	2.091	$2.10^{+0.11}_{-0.10}$ $(-0.1\sigma)$	$f\sigma_8(0.15)$	0.4548	$0.455^{+0.019}_{-0.020}$ $(-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.82	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8726	$1.877^{+0.048}_{-0.050}$ $(-0.4\sigma)$	$\sigma_8(0.15)$	0.7440	$0.746^{+0.031}_{-0.031}$ $(-0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	7.03	$> 1.03$ $(+0.3\sigma)$	$D_{40}$	1227.9	$1230^{+38}_{-35}$ $(+0.4\sigma)$	$f\sigma_8(0.38)$	0.4728	$0.474^{+0.019}_{-0.019}$ $(-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	244	$257^{+70}_{-70}$ $(-0.3\sigma)$	$D_{220}$	5729	$5738^{+95}_{-97}$ $(+0.5\sigma)$	$\sigma_8(0.38)$	0.6594	$0.661^{+0.028}_{-0.028}$ $(-0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	50.7	$45^{+20}_{-20}$ $(-0.6\sigma)$	$D_{810}$	2538.4	$2539^{+34}_{-35}$ $(+0.1\sigma)$	$f\sigma_8(0.51)$	0.4712	$0.472^{+0.018}_{-0.019}$ $(-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	55.6	$42^{+20}_{-20}$ $(-0.2\sigma)$	$D_{1420}$	819.4	$818^{+12}_{-12}$ $(+0.6\sigma)$	$\sigma_8(0.51)$	0.6170	$0.619^{+0.027}_{-0.026}$ $(-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	122.8	$115^{+30}_{-30}$ $(+0.0\sigma)$	$D_{2000}$	232.14	$231.4^{+4.6}_{-4.7}$ $(+0.9\sigma)$	$f\sigma_8(0.61)$	0.4662	$0.467^{+0.018}_{-0.019}$ $(-0.3\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$n_{\mathrm{s},0.002}$	0.9648	$0.965^{+0.017}_{-0.018}$ $(-0.5\sigma)$	$\sigma_8(0.61)$	0.5871	$0.589^{+0.026}_{-0.025}$ $(-0.4\sigma)$
$A_{100}^{\mathrm{dust}TT}$	8.83	$8.9^{+4.6}_{-4.7}$ $(-0.0\sigma)$	$Y_{\mathrm{P}}$	0.2422	$0.244^{+0.042}_{-0.049}$ $(-0.0\sigma)$	$f\sigma_8(2.33)$	0.2960	$0.297^{+0.013}_{-0.013}$ $(-0.4\sigma)$
$A_{143}^{\mathrm{dust}TT}$	10.99	$10.9^{+4.5}_{-4.6}$ $(+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2435	$0.246^{+0.043}_{-0.049}$ $(-0.0\sigma)$	$\sigma_8(2.33)$	0.3051	$0.306^{+0.014}_{-0.013}$ $(-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	20.3	$18.6^{+9.4}_{-8.4}$ $(+0.1\sigma)$	Age/Gyr	13.87	$13.83^{+0.67}_{-0.66}$ $(+0.4\sigma)$	$f_{2000}^{143}$	27.5	$29^{+8}_{-8}$ $(-0.7\sigma)$
$A_{217}^{\mathrm{dust}TT}$	95.9	$94^{+20}_{-20}$ $(+0.1\sigma)$	$z_*$	1089.60	$1089.7^{+1.1}_{-1.1}$ $(-0.7\sigma)$	$f_{2000}^{143 \times 217}$	31.1	$32^{+5}_{-6}$ $(-0.8\sigma)$
$A_{100}^{\mathrm{dust}TE}$	0.114	$0.114^{+0.099}_{-0.094}$	$r_*$	145.4	$145.1^{+6.9}_{-6.8}$ $(+0.3\sigma)$	$f_{2000}^{217}$	105.6	$106.7^{+5.2}_{-5.4}$ $(-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	0.134	$0.135^{+0.077}_{-0.076}$	$100\theta_*$	1.04138	$1.0413^{+0.0024}_{-0.0023}$ $(+0.3\sigma)$	$\chi_{\mathrm{small}}^2$	396.16	$397.3$ $(\nu: 2.0)$ $(+0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	0.483	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.96	$13.93^{+0.63}_{-0.62}$ $(+0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	23.25	$23.4$ $(\nu: 0.7)$ $(+0.4\sigma)$
$A_{143}^{\mathrm{dust}TE}$	0.225	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	1059.59	$1059.8^{+1.9}_{-2.0}$ $(+0.0\sigma)$	$\chi_{\mathrm{plik}}^2$	2344.8	$2361.2$ $(\nu: 19.0)$ $(+267.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	0.667	$0.66^{+0.19}_{-0.21}$	$r_{\mathrm{drag}}$	148.1	$147.7^{+7.0}_{-7.0}$ $(+0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	0.047	$0.069$ $(\nu: 0.0)$ $(+0.1\sigma)$
$A_{217}^{\mathrm{dust}TE}$	2.08	$2.08^{+0.67}_{-0.66}$	$k_{\mathrm{D}}$	0.1402	$0.1405^{+0.0065}_{-0.0060}$ $(-0.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	1.10	$1.23$ $(\nu: 0.1)$ $(-0.4\sigma)$
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0015}$ $(+0.1\sigma)$	$100\theta_{\mathrm{D}}$	0.16047	$0.1606^{+0.0012}_{-0.0012}$ $(-0.8\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	4.80	$5.1$ $(\nu: 1.4)$ $(+0.2\sigma)$
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0017}$ $(-0.2\sigma)$	$z_{\mathrm{eq}}$	3391	$3389^{+83}_{-82}$ $(+0.5\sigma)$	$\chi_{\mathrm{prior}}^2$	1.5	$11.6$ $(\nu: 10.2)$ $(+1.2\sigma)$
$H_0$	67.13	$67.4^{+4.1}_{-3.8}$ $(-0.4\sigma)$	$k_{\mathrm{eq}}$	0.010291	$0.01031^{+0.00041}_{-0.00040}$ $(-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	5.94	$6.4$ $(\nu: 1.0)$ $(+0.1\sigma)$
$\Omega_{\Lambda}$	0.6873	$0.688^{+0.018}_{-0.019}$ $(-0.4\sigma)$	$100\theta_{\mathrm{eq}}$	0.8153	$0.816^{+0.014}_{-0.014}$ $(-0.5\sigma)$	$\chi_{\mathrm{CMB}}^2$	2764.2	$2781.9$ $(\nu: 18.1)$ $(+271.4\sigma)$
$\Omega_{\mathrm{m}}$	0.3127	$0.312^{+0.019}_{-0.018}$ $(+0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4505	$0.4507^{+0.0072}_{-0.0072}$ $(-0.5\sigma)$			
$\Omega_{\mathrm{m}}h^2$	0.1409	$0.142^{+0.013}_{-0.012}$ $(-0.3\sigma)$	$H(0.15)$	72.40	$72.7^{+4.2}_{-3.9}$ $(-0.4\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2771.61$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.92$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2799.87$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.29$ ;  $R - 1 = 0.02630$

$\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.05 ( $\Delta$  0.03) MGS: 1.10 ( $\Delta$  -0.25) DR12BAO: 4.80 ( $\Delta$  0.76) CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.16 ( $\Delta$  0.28) commander\_dx12\_v3\_2\_29: 23.25 ( $\Delta$  0.56) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.78



### 11.11 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02222	$0.02224^{+0.00057}_{-0.00056}$ (+0.6 $\sigma$ )	$\Omega_{\mathrm{m}} h^2$	0.1391	$0.140^{+0.012}_{-0.010}$ (+0.0 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4470	$0.4474^{+0.0098}_{-0.0095}$ (+0.1 $\sigma$ )
$\Omega_{\mathrm{c}} h^2$	0.1163	$0.117^{+0.012}_{-0.010}$ (+0.0 $\sigma$ )	$\Omega_{\mathrm{m}} h^3$	0.0914	$0.092^{+0.015}_{-0.012}$ (+0.1 $\sigma$ )	$H(0.15)$	71.01	$71.3^{+4.9}_{-4.3}$ (+0.1 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04151	$1.0415^{+0.0030}_{-0.0031}$ (-0.1 $\sigma$ )	$\sigma_8$	0.8019	$0.803^{+0.030}_{-0.029}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	659.0	$656^{+44}_{-44}$ (-0.2 $\sigma$ )
$\tau$	0.0539	$0.053^{+0.020}_{-0.021}$ (+0.3 $\sigma$ )	$S_8$	0.8312	$0.831^{+0.034}_{-0.034}$ (-0.3 $\sigma$ )	$H(0.38)$	81.14	$81.5^{+5.0}_{-4.4}$ (+0.1 $\sigma$ )
$N_{\mathrm{eff}}$	2.79	$2.84^{+0.82}_{-0.67}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4552	$0.455^{+0.018}_{-0.019}$ (-0.3 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1569	$1563^{+97}_{-99}$ (-0.2 $\sigma$ )
$Y_{\mathrm{P}}$	0.2458	$0.247^{+0.042}_{-0.048}$ (-0.3 $\sigma$ )	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6042	$0.605^{+0.020}_{-0.020}$ (-0.2 $\sigma$ )	$H(0.51)$	87.85	$88.2^{+5.2}_{-4.4}$ (+0.1 $\sigma$ )
$\ln(10^{10} A_{\mathrm{s}})$	3.0349	$3.036^{+0.047}_{-0.045}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9893	$0.989^{+0.024}_{-0.024}$ (-0.3 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	2031	$2023^{+120}_{-130}$ (-0.2 $\sigma$ )
$n_{\mathrm{s}}$	0.9583	$0.959^{+0.021}_{-0.023}$ (-0.0 $\sigma$ )	$r_{\mathrm{drag}} h$	98.28	$98.4^{+3.2}_{-3.0}$ (+0.2 $\sigma$ )	$H(0.61)$	93.46	$93.8^{+5.3}_{-4.5}$ (+0.1 $\sigma$ )
$y_{\mathrm{cal}}$	1.0005	$1.0007^{+0.0064}_{-0.0061}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.456	$2.454^{+0.061}_{-0.063}$ (-0.0 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2362	$2353^{+140}_{-140}$ (-0.2 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	44.0	$46^{+20}_{-20}$ (-0.3 $\sigma$ )	$z_{\mathrm{re}}$	7.60	$7.6^{+1.9}_{-2.3}$ (+0.2 $\sigma$ )	$H(2.33)$	233.1	$234^{+11}_{-9.1}$ (+0.1 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.89	—	$10^9 A_{\mathrm{s}}$	2.080	$2.082^{+0.099}_{-0.092}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5872	$5853^{+290}_{-310}$ (-0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	6.95	$> 0.942$ (+0.3 $\sigma$ )	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8673	$1.871^{+0.048}_{-0.049}$ (-0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4589	$0.459^{+0.017}_{-0.018}$ (-0.3 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	244	$256^{+70}_{-70}$ (-0.2 $\sigma$ )	$D_{40}$	1237.7	$1238^{+41}_{-39}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7399	$0.741^{+0.029}_{-0.028}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	51.6	$45^{+20}_{-20}$ (-0.5 $\sigma$ )	$D_{220}$	5730	$5734^{+96}_{-97}$ (+0.5 $\sigma$ )	$f\sigma_8(0.38)$	0.4747	$0.475^{+0.015}_{-0.016}$ (-0.2 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	57.1	$42^{+20}_{-20}$ (-0.2 $\sigma$ )	$D_{810}$	2538.7	$2538^{+35}_{-32}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6547	$0.656^{+0.028}_{-0.026}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	123.5	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{1420}$	819.6	$818^{+12}_{-12}$ (+0.6 $\sigma$ )	$f\sigma_8(0.51)$	0.4720	$0.472^{+0.015}_{-0.015}$ (-0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	232.44	$231.6^{+4.6}_{-4.7}$ (+0.8 $\sigma$ )	$\sigma_8(0.51)$	0.6123	$0.614^{+0.027}_{-0.025}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.71	$8.9^{+4.6}_{-4.8}$ (-0.0 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9583	$0.959^{+0.021}_{-0.023}$ (-0.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4663	$0.467^{+0.016}_{-0.015}$ (-0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	10.92	$10.8^{+4.7}_{-4.6}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.2458	$0.247^{+0.042}_{-0.048}$ (-0.3 $\sigma$ )	$\sigma_8(0.61)$	0.5823	$0.584^{+0.026}_{-0.024}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.3	$18.5^{+8.7}_{-8.9}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2472	$0.249^{+0.043}_{-0.049}$ (-0.3 $\sigma$ )	$f\sigma_8(2.33)$	0.2932	$0.294^{+0.014}_{-0.013}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	96.0	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	14.06	$14.01^{+0.69}_{-0.73}$ (-0.1 $\sigma$ )	$\sigma_8(2.33)$	0.3018	$0.303^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.115^{+0.098}_{-0.095}$	$z_*$	1089.69	$1089.8^{+1.1}_{-1.1}$ (-0.8 $\sigma$ )	$f_{2000}^{143}$	27.3	$29^{+8}_{-8}$ (-0.7 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.078}_{-0.075}$	$r_*$	146.8	$146.4^{+6.5}_{-7.1}$ (-0.1 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.0	$32^{+6}_{-6}$ (-0.7 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.483	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	1.04177	$1.0417^{+0.0023}_{-0.0023}$ (-0.0 $\sigma$ )	$f_{2000}^{217}$	105.5	$106.6^{+5.3}_{-5.2}$ (-0.6 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.227	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	14.10	$14.05^{+0.59}_{-0.65}$ (-0.1 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	8.49	$9.01$ ( $\nu$ : 0.3) (-0.3 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.667	$0.67^{+0.20}_{-0.21}$	$z_{\mathrm{drag}}$	1059.25	$1059.4^{+2.1}_{-2.2}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.03	$396.9$ ( $\nu$ : 1.3) (+0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.09	$2.09^{+0.69}_{-0.68}$	$r_{\mathrm{drag}}$	149.6	$149.1^{+6.7}_{-7.3}$ (-0.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	24.24	$24.3$ ( $\nu$ : 1.1) (+0.0 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.1390	$0.1393^{+0.0067}_{-0.0058}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2343.0	$2359.9$ ( $\nu$ : 18.0) (+274.3 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0017}$ (-0.2 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16035	$0.1605^{+0.0012}_{-0.0012}$ (-0.7 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.5	$11.5$ ( $\nu$ : 10.0) (+1.1 $\sigma$ )
$H_0$	65.70	$66.0^{+4.8}_{-4.3}$ (+0.1 $\sigma$ )	$z_{\mathrm{eq}}$	3429	$3425^{+110}_{-110}$ (-0.1 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2771.8	$2790.2$ ( $\nu$ : 19.0) (+268.3 $\sigma$ )
$\Omega_{\Lambda}$	0.6777	$0.679^{+0.026}_{-0.027}$ (+0.2 $\sigma$ )	$k_{\mathrm{eq}}$	0.010281	$0.01030^{+0.00037}_{-0.00033}$ (-0.0 $\sigma$ )			
$\Omega_{\mathrm{m}}$	0.3223	$0.321^{+0.027}_{-0.026}$ (-0.2 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8085	$0.809^{+0.019}_{-0.019}$ (+0.2 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2773.24$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.40$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2801.64$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.95$ ;  $R - 1 = 0.01539$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp.p\_teb\_consext8: 8.49 ( $\Delta$  0.01) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.03 ( $\Delta$  0.33) commander\_dx12.v3.2\_29: 24.23 ( $\Delta$  -0.32) plik\_rdl12\_HM\_v22b\_TTTEEE: 2343.02



### 11.12 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022358	$0.02238^{+0.00049}_{-0.00049} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^2$	0.1404	$0.141^{+0.012}_{-0.011} \quad (-0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4503	$0.4504^{+0.0072}_{-0.0070} \quad (-0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.1174	$0.118^{+0.012}_{-0.011} \quad (-0.3\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.0940	$0.095^{+0.014}_{-0.012} \quad (-0.3\sigma)$	$H(0.15)$	72.24	$72.5^{+4.3}_{-3.8} \quad (-0.3\sigma)$
$100\theta_{\mathrm{MC}}$	1.04126	$1.0412^{+0.0029}_{-0.0029} \quad (+0.1\sigma)$	$\sigma_8$	0.8054	$0.807^{+0.029}_{-0.028} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	647.1	$645^{+37}_{-37} \quad (+0.3\sigma)$
$\tau$	0.0563	$0.056^{+0.018}_{-0.019} \quad (+0.2\sigma)$	$S_8$	0.8225	$0.824^{+0.029}_{-0.030} \quad (-0.1\sigma)$	$H(0.38)$	82.30	$82.6^{+4.5}_{-4.1} \quad (-0.3\sigma)$
$N_{\mathrm{eff}}$	2.93	$2.97^{+0.77}_{-0.67} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4505	$0.451^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	1543	$1538^{+84}_{-86} \quad (+0.3\sigma)$
$Y_{\mathrm{P}}$	0.2443	$0.245^{+0.042}_{-0.049} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6024	$0.603^{+0.020}_{-0.020} \quad (-0.2\sigma)$	$H(0.51)$	88.98	$89.3^{+4.7}_{-4.2} \quad (-0.3\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0426	$3.044^{+0.044}_{-0.042} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	0.9841	$0.984^{+0.023}_{-0.023} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	1999	$1993^{+110}_{-110} \quad (+0.3\sigma)$
$n_{\mathrm{s}}$	0.9644	$0.964^{+0.018}_{-0.018} \quad (-0.5\sigma)$	$r_{\mathrm{drag}}h$	99.42	$99.5^{+2.2}_{-2.2} \quad (-0.3\sigma)$	$H(0.61)$	94.57	$94.9^{+4.8}_{-4.4} \quad (-0.3\sigma)$
$y_{\mathrm{cal}}$	1.0007	$1.0008^{+0.0061}_{-0.0063} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	2.439	$2.440^{+0.055}_{-0.056} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	2325	$2319^{+120}_{-120} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	44.4	$46^{+20}_{-20} \quad (-0.3\sigma)$	$z_{\mathrm{re}}$	7.83	$7.8^{+1.8}_{-2.0} \quad (+0.1\sigma)$	$H(2.33)$	234.4	$235^{+10}_{-9.3} \quad (-0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.80	—	$10^9 A_{\mathrm{s}}$	2.096	$2.099^{+0.095}_{-0.088} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	5808	$5791^{+270}_{-280} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	7.00	$> 1.02 \quad (+0.3\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8727	$1.875^{+0.045}_{-0.048} \quad (-0.3\sigma)$	$f\sigma_8(0.15)$	0.4550	$0.456^{+0.016}_{-0.016} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	245	$257^{+70}_{-70} \quad (-0.3\sigma)$	$D_{40}$	1229.6	$1231^{+36}_{-35} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	0.7441	$0.746^{+0.028}_{-0.027} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	50.5	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{220}$	5737	$5741^{+96}_{-99} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	0.4729	$0.474^{+0.015}_{-0.016} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	55.2	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	2540.5	$2539^{+33}_{-33} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	0.6595	$0.661^{+0.026}_{-0.025} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	123.0	$115^{+30}_{-30} \quad (+0.1\sigma)$	$D_{1420}$	820.1	$818^{+12}_{-12} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	0.4713	$0.472^{+0.016}_{-0.016} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	232.36	$231.5^{+4.5}_{-4.8} \quad (+0.8\sigma)$	$\sigma_8(0.51)$	0.6171	$0.618^{+0.024}_{-0.024} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}TT}$	8.82	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	0.9644	$0.964^{+0.018}_{-0.018} \quad (-0.5\sigma)$	$f\sigma_8(0.61)$	0.4663	$0.467^{+0.016}_{-0.016} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}TT}$	10.98	$10.8^{+4.7}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	0.2443	$0.245^{+0.042}_{-0.049} \quad (-0.1\sigma)$	$\sigma_8(0.61)$	0.5871	$0.588^{+0.024}_{-0.023} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	20.2	$18.6^{+9.2}_{-8.7} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2456	$0.246^{+0.043}_{-0.050} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	0.2960	$0.297^{+0.012}_{-0.012} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}TT}$	96.0	$94^{+20}_{-20} \quad (+0.1\sigma)$	Age/Gyr	13.90	$13.86^{+0.64}_{-0.66} \quad (+0.3\sigma)$	$\sigma_8(2.33)$	0.3051	$0.306^{+0.013}_{-0.012} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}TE}$	0.115	$0.114^{+0.098}_{-0.094}$	$z_*$	1089.61	$1089.7^{+1.1}_{-1.1} \quad (-0.7\sigma)$	$\chi_{\mathrm{lensing}}^2$	8.56	$9.06 \quad (\nu: 0.2) \quad (-0.4\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	0.134	$0.135^{+0.077}_{-0.076}$	$r_*$	145.7	$145.3^{+6.6}_{-6.6} \quad (+0.3\sigma)$	$\chi_{\mathrm{small}}^2$	396.43	$397.3 \quad (\nu: 1.8) \quad (+0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	0.484	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04150	$1.0414^{+0.0022}_{-0.0023} \quad (+0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	23.32	$23.5 \quad (\nu: 0.7) \quad (+0.4\sigma)$
$A_{143}^{\mathrm{dust}TE}$	0.223	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.99	$13.96^{+0.60}_{-0.60} \quad (+0.3\sigma)$	$\chi_{\mathrm{plik}}^2$	2344.5	$2360.6 \quad (\nu: 17.9) \quad (+275.8\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	0.665	$0.66^{+0.19}_{-0.21}$	$z_{\mathrm{drag}}$	1059.63	$1059.8^{+2.0}_{-2.0} \quad (+0.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	0.048	$0.074 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dust}TE}$	2.08	$2.08^{+0.67}_{-0.67}$	$r_{\mathrm{drag}}$	148.4	$148.0^{+6.7}_{-6.7} \quad (+0.3\sigma)$	$\chi_{\mathrm{MGS}}^2$	1.10	$1.18 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	0.1399	$0.1402^{+0.0063}_{-0.0056} \quad (-0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	4.79	$5.2 \quad (\nu: 1.4) \quad (+0.2\sigma)$
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0017} \quad (-0.2\sigma)$	$100\theta_{\mathrm{D}}$	0.16047	$0.1606^{+0.0012}_{-0.0012} \quad (-0.8\sigma)$	$\chi_{\mathrm{prior}}^2$	1.5	$11.6 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$H_0$	66.98	$67.2^{+4.2}_{-3.7} \quad (-0.3\sigma)$	$z_{\mathrm{eq}}$	3393	$3393^{+82}_{-80} \quad (+0.4\sigma)$	$\chi_{\mathrm{CMB}}^2$	2772.8	$2790.5 \quad (\nu: 18.3) \quad (+269.4\sigma)$
$\Omega_{\Lambda}$	0.6872	$0.687^{+0.018}_{-0.019} \quad (-0.3\sigma)$	$k_{\mathrm{eq}}$	0.010274	$0.01030^{+0.00038}_{-0.00036} \quad (-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	5.94	$6.4 \quad (\nu: 1.0) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}$	0.3128	$0.313^{+0.019}_{-0.018} \quad (+0.3\sigma)$	$100\theta_{\mathrm{eq}}$	0.8150	$0.815^{+0.014}_{-0.014} \quad (-0.4\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2780.20$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.53$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2808.46$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.97$ ;  $R - 1 = 0.02254$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.05 ( $\Delta$  0.02) MGS: 1.10 ( $\Delta$  -0.12) DR12BAO: 4.79 ( $\Delta$  0.43) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.56 ( $\Delta$  -0.31) small\_100x143\_offlike5\_EE\_Aplanck  
396.44 ( $\Delta$  0.35) commander\_dx12\_v3\_2\_29: 23.32 ( $\Delta$  0.44) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.47



### 11.13 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02226^{+0.00056}_{-0.00054} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}$	$0.321^{+0.028}_{-0.027} \quad (-0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01033^{+0.00042}_{-0.00038} \quad (-0.2\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.118^{+0.013}_{-0.011} \quad (-0.2\sigma)$	$\Omega_{\mathrm{m}} h^2$	$0.141^{+0.013}_{-0.011} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.810^{+0.020}_{-0.019} \quad (+0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0031}_{-0.0031} \quad (+0.0\sigma)$	$\Omega_{\mathrm{m}} h^3$	$0.093^{+0.015}_{-0.012} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.448^{+0.010}_{-0.0099} \quad (+0.1\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.2\sigma)$	$\sigma_8$	$0.807^{+0.032}_{-0.031} \quad (-0.2\sigma)$	$H(0.15)$	$71.6^{+5.0}_{-4.3} \quad (-0.0\sigma)$
$N_{\mathrm{eff}}$	$2.89^{+0.83}_{-0.70} \quad (-0.1\sigma)$	$S_8$	$0.834^{+0.043}_{-0.043} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$654^{+43}_{-45} \quad (-0.0\sigma)$
$Y_{\mathrm{P}}$	$0.246^{+0.043}_{-0.049} \quad (-0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.023}_{-0.023} \quad (-0.3\sigma)$	$H(0.38)$	$81.8^{+5.1}_{-4.4} \quad (-0.0\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.049}_{-0.040} \quad (+0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.024}_{-0.024} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1557^{+98}_{-100} \quad (-0.0\sigma)$
$n_{\mathrm{s}}$	$0.960^{+0.021}_{-0.021} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.991^{+0.029}_{-0.031} \quad (-0.2\sigma)$	$H(0.51)$	$88.5^{+5.2}_{-4.5} \quad (-0.0\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0061} \quad (+0.1\sigma)$	$r_{\mathrm{drag}} h$	$98.5^{+3.3}_{-3.2} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$2015^{+120}_{-130} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.458^{+0.075}_{-0.076} \quad (-0.1\sigma)$	$H(0.61)$	$94.2^{+5.4}_{-4.7} \quad (-0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_{\mathrm{re}}$	$< 9.43 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2344^{+140}_{-140} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 0.948 \quad (+0.3\sigma)$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.11}_{-0.081} \quad (+0.0\sigma)$	$H(2.33)$	$235^{+11}_{-9.6} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$256^{+70}_{-70} \quad (-0.3\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.874^{+0.051}_{-0.053} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5832^{+290}_{-310} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{40}$	$1238^{+42}_{-40} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.461^{+0.022}_{-0.022} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5733^{+96}_{-96} \quad (+0.5\sigma)$	$\sigma_8(0.15)$	$0.745^{+0.030}_{-0.029} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{810}$	$2538^{+35}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.019}_{-0.020} \quad (-0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{1420}$	$818^{+12}_{-12} \quad (+0.7\sigma)$	$\sigma_8(0.38)$	$0.659^{+0.028}_{-0.027} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$D_{2000}$	$231.5^{+4.6}_{-4.7} \quad (+0.8\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.018}_{-0.018} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.7}_{-4.6} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.960^{+0.021}_{-0.021} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.616^{+0.027}_{-0.025} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+8.5}_{-8.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.246^{+0.043}_{-0.049} \quad (-0.2\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.018}_{-0.017} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.248^{+0.043}_{-0.049} \quad (-0.2\sigma)$	$\sigma_8(0.61)$	$0.586^{+0.026}_{-0.024} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.097}_{-0.096}$	Age/Gyr	$13.96^{+0.70}_{-0.74} \quad (+0.0\sigma)$	$f\sigma_8(2.33)$	$0.295^{+0.014}_{-0.013} \quad (-0.1\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.078}_{-0.075}$	$z_*$	$1089.8^{+1.2}_{-1.1} \quad (-0.8\sigma)$	$\sigma_8(2.33)$	$0.304^{+0.015}_{-0.014} \quad (-0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$145.9^{+6.8}_{-7.1} \quad (+0.1\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.0415^{+0.0023}_{-0.0023} \quad (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.01^{+0.62}_{-0.66} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$106.6^{+5.3}_{-5.3} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.09^{+0.69}_{-0.69}$	$z_{\mathrm{drag}}$	$1059.5^{+2.1}_{-2.1} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$397.0 \quad (\nu: 1.7) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$148.6^{+7.0}_{-7.3} \quad (+0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.3 \quad (\nu: 1.2) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.1397^{+0.0066}_{-0.0058} \quad (+0.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.1 \quad (\nu: 18.9) \quad (+257.8\sigma)$
$H_0$	$66.3^{+5.0}_{-4.3} \quad (+0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.1606^{+0.0012}_{-0.0012} \quad (-0.7\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.679^{+0.027}_{-0.028} \quad (+0.2\sigma)$	$z_{\mathrm{eq}}$	$3422^{+110}_{-110} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2781.4 \quad (\nu: 18.3) \quad (+271.8\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2792.90; \Delta \bar{\chi}_{\mathrm{eff}}^2 = 1592.06; R - 1 = 0.01223$$



### 11.14 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00048}_{-0.00048} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.096^{+0.014}_{-0.012} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+37}_{-36} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.119^{+0.013}_{-0.011} \quad (-0.3\sigma)$	$\sigma_8$	$0.808^{+0.032}_{-0.032} \quad (-0.3\sigma)$	$H(0.38)$	$82.8^{+4.5}_{-4.2} \quad (-0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0030}_{-0.0031} \quad (+0.2\sigma)$	$S_8$	$0.824^{+0.036}_{-0.039} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1534^{+86}_{-84} \quad (+0.4\sigma)$
$\tau$	$0.056^{+0.019}_{-0.015} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.020}_{-0.021} \quad (-0.1\sigma)$	$H(0.51)$	$89.5^{+4.7}_{-4.4} \quad (-0.4\sigma)$
$N_{\mathrm{eff}}$	$3.01^{+0.78}_{-0.70} \quad (-0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.024}_{-0.024} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1987^{+110}_{-110} \quad (+0.4\sigma)$
$Y_{\mathrm{P}}$	$0.244^{+0.043}_{-0.050} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.027}_{-0.028} \quad (+0.0\sigma)$	$H(0.61)$	$95.1^{+4.8}_{-4.5} \quad (-0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.049}_{-0.041} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$99.6^{+2.2}_{-2.2} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	$2312^{+130}_{-120} \quad (+0.4\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.017}_{-0.018} \quad (-0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.066}_{-0.062} \quad (+0.4\sigma)$	$H(2.33)$	$236^{+11}_{-9.9} \quad (-0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0061}_{-0.0063} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.54 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5778^{+280}_{-280} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.3\sigma)$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.084} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.019}_{-0.020} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.877^{+0.049}_{-0.051} \quad (-0.4\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.031}_{-0.030} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.04 \quad (+0.3\sigma)$	$D_{40}$	$1230^{+38}_{-37} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.019}_{-0.019} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5738^{+94}_{-99} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.028}_{-0.027} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{810}$	$2539^{+34}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.018}_{-0.019} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.026}_{-0.026} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.4^{+4.6}_{-4.7} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.018}_{-0.018} \quad (-0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.017}_{-0.018} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.025}_{-0.025} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.244^{+0.043}_{-0.050} \quad (-0.0\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.013}_{-0.013} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.7}_{-4.6} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.246^{+0.043}_{-0.050} \quad (-0.0\sigma)$	$\sigma_8(2.33)$	$0.306^{+0.014}_{-0.013} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+9.5}_{-8.4} \quad (+0.1\sigma)$	Age/Gyr	$13.83^{+0.67}_{-0.66} \quad (+0.4\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.7^{+1.1}_{-1.1} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.8\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.098}_{-0.094}$	$r_*$	$145.0^{+6.9}_{-6.8} \quad (+0.3\sigma)$	$f_{2000}^{217}$	$106.7^{+5.3}_{-5.4} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.077}_{-0.076}$	$100\theta_*$	$1.0413^{+0.0023}_{-0.0023} \quad (+0.3\sigma)$	$\chi_{\mathrm{small}}^2$	$397.3 \quad (\nu: 2.1) \quad (+0.2\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.93^{+0.63}_{-0.62} \quad (+0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.4 \quad (\nu: 0.7) \quad (+0.4\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.8^{+1.9}_{-2.0} \quad (+0.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2361.0 \quad (\nu: 18.7) \quad (+267.9\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.20}_{-0.21}$	$r_{\mathrm{drag}}$	$147.7^{+7.0}_{-6.9} \quad (+0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.068 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.67}_{-0.66}$	$k_{\mathrm{D}}$	$0.1405^{+0.0065}_{-0.0059} \quad (-0.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.23 \quad (\nu: 0.1) \quad (-0.4\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.1606^{+0.0012}_{-0.0012} \quad (-0.8\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.1 \quad (\nu: 1.4) \quad (+0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0018} \quad (-0.2\sigma)$	$z_{\mathrm{eq}}$	$3389^{+84}_{-82} \quad (+0.5\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$H_0$	$67.4^{+4.1}_{-3.8} \quad (-0.4\sigma)$	$k_{\mathrm{eq}}$	$0.01031^{+0.00041}_{-0.00039} \quad (-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.3 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.688^{+0.018}_{-0.019} \quad (-0.4\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.014}_{-0.014} \quad (-0.5\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2781.7 \quad (\nu: 17.7) \quad (+274.6\sigma)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.019}_{-0.018} \quad (+0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4507^{+0.0072}_{-0.0072} \quad (-0.5\sigma)$		
$\Omega_{\mathrm{m}}h^2$	$0.142^{+0.013}_{-0.011} \quad (-0.3\sigma)$	$H(0.15)$	$72.7^{+4.2}_{-3.9} \quad (-0.4\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2799.64; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.31; R - 1 = 0.02640$$



### 11.15 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02225^{+0.00056}_{-0.00053} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.140^{+0.013}_{-0.010} \quad (+0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4476^{+0.0096}_{-0.0091} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.117^{+0.012}_{-0.010} \quad (-0.0\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.093^{+0.015}_{-0.012} \quad (+0.0\sigma)$	$H(0.15)$	$71.4^{+4.9}_{-4.3} \quad (+0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0415^{+0.0029}_{-0.0031} \quad (-0.1\sigma)$	$\sigma_8$	$0.804^{+0.030}_{-0.027} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$656^{+43}_{-44} \quad (-0.1\sigma)$
$\tau$	$0.055^{+0.018}_{-0.013} \quad (+0.2\sigma)$	$S_8$	$0.831^{+0.034}_{-0.034} \quad (-0.2\sigma)$	$H(0.38)$	$81.5^{+5.0}_{-4.4} \quad (+0.1\sigma)$
$N_{\mathrm{eff}}$	$2.85^{+0.82}_{-0.68} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.018}_{-0.019} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1561^{+98}_{-100} \quad (-0.1\sigma)$
$Y_{\mathrm{P}}$	$0.248^{+0.042}_{-0.049} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.019}_{-0.020} \quad (-0.2\sigma)$	$H(0.51)$	$88.3^{+5.1}_{-4.5} \quad (+0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.038^{+0.045}_{-0.036} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.024}_{-0.024} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$2021^{+120}_{-130} \quad (-0.1\sigma)$
$n_{\mathrm{s}}$	$0.959^{+0.021}_{-0.021} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$98.5^{+3.1}_{-2.9} \quad (+0.1\sigma)$	$H(0.61)$	$93.9^{+5.3}_{-4.5} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0063}_{-0.0061} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.455^{+0.061}_{-0.061} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2351^{+140}_{-140} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.3\sigma)$	$z_{\mathrm{re}}$	$< 9.34 \quad (+0.1\sigma)$	$H(2.33)$	$234^{+11}_{-9.1} \quad (+0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.087^{+0.095}_{-0.075} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5850^{+290}_{-310} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 0.957 \quad (+0.3\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.870^{+0.048}_{-0.049} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.017}_{-0.018} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$256^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1238^{+40}_{-39} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.742^{+0.029}_{-0.027} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{220}$	$5734^{+96}_{-97} \quad (+0.5\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.015}_{-0.016} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2537^{+34}_{-33} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.657^{+0.027}_{-0.025} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.5^{+4.6}_{-4.7} \quad (+0.8\sigma)$	$\sigma_8(0.51)$	$0.614^{+0.026}_{-0.024} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.6}_{-4.7} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.959^{+0.021}_{-0.021} \quad (-0.1\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.7}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.248^{+0.042}_{-0.049} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	$0.584^{+0.025}_{-0.024} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+8.6}_{-8.9} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.249^{+0.043}_{-0.049} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	$0.294^{+0.013}_{-0.012} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	Age/Gyr	$14.00^{+0.69}_{-0.74} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.303^{+0.015}_{-0.013} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.098}_{-0.095}$	$z_*$	$1089.8^{+1.1}_{-1.1} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.078}_{-0.075}$	$r_*$	$146.4^{+6.5}_{-7.0} \quad (-0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.7\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.0417^{+0.0023}_{-0.0023} \quad (+0.0\sigma)$	$f_{2000}^{217}$	$106.5^{+5.3}_{-5.2} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.05^{+0.59}_{-0.65} \quad (-0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.00 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.20}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.5^{+2.1}_{-2.1} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.4) \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.09^{+0.69}_{-0.68}$	$r_{\mathrm{drag}}$	$149.1^{+6.7}_{-7.3} \quad (-0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.3 \quad (\nu: 1.1) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1393^{+0.0067}_{-0.0057} \quad (+0.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.7 \quad (\nu: 17.9) \quad (+273.8\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017} \quad (-0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.1605^{+0.0012}_{-0.0012} \quad (-0.7\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.4 \quad (\nu: 10.0) \quad (+1.1\sigma)$
$H_0$	$66.1^{+4.8}_{-4.2} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3423^{+100}_{-110} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.9 \quad (\nu: 18.5) \quad (+272.5\sigma)$
$\Omega_{\Lambda}$	$0.679^{+0.025}_{-0.025} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01030^{+0.00038}_{-0.00034} \quad (-0.0\sigma)$		
$\Omega_{\mathrm{m}}$	$0.321^{+0.025}_{-0.025} \quad (-0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.810^{+0.019}_{-0.018} \quad (+0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2801.36; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.92; R - 1 = 0.01489$$



# 11.16 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02238^{+0.00049}_{-0.00049} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.095^{+0.014}_{-0.012} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$645^{+36}_{-37} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.118^{+0.012}_{-0.011} \quad (-0.3\sigma)$	$\sigma_8$	$0.807^{+0.029}_{-0.028} \quad (-0.3\sigma)$	$H(0.38)$	$82.6^{+4.5}_{-4.1} \quad (-0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0029}_{-0.0029} \quad (+0.1\sigma)$	$S_8$	$0.824^{+0.029}_{-0.029} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1538^{+84}_{-86} \quad (+0.3\sigma)$
$\tau$	$0.057^{+0.018}_{-0.015} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$H(0.51)$	$89.3^{+4.7}_{-4.2} \quad (-0.3\sigma)$
$N_{\mathrm{eff}}$	$2.97^{+0.77}_{-0.67} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.020}_{-0.020} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1993^{+110}_{-110} \quad (+0.3\sigma)$
$Y_{\mathrm{P}}$	$0.245^{+0.042}_{-0.050} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.022}_{-0.022} \quad (-0.0\sigma)$	$H(0.61)$	$94.9^{+4.8}_{-4.4} \quad (-0.3\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.044}_{-0.036} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$99.5^{+2.2}_{-2.1} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	$2318^{+120}_{-120} \quad (+0.3\sigma)$
$n_{\mathrm{s}}$	$0.964^{+0.018}_{-0.018} \quad (-0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.054}_{-0.052} \quad (+0.4\sigma)$	$H(2.33)$	$235^{+10}_{-9.3} \quad (-0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0008^{+0.0062}_{-0.0063} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.47 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5791^{+270}_{-280} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.3\sigma)$	$10^9 A_{\mathrm{s}}$	$2.101^{+0.094}_{-0.075} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.016} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.875^{+0.045}_{-0.048} \quad (-0.3\sigma)$	$\sigma_8(0.15)$	$0.746^{+0.028}_{-0.027} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.02 \quad (+0.3\sigma)$	$D_{40}$	$1231^{+36}_{-35} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.015}_{-0.015} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5740^{+94}_{-99} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.661^{+0.025}_{-0.024} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{810}$	$2539^{+33}_{-33} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.015}_{-0.015} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.024}_{-0.023} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.1\sigma)$	$D_{2000}$	$231.5^{+4.5}_{-4.8} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.015}_{-0.015} \quad (-0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.964^{+0.018}_{-0.018} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.023}_{-0.022} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.245^{+0.042}_{-0.050} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.012}_{-0.012} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.7}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.247^{+0.042}_{-0.050} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.306^{+0.013}_{-0.012} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+9.2}_{-8.7} \quad (+0.1\sigma)$	Age/Gyr	$13.86^{+0.64}_{-0.66} \quad (+0.3\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.7^{+1.1}_{-1.1} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-6} \quad (-0.7\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.098}_{-0.094}$	$r_*$	$145.3^{+6.6}_{-6.5} \quad (+0.3\sigma)$	$f_{2000}^{217}$	$106.6^{+5.3}_{-5.4} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.134^{+0.076}_{-0.076}$	$100\theta_*$	$1.0414^{+0.0022}_{-0.0023} \quad (+0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.03 \quad (\nu: 0.2) \quad (-0.4\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.96^{+0.60}_{-0.60} \quad (+0.3\sigma)$	$\chi_{\mathrm{small}}^2$	$397.3 \quad (\nu: 1.9) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.8^{+2.0}_{-2.0} \quad (+0.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.5 \quad (\nu: 0.7) \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.20}_{-0.21}$	$r_{\mathrm{drag}}$	$148.0^{+6.7}_{-6.7} \quad (+0.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.5 \quad (\nu: 17.8) \quad (+275.9\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.67}_{-0.67}$	$k_{\mathrm{D}}$	$0.1402^{+0.0063}_{-0.0056} \quad (-0.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.072 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.1606^{+0.0012}_{-0.0012} \quad (-0.8\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.19 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017} \quad (-0.2\sigma)$	$z_{\mathrm{eq}}$	$3392^{+82}_{-80} \quad (+0.4\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.1 \quad (\nu: 1.4) \quad (+0.2\sigma)$
$H_0$	$67.2^{+4.2}_{-3.7} \quad (-0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01030^{+0.00037}_{-0.00036} \quad (-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.688^{+0.018}_{-0.018} \quad (-0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.014}_{-0.014} \quad (-0.4\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2790.3 \quad (\nu: 18.1) \quad (+271.7\sigma)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.018}_{-0.018} \quad (+0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4504^{+0.0072}_{-0.0070} \quad (-0.4\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.4 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.141^{+0.012}_{-0.011} \quad (-0.3\sigma)$	$H(0.15)$	$72.5^{+4.3}_{-3.8} \quad (-0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2808.31; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.99; R - 1 = 0.02301$$



### 11.17 base\_nnu\_yhe\_CamSpecHM\_TTTEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02219	$0.02222^{+0.00061}_{-0.00058}$	$\Omega_m h^3$	0.0905	$0.091^{+0.016}_{-0.013}$	$100\theta_{\text{eq}}$	0.8098	$0.811^{+0.020}_{-0.020}$
$\Omega_c h^2$	0.1151	$0.116^{+0.014}_{-0.011}$	$\sigma_8$	0.7983	$0.800^{+0.035}_{-0.031}$	$100\theta_{\text{s,eq}}$	0.4477	$0.448^{+0.010}_{-0.010}$
$100\theta_{\text{MC}}$	1.04185	$1.0419^{+0.0034}_{-0.0037}$	$S_8$	0.8246	$0.824^{+0.043}_{-0.040}$	$H(0.15)$	70.9	$71.2^{+5.4}_{-4.7}$
$\tau$	0.0527	$0.053^{+0.022}_{-0.023}$	$\sigma_8 \Omega_m^{0.5}$	0.4516	$0.452^{+0.024}_{-0.022}$	$D_{\text{M}}(0.15)$	659.9	$657^{+47}_{-48}$
$N_{\text{eff}}$	2.74	$2.78^{+0.91}_{-0.74}$	$\sigma_8 \Omega_m^{0.25}$	0.6004	$0.601^{+0.025}_{-0.024}$	$H(0.38)$	81.0	$81.3^{+5.5}_{-4.8}$
$Y_{\text{P}}$	0.255	$0.256^{+0.054}_{-0.061}$	$\sigma_8/h^{0.5}$	0.9853	$0.985^{+0.031}_{-0.029}$	$D_{\text{M}}(0.38)$	1572	$1566^{+110}_{-110}$
$\ln(10^{10} A_{\text{s}})$	3.029	$3.031^{+0.051}_{-0.051}$	$r_{\text{drag}} h$	98.58	$98.8^{+3.4}_{-3.5}$	$H(0.51)$	87.6	$88.0^{+5.6}_{-4.9}$
$n_{\text{s}}$	0.9609	$0.962^{+0.025}_{-0.025}$	$\langle d^2 \rangle^{1/2}$	2.440	$2.438^{+0.082}_{-0.075}$	$D_{\text{M}}(0.51)$	2034	$2027^{+130}_{-140}$
$y_{\text{cal}}$	1.0003	$1.0005^{+0.0064}_{-0.0066}$	$z_{\text{re}}$	7.50	$7.5^{+2.1}_{-2.5}$	$H(0.61)$	93.2	$93.5^{+5.8}_{-5.0}$
$A_{100}^{\text{PS}}$	232	$240^{+70}_{-70}$	$10^9 A_{\text{s}}$	2.069	$2.07^{+0.11}_{-0.10}$	$D_{\text{M}}(0.61)$	2366	$2358^{+150}_{-160}$
$A_{143}^{\text{PS}}$	44.4	$40^{+20}_{-20}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.862	$1.865^{+0.054}_{-0.053}$	$H(2.33)$	232.2	$233^{+12}_{-9.9}$
$A_{217}^{\text{PS}}$	106.8	$102^{+30}_{-40}$	$D_{40}$	1228.2	$1228^{+48}_{-45}$	$D_{\text{M}}(2.33)$	5889	$5872^{+320}_{-340}$
$A_{217}^{\text{CIB}}$	39.8	$40^{+20}_{-20}$	$D_{220}$	5711	$5715^{+100}_{-99}$	$f\sigma_8(0.15)$	0.4555	$0.455^{+0.022}_{-0.021}$
$A_{143}^{\text{tSZ}}$	5.46	$< 8.80$	$D_{810}$	2533.2	$2533^{+35}_{-35}$	$\sigma_8(0.15)$	0.7368	$0.738^{+0.033}_{-0.030}$
$r_{143 \times 217}^{\text{PS}}$	0.731	$0.66^{+0.31}_{-0.32}$	$D_{1420}$	816.8	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4716	$0.472^{+0.020}_{-0.019}$
$r_{143 \times 217}^{\text{CIB}}$	0.65	—	$D_{2000}$	231.0	$230.4^{+6.1}_{-6.2}$	$\sigma_8(0.38)$	0.6522	$0.654^{+0.031}_{-0.028}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.62	—	$n_{\text{s},0.002}$	0.9609	$0.962^{+0.025}_{-0.025}$	$f\sigma_8(0.51)$	0.4693	$0.470^{+0.019}_{-0.018}$
$A^{\text{kSZ}}$	1.6	—	$Y_{\text{P}}$	0.255	$0.256^{+0.054}_{-0.061}$	$\sigma_8(0.51)$	0.6100	$0.611^{+0.029}_{-0.027}$
$A_{100}^{\text{dust}}$	0.99	$1.01^{+0.51}_{-0.50}$	$Y_{\text{P}}^{\text{BBN}}$	0.256	$0.258^{+0.054}_{-0.061}$	$f\sigma_8(0.61)$	0.4637	$0.464^{+0.019}_{-0.018}$
$A_{143}^{\text{dust}}$	0.963	$0.96^{+0.45}_{-0.45}$	Age/Gyr	14.10	$14.06^{+0.76}_{-0.80}$	$\sigma_8(0.61)$	0.5802	$0.582^{+0.028}_{-0.026}$
$A_{217}^{\text{dust}}$	0.978	$0.97^{+0.27}_{-0.26}$	$z_*$	1089.96	$1090.1^{+1.6}_{-1.5}$	$f\sigma_8(2.33)$	0.2922	$0.293^{+0.015}_{-0.014}$
$A_{143 \times 217}^{\text{dust}}$	1.046	$1.02^{+0.43}_{-0.41}$	$r_*$	147.4	$147.1^{+7.3}_{-7.9}$	$\sigma_8(2.33)$	0.3009	$0.302^{+0.016}_{-0.015}$
$c_{100}$	0.99771	$0.9975^{+0.0026}_{-0.0027}$	$100\theta_*$	1.04190	$1.0419^{+0.0025}_{-0.0026}$	$f_{2000}^{143}$	29.0	$30^{+10}_{-10}$
$c_{217}$	1.00096	$1.0011^{+0.0042}_{-0.0042}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.15	$14.12^{+0.67}_{-0.73}$	$f_{2000}^{217}$	106.2	$107.0^{+7.0}_{-6.7}$
$c_{TE}$	0.9966	$0.997^{+0.014}_{-0.014}$	$z_{\text{drag}}$	1059.36	$1059.5^{+2.6}_{-2.6}$	$f_{2000}^{143 \times 217}$	31.7	$32^{+8}_{-8}$
$c_{EE}$	0.9917	$0.993^{+0.018}_{-0.017}$	$r_{\text{drag}}$	150.2	$149.8^{+7.5}_{-8.1}$	$\chi_{\text{simall}}^2$	395.87	$396.9 (\nu: 1.4)$
$H_0$	65.6	$65.9^{+5.3}_{-4.7}$	$k_{\text{D}}$	0.1382	$0.1384^{+0.0078}_{-0.0063}$	$\chi_{\text{lowl}}^2$	23.44	$23.5 (\nu: 1.2)$
$\Omega_{\Lambda}$	0.6799	$0.681^{+0.027}_{-0.031}$	$100\theta_{\text{D}}$	0.16070	$0.1609^{+0.0019}_{-0.0018}$	$\chi_{\text{CamSpec}}^2$	11498.8	$11515.3 (\nu: 18.4)$
$\Omega_{\text{m}}$	0.3201	$0.319^{+0.031}_{-0.027}$	$z_{\text{eq}}$	3422	$3418^{+120}_{-110}$	$\chi_{\text{prior}}^2$	1.9	$7.9 (\nu: 6.0)$
$\Omega_{\text{m}} h^2$	0.1379	$0.139^{+0.014}_{-0.011}$	$k_{\text{eq}}$	0.010225	$0.01024^{+0.00043}_{-0.00038}$	$\chi_{\text{CMB}}^2$	11918.1	$11935.7 (\nu: 19.1)$

Best-fit  $\chi_{\text{eff}}^2 = 11920.00$ ;  $\bar{\chi}_{\text{eff}}^2 = 11943.57$ ;  $R - 1 = 0.00989$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2\_29: 23.44 CamSpec like\_10.7HM\_1400\_unified: 11498.75



# 11.18 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02233^{+0.00055}_{-0.00051}$	$S_8$	$0.816^{+0.035}_{-0.036}$	$H(0.38)$	$82.2^{+4.9}_{-4.1}$
$\Omega_{\mathrm{c}}h^2$	$0.116^{+0.014}_{-0.011}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.019}_{-0.020}$	$D_{\mathrm{M}}(0.38)$	$1545^{+85}_{-92}$
$100\theta_{\mathrm{MC}}$	$1.0418^{+0.0035}_{-0.0036}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.599^{+0.024}_{-0.024}$	$H(0.51)$	$88.8^{+5.1}_{-4.2}$
$\tau$	$0.054^{+0.021}_{-0.020}$	$\sigma_8/h^{0.5}$	$0.980^{+0.028}_{-0.026}$	$D_{\mathrm{M}}(0.51)$	$2002^{+110}_{-120}$
$N_{\mathrm{eff}}$	$2.88^{+0.87}_{-0.69}$	$r_{\mathrm{drag}}h$	$99.7^{+2.4}_{-2.2}$	$H(0.61)$	$94.4^{+5.3}_{-4.4}$
$Y_{\mathrm{P}}$	$0.257^{+0.055}_{-0.060}$	$\langle d^2 \rangle^{1/2}$	$2.422^{+0.067}_{-0.066}$	$D_{\mathrm{M}}(0.61)$	$2330^{+120}_{-130}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.036^{+0.053}_{-0.049}$	$z_{\mathrm{re}}$	$7.6^{+2.0}_{-2.1}$	$H(2.33)$	$234^{+12}_{-9.8}$
$n_{\mathrm{s}}$	$0.967^{+0.021}_{-0.021}$	$10^9 A_{\mathrm{s}}$	$2.08^{+0.11}_{-0.10}$	$D_{\mathrm{M}}(2.33)$	$5823^{+280}_{-300}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0065}_{-0.0062}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.869^{+0.050}_{-0.055}$	$f\sigma_8(0.15)$	$0.452^{+0.019}_{-0.019}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-70}$	$D_{40}$	$1220^{+43}_{-38}$	$\sigma_8(0.15)$	$0.741^{+0.031}_{-0.030}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5719^{+110}_{-100}$	$f\sigma_8(0.38)$	$0.470^{+0.019}_{-0.019}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2534^{+36}_{-36}$	$\sigma_8(0.38)$	$0.657^{+0.029}_{-0.027}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-13}$	$f\sigma_8(0.51)$	$0.469^{+0.019}_{-0.019}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.97$	$D_{2000}$	$230.1^{+5.9}_{-6.2}$	$\sigma_8(0.51)$	$0.615^{+0.027}_{-0.025}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.967^{+0.021}_{-0.021}$	$f\sigma_8(0.61)$	$0.464^{+0.019}_{-0.018}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.257^{+0.055}_{-0.060}$	$\sigma_8(0.61)$	$0.585^{+0.026}_{-0.024}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.258^{+0.055}_{-0.061}$	$f\sigma_8(2.33)$	$0.295^{+0.014}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.94^{+0.68}_{-0.73}$	$\sigma_8(2.33)$	$0.304^{+0.014}_{-0.013}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.52}_{-0.51}$	$z_*$	$1090.1^{+1.5}_{-1.6}$	$f_{2000}^{143}$	$30^{+10}_{-10}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.46}_{-0.46}$	$r_*$	$146.3^{+6.9}_{-7.4}$	$f_{2000}^{217}$	$107.3^{+6.6}_{-6.6}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.28}_{-0.27}$	$100\theta_*$	$1.0417^{+0.0024}_{-0.0025}$	$f_{2000}^{143\times 217}$	$33^{+8}_{-7}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.04^{+0.63}_{-0.68}$	$\chi_{\mathrm{simall}}^2$	$397.0\,(\nu: 1.5)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$z_{\mathrm{drag}}$	$1059.9^{+2.4}_{-2.3}$	$\chi_{\mathrm{lowl}}^2$	$22.7\,(\nu: 0.7)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$	$r_{\mathrm{drag}}$	$149.0^{+7.1}_{-7.6}$	$\chi_{\mathrm{CamSpec}}^2$	$11516.0\,(\nu: 18.2)$
$c_{TE}$	$0.998^{+0.014}_{-0.013}$	$k_{\mathrm{D}}$	$0.1390^{+0.0074}_{-0.0061}$	$\chi_{6\mathrm{DF}}^2$	$0.058\,(\nu: 0.0)$
$c_{EE}$	$0.994^{+0.017}_{-0.017}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0017}_{-0.0017}$	$\chi_{\mathrm{MGS}}^2$	$1.32\,(\nu: 0.1)$
$H_0$	$67.0^{+4.4}_{-3.7}$	$z_{\mathrm{eq}}$	$3390^{+87}_{-88}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8\,(\nu: 1.1)$
$\Omega_{\Lambda}$	$0.689^{+0.019}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01023^{+0.00044}_{-0.00040}$	$\chi_{\mathrm{prior}}^2$	$7.9\,(\nu: 6.1)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.019}_{-0.019}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.015}_{-0.014}$	$\chi_{\mathrm{BAO}}^2$	$6.1\,(\nu: 0.7)$
$\Omega_{\mathrm{m}}h^2$	$0.139^{+0.014}_{-0.011}$	$100\theta_{\mathrm{s,eq}}$	$0.4508^{+0.0077}_{-0.0073}$	$\chi_{\mathrm{CMB}}^2$	$11935.7\,(\nu: 18.6)$
$\Omega_{\mathrm{m}}h^3$	$0.093^{+0.015}_{-0.012}$	$H(0.15)$	$72.2^{+4.5}_{-3.8}$		
$\sigma_8$	$0.802^{+0.033}_{-0.032}$	$D_{\mathrm{M}}(0.15)$	$648^{+37}_{-39}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11949.72; R - 1 = 0.01974$$



### 11.19 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02220^{+0.00062}_{-0.00057}$	$\sigma_8$	$0.800^{+0.030}_{-0.029}$	$H(0.15)$	$71.0^{+5.2}_{-4.7}$
$\Omega_c h^2$	$0.116^{+0.013}_{-0.011}$	$S_8$	$0.827^{+0.034}_{-0.033}$	$D_M(0.15)$	$659^{+48}_{-47}$
$100\theta_{MC}$	$1.0419^{+0.0034}_{-0.0036}$	$\sigma_8 \Omega_m^{0.5}$	$0.453^{+0.019}_{-0.018}$	$H(0.38)$	$81.1^{+5.2}_{-4.8}$
$\tau$	$0.054^{+0.021}_{-0.020}$	$\sigma_8 \Omega_m^{0.25}$	$0.602^{+0.020}_{-0.020}$	$D_M(0.38)$	$1570^{+110}_{-110}$
$N_{\text{eff}}$	$2.76^{+0.86}_{-0.73}$	$\sigma_8/h^{0.5}$	$0.987^{+0.025}_{-0.024}$	$H(0.51)$	$87.8^{+5.4}_{-4.9}$
$Y_P$	$0.255^{+0.056}_{-0.060}$	$r_{\text{drag}} h$	$98.6^{+3.4}_{-3.2}$	$D_M(0.51)$	$2033^{+140}_{-130}$
$\ln(10^{10} A_s)$	$3.033^{+0.046}_{-0.044}$	$\langle d^2 \rangle^{1/2}$	$2.446^{+0.067}_{-0.065}$	$H(0.61)$	$93.4^{+5.5}_{-5.1}$
$n_s$	$0.961^{+0.024}_{-0.024}$	$z_{\text{re}}$	$7.6^{+2.0}_{-2.1}$	$D_M(0.61)$	$2364^{+160}_{-150}$
$y_{\text{cal}}$	$1.0006^{+0.0063}_{-0.0063}$	$10^9 A_s$	$2.075^{+0.098}_{-0.090}$	$H(2.33)$	$233^{+11}_{-9.6}$
$A_{100}^{\text{PS}}$	$239^{+60}_{-70}$	$10^9 A_s e^{-2\tau}$	$1.864^{+0.051}_{-0.052}$	$D_M(2.33)$	$5883^{+330}_{-320}$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20}$	$D_{40}$	$1231^{+44}_{-42}$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017}$
$A_{217}^{\text{PS}}$	$103^{+30}_{-30}$	$D_{220}$	$5717^{+100}_{-98}$	$\sigma_8(0.15)$	$0.739^{+0.030}_{-0.029}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{810}$	$2534^{+35}_{-35}$	$f\sigma_8(0.38)$	$0.473^{+0.015}_{-0.015}$
$A_{143}^{\text{tSZ}}$	$< 8.90$	$D_{1420}$	$816^{+13}_{-14}$	$\sigma_8(0.38)$	$0.654^{+0.028}_{-0.027}$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.33}$	$D_{2000}$	$230.6^{+5.8}_{-6.1}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.015}$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{s,0.002}$	$0.961^{+0.024}_{-0.024}$	$\sigma_8(0.51)$	$0.612^{+0.027}_{-0.026}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P$	$0.255^{+0.056}_{-0.060}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.015}$
$A^{\text{kSZ}}$	—	$Y_P^{\text{BBN}}$	$0.257^{+0.056}_{-0.060}$	$\sigma_8(0.61)$	$0.582^{+0.026}_{-0.025}$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.50}$	Age/Gyr	$14.08^{+0.78}_{-0.77}$	$f\sigma_8(2.33)$	$0.293^{+0.014}_{-0.013}$
$A_{143}^{\text{dust}}$	$0.96^{+0.46}_{-0.44}$	$z_*$	$1090.0^{+1.5}_{-1.6}$	$\sigma_8(2.33)$	$0.302^{+0.015}_{-0.014}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.26}$	$r_*$	$147.2^{+7.1}_{-7.5}$	$f_{2000}^{143}$	$30^{+10}_{-10}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.42}_{-0.42}$	$100\theta_*$	$1.0419^{+0.0025}_{-0.0025}$	$f_{2000}^{217}$	$106.8^{+6.7}_{-6.7}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$D_M(z_*)/\text{Gpc}$	$14.13^{+0.65}_{-0.69}$	$f_{2000}^{143 \times 217}$	$32^{+8}_{-8}$
$c_{217}$	$1.0011^{+0.0041}_{-0.0041}$	$z_{\text{drag}}$	$1059.5^{+2.5}_{-2.5}$	$\chi_{\text{lensing}}^2$	$9.05 (\nu: 0.3)$
$c_{TE}$	$0.997^{+0.014}_{-0.013}$	$r_{\text{drag}}$	$150.0^{+7.3}_{-7.7}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.3)$
$c_{EE}$	$0.992^{+0.017}_{-0.017}$	$k_D$	$0.1383^{+0.0072}_{-0.0064}$	$\chi_{\text{lowl}}^2$	$23.8 (\nu: 1.2)$
$H_0$	$65.7^{+5.2}_{-4.7}$	$100\theta_D$	$0.1608^{+0.0018}_{-0.0018}$	$\chi_{\text{CamSpec}}^2$	$11514.7 (\nu: 17.3)$
$\Omega_\Lambda$	$0.679^{+0.028}_{-0.029}$	$z_{\text{eq}}$	$3424^{+110}_{-110}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 5.9)$
$\Omega_m$	$0.321^{+0.029}_{-0.028}$	$k_{\text{eq}}$	$0.01024^{+0.00040}_{-0.00035}$	$\chi_{\text{CMB}}^2$	$11944.4 (\nu: 18.8)$
$\Omega_m h^2$	$0.138^{+0.013}_{-0.011}$	$100\theta_{\text{eq}}$	$0.810^{+0.021}_{-0.020}$		
$\Omega_m h^3$	$0.091^{+0.015}_{-0.013}$	$100\theta_{s,\text{eq}}$	$0.448^{+0.011}_{-0.0099}$		

$$\bar{\chi}_{\text{eff}}^2 = 11952.22; R - 1 = 0.01363$$



## 11.20 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02232^{+0.00054}_{-0.00051}$	$S_8$	$0.820^{+0.030}_{-0.029}$	$H(0.38)$	$82.1^{+4.7}_{-4.0}$
$\Omega_c h^2$	$0.116^{+0.013}_{-0.011}$	$\sigma_8 \Omega_m^{0.5}$	$0.449^{+0.016}_{-0.016}$	$D_M(0.38)$	$1548^{+83}_{-91}$
$100\theta_{MC}$	$1.0417^{+0.0035}_{-0.0036}$	$\sigma_8 \Omega_m^{0.25}$	$0.601^{+0.019}_{-0.019}$	$H(0.51)$	$88.7^{+4.9}_{-4.1}$
$\tau$	$0.056^{+0.020}_{-0.019}$	$\sigma_8/h^{0.5}$	$0.983^{+0.023}_{-0.022}$	$D_M(0.51)$	$2005^{+100}_{-120}$
$N_{\text{eff}}$	$2.88^{+0.79}_{-0.68}$	$r_{\text{drag}} h$	$99.5^{+2.3}_{-2.2}$	$H(0.61)$	$94.3^{+5.1}_{-4.3}$
$Y_P$	$0.256^{+0.054}_{-0.061}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.056}_{-0.055}$	$D_M(0.61)$	$2333^{+120}_{-130}$
$\ln(10^{10} A_s)$	$3.040^{+0.041}_{-0.041}$	$z_{\text{re}}$	$7.8^{+1.9}_{-2.0}$	$H(2.33)$	$234^{+11}_{-9.7}$
$n_s$	$0.966^{+0.020}_{-0.021}$	$10^9 A_s$	$2.091^{+0.088}_{-0.084}$	$D_M(2.33)$	$5828^{+280}_{-290}$
$y_{\text{cal}}$	$1.0008^{+0.0064}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	$1.870^{+0.047}_{-0.049}$	$f\sigma_8(0.15)$	$0.454^{+0.016}_{-0.016}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-70}$	$D_{40}$	$1224^{+41}_{-39}$	$\sigma_8(0.15)$	$0.743^{+0.027}_{-0.027}$
$A_{143}^{\text{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5724^{+110}_{-98}$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.015}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2536^{+35}_{-35}$	$\sigma_8(0.38)$	$0.658^{+0.026}_{-0.025}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-13}$	$f\sigma_8(0.51)$	$0.470^{+0.015}_{-0.015}$
$A_{143}^{\text{tSZ}}$	$< 8.94$	$D_{2000}$	$230.3^{+5.8}_{-6.4}$	$\sigma_8(0.51)$	$0.616^{+0.025}_{-0.023}$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.32}$	$n_{s,0.002}$	$0.966^{+0.020}_{-0.021}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.015}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_P$	$0.256^{+0.054}_{-0.061}$	$\sigma_8(0.61)$	$0.586^{+0.024}_{-0.023}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P^{\text{BBN}}$	$0.257^{+0.054}_{-0.061}$	$f\sigma_8(2.33)$	$0.296^{+0.012}_{-0.012}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.95^{+0.66}_{-0.70}$	$\sigma_8(2.33)$	$0.305^{+0.013}_{-0.013}$
$A_{100}^{\text{dust}}$	$1.01^{+0.52}_{-0.52}$	$z_*$	$1090.0^{+1.5}_{-1.6}$	$f_{2000}^{143}$	$30^{+10}_{-10}$
$A_{143}^{\text{dust}}$	$0.96^{+0.47}_{-0.45}$	$r_*$	$146.3^{+6.8}_{-7.0}$	$f_{2000}^{217}$	$107.2^{+6.9}_{-6.8}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.26}$	$100\theta_*$	$1.0417^{+0.0024}_{-0.0025}$	$f_{2000}^{143 \times 217}$	$32^{+8}_{-7}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.42}$	$D_M(z_*)/\text{Gpc}$	$14.04^{+0.62}_{-0.65}$	$\chi_{\text{lensing}}^2$	$9.27 (\nu: 0.4)$
$c_{100}$	$0.9976^{+0.0026}_{-0.0029}$	$z_{\text{drag}}$	$1059.9^{+2.3}_{-2.4}$	$\chi_{\text{simall}}^2$	$397.2 (\nu: 1.7)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0039}$	$r_{\text{drag}}$	$149.0^{+6.9}_{-7.3}$	$\chi_{\text{lowl}}^2$	$23.0 (\nu: 0.8)$
$c_{TE}$	$0.997^{+0.014}_{-0.013}$	$k_D$	$0.1390^{+0.0069}_{-0.0060}$	$\chi_{\text{CamSpec}}^2$	$11515.3 (\nu: 17.8)$
$c_{EE}$	$0.993^{+0.017}_{-0.017}$	$100\theta_D$	$0.1610^{+0.0017}_{-0.0018}$	$\chi_{6\text{DF}}^2$	$0.068 (\nu: 0.0)$
$H_0$	$66.8^{+4.4}_{-3.7}$	$z_{\text{eq}}$	$3395^{+85}_{-88}$	$\chi_{\text{MGS}}^2$	$1.22 (\nu: 0.1)$
$\Omega_\Lambda$	$0.688^{+0.019}_{-0.018}$	$k_{\text{eq}}$	$0.01024^{+0.00041}_{-0.00037}$	$\chi_{\text{DR12BAO}}^2$	$5.0 (\nu: 1.3)$
$\Omega_m$	$0.312^{+0.018}_{-0.019}$	$100\theta_{\text{eq}}$	$0.815^{+0.015}_{-0.014}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_m h^2$	$0.139^{+0.013}_{-0.011}$	$100\theta_{s,\text{eq}}$	$0.4504^{+0.0079}_{-0.0072}$	$\chi_{\text{CMB}}^2$	$11944.7 (\nu: 19.1)$
$\Omega_m h^3$	$0.093^{+0.015}_{-0.012}$	$H(0.15)$	$72.1^{+4.5}_{-3.7}$	$\chi_{\text{BAO}}^2$	$6.3 (\nu: 0.9)$
$\sigma_8$	$0.804^{+0.029}_{-0.028}$	$D_M(0.15)$	$649^{+36}_{-40}$		
$\bar{\chi}_{\text{eff}}^2 = 11958.81; R - 1 = 0.01792$					



## 11.21 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02223^{+0.00061}_{-0.00058}$	$\Omega_m h^3$	$0.092^{+0.016}_{-0.013}$	$100\theta_{\text{eq}}$	$0.811^{+0.020}_{-0.020}$
$\Omega_c h^2$	$0.116^{+0.014}_{-0.011}$	$\sigma_8$	$0.801^{+0.034}_{-0.030}$	$100\theta_{\text{s,eq}}$	$0.448^{+0.010}_{-0.010}$
$100\theta_{\text{MC}}$	$1.0419^{+0.0034}_{-0.0037}$	$S_8$	$0.825^{+0.044}_{-0.040}$	$H(0.15)$	$71.3^{+5.4}_{-4.7}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$\sigma_8 \Omega_m^{0.5}$	$0.452^{+0.024}_{-0.022}$	$D_{\text{M}}(0.15)$	$657^{+48}_{-48}$
$N_{\text{eff}}$	$2.78^{+0.88}_{-0.74}$	$\sigma_8 \Omega_m^{0.25}$	$0.602^{+0.024}_{-0.023}$	$H(0.38)$	$81.3^{+5.5}_{-4.8}$
$Y_{\text{P}}$	$0.257^{+0.053}_{-0.060}$	$\sigma_8/h^{0.5}$	$0.986^{+0.030}_{-0.028}$	$D_{\text{M}}(0.38)$	$1565^{+110}_{-110}$
$\ln(10^{10} A_{\text{s}})$	$3.034^{+0.048}_{-0.040}$	$r_{\text{drag}} h$	$98.8^{+3.4}_{-3.4}$	$H(0.51)$	$88.0^{+5.6}_{-4.9}$
$n_{\text{s}}$	$0.962^{+0.025}_{-0.024}$	$\langle d^2 \rangle^{1/2}$	$2.440^{+0.082}_{-0.075}$	$D_{\text{M}}(0.51)$	$2026^{+140}_{-140}$
$y_{\text{cal}}$	$1.0005^{+0.0064}_{-0.0066}$	$z_{\text{re}}$	$< 9.47$	$H(0.61)$	$93.6^{+5.8}_{-5.0}$
$A_{100}^{\text{PS}}$	$240^{+70}_{-70}$	$10^9 A_{\text{s}}$	$2.08^{+0.10}_{-0.082}$	$D_{\text{M}}(0.61)$	$2357^{+150}_{-160}$
$A_{143}^{\text{PS}}$	$40^{+20}_{-20}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.865^{+0.054}_{-0.054}$	$H(2.33)$	$233^{+12}_{-10}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40}$	$D_{40}$	$1227^{+47}_{-45}$	$D_{\text{M}}(2.33)$	$5871^{+320}_{-330}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{220}$	$5715^{+100}_{-98}$	$f\sigma_8(0.15)$	$0.456^{+0.022}_{-0.021}$
$A_{143}^{\text{tSZ}}$	$< 8.80$	$D_{810}$	$2533^{+35}_{-35}$	$\sigma_8(0.15)$	$0.740^{+0.032}_{-0.029}$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.32}$	$D_{1420}$	$816^{+13}_{-14}$	$f\sigma_8(0.38)$	$0.472^{+0.019}_{-0.018}$
$r_{143 \times 217}^{\text{CIB}}$	—	$D_{2000}$	$230.4^{+6.0}_{-6.2}$	$\sigma_8(0.38)$	$0.655^{+0.030}_{-0.027}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$n_{\text{s},0.002}$	$0.962^{+0.025}_{-0.024}$	$f\sigma_8(0.51)$	$0.470^{+0.019}_{-0.018}$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}$	$0.257^{+0.053}_{-0.060}$	$\sigma_8(0.51)$	$0.613^{+0.029}_{-0.025}$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.50}$	$Y_{\text{P}}^{\text{BBN}}$	$0.258^{+0.053}_{-0.060}$	$f\sigma_8(0.61)$	$0.465^{+0.018}_{-0.017}$
$A_{143}^{\text{dust}}$	$0.96^{+0.45}_{-0.45}$	Age/Gyr	$14.05^{+0.77}_{-0.79}$	$\sigma_8(0.61)$	$0.583^{+0.028}_{-0.025}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.26}$	$z_*$	$1090.1^{+1.6}_{-1.6}$	$f\sigma_8(2.33)$	$0.294^{+0.015}_{-0.013}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.43}_{-0.41}$	$r_*$	$147.1^{+7.3}_{-7.8}$	$\sigma_8(2.33)$	$0.302^{+0.016}_{-0.014}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0027}$	$100\theta_*$	$1.0419^{+0.0025}_{-0.0026}$	$f_{2000}^{143}$	$30^{+10}_{-9}$
$c_{217}$	$1.0011^{+0.0042}_{-0.0042}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$14.11^{+0.67}_{-0.72}$	$f_{2000}^{217}$	$107.0^{+7.1}_{-6.7}$
$c_{TE}$	$0.997^{+0.014}_{-0.014}$	$z_{\text{drag}}$	$1059.6^{+2.6}_{-2.6}$	$f_{2000}^{143 \times 217}$	$32^{+8}_{-8}$
$c_{EE}$	$0.993^{+0.018}_{-0.017}$	$r_{\text{drag}}$	$149.8^{+7.5}_{-8.0}$	$\chi_{\text{simall}}^2$	$396.8 (\nu: 1.4)$
$H_0$	$66.0^{+5.3}_{-4.7}$	$k_{\text{D}}$	$0.1384^{+0.0075}_{-0.0063}$	$\chi_{\text{lowl}}^2$	$23.5 (\nu: 1.2)$
$\Omega_{\Lambda}$	$0.682^{+0.027}_{-0.031}$	$100\theta_{\text{D}}$	$0.1609^{+0.0019}_{-0.0018}$	$\chi_{\text{CamSpec}}^2$	$11515.2 (\nu: 18.5)$
$\Omega_{\text{m}}$	$0.318^{+0.031}_{-0.027}$	$z_{\text{eq}}$	$3417^{+120}_{-110}$	$\chi_{\text{prior}}^2$	$7.9 (\nu: 6.0)$
$\Omega_{\text{m}} h^2$	$0.139^{+0.014}_{-0.011}$	$k_{\text{eq}}$	$0.01024^{+0.00043}_{-0.00038}$	$\chi_{\text{CMB}}^2$	$11935.4 (\nu: 18.9)$

$$\bar{\chi}_{\text{eff}}^2 = 11943.30; R - 1 = 0.00937$$



## 11.22 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02233^{+0.00054}_{-0.00051}$	$S_8$	$0.817^{+0.035}_{-0.035}$	$H(0.38)$	$82.2^{+4.9}_{-4.0}$
$\Omega_c h^2$	$0.116^{+0.014}_{-0.011}$	$\sigma_8 \Omega_m^{0.5}$	$0.448^{+0.019}_{-0.019}$	$D_M(0.38)$	$1545^{+84}_{-92}$
$100\theta_{MC}$	$1.0418^{+0.0035}_{-0.0037}$	$\sigma_8 \Omega_m^{0.25}$	$0.599^{+0.024}_{-0.023}$	$H(0.51)$	$88.8^{+5.1}_{-4.2}$
$\tau$	$0.055^{+0.019}_{-0.014}$	$\sigma_8/h^{0.5}$	$0.981^{+0.028}_{-0.024}$	$D_M(0.51)$	$2002^{+110}_{-120}$
$N_{\text{eff}}$	$2.88^{+0.87}_{-0.68}$	$r_{\text{drag}} h$	$99.7^{+2.4}_{-2.2}$	$H(0.61)$	$94.4^{+5.3}_{-4.5}$
$Y_P$	$0.257^{+0.054}_{-0.061}$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.065}_{-0.062}$	$D_M(0.61)$	$2329^{+120}_{-130}$
$\ln(10^{10} A_s)$	$3.038^{+0.051}_{-0.038}$	$z_{\text{re}}$	$< 9.47$	$H(2.33)$	$234^{+12}_{-9.9}$
$n_s$	$0.967^{+0.021}_{-0.021}$	$10^9 A_s$	$2.09^{+0.11}_{-0.079}$	$D_M(2.33)$	$5823^{+280}_{-300}$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	$1.869^{+0.050}_{-0.054}$	$f\sigma_8(0.15)$	$0.452^{+0.019}_{-0.018}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-70}$	$D_{40}$	$1220^{+43}_{-38}$	$\sigma_8(0.15)$	$0.742^{+0.031}_{-0.029}$
$A_{143}^{\text{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5719^{+110}_{-99}$	$f\sigma_8(0.38)$	$0.471^{+0.019}_{-0.018}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2534^{+35}_{-37}$	$\sigma_8(0.38)$	$0.658^{+0.028}_{-0.026}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-14}$	$f\sigma_8(0.51)$	$0.469^{+0.019}_{-0.018}$
$A_{143}^{\text{tSZ}}$	$< 8.92$	$D_{2000}$	$230.1^{+5.9}_{-6.2}$	$\sigma_8(0.51)$	$0.616^{+0.027}_{-0.025}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.32}$	$n_{s,0.002}$	$0.967^{+0.021}_{-0.021}$	$f\sigma_8(0.61)$	$0.464^{+0.019}_{-0.018}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_P$	$0.257^{+0.054}_{-0.061}$	$\sigma_8(0.61)$	$0.586^{+0.026}_{-0.023}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P^{\text{BBN}}$	$0.258^{+0.055}_{-0.061}$	$f\sigma_8(2.33)$	$0.295^{+0.013}_{-0.012}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.94^{+0.67}_{-0.73}$	$\sigma_8(2.33)$	$0.305^{+0.014}_{-0.013}$
$A_{100}^{\text{dust}}$	$1.01^{+0.52}_{-0.51}$	$z_*$	$1090.0^{+1.5}_{-1.6}$	$f_{2000}^{143}$	$30^{+10}_{-10}$
$A_{143}^{\text{dust}}$	$0.97^{+0.46}_{-0.45}$	$r_*$	$146.3^{+6.9}_{-7.5}$	$f_{2000}^{217}$	$107.3^{+6.8}_{-6.6}$
$A_{217}^{\text{dust}}$	$0.97^{+0.28}_{-0.27}$	$100\theta_*$	$1.0417^{+0.0024}_{-0.0026}$	$f_{2000}^{143 \times 217}$	$33^{+8}_{-7}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.42}$	$D_M(z_*)/\text{Gpc}$	$14.04^{+0.63}_{-0.69}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.6)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0029}$	$z_{\text{drag}}$	$1059.9^{+2.5}_{-2.4}$	$\chi_{\text{lowl}}^2$	$22.8 (\nu: 0.7)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$	$r_{\text{drag}}$	$149.0^{+7.1}_{-7.6}$	$\chi_{\text{CamSpec}}^2$	$11515.8 (\nu: 18.0)$
$c_{TE}$	$0.997^{+0.014}_{-0.013}$	$k_D$	$0.1390^{+0.0074}_{-0.0060}$	$\chi_{6\text{DF}}^2$	$0.057 (\nu: 0.0)$
$c_{EE}$	$0.994^{+0.017}_{-0.017}$	$100\theta_D$	$0.1610^{+0.0017}_{-0.0017}$	$\chi_{\text{MGS}}^2$	$1.33 (\nu: 0.1)$
$H_0$	$67.0^{+4.5}_{-3.7}$	$z_{\text{eq}}$	$3389^{+86}_{-88}$	$\chi_{\text{DR12BAO}}^2$	$4.7 (\nu: 1.1)$
$\Omega_\Lambda$	$0.689^{+0.019}_{-0.019}$	$k_{\text{eq}}$	$0.01023^{+0.00044}_{-0.00039}$	$\chi_{\text{prior}}^2$	$7.9 (\nu: 6.1)$
$\Omega_m$	$0.311^{+0.019}_{-0.019}$	$100\theta_{\text{eq}}$	$0.816^{+0.015}_{-0.014}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.7)$
$\Omega_m h^2$	$0.139^{+0.014}_{-0.011}$	$100\theta_{s,\text{eq}}$	$0.4509^{+0.0077}_{-0.0073}$	$\chi_{\text{CMB}}^2$	$11935.5 (\nu: 18.2)$
$\Omega_m h^3$	$0.093^{+0.016}_{-0.012}$	$H(0.15)$	$72.2^{+4.5}_{-3.8}$		
$\sigma_8$	$0.803^{+0.033}_{-0.031}$	$D_M(0.15)$	$648^{+37}_{-40}$		

$$\bar{\chi}_{\text{eff}}^2 = 11949.50; R - 1 = 0.02228$$



### 11.23 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02221^{+0.00062}_{-0.00057}$	$\sigma_8$	$0.801^{+0.030}_{-0.029}$	$H(0.15)$	$71.1^{+5.2}_{-4.7}$
$\Omega_c h^2$	$0.116^{+0.013}_{-0.011}$	$S_8$	$0.827^{+0.034}_{-0.033}$	$D_M(0.15)$	$659^{+48}_{-47}$
$100\theta_{MC}$	$1.0419^{+0.0034}_{-0.0037}$	$\sigma_8 \Omega_m^{0.5}$	$0.453^{+0.018}_{-0.018}$	$H(0.38)$	$81.1^{+5.2}_{-4.7}$
$\tau$	$0.055^{+0.018}_{-0.013}$	$\sigma_8 \Omega_m^{0.25}$	$0.602^{+0.019}_{-0.019}$	$D_M(0.38)$	$1569^{+110}_{-110}$
$N_{\text{eff}}$	$2.76^{+0.87}_{-0.73}$	$\sigma_8/h^{0.5}$	$0.988^{+0.025}_{-0.023}$	$H(0.51)$	$87.8^{+5.4}_{-4.9}$
$Y_P$	$0.256^{+0.056}_{-0.060}$	$r_{\text{drag}} h$	$98.6^{+3.4}_{-3.2}$	$D_M(0.51)$	$2031^{+140}_{-130}$
$\ln(10^{10} A_s)$	$3.035^{+0.044}_{-0.039}$	$\langle d^2 \rangle^{1/2}$	$2.446^{+0.067}_{-0.064}$	$H(0.61)$	$93.4^{+5.5}_{-5.1}$
$n_s$	$0.961^{+0.024}_{-0.024}$	$z_{\text{re}}$	$< 9.38$	$D_M(0.61)$	$2363^{+150}_{-150}$
$y_{\text{cal}}$	$1.0006^{+0.0063}_{-0.0063}$	$10^9 A_s$	$2.080^{+0.094}_{-0.080}$	$H(2.33)$	$233^{+11}_{-9.6}$
$A_{100}^{\text{PS}}$	$239^{+70}_{-70}$	$10^9 A_s e^{-2\tau}$	$1.864^{+0.051}_{-0.053}$	$D_M(2.33)$	$5881^{+330}_{-320}$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20}$	$D_{40}$	$1230^{+43}_{-42}$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017}$
$A_{217}^{\text{PS}}$	$103^{+30}_{-30}$	$D_{220}$	$5717^{+100}_{-99}$	$\sigma_8(0.15)$	$0.739^{+0.029}_{-0.027}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$D_{810}$	$2534^{+35}_{-36}$	$f\sigma_8(0.38)$	$0.473^{+0.015}_{-0.015}$
$A_{143}^{\text{tSZ}}$	$< 8.82$	$D_{1420}$	$816^{+13}_{-14}$	$\sigma_8(0.38)$	$0.655^{+0.028}_{-0.026}$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.30}_{-0.32}$	$D_{2000}$	$230.6^{+5.7}_{-6.1}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.015}$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{s,0.002}$	$0.961^{+0.024}_{-0.024}$	$\sigma_8(0.51)$	$0.612^{+0.027}_{-0.025}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P$	$0.256^{+0.056}_{-0.060}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.015}$
$A^{\text{kSZ}}$	—	$Y_P^{\text{BBN}}$	$0.257^{+0.056}_{-0.060}$	$\sigma_8(0.61)$	$0.582^{+0.026}_{-0.024}$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.50}$	Age/Gyr	$14.08^{+0.77}_{-0.77}$	$f\sigma_8(2.33)$	$0.293^{+0.014}_{-0.013}$
$A_{143}^{\text{dust}}$	$0.96^{+0.46}_{-0.44}$	$z_*$	$1090.0^{+1.6}_{-1.6}$	$\sigma_8(2.33)$	$0.302^{+0.015}_{-0.014}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.26}$	$r_*$	$147.2^{+7.1}_{-7.5}$	$f_{2000}^{143}$	$30^{+10}_{-10}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.43}_{-0.42}$	$100\theta_*$	$1.0419^{+0.0025}_{-0.0025}$	$f_{2000}^{217}$	$106.8^{+6.9}_{-6.8}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$D_M(z_*)/\text{Gpc}$	$14.13^{+0.65}_{-0.69}$	$f_{2000}^{143 \times 217}$	$32^{+8}_{-8}$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040}$	$z_{\text{drag}}$	$1059.5^{+2.5}_{-2.5}$	$\chi_{\text{lensing}}^2$	$9.02 (\nu: 0.3)$
$c_{TE}$	$0.997^{+0.014}_{-0.013}$	$r_{\text{drag}}$	$150.0^{+7.4}_{-7.8}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.4)$
$c_{EE}$	$0.992^{+0.017}_{-0.017}$	$k_D$	$0.1383^{+0.0072}_{-0.0064}$	$\chi_{\text{lowl}}^2$	$23.7 (\nu: 1.2)$
$H_0$	$65.8^{+5.2}_{-4.8}$	$100\theta_D$	$0.1608^{+0.0018}_{-0.0018}$	$\chi_{\text{CamSpec}}^2$	$11514.6 (\nu: 17.3)$
$\Omega_\Lambda$	$0.680^{+0.027}_{-0.030}$	$z_{\text{eq}}$	$3422^{+110}_{-110}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 5.9)$
$\Omega_m$	$0.320^{+0.030}_{-0.027}$	$k_{\text{eq}}$	$0.01024^{+0.00040}_{-0.00035}$	$\chi_{\text{CMB}}^2$	$11944.2 (\nu: 18.4)$
$\Omega_m h^2$	$0.138^{+0.013}_{-0.011}$	$100\theta_{\text{eq}}$	$0.810^{+0.021}_{-0.019}$		
$\Omega_m h^3$	$0.091^{+0.015}_{-0.013}$	$100\theta_{s,\text{eq}}$	$0.448^{+0.011}_{-0.0099}$		

$$\bar{\chi}_{\text{eff}}^2 = 11952.01; R - 1 = 0.01202$$



# 11.24 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02232^{+0.00054}_{-0.00051}$	$S_8$	$0.820^{+0.029}_{-0.029}$	$H(0.38)$	$82.1^{+4.7}_{-3.9}$
$\Omega_{\mathrm{c}} h^2$	$0.116^{+0.013}_{-0.011}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.016}_{-0.016}$	$D_{\mathrm{M}}(0.38)$	$1548^{+82}_{-90}$
$100\theta_{\mathrm{MC}}$	$1.0418^{+0.0035}_{-0.0036}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.019}_{-0.019}$	$H(0.51)$	$88.7^{+4.9}_{-4.1}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$\sigma_8/h^{0.5}$	$0.984^{+0.023}_{-0.022}$	$D_{\mathrm{M}}(0.51)$	$2005^{+100}_{-120}$
$N_{\mathrm{eff}}$	$2.87^{+0.79}_{-0.67}$	$r_{\mathrm{drag}} h$	$99.6^{+2.3}_{-2.1}$	$H(0.61)$	$94.3^{+5.0}_{-4.4}$
$Y_{\mathrm{P}}$	$0.256^{+0.054}_{-0.061}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.055}_{-0.054}$	$D_{\mathrm{M}}(0.61)$	$2333^{+120}_{-130}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.041}_{-0.037}$	$z_{\mathrm{re}}$	$< 9.50$	$H(2.33)$	$234^{+11}_{-9.6}$
$n_{\mathrm{s}}$	$0.966^{+0.020}_{-0.021}$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.087}_{-0.077}$	$D_{\mathrm{M}}(2.33)$	$5828^{+280}_{-290}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0064}_{-0.0062}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.870^{+0.047}_{-0.049}$	$f\sigma_8(0.15)$	$0.454^{+0.016}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-70}$	$D_{40}$	$1224^{+41}_{-39}$	$\sigma_8(0.15)$	$0.743^{+0.027}_{-0.026}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5724^{+110}_{-98}$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.015}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2536^{+35}_{-35}$	$\sigma_8(0.38)$	$0.659^{+0.025}_{-0.024}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-14}$	$f\sigma_8(0.51)$	$0.470^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.94$	$D_{2000}$	$230.3^{+5.8}_{-6.4}$	$\sigma_8(0.51)$	$0.616^{+0.024}_{-0.023}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.020}_{-0.021}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.015}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.256^{+0.054}_{-0.061}$	$\sigma_8(0.61)$	$0.586^{+0.024}_{-0.022}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.258^{+0.054}_{-0.061}$	$f\sigma_8(2.33)$	$0.296^{+0.012}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.95^{+0.66}_{-0.70}$	$\sigma_8(2.33)$	$0.305^{+0.013}_{-0.012}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.52}_{-0.51}$	$z_*$	$1090.0^{+1.5}_{-1.6}$	$f_{2000}^{143}$	$30^{+10}_{-10}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.47}_{-0.45}$	$r_*$	$146.3^{+6.8}_{-7.0}$	$f_{2000}^{217}$	$107.2^{+7.0}_{-6.8}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$100\theta_*$	$1.0417^{+0.0024}_{-0.0025}$	$f_{2000}^{143 \times 217}$	$32^{+8}_{-7}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.05^{+0.62}_{-0.65}$	$\chi_{\mathrm{lensing}}^2$	$9.23 (\nu: 0.3)$
$c_{100}$	$0.9976^{+0.0026}_{-0.0029}$	$z_{\mathrm{drag}}$	$1059.9^{+2.3}_{-2.4}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 1.8)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0039}$	$r_{\mathrm{drag}}$	$149.0^{+6.9}_{-7.3}$	$\chi_{\mathrm{lowl}}^2$	$23.0 (\nu: 0.8)$
$c_{TE}$	$0.997^{+0.014}_{-0.013}$	$k_{\mathrm{D}}$	$0.1390^{+0.0069}_{-0.0060}$	$\chi_{\mathrm{CamSpec}}^2$	$11515.2 (\nu: 17.8)$
$c_{EE}$	$0.993^{+0.017}_{-0.017}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0017}_{-0.0018}$	$\chi_{6\mathrm{DF}}^2$	$0.067 (\nu: 0.0)$
$H_0$	$66.8^{+4.4}_{-3.7}$	$z_{\mathrm{eq}}$	$3394^{+85}_{-88}$	$\chi_{\mathrm{MGS}}^2$	$1.23 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.688^{+0.018}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01024^{+0.00041}_{-0.00037}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 (\nu: 1.2)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.018}_{-0.018}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.015}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_{\mathrm{m}} h^2$	$0.139^{+0.013}_{-0.011}$	$100\theta_{\mathrm{s,eq}}$	$0.4504^{+0.0079}_{-0.0072}$	$\chi_{\mathrm{CMB}}^2$	$11944.6 (\nu: 18.9)$
$\Omega_{\mathrm{m}} h^3$	$0.093^{+0.015}_{-0.012}$	$H(0.15)$	$72.1^{+4.5}_{-3.7}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 0.8)$
$\sigma_8$	$0.804^{+0.029}_{-0.028}$	$D_{\mathrm{M}}(0.15)$	$649^{+36}_{-40}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 11958.67; R - 1 = 0.01939$					



## 11.25 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02201	$0.02207^{+0.00084}_{-0.00082}$	$S_8$	0.843	$0.840^{+0.067}_{-0.060}$	$100\theta_{s,eq}$	0.4460	$0.448^{+0.017}_{-0.017}$
$\Omega_c h^2$	0.1185	$0.120^{+0.013}_{-0.011}$	$\sigma_8 \Omega_m^{0.5}$	0.4615	$0.460^{+0.037}_{-0.033}$	$H(0.15)$	71.0	$71.9^{+6.8}_{-6.5}$
$100\theta_{MC}$	1.04099	$1.0408^{+0.0021}_{-0.0019}$	$\sigma_8 \Omega_m^{0.25}$	0.6100	$0.610^{+0.032}_{-0.029}$	$D_M(0.15)$	659	$652^{+68}_{-60}$
$\tau$	0.0515	$0.051^{+0.023}_{-0.023}$	$\sigma_8/h^{0.5}$	0.9951	$0.993^{+0.043}_{-0.041}$	$H(0.38)$	81.3	$82.1^{+6.5}_{-6.3}$
$N_{eff}$	2.88	$3.00^{+0.90}_{-0.84}$	$r_{drag} h$	97.6	$98.2^{+6.0}_{-6.0}$	$D_M(0.38)$	1568	$1552^{+150}_{-130}$
$Y_P$	0.2439	$0.244^{+0.011}_{-0.010}$	$\langle d^2 \rangle^{1/2}$	2.465	$2.46^{+0.12}_{-0.11}$	$H(0.51)$	88.1	$89.0^{+6.5}_{-6.3}$
$\ln(10^{10} A_s)$	3.034	$3.036^{+0.057}_{-0.062}$	$z_{re}$	7.43	$7.4^{+2.3}_{-2.7}$	$D_M(0.51)$	2029	$2009^{+190}_{-170}$
$n_s$	0.9575	$0.960^{+0.035}_{-0.036}$	$10^9 A_s$	2.077	$2.08^{+0.12}_{-0.13}$	$H(0.61)$	93.8	$94.6^{+6.5}_{-6.3}$
$y_{cal}$	1.0002	$1.0005^{+0.0065}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	1.874	$1.881^{+0.061}_{-0.061}$	$D_M(0.61)$	2359	$2336^{+210}_{-190}$
$A_{217}^{CIB}$	47.0	$48^{+20}_{-20}$	$D_{40}$	1239	$1237^{+60}_{-56}$	$H(2.33)$	234.7	$236^{+11}_{-10}$
$\xi^{tSZ \times CIB}$	0.51	—	$D_{220}$	5706	$5714^{+110}_{-110}$	$D_M(2.33)$	5851	$5803^{+390}_{-360}$
$A_{143}^{tSZ}$	7.0	—	$D_{810}$	2535.3	$2536^{+37}_{-36}$	$f\sigma_8(0.15)$	0.4647	$0.464^{+0.032}_{-0.030}$
$A_{100}^{PS}$	250	$262^{+80}_{-70}$	$D_{1420}$	816.1	$815^{+13}_{-12}$	$\sigma_8(0.15)$	0.7435	$0.747^{+0.037}_{-0.037}$
$A_{143}^{PS}$	50.0	$48^{+20}_{-20}$	$D_{2000}$	230.8	$229.9^{+5.5}_{-5.4}$	$f\sigma_8(0.38)$	0.4793	$0.479^{+0.026}_{-0.024}$
$A_{143 \times 217}^{PS}$	50.4	$43^{+20}_{-20}$	$n_{s,0.002}$	0.9575	$0.960^{+0.035}_{-0.036}$	$\sigma_8(0.38)$	0.6574	$0.661^{+0.036}_{-0.035}$
$A_{217}^{PS}$	120.9	$115^{+30}_{-30}$	$Y_P$	0.2439	$0.244^{+0.011}_{-0.010}$	$f\sigma_8(0.51)$	0.4761	$0.477^{+0.023}_{-0.022}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.2453	$0.245^{+0.011}_{-0.010}$	$\sigma_8(0.51)$	0.6145	$0.618^{+0.035}_{-0.034}$
$A_{100}^{dustTT}$	8.83	$8.9^{+4.8}_{-4.7}$	Age/Gyr	14.00	$13.89^{+0.93}_{-0.85}$	$f\sigma_8(0.61)$	0.4699	$0.471^{+0.022}_{-0.021}$
$A_{143}^{dustTT}$	10.75	$10.7^{+4.5}_{-4.6}$	$z_*$	1090.12	$1090.2^{+1.2}_{-1.1}$	$\sigma_8(0.61)$	0.5843	$0.588^{+0.034}_{-0.033}$
$A_{143 \times 217}^{dustTT}$	19.5	$18.2^{+8.6}_{-8.3}$	$r_*$	145.9	$145.0^{+7.9}_{-7.5}$	$f\sigma_8(2.33)$	0.2940	$0.296^{+0.018}_{-0.018}$
$A_{217}^{dustTT}$	94.9	$93^{+20}_{-20}$	$100\theta_*$	1.04129	$1.0411^{+0.0023}_{-0.0021}$	$\sigma_8(2.33)$	0.3024	$0.304^{+0.020}_{-0.019}$
$c_{100}$	0.99964	$0.9996^{+0.0015}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	14.01	$13.92^{+0.73}_{-0.70}$	$\chi_{simall}^2$	395.81	$396.9 (\nu: 1.3)$
$c_{217}$	0.99824	$0.9983^{+0.0016}_{-0.0016}$	$z_{drag}$	1058.90	$1059.2^{+2.7}_{-2.8}$	$\chi_{lowl}^2$	24.4	$24.5 (\nu: 2.7)$
$H_0$	65.7	$66.5^{+7.0}_{-6.7}$	$r_{drag}$	148.7	$147.7^{+8.3}_{-7.9}$	$\chi_{plik}^2$	757.7	$771.7 (\nu: 17.4)$
$\Omega_\Lambda$	0.672	$0.676^{+0.047}_{-0.056}$	$k_D$	0.1395	$0.1402^{+0.0062}_{-0.0060}$	$\chi_{Aver15}^2$	0.01	$1.0 (\nu: 1.0)$
$\Omega_m$	0.328	$0.324^{+0.056}_{-0.047}$	$100\theta_D$	0.16071	$0.1609^{+0.0016}_{-0.0016}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.7)$
$\Omega_m h^2$	0.1412	$0.143^{+0.013}_{-0.012}$	$z_{eq}$	3436	$3421^{+190}_{-170}$	$\chi_{CMB}^2$	1178.0	$1193.0 (\nu: 16.2)$
$\Omega_m h^3$	0.0927	$0.095^{+0.018}_{-0.016}$	$k_{eq}$	0.010368	$0.01040^{+0.00047}_{-0.00041}$			
$\sigma_8$	0.8063	$0.809^{+0.039}_{-0.037}$	$100\theta_{eq}$	0.8063	$0.809^{+0.034}_{-0.034}$			

Best-fit  $\chi_{eff}^2 = 1179.25$ ;  $\bar{\chi}_{eff}^2 = 1201.30$ ;  $R - 1 = 0.00666$

$\chi_{eff}^2$ : Abund - Yp\_Aver2015: 0.01 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.81 commander\_dx12\_v3.2\_29: 24.45 plik\_rd12\_HM\_v22\_TT: 757.69



## 11.26 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02226^{+0.00057}_{-0.00058}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.029}_{-0.026}$	$D_{\mathrm{M}}(0.38)$	$1515^{+87}_{-86}$
$\Omega_{\mathrm{c}}h^2$	$0.121^{+0.013}_{-0.011}$	$\sigma_8/h^{0.5}$	$0.983^{+0.032}_{-0.031}$	$H(0.51)$	$90.5^{+4.9}_{-4.4}$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0019}_{-0.0019}$	$r_{\mathrm{drag}}h$	$99.95^{+2.8}_{-2.6}$	$D_{\mathrm{M}}(0.51)$	$1963^{+110}_{-110}$
$\tau$	$0.053^{+0.021}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.073}_{-0.071}$	$H(0.61)$	$96.1^{+5.1}_{-4.5}$
$N_{\mathrm{eff}}$	$3.18^{+0.79}_{-0.66}$	$z_{\mathrm{re}}$	$7.6^{+2.1}_{-2.4}$	$D_{\mathrm{M}}(0.61)$	$2285^{+130}_{-130}$
$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.0096}$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.11}_{-0.10}$	$H(2.33)$	$238^{+11}_{-9.6}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.050}_{-0.051}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.886^{+0.057}_{-0.056}$	$D_{\mathrm{M}}(2.33)$	$5718^{+270}_{-280}$
$n_{\mathrm{s}}$	$0.969^{+0.024}_{-0.022}$	$D_{40}$	$1223^{+39}_{-39}$	$f\sigma_8(0.15)$	$0.456^{+0.023}_{-0.022}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0065}_{-0.0060}$	$D_{220}$	$5720^{+100}_{-100}$	$\sigma_8(0.15)$	$0.751^{+0.036}_{-0.035}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+39}_{-34}$	$f\sigma_8(0.38)$	$0.475^{+0.023}_{-0.020}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.666^{+0.032}_{-0.032}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.5^{+5.4}_{-5.5}$	$f\sigma_8(0.51)$	$0.474^{+0.022}_{-0.020}$
$A_{100}^{\mathrm{PS}}$	$265^{+80}_{-70}$	$n_{\mathrm{s},0.002}$	$0.969^{+0.024}_{-0.022}$	$\sigma_8(0.51)$	$0.623^{+0.030}_{-0.030}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.0096}$	$f\sigma_8(0.61)$	$0.469^{+0.022}_{-0.021}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.0097}$	$\sigma_8(0.61)$	$0.593^{+0.028}_{-0.029}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	Age/Gyr	$13.69^{+0.64}_{-0.67}$	$f\sigma_8(2.33)$	$0.299^{+0.015}_{-0.015}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.1^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	$0.309^{+0.016}_{-0.015}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.7}_{-4.6}$	$r_*$	$143.7^{+6.4}_{-6.7}$	$f_{2000}^{143}$	$31^{+9}_{-8}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.8}_{-4.9}$	$100\theta_*$	$1.0409^{+0.0020}_{-0.0020}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.3}_{-8.4}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.80^{+0.59}_{-0.62}$	$f_{2000}^{217}$	$108.3^{+5.5}_{-5.5}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.8^{+2.1}_{-2.1}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.4)$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.3^{+6.6}_{-7.0}$	$\chi_{\mathrm{lowl}}^2$	$22.8 (\nu: 0.7)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1413^{+0.0055}_{-0.0051}$	$\chi_{\mathrm{plik}}^2$	$773.2 (\nu: 15.4)$
$H_0$	$68.3^{+4.4}_{-4.0}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0014}_{-0.0013}$	$\chi_{\mathrm{Aver15}}^2$	$0.96 (\nu: 0.9)$
$\Omega_{\Lambda}$	$0.691^{+0.021}_{-0.022}$	$z_{\mathrm{eq}}$	$3366^{+85}_{-83}$	$\chi_{6\mathrm{DF}}^2$	$0.057 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.022}_{-0.021}$	$k_{\mathrm{eq}}$	$0.01036^{+0.00046}_{-0.00040}$	$\chi_{\mathrm{MGS}}^2$	$1.46 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.144^{+0.014}_{-0.011}$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.016}_{-0.015}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.3)$
$\Omega_{\mathrm{m}}h^3$	$0.098^{+0.015}_{-0.012}$	$100\theta_{\mathrm{s,eq}}$	$0.4527^{+0.0081}_{-0.0078}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.6)$
$\sigma_8$	$0.812^{+0.038}_{-0.037}$	$H(0.15)$	$73.6^{+4.5}_{-4.1}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.9)$
$S_8$	$0.823^{+0.043}_{-0.041}$	$D_{\mathrm{M}}(0.15)$	$635^{+38}_{-38}$	$\chi_{\mathrm{CMB}}^2$	$1193.0 (\nu: 14.9)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.024}_{-0.022}$	$H(0.38)$	$83.7^{+4.7}_{-4.2}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1207.49; R - 1 = 0.02393$$



## 11.27 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02206^{+0.00078}_{-0.00080}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.458^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.15)$	$654^{+62}_{-57}$
$\Omega_{\mathrm{c}}h^2$	$0.119^{+0.012}_{-0.011}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.022}_{-0.021}$	$H(0.38)$	$81.9^{+6.3}_{-5.9}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0020}_{-0.0018}$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.027}$	$D_{\mathrm{M}}(0.38)$	$1557^{+140}_{-130}$
$\tau$	$0.051^{+0.023}_{-0.024}$	$r_{\mathrm{drag}}h$	$98.3^{+5.1}_{-4.9}$	$H(0.51)$	$88.6^{+6.3}_{-5.9}$
$N_{\mathrm{eff}}$	$2.94^{+0.88}_{-0.79}$	$\langle d^2 \rangle^{1/2}$	$2.454^{+0.083}_{-0.082}$	$D_{\mathrm{M}}(0.51)$	$2015^{+170}_{-160}$
$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.010}$	$z_{\mathrm{re}}$	$7.4^{+2.2}_{-2.7}$	$H(0.61)$	$94.3^{+6.3}_{-5.9}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.033^{+0.056}_{-0.062}$	$10^9 A_{\mathrm{s}}$	$2.08^{+0.12}_{-0.13}$	$D_{\mathrm{M}}(0.61)$	$2343^{+190}_{-180}$
$n_{\mathrm{s}}$	$0.959^{+0.033}_{-0.033}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.875^{+0.057}_{-0.057}$	$H(2.33)$	$235^{+11}_{-10}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0065}_{-0.0064}$	$D_{40}$	$1238^{+51}_{-49}$	$D_{\mathrm{M}}(2.33)$	$5824^{+360}_{-350}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{220}$	$5716^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{810}$	$2535^{+37}_{-36}$	$\sigma_8(0.15)$	$0.743^{+0.036}_{-0.035}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.477^{+0.017}_{-0.017}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-80}$	$D_{2000}$	$230.1^{+5.4}_{-5.4}$	$\sigma_8(0.38)$	$0.658^{+0.035}_{-0.034}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.959^{+0.033}_{-0.033}$	$f\sigma_8(0.51)$	$0.474^{+0.016}_{-0.017}$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.010}$	$\sigma_8(0.51)$	$0.615^{+0.034}_{-0.034}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.010}$	$f\sigma_8(0.61)$	$0.468^{+0.017}_{-0.017}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.94^{+0.87}_{-0.83}$	$\sigma_8(0.61)$	$0.585^{+0.033}_{-0.033}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.7}$	$z_*$	$1090.1^{+1.1}_{-1.0}$	$f\sigma_8(2.33)$	$0.295^{+0.018}_{-0.018}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.5}_{-4.6}$	$r_*$	$145.6^{+7.5}_{-7.4}$	$\sigma_8(2.33)$	$0.303^{+0.020}_{-0.020}$
$A_{143\times 217}^{\mathrm{dustTT}}$	$18.2^{+8.7}_{-8.4}$	$100\theta_*$	$1.0412^{+0.0022}_{-0.0020}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.98^{+0.70}_{-0.68}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0015}$	$z_{\mathrm{drag}}$	$1059.1^{+2.6}_{-2.8}$	$f_{2000}^{217}$	$107.7^{+5.8}_{-5.4}$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$148.3^{+7.9}_{-7.6}$	$\chi_{\mathrm{lensing}}^2$	$9.4\,(\nu: 0.5)$
$H_0$	$66.3^{+6.5}_{-6.1}$	$k_{\mathrm{D}}$	$0.1398^{+0.0060}_{-0.0057}$	$\chi_{\mathrm{simall}}^2$	$396.8\,(\nu: 1.2)$
$\Omega_{\Lambda}$	$0.677^{+0.040}_{-0.045}$	$100\theta_{\mathrm{D}}$	$0.1608^{+0.0015}_{-0.0015}$	$\chi_{\mathrm{lowl}}^2$	$24.5\,(\nu: 2.1)$
$\Omega_{\mathrm{m}}$	$0.323^{+0.045}_{-0.040}$	$z_{\mathrm{eq}}$	$3417^{+160}_{-150}$	$\chi_{\mathrm{plik}}^2$	$771.1\,(\nu: 14.8)$
$\Omega_{\mathrm{m}}h^2$	$0.142^{+0.012}_{-0.011}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00038}_{-0.00036}$	$\chi_{\mathrm{Aver15}}^2$	$0.99\,(\nu: 1.0)$
$\Omega_{\mathrm{m}}h^3$	$0.094^{+0.017}_{-0.015}$	$100\theta_{\mathrm{eq}}$	$0.810^{+0.029}_{-0.028}$	$\chi_{\mathrm{prior}}^2$	$7.3\,(\nu: 6.7)$
$\sigma_8$	$0.806^{+0.035}_{-0.035}$	$100\theta_{\mathrm{s,eq}}$	$0.448^{+0.015}_{-0.014}$	$\chi_{\mathrm{CMB}}^2$	$1201.8\,(\nu: 15.9)$
$S_8$	$0.835^{+0.043}_{-0.042}$	$H(0.15)$	$71.6^{+6.4}_{-6.0}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1210.08; R - 1 = 0.01169$$



# 11.28 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02225^{+0.00057}_{-0.00058}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.021}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1521^{+87}_{-83}$
$\Omega_{\mathrm{c}}h^2$	$0.121^{+0.011}_{-0.010}$	$\sigma_8/h^{0.5}$	$0.984^{+0.024}_{-0.024}$	$H(0.51)$	$90.2^{+4.6}_{-4.4}$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0018}_{-0.0017}$	$r_{\mathrm{drag}}h$	$99.8^{+2.6}_{-2.5}$	$D_{\mathrm{M}}(0.51)$	$1970^{+110}_{-110}$
$\tau$	$0.055^{+0.019}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.059}_{-0.058}$	$H(0.61)$	$95.8^{+4.6}_{-4.5}$
$N_{\mathrm{eff}}$	$3.14^{+0.72}_{-0.64}$	$z_{\mathrm{re}}$	$7.7^{+1.9}_{-2.0}$	$D_{\mathrm{M}}(0.61)$	$2293^{+120}_{-120}$
$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.0097}$	$10^9 A_{\mathrm{s}}$	$2.102^{+0.093}_{-0.091}$	$H(2.33)$	$237.0^{+9.7}_{-9.2}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.043}_{-0.044}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.884^{+0.053}_{-0.052}$	$D_{\mathrm{M}}(2.33)$	$5734^{+270}_{-260}$
$n_{\mathrm{s}}$	$0.968^{+0.021}_{-0.021}$	$D_{40}$	$1226^{+39}_{-38}$	$f\sigma_8(0.15)$	$0.456^{+0.018}_{-0.017}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0061}$	$D_{220}$	$5724^{+100}_{-100}$	$\sigma_8(0.15)$	$0.750^{+0.030}_{-0.029}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2538^{+38}_{-34}$	$f\sigma_8(0.38)$	$0.475^{+0.017}_{-0.017}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.665^{+0.028}_{-0.027}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.8^{+5.7}_{-5.6}$	$f\sigma_8(0.51)$	$0.474^{+0.016}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.021}_{-0.021}$	$\sigma_8(0.51)$	$0.623^{+0.027}_{-0.026}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.0097}$	$f\sigma_8(0.61)$	$0.469^{+0.016}_{-0.016}$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.0097}$	$\sigma_8(0.61)$	$0.593^{+0.025}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	Age/Gyr	$13.73^{+0.64}_{-0.62}$	$f\sigma_8(2.33)$	$0.299^{+0.013}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.1^{+1.1}_{-1.0}$	$\sigma_8(2.33)$	$0.308^{+0.014}_{-0.014}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.6}_{-4.7}$	$r_*$	$144.0^{+6.3}_{-6.2}$	$f_{2000}^{143}$	$31^{+9}_{-8}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.7}_{-5.0}$	$100\theta_*$	$1.0409^{+0.0019}_{-0.0018}$	$f_{2000}^{143\times 217}$	$34^{+6}_{-6}$
$A_{143\times 217}^{\mathrm{dustTT}}$	$18.3^{+8.4}_{-8.5}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.83^{+0.58}_{-0.57}$	$f_{2000}^{217}$	$108.1^{+5.5}_{-5.4}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.7^{+2.0}_{-2.0}$	$\chi_{\mathrm{lensing}}^2$	$9.43\ (\nu: 0.3)$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.7^{+6.5}_{-6.4}$	$\chi_{\mathrm{simall}}^2$	$397.0\ (\nu: 1.4)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1410^{+0.0050}_{-0.0049}$	$\chi_{\mathrm{lowl}}^2$	$23.1\ (\nu: 0.7)$
$H_0$	$68.1^{+4.2}_{-4.0}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{plik}}^2$	$772.4\ (\nu: 14.1)$
$\Omega_{\Lambda}$	$0.690^{+0.021}_{-0.021}$	$z_{\mathrm{eq}}$	$3371^{+81}_{-81}$	$\chi_{\mathrm{Aver15}}^2$	$0.97\ (\nu: 0.9)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.021}_{-0.021}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00040}_{-0.00038}$	$\chi_{6\mathrm{DF}}^2$	$0.060\ (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.143^{+0.012}_{-0.010}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.015}_{-0.015}$	$\chi_{\mathrm{MGS}}^2$	$1.37\ (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^3$	$0.098^{+0.014}_{-0.012}$	$100\theta_{\mathrm{s,eq}}$	$0.4522^{+0.0078}_{-0.0075}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8\ (\nu: 1.4)$
$\sigma_8$	$0.812^{+0.032}_{-0.030}$	$H(0.15)$	$73.3^{+4.3}_{-4.0}$	$\chi_{\mathrm{prior}}^2$	$7.3\ (\nu: 6.7)$
$S_8$	$0.825^{+0.033}_{-0.032}$	$D_{\mathrm{M}}(0.15)$	$637^{+38}_{-37}$	$\chi_{\mathrm{CMB}}^2$	$1201.9\ (\nu: 14.7)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.018}$	$H(0.38)$	$83.5^{+4.4}_{-4.2}$	$\chi_{\mathrm{BAO}}^2$	$6.2\ (\nu: 0.9)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1216.46; R - 1 = 0.02078$$



## 11.29 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02210^{+0.00082}_{-0.00081}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.460^{+0.037}_{-0.033}$	$D_{\mathrm{M}}(0.15)$	$650^{+67}_{-59}$
$\Omega_{\mathrm{c}}h^2$	$0.120^{+0.013}_{-0.011}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.032}_{-0.029}$	$H(0.38)$	$82.3^{+6.4}_{-6.3}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0021}_{-0.0019}$	$\sigma_8/h^{0.5}$	$0.994^{+0.043}_{-0.041}$	$D_{\mathrm{M}}(0.38)$	$1548^{+150}_{-130}$
$\tau$	$0.053^{+0.019}_{-0.012}$	$r_{\mathrm{drag}}h$	$98.3^{+6.0}_{-5.8}$	$H(0.51)$	$89.1^{+6.4}_{-6.2}$
$N_{\mathrm{eff}}$	$3.02^{+0.89}_{-0.84}$	$\langle d^2 \rangle^{1/2}$	$2.46^{+0.12}_{-0.11}$	$D_{\mathrm{M}}(0.51)$	$2003^{+180}_{-160}$
$Y_{\mathrm{P}}$	$0.244^{+0.011}_{-0.010}$	$z_{\mathrm{re}}$	$< 9.41$	$H(0.61)$	$94.8^{+6.4}_{-6.3}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.053}_{-0.044}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.11}_{-0.091}$	$D_{\mathrm{M}}(0.61)$	$2330^{+210}_{-180}$
$n_{\mathrm{s}}$	$0.961^{+0.035}_{-0.035}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.881^{+0.061}_{-0.061}$	$H(2.33)$	$236^{+11}_{-11}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0061}$	$D_{40}$	$1236^{+58}_{-56}$	$D_{\mathrm{M}}(2.33)$	$5793^{+390}_{-350}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5714^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.464^{+0.032}_{-0.030}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{810}$	$2536^{+37}_{-36}$	$\sigma_8(0.15)$	$0.749^{+0.036}_{-0.033}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$815^{+13}_{-12}$	$f\sigma_8(0.38)$	$0.480^{+0.026}_{-0.024}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$D_{2000}$	$229.9^{+5.6}_{-5.4}$	$\sigma_8(0.38)$	$0.663^{+0.035}_{-0.032}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.961^{+0.035}_{-0.035}$	$f\sigma_8(0.51)$	$0.477^{+0.023}_{-0.021}$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.244^{+0.011}_{-0.010}$	$\sigma_8(0.51)$	$0.620^{+0.033}_{-0.031}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.011}_{-0.010}$	$f\sigma_8(0.61)$	$0.471^{+0.021}_{-0.019}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.87^{+0.93}_{-0.84}$	$\sigma_8(0.61)$	$0.589^{+0.032}_{-0.031}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.7}$	$z_*$	$1090.2^{+1.2}_{-1.1}$	$f\sigma_8(2.33)$	$0.297^{+0.017}_{-0.016}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.5}_{-4.6}$	$r_*$	$144.8^{+7.9}_{-7.4}$	$\sigma_8(2.33)$	$0.306^{+0.020}_{-0.018}$
$A_{143\times 217}^{\mathrm{dustTT}}$	$18.2^{+8.6}_{-8.5}$	$100\theta_*$	$1.0410^{+0.0023}_{-0.0021}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.91^{+0.74}_{-0.69}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.3^{+2.7}_{-2.8}$	$f_{2000}^{217}$	$107.9^{+5.8}_{-5.6}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.5^{+8.2}_{-7.7}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.2)$
$H_0$	$66.7^{+6.9}_{-6.7}$	$k_{\mathrm{D}}$	$0.1404^{+0.0061}_{-0.0060}$	$\chi_{\mathrm{lowl}}^2$	$24.3 (\nu: 2.6)$
$\Omega_{\Lambda}$	$0.678^{+0.046}_{-0.054}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0016}_{-0.0016}$	$\chi_{\mathrm{plik}}^2$	$771.6 (\nu: 17.5)$
$\Omega_{\mathrm{m}}$	$0.322^{+0.054}_{-0.046}$	$z_{\mathrm{eq}}$	$3415^{+180}_{-170}$	$\chi_{\mathrm{Aver15}}^2$	$1.0 (\nu: 1.0)$
$\Omega_{\mathrm{m}}h^2$	$0.143^{+0.013}_{-0.012}$	$k_{\mathrm{eq}}$	$0.01040^{+0.00048}_{-0.00041}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.7)$
$\Omega_{\mathrm{m}}h^3$	$0.095^{+0.017}_{-0.016}$	$100\theta_{\mathrm{eq}}$	$0.810^{+0.034}_{-0.033}$	$\chi_{\mathrm{CMB}}^2$	$1192.7 (\nu: 15.7)$
$\sigma_8$	$0.811^{+0.038}_{-0.034}$	$100\theta_{\mathrm{s,eq}}$	$0.448^{+0.017}_{-0.017}$		
$S_8$	$0.841^{+0.067}_{-0.060}$	$H(0.15)$	$72.1^{+6.7}_{-6.5}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1200.97; R - 1 = 0.00742$$



### 11.30 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02227^{+0.00056}_{-0.00057}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.028}_{-0.026}$	$D_{\mathrm{M}}(0.38)$	$1514^{+87}_{-86}$
$\Omega_{\mathrm{c}} h^2$	$0.121^{+0.013}_{-0.011}$	$\sigma_8/h^{0.5}$	$0.984^{+0.030}_{-0.030}$	$H(0.51)$	$90.5^{+4.9}_{-4.4}$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0019}_{-0.0018}$	$r_{\mathrm{drag}} h$	$99.98^{+2.8}_{-2.6}$	$D_{\mathrm{M}}(0.51)$	$1962^{+110}_{-110}$
$\tau$	$0.055^{+0.019}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.428^{+0.071}_{-0.065}$	$H(0.61)$	$96.2^{+5.1}_{-4.5}$
$N_{\mathrm{eff}}$	$3.18^{+0.79}_{-0.67}$	$z_{\mathrm{re}}$	$< 9.53$	$D_{\mathrm{M}}(0.61)$	$2284^{+130}_{-130}$
$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.0096}$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.11}_{-0.086}$	$H(2.33)$	$238^{+11}_{-9.7}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.046^{+0.049}_{-0.042}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.886^{+0.058}_{-0.056}$	$D_{\mathrm{M}}(2.33)$	$5716^{+270}_{-280}$
$n_{\mathrm{s}}$	$0.970^{+0.024}_{-0.022}$	$D_{40}$	$1223^{+40}_{-39}$	$f\sigma_8(0.15)$	$0.456^{+0.023}_{-0.021}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0060}$	$D_{220}$	$5719^{+100}_{-100}$	$\sigma_8(0.15)$	$0.752^{+0.035}_{-0.033}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+39}_{-34}$	$f\sigma_8(0.38)$	$0.475^{+0.022}_{-0.020}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.667^{+0.032}_{-0.030}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.5^{+5.6}_{-5.5}$	$f\sigma_8(0.51)$	$0.474^{+0.022}_{-0.020}$
$A_{100}^{\mathrm{PS}}$	$264^{+80}_{-70}$	$n_{\mathrm{s},0.002}$	$0.970^{+0.024}_{-0.022}$	$\sigma_8(0.51)$	$0.624^{+0.030}_{-0.028}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.0096}$	$f\sigma_8(0.61)$	$0.470^{+0.021}_{-0.020}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.0097}$	$\sigma_8(0.61)$	$0.594^{+0.029}_{-0.027}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-20}$	Age/Gyr	$13.69^{+0.64}_{-0.67}$	$f\sigma_8(2.33)$	$0.300^{+0.014}_{-0.014}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.1^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	$0.309^{+0.016}_{-0.015}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.6}_{-4.7}$	$r_*$	$143.6^{+6.5}_{-6.9}$	$f_{2000}^{143}$	$31^{+9}_{-8}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.8}_{-5.0}$	$100\theta_*$	$1.0409^{+0.0021}_{-0.0020}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.3}_{-8.4}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.80^{+0.60}_{-0.64}$	$f_{2000}^{217}$	$108.3^{+5.5}_{-5.5}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.8^{+2.1}_{-2.1}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.5)$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.3^{+6.7}_{-7.1}$	$\chi_{\mathrm{lowl}}^2$	$22.8 (\nu: 0.7)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1413^{+0.0054}_{-0.0051}$	$\chi_{\mathrm{plik}}^2$	$773.0 (\nu: 15.4)$
$H_0$	$68.4^{+4.4}_{-4.0}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0014}_{-0.0013}$	$\chi_{\mathrm{Aver15}}^2$	$0.97 (\nu: 1.0)$
$\Omega_{\Lambda}$	$0.692^{+0.021}_{-0.022}$	$z_{\mathrm{eq}}$	$3365^{+85}_{-83}$	$\chi_{6\mathrm{DF}}^2$	$0.056 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.308^{+0.022}_{-0.021}$	$k_{\mathrm{eq}}$	$0.01036^{+0.00047}_{-0.00040}$	$\chi_{\mathrm{MGS}}^2$	$1.48 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.144^{+0.014}_{-0.011}$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.016}_{-0.015}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 (\nu: 1.3)$
$\Omega_{\mathrm{m}} h^3$	$0.099^{+0.015}_{-0.012}$	$100\theta_{\mathrm{s,eq}}$	$0.4527^{+0.0080}_{-0.0078}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.7)$
$\sigma_8$	$0.813^{+0.037}_{-0.034}$	$H(0.15)$	$73.7^{+4.4}_{-4.1}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.9)$
$S_8$	$0.824^{+0.043}_{-0.041}$	$D_{\mathrm{M}}(0.15)$	$635^{+38}_{-37}$	$\chi_{\mathrm{CMB}}^2$	$1192.8 (\nu: 14.6)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.024}_{-0.022}$	$H(0.38)$	$83.8^{+4.7}_{-4.2}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1207.26; R - 1 = 0.02342$



### 11.31 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02209^{+0.00079}_{-0.00079}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.15)$	$652^{+58}_{-56}$
$\Omega_{\mathrm{c}}h^2$	$0.119^{+0.012}_{-0.011}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.021}_{-0.021}$	$H(0.38)$	$82.1^{+6.2}_{-5.6}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0020}_{-0.0018}$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.027}$	$D_{\mathrm{M}}(0.38)$	$1552^{+130}_{-120}$
$\tau$	$0.053^{+0.019}_{-0.012}$	$r_{\mathrm{drag}}h$	$98.5^{+4.9}_{-4.4}$	$H(0.51)$	$88.8^{+6.2}_{-5.7}$
$N_{\mathrm{eff}}$	$2.97^{+0.86}_{-0.79}$	$\langle d^2 \rangle^{1/2}$	$2.454^{+0.084}_{-0.082}$	$D_{\mathrm{M}}(0.51)$	$2009^{+160}_{-150}$
$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.010}$	$z_{\mathrm{re}}$	$< 9.38$	$H(0.61)$	$94.5^{+6.1}_{-5.8}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.038^{+0.052}_{-0.043}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.11}_{-0.089}$	$D_{\mathrm{M}}(0.61)$	$2336^{+180}_{-180}$
$n_{\mathrm{s}}$	$0.960^{+0.032}_{-0.030}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.876^{+0.057}_{-0.057}$	$H(2.33)$	$235^{+11}_{-10}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0065}_{-0.0062}$	$D_{40}$	$1236^{+47}_{-49}$	$D_{\mathrm{M}}(2.33)$	$5813^{+360}_{-340}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{220}$	$5717^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{810}$	$2535^{+37}_{-35}$	$\sigma_8(0.15)$	$0.745^{+0.034}_{-0.032}$
$A_{143}^{\mathrm{tSZ}}$	$5.2^{+4.6}_{-4.6}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.477^{+0.017}_{-0.017}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-80}$	$D_{2000}$	$230.1^{+5.4}_{-5.5}$	$\sigma_8(0.38)$	$0.660^{+0.033}_{-0.031}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.960^{+0.032}_{-0.030}$	$f\sigma_8(0.51)$	$0.475^{+0.016}_{-0.016}$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.010}$	$\sigma_8(0.51)$	$0.617^{+0.033}_{-0.030}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.010}$	$f\sigma_8(0.61)$	$0.469^{+0.016}_{-0.015}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.91^{+0.86}_{-0.81}$	$\sigma_8(0.61)$	$0.587^{+0.032}_{-0.029}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7}$	$z_*$	$1090.1^{+1.1}_{-1.0}$	$f\sigma_8(2.33)$	$0.296^{+0.018}_{-0.016}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.6}$	$r_*$	$145.4^{+7.5}_{-7.4}$	$\sigma_8(2.33)$	$0.304^{+0.019}_{-0.017}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.3^{+8.7}_{-8.4}$	$100\theta_*$	$1.0412^{+0.0022}_{-0.0020}$	$f_{2000}^{143}$	$31^{+9}_{-8}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.96^{+0.69}_{-0.69}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0015}$	$z_{\mathrm{drag}}$	$1059.1^{+2.6}_{-2.7}$	$f_{2000}^{217}$	$107.7^{+5.7}_{-5.4}$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$148.1^{+7.8}_{-7.6}$	$\chi_{\mathrm{lensing}}^2$	$9.4 (\nu: 0.5)$
$H_0$	$66.5^{+6.4}_{-5.7}$	$k_{\mathrm{D}}$	$0.1399^{+0.0059}_{-0.0057}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.1)$
$\Omega_{\Lambda}$	$0.679^{+0.039}_{-0.041}$	$100\theta_{\mathrm{D}}$	$0.1609^{+0.0015}_{-0.0014}$	$\chi_{\mathrm{lowl}}^2$	$24.3 (\nu: 1.8)$
$\Omega_{\mathrm{m}}$	$0.321^{+0.041}_{-0.039}$	$z_{\mathrm{eq}}$	$3410^{+140}_{-140}$	$\chi_{\mathrm{plik}}^2$	$771.1 (\nu: 14.9)$
$\Omega_{\mathrm{m}}h^2$	$0.142^{+0.012}_{-0.011}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00038}_{-0.00036}$	$\chi_{\mathrm{Aver15}}^2$	$1.0 (\nu: 1.0)$
$\Omega_{\mathrm{m}}h^3$	$0.094^{+0.017}_{-0.015}$	$100\theta_{\mathrm{eq}}$	$0.811^{+0.028}_{-0.026}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.8)$
$\sigma_8$	$0.808^{+0.035}_{-0.032}$	$100\theta_{\mathrm{s,eq}}$	$0.448^{+0.014}_{-0.013}$	$\chi_{\mathrm{CMB}}^2$	$1201.5 (\nu: 15.3)$
$S_8$	$0.835^{+0.042}_{-0.042}$	$H(0.15)$	$71.9^{+6.3}_{-5.7}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1209.75; R - 1 = 0.01470$$



### 11.32 base\_nnu\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02226^{+0.00057}_{-0.00058}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.021}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1520^{+86}_{-83}$
$\Omega_{\mathrm{c}} h^2$	$0.121^{+0.011}_{-0.010}$	$\sigma_8/h^{0.5}$	$0.985^{+0.023}_{-0.022}$	$H(0.51)$	$90.2^{+4.5}_{-4.4}$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0018}_{-0.0017}$	$r_{\mathrm{drag}} h$	$99.8^{+2.6}_{-2.5}$	$D_{\mathrm{M}}(0.51)$	$1970^{+110}_{-100}$
$\tau$	$0.055^{+0.018}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.059}_{-0.055}$	$H(0.61)$	$95.9^{+4.7}_{-4.5}$
$N_{\mathrm{eff}}$	$3.14^{+0.72}_{-0.64}$	$z_{\mathrm{re}}$	$< 9.44$	$D_{\mathrm{M}}(0.61)$	$2292^{+120}_{-120}$
$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.0097}$	$10^9 A_{\mathrm{s}}$	$2.105^{+0.090}_{-0.082}$	$H(2.33)$	$237.0^{+9.7}_{-9.2}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.042}_{-0.040}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.884^{+0.052}_{-0.052}$	$D_{\mathrm{M}}(2.33)$	$5734^{+270}_{-260}$
$n_{\mathrm{s}}$	$0.968^{+0.021}_{-0.022}$	$D_{40}$	$1226^{+38}_{-38}$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0064}_{-0.0061}$	$D_{220}$	$5724^{+100}_{-100}$	$\sigma_8(0.15)$	$0.751^{+0.030}_{-0.029}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+39}_{-34}$	$f\sigma_8(0.38)$	$0.475^{+0.017}_{-0.016}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.666^{+0.027}_{-0.027}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.7^{+5.7}_{-5.6}$	$f\sigma_8(0.51)$	$0.474^{+0.016}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.021}_{-0.022}$	$\sigma_8(0.51)$	$0.623^{+0.026}_{-0.026}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.0097}$	$f\sigma_8(0.61)$	$0.469^{+0.016}_{-0.016}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.0097}$	$\sigma_8(0.61)$	$0.593^{+0.025}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-20}$	Age/Gyr	$13.73^{+0.64}_{-0.62}$	$f\sigma_8(2.33)$	$0.299^{+0.013}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.1^{+1.1}_{-1.0}$	$\sigma_8(2.33)$	$0.308^{+0.014}_{-0.014}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.5}_{-4.7}$	$r_*$	$144.0^{+6.3}_{-6.2}$	$f_{2000}^{143}$	$31^{+9}_{-8}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.8}_{-5.0}$	$100\theta_*$	$1.0409^{+0.0019}_{-0.0018}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.4}_{-8.5}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.83^{+0.58}_{-0.57}$	$f_{2000}^{217}$	$108.1^{+5.6}_{-5.4}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.7^{+2.0}_{-2.0}$	$\chi_{\mathrm{lensing}}^2$	$9.39 (\nu: 0.3)$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.7^{+6.5}_{-6.4}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.4)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1410^{+0.0050}_{-0.0049}$	$\chi_{\mathrm{lowl}}^2$	$23.1 (\nu: 0.7)$
$H_0$	$68.1^{+4.2}_{-4.0}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{plik}}^2$	$772.3 (\nu: 14.0)$
$\Omega_{\Lambda}$	$0.690^{+0.020}_{-0.021}$	$z_{\mathrm{eq}}$	$3370^{+81}_{-81}$	$\chi_{\mathrm{Aver15}}^2$	$0.97 (\nu: 0.9)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.021}_{-0.020}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00040}_{-0.00038}$	$\chi_{6\mathrm{DF}}^2$	$0.058 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.143^{+0.012}_{-0.011}$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.015}_{-0.014}$	$\chi_{\mathrm{MGS}}^2$	$1.39 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^3$	$0.098^{+0.014}_{-0.012}$	$100\theta_{\mathrm{s,eq}}$	$0.4523^{+0.0078}_{-0.0074}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.3)$
$\sigma_8$	$0.812^{+0.032}_{-0.030}$	$H(0.15)$	$73.4^{+4.2}_{-4.0}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.8)$
$S_8$	$0.825^{+0.033}_{-0.032}$	$D_{\mathrm{M}}(0.15)$	$637^{+38}_{-37}$	$\chi_{\mathrm{CMB}}^2$	$1201.8 (\nu: 14.4)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.017}$	$H(0.38)$	$83.5^{+4.4}_{-4.2}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.9)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1216.27; R - 1 = 0.02175$$



### 11.33 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02222	$0.02225^{+0.00054}_{-0.00054}$ (+0.5 $\sigma$ )	$\Omega_m$	0.3217	$0.321^{+0.028}_{-0.025}$ (−0.2 $\sigma$ )	$k_{\text{eq}}$	0.010318	$0.01035^{+0.00035}_{-0.00034}$ (−0.3 $\sigma$ )
$\Omega_c h^2$	0.1175	$0.1184^{+0.0095}_{-0.0088}$ (−0.4 $\sigma$ )	$\Omega_m h^2$	0.1403	$0.1412^{+0.0098}_{-0.0090}$ (−0.3 $\sigma$ )	$100\theta_{\text{eq}}$	0.8091	$0.810^{+0.018}_{-0.018}$ (+0.0 $\sigma$ )
$100\theta_{\text{MC}}$	1.04124	$1.0411^{+0.0016}_{-0.0016}$ (+0.4 $\sigma$ )	$\Omega_m h^3$	0.0927	$0.094^{+0.012}_{-0.010}$ (−0.2 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4473	$0.4477^{+0.0091}_{-0.0091}$ (+0.0 $\sigma$ )
$\tau$	0.0539	$0.053^{+0.022}_{-0.021}$ (+0.2 $\sigma$ )	$\sigma_8$	0.8045	$0.806^{+0.031}_{-0.031}$ (−0.2 $\sigma$ )	$H(0.15)$	71.37	$71.7^{+4.0}_{-3.8}$ (−0.1 $\sigma$ )
$N_{\text{eff}}$	2.86	$2.92^{+0.60}_{-0.56}$ (−0.2 $\sigma$ )	$S_8$	0.8331	$0.833^{+0.041}_{-0.042}$ (−0.3 $\sigma$ )	$D_{\text{M}}(0.15)$	655.6	$653^{+38}_{-36}$ (+0.0 $\sigma$ )
$Y_{\text{P}}$	0.2437	$0.2437^{+0.0094}_{-0.011}$ (−0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4563	$0.456^{+0.023}_{-0.023}$ (−0.3 $\sigma$ )	$H(0.38)$	81.54	$81.9^{+4.1}_{-3.8}$ (−0.1 $\sigma$ )
$\ln(10^{10} A_{\text{s}})$	3.0371	$3.037^{+0.048}_{-0.051}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6059	$0.607^{+0.023}_{-0.025}$ (−0.3 $\sigma$ )	$D_{\text{M}}(0.38)$	1561	$1555^{+85}_{-82}$ (+0.1 $\sigma$ )
$n_{\text{s}}$	0.9590	$0.960^{+0.021}_{-0.021}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9900	$0.989^{+0.029}_{-0.031}$ (−0.2 $\sigma$ )	$H(0.51)$	88.27	$88.6^{+4.1}_{-3.9}$ (−0.1 $\sigma$ )
$y_{\text{cal}}$	1.0005	$1.0006^{+0.0065}_{-0.0065}$ (+0.0 $\sigma$ )	$r_{\text{drag}} h$	98.34	$98.4^{+3.1}_{-3.2}$ (+0.1 $\sigma$ )	$D_{\text{M}}(0.51)$	2021	$2013^{+110}_{-100}$ (+0.1 $\sigma$ )
$A_{217}^{\text{CIB}}$	45.8	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.457	$2.455^{+0.076}_{-0.075}$ (−0.1 $\sigma$ )	$H(0.61)$	93.90	$94.3^{+4.2}_{-4.0}$ (−0.1 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.56	—	$z_{\text{re}}$	7.61	$7.5^{+2.1}_{-2.3}$ (+0.2 $\sigma$ )	$D_{\text{M}}(0.61)$	2350	$2341^{+120}_{-120}$ (+0.1 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.13	$> 0.944$ (+0.2 $\sigma$ )	$10^9 A_{\text{s}}$	2.085	$2.09^{+0.10}_{-0.10}$ (+0.0 $\sigma$ )	$H(2.33)$	234.1	$234.9^{+8.3}_{-7.7}$ (−0.3 $\sigma$ )
$A_{100}^{\text{PS}}$	247	$256^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_{\text{s}} e^{-2\tau}$	1.8716	$1.875^{+0.049}_{-0.047}$ (−0.3 $\sigma$ )	$D_{\text{M}}(2.33)$	5845	$5824^{+250}_{-240}$ (+0.1 $\sigma$ )
$A_{143}^{\text{PS}}$	47.1	$45^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{40}$	1238.0	$1239^{+41}_{-39}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4600	$0.460^{+0.021}_{-0.022}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	49.3	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5730	$5733^{+99}_{-100}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.7424	$0.744^{+0.029}_{-0.029}$ (−0.2 $\sigma$ )
$A_{217}^{\text{PS}}$	120.6	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{810}$	2538.5	$2538^{+36}_{-35}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4760	$0.476^{+0.019}_{-0.020}$ (−0.3 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	818.9	$818^{+13}_{-13}$ (+0.6 $\sigma$ )	$\sigma_8(0.38)$	0.6570	$0.658^{+0.027}_{-0.027}$ (−0.2 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.71	$8.9^{+4.6}_{-4.7}$ (−0.0 $\sigma$ )	$D_{2000}$	232.08	$231.5^{+4.8}_{-4.6}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4734	$0.474^{+0.017}_{-0.019}$ (−0.3 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.89	$10.8^{+4.7}_{-4.6}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9590	$0.960^{+0.021}_{-0.021}$ (−0.0 $\sigma$ )	$\sigma_8(0.51)$	0.6144	$0.616^{+0.025}_{-0.025}$ (−0.2 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.7	$18.5^{+8.3}_{-8.5}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.2437	$0.2437^{+0.0094}_{-0.011}$ (−0.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4677	$0.468^{+0.017}_{-0.018}$ (−0.3 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.1	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.2450	$0.2450^{+0.0094}_{-0.011}$ (−0.0 $\sigma$ )	$\sigma_8(0.61)$	0.5844	$0.586^{+0.024}_{-0.024}$ (−0.2 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.096}_{-0.095}$	Age/Gyr	13.99	$13.94^{+0.59}_{-0.58}$ (+0.1 $\sigma$ )	$f\sigma_8(2.33)$	0.2943	$0.295^{+0.013}_{-0.013}$ (−0.1 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.077}_{-0.075}$	$z_*$	1089.74	$1089.81^{+0.87}_{-0.88}$ (−0.9 $\sigma$ )	$\sigma_8(2.33)$	0.3029	$0.304^{+0.014}_{-0.014}$ (−0.1 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.481	$0.48^{+0.22}_{-0.22}$	$r_*$	146.2	$145.7^{+5.5}_{-5.4}$ (+0.2 $\sigma$ )	$\chi_{\text{small}}^2$	396.03	$397.0$ ( $\nu$ : 1.5) (+0.1 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.225	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	1.04153	$1.0414^{+0.0017}_{-0.0017}$ (+0.4 $\sigma$ )	$\chi_{\text{lowl}}^2$	24.23	$24.3$ ( $\nu$ : 1.1) (−0.0 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.670	$0.67^{+0.21}_{-0.21}$	$D_{\text{M}}(z_*)/\text{Gpc}$	14.03	$13.99^{+0.51}_{-0.50}$ (+0.2 $\sigma$ )	$\chi_{\text{plik}}^2$	2343.0	$2359.4$ ( $\nu$ : 18.3) (+269.1 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.10	$2.08^{+0.70}_{-0.68}$	$z_{\text{drag}}$	1059.28	$1059.4^{+1.8}_{-1.9}$ (+0.2 $\sigma$ )	$\chi_{\text{Aver15}}^2$	0.00	$0.98$ ( $\nu$ : 1.0) (−0.0 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{\text{drag}}$	148.9	$148.4^{+5.7}_{-5.6}$ (+0.2 $\sigma$ )	$\chi_{\text{prior}}^2$	1.6	$11.5$ ( $\nu$ : 10.1) (+1.2 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$k_{\text{D}}$	0.13956	$0.1400^{+0.0045}_{-0.0044}$ (−0.1 $\sigma$ )	$\chi_{\text{CMB}}^2$	2763.2	$2780.8$ ( $\nu$ : 18.0) (+278.5 $\sigma$ )
$H_0$	66.05	$66.4^{+4.0}_{-3.8}$ (−0.0 $\sigma$ )	$100\theta_{\text{D}}$	0.16041	$0.16051^{+0.00096}_{-0.0010}$ (−0.7 $\sigma$ )			
$\Omega_{\Lambda}$	0.6783	$0.679^{+0.025}_{-0.028}$ (+0.2 $\sigma$ )	$z_{\text{eq}}$	3424	$3421^{+99}_{-95}$ (−0.0 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 2764.84$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.58$ ;  $\bar{\chi}_{\text{eff}}^2 = 2793.22$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.92$ ;  $R - 1 = 0.01284$   
 $\chi_{\text{eff}}^2$ : Abund - Yp\_Aver2015: 0.00 ( $\Delta$  -0.01) CMB - simall\_100x143.offlike5\_EE\_Aplanck.B: 396.03 ( $\Delta$  0.22) commander\_dx12\_v3.2.29: 24.23 ( $\Delta$  -0.22) plik\_rd12\_HM\_v22b\_TTTEEE: 2342.98



### 11.34 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02238^{+0.00048}_{-0.00046} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.096^{+0.011}_{-0.010} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+32}_{-28} \quad (+0.5\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1188^{+0.0093}_{-0.0090} \quad (-0.5\sigma)$	$\sigma_8$	$0.808^{+0.030}_{-0.031} \quad (-0.3\sigma)$	$H(0.38)$	$82.8^{+3.4}_{-3.5} \quad (-0.5\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0016}_{-0.0016} \quad (+0.5\sigma)$	$S_8$	$0.823^{+0.035}_{-0.037} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1533^{+73}_{-64} \quad (+0.5\sigma)$
$\tau$	$0.055^{+0.021}_{-0.020} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.019}_{-0.020} \quad (-0.0\sigma)$	$H(0.51)$	$89.5^{+3.5}_{-3.7} \quad (-0.5\sigma)$
$N_{\mathrm{eff}}$	$3.02^{+0.54}_{-0.55} \quad (-0.6\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.023}_{-0.023} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1986^{+92}_{-82} \quad (+0.5\sigma)$
$Y_{\mathrm{P}}$	$0.2437^{+0.0095}_{-0.010} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.027}_{-0.030} \quad (+0.1\sigma)$	$H(0.61)$	$95.2^{+3.6}_{-3.8} \quad (-0.5\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.045}_{-0.048} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.6^{+2.1}_{-2.2} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	$2311^{+110}_{-94} \quad (+0.5\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.018}_{-0.019} \quad (-0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.436^{+0.064}_{-0.065} \quad (+0.4\sigma)$	$H(2.33)$	$235.7^{+7.8}_{-7.9} \quad (-0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0064}_{-0.0064} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$7.7^{+2.0}_{-2.2} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5774^{+230}_{-210} \quad (+0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.097}_{-0.099} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.019}_{-0.020} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.050}_{-0.047} \quad (-0.4\sigma)$	$\sigma_8(0.15)$	$0.746^{+0.028}_{-0.029} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1230^{+34}_{-34} \quad (+0.5\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.018}_{-0.019} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5737^{+100}_{-100} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.661^{+0.025}_{-0.026} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{810}$	$2538^{+36}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.018}_{-0.018} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+13}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.023}_{-0.025} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{2000}$	$231.4^{+4.7}_{-4.6} \quad (+0.9\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.018}_{-0.018} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.018}_{-0.019} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.022}_{-0.024} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.4}_{-4.6} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2437^{+0.0095}_{-0.010} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.012}_{-0.012} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.7}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2450^{+0.0095}_{-0.010} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.306^{+0.012}_{-0.013} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+8.0}_{-8.4} \quad (+0.1\sigma)$	Age/Gyr	$13.82^{+0.55}_{-0.50} \quad (+0.5\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.8\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$z_*$	$1089.72^{+0.81}_{-0.88} \quad (-1.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.9\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.095}_{-0.092}$	$r_*$	$144.9^{+5.6}_{-5.0} \quad (+0.5\sigma)$	$f_{2000}^{217}$	$106.7^{+5.1}_{-4.9} \quad (-0.8\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.073}_{-0.077}$	$100\theta_*$	$1.0413^{+0.0016}_{-0.0016} \quad (+0.5\sigma)$	$\chi_{\mathrm{small}}^2$	$397.2 \quad (\nu: 2.0) \quad (+0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.23}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.92^{+0.51}_{-0.47} \quad (+0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.4 \quad (\nu: 0.6) \quad (+0.5\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.13}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.8^{+1.7}_{-1.7} \quad (+0.1\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.6 \quad (\nu: 19.7) \quad (+286.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.22}$	$r_{\mathrm{drag}}$	$147.6^{+5.8}_{-5.2} \quad (+0.5\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.98 \quad (\nu: 0.9) \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.07^{+0.72}_{-0.69}$	$k_{\mathrm{D}}$	$0.1406^{+0.0042}_{-0.0043} \quad (-0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.067 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16062^{+0.00092}_{-0.00099} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.23 \quad (\nu: 0.1) \quad (-0.4\sigma)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3388^{+70}_{-66} \quad (+0.7\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.1 \quad (\nu: 1.4) \quad (+0.2\sigma)$
$H_0$	$67.5^{+3.2}_{-3.3} \quad (-0.5\sigma)$	$k_{\mathrm{eq}}$	$0.01032^{+0.00035}_{-0.00034} \quad (-0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.0) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.688^{+0.017}_{-0.019} \quad (-0.4\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.012}_{-0.013} \quad (-0.6\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.3 \quad (\nu: 1.0) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.019}_{-0.017} \quad (+0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4508^{+0.0065}_{-0.0065} \quad (-0.6\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2781.2 \quad (\nu: 19.0) \quad (+290.9\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1418^{+0.0095}_{-0.0092} \quad (-0.5\sigma)$	$H(0.15)$	$72.7^{+3.2}_{-3.4} \quad (-0.5\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2800.04; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.55; R - 1 = 0.03428$$



### 11.35 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02223^{+0.00054}_{-0.00053} \quad (+0.6\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1406^{+0.0097}_{-0.0086} \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4477^{+0.0085}_{-0.0088} \quad (-0.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1177^{+0.0093}_{-0.0084} \quad (-0.3\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.093^{+0.012}_{-0.010} \quad (-0.1\sigma)$	$H(0.15)$	$71.5^{+4.0}_{-3.9} \quad (-0.0\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0016}_{-0.0016} \quad (+0.4\sigma)$	$\sigma_8$	$0.804^{+0.028}_{-0.027} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$654^{+39}_{-37} \quad (+0.0\sigma)$
$\tau$	$0.053^{+0.022}_{-0.020} \quad (+0.2\sigma)$	$S_8$	$0.831^{+0.033}_{-0.033} \quad (-0.3\sigma)$	$H(0.38)$	$81.7^{+4.1}_{-3.8} \quad (-0.1\sigma)$
$N_{\mathrm{eff}}$	$2.88^{+0.62}_{-0.55} \quad (-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.018}_{-0.018} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1558^{+86}_{-83} \quad (+0.0\sigma)$
$Y_{\mathrm{P}}$	$0.2438^{+0.0091}_{-0.010} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.019}_{-0.020} \quad (-0.3\sigma)$	$H(0.51)$	$88.4^{+4.2}_{-3.9} \quad (-0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.036^{+0.047}_{-0.045} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.988^{+0.023}_{-0.024} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$2017^{+110}_{-100} \quad (+0.0\sigma)$
$n_{\mathrm{s}}$	$0.959^{+0.021}_{-0.021} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}h$	$98.5^{+2.9}_{-3.1} \quad (+0.1\sigma)$	$H(0.61)$	$94.1^{+4.3}_{-3.9} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0063} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.454^{+0.060}_{-0.061} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2346^{+120}_{-120} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	$7.5^{+2.0}_{-2.2} \quad (+0.2\sigma)$	$H(2.33)$	$234.4^{+8.2}_{-7.6} \quad (-0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.082^{+0.099}_{-0.092} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5837^{+250}_{-250} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 0.881 \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.048}_{-0.045} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.017}_{-0.017} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1239^{+40}_{-37} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.742^{+0.028}_{-0.026} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$44^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5734^{+99}_{-99} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.015}_{-0.015} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2537^{+36}_{-34} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.657^{+0.026}_{-0.025} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$818^{+13}_{-13} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.014}_{-0.015} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.6^{+4.7}_{-4.6} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.614^{+0.025}_{-0.024} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.8^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.959^{+0.021}_{-0.021} \quad (-0.0\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.015} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.2438^{+0.0091}_{-0.010} \quad (-0.0\sigma)$	$\sigma_8(0.61)$	$0.584^{+0.024}_{-0.023} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.4^{+8.1}_{-8.4} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2451^{+0.0092}_{-0.011} \quad (-0.0\sigma)$	$f\sigma_8(2.33)$	$0.294^{+0.013}_{-0.012} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	Age/Gyr	$13.97^{+0.59}_{-0.59} \quad (+0.1\sigma)$	$\sigma_8(2.33)$	$0.303^{+0.014}_{-0.013} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.095}_{-0.094}$	$z_*$	$1089.75^{+0.81}_{-0.83} \quad (-0.9\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-7} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.078}_{-0.077}$	$r_*$	$146.0^{+5.3}_{-5.5} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.23}_{-0.22}$	$100\theta_*$	$1.0415^{+0.0017}_{-0.0017} \quad (+0.3\sigma)$	$f_{2000}^{217}$	$106.4^{+4.9}_{-4.9} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.02^{+0.49}_{-0.51} \quad (+0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.01 \quad (\nu: 0.3) \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.3^{+1.9}_{-1.8} \quad (+0.3\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.3) \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.68}_{-0.71}$	$r_{\mathrm{drag}}$	$148.7^{+5.5}_{-5.7} \quad (+0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.4 \quad (\nu: 1.0) \quad (-0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1397^{+0.0046}_{-0.0041} \quad (-0.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.1 \quad (\nu: 17.2) \quad (+292.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16046^{+0.00099}_{-0.00097} \quad (-0.6\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.99 \quad (\nu: 0.9) \quad (+0.0\sigma)$
$H_0$	$66.2^{+4.1}_{-3.9} \quad (-0.0\sigma)$	$z_{\mathrm{eq}}$	$3420^{+95}_{-90} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 9.8) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.679^{+0.024}_{-0.027} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01032^{+0.00033}_{-0.00032} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.4 \quad (\nu: 18.1) \quad (+281.9\sigma)$
$\Omega_{\mathrm{m}}$	$0.321^{+0.027}_{-0.024} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.810^{+0.017}_{-0.017} \quad (+0.0\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2801.87; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.78; R - 1 = 0.01524$$



### 11.36 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02237^{+0.00047}_{-0.00046} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0953^{+0.011}_{-0.0099} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	$644^{+31}_{-29} \quad (+0.5\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1185^{+0.0091}_{-0.0087} \quad (-0.5\sigma)$	$\sigma_8$	$0.807^{+0.026}_{-0.027} \quad (-0.4\sigma)$	$H(0.38)$	$82.7^{+3.4}_{-3.4} \quad (-0.5\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0016}_{-0.0016} \quad (+0.5\sigma)$	$S_8$	$0.824^{+0.029}_{-0.031} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1536^{+70}_{-66} \quad (+0.5\sigma)$
$\tau$	$0.056^{+0.020}_{-0.018} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.016}_{-0.017} \quad (-0.1\sigma)$	$H(0.51)$	$89.4^{+3.6}_{-3.6} \quad (-0.5\sigma)$
$N_{\mathrm{eff}}$	$2.99^{+0.55}_{-0.53} \quad (-0.6\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.018}_{-0.020} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1990^{+89}_{-84} \quad (+0.5\sigma)$
$Y_{\mathrm{P}}$	$0.2437^{+0.0095}_{-0.010} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.021}_{-0.022} \quad (+0.0\sigma)$	$H(0.61)$	$95.0^{+3.7}_{-3.7} \quad (-0.5\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.041}_{-0.042} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$99.5^{+2.0}_{-2.2} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	$2315^{+100}_{-96} \quad (+0.5\sigma)$
$n_{\mathrm{s}}$	$0.964^{+0.018}_{-0.019} \quad (-0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.440^{+0.055}_{-0.054} \quad (+0.4\sigma)$	$H(2.33)$	$235.4^{+7.8}_{-7.6} \quad (-0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0061}_{-0.0060} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$7.8^{+1.9}_{-1.9} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5784^{+220}_{-210} \quad (+0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.098^{+0.088}_{-0.086} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.015}_{-0.016} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.876^{+0.047}_{-0.045} \quad (-0.4\sigma)$	$\sigma_8(0.15)$	$0.746^{+0.025}_{-0.026} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1232^{+34}_{-33} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.014}_{-0.016} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5739^{+99}_{-96} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.661^{+0.023}_{-0.024} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{810}$	$2538^{+36}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.014}_{-0.015} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.022}_{-0.023} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{2000}$	$231.5^{+4.7}_{-4.5} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.015} \quad (-0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.964^{+0.018}_{-0.019} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.021}_{-0.022} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.5}_{-4.5} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2437^{+0.0095}_{-0.010} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.297^{+0.011}_{-0.011} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.7}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2450^{+0.0095}_{-0.010} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.306^{+0.012}_{-0.012} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+8.0}_{-8.1} \quad (+0.1\sigma)$	Age/Gyr	$13.85^{+0.54}_{-0.51} \quad (+0.5\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.69^{+0.79}_{-0.80} \quad (-1.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.8\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.093}_{-0.092}$	$r_*$	$145.1^{+5.3}_{-5.1} \quad (+0.5\sigma)$	$f_{2000}^{217}$	$106.5^{+4.9}_{-4.9} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.077}$	$100\theta_*$	$1.0413^{+0.0017}_{-0.0016} \quad (+0.5\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.04 \quad (\nu: 0.2) \quad (-0.5\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.23}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.49}_{-0.47} \quad (+0.5\sigma)$	$\chi_{\mathrm{simall}}^2$	$397.3 \quad (\nu: 2.0) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.13}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.7^{+1.7}_{-1.8} \quad (+0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.5 \quad (\nu: 0.6) \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.22}$	$r_{\mathrm{drag}}$	$147.8^{+5.6}_{-5.3} \quad (+0.5\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.9 \quad (\nu: 18.2) \quad (+299.4\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.07^{+0.72}_{-0.70}$	$k_{\mathrm{D}}$	$0.1404^{+0.0042}_{-0.0042} \quad (-0.3\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.98 \quad (\nu: 0.9) \quad (+0.0\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16058^{+0.00093}_{-0.00095} \quad (-1.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.071 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3390^{+68}_{-62} \quad (+0.6\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.18 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$H_0$	$67.3^{+3.2}_{-3.2} \quad (-0.5\sigma)$	$k_{\mathrm{eq}}$	$0.01031^{+0.00033}_{-0.00033} \quad (-0.3\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.2 \quad (\nu: 1.4) \quad (+0.2\sigma)$
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.018} \quad (-0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.012}_{-0.012} \quad (-0.5\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 9.7) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.018}_{-0.016} \quad (+0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4506^{+0.0060}_{-0.0063} \quad (-0.6\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.8 \quad (\nu: 18.8) \quad (+293.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1415^{+0.0093}_{-0.0088} \quad (-0.5\sigma)$	$H(0.15)$	$72.6^{+3.2}_{-3.2} \quad (-0.5\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.4 \quad (\nu: 1.0) \quad (+0.1\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2808.62; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.16; R - 1 = 0.03124$$



### 11.37 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02226^{+0.00053}_{-0.00053} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1413^{+0.0097}_{-0.0090} \quad (-0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4478^{+0.0090}_{-0.0090} \quad (-0.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1184^{+0.0095}_{-0.0087} \quad (-0.4\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.094^{+0.012}_{-0.010} \quad (-0.2\sigma)$	$H(0.15)$	$71.8^{+4.0}_{-3.7} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0016}_{-0.0016} \quad (+0.4\sigma)$	$\sigma_8$	$0.807^{+0.030}_{-0.029} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$652^{+38}_{-36} \quad (+0.1\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.2\sigma)$	$S_8$	$0.834^{+0.041}_{-0.041} \quad (-0.3\sigma)$	$H(0.38)$	$82.0^{+4.0}_{-3.8} \quad (-0.2\sigma)$
$N_{\mathrm{eff}}$	$2.92^{+0.59}_{-0.55} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.022}_{-0.023} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1553^{+83}_{-81} \quad (+0.1\sigma)$
$Y_{\mathrm{P}}$	$0.2437^{+0.0094}_{-0.011} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.023}_{-0.023} \quad (-0.3\sigma)$	$H(0.51)$	$88.7^{+4.1}_{-3.8} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.040^{+0.046}_{-0.038} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.990^{+0.028}_{-0.029} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$2011^{+100}_{-100} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.960^{+0.021}_{-0.021} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$98.5^{+3.1}_{-3.1} \quad (+0.1\sigma)$	$H(0.61)$	$94.4^{+4.2}_{-3.9} \quad (-0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0065} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.457^{+0.075}_{-0.072} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2338^{+120}_{-120} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.42 \quad (+0.1\sigma)$	$H(2.33)$	$235.0^{+8.3}_{-7.7} \quad (-0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.092^{+0.098}_{-0.078} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5820^{+240}_{-240} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 0.890 \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.875^{+0.049}_{-0.047} \quad (-0.3\sigma)$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$256^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1238^{+39}_{-38} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.745^{+0.028}_{-0.027} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{220}$	$5732^{+98}_{-99} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.018}_{-0.019} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2538^{+36}_{-35} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.659^{+0.026}_{-0.024} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{1420}$	$818^{+13}_{-13} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.017}_{-0.017} \quad (-0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.5^{+4.7}_{-4.7} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.617^{+0.024}_{-0.023} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.6}_{-4.8} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.960^{+0.021}_{-0.021} \quad (-0.1\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.016}_{-0.017} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.2437^{+0.0094}_{-0.011} \quad (-0.1\sigma)$	$\sigma_8(0.61)$	$0.587^{+0.023}_{-0.022} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+8.4}_{-8.4} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2450^{+0.0095}_{-0.011} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.295^{+0.012}_{-0.012} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	Age/Gyr	$13.93^{+0.57}_{-0.57} \quad (+0.2\sigma)$	$\sigma_8(2.33)$	$0.304^{+0.013}_{-0.012} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.096}_{-0.095}$	$z_*$	$1089.81^{+0.87}_{-0.88} \quad (-0.9\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-7} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.075}$	$r_*$	$145.6^{+5.5}_{-5.4} \quad (+0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.0414^{+0.0017}_{-0.0017} \quad (+0.4\sigma)$	$f_{2000}^{217}$	$106.5^{+5.0}_{-4.9} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.98^{+0.50}_{-0.50} \quad (+0.3\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.6) \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.5^{+1.9}_{-1.8} \quad (+0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.3 \quad (\nu: 1.1) \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.70}_{-0.68}$	$r_{\mathrm{drag}}$	$148.3^{+5.7}_{-5.6} \quad (+0.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.2 \quad (\nu: 18.0) \quad (+268.6\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1400^{+0.0045}_{-0.0042} \quad (-0.2\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.99 \quad (\nu: 1.0) \quad (-0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16052^{+0.00096}_{-0.00099} \quad (-0.7\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$H_0$	$66.4^{+4.0}_{-3.8} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3419^{+97}_{-95} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2780.5 \quad (\nu: 17.4) \quad (+283.5\sigma)$
$\Omega_{\Lambda}$	$0.680^{+0.025}_{-0.028} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01035^{+0.00035}_{-0.00034} \quad (-0.3\sigma)$		
$\Omega_{\mathrm{m}}$	$0.320^{+0.028}_{-0.025} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.810^{+0.018}_{-0.018} \quad (-0.0\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2792.93; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.95; R - 1 = 0.01332$$



### 11.38 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00049}_{-0.00046}$ (+0.5 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	$0.096^{+0.011}_{-0.010}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$642^{+32}_{-29}$ (+0.5 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1189^{+0.0095}_{-0.0089}$ (−0.5 $\sigma$ )	$\sigma_8$	$0.808^{+0.029}_{-0.029}$ (−0.4 $\sigma$ )	$H(0.38)$	$82.9^{+3.3}_{-3.5}$ (−0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0016}_{-0.0016}$ (+0.5 $\sigma$ )	$S_8$	$0.824^{+0.035}_{-0.037}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1532^{+72}_{-66}$ (+0.5 $\sigma$ )
$\tau$	$0.056^{+0.019}_{-0.014}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.019}_{-0.020}$ (−0.0 $\sigma$ )	$H(0.51)$	$89.6^{+3.5}_{-3.6}$ (−0.5 $\sigma$ )
$N_{\mathrm{eff}}$	$3.02^{+0.56}_{-0.53}$ (−0.6 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.022}_{-0.022}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1985^{+91}_{-83}$ (+0.5 $\sigma$ )
$Y_{\mathrm{P}}$	$0.2437^{+0.0095}_{-0.010}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.984^{+0.026}_{-0.027}$ (+0.0 $\sigma$ )	$H(0.61)$	$95.2^{+3.6}_{-3.8}$ (−0.5 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.044}_{-0.039}$ (−0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	$99.6^{+2.1}_{-2.2}$ (−0.4 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2310^{+100}_{-95}$ (+0.5 $\sigma$ )
$n_{\mathrm{s}}$	$0.965^{+0.017}_{-0.019}$ (−0.5 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.063}_{-0.059}$ (+0.4 $\sigma$ )	$H(2.33)$	$235.7^{+7.9}_{-7.8}$ (−0.5 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0063}$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	$< 9.63$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5772^{+230}_{-210}$ (+0.5 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}$	$2.100^{+0.095}_{-0.081}$ (−0.1 $\sigma$ )	$f\sigma_8(0.15)$	$0.456^{+0.019}_{-0.019}$ (−0.1 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.877^{+0.050}_{-0.047}$ (−0.4 $\sigma$ )	$\sigma_8(0.15)$	$0.747^{+0.027}_{-0.027}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1230^{+34}_{-34}$ (+0.5 $\sigma$ )	$f\sigma_8(0.38)$	$0.474^{+0.017}_{-0.018}$ (−0.2 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	$5737^{+100}_{-99}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	$0.662^{+0.024}_{-0.024}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{810}$	$2538^{+36}_{-34}$ (+0.1 $\sigma$ )	$f\sigma_8(0.51)$	$0.473^{+0.017}_{-0.017}$ (−0.2 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	$818^{+13}_{-12}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	$0.620^{+0.023}_{-0.023}$ (−0.4 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{2000}$	$231.4^{+4.6}_{-4.7}$ (+0.9 $\sigma$ )	$f\sigma_8(0.61)$	$0.468^{+0.017}_{-0.016}$ (−0.3 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.017}_{-0.019}$ (−0.5 $\sigma$ )	$\sigma_8(0.61)$	$0.590^{+0.022}_{-0.022}$ (−0.4 $\sigma$ )
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.4}_{-4.6}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}$	$0.2437^{+0.0095}_{-0.010}$ (−0.1 $\sigma$ )	$f\sigma_8(2.33)$	$0.297^{+0.011}_{-0.011}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.7}_{-4.5}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2450^{+0.0095}_{-0.010}$ (−0.1 $\sigma$ )	$\sigma_8(2.33)$	$0.307^{+0.012}_{-0.012}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+8.0}_{-8.1}$ (+0.1 $\sigma$ )	Age/Gyr	$13.82^{+0.55}_{-0.50}$ (+0.5 $\sigma$ )	$f_{2000}^{143}$	$29^{+7}_{-7}$ (−0.8 $\sigma$ )
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_*$	$1089.72^{+0.81}_{-0.87}$ (−0.9 $\sigma$ )	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$ (−0.9 $\sigma$ )
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.093}_{-0.092}$	$r_*$	$144.9^{+5.3}_{-5.0}$ (+0.5 $\sigma$ )	$f_{2000}^{217}$	$106.6^{+4.7}_{-4.9}$ (−0.8 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.075}_{-0.077}$	$100\theta_*$	$1.0413^{+0.0017}_{-0.0016}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{small}}^2$	$397.2$ ( $\nu$ : 2.0) (+0.2 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.23}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.91^{+0.50}_{-0.47}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$23.4$ ( $\nu$ : 0.6) (+0.5 $\sigma$ )
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.13}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.8^{+1.8}_{-1.8}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	$2360.4$ ( $\nu$ : 19.5) (+285.9 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.22}$	$r_{\mathrm{drag}}$	$147.5^{+5.5}_{-5.2}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{Aver15}}^2$	$0.98$ ( $\nu$ : 1.0) (+0.0 $\sigma$ )
$A_{217}^{\mathrm{dust}TE}$	$2.07^{+0.72}_{-0.68}$	$k_{\mathrm{D}}$	$0.1406^{+0.0042}_{-0.0042}$ (−0.3 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	$0.066$ ( $\nu$ : 0.0) (+0.1 $\sigma$ )
$c_{100}$	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	$0.16063^{+0.00092}_{-0.00096}$ (−1.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$1.23$ ( $\nu$ : 0.1) (−0.4 $\sigma$ )
$c_{217}$	$0.9982^{+0.0017}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{\mathrm{eq}}$	$3387^{+70}_{-68}$ (+0.7 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$5.0$ ( $\nu$ : 1.4) (+0.2 $\sigma$ )
$H_0$	$67.5^{+3.2}_{-3.3}$ (−0.5 $\sigma$ )	$k_{\mathrm{eq}}$	$0.01032^{+0.00035}_{-0.00034}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$11.5$ ( $\nu$ : 10.0) (+1.1 $\sigma$ )
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.019}$ (−0.4 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.816^{+0.012}_{-0.013}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$6.3$ ( $\nu$ : 0.9) (+0.1 $\sigma$ )
$\Omega_{\mathrm{m}}$	$0.312^{+0.019}_{-0.016}$ (+0.4 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4508^{+0.0064}_{-0.0065}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$2781.0$ ( $\nu$ : 18.4) (+293.6 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	$0.1419^{+0.0098}_{-0.0091}$ (−0.5 $\sigma$ )	$H(0.15)$	$72.8^{+3.3}_{-3.3}$ (−0.5 $\sigma$ )		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2799.83; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.58; R - 1 = 0.03359$$



### 11.39 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02225^{+0.00053}_{-0.00051} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1407^{+0.0096}_{-0.0087} \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4479^{+0.0084}_{-0.0084} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1178^{+0.0093}_{-0.0085} \quad (-0.3\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0933^{+0.012}_{-0.0098} \quad (-0.2\sigma)$	$H(0.15)$	$71.6^{+4.0}_{-3.7} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0016}_{-0.0016} \quad (+0.4\sigma)$	$\sigma_8$	$0.805^{+0.028}_{-0.025} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$653^{+36}_{-36} \quad (+0.1\sigma)$
$\tau$	$0.054^{+0.018}_{-0.013} \quad (+0.2\sigma)$	$S_8$	$0.831^{+0.033}_{-0.033} \quad (-0.2\sigma)$	$H(0.38)$	$81.8^{+4.1}_{-3.7} \quad (-0.1\sigma)$
$N_{\mathrm{eff}}$	$2.89^{+0.61}_{-0.52} \quad (-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.018}_{-0.018} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1556^{+82}_{-81} \quad (+0.1\sigma)$
$Y_{\mathrm{P}}$	$0.2438^{+0.0092}_{-0.011} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.018}_{-0.019} \quad (-0.3\sigma)$	$H(0.51)$	$88.5^{+4.2}_{-3.8} \quad (-0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.038^{+0.044}_{-0.035} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.022}_{-0.023} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$2015^{+100}_{-100} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.959^{+0.021}_{-0.020} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$98.6^{+2.9}_{-2.9} \quad (+0.0\sigma)$	$H(0.61)$	$94.1^{+4.3}_{-3.8} \quad (-0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0064} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.455^{+0.059}_{-0.060} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2343^{+120}_{-120} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.32 \quad (+0.1\sigma)$	$H(2.33)$	$234.5^{+8.2}_{-7.5} \quad (-0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.087^{+0.094}_{-0.072} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5833^{+240}_{-250} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.047}_{-0.045} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.017}_{-0.017} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1239^{+36}_{-36} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.743^{+0.027}_{-0.024} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$44^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5733^{+98}_{-97} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.014}_{-0.015} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2537^{+36}_{-33} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.658^{+0.025}_{-0.023} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$818^{+13}_{-13} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.014}_{-0.015} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.6^{+4.6}_{-4.6} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.615^{+0.024}_{-0.022} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.8^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.959^{+0.021}_{-0.020} \quad (-0.1\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.014} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.6}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.2438^{+0.0092}_{-0.011} \quad (-0.1\sigma)$	$\sigma_8(0.61)$	$0.585^{+0.024}_{-0.021} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.4^{+7.9}_{-8.4} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2451^{+0.0092}_{-0.011} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.295^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	Age/Gyr	$13.96^{+0.56}_{-0.59} \quad (+0.1\sigma)$	$\sigma_8(2.33)$	$0.303^{+0.014}_{-0.012} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.095}_{-0.094}$	$z_*$	$1089.75^{+0.79}_{-0.82} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-7} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.077}_{-0.077}$	$r_*$	$145.9^{+5.3}_{-5.5} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.23}_{-0.22}$	$100\theta_*$	$1.0415^{+0.0016}_{-0.0017} \quad (+0.4\sigma)$	$f_{2000}^{217}$	$106.4^{+4.8}_{-4.9} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.01^{+0.48}_{-0.51} \quad (+0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.00 \quad (\nu: 0.2) \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.4^{+1.9}_{-1.7} \quad (+0.2\sigma)$	$\chi_{\mathrm{simall}}^2$	$396.8 \quad (\nu: 1.4) \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.70}_{-0.71}$	$r_{\mathrm{drag}}$	$148.7^{+5.4}_{-5.7} \quad (+0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.4 \quad (\nu: 1.0) \quad (+0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.1397^{+0.0046}_{-0.0042} \quad (-0.1\sigma)$	$\chi_{\mathrm{plik}}^2$	$2358.9 \quad (\nu: 17.2) \quad (+290.7\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16047^{+0.00099}_{-0.00094} \quad (-0.7\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$1.0 \quad (\nu: 0.9) \quad (+0.0\sigma)$
$H_0$	$66.3^{+4.0}_{-3.7} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3418^{+93}_{-87} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 9.9) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.680^{+0.023}_{-0.026} \quad (+0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01032^{+0.00033}_{-0.00032} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.1 \quad (\nu: 17.7) \quad (+287.4\sigma)$
$\Omega_{\mathrm{m}}$	$0.320^{+0.026}_{-0.023} \quad (-0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.810^{+0.016}_{-0.016} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2801.62; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.87; R - 1 = 0.01633$$



## 11.40 base\_nnu\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02237^{+0.00047}_{-0.00046}$ (+0.5 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	$0.0953^{+0.011}_{-0.0097}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$644^{+31}_{-29}$ (+0.5 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1185^{+0.0091}_{-0.0087}$ (−0.5 $\sigma$ )	$\sigma_8$	$0.808^{+0.026}_{-0.026}$ (−0.4 $\sigma$ )	$H(0.38)$	$82.7^{+3.5}_{-3.4}$ (−0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0016}_{-0.0016}$ (+0.5 $\sigma$ )	$S_8$	$0.824^{+0.029}_{-0.030}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1536^{+70}_{-66}$ (+0.5 $\sigma$ )
$\tau$	$0.057^{+0.019}_{-0.015}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.016}_{-0.017}$ (−0.1 $\sigma$ )	$H(0.51)$	$89.4^{+3.6}_{-3.6}$ (−0.5 $\sigma$ )
$N_{\mathrm{eff}}$	$2.99^{+0.54}_{-0.53}$ (−0.6 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.018}_{-0.019}$ (−0.3 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1989^{+89}_{-83}$ (+0.5 $\sigma$ )
$Y_{\mathrm{P}}$	$0.2437^{+0.0095}_{-0.010}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.984^{+0.021}_{-0.022}$ (−0.0 $\sigma$ )	$H(0.61)$	$95.0^{+3.7}_{-3.7}$ (−0.5 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.040}_{-0.037}$ (−0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	$99.5^{+2.0}_{-2.1}$ (−0.3 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2315^{+100}_{-95}$ (+0.5 $\sigma$ )
$n_{\mathrm{s}}$	$0.964^{+0.017}_{-0.019}$ (−0.4 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.054}_{-0.053}$ (+0.4 $\sigma$ )	$H(2.33)$	$235.4^{+7.8}_{-7.6}$ (−0.5 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0007^{+0.0062}_{-0.0060}$ (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	$< 9.62$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5783^{+220}_{-210}$ (+0.5 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}$	$2.101^{+0.086}_{-0.076}$ (−0.1 $\sigma$ )	$f\sigma_8(0.15)$	$0.456^{+0.015}_{-0.016}$ (−0.1 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.876^{+0.047}_{-0.045}$ (−0.4 $\sigma$ )	$\sigma_8(0.15)$	$0.746^{+0.025}_{-0.025}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1231^{+34}_{-33}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	$0.474^{+0.014}_{-0.015}$ (−0.2 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	$5739^{+99}_{-96}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	$0.662^{+0.023}_{-0.023}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{810}$	$2538^{+35}_{-34}$ (+0.1 $\sigma$ )	$f\sigma_8(0.51)$	$0.472^{+0.014}_{-0.015}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	$818^{+13}_{-12}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	$0.619^{+0.022}_{-0.022}$ (−0.4 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{2000}$	$231.5^{+4.7}_{-4.5}$ (+0.8 $\sigma$ )	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.015}$ (−0.3 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.964^{+0.017}_{-0.019}$ (−0.4 $\sigma$ )	$\sigma_8(0.61)$	$0.589^{+0.021}_{-0.021}$ (−0.4 $\sigma$ )
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.5}_{-4.6}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}$	$0.2437^{+0.0095}_{-0.010}$ (−0.1 $\sigma$ )	$f\sigma_8(2.33)$	$0.297^{+0.011}_{-0.011}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.7}_{-4.5}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2451^{+0.0095}_{-0.010}$ (−0.1 $\sigma$ )	$\sigma_8(2.33)$	$0.306^{+0.012}_{-0.011}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+8.0}_{-8.0}$ (+0.1 $\sigma$ )	Age/Gyr	$13.85^{+0.53}_{-0.51}$ (+0.5 $\sigma$ )	$f_{2000}^{143}$	$29^{+7}_{-7}$ (−0.7 $\sigma$ )
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$z_*$	$1089.69^{+0.79}_{-0.79}$ (−1.0 $\sigma$ )	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$ (−0.8 $\sigma$ )
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.093}_{-0.092}$	$r_*$	$145.1^{+5.3}_{-5.1}$ (+0.5 $\sigma$ )	$f_{2000}^{217}$	$106.5^{+4.8}_{-5.1}$ (−0.7 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.078}$	$100\theta_*$	$1.0413^{+0.0017}_{-0.0016}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	$9.02$ ( $\nu$ : 0.2) (−0.5 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.23}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.94^{+0.49}_{-0.47}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{small}}^2$	$397.3$ ( $\nu$ : 2.1) (+0.2 $\sigma$ )
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.13}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.8^{+1.7}_{-1.7}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$23.5$ ( $\nu$ : 0.6) (+0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.22}$	$r_{\mathrm{drag}}$	$147.8^{+5.5}_{-5.3}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	$2359.8$ ( $\nu$ : 18.2) (+299.6 $\sigma$ )
$A_{217}^{\mathrm{dust}TE}$	$2.07^{+0.72}_{-0.70}$	$k_{\mathrm{D}}$	$0.1404^{+0.0042}_{-0.0042}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{Aver15}}^2$	$0.98$ ( $\nu$ : 1.0) (+0.0 $\sigma$ )
$c_{100}$	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	$0.16058^{+0.00092}_{-0.00095}$ (−1.0 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	$0.069$ ( $\nu$ : 0.0) (+0.1 $\sigma$ )
$c_{217}$	$0.9982^{+0.0017}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{\mathrm{eq}}$	$3390^{+67}_{-62}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$1.19$ ( $\nu$ : 0.1) (−0.4 $\sigma$ )
$H_0$	$67.3^{+3.2}_{-3.2}$ (−0.5 $\sigma$ )	$k_{\mathrm{eq}}$	$0.01031^{+0.00033}_{-0.00033}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$5.1$ ( $\nu$ : 1.3) (+0.2 $\sigma$ )
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.018}$ (−0.3 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.816^{+0.012}_{-0.012}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$11.5$ ( $\nu$ : 9.7) (+1.1 $\sigma$ )
$\Omega_{\mathrm{m}}$	$0.312^{+0.018}_{-0.016}$ (+0.3 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4506^{+0.0059}_{-0.0062}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$2789.7$ ( $\nu$ : 18.6) (+295.6 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	$0.1415^{+0.0093}_{-0.0088}$ (−0.5 $\sigma$ )	$H(0.15)$	$72.6^{+3.3}_{-3.2}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$6.4$ ( $\nu$ : 0.9) (+0.1 $\sigma$ )

$$\bar{\chi}_{\mathrm{eff}}^2 = 2808.47; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.21; R - 1 = 0.03303$$



# 11.41 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02236	$0.02219^{+0.00058}_{-0.00057}$	$\sigma_8$	0.8214	$0.801^{+0.032}_{-0.031}$	$H(0.15)$	73.26	$71.7^{+4.9}_{-4.2}$
$\Omega_{\mathrm{c}}h^2$	0.1208	$0.117^{+0.010}_{-0.0098}$	$S_8$	0.8367	$0.826^{+0.040}_{-0.041}$	$D_{\mathrm{M}}(0.15)$	638.0	$653^{+43}_{-44}$
$100\theta_{\mathrm{MC}}$	1.04069	$1.0412^{+0.0018}_{-0.0017}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4583	$0.452^{+0.022}_{-0.022}$	$H(0.38)$	83.43	$81.8^{+4.8}_{-4.3}$
$\tau$	0.0637	$0.052^{+0.021}_{-0.021}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6135	$0.602^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	1522	$1556^{+95}_{-98}$
$N_{\mathrm{eff}}$	3.13	$2.89^{+0.70}_{-0.63}$	$\sigma_8/h^{0.5}$	0.9964	$0.984^{+0.029}_{-0.030}$	$H(0.51)$	90.18	$88.5^{+4.9}_{-4.4}$
$Y_{\mathrm{P}}$	0.2438	$0.244^{+0.010}_{-0.010}$	$r_{\mathrm{drag}}h$	99.56	$98.7^{+3.6}_{-3.4}$	$D_{\mathrm{M}}(0.51)$	1971	$2014^{+120}_{-120}$
$\ln(10^{10}A_{\mathrm{s}})$	3.067	$3.031^{+0.050}_{-0.050}$	$\langle d^2 \rangle^{1/2}$	2.459	$2.441^{+0.076}_{-0.076}$	$H(0.61)$	95.83	$94.1^{+4.9}_{-4.5}$
$n_{\mathrm{s}}$	0.9690	$0.960^{+0.024}_{-0.023}$	$z_{\mathrm{re}}$	8.63	$7.4^{+2.0}_{-2.4}$	$D_{\mathrm{M}}(0.61)$	2294	$2343^{+140}_{-140}$
$y_{\mathrm{cal}}$	1.0019	$1.0004^{+0.0064}_{-0.0062}$	$10^9A_{\mathrm{s}}$	2.147	$2.07^{+0.11}_{-0.10}$	$H(2.33)$	237.3	$234.1^{+9.0}_{-8.9}$
$A_{100}^{\mathrm{PS}}$	234	$237^{+60}_{-60}$	$10^9A_{\mathrm{s}}e^{-2\tau}$	1.890	$1.867^{+0.053}_{-0.054}$	$D_{\mathrm{M}}(2.33)$	5732	$5835^{+280}_{-280}$
$A_{143}^{\mathrm{PS}}$	47.2	$38^{+20}_{-20}$	$D_{40}$	1229.3	$1232^{+41}_{-40}$	$f\sigma_8(0.15)$	0.4629	$0.456^{+0.021}_{-0.021}$
$A_{217}^{\mathrm{PS}}$	105.6	$103^{+30}_{-30}$	$D_{220}$	5736	$5717^{+100}_{-99}$	$\sigma_8(0.15)$	0.7590	$0.740^{+0.031}_{-0.030}$
$A_{217}^{\mathrm{CIB}}$	40.8	$39^{+20}_{-20}$	$D_{810}$	2544.7	$2532^{+37}_{-35}$	$f\sigma_8(0.38)$	0.4816	$0.473^{+0.018}_{-0.018}$
$A_{143}^{\mathrm{tSZ}}$	5.40	$< 8.92$	$D_{1420}$	818.8	$816^{+13}_{-12}$	$\sigma_8(0.38)$	0.6728	$0.655^{+0.029}_{-0.027}$
$r_{143\times 217}^{\mathrm{PS}}$	0.732	$0.66^{+0.31}_{-0.34}$	$D_{2000}$	231.3	$231.0^{+5.2}_{-5.0}$	$f\sigma_8(0.51)$	0.4802	$0.471^{+0.018}_{-0.018}$
$r_{143\times 217}^{\mathrm{CIB}}$	0.74	—	$n_{\mathrm{s},0.002}$	0.9690	$0.960^{+0.024}_{-0.023}$	$\sigma_8(0.51)$	0.6297	$0.613^{+0.028}_{-0.026}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.76	—	$Y_{\mathrm{P}}$	0.2438	$0.244^{+0.010}_{-0.010}$	$f\sigma_8(0.61)$	0.4752	$0.465^{+0.017}_{-0.017}$
$A^{\mathrm{kSZ}}$	1.7	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2452	$0.245^{+0.010}_{-0.010}$	$\sigma_8(0.61)$	0.5991	$0.583^{+0.027}_{-0.025}$
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.50}_{-0.51}$	Age/Gyr	13.72	$13.97^{+0.67}_{-0.66}$	$f\sigma_8(2.33)$	0.3021	$0.294^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{dust}}$	0.955	$0.96^{+0.46}_{-0.46}$	$z_*$	1089.97	$1089.80^{+0.99}_{-0.95}$	$\sigma_8(2.33)$	0.3115	$0.302^{+0.016}_{-0.014}$
$A_{217}^{\mathrm{dust}}$	0.978	$0.98^{+0.27}_{-0.27}$	$r_*$	143.8	$146.1^{+6.4}_{-6.1}$	$f_{2000}^{143}$	29.4	$29^{+8}_{-8}$
$A_{143\times 217}^{\mathrm{dust}}$	1.021	$1.02^{+0.41}_{-0.42}$	$100\theta_*$	1.04089	$1.0415^{+0.0019}_{-0.0018}$	$f_{2000}^{217}$	106.6	$106.2^{+5.6}_{-5.6}$
$c_{100}$	0.99783	$0.9975^{+0.0027}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.82	$14.03^{+0.58}_{-0.57}$	$f_{2000}^{143\times 217}$	31.9	$31^{+6}_{-6}$
$c_{217}$	1.00118	$1.0011^{+0.0041}_{-0.0041}$	$z_{\mathrm{drag}}$	1059.93	$1059.2^{+2.0}_{-2.0}$	$\chi_{\mathrm{simall}}^2$	399.05	$396.8 (\nu: 1.2)$
$c_{TE}$	0.9961	$0.996^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	146.5	$148.8^{+6.6}_{-6.3}$	$\chi_{\mathrm{lowl}}^2$	23.05	$23.9 (\nu: 1.0)$
$c_{EE}$	0.9923	$0.990^{+0.015}_{-0.014}$	$k_{\mathrm{D}}$	0.14128	$0.1395^{+0.0049}_{-0.0048}$	$\chi_{\mathrm{CamSpec}}^2$	11499.5	$11514.4 (\nu: 17.1)$
$H_0$	67.96	$66.4^{+4.9}_{-4.3}$	$100\theta_{\mathrm{D}}$	0.16091	$0.1606^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{Aver15}}^2$	0.00	$0.96 (\nu: 0.9)$
$\Omega_{\Lambda}$	0.6887	$0.681^{+0.029}_{-0.030}$	$z_{\mathrm{eq}}$	3383	$3408^{+110}_{-110}$	$\chi_{\mathrm{prior}}^2$	2.4	$7.9 (\nu: 6.0)$
$\Omega_{\mathrm{m}}$	0.3113	$0.319^{+0.030}_{-0.029}$	$k_{\mathrm{eq}}$	0.010381	$0.01029^{+0.00034}_{-0.00035}$	$\chi_{\mathrm{CMB}}^2$	11921.6	$11935.1 (\nu: 17.2)$
$\Omega_{\mathrm{m}}h^2$	0.1438	$0.140^{+0.011}_{-0.010}$	$100\theta_{\mathrm{eq}}$	0.8166	$0.812^{+0.021}_{-0.020}$			
$\Omega_{\mathrm{m}}h^3$	0.0977	$0.093^{+0.013}_{-0.012}$	$100\theta_{\mathrm{s,eq}}$	0.4511	$0.449^{+0.011}_{-0.010}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 11924.04$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 11943.94$ ;  $R - 1 = 0.01231$

$\chi_{\mathrm{eff}}^2$ : Abund - Yp\_Aver2015: 0.01 CMB - simall\_100x143.offlike5.EE\_Aplanck\_B: 399.05 commander\_dx12\_v3.2\_29: 23.05 CamSpec like\_10.7HM\_1400\_unified: 11499.50



# 11.42 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02230^{+0.00047}_{-0.00047}$	$S_8$	$0.817^{+0.035}_{-0.035}$	$H(0.38)$	$82.7^{+3.9}_{-3.7}$
$\Omega_c h^2$	$0.118^{+0.010}_{-0.0096}$	$\sigma_8 \Omega_m^{0.5}$	$0.448^{+0.019}_{-0.019}$	$D_M(0.38)$	$1535^{+76}_{-76}$
$100\theta_{MC}$	$1.0410^{+0.0016}_{-0.0016}$	$\sigma_8 \Omega_m^{0.25}$	$0.600^{+0.023}_{-0.024}$	$H(0.51)$	$89.4^{+4.0}_{-3.8}$
$\tau$	$0.053^{+0.021}_{-0.021}$	$\sigma_8/h^{0.5}$	$0.979^{+0.028}_{-0.028}$	$D_M(0.51)$	$1988^{+97}_{-95}$
$N_{\text{eff}}$	$3.00^{+0.63}_{-0.57}$	$r_{\text{drag}} h$	$99.7^{+2.3}_{-2.3}$	$H(0.61)$	$95.0^{+4.2}_{-4.0}$
$Y_P$	$0.2441^{+0.0097}_{-0.010}$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.066}_{-0.066}$	$D_M(0.61)$	$2314^{+110}_{-110}$
$\ln(10^{10} A_s)$	$3.035^{+0.051}_{-0.047}$	$z_{\text{re}}$	$7.5^{+2.0}_{-2.2}$	$H(2.33)$	$235.1^{+9.0}_{-8.4}$
$n_s$	$0.966^{+0.019}_{-0.018}$	$10^9 A_s$	$2.08^{+0.11}_{-0.096}$	$D_M(2.33)$	$5785^{+250}_{-240}$
$y_{\text{cal}}$	$1.0005^{+0.0065}_{-0.0061}$	$10^9 A_s e^{-2\tau}$	$1.871^{+0.052}_{-0.052}$	$f\sigma_8(0.15)$	$0.452^{+0.019}_{-0.019}$
$A_{100}^{\text{PS}}$	$238^{+60}_{-60}$	$D_{40}$	$1225^{+34}_{-34}$	$\sigma_8(0.15)$	$0.742^{+0.031}_{-0.029}$
$A_{143}^{\text{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5722^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.471^{+0.018}_{-0.019}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2534^{+37}_{-35}$	$\sigma_8(0.38)$	$0.658^{+0.028}_{-0.027}$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$816^{+14}_{-12}$	$f\sigma_8(0.51)$	$0.469^{+0.018}_{-0.018}$
$A_{143}^{\text{tSZ}}$	$< 8.88$	$D_{2000}$	$230.7^{+5.1}_{-5.0}$	$\sigma_8(0.51)$	$0.616^{+0.026}_{-0.025}$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.33}$	$n_{s,0.002}$	$0.966^{+0.019}_{-0.018}$	$f\sigma_8(0.61)$	$0.465^{+0.018}_{-0.018}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_P$	$0.2441^{+0.0097}_{-0.010}$	$\sigma_8(0.61)$	$0.586^{+0.025}_{-0.024}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P^{\text{BBN}}$	$0.2455^{+0.0098}_{-0.011}$	$f\sigma_8(2.33)$	$0.296^{+0.013}_{-0.012}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.85^{+0.58}_{-0.57}$	$\sigma_8(2.33)$	$0.305^{+0.014}_{-0.013}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.50}$	$z_*$	$1089.77^{+0.94}_{-0.97}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$A_{143}^{\text{dust}}$	$0.95^{+0.45}_{-0.45}$	$r_*$	$145.3^{+5.7}_{-5.7}$	$f_{2000}^{217}$	$106.5^{+5.7}_{-5.8}$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.27}$	$100\theta_*$	$1.0413^{+0.0017}_{-0.0017}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.40}_{-0.41}$	$D_M(z_*)/\text{Gpc}$	$13.95^{+0.53}_{-0.53}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.2)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0029}$	$z_{\text{drag}}$	$1059.6^{+1.8}_{-1.8}$	$\chi_{\text{lowl}}^2$	$23.1 (\nu: 0.6)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0039}$	$r_{\text{drag}}$	$148.0^{+5.9}_{-5.9}$	$\chi_{\text{CamSpec}}^2$	$11515.0 (\nu: 16.1)$
$c_{TE}$	$0.996^{+0.012}_{-0.012}$	$k_D$	$0.1401^{+0.0046}_{-0.0044}$	$\chi_{\text{Aver15}}^2$	$0.97 (\nu: 0.9)$
$c_{EE}$	$0.992^{+0.014}_{-0.013}$	$100\theta_D$	$0.1607^{+0.0011}_{-0.0011}$	$\chi_{6\text{DF}}^2$	$0.058 (\nu: 0.0)$
$H_0$	$67.4^{+3.7}_{-3.5}$	$z_{\text{eq}}$	$3379^{+72}_{-71}$	$\chi_{\text{MGS}}^2$	$1.31 (\nu: 0.1)$
$\Omega_\Lambda$	$0.689^{+0.018}_{-0.019}$	$k_{\text{eq}}$	$0.01028^{+0.00036}_{-0.00034}$	$\chi_{\text{DR12BAO}}^2$	$4.8 (\nu: 1.2)$
$\Omega_m$	$0.311^{+0.019}_{-0.018}$	$100\theta_{\text{eq}}$	$0.817^{+0.014}_{-0.013}$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 5.7)$
$\Omega_m h^2$	$0.141^{+0.011}_{-0.0098}$	$100\theta_{s,\text{eq}}$	$0.4516^{+0.0068}_{-0.0067}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.8)$
$\Omega_m h^3$	$0.095^{+0.012}_{-0.011}$	$H(0.15)$	$72.7^{+3.8}_{-3.5}$	$\chi_{\text{CMB}}^2$	$11934.9 (\nu: 15.8)$
$\sigma_8$	$0.803^{+0.033}_{-0.031}$	$D_M(0.15)$	$643^{+34}_{-33}$		

$$\bar{\chi}_{\text{eff}}^2 = 11949.86; R - 1 = 0.01509$$



### 11.43 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02216^{+0.00057}_{-0.00054}$	$\sigma_8$	$0.801^{+0.030}_{-0.028}$	$H(0.15)$	$71.4^{+4.7}_{-4.3}$
$\Omega_{\mathrm{c}} h^2$	$0.117^{+0.010}_{-0.0090}$	$S_8$	$0.828^{+0.033}_{-0.033}$	$D_{\mathrm{M}}(0.15)$	$656^{+44}_{-43}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0017}_{-0.0017}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.018}_{-0.018}$	$H(0.38)$	$81.5^{+4.8}_{-4.4}$
$\tau$	$0.053^{+0.019}_{-0.020}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.019}_{-0.019}$	$D_{\mathrm{M}}(0.38)$	$1562^{+97}_{-96}$
$N_{\mathrm{eff}}$	$2.85^{+0.71}_{-0.62}$	$\sigma_8/h^{0.5}$	$0.986^{+0.022}_{-0.023}$	$H(0.51)$	$88.2^{+4.9}_{-4.3}$
$Y_{\mathrm{P}}$	$0.2441^{+0.0098}_{-0.010}$	$r_{\mathrm{drag}} h$	$98.5^{+3.3}_{-3.2}$	$D_{\mathrm{M}}(0.51)$	$2022^{+120}_{-120}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.031^{+0.046}_{-0.048}$	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.063}_{-0.065}$	$H(0.61)$	$93.8^{+5.0}_{-4.4}$
$n_{\mathrm{s}}$	$0.959^{+0.023}_{-0.023}$	$z_{\mathrm{re}}$	$7.5^{+1.9}_{-2.2}$	$D_{\mathrm{M}}(0.61)$	$2352^{+140}_{-140}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0063}$	$10^9 A_{\mathrm{s}}$	$2.073^{+0.098}_{-0.098}$	$H(2.33)$	$233.7^{+9.1}_{-8.1}$
$A_{100}^{\mathrm{PS}}$	$236^{+60}_{-60}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.866^{+0.051}_{-0.051}$	$D_{\mathrm{M}}(2.33)$	$5852^{+280}_{-290}$
$A_{143}^{\mathrm{PS}}$	$37^{+20}_{-20}$	$D_{40}$	$1235^{+37}_{-37}$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30}$	$D_{220}$	$5719^{+100}_{-100}$	$\sigma_8(0.15)$	$0.739^{+0.029}_{-0.027}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{810}$	$2533^{+34}_{-35}$	$f\sigma_8(0.38)$	$0.473^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.82$	$D_{1420}$	$817^{+13}_{-12}$	$\sigma_8(0.38)$	$0.655^{+0.027}_{-0.026}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.67^{+0.31}_{-0.33}$	$D_{2000}$	$231.3^{+5.2}_{-5.1}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.014}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.959^{+0.023}_{-0.023}$	$\sigma_8(0.51)$	$0.612^{+0.026}_{-0.025}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2441^{+0.0098}_{-0.010}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.014}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2454^{+0.0099}_{-0.010}$	$\sigma_8(0.61)$	$0.582^{+0.026}_{-0.025}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	Age/Gyr	$14.01^{+0.65}_{-0.68}$	$f\sigma_8(2.33)$	$0.293^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.46}_{-0.44}$	$z_*$	$1089.78^{+0.92}_{-0.89}$	$\sigma_8(2.33)$	$0.302^{+0.015}_{-0.015}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27}$	$r_*$	$146.4^{+5.9}_{-6.2}$	$f_{2000}^{143}$	$28^{+8}_{-8}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.40}_{-0.41}$	$100\theta_*$	$1.0415^{+0.0018}_{-0.0018}$	$f_{2000}^{217}$	$106.0^{+5.5}_{-5.4}$
$c_{100}$	$0.9976^{+0.0028}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.06^{+0.54}_{-0.57}$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6}$
$c_{217}$	$1.0010^{+0.0040}_{-0.0039}$	$z_{\mathrm{drag}}$	$1059.1^{+2.0}_{-1.9}$	$\chi_{\mathrm{lensing}}^2$	$9.03 (\nu: 0.3)$
$c_{TE}$	$0.996^{+0.012}_{-0.013}$	$r_{\mathrm{drag}}$	$149.2^{+6.1}_{-6.4}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.1)$
$c_{EE}$	$0.990^{+0.014}_{-0.014}$	$k_{\mathrm{D}}$	$0.1393^{+0.0050}_{-0.0045}$	$\chi_{\mathrm{lowl}}^2$	$24.1 (\nu: 1.0)$
$H_0$	$66.1^{+4.8}_{-4.4}$	$100\theta_{\mathrm{D}}$	$0.1605^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$11513.6 (\nu: 15.4)$
$\Omega_{\Lambda}$	$0.680^{+0.027}_{-0.029}$	$z_{\mathrm{eq}}$	$3415^{+110}_{-100}$	$\chi_{\mathrm{Aver15}}^2$	$0.9 (\nu: 0.9)$
$\Omega_{\mathrm{m}}$	$0.320^{+0.029}_{-0.027}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00033}_{-0.00032}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 5.9)$
$\Omega_{\mathrm{m}} h^2$	$0.140^{+0.010}_{-0.0093}$	$100\theta_{\mathrm{eq}}$	$0.811^{+0.019}_{-0.019}$	$\chi_{\mathrm{CMB}}^2$	$11943.6 (\nu: 16.6)$
$\Omega_{\mathrm{m}} h^3$	$0.092^{+0.014}_{-0.011}$	$100\theta_{\mathrm{s,eq}}$	$0.4481^{+0.0099}_{-0.0097}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11952.31; R - 1 = 0.01285$$



## 11.44 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02229^{+0.00048}_{-0.00047}$	$S_8$	$0.821^{+0.028}_{-0.029}$	$H(0.38)$	$82.6^{+3.9}_{-3.6}$
$\Omega_{\mathrm{c}} h^2$	$0.1180^{+0.0099}_{-0.0095}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.016}_{-0.016}$	$D_{\mathrm{M}}(0.38)$	$1538^{+76}_{-75}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0016}_{-0.0016}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.019}_{-0.019}$	$H(0.51)$	$89.2^{+4.1}_{-3.8}$
$\tau$	$0.055^{+0.019}_{-0.018}$	$\sigma_8/h^{0.5}$	$0.982^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.51)$	$1993^{+96}_{-96}$
$N_{\mathrm{eff}}$	$2.98^{+0.61}_{-0.57}$	$r_{\mathrm{drag}} h$	$99.5^{+2.2}_{-2.2}$	$H(0.61)$	$94.8^{+4.2}_{-3.9}$
$Y_{\mathrm{P}}$	$0.2441^{+0.0097}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.055}_{-0.055}$	$D_{\mathrm{M}}(0.61)$	$2319^{+110}_{-110}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.039^{+0.042}_{-0.041}$	$z_{\mathrm{re}}$	$7.7^{+1.8}_{-1.9}$	$H(2.33)$	$234.9^{+8.4}_{-8.2}$
$n_{\mathrm{s}}$	$0.964^{+0.019}_{-0.018}$	$10^9 A_{\mathrm{s}}$	$2.089^{+0.090}_{-0.084}$	$D_{\mathrm{M}}(2.33)$	$5793^{+240}_{-240}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0060}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.050}_{-0.049}$	$f\sigma_8(0.15)$	$0.454^{+0.015}_{-0.015}$
$A_{100}^{\mathrm{PS}}$	$237^{+60}_{-60}$	$D_{40}$	$1228^{+33}_{-33}$	$\sigma_8(0.15)$	$0.744^{+0.027}_{-0.026}$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5726^{+100}_{-97}$	$f\sigma_8(0.38)$	$0.472^{+0.014}_{-0.015}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-40}$	$D_{810}$	$2535^{+36}_{-33}$	$\sigma_8(0.38)$	$0.659^{+0.025}_{-0.024}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.014}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.79$	$D_{2000}$	$230.9^{+5.0}_{-5.0}$	$\sigma_8(0.51)$	$0.617^{+0.024}_{-0.023}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.964^{+0.019}_{-0.018}$	$f\sigma_8(0.61)$	$0.466^{+0.015}_{-0.014}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2441^{+0.0097}_{-0.011}$	$\sigma_8(0.61)$	$0.587^{+0.023}_{-0.022}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2454^{+0.0098}_{-0.011}$	$f\sigma_8(2.33)$	$0.296^{+0.012}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.87^{+0.58}_{-0.57}$	$\sigma_8(2.33)$	$0.305^{+0.013}_{-0.012}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$z_*$	$1089.77^{+0.89}_{-0.91}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.44}_{-0.44}$	$r_*$	$145.4^{+5.6}_{-5.6}$	$f_{2000}^{217}$	$106.4^{+5.8}_{-5.7}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27}$	$100\theta_*$	$1.0413^{+0.0016}_{-0.0017}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.40}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.96^{+0.52}_{-0.51}$	$\chi_{\mathrm{lensing}}^2$	$9.26 (\nu: 0.3)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0029}$	$z_{\mathrm{drag}}$	$1059.5^{+1.8}_{-1.8}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.3)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0039}$	$r_{\mathrm{drag}}$	$148.1^{+5.8}_{-5.7}$	$\chi_{\mathrm{lowl}}^2$	$23.3 (\nu: 0.6)$
$c_{TE}$	$0.996^{+0.012}_{-0.013}$	$k_{\mathrm{D}}$	$0.1401^{+0.0045}_{-0.0044}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.1 (\nu: 15.2)$
$c_{EE}$	$0.991^{+0.014}_{-0.014}$	$100\theta_{\mathrm{D}}$	$0.1607^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{Aver15}}^2$	$0.96 (\nu: 0.9)$
$H_0$	$67.2^{+3.8}_{-3.4}$	$z_{\mathrm{eq}}$	$3385^{+71}_{-74}$	$\chi_{6\mathrm{DF}}^2$	$0.068 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.688^{+0.018}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00033}_{-0.00033}$	$\chi_{\mathrm{MGS}}^2$	$1.22 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.019}_{-0.018}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.013}_{-0.013}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 (\nu: 1.3)$
$\Omega_{\mathrm{m}} h^2$	$0.141^{+0.010}_{-0.0095}$	$100\theta_{\mathrm{s,eq}}$	$0.4510^{+0.0070}_{-0.0065}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 5.8)$
$\Omega_{\mathrm{m}} h^3$	$0.095^{+0.012}_{-0.011}$	$H(0.15)$	$72.5^{+3.8}_{-3.5}$	$\chi_{\mathrm{CMB}}^2$	$11943.7 (\nu: 15.9)$
$\sigma_8$	$0.805^{+0.029}_{-0.027}$	$D_{\mathrm{M}}(0.15)$	$645^{+33}_{-33}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 0.9)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 11958.76; R - 1 = 0.01459$$



## 11.45 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02220^{+0.00057}_{-0.00058}$	$\sigma_8$	$0.803^{+0.032}_{-0.029}$	$H(0.15)$	$71.7^{+4.9}_{-4.3}$
$\Omega_{\mathrm{c}}h^2$	$0.117^{+0.010}_{-0.0099}$	$S_8$	$0.826^{+0.040}_{-0.041}$	$D_{\mathrm{M}}(0.15)$	$652^{+43}_{-44}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0018}_{-0.0017}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.022}_{-0.023}$	$H(0.38)$	$81.9^{+4.9}_{-4.3}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1554^{+96}_{-98}$
$N_{\mathrm{eff}}$	$2.90^{+0.69}_{-0.63}$	$\sigma_8/h^{0.5}$	$0.985^{+0.028}_{-0.029}$	$H(0.51)$	$88.6^{+4.9}_{-4.3}$
$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.010}$	$r_{\mathrm{drag}}h$	$98.8^{+3.6}_{-3.4}$	$D_{\mathrm{M}}(0.51)$	$2012^{+120}_{-120}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.035^{+0.047}_{-0.037}$	$\langle d^2 \rangle^{1/2}$	$2.444^{+0.076}_{-0.075}$	$H(0.61)$	$94.2^{+4.9}_{-4.4}$
$n_{\mathrm{s}}$	$0.961^{+0.024}_{-0.022}$	$z_{\mathrm{re}}$	$< 9.26$	$D_{\mathrm{M}}(0.61)$	$2341^{+140}_{-140}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0064}_{-0.0062}$	$10^9 A_{\mathrm{s}}$	$2.08^{+0.10}_{-0.077}$	$H(2.33)$	$234.2^{+9.0}_{-8.9}$
$A_{100}^{\mathrm{PS}}$	$237^{+60}_{-60}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.867^{+0.054}_{-0.055}$	$D_{\mathrm{M}}(2.33)$	$5831^{+280}_{-280}$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20}$	$D_{40}$	$1232^{+41}_{-40}$	$f\sigma_8(0.15)$	$0.457^{+0.021}_{-0.021}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30}$	$D_{220}$	$5716^{+100}_{-99}$	$\sigma_8(0.15)$	$0.741^{+0.030}_{-0.028}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{810}$	$2532^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.473^{+0.018}_{-0.018}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.94$	$D_{1420}$	$816^{+13}_{-12}$	$\sigma_8(0.38)$	$0.656^{+0.028}_{-0.026}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34}$	$D_{2000}$	$231.0^{+5.3}_{-5.0}$	$f\sigma_8(0.51)$	$0.471^{+0.017}_{-0.017}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.961^{+0.024}_{-0.022}$	$\sigma_8(0.51)$	$0.614^{+0.027}_{-0.024}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.010}$	$f\sigma_8(0.61)$	$0.466^{+0.017}_{-0.017}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.010}$	$\sigma_8(0.61)$	$0.584^{+0.027}_{-0.024}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51}$	Age/Gyr	$13.96^{+0.66}_{-0.66}$	$f\sigma_8(2.33)$	$0.294^{+0.014}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.46}$	$z_*$	$1089.8^{+1.0}_{-0.95}$	$\sigma_8(2.33)$	$0.303^{+0.015}_{-0.013}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27}$	$r_*$	$146.0^{+6.4}_{-6.1}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.42}$	$100\theta_*$	$1.0414^{+0.0019}_{-0.0018}$	$f_{2000}^{217}$	$106.1^{+5.6}_{-5.6}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.02^{+0.59}_{-0.56}$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6}$
$c_{217}$	$1.0011^{+0.0041}_{-0.0041}$	$z_{\mathrm{drag}}$	$1059.3^{+2.0}_{-2.0}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.2)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$148.8^{+6.6}_{-6.3}$	$\chi_{\mathrm{lowl}}^2$	$23.9 (\nu: 1.0)$
$c_{EE}$	$0.990^{+0.015}_{-0.014}$	$k_{\mathrm{D}}$	$0.1396^{+0.0049}_{-0.0048}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.2 (\nu: 17.2)$
$H_0$	$66.5^{+4.9}_{-4.3}$	$100\theta_{\mathrm{D}}$	$0.1606^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{Aver15}}^2$	$0.96 (\nu: 0.9)$
$\Omega_{\Lambda}$	$0.682^{+0.029}_{-0.030}$	$z_{\mathrm{eq}}$	$3406^{+110}_{-110}$	$\chi_{\mathrm{prior}}^2$	$7.9 (\nu: 6.0)$
$\Omega_{\mathrm{m}}$	$0.318^{+0.030}_{-0.029}$	$k_{\mathrm{eq}}$	$0.01029^{+0.00035}_{-0.00035}$	$\chi_{\mathrm{CMB}}^2$	$11934.8 (\nu: 16.9)$
$\Omega_{\mathrm{m}}h^2$	$0.140^{+0.011}_{-0.010}$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.021}_{-0.019}$		
$\Omega_{\mathrm{m}}h^3$	$0.093^{+0.013}_{-0.012}$	$100\theta_{\mathrm{s,eq}}$	$0.449^{+0.011}_{-0.0098}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11943.65; R - 1 = 0.01349$$



## 11.46 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02230^{+0.00047}_{-0.00048}$	$S_8$	$0.818^{+0.035}_{-0.033}$	$H(0.38)$	$82.7^{+3.9}_{-3.7}$
$\Omega_{\mathrm{c}}h^2$	$0.118^{+0.011}_{-0.0096}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.019}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1534^{+77}_{-75}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0016}_{-0.0017}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.022}_{-0.021}$	$H(0.51)$	$89.4^{+4.0}_{-3.9}$
$\tau$	$0.055^{+0.018}_{-0.013}$	$\sigma_8/h^{0.5}$	$0.980^{+0.027}_{-0.024}$	$D_{\mathrm{M}}(0.51)$	$1988^{+97}_{-95}$
$N_{\mathrm{eff}}$	$3.00^{+0.63}_{-0.58}$	$r_{\mathrm{drag}}h$	$99.7^{+2.3}_{-2.2}$	$H(0.61)$	$95.0^{+4.1}_{-4.0}$
$Y_{\mathrm{P}}$	$0.2441^{+0.0098}_{-0.010}$	$\langle d^2 \rangle^{1/2}$	$2.427^{+0.064}_{-0.058}$	$D_{\mathrm{M}}(0.61)$	$2313^{+110}_{-110}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.038^{+0.048}_{-0.035}$	$z_{\mathrm{re}}$	$< 9.34$	$H(2.33)$	$235.1^{+9.0}_{-8.4}$
$n_{\mathrm{s}}$	$0.966^{+0.019}_{-0.018}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.10}_{-0.073}$	$D_{\mathrm{M}}(2.33)$	$5784^{+250}_{-240}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0061}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.871^{+0.052}_{-0.052}$	$f\sigma_8(0.15)$	$0.453^{+0.018}_{-0.018}$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-60}$	$D_{40}$	$1225^{+34}_{-33}$	$\sigma_8(0.15)$	$0.744^{+0.030}_{-0.027}$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5721^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.471^{+0.018}_{-0.017}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2533^{+37}_{-35}$	$\sigma_8(0.38)$	$0.659^{+0.027}_{-0.024}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.470^{+0.017}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.85$	$D_{2000}$	$230.7^{+5.1}_{-5.1}$	$\sigma_8(0.51)$	$0.617^{+0.026}_{-0.023}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.019}_{-0.018}$	$f\sigma_8(0.61)$	$0.465^{+0.017}_{-0.017}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2441^{+0.0098}_{-0.010}$	$\sigma_8(0.61)$	$0.587^{+0.025}_{-0.022}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2454^{+0.0098}_{-0.010}$	$f\sigma_8(2.33)$	$0.296^{+0.013}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.85^{+0.59}_{-0.56}$	$\sigma_8(2.33)$	$0.305^{+0.014}_{-0.012}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$z_*$	$1089.77^{+0.94}_{-0.98}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.45}$	$r_*$	$145.3^{+5.7}_{-5.7}$	$f_{2000}^{217}$	$106.4^{+5.8}_{-5.7}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.28}$	$100\theta_*$	$1.0413^{+0.0017}_{-0.0017}$	$f_{2000}^{143\times 217}$	$32^{+6}_{-6}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.02^{+0.40}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.95^{+0.53}_{-0.53}$	$\chi_{\mathrm{simall}}^2$	$396.8\ (\nu: 1.2)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0029}$	$z_{\mathrm{drag}}$	$1059.6^{+1.8}_{-1.8}$	$\chi_{\mathrm{lowl}}^2$	$23.1\ (\nu: 0.6)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0038}$	$r_{\mathrm{drag}}$	$147.9^{+5.9}_{-5.8}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.8\ (\nu: 16.2)$
$c_{TE}$	$0.996^{+0.012}_{-0.013}$	$k_{\mathrm{D}}$	$0.1402^{+0.0046}_{-0.0044}$	$\chi_{\mathrm{Aver15}}^2$	$0.96\ (\nu: 0.9)$
$c_{EE}$	$0.992^{+0.014}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.1607^{+0.0012}_{-0.0011}$	$\chi_{6\mathrm{DF}}^2$	$0.056\ (\nu: 0.0)$
$H_0$	$67.4^{+3.7}_{-3.5}$	$z_{\mathrm{eq}}$	$3378^{+72}_{-70}$	$\chi_{\mathrm{MGS}}^2$	$1.33\ (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.690^{+0.018}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00036}_{-0.00034}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8\ (\nu: 1.1)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.019}_{-0.018}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.013}$	$\chi_{\mathrm{prior}}^2$	$7.8\ (\nu: 5.7)$
$\Omega_{\mathrm{m}}h^2$	$0.141^{+0.011}_{-0.0098}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0067}_{-0.0067}$	$\chi_{\mathrm{BAO}}^2$	$6.1\ (\nu: 0.7)$
$\Omega_{\mathrm{m}}h^3$	$0.095^{+0.012}_{-0.011}$	$H(0.15)$	$72.7^{+3.8}_{-3.5}$	$\chi_{\mathrm{CMB}}^2$	$11934.7\ (\nu: 15.7)$
$\sigma_8$	$0.805^{+0.032}_{-0.028}$	$D_{\mathrm{M}}(0.15)$	$643^{+34}_{-33}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11949.59; R - 1 = 0.01728$$



## 11.47 base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02217^{+0.00056}_{-0.00054}$	$\sigma_8$	$0.802^{+0.029}_{-0.026}$	$H(0.15)$	$71.5^{+4.7}_{-4.2}$
$\Omega_{\mathrm{c}}h^2$	$0.117^{+0.010}_{-0.0091}$	$S_8$	$0.828^{+0.033}_{-0.032}$	$D_{\mathrm{M}}(0.15)$	$655^{+42}_{-42}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0017}_{-0.0017}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.018}_{-0.018}$	$H(0.38)$	$81.6^{+4.8}_{-4.3}$
$\tau$	$0.054^{+0.017}_{-0.012}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.019}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1560^{+96}_{-96}$
$N_{\mathrm{eff}}$	$2.86^{+0.70}_{-0.62}$	$\sigma_8/h^{0.5}$	$0.986^{+0.022}_{-0.023}$	$H(0.51)$	$88.3^{+4.8}_{-4.4}$
$Y_{\mathrm{P}}$	$0.2441^{+0.0098}_{-0.010}$	$r_{\mathrm{drag}}h$	$98.6^{+3.3}_{-3.1}$	$D_{\mathrm{M}}(0.51)$	$2020^{+120}_{-120}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.034^{+0.045}_{-0.036}$	$\langle d^2 \rangle^{1/2}$	$2.449^{+0.062}_{-0.064}$	$H(0.61)$	$93.9^{+4.9}_{-4.4}$
$n_{\mathrm{s}}$	$0.959^{+0.023}_{-0.022}$	$z_{\mathrm{re}}$	$< 9.17$	$D_{\mathrm{M}}(0.61)$	$2349^{+140}_{-140}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0062}$	$10^9 A_{\mathrm{s}}$	$2.079^{+0.095}_{-0.073}$	$H(2.33)$	$233.8^{+9.1}_{-8.1}$
$A_{100}^{\mathrm{PS}}$	$236^{+60}_{-60}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.866^{+0.052}_{-0.051}$	$D_{\mathrm{M}}(2.33)$	$5848^{+280}_{-280}$
$A_{143}^{\mathrm{PS}}$	$37^{+20}_{-20}$	$D_{40}$	$1235^{+35}_{-37}$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.016}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30}$	$D_{220}$	$5719^{+100}_{-99}$	$\sigma_8(0.15)$	$0.740^{+0.029}_{-0.025}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{810}$	$2533^{+34}_{-34}$	$f\sigma_8(0.38)$	$0.474^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87$	$D_{1420}$	$817^{+13}_{-12}$	$\sigma_8(0.38)$	$0.656^{+0.027}_{-0.024}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.67^{+0.30}_{-0.33}$	$D_{2000}$	$231.2^{+5.2}_{-5.1}$	$f\sigma_8(0.51)$	$0.471^{+0.014}_{-0.014}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.959^{+0.023}_{-0.022}$	$\sigma_8(0.51)$	$0.613^{+0.026}_{-0.023}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2441^{+0.0098}_{-0.010}$	$f\sigma_8(0.61)$	$0.466^{+0.015}_{-0.014}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2454^{+0.0099}_{-0.010}$	$\sigma_8(0.61)$	$0.583^{+0.025}_{-0.023}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51}$	Age/Gyr	$14.00^{+0.66}_{-0.67}$	$f\sigma_8(2.33)$	$0.294^{+0.014}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.46}_{-0.45}$	$z_*$	$1089.77^{+0.89}_{-0.89}$	$\sigma_8(2.33)$	$0.303^{+0.015}_{-0.013}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.26}_{-0.26}$	$r_*$	$146.4^{+5.9}_{-6.2}$	$f_{2000}^{143}$	$28^{+8}_{-8}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.40}_{-0.40}$	$100\theta_*$	$1.0415^{+0.0018}_{-0.0018}$	$f_{2000}^{217}$	$106.0^{+5.5}_{-5.4}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$14.05^{+0.55}_{-0.57}$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-6}$
$c_{217}$	$1.0010^{+0.0040}_{-0.0039}$	$z_{\mathrm{drag}}$	$1059.1^{+2.0}_{-1.9}$	$\chi_{\mathrm{lensing}}^2$	$8.99 (\nu: 0.2)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$149.1^{+6.2}_{-6.4}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.1)$
$c_{EE}$	$0.990^{+0.014}_{-0.014}$	$k_{\mathrm{D}}$	$0.1393^{+0.0050}_{-0.0046}$	$\chi_{\mathrm{lowl}}^2$	$24.1 (\nu: 0.9)$
$H_0$	$66.2^{+4.7}_{-4.2}$	$100\theta_{\mathrm{D}}$	$0.1605^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$11513.5 (\nu: 15.4)$
$\Omega_{\Lambda}$	$0.680^{+0.027}_{-0.027}$	$z_{\mathrm{eq}}$	$3412^{+100}_{-100}$	$\chi_{\mathrm{Aver15}}^2$	$0.9 (\nu: 0.9)$
$\Omega_{\mathrm{m}}$	$0.320^{+0.027}_{-0.027}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00032}_{-0.00032}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 5.9)$
$\Omega_{\mathrm{m}}h^2$	$0.140^{+0.010}_{-0.0093}$	$100\theta_{\mathrm{eq}}$	$0.811^{+0.019}_{-0.018}$	$\chi_{\mathrm{CMB}}^2$	$11943.3 (\nu: 16.2)$
$\Omega_{\mathrm{m}}h^3$	$0.093^{+0.014}_{-0.011}$	$100\theta_{\mathrm{s,eq}}$	$0.4484^{+0.0097}_{-0.0092}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11952.02; R - 1 = 0.01312$$



11.48    base\_nnu\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02229^{+0.00048}_{-0.00047}$	$S_8$	$0.821^{+0.028}_{-0.029}$	$H(0.38)$	$82.6^{+3.9}_{-3.6}$
$\Omega_{\text{c}}h^2$	$0.1180^{+0.0098}_{-0.0095}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.450^{+0.015}_{-0.016}$	$D_{\text{M}}(0.38)$	$1538^{+76}_{-75}$
$100\theta_{\text{MC}}$	$1.0411^{+0.0016}_{-0.0016}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.602^{+0.018}_{-0.018}$	$H(0.51)$	$89.2^{+4.0}_{-3.8}$
$\tau$	$0.056^{+0.017}_{-0.014}$	$\sigma_8/h^{0.5}$	$0.982^{+0.022}_{-0.020}$	$D_{\text{M}}(0.51)$	$1993^{+96}_{-95}$
$N_{\text{eff}}$	$2.98^{+0.61}_{-0.57}$	$r_{\text{drag}}h$	$99.6^{+2.2}_{-2.2}$	$H(0.61)$	$94.8^{+4.1}_{-3.9}$
$Y_{\text{P}}$	$0.2441^{+0.0097}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.054}_{-0.053}$	$D_{\text{M}}(0.61)$	$2319^{+110}_{-110}$
$\ln(10^{10}A_{\text{s}})$	$3.041^{+0.041}_{-0.035}$	$z_{\text{re}}$	$< 9.33$	$H(2.33)$	$234.9^{+8.4}_{-8.2}$
$n_{\text{s}}$	$0.965^{+0.019}_{-0.018}$	$10^9 A_{\text{s}}$	$2.092^{+0.088}_{-0.072}$	$D_{\text{M}}(2.33)$	$5793^{+240}_{-240}$
$y_{\text{cal}}$	$1.0007^{+0.0063}_{-0.0060}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.871^{+0.050}_{-0.049}$	$f\sigma_8(0.15)$	$0.454^{+0.015}_{-0.015}$
$A_{100}^{\text{PS}}$	$237^{+60}_{-60}$	$D_{40}$	$1228^{+33}_{-33}$	$\sigma_8(0.15)$	$0.744^{+0.027}_{-0.025}$
$A_{143}^{\text{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5726^{+100}_{-97}$	$f\sigma_8(0.38)$	$0.472^{+0.014}_{-0.014}$
$A_{217}^{\text{PS}}$	$103^{+30}_{-40}$	$D_{810}$	$2535^{+36}_{-33}$	$\sigma_8(0.38)$	$0.660^{+0.025}_{-0.023}$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.014}$
$A_{143}^{\text{tSZ}}$	$< 8.79$	$D_{2000}$	$231.0^{+5.0}_{-4.9}$	$\sigma_8(0.51)$	$0.617^{+0.024}_{-0.022}$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.32}$	$n_{\text{s},0.002}$	$0.965^{+0.019}_{-0.018}$	$f\sigma_8(0.61)$	$0.466^{+0.015}_{-0.014}$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.2441^{+0.0097}_{-0.011}$	$\sigma_8(0.61)$	$0.587^{+0.023}_{-0.021}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.2454^{+0.0098}_{-0.011}$	$f\sigma_8(2.33)$	$0.296^{+0.012}_{-0.011}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.87^{+0.58}_{-0.57}$	$\sigma_8(2.33)$	$0.305^{+0.013}_{-0.012}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.50}$	$z_*$	$1089.76^{+0.90}_{-0.91}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$A_{143}^{\text{dust}}$	$0.95^{+0.44}_{-0.45}$	$r_*$	$145.4^{+5.6}_{-5.6}$	$f_{2000}^{217}$	$106.4^{+5.7}_{-5.7}$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.27}$	$100\theta_*$	$1.0413^{+0.0016}_{-0.0017}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.40}_{-0.41}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.96^{+0.52}_{-0.51}$	$\chi_{\text{lensing}}^2$	$9.21 \ (\nu: 0.3)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0029}$	$z_{\text{drag}}$	$1059.5^{+1.8}_{-1.8}$	$\chi_{\text{simall}}^2$	$397.0 \ (\nu: 1.4)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0039}$	$r_{\text{drag}}$	$148.1^{+5.8}_{-5.7}$	$\chi_{\text{lowl}}^2$	$23.3 \ (\nu: 0.6)$
$c_{TE}$	$0.996^{+0.012}_{-0.013}$	$k_{\text{D}}$	$0.1401^{+0.0045}_{-0.0044}$	$\chi_{\text{CamSpec}}^2$	$11514.1 \ (\nu: 15.2)$
$c_{EE}$	$0.991^{+0.014}_{-0.014}$	$100\theta_{\text{D}}$	$0.1607^{+0.0011}_{-0.0011}$	$\chi_{\text{Aver15}}^2$	$0.96 \ (\nu: 0.9)$
$H_0$	$67.2^{+3.7}_{-3.5}$	$z_{\text{eq}}$	$3384^{+70}_{-73}$	$\chi_{6\text{DF}}^2$	$0.066 \ (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.688^{+0.018}_{-0.018}$	$k_{\text{eq}}$	$0.01028^{+0.00033}_{-0.00033}$	$\chi_{\text{MGS}}^2$	$1.23 \ (\nu: 0.1)$
$\Omega_{\text{m}}$	$0.312^{+0.018}_{-0.018}$	$100\theta_{\text{eq}}$	$0.816^{+0.013}_{-0.013}$	$\chi_{\text{DR12BAO}}^2$	$5.0 \ (\nu: 1.3)$
$\Omega_{\text{m}}h^2$	$0.141^{+0.010}_{-0.0095}$	$100\theta_{\text{s,eq}}$	$0.4511^{+0.0069}_{-0.0065}$	$\chi_{\text{prior}}^2$	$7.7 \ (\nu: 5.8)$
$\Omega_{\text{m}}h^3$	$0.095^{+0.012}_{-0.011}$	$H(0.15)$	$72.5^{+3.7}_{-3.5}$	$\chi_{\text{CMB}}^2$	$11943.6 \ (\nu: 15.8)$
$\sigma_8$	$0.805^{+0.028}_{-0.026}$	$D_{\text{M}}(0.15)$	$645^{+33}_{-33}$	$\chi_{\text{BAO}}^2$	$6.3 \ (\nu: 0.9)$

$\bar{\chi}_{\text{eff}}^2 = 11958.57; R - 1 = 0.01608$



## 12 nrun

### 12.1 base\_nrun\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02216^{+0.00061}_{-0.00059}$	$\sigma_8 \Omega_m^{0.5}$	0.4595	$0.460^{+0.036}_{-0.033}$	$100\theta_{s,eq}$	0.4483	$0.448^{+0.012}_{-0.012}$
$\Omega_c h^2$	0.1206	$0.1208^{+0.0056}_{-0.0052}$	$\sigma_8 \Omega_m^{0.25}$	0.6110	$0.612^{+0.031}_{-0.030}$	$H(0.15)$	72.32	$72.3^{+2.0}_{-2.0}$
$100\theta_{MC}$	1.04080	$1.0408^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	0.9928	$0.994^{+0.042}_{-0.041}$	$D_M(0.15)$	646.9	$648^{+21}_{-20}$
$\tau$	0.0531	$0.053^{+0.023}_{-0.022}$	$r_{drag}h$	98.52	$98.4^{+4.1}_{-4.2}$	$H(0.38)$	82.57	$82.5^{+1.5}_{-1.4}$
$\ln(10^{10} A_s)$	3.0432	$3.044^{+0.047}_{-0.047}$	$\langle d^2 \rangle^{1/2}$	2.447	$2.45^{+0.10}_{-0.097}$	$D_M(0.38)$	1540.8	$1542^{+41}_{-40}$
$n_s$	0.9635	$0.962^{+0.016}_{-0.015}$	$z_{re}$	7.60	$7.6^{+2.2}_{-2.5}$	$H(0.51)$	89.37	$89.3^{+1.2}_{-1.1}$
$dn_s/d \ln k$	-0.0029	$-0.004^{+0.020}_{-0.019}$	$10^9 A_s$	2.097	$2.10^{+0.10}_{-0.096}$	$D_M(0.51)$	1994.7	$1996^{+48}_{-47}$
$y_{cal}$	1.0004	$1.0004^{+0.0063}_{-0.0064}$	$10^9 A_s e^{-2\tau}$	1.8860	$1.887^{+0.036}_{-0.036}$	$H(0.61)$	95.06	$95.03^{+0.95}_{-0.87}$
$A_{217}^{CIB}$	49.4	$48^{+20}_{-20}$	$D_{40}$	1224	$1225^{+54}_{-55}$	$D_M(0.61)$	2320	$2322^{+52}_{-51}$
$\xi^{tSZ \times CIB}$	0.24	—	$D_{220}$	5712	$5713^{+110}_{-110}$	$H(2.33)$	236.75	$236.8^{+3.4}_{-3.3}$
$A_{143}^{tSZ}$	7.0	—	$D_{810}$	2539.2	$2538^{+36}_{-36}$	$D_M(2.33)$	5774.7	$5776^{+41}_{-43}$
$A_{100}^{PS}$	256	$266^{+70}_{-70}$	$D_{1420}$	815.3	$814^{+13}_{-14}$	$f\sigma_8(0.15)$	0.4634	$0.464^{+0.033}_{-0.031}$
$A_{143}^{PS}$	49.3	$50^{+20}_{-20}$	$D_{2000}$	229.8	$229.1^{+4.9}_{-5.1}$	$\sigma_8(0.15)$	0.7498	$0.750^{+0.019}_{-0.020}$
$A_{143 \times 217}^{PS}$	45.4	$44^{+20}_{-20}$	$n_{s,0.002}$	0.973	$0.976^{+0.060}_{-0.059}$	$f\sigma_8(0.38)$	0.4799	$0.480^{+0.025}_{-0.024}$
$A_{217}^{PS}$	118.7	$115^{+30}_{-30}$	$Y_P$	0.245317	$0.24530^{+0.00024}_{-0.00028}$	$\sigma_8(0.38)$	0.6637	$0.664^{+0.016}_{-0.016}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246643	$0.24663^{+0.00024}_{-0.00028}$	$f\sigma_8(0.51)$	0.4775	$0.478^{+0.021}_{-0.021}$
$A_{100}^{dustTT}$	8.89	$9.0^{+4.8}_{-4.7}$	$10^5 D/H$	2.622	$2.63^{+0.11}_{-0.11}$	$\sigma_8(0.51)$	0.6208	$0.621^{+0.014}_{-0.015}$
$A_{143}^{dustTT}$	10.86	$10.8^{+4.5}_{-4.6}$	Age/Gyr	13.823	$13.826^{+0.094}_{-0.096}$	$f\sigma_8(0.61)$	0.4718	$0.472^{+0.019}_{-0.019}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.3^{+8.8}_{-8.7}$	$z_*$	1090.21	$1090.3^{+1.1}_{-1.0}$	$\sigma_8(0.61)$	0.5904	$0.590^{+0.014}_{-0.014}$
$A_{217}^{dustTT}$	94.4	$93^{+20}_{-20}$	$r_*$	144.43	$144.4^{+1.3}_{-1.3}$	$f\sigma_8(2.33)$	0.2974	$0.2972^{+0.0068}_{-0.0068}$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04100	$1.0410^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.3062	$0.3060^{+0.0072}_{-0.0071}$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.874	$13.87^{+0.12}_{-0.12}$	$f_{2000}^{143}$	30.9	$32^{+8}_{-8}$
$H_0$	66.95	$66.9^{+2.4}_{-2.4}$	$z_{drag}$	1059.55	$1059.5^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	33.6	$34^{+6}_{-6}$
$\Omega_\Lambda$	0.6801	$0.679^{+0.032}_{-0.036}$	$r_{drag}$	147.15	$147.1^{+1.3}_{-1.3}$	$f_{2000}^{217}$	108.0	$108.6^{+5.4}_{-5.3}$
$\Omega_m$	0.3199	$0.321^{+0.036}_{-0.032}$	$k_D$	0.14066	$0.1407^{+0.0015}_{-0.0015}$	$\chi_{small}^2$	395.91	$397.1 (\nu: 1.5)$
$\Omega_m h^2$	0.1434	$0.1436^{+0.0053}_{-0.0051}$	$100\theta_D$	0.16099	$0.16101^{+0.00075}_{-0.00072}$	$\chi_{lowl}^2$	22.74	$23.1 (\nu: 2.2)$
$\Omega_m h^3$	0.09601	$0.0960^{+0.0013}_{-0.0013}$	$z_{eq}$	3412	$3415^{+130}_{-120}$	$\chi_{plik}^2$	759.4	$772.7 (\nu: 16.2)$
$\sigma_8$	0.8123	$0.812^{+0.023}_{-0.024}$	$k_{eq}$	0.010413	$0.01042^{+0.00039}_{-0.00037}$	$\chi_{prior}^2$	1.4	$7.3 (\nu: 6.7)$
$S_8$	0.839	$0.841^{+0.065}_{-0.060}$	$100\theta_{eq}$	0.8110	$0.810^{+0.023}_{-0.023}$	$\chi_{CMB}^2$	1178.0	$1192.9 (\nu: 15.8)$

Best-fit  $\chi_{eff}^2 = 1179.45$ ;  $\bar{\chi}_{eff}^2 = 1200.22$ ;  $R - 1 = 0.00668$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.91 commander\_dx12\_v3.2\_29: 22.74 plik\_rd12\_HM\_v22\_TT: 759.37



## 12.2 base\_nrun\_plikHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02225	$0.02225^{+0.00054}_{-0.00054}$	$\sigma_8/h^{0.5}$	0.9819	$0.982^{+0.029}_{-0.030}$	$D_M(0.38)$	1529.2	$1529^{+24}_{-24}$
$\Omega_c h^2$	0.11900	$0.1190^{+0.0032}_{-0.0031}$	$r_{\text{drag}} h$	99.76	$99.8^{+2.4}_{-2.4}$	$H(0.51)$	89.69	$89.69^{+0.79}_{-0.75}$
$100\theta_{\text{MC}}$	1.04101	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.423	$2.424^{+0.072}_{-0.073}$	$D_M(0.51)$	1981.1	$1981^{+29}_{-28}$
$\tau$	0.0549	$0.055^{+0.024}_{-0.022}$	$z_{\text{re}}$	7.75	$7.7^{+2.3}_{-2.3}$	$H(0.61)$	95.29	$95.29^{+0.68}_{-0.64}$
$\ln(10^{10} A_s)$	3.0428	$3.043^{+0.050}_{-0.046}$	$10^9 A_s$	2.096	$2.10^{+0.11}_{-0.096}$	$D_M(0.61)$	2305.4	$2305^{+31}_{-31}$
$n_s$	0.9663	$0.966^{+0.012}_{-0.012}$	$10^9 A_s e^{-2\tau}$	1.8784	$1.879^{+0.032}_{-0.031}$	$H(2.33)$	235.79	$235.8^{+2.1}_{-2.1}$
$dn_s/d \ln k$	-0.0034	$-0.004^{+0.020}_{-0.019}$	$D_{40}$	1217	$1218^{+51}_{-53}$	$D_M(2.33)$	5765.1	$5765^{+33}_{-33}$
$y_{\text{cal}}$	1.0003	$1.0006^{+0.0065}_{-0.0063}$	$D_{220}$	5717	$5721^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4544	$0.454^{+0.020}_{-0.019}$
$A_{217}^{\text{CIB}}$	51.1	$48^{+20}_{-20}$	$D_{810}$	2536.4	$2537^{+37}_{-36}$	$\sigma_8(0.15)$	0.7463	$0.746^{+0.018}_{-0.018}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.06	—	$D_{1420}$	815.0	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4730	$0.473^{+0.017}_{-0.016}$
$A_{143}^{\text{tSZ}}$	7.2	—	$D_{2000}$	229.65	$229.6^{+4.8}_{-4.8}$	$\sigma_8(0.38)$	0.6617	$0.662^{+0.016}_{-0.016}$
$A_{100}^{\text{PS}}$	258	$264^{+70}_{-70}$	$n_{s,0.002}$	0.977	$0.977^{+0.060}_{-0.060}$	$f\sigma_8(0.51)$	0.4718	$0.472^{+0.015}_{-0.015}$
$A_{143}^{\text{PS}}$	46.5	$49^{+20}_{-20}$	$Y_{\text{P}}$	0.245348	$0.24534^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	0.6193	$0.619^{+0.015}_{-0.015}$
$A_{143 \times 217}^{\text{PS}}$	40	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246675	$0.24667^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	0.4669	$0.467^{+0.014}_{-0.014}$
$A_{217}^{\text{PS}}$	115.5	$114^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.607	$2.61^{+0.10}_{-0.099}$	$\sigma_8(0.61)$	0.5893	$0.589^{+0.014}_{-0.014}$
$A^{\text{kSZ}}$	0.1	—	Age/Gyr	13.802	$13.802^{+0.077}_{-0.077}$	$f\sigma_8(2.33)$	0.2972	$0.2972^{+0.0072}_{-0.0069}$
$A_{100}^{\text{dustTT}}$	8.98	$9.0^{+4.7}_{-4.8}$	$z_*$	1089.98	$1089.98^{+0.81}_{-0.79}$	$\sigma_8(2.33)$	0.3065	$0.3065^{+0.0074}_{-0.0070}$
$A_{143}^{\text{dustTT}}$	10.79	$10.8^{+4.6}_{-4.7}$	$r_*$	144.78	$144.79^{+0.88}_{-0.85}$	$f_{2000}^{143}$	31.1	$32^{+8}_{-9}$
$A_{143 \times 217}^{\text{dustTT}}$	19.0	$18.4^{+8.2}_{-8.5}$	$100\theta_*$	1.04120	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.7	$34^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	93.6	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.905	$13.906^{+0.087}_{-0.083}$	$f_{2000}^{217}$	108.0	$108.3^{+5.4}_{-5.2}$
$c_{100}$	0.99963	$0.9996^{+0.0015}_{-0.0015}$	$z_{\text{drag}}$	1059.59	$1059.6^{+1.3}_{-1.3}$	$\chi_{\text{small}}^2$	396.07	$397.2 (\nu: 1.7)$
$c_{217}$	0.99828	$0.9983^{+0.0016}_{-0.0017}$	$r_{\text{drag}}$	147.49	$147.5^{+1.0}_{-0.94}$	$\chi_{\text{lowl}}^2$	22.13	$22.6 (\nu: 1.7)$
$H_0$	67.64	$67.6^{+1.4}_{-1.4}$	$k_{\text{D}}$	0.14036	$0.1404^{+0.0012}_{-0.0013}$	$\chi_{\text{plik}}^2$	760.4	$773.1 (\nu: 16.1)$
$\Omega_\Lambda$	0.6898	$0.690^{+0.018}_{-0.020}$	$100\theta_{\text{D}}$	0.16096	$0.16097^{+0.00072}_{-0.00069}$	$\chi_{6\text{DF}}^2$	0.022	$0.058 (\nu: 0.0)$
$\Omega_{\text{m}}$	0.3102	$0.310^{+0.020}_{-0.018}$	$z_{\text{eq}}$	3376	$3375^{+76}_{-73}$	$\chi_{\text{MGS}}^2$	1.28	$1.36 (\nu: 0.1)$
$\Omega_{\text{m}} h^2$	0.14190	$0.1419^{+0.0032}_{-0.0030}$	$k_{\text{eq}}$	0.010303	$0.01030^{+0.00023}_{-0.00022}$	$\chi_{\text{DR12BAO}}^2$	4.20	$4.8 (\nu: 1.3)$
$\Omega_{\text{m}} h^3$	0.09598	$0.0960^{+0.0013}_{-0.0013}$	$100\theta_{\text{eq}}$	0.8178	$0.818^{+0.013}_{-0.014}$	$\chi_{\text{prior}}^2$	1.6	$7.4 (\nu: 6.9)$
$\sigma_8$	0.8075	$0.808^{+0.021}_{-0.020}$	$100\theta_{\text{s,eq}}$	0.4518	$0.4519^{+0.0070}_{-0.0071}$	$\chi_{\text{BAO}}^2$	5.50	$6.2 (\nu: 0.9)$
$S_8$	0.8211	$0.821^{+0.039}_{-0.037}$	$H(0.15)$	72.90	$72.9^{+1.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	1178.6	$1192.9 (\nu: 15.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4497	$0.450^{+0.021}_{-0.020}$	$D_M(0.15)$	641.0	$641^{+12}_{-12}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6026	$0.603^{+0.021}_{-0.020}$	$H(0.38)$	82.99	$82.99^{+0.93}_{-0.90}$			

Best-fit  $\chi_{\text{eff}}^2 = 1185.71$ ;  $\bar{\chi}_{\text{eff}}^2 = 1206.47$ ;  $R - 1 = 0.01307$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.20 CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 396.07 commander\_dx12\_v3.2.29: 22.13 plik\_rd12\_HM\_v22.TT: 760.40



### 12.3 base\_nrun\_plikHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02217	$0.02218^{+0.00059}_{-0.00058}$	$\sigma_8 \Omega_m^{0.25}$	0.6087	$0.609^{+0.020}_{-0.020}$	$D_M(0.15)$	646.0	$646^{+16}_{-16}$
$\Omega_c h^2$	0.12026	$0.1202^{+0.0041}_{-0.0039}$	$\sigma_8/h^{0.5}$	0.9898	$0.990^{+0.027}_{-0.027}$	$H(0.38)$	82.63	$82.7^{+1.2}_{-1.2}$
$100\theta_{MC}$	1.04081	$1.0408^{+0.0011}_{-0.0012}$	$r_{drag}h$	98.75	$98.8^{+3.2}_{-3.2}$	$D_M(0.38)$	1539.0	$1538^{+33}_{-31}$
$\tau$	0.0527	$0.053^{+0.022}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.445	$2.443^{+0.068}_{-0.070}$	$H(0.51)$	89.41	$89.44^{+0.98}_{-0.92}$
$\ln(10^{10} A_s)$	3.0407	$3.043^{+0.042}_{-0.041}$	$z_{re}$	7.56	$7.6^{+2.0}_{-2.3}$	$D_M(0.51)$	1992.6	$1992^{+38}_{-37}$
$n_s$	0.9634	$0.963^{+0.013}_{-0.013}$	$10^9 A_s$	2.092	$2.096^{+0.089}_{-0.084}$	$H(0.61)$	95.08	$95.10^{+0.81}_{-0.77}$
$dn_s/d \ln k$	-0.0016	$-0.003^{+0.020}_{-0.019}$	$10^9 A_s e^{-2\tau}$	1.8827	$1.884^{+0.031}_{-0.031}$	$D_M(0.61)$	2317.8	$2317^{+41}_{-40}$
$y_{cal}$	1.0002	$1.0005^{+0.0063}_{-0.0064}$	$D_{40}$	1227	$1225^{+52}_{-52}$	$H(2.33)$	236.52	$236.5^{+2.5}_{-2.5}$
$A_{217}^{CIB}$	51.0	$48^{+20}_{-20}$	$D_{220}$	5713	$5716^{+100}_{-110}$	$D_M(2.33)$	5774.2	$5773^{+38}_{-38}$
$\xi^{tSZ \times CIB}$	0.01	—	$D_{810}$	2535.9	$2537^{+36}_{-36}$	$f\sigma_8(0.15)$	0.4612	$0.461^{+0.021}_{-0.021}$
$A_{143}^{tSZ}$	7.2	—	$D_{1420}$	814.3	$814^{+14}_{-14}$	$\sigma_8(0.15)$	0.7483	$0.748^{+0.014}_{-0.014}$
$A_{100}^{PS}$	258	$265^{+70}_{-70}$	$D_{2000}$	229.5	$229.3^{+4.9}_{-5.1}$	$f\sigma_8(0.38)$	0.4781	$0.478^{+0.016}_{-0.016}$
$A_{143}^{PS}$	45.8	$50^{+20}_{-20}$	$n_{s,0.002}$	0.968	$0.973^{+0.059}_{-0.059}$	$\sigma_8(0.38)$	0.6626	$0.663^{+0.013}_{-0.013}$
$A_{143 \times 217}^{PS}$	39	$43^{+20}_{-20}$	$Y_P$	0.245313	$0.24531^{+0.00023}_{-0.00027}$	$f\sigma_8(0.51)$	0.4759	$0.476^{+0.014}_{-0.014}$
$A_{217}^{PS}$	115.9	$115^{+30}_{-30}$	$Y_P^{BBN}$	0.246639	$0.24664^{+0.00023}_{-0.00028}$	$\sigma_8(0.51)$	0.6198	$0.620^{+0.012}_{-0.012}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.624	$2.62^{+0.11}_{-0.11}$	$f\sigma_8(0.61)$	0.4704	$0.470^{+0.012}_{-0.012}$
$A_{100}^{dustTT}$	8.95	$9.0^{+4.7}_{-4.8}$	Age/Gyr	13.822	$13.820^{+0.087}_{-0.088}$	$\sigma_8(0.61)$	0.5896	$0.590^{+0.011}_{-0.012}$
$A_{143}^{dustTT}$	10.82	$10.7^{+4.5}_{-4.6}$	$z_*$	1090.20	$1090.18^{+0.97}_{-0.95}$	$f\sigma_8(2.33)$	0.2970	$0.2971^{+0.0061}_{-0.0061}$
$A_{143 \times 217}^{dustTT}$	19.0	$18.4^{+8.3}_{-8.5}$	$r_*$	144.52	$144.53^{+0.98}_{-0.97}$	$\sigma_8(2.33)$	0.3059	$0.3060^{+0.0066}_{-0.0067}$
$A_{217}^{dustTT}$	93.8	$93^{+20}_{-20}$	$100\theta_*$	1.04102	$1.0410^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	31.2	$32^{+8}_{-8}$
$c_{100}$	0.99962	$0.9996^{+0.0016}_{-0.0015}$	$D_M(z_*)/\text{Gpc}$	13.882	$13.884^{+0.093}_{-0.090}$	$f_{2000}^{143 \times 217}$	33.7	$34^{+6}_{-6}$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.47	$1059.5^{+1.3}_{-1.3}$	$f_{2000}^{217}$	108.2	$108.5^{+5.5}_{-5.3}$
$H_0$	67.06	$67.1^{+1.8}_{-1.8}$	$r_{drag}$	147.25	$147.3^{+1.0}_{-1.0}$	$\chi^2_{lensing}$	8.93	$9.59 (\nu: 0.5)$
$\Omega_\Lambda$	0.6819	$0.682^{+0.024}_{-0.027}$	$k_D$	0.14055	$0.1405^{+0.0013}_{-0.0013}$	$\chi^2_{small}$	395.89	$397.0 (\nu: 1.3)$
$\Omega_m$	0.3181	$0.318^{+0.027}_{-0.024}$	$100\theta_D$	0.16102	$0.16101^{+0.00074}_{-0.00071}$	$\chi^2_{lowl}$	23.13	$23.2 (\nu: 2.2)$
$\Omega_m h^2$	0.14307	$0.1430^{+0.0039}_{-0.0038}$	$z_{eq}$	3404	$3402^{+94}_{-91}$	$\chi^2_{plik}$	758.9	$772.1 (\nu: 15.2)$
$\Omega_m h^3$	0.09595	$0.0960^{+0.0013}_{-0.0012}$	$k_{eq}$	0.010388	$0.01038^{+0.00029}_{-0.00028}$	$\chi^2_{prior}$	1.6	$7.3 (\nu: 6.8)$
$\sigma_8$	0.8105	$0.811^{+0.016}_{-0.016}$	$100\theta_{eq}$	0.8124	$0.813^{+0.017}_{-0.017}$	$\chi^2_{CMB}$	1186.9	$1201.9 (\nu: 15.7)$
$S_8$	0.8347	$0.834^{+0.043}_{-0.041}$	$100\theta_{s,eq}$	0.4491	$0.4493^{+0.0090}_{-0.0089}$			
$\sigma_8 \Omega_m^{0.5}$	0.4572	$0.457^{+0.023}_{-0.022}$	$H(0.15)$	72.41	$72.4^{+1.6}_{-1.6}$			

Best-fit  $\chi^2_{eff} = 1188.47$ ;  $\bar{\chi}^2_{eff} = 1209.27$ ;  $R - 1 = 0.01153$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consect8: 8.93 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.89 commander\_dx12\_v3.2.29: 23.13 plik\_rd12\_HM.v22.TT: 758.91



## 12.4 base\_nrun\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02226	$0.02225^{+0.00054}_{-0.00054}$	$\sigma_8/h^{0.5}$	0.9836	$0.984^{+0.023}_{-0.023}$	$D_M(0.38)$	1529.3	$1530^{+23}_{-22}$
$\Omega_c h^2$	0.11902	$0.1191^{+0.0029}_{-0.0027}$	$r_{\text{drag}} h$	99.74	$99.7^{+2.1}_{-2.2}$	$H(0.51)$	89.68	$89.67^{+0.75}_{-0.72}$
$100\theta_{\text{MC}}$	1.04101	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.430	$2.431^{+0.059}_{-0.061}$	$D_M(0.51)$	1981.2	$1982^{+27}_{-27}$
$\tau$	0.0553	$0.056^{+0.022}_{-0.020}$	$z_{\text{re}}$	7.79	$7.9^{+2.0}_{-2.1}$	$H(0.61)$	95.29	$95.28^{+0.64}_{-0.63}$
$\ln(10^{10} A_s)$	3.0442	$3.046^{+0.043}_{-0.040}$	$10^9 A_s$	2.099	$2.104^{+0.092}_{-0.082}$	$D_M(0.61)$	2305.6	$2306^{+29}_{-29}$
$n_s$	0.9672	$0.966^{+0.011}_{-0.011}$	$10^9 A_s e^{-2\tau}$	1.8795	$1.880^{+0.030}_{-0.030}$	$H(2.33)$	235.81	$235.8^{+1.8}_{-1.9}$
$dn_s/d \ln k$	-0.0008	$-0.003^{+0.020}_{-0.019}$	$D_{40}$	1223	$1221^{+49}_{-53}$	$D_M(2.33)$	5765.1	$5766^{+33}_{-33}$
$y_{\text{cal}}$	1.0007	$1.0007^{+0.0064}_{-0.0064}$	$D_{220}$	5723	$5725^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4553	$0.456^{+0.016}_{-0.015}$
$A_{217}^{\text{CIB}}$	48.8	$48^{+20}_{-20}$	$D_{810}$	2538.8	$2538^{+36}_{-36}$	$\sigma_8(0.15)$	0.7476	$0.748^{+0.015}_{-0.015}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.32	—	$D_{1420}$	816.8	$815^{+14}_{-13}$	$f\sigma_8(0.38)$	0.4739	$0.474^{+0.013}_{-0.013}$
$A_{143}^{\text{tSZ}}$	7.0	—	$D_{2000}$	230.43	$229.8^{+4.9}_{-4.8}$	$\sigma_8(0.38)$	0.6628	$0.663^{+0.013}_{-0.013}$
$A_{100}^{\text{PS}}$	254	$264^{+70}_{-70}$	$n_{s,0.002}$	0.970	$0.975^{+0.059}_{-0.059}$	$f\sigma_8(0.51)$	0.4726	$0.473^{+0.012}_{-0.012}$
$A_{143}^{\text{PS}}$	49.0	$49^{+20}_{-20}$	$Y_{\text{P}}$	0.245350	$0.24534^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	0.6204	$0.620^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	46.7	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246676	$0.24667^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	0.4677	$0.468^{+0.011}_{-0.011}$
$A_{217}^{\text{PS}}$	119.1	$114^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.607	$2.61^{+0.10}_{-0.099}$	$\sigma_8(0.61)$	0.5903	$0.590^{+0.012}_{-0.011}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.802	$13.803^{+0.076}_{-0.074}$	$f\sigma_8(2.33)$	0.2977	$0.2977^{+0.0060}_{-0.0059}$
$A_{100}^{\text{dustTT}}$	8.86	$9.0^{+4.6}_{-4.8}$	$z_*$	1089.98	$1089.99^{+0.81}_{-0.77}$	$\sigma_8(2.33)$	0.3070	$0.3069^{+0.0063}_{-0.0063}$
$A_{143}^{\text{dustTT}}$	10.79	$10.7^{+4.6}_{-4.7}$	$r_*$	144.77	$144.76^{+0.78}_{-0.77}$	$f_{2000}^{143}$	30.1	$31^{+8}_{-9}$
$A_{143 \times 217}^{\text{dustTT}}$	19.3	$18.4^{+8.1}_{-8.5}$	$100\theta_*$	1.04120	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.1	$34^{+6}_{-6}$
$A_{217}^{\text{dustTT}}$	94.5	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.904	$13.903^{+0.079}_{-0.075}$	$f_{2000}^{217}$	107.6	$108.2^{+5.4}_{-5.2}$
$c_{100}$	0.99965	$0.9996^{+0.0015}_{-0.0015}$	$z_{\text{drag}}$	1059.59	$1059.6^{+1.2}_{-1.2}$	$\chi^2_{\text{lensing}}$	8.88	$9.35 (\nu: 0.3)$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.48	$147.47^{+0.89}_{-0.86}$	$\chi^2_{\text{small}}$	396.19	$397.2 (\nu: 1.7)$
$H_0$	67.63	$67.6^{+1.3}_{-1.3}$	$k_{\text{D}}$	0.14038	$0.1404^{+0.0012}_{-0.0012}$	$\chi^2_{\text{lowl}}$	22.70	$22.8 (\nu: 1.8)$
$\Omega_\Lambda$	0.6897	$0.689^{+0.016}_{-0.017}$	$100\theta_{\text{D}}$	0.16096	$0.16097^{+0.00072}_{-0.00069}$	$\chi^2_{\text{plik}}$	759.9	$772.4 (\nu: 15.2)$
$\Omega_{\text{m}}$	0.3103	$0.311^{+0.017}_{-0.016}$	$z_{\text{eq}}$	3376	$3378^{+67}_{-66}$	$\chi^2_{6\text{DF}}$	0.023	$0.056 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.14193	$0.1420^{+0.0028}_{-0.0027}$	$k_{\text{eq}}$	0.010305	$0.01031^{+0.00020}_{-0.00020}$	$\chi^2_{\text{MGS}}$	1.28	$1.30 (\nu: 0.1)$
$\Omega_{\text{m}} h^3$	0.09599	$0.0960^{+0.0013}_{-0.0013}$	$100\theta_{\text{eq}}$	0.8177	$0.817^{+0.012}_{-0.012}$	$\chi^2_{\text{DR12BAO}}$	4.23	$4.8 (\nu: 1.1)$
$\sigma_8$	0.8089	$0.809^{+0.016}_{-0.016}$	$100\theta_{\text{s,eq}}$	0.4518	$0.4517^{+0.0063}_{-0.0063}$	$\chi^2_{\text{prior}}$	1.4	$7.4 (\nu: 6.9)$
$S_8$	0.8227	$0.823^{+0.031}_{-0.030}$	$H(0.15)$	72.90	$72.9^{+1.1}_{-1.1}$	$\chi^2_{\text{CMB}}$	1187.7	$1201.8 (\nu: 15.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4506	$0.451^{+0.017}_{-0.016}$	$D_M(0.15)$	641.1	$641^{+11}_{-11}$	$\chi^2_{\text{BAO}}$	5.53	$6.1 (\nu: 0.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6037	$0.604^{+0.016}_{-0.016}$	$H(0.38)$	82.98	$82.96^{+0.87}_{-0.85}$			

Best-fit  $\chi^2_{\text{eff}} = 1194.63$ ;  $\bar{\chi}^2_{\text{eff}} = 1215.34$ ;  $R - 1 = 0.01612$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.23 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.88 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.19 commander\_dx12.v3.2.29: 22.70 plik\_rd12\_HM.v22\_TT: 759.95



## 12.5 base\_nrun\_plikHM\_TT\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02239	$0.02240^{+0.00053}_{-0.00059}$	$\sigma_8 \Omega_m^{0.25}$	0.5941	$0.595^{+0.027}_{-0.024}$	$D_M(0.15)$	634.5	$635^{+18}_{-15}$
$\Omega_c h^2$	0.11735	$0.1175^{+0.0046}_{-0.0043}$	$\sigma_8/h^{0.5}$	0.9706	$0.972^{+0.037}_{-0.034}$	$H(0.38)$	83.47	$83.5^{+1.2}_{-1.3}$
$100\theta_{MC}$	1.04122	$1.0413^{+0.0012}_{-0.0012}$	$r_{drag}h$	101.10	$101.0^{+3.0}_{-3.6}$	$D_M(0.38)$	1516.0	$1516^{+35}_{-30}$
$\tau$	0.0562	$0.057^{+0.024}_{-0.023}$	$\langle d^2 \rangle^{1/2}$	2.399	$2.400^{+0.088}_{-0.080}$	$H(0.51)$	90.07	$90.07^{+0.97}_{-1.0}$
$\ln(10^{10} A_s)$	3.0418	$3.044^{+0.050}_{-0.046}$	$z_{re}$	7.83	$7.9^{+2.2}_{-2.5}$	$D_M(0.51)$	1965.7	$1966^{+41}_{-36}$
$n_s$	0.9709	$0.970^{+0.013}_{-0.014}$	$10^9 A_s$	2.094	$2.10^{+0.11}_{-0.095}$	$H(0.61)$	95.59	$95.60^{+0.80}_{-0.84}$
$dn_s/d \ln k$	-0.0017	$-0.004^{+0.021}_{-0.020}$	$10^9 A_s e^{-2\tau}$	1.8716	$1.873^{+0.035}_{-0.027}$	$D_M(0.61)$	2288.8	$2289^{+44}_{-39}$
$y_{cal}$	1.0005	$1.0007^{+0.0060}_{-0.0066}$	$D_{40}$	1212	$1209^{+55}_{-50}$	$H(2.33)$	234.86	$235.0^{+2.9}_{-2.4}$
$A_{217}^{CIB}$	49.2	$48^{+20}_{-20}$	$D_{220}$	5728	$5731^{+93}_{-110}$	$D_M(2.33)$	5752.4	$5752^{+39}_{-36}$
$\xi^{tSZ \times CIB}$	0.26	—	$D_{810}$	2536.5	$2537^{+35}_{-36}$	$f\sigma_8(0.15)$	0.4451	$0.446^{+0.027}_{-0.025}$
$A_{143}^{tSZ}$	7.1	—	$D_{1420}$	817.2	$817^{+14}_{-14}$	$\sigma_8(0.15)$	0.7430	$0.744^{+0.020}_{-0.022}$
$A_{100}^{PS}$	255	$262^{+70}_{-70}$	$D_{2000}$	230.6	$230.3^{+5.1}_{-5.2}$	$f\sigma_8(0.38)$	0.4659	$0.466^{+0.022}_{-0.020}$
$A_{143}^{PS}$	47.4	$48^{+20}_{-20}$	$n_{s,0.002}$	0.976	$0.983^{+0.060}_{-0.064}$	$\sigma_8(0.38)$	0.6599	$0.660^{+0.016}_{-0.018}$
$A_{143 \times 217}^{PS}$	44.4	$43^{+20}_{-20}$	$Y_P$	0.245403	$0.24540^{+0.00021}_{-0.00026}$	$f\sigma_8(0.51)$	0.4658	$0.466^{+0.019}_{-0.018}$
$A_{217}^{PS}$	117.6	$114^{+30}_{-30}$	$Y_P^{BBN}$	0.246730	$0.24673^{+0.00021}_{-0.00026}$	$\sigma_8(0.51)$	0.6181	$0.618^{+0.015}_{-0.016}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.582	$2.58^{+0.11}_{-0.095}$	$f\sigma_8(0.61)$	0.4618	$0.462^{+0.017}_{-0.016}$
$A_{100}^{dustTT}$	8.91	$9.1^{+4.5}_{-4.6}$	Age/Gyr	13.775	$13.773^{+0.088}_{-0.083}$	$\sigma_8(0.61)$	0.5884	$0.589^{+0.014}_{-0.015}$
$A_{143}^{dustTT}$	10.84	$10.8^{+4.5}_{-4.8}$	$z_*$	1089.66	$1089.66^{+0.96}_{-0.87}$	$f\sigma_8(2.33)$	0.2972	$0.2973^{+0.0072}_{-0.0068}$
$A_{143 \times 217}^{dustTT}$	19.3	$18.5^{+7.5}_{-8.7}$	$r_*$	145.11	$145.1^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	0.3069	$0.3070^{+0.0070}_{-0.0072}$
$A_{217}^{dustTT}$	94.4	$94^{+20}_{-20}$	$100\theta_*$	1.04141	$1.0414^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	29.9	$31^{+8}_{-8}$
$c_{100}$	0.99965	$0.9996^{+0.0015}_{-0.0015}$	$D_M(z_*)/\text{Gpc}$	13.934	$13.93^{+0.11}_{-0.11}$	$f_{2000}^{143 \times 217}$	32.9	$33^{+6}_{-6}$
$c_{217}$	0.99827	$0.9982^{+0.0016}_{-0.0019}$	$z_{drag}$	1059.78	$1059.8^{+1.2}_{-1.4}$	$f_{2000}^{217}$	107.3	$107.9^{+5.6}_{-5.3}$
$H_0$	68.42	$68.4^{+1.8}_{-2.1}$	$r_{drag}$	147.78	$147.7^{+1.4}_{-1.2}$	$\chi_{simall}^2$	396.2	$397.4 (\nu: 2.1)$
$\Omega_\Lambda$	0.7001	$0.699^{+0.022}_{-0.028}$	$k_D$	0.14016	$0.1402^{+0.0014}_{-0.0018}$	$\chi_{lowl}^2$	21.84	$22.0 (\nu: 1.3)$
$\Omega_m$	0.2999	$0.301^{+0.028}_{-0.022}$	$100\theta_D$	0.16086	$0.16085^{+0.00079}_{-0.00069}$	$\chi_{plik}^2$	762.8	$775.9 (\nu: 19.9)$
$\Omega_m h^2$	0.14038	$0.1405^{+0.0045}_{-0.0036}$	$z_{eq}$	3339	$3343^{+110}_{-86}$	$\chi_{H073p45}^2$	9.2	$9.5 (\nu: 4.1)$
$\Omega_m h^3$	0.09604	$0.0961^{+0.0013}_{-0.0015}$	$k_{eq}$	0.010192	$0.01020^{+0.00033}_{-0.00026}$	$\chi_{prior}^2$	1.4	$7.5 (\nu: 7.0)$
$\sigma_8$	0.8028	$0.803^{+0.023}_{-0.025}$	$100\theta_{eq}$	0.8250	$0.825^{+0.019}_{-0.020}$	$\chi_{CMB}^2$	1180.9	$1195.2 (\nu: 18.8)$
$S_8$	0.803	$0.804^{+0.054}_{-0.048}$	$100\theta_{s,eq}$	0.4555	$0.455^{+0.010}_{-0.011}$			
$\sigma_8 \Omega_m^{0.5}$	0.4397	$0.440^{+0.030}_{-0.026}$	$H(0.15)$	73.57	$73.6^{+1.6}_{-1.8}$			

Best-fit  $\chi_{eff}^2 = 1191.49$ ;  $\bar{\chi}_{eff}^2 = 1212.16$ ;  $R - 1 = 0.05554$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.20 commander\_dx12\_v3.2\_29: 21.84 plik\_rd12\_HM\_v22\_TT: 762.82 Hubble - H073p45: 9.20



## 12.6 base\_nrun\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02217^{+0.00061}_{-0.00057}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.461^{+0.036}_{-0.033}$	$100\theta_{\text{s,eq}}$	$0.448^{+0.012}_{-0.012}$
$\Omega_{\text{c}} h^2$	$0.1207^{+0.0055}_{-0.0052}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.612^{+0.031}_{-0.029}$	$H(0.15)$	$72.3^{+2.0}_{-2.0}$
$100\theta_{\text{MC}}$	$1.0408^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.994^{+0.042}_{-0.040}$	$D_{\text{M}}(0.15)$	$647^{+21}_{-20}$
$\tau$	$0.055^{+0.019}_{-0.014}$	$r_{\text{drag}} h$	$98.5^{+4.1}_{-4.1}$	$H(0.38)$	$82.6^{+1.5}_{-1.4}$
$\ln(10^{10} A_{\text{s}})$	$3.047^{+0.045}_{-0.034}$	$\langle d^2 \rangle^{1/2}$	$2.452^{+0.099}_{-0.096}$	$D_{\text{M}}(0.38)$	$1542^{+41}_{-40}$
$n_{\text{s}}$	$0.962^{+0.016}_{-0.015}$	$z_{\text{re}}$	$< 9.57$	$H(0.51)$	$89.4^{+1.2}_{-1.1}$
$\text{d}n_{\text{s}}/\text{d} \ln k$	$-0.005^{+0.019}_{-0.019}$	$10^9 A_{\text{s}}$	$2.106^{+0.096}_{-0.070}$	$D_{\text{M}}(0.51)$	$1996^{+47}_{-47}$
$y_{\text{cal}}$	$1.0005^{+0.0063}_{-0.0064}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.887^{+0.037}_{-0.036}$	$H(0.61)$	$95.05^{+0.95}_{-0.86}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{40}$	$1224^{+53}_{-55}$	$D_{\text{M}}(0.61)$	$2321^{+51}_{-50}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{220}$	$5713^{+110}_{-110}$	$H(2.33)$	$236.8^{+3.4}_{-3.2}$
$A_{143}^{\text{tSZ}}$	—	$D_{810}$	$2538^{+36}_{-37}$	$D_{\text{M}}(2.33)$	$5775^{+41}_{-43}$
$A_{100}^{\text{PS}}$	$266^{+70}_{-70}$	$D_{1420}$	$814^{+13}_{-14}$	$f\sigma_8(0.15)$	$0.464^{+0.032}_{-0.030}$
$A_{143}^{\text{PS}}$	$50^{+20}_{-20}$	$D_{2000}$	$229.2^{+4.9}_{-5.1}$	$\sigma_8(0.15)$	$0.751^{+0.019}_{-0.018}$
$A_{143 \times 217}^{\text{PS}}$	$44^{+20}_{-20}$	$n_{\text{s},0.002}$	$0.977^{+0.059}_{-0.059}$	$f\sigma_8(0.38)$	$0.481^{+0.025}_{-0.024}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$Y_{\text{P}}$	$0.24531^{+0.00024}_{-0.00027}$	$\sigma_8(0.38)$	$0.664^{+0.015}_{-0.013}$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24663^{+0.00024}_{-0.00027}$	$f\sigma_8(0.51)$	$0.478^{+0.021}_{-0.021}$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.8}_{-4.7}$	$10^5 \text{D}/\text{H}$	$2.62^{+0.11}_{-0.11}$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.012}$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.5}_{-4.7}$	$\text{Age}/\text{Gyr}$	$13.824^{+0.092}_{-0.096}$	$f\sigma_8(0.61)$	$0.473^{+0.019}_{-0.018}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.7}_{-8.7}$	$z_*$	$1090.2^{+1.0}_{-1.0}$	$\sigma_8(0.61)$	$0.591^{+0.013}_{-0.011}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$r_*$	$144.4^{+1.3}_{-1.3}$	$f\sigma_8(2.33)$	$0.2977^{+0.0065}_{-0.0050}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	$0.3065^{+0.0068}_{-0.0051}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.87^{+0.12}_{-0.12}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$H_0$	$66.9^{+2.3}_{-2.3}$	$z_{\text{drag}}$	$1059.5^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$\Omega_{\Lambda}$	$0.679^{+0.031}_{-0.035}$	$r_{\text{drag}}$	$147.1^{+1.3}_{-1.3}$	$f_{2000}^{217}$	$108.6^{+5.4}_{-5.4}$
$\Omega_{\text{m}}$	$0.321^{+0.035}_{-0.031}$	$k_{\text{D}}$	$0.1407^{+0.0015}_{-0.0015}$	$\chi_{\text{simall}}^2$	$397.0 (\nu: 1.5)$
$\Omega_{\text{m}} h^2$	$0.1435^{+0.0053}_{-0.0050}$	$100\theta_{\text{D}}$	$0.16100^{+0.00074}_{-0.00072}$	$\chi_{\text{lowl}}^2$	$23.0 (\nu: 2.0)$
$\Omega_{\text{m}} h^3$	$0.0960^{+0.0013}_{-0.0013}$	$z_{\text{eq}}$	$3414^{+130}_{-120}$	$\chi_{\text{plik}}^2$	$772.6 (\nu: 16.2)$
$\sigma_8$	$0.813^{+0.023}_{-0.022}$	$k_{\text{eq}}$	$0.01042^{+0.00039}_{-0.00037}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.8)$
$S_8$	$0.841^{+0.065}_{-0.059}$	$100\theta_{\text{eq}}$	$0.811^{+0.023}_{-0.023}$	$\chi_{\text{CMB}}^2$	$1192.6 (\nu: 15.4)$

$$\bar{\chi}_{\text{eff}}^2 = 1199.98; R - 1 = 0.00614$$



## 12.7 base\_nrun\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02226^{+0.00054}_{-0.00053}$	$\sigma_8/h^{0.5}$	$0.983^{+0.029}_{-0.027}$	$D_{\text{M}}(0.38)$	$1529^{+24}_{-24}$
$\Omega_{\text{c}}h^2$	$0.1190^{+0.0032}_{-0.0031}$	$r_{\text{drag}}h$	$99.8^{+2.4}_{-2.4}$	$H(0.51)$	$89.70^{+0.78}_{-0.75}$
$100\theta_{\text{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.426^{+0.071}_{-0.070}$	$D_{\text{M}}(0.51)$	$1981^{+29}_{-28}$
$\tau$	$0.056^{+0.021}_{-0.015}$	$z_{\text{re}}$	$< 9.71$	$H(0.61)$	$95.30^{+0.68}_{-0.64}$
$\ln(10^{10}A_{\text{s}})$	$3.046^{+0.048}_{-0.033}$	$10^9 A_{\text{s}}$	$2.103^{+0.096}_{-0.075}$	$D_{\text{M}}(0.61)$	$2305^{+31}_{-31}$
$n_{\text{s}}$	$0.966^{+0.012}_{-0.012}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.879^{+0.032}_{-0.031}$	$H(2.33)$	$235.8^{+2.1}_{-2.1}$
$\text{d}n_{\text{s}}/\text{d} \ln k$	$-0.004^{+0.020}_{-0.019}$	$D_{40}$	$1218^{+51}_{-53}$	$D_{\text{M}}(2.33)$	$5765^{+33}_{-33}$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0063}$	$D_{220}$	$5721^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.455^{+0.020}_{-0.019}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+37}_{-36}$	$\sigma_8(0.15)$	$0.747^{+0.018}_{-0.015}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.473^{+0.016}_{-0.016}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$229.6^{+4.8}_{-4.8}$	$\sigma_8(0.38)$	$0.662^{+0.016}_{-0.013}$
$A_{100}^{\text{PS}}$	$264^{+70}_{-70}$	$n_{\text{s},0.002}$	$0.978^{+0.059}_{-0.059}$	$f\sigma_8(0.51)$	$0.472^{+0.015}_{-0.014}$
$A_{143}^{\text{PS}}$	$49^{+20}_{-20}$	$Y_{\text{P}}$	$0.24535^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	$0.620^{+0.015}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24667^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	$0.467^{+0.013}_{-0.013}$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	$2.61^{+0.10}_{-0.099}$	$\sigma_8(0.61)$	$0.590^{+0.014}_{-0.011}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.801^{+0.076}_{-0.077}$	$f\sigma_8(2.33)$	$0.2976^{+0.0069}_{-0.0052}$
$A_{100}^{\text{dust}TT}$	$9.0^{+4.6}_{-4.8}$	$z_*$	$1089.97^{+0.81}_{-0.78}$	$\sigma_8(2.33)$	$0.3068^{+0.0072}_{-0.0053}$
$A_{143}^{\text{dust}TT}$	$10.8^{+4.6}_{-4.7}$	$r_*$	$144.78^{+0.88}_{-0.85}$	$f_{2000}^{143}$	$32^{+8}_{-9}$
$A_{143 \times 217}^{\text{dust}TT}$	$18.4^{+8.4}_{-8.5}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{217}^{\text{dust}TT}$	$93^{+20}_{-20}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.905^{+0.087}_{-0.083}$	$f_{2000}^{217}$	$108.3^{+5.5}_{-5.2}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0015}$	$z_{\text{drag}}$	$1059.6^{+1.2}_{-1.3}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 1.8)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0017}$	$r_{\text{drag}}$	$147.5^{+1.0}_{-0.94}$	$\chi_{\text{lowl}}^2$	$22.6 (\nu: 1.6)$
$H_0$	$67.7^{+1.4}_{-1.4}$	$k_{\text{D}}$	$0.1404^{+0.0012}_{-0.0013}$	$\chi_{\text{plik}}^2$	$773.0 (\nu: 16.0)$
$\Omega_{\Lambda}$	$0.690^{+0.018}_{-0.019}$	$100\theta_{\text{D}}$	$0.16096^{+0.00073}_{-0.00069}$	$\chi_{6\text{DF}}^2$	$0.057 (\nu: 0.0)$
$\Omega_{\text{m}}$	$0.310^{+0.019}_{-0.018}$	$z_{\text{eq}}$	$3375^{+76}_{-73}$	$\chi_{\text{MGS}}^2$	$1.36 (\nu: 0.1)$
$\Omega_{\text{m}}h^2$	$0.1419^{+0.0032}_{-0.0030}$	$k_{\text{eq}}$	$0.01030^{+0.00023}_{-0.00022}$	$\chi_{\text{DR12BAO}}^2$	$4.7 (\nu: 1.3)$
$\Omega_{\text{m}}h^3$	$0.0960^{+0.0013}_{-0.0013}$	$100\theta_{\text{eq}}$	$0.818^{+0.013}_{-0.014}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.9)$
$\sigma_8$	$0.808^{+0.020}_{-0.017}$	$100\theta_{\text{s,eq}}$	$0.4519^{+0.0071}_{-0.0071}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.9)$
$S_8$	$0.822^{+0.039}_{-0.036}$	$H(0.15)$	$72.9^{+1.2}_{-1.2}$	$\chi_{\text{CMB}}^2$	$1192.6 (\nu: 15.1)$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.450^{+0.021}_{-0.020}$	$D_{\text{M}}(0.15)$	$641^{+12}_{-12}$		
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.603^{+0.020}_{-0.019}$	$H(0.38)$	$83.00^{+0.93}_{-0.90}$		

$$\bar{\chi}_{\text{eff}}^2 = 1206.22; R - 1 = 0.01231$$



## 12.8 base\_nrun\_plikHM\_TT\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02219^{+0.00058}_{-0.00057}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.020}_{-0.019}$	$D_{\mathrm{M}}(0.15)$	$645^{+16}_{-15}$
$\Omega_{\mathrm{c}} h^2$	$0.1200^{+0.0040}_{-0.0039}$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.027}$	$H(0.38)$	$82.7^{+1.2}_{-1.1}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	$98.9^{+3.1}_{-3.0}$	$D_{\mathrm{M}}(0.38)$	$1537^{+31}_{-31}$
$\tau$	$0.055^{+0.019}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.444^{+0.068}_{-0.069}$	$H(0.51)$	$89.47^{+0.96}_{-0.89}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.045^{+0.040}_{-0.030}$	$z_{\mathrm{re}}$	$< 9.43$	$D_{\mathrm{M}}(0.51)$	$1991^{+37}_{-36}$
$n_{\mathrm{s}}$	$0.963^{+0.013}_{-0.013}$	$10^9 A_{\mathrm{s}}$	$2.101^{+0.085}_{-0.063}$	$H(0.61)$	$95.12^{+0.81}_{-0.74}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.003^{+0.019}_{-0.019}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.031}_{-0.031}$	$D_{\mathrm{M}}(0.61)$	$2316^{+40}_{-39}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0063}_{-0.0065}$	$D_{40}$	$1224^{+51}_{-52}$	$H(2.33)$	$236.4^{+2.5}_{-2.5}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5717^{+100}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5772^{+37}_{-38}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2537^{+36}_{-36}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.020}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$814^{+14}_{-14}$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.013}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$D_{2000}$	$229.3^{+4.9}_{-5.1}$	$f\sigma_8(0.38)$	$0.478^{+0.016}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.974^{+0.059}_{-0.057}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.011}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00023}_{-0.00027}$	$f\sigma_8(0.51)$	$0.476^{+0.014}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00023}_{-0.00027}$	$\sigma_8(0.51)$	$0.621^{+0.011}_{-0.0098}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.11}$	$f\sigma_8(0.61)$	$0.470^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.7}_{-4.8}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.818^{+0.083}_{-0.087}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0093}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.5}_{-4.6}$	$z_{*}$	$1090.15^{+0.92}_{-0.92}$	$f\sigma_8(2.33)$	$0.2975^{+0.0058}_{-0.0048}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.4^{+8.3}_{-8.6}$	$r_{*}$	$144.56^{+0.98}_{-0.96}$	$\sigma_8(2.33)$	$0.3065^{+0.0063}_{-0.0051}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$100\theta_{*}$	$1.0410^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$32^{+8}_{-9}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0015}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.886^{+0.093}_{-0.090}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.5^{+1.3}_{-1.2}$	$f_{2000}^{217}$	$108.4^{+5.5}_{-5.3}$
$H_0$	$67.2^{+1.8}_{-1.8}$	$r_{\mathrm{drag}}$	$147.3^{+1.0}_{-1.0}$	$\chi_{\mathrm{lensing}}^2$	$9.58 (\nu: 0.5)$
$\Omega_{\Lambda}$	$0.683^{+0.024}_{-0.026}$	$k_{\mathrm{D}}$	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.317^{+0.026}_{-0.024}$	$100\theta_{\mathrm{D}}$	$0.16100^{+0.00073}_{-0.00070}$	$\chi_{\mathrm{lowl}}^2$	$23.1 (\nu: 2.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1429^{+0.0038}_{-0.0038}$	$z_{\mathrm{eq}}$	$3399^{+91}_{-90}$	$\chi_{\mathrm{plik}}^2$	$772.1 (\nu: 15.3)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0012}_{-0.0013}$	$k_{\mathrm{eq}}$	$0.01037^{+0.00028}_{-0.00027}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.8)$
$\sigma_8$	$0.811^{+0.015}_{-0.015}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.017}_{-0.017}$	$\chi_{\mathrm{CMB}}^2$	$1201.7 (\nu: 15.3)$
$S_8$	$0.834^{+0.042}_{-0.040}$	$100\theta_{\mathrm{s,eq}}$	$0.4495^{+0.0088}_{-0.0086}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.023}_{-0.022}$	$H(0.15)$	$72.5^{+1.5}_{-1.5}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1209.03$ ;  $R - 1 = 0.01103$



## 12.9 base\_nrun\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02226^{+0.00054}_{-0.00054}$	$\sigma_8/h^{0.5}$	$0.984^{+0.023}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1530^{+22}_{-22}$
$\Omega_{\mathrm{c}} h^2$	$0.1191^{+0.0028}_{-0.0027}$	$r_{\mathrm{drag}} h$	$99.7^{+2.1}_{-2.1}$	$H(0.51)$	$89.68^{+0.74}_{-0.71}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.059}_{-0.059}$	$D_{\mathrm{M}}(0.51)$	$1982^{+26}_{-27}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$z_{\mathrm{re}}$	$< 9.61$	$H(0.61)$	$95.29^{+0.64}_{-0.62}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.042}_{-0.033}$	$10^9 A_{\mathrm{s}}$	$2.106^{+0.089}_{-0.068}$	$D_{\mathrm{M}}(0.61)$	$2306^{+29}_{-29}$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.029}_{-0.030}$	$H(2.33)$	$235.8^{+1.8}_{-1.9}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.003^{+0.019}_{-0.019}$	$D_{40}$	$1221^{+48}_{-54}$	$D_{\mathrm{M}}(2.33)$	$5765^{+33}_{-33}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0064}_{-0.0064}$	$D_{220}$	$5725^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.015}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2538^{+37}_{-36}$	$\sigma_8(0.15)$	$0.748^{+0.014}_{-0.013}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.8^{+4.8}_{-4.8}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.011}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.976^{+0.059}_{-0.058}$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.011}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24535^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.010}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24667^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.010}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.10}_{-0.098}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0096}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.803^{+0.076}_{-0.074}$	$f\sigma_8(2.33)$	$0.2979^{+0.0059}_{-0.0049}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.6}_{-4.8}$	$z_*$	$1089.98^{+0.80}_{-0.77}$	$\sigma_8(2.33)$	$0.3071^{+0.0063}_{-0.0052}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.7}$	$r_*$	$144.76^{+0.79}_{-0.76}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.4^{+8.1}_{-8.5}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.904^{+0.079}_{-0.075}$	$f_{2000}^{217}$	$108.2^{+5.4}_{-5.2}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0015}$	$z_{\mathrm{drag}}$	$1059.6^{+1.2}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$9.32 (\nu: 0.2)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.47^{+0.88}_{-0.86}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 1.7)$
$H_0$	$67.6^{+1.3}_{-1.3}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{lowl}}^2$	$22.8 (\nu: 1.8)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.017}$	$100\theta_{\mathrm{D}}$	$0.16096^{+0.00073}_{-0.00068}$	$\chi_{\mathrm{plik}}^2$	$772.4 (\nu: 15.2)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.017}_{-0.016}$	$z_{\mathrm{eq}}$	$3377^{+66}_{-66}$	$\chi_{6\mathrm{DF}}^2$	$0.054 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1420^{+0.0028}_{-0.0027}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00020}_{-0.00020}$	$\chi_{\mathrm{MGS}}^2$	$1.31 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0013}_{-0.0013}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.1)$
$\sigma_8$	$0.809^{+0.016}_{-0.014}$	$100\theta_{\mathrm{s,eq}}$	$0.4517^{+0.0062}_{-0.0062}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 6.9)$
$S_8$	$0.824^{+0.031}_{-0.030}$	$H(0.15)$	$72.9^{+1.1}_{-1.1}$	$\chi_{\mathrm{CMB}}^2$	$1201.7 (\nu: 15.2)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.016}$	$D_{\mathrm{M}}(0.15)$	$641^{+11}_{-11}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.7)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.016}_{-0.015}$	$H(0.38)$	$82.97^{+0.87}_{-0.84}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1215.17$ ;  $R - 1 = 0.01603$



# 12.10 base\_nrun\_plikHM\_TT\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02241^{+0.00052}_{-0.00059}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.595^{+0.027}_{-0.024}$	$D_{\mathrm{M}}(0.15)$	$635^{+17}_{-15}$
$\Omega_{\mathrm{c}} h^2$	$0.1175^{+0.0047}_{-0.0049}$	$\sigma_8 / h^{0.5}$	$0.972^{+0.037}_{-0.031}$	$H(0.38)$	$83.5^{+1.2}_{-1.3}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0011}_{-0.0012}$	$r_{\mathrm{drag}} h$	$101.1^{+3.3}_{-3.6}$	$D_{\mathrm{M}}(0.38)$	$1516^{+35}_{-30}$
$\tau$	$0.058^{+0.021}_{-0.017}$	$\langle d^2 \rangle^{1/2}$	$2.402^{+0.086}_{-0.082}$	$H(0.51)$	$90.08^{+0.97}_{-1.0}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.046^{+0.048}_{-0.035}$	$z_{\mathrm{re}}$	$< 9.83$	$D_{\mathrm{M}}(0.51)$	$1966^{+41}_{-36}$
$n_{\mathrm{s}}$	$0.970^{+0.013}_{-0.014}$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.073}$	$H(0.61)$	$95.61^{+0.80}_{-0.83}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.004^{+0.021}_{-0.020}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.874^{+0.035}_{-0.028}$	$D_{\mathrm{M}}(0.61)$	$2289^{+44}_{-39}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0066}$	$D_{40}$	$1209^{+54}_{-50}$	$H(2.33)$	$235.0^{+2.9}_{-3.5}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5731^{+92}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5751^{+39}_{-36}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2537^{+35}_{-36}$	$f\sigma_8(0.15)$	$0.446^{+0.027}_{-0.025}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$817^{+14}_{-14}$	$\sigma_8(0.15)$	$0.744^{+0.019}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$D_{2000}$	$230.3^{+5.1}_{-5.2}$	$f\sigma_8(0.38)$	$0.467^{+0.022}_{-0.020}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.984^{+0.060}_{-0.065}$	$\sigma_8(0.38)$	$0.661^{+0.016}_{-0.013}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24541^{+0.00021}_{-0.00026}$	$f\sigma_8(0.51)$	$0.467^{+0.019}_{-0.018}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00021}_{-0.00026}$	$\sigma_8(0.51)$	$0.619^{+0.015}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.58^{+0.11}_{-0.094}$	$f\sigma_8(0.61)$	$0.463^{+0.017}_{-0.016}$
$A_{100}^{\mathrm{dust}TT}$	$9.1^{+4.5}_{-4.6}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.772^{+0.088}_{-0.083}$	$\sigma_8(0.61)$	$0.589^{+0.014}_{-0.011}$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.5}_{-4.8}$	$z_{*}$	$1089.65^{+0.95}_{-0.87}$	$f\sigma_8(2.33)$	$0.2976^{+0.0069}_{-0.0053}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+7.5}_{-8.7}$	$r_{*}$	$145.1^{+1.5}_{-1.1}$	$\sigma_8(2.33)$	$0.3073^{+0.0067}_{-0.0056}$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$100\theta_{*}$	$1.0414^{+0.0011}_{-0.0012}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0015}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.93^{+0.15}_{-0.11}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0019}$	$z_{\mathrm{drag}}$	$1059.8^{+1.2}_{-1.4}$	$f_{2000}^{217}$	$107.9^{+5.6}_{-5.3}$
$H_0$	$68.4^{+1.8}_{-2.0}$	$r_{\mathrm{drag}}$	$147.7^{+1.7}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$397.4 (\nu: 2.1)$
$\Omega_{\Lambda}$	$0.699^{+0.023}_{-0.028}$	$k_{\mathrm{D}}$	$0.1402^{+0.0014}_{-0.0019}$	$\chi_{\mathrm{lowl}}^2$	$21.9 (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.301^{+0.028}_{-0.023}$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00079}_{-0.00073}$	$\chi_{\mathrm{plik}}^2$	$775.7 (\nu: 19.6)$
$\Omega_{\mathrm{m}} h^2$	$0.1405^{+0.0045}_{-0.0052}$	$z_{\mathrm{eq}}$	$3343^{+110}_{-120}$	$\chi_{\mathrm{H073p45}}^2$	$9.5 (\nu: 4.0)$
$\Omega_{\mathrm{m}} h^3$	$0.0961^{+0.0013}_{-0.0015}$	$k_{\mathrm{eq}}$	$0.01020^{+0.00033}_{-0.00038}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 7.1)$
$\sigma_8$	$0.804^{+0.021}_{-0.020}$	$100\theta_{\mathrm{eq}}$	$0.825^{+0.022}_{-0.020}$	$\chi_{\mathrm{CMB}}^2$	$1195.0 (\nu: 18.5)$
$S_8$	$0.805^{+0.054}_{-0.048}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.012}_{-0.010}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.441^{+0.029}_{-0.027}$	$H(0.15)$	$73.6^{+1.6}_{-1.8}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1211.96$ ;  $R - 1 = 0.05098$



## 12.11 base\_nrun\_plikHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022392	$0.02239^{+0.00041}_{-0.00039}$ (+1.0 $\sigma$ )	$\Omega_m h^2$	0.14339	$0.1434^{+0.0033}_{-0.0033}$ (−0.1 $\sigma$ )	$k_{\text{eq}}$	0.010411	$0.01041^{+0.00024}_{-0.00024}$ (−0.1 $\sigma$ )
$\Omega_c h^2$	0.12035	$0.1203^{+0.0035}_{-0.0035}$ (−0.2 $\sigma$ )	$\Omega_m h^3$	0.09641	$0.09640^{+0.00081}_{-0.00080}$ (+0.8 $\sigma$ )	$100\theta_{\text{eq}}$	0.8117	$0.812^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )
$100\theta_{\text{MC}}$	1.04089	$1.04090^{+0.00080}_{-0.00081}$ (+0.3 $\sigma$ )	$\sigma_8$	0.8122	$0.813^{+0.020}_{-0.020}$ (+0.0 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4486	$0.4486^{+0.0076}_{-0.0074}$ (+0.1 $\sigma$ )
$\tau$	0.0548	$0.056^{+0.022}_{-0.020}$ (+0.3 $\sigma$ )	$S_8$	0.8351	$0.836^{+0.043}_{-0.042}$ (−0.2 $\sigma$ )	$H(0.15)$	72.58	$72.6^{+1.4}_{-1.3}$ (+0.4 $\sigma$ )
$\ln(10^{10} A_s)$	3.0469	$3.049^{+0.047}_{-0.044}$ (+0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4574	$0.458^{+0.023}_{-0.023}$ (−0.2 $\sigma$ )	$D_M(0.15)$	644.4	$644^{+14}_{-13}$ (−0.4 $\sigma$ )
$n_s$	0.9643	$0.964^{+0.012}_{-0.011}$ (+0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6095	$0.610^{+0.022}_{-0.022}$ (−0.1 $\sigma$ )	$H(0.38)$	82.81	$82.8^{+1.0}_{-0.96}$ (+0.5 $\sigma$ )
$dn_s/d \ln k$	−0.0047	$−0.006^{+0.017}_{-0.017}$ (−0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9905	$0.991^{+0.032}_{-0.032}$ (−0.2 $\sigma$ )	$D_M(0.38)$	1535.4	$1535^{+27}_{-27}$ (−0.4 $\sigma$ )
$y_{\text{cal}}$	1.0004	$1.0007^{+0.0064}_{-0.0064}$ (+0.1 $\sigma$ )	$r_{\text{drag}} h$	98.82	$98.8^{+2.7}_{-2.7}$ (+0.3 $\sigma$ )	$H(0.51)$	89.59	$89.59^{+0.81}_{-0.75}$ (+0.6 $\sigma$ )
$A_{217}^{\text{CIB}}$	48.9	$48^{+20}_{-20}$ (−0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.442	$2.445^{+0.076}_{-0.076}$ (−0.2 $\sigma$ )	$D_M(0.51)$	1988.0	$1988^{+31}_{-31}$ (−0.4 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.24	—	$z_{\text{re}}$	7.73	$7.8^{+2.1}_{-2.2}$ (+0.2 $\sigma$ )	$H(0.61)$	95.26	$95.26^{+0.67}_{-0.60}$ (+0.6 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.3	—	$10^9 A_s$	2.105	$2.11^{+0.10}_{-0.090}$ (+0.3 $\sigma$ )	$D_M(0.61)$	2312.6	$2313^{+34}_{-34}$ (−0.5 $\sigma$ )
$A_{100}^{\text{PS}}$	254	$263^{+70}_{-70}$ (−0.1 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8867	$1.887^{+0.031}_{-0.031}$ (+0.0 $\sigma$ )	$H(2.33)$	236.81	$236.8^{+2.1}_{-2.1}$ (−0.0 $\sigma$ )
$A_{143}^{\text{PS}}$	46.8	$48^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{40}$	1220.4	$1221^{+49}_{-47}$ (−0.2 $\sigma$ )	$D_M(2.33)$	5763.9	$5764^{+28}_{-30}$ (−0.7 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	43.9	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{220}$	5728	$5733^{+99}_{-100}$ (+0.5 $\sigma$ )	$f\sigma_8(0.15)$	0.4615	$0.462^{+0.022}_{-0.022}$ (−0.2 $\sigma$ )
$A_{217}^{\text{PS}}$	118.2	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{810}$	2541.5	$2542^{+35}_{-35}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7499	$0.750^{+0.018}_{-0.017}$ (+0.1 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	816.8	$816^{+13}_{-13}$ (+0.5 $\sigma$ )	$f\sigma_8(0.38)$	0.4786	$0.479^{+0.018}_{-0.018}$ (−0.2 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.93	$8.9^{+4.6}_{-4.7}$ (−0.0 $\sigma$ )	$D_{2000}$	230.48	$230.2^{+4.5}_{-4.8}$ (+0.5 $\sigma$ )	$\sigma_8(0.38)$	0.6642	$0.665^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.07	$11.0^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.979	$0.981^{+0.052}_{-0.054}$ (+0.2 $\sigma$ )	$f\sigma_8(0.51)$	0.4766	$0.477^{+0.016}_{-0.016}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.7	$18.6^{+8.5}_{-8.3}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.245404	$0.24540^{+0.00015}_{-0.00016}$ (+1.0 $\sigma$ )	$\sigma_8(0.51)$	0.6213	$0.622^{+0.014}_{-0.014}$ (+0.2 $\sigma$ )
$A_{217}^{\text{dustTT}}$	94.5	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.246731	$0.24673^{+0.00016}_{-0.00016}$ (+1.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4711	$0.471^{+0.014}_{-0.015}$ (−0.1 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.115^{+0.10}_{-0.095}$	$10^5 \text{D/H}$	2.581	$2.583^{+0.075}_{-0.074}$ (−1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5910	$0.591^{+0.014}_{-0.013}$ (+0.2 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.134^{+0.075}_{-0.074}$	Age/Gyr	13.798	$13.798^{+0.063}_{-0.065}$ (−0.8 $\sigma$ )	$f\sigma_8(2.33)$	0.2978	$0.2980^{+0.0068}_{-0.0064}$ (+0.3 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.92	$1089.93^{+0.72}_{-0.74}$ (−0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3067	$0.3070^{+0.0070}_{-0.0065}$ (+0.3 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.226	$0.22^{+0.14}_{-0.14}$	$r_*$	144.32	$144.33^{+0.77}_{-0.77}$ (−0.1 $\sigma$ )	$f_{2000}^{143}$	29.9	$31^{+8}_{-8}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.667	$0.66^{+0.21}_{-0.21}$	$100\theta_*$	1.04107	$1.04108^{+0.00079}_{-0.00080}$ (+0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.8	$33^{+6}_{-6}$ (−0.5 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.09	$2.09^{+0.67}_{-0.69}$	$D_M(z_*)/\text{Gpc}$	13.863	$13.864^{+0.072}_{-0.072}$ (−0.2 $\sigma$ )	$f_{2000}^{217}$	107.4	$107.8^{+5.1}_{-5.2}$ (−0.4 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1060.01	$1060.00^{+0.81}_{-0.79}$ (+1.0 $\sigma$ )	$\chi_{\text{small}}^2$	396.1	$397.3 (\nu: 2.0)$ (+0.1 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	146.97	$146.99^{+0.77}_{-0.78}$ (−0.3 $\sigma$ )	$\chi_{\text{lowl}}^2$	22.25	$22.6 (\nu: 1.3)$ (−0.3 $\sigma$ )
$H_0$	67.24	$67.2^{+1.6}_{-1.6}$ (+0.4 $\sigma$ )	$k_{\text{D}}$	0.14101	$0.14099^{+0.00087}_{-0.00085}$ (+0.6 $\sigma$ )	$\chi_{\text{plik}}^2$	2345.3	$2360.9 (\nu: 17.7)$ (+278.8 $\sigma$ )
$\Omega_\Lambda$	0.6828	$0.683^{+0.021}_{-0.023}$ (+0.3 $\sigma$ )	$100\theta_{\text{D}}$	0.160712	$0.16072^{+0.00046}_{-0.00047}$ (−1.0 $\sigma$ )	$\chi_{\text{prior}}^2$	1.8	$11.5 (\nu: 10.4)$ (+1.1 $\sigma$ )
$\Omega_{\text{m}}$	0.3172	$0.317^{+0.023}_{-0.021}$ (−0.3 $\sigma$ )	$z_{\text{eq}}$	3411	$3411^{+79}_{-78}$ (−0.1 $\sigma$ )	$\chi_{\text{CMB}}^2$	2763.6	$2780.7 (\nu: 17.5)$ (+282.7 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 2765.41$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.96$ ;  $\bar{\chi}_{\text{eff}}^2 = 2792.22$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1592.00$ ;  $R - 1 = 0.01212$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.07 ( $\Delta$  0.16) commander\_dx12\_v3.2.29: 22.25 ( $\Delta$  -0.49) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.28



## 12.12 base\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022465	$0.02245^{+0.00038}_{-0.00035}$ (+0.9 $\sigma$ )	$\sigma_8$	0.8102	$0.810^{+0.020}_{-0.019}$ (+0.3 $\sigma$ )	$D_M(0.15)$	640.3	$640.8^{+9.9}_{-9.9}$ (−0.1 $\sigma$ )
$\Omega_c h^2$	0.11929	$0.1194^{+0.0026}_{-0.0026}$ (+0.3 $\sigma$ )	$S_8$	0.8243	$0.825^{+0.034}_{-0.033}$ (+0.3 $\sigma$ )	$H(0.38)$	83.09	$83.06^{+0.79}_{-0.72}$ (+0.2 $\sigma$ )
$100\theta_{MC}$	1.04100	$1.04101^{+0.00075}_{-0.00080}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4515	$0.452^{+0.018}_{-0.018}$ (+0.3 $\sigma$ )	$D_M(0.38)$	1527.3	$1528^{+20}_{-20}$ (−0.1 $\sigma$ )
$\tau$	0.0566	$0.057^{+0.023}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6048	$0.605^{+0.019}_{-0.018}$ (+0.3 $\sigma$ )	$H(0.51)$	89.81	$89.78^{+0.65}_{-0.58}$ (+0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0483	$3.049^{+0.049}_{-0.044}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9846	$0.985^{+0.028}_{-0.027}$ (+0.3 $\sigma$ )	$D_M(0.51)$	1978.7	$1980^{+23}_{-24}$ (−0.1 $\sigma$ )
$n_s$	0.9674	$0.966^{+0.010}_{-0.010}$ (−0.0 $\sigma$ )	$r_{drag} h$	99.66	$99.6^{+2.0}_{-2.0}$ (−0.2 $\sigma$ )	$H(0.61)$	95.43	$95.41^{+0.54}_{-0.48}$ (+0.4 $\sigma$ )
$dn_s/d \ln k$	−0.0034	$−0.005^{+0.018}_{-0.017}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.429	$2.431^{+0.068}_{-0.064}$ (+0.2 $\sigma$ )	$D_M(0.61)$	2302.6	$2304^{+25}_{-26}$ (−0.1 $\sigma$ )
$y_{cal}$	1.0006	$1.0007^{+0.0061}_{-0.0062}$ (+0.1 $\sigma$ )	$z_{re}$	7.88	$7.9^{+2.2}_{-2.1}$ (+0.2 $\sigma$ )	$H(2.33)$	236.19	$236.2^{+1.6}_{-1.6}$ (+0.6 $\sigma$ )
$A_{217}^{CIB}$	47.4	$48^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.108	$2.11^{+0.11}_{-0.091}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5756.8	$5758^{+23}_{-25}$ (−0.6 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.48	—	$10^9 A_s e^{-2\tau}$	1.8824	$1.883^{+0.029}_{-0.028}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4562	$0.457^{+0.017}_{-0.017}$ (+0.3 $\sigma$ )
$A_{143}^{tSZ}$	7.2	—	$D_{40}$	1218.0	$1218^{+46}_{-47}$ (−0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7487	$0.749^{+0.018}_{-0.017}$ (+0.3 $\sigma$ )
$A_{100}^{PS}$	251	$262^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{220}$	5735	$5737^{+95}_{-99}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4747	$0.475^{+0.015}_{-0.015}$ (+0.3 $\sigma$ )
$A_{143}^{PS}$	49.3	$47^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{810}$	2541.7	$2541^{+35}_{-33}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6638	$0.664^{+0.016}_{-0.015}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{PS}$	49.4	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	818.3	$817^{+12}_{-12}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4734	$0.474^{+0.014}_{-0.013}$ (+0.3 $\sigma$ )
$A_{217}^{PS}$	120.2	$114^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.12	$230.5^{+4.3}_{-4.5}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6212	$0.621^{+0.015}_{-0.013}$ (+0.3 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.978	$0.982^{+0.053}_{-0.054}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4685	$0.469^{+0.013}_{-0.013}$ (+0.3 $\sigma$ )
$A_{100}^{dustTT}$	8.86	$8.9^{+4.7}_{-4.6}$ (−0.1 $\sigma$ )	$Y_P$	0.245432	$0.24542^{+0.00014}_{-0.00014}$ (+0.9 $\sigma$ )	$\sigma_8(0.61)$	0.5912	$0.591^{+0.014}_{-0.013}$ (+0.3 $\sigma$ )
$A_{143}^{dustTT}$	11.05	$11.0^{+4.6}_{-4.7}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246758	$0.24675^{+0.00014}_{-0.00014}$ (+0.9 $\sigma$ )	$f\sigma_8(2.33)$	0.2981	$0.2980^{+0.0070}_{-0.0064}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.0	$18.6^{+8.6}_{-8.6}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.568	$2.572^{+0.066}_{-0.067}$ (−0.9 $\sigma$ )	$\sigma_8(2.33)$	0.3074	$0.3072^{+0.0072}_{-0.0065}$ (+0.3 $\sigma$ )
$A_{217}^{dustTT}$	95.0	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.782	$13.784^{+0.053}_{-0.057}$ (−0.6 $\sigma$ )	$f_{2000}^{143}$	29.3	$30^{+8}_{-8}$ (−0.4 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.115^{+0.095}_{-0.095}$	$z_*$	1089.74	$1089.77^{+0.58}_{-0.61}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.3	$33^{+5}_{-5}$ (−0.4 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.134^{+0.076}_{-0.074}$	$r_*$	144.54	$144.53^{+0.59}_{-0.62}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	106.9	$107.6^{+5.0}_{-5.1}$ (−0.3 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.484	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04118	$1.04119^{+0.00073}_{-0.00082}$ (−0.0 $\sigma$ )	$\chi_{small}^2$	396.4	$397.4 (\nu: 2.4)$ (+0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/Gpc$	13.883	$13.881^{+0.057}_{-0.059}$ (−0.7 $\sigma$ )	$\chi_{lowl}^2$	22.10	$22.3 (\nu: 1.2)$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.662	$0.66^{+0.20}_{-0.21}$	$z_{drag}$	1060.09	$1060.07^{+0.78}_{-0.79}$ (+1.0 $\sigma$ )	$\chi_{plik}^2$	2345.8	$2360.9 (\nu: 17.3)$ (+279.9 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.65}$	$r_{drag}$	147.18	$147.17^{+0.62}_{-0.64}$ (−0.9 $\sigma$ )	$\chi_{6DF}^2$	0.029	$0.060 (\nu: 0.0)$ (+0.0 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14085	$0.14085^{+0.00078}_{-0.00078}$ (+1.0 $\sigma$ )	$\chi_{MGS}^2$	1.22	$1.23 (\nu: 0.1)$ (−0.2 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0015}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160664	$0.16069^{+0.00046}_{-0.00046}$ (−1.0 $\sigma$ )	$\chi_{DR12BAO}^2$	4.42	$5.0 (\nu: 1.1)$ (+0.1 $\sigma$ )
$H_0$	67.71	$67.7^{+1.2}_{-1.1}$ (+0.0 $\sigma$ )	$z_{eq}$	3387	$3390^{+60}_{-59}$ (+0.5 $\sigma$ )	$\chi_{prior}^2$	1.7	$11.6 (\nu: 10.5)$ (+1.1 $\sigma$ )
$\Omega_\Lambda$	0.6894	$0.689^{+0.015}_{-0.016}$ (−0.2 $\sigma$ )	$k_{eq}$	0.010339	$0.01035^{+0.00018}_{-0.00018}$ (+0.5 $\sigma$ )	$\chi_{BAO}^2$	5.67	$6.3 (\nu: 0.7)$ (+0.1 $\sigma$ )
$\Omega_m$	0.3106	$0.311^{+0.016}_{-0.015}$ (+0.2 $\sigma$ )	$100\theta_{eq}$	0.8163	$0.816^{+0.011}_{-0.011}$ (−0.4 $\sigma$ )	$\chi_{CMB}^2$	2764.3	$2780.6 (\nu: 16.8)$ (+285.1 $\sigma$ )
$\Omega_m h^2$	0.14240	$0.1425^{+0.0025}_{-0.0025}$ (+0.5 $\sigma$ )	$100\theta_{s,eq}$	0.4509	$0.4507^{+0.0057}_{-0.0056}$ (−0.4 $\sigma$ )			
$\Omega_m h^3$	0.09642	$0.09641^{+0.00077}_{-0.00079}$ (+0.9 $\sigma$ )	$H(0.15)$	72.99	$72.9^{+1.0}_{-0.98}$ (+0.1 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 2771.68$ ;  $\Delta\chi_{eff}^2 = 1585.97$ ;  $\bar{\chi}_{eff}^2 = 2798.48$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.01$ ;  $R - 1 = 0.02043$

$\chi_{eff}^2$ : BAO - 6DF: 0.03 ( $\Delta$  0.01) MGS: 1.22 ( $\Delta$  -0.06) DR12BAO: 4.42 ( $\Delta$  0.22) CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 396.37 ( $\Delta$  0.29) commander\_dx12\_v3\_2\_29: 22.11 ( $\Delta$  -0.02) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.83



### 12.13 base\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022396	$0.02240^{+0.00040}_{-0.00037} (+1.0\sigma)$	$\Omega_m h^3$	0.09638	$0.09639^{+0.00077}_{-0.00078} (+0.9\sigma)$	$100\theta_{s,eq}$	0.4493	$0.4492^{+0.0065}_{-0.0066} (-0.0\sigma)$
$\Omega_c h^2$	0.12003	$0.1200^{+0.0031}_{-0.0030} (-0.1\sigma)$	$\sigma_8$	0.8113	$0.811^{+0.015}_{-0.016} (+0.1\sigma)$	$H(0.15)$	72.69	$72.7^{+1.2}_{-1.2} (+0.4\sigma)$
$100\theta_{MC}$	1.04091	$1.04092^{+0.00078}_{-0.00081} (+0.2\sigma)$	$S_8$	0.8317	$0.832^{+0.034}_{-0.033} (-0.1\sigma)$	$D_M(0.15)$	643.3	$643^{+12}_{-12} (-0.4\sigma)$
$\tau$	0.0546	$0.055^{+0.020}_{-0.019} (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4555	$0.456^{+0.018}_{-0.018} (-0.1\sigma)$	$H(0.38)$	82.87	$82.88^{+0.91}_{-0.85} (+0.5\sigma)$
$\ln(10^{10} A_s)$	3.0457	$3.047^{+0.041}_{-0.039} (+0.3\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6079	$0.608^{+0.016}_{-0.017} (-0.1\sigma)$	$D_M(0.38)$	1533.3	$1533^{+24}_{-24} (-0.4\sigma)$
$n_s$	0.9650	$0.964^{+0.011}_{-0.011} (+0.2\sigma)$	$\sigma_8/h^{0.5}$	0.9885	$0.989^{+0.023}_{-0.024} (-0.1\sigma)$	$H(0.51)$	89.64	$89.64^{+0.76}_{-0.68} (+0.6\sigma)$
$dn_s/d \ln k$	-0.0025	$-0.005^{+0.018}_{-0.017} (-0.2\sigma)$	$r_{drag} h$	99.06	$99.1^{+2.4}_{-2.4} (+0.2\sigma)$	$D_M(0.51)$	1985.7	$1986^{+28}_{-28} (-0.4\sigma)$
$y_{cal}$	1.0006	$1.0007^{+0.0063}_{-0.0064} (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	2.441	$2.441^{+0.059}_{-0.061} (-0.1\sigma)$	$H(0.61)$	95.29	$95.30^{+0.61}_{-0.54} (+0.6\sigma)$
$A_{217}^{CIB}$	48.9	$48^{+20}_{-20} (-0.1\sigma)$	$z_{re}$	7.71	$7.8^{+1.9}_{-2.0} (+0.2\sigma)$	$D_M(0.61)$	2310.1	$2310^{+30}_{-31} (-0.4\sigma)$
$\xi^{tSZ \times CIB}$	0.23	—	$10^9 A_s$	2.102	$2.106^{+0.087}_{-0.080} (+0.3\sigma)$	$H(2.33)$	236.61	$236.6^{+1.8}_{-1.7} (+0.1\sigma)$
$A_{143}^{tSZ}$	7.3	—	$10^9 A_s e^{-2\tau}$	1.8848	$1.886^{+0.028}_{-0.028} (+0.2\sigma)$	$D_M(2.33)$	5762.7	$5762^{+26}_{-29} (-0.7\sigma)$
$A_{100}^{PS}$	253	$263^{+70}_{-70} (-0.1\sigma)$	$D_{40}$	1225.1	$1222^{+45}_{-47} (-0.2\sigma)$	$f\sigma_8(0.15)$	0.4598	$0.460^{+0.017}_{-0.017} (-0.1\sigma)$
$A_{143}^{PS}$	45.9	$47^{+20}_{-20} (-0.3\sigma)$	$D_{220}$	5733	$5735^{+97}_{-100} (+0.4\sigma)$	$\sigma_8(0.15)$	0.7493	$0.749^{+0.014}_{-0.014} (+0.2\sigma)$
$A_{143 \times 217}^{PS}$	42.9	$42^{+20}_{-20} (-0.1\sigma)$	$D_{810}$	2541.0	$2541^{+35}_{-34} (+0.3\sigma)$	$f\sigma_8(0.38)$	0.4773	$0.477^{+0.013}_{-0.014} (-0.1\sigma)$
$A_{217}^{PS}$	117.7	$115^{+30}_{-30} (-0.0\sigma)$	$D_{1420}$	817.3	$816^{+13}_{-13} (+0.4\sigma)$	$\sigma_8(0.38)$	0.6638	$0.664^{+0.012}_{-0.012} (+0.2\sigma)$
$A^{kSZ}$	0.0	—	$D_{2000}$	230.77	$230.3^{+4.4}_{-4.7} (+0.5\sigma)$	$f\sigma_8(0.51)$	0.4755	$0.476^{+0.012}_{-0.012} (-0.0\sigma)$
$A_{100}^{dustTT}$	8.90	$8.9^{+4.7}_{-4.7} (-0.1\sigma)$	$n_{s,0.002}$	0.973	$0.979^{+0.053}_{-0.052} (+0.3\sigma)$	$\sigma_8(0.51)$	0.6210	$0.621^{+0.012}_{-0.011} (+0.2\sigma)$
$A_{143}^{dustTT}$	11.01	$11.0^{+4.7}_{-4.6} (+0.1\sigma)$	$Y_P$	0.245406	$0.24540^{+0.00015}_{-0.00015} (+0.9\sigma)$	$f\sigma_8(0.61)$	0.4702	$0.470^{+0.011}_{-0.011} (-0.0\sigma)$
$A_{143 \times 217}^{dustTT}$	19.6	$18.6^{+8.9}_{-8.6} (+0.1\sigma)$	$Y_P^{BBN}$	0.246732	$0.24673^{+0.00015}_{-0.00015} (+0.9\sigma)$	$\sigma_8(0.61)$	0.5908	$0.591^{+0.011}_{-0.011} (+0.3\sigma)$
$A_{217}^{dustTT}$	94.5	$93^{+20}_{-20} (+0.0\sigma)$	$10^5 D/H$	2.581	$2.581^{+0.070}_{-0.071} (-1.0\sigma)$	$f\sigma_8(2.33)$	0.2977	$0.2977^{+0.0058}_{-0.0057} (+0.3\sigma)$
$A_{100}^{dustTE}$	0.116	$0.115^{+0.10}_{-0.095}$	Age/Gyr	13.795	$13.795^{+0.059}_{-0.064} (-0.8\sigma)$	$\sigma_8(2.33)$	0.3068	$0.3068^{+0.0062}_{-0.0060} (+0.3\sigma)$
$A_{100 \times 143}^{dustTE}$	0.134	$0.134^{+0.075}_{-0.074}$	$z_*$	1089.89	$1089.89^{+0.67}_{-0.68} (-0.8\sigma)$	$f_{2000}^{143}$	29.7	$31^{+8}_{-8} (-0.4\sigma)$
$A_{100 \times 217}^{dustTE}$	0.481	$0.48^{+0.22}_{-0.23}$	$r_*$	144.40	$144.40^{+0.67}_{-0.68} (-0.4\sigma)$	$f_{2000}^{143 \times 217}$	32.5	$33^{+6}_{-6} (-0.4\sigma)$
$A_{143}^{dustTE}$	0.225	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04110	$1.04110^{+0.00074}_{-0.00079} (+0.2\sigma)$	$f_{2000}^{217}$	107.2	$107.7^{+5.2}_{-5.2} (-0.4\sigma)$
$A_{143 \times 217}^{dustTE}$	0.665	$0.66^{+0.20}_{-0.21}$	$D_M(z_*)/\text{Gpc}$	13.870	$13.870^{+0.062}_{-0.064} (-0.4\sigma)$	$\chi^2_{lensing}$	8.89	$9.43 (\nu: 0.3) (-0.2\sigma)$
$A_{217}^{dustTE}$	2.08	$2.08^{+0.68}_{-0.65}$	$z_{drag}$	1060.01	$1060.00^{+0.81}_{-0.76} (+1.0\sigma)$	$\chi^2_{small}$	396.06	$397.1 (\nu: 1.5) (+0.1\sigma)$
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016} (+0.1\sigma)$	$r_{drag}$	147.05	$147.05^{+0.68}_{-0.69} (-0.5\sigma)$	$\chi^2_{lowl}$	22.71	$22.7 (\nu: 1.4) (-0.3\sigma)$
$c_{217}$	0.99821	$0.9982^{+0.0016}_{-0.0015} (-0.1\sigma)$	$k_D$	0.14093	$0.14093^{+0.00080}_{-0.00077} (+0.8\sigma)$	$\chi^2_{plik}$	2345.0	$2360.5 (\nu: 16.8) (+287.9\sigma)$
$H_0$	67.36	$67.4^{+1.4}_{-1.4} (+0.4\sigma)$	$100\theta_D$	0.160720	$0.16072^{+0.00047}_{-0.00046} (-1.0\sigma)$	$\chi^2_{prior}$	1.8	$11.6 (\nu: 10.6) (+1.1\sigma)$
$\Omega_\Lambda$	0.6847	$0.685^{+0.019}_{-0.020} (+0.2\sigma)$	$z_{eq}$	3404	$3404^{+69}_{-66} (+0.1\sigma)$	$\chi^2_{CMB}$	2772.6	$2789.7 (\nu: 17.3) (+283.5\sigma)$
$\Omega_m$	0.3153	$0.315^{+0.020}_{-0.019} (-0.2\sigma)$	$k_{eq}$	0.010388	$0.01039^{+0.00021}_{-0.00020} (+0.1\sigma)$			
$\Omega_m h^2$	0.14308	$0.1431^{+0.0029}_{-0.0027} (+0.1\sigma)$	$100\theta_{eq}$	0.8131	$0.813^{+0.013}_{-0.013} (+0.0\sigma)$			

Best-fit  $\chi^2_{eff} = 2774.42$ ;  $\Delta\chi^2_{eff} = 1585.95$ ;  $\bar{\chi}^2_{eff} = 2801.27$ ;  $\Delta\bar{\chi}^2_{eff} = 1592.00$ ;  $R - 1 = 0.02010$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp-p.teb.consext8: 8.89 ( $\Delta$  -0.04) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.06 ( $\Delta$  0.18) commander\_dx12.v3.2.29: 22.71 ( $\Delta$  -0.42) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.96



## 12.14 base\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022447	$0.02245^{+0.00037}_{-0.00035}$ (+0.9 $\sigma$ )	$\sigma_8$	0.8101	$0.810^{+0.016}_{-0.015}$ (+0.2 $\sigma$ )	$D_M(0.15)$	640.4	$640.7^{+9.2}_{-9.4}$ (−0.2 $\sigma$ )
$\Omega_c h^2$	0.11930	$0.1194^{+0.0024}_{-0.0023}$ (+0.3 $\sigma$ )	$S_8$	0.8245	$0.825^{+0.027}_{-0.028}$ (+0.2 $\sigma$ )	$H(0.38)$	83.08	$83.07^{+0.73}_{-0.68}$ (+0.3 $\sigma$ )
$100\theta_{MC}$	1.04103	$1.04101^{+0.00075}_{-0.00085}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4516	$0.452^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )	$D_M(0.38)$	1527.6	$1528^{+18}_{-19}$ (−0.2 $\sigma$ )
$\tau$	0.0565	$0.057^{+0.021}_{-0.019}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6048	$0.605^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )	$H(0.51)$	89.80	$89.79^{+0.63}_{-0.55}$ (+0.4 $\sigma$ )
$\ln(10^{10} A_s)$	3.0482	$3.049^{+0.041}_{-0.039}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9846	$0.985^{+0.021}_{-0.022}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1979.0	$1980^{+22}_{-23}$ (−0.2 $\sigma$ )
$n_s$	0.9669	$0.966^{+0.010}_{-0.010}$ (+0.0 $\sigma$ )	$r_{drag} h$	99.65	$99.6^{+1.9}_{-1.8}$ (−0.1 $\sigma$ )	$H(0.61)$	95.415	$95.41^{+0.53}_{-0.46}$ (+0.5 $\sigma$ )
$dn_s/d \ln k$	−0.0033	$−0.004^{+0.018}_{-0.017}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.431	$2.433^{+0.057}_{-0.058}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2302.9	$2304^{+23}_{-25}$ (−0.2 $\sigma$ )
$y_{cal}$	1.0006	$1.0008^{+0.0061}_{-0.0062}$ (+0.0 $\sigma$ )	$z_{re}$	7.88	$7.9^{+2.0}_{-2.0}$ (+0.1 $\sigma$ )	$H(2.33)$	236.19	$236.2^{+1.5}_{-1.3}$ (+0.5 $\sigma$ )
$A_{217}^{CIB}$	48.6	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.108	$2.111^{+0.087}_{-0.082}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5757.3	$5758^{+23}_{-25}$ (−0.6 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.31	—	$10^9 A_s e^{-2\tau}$	1.8823	$1.883^{+0.028}_{-0.027}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4562	$0.457^{+0.014}_{-0.014}$ (+0.2 $\sigma$ )
$A_{143}^{tSZ}$	7.2	—	$D_{40}$	1219.2	$1220^{+44}_{-46}$ (−0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7487	$0.749^{+0.014}_{-0.014}$ (+0.2 $\sigma$ )
$A_{100}^{PS}$	253	$262^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{220}$	5735	$5739^{+94}_{-99}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4747	$0.475^{+0.012}_{-0.012}$ (+0.2 $\sigma$ )
$A_{143}^{PS}$	46.9	$47^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{810}$	2541.3	$2541^{+34}_{-33}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6637	$0.664^{+0.012}_{-0.012}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	44.8	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	817.9	$817^{+12}_{-12}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4734	$0.474^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )
$A_{217}^{PS}$	118.2	$114^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	230.96	$230.6^{+4.2}_{-4.4}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6212	$0.621^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.978	$0.979^{+0.053}_{-0.053}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4685	$0.469^{+0.010}_{-0.010}$ (+0.2 $\sigma$ )
$A_{100}^{dustTT}$	8.93	$8.9^{+4.7}_{-4.5}$ (−0.1 $\sigma$ )	$Y_P$	0.245425	$0.24542^{+0.00014}_{-0.00014}$ (+0.9 $\sigma$ )	$\sigma_8(0.61)$	0.5911	$0.591^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )
$A_{143}^{dustTT}$	11.07	$11.0^{+4.6}_{-4.8}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246752	$0.24675^{+0.00014}_{-0.00014}$ (+0.9 $\sigma$ )	$f\sigma_8(2.33)$	0.2981	$0.2981^{+0.0057}_{-0.0057}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.7	$18.6^{+8.6}_{-8.6}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.571	$2.572^{+0.065}_{-0.067}$ (−0.9 $\sigma$ )	$\sigma_8(2.33)$	0.3073	$0.3073^{+0.0061}_{-0.0061}$ (+0.2 $\sigma$ )
$A_{217}^{dustTT}$	94.6	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.784	$13.784^{+0.052}_{-0.056}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	29.5	$30^{+8}_{-8}$ (−0.4 $\sigma$ )
$A_{100}^{dustTE}$	0.115	$0.115^{+0.097}_{-0.096}$	$z_*$	1089.76	$1089.77^{+0.56}_{-0.60}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.5	$33^{+5}_{-5}$ (−0.4 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.134^{+0.079}_{-0.074}$	$r_*$	144.55	$144.54^{+0.54}_{-0.58}$ (−0.7 $\sigma$ )	$f_{2000}^{217}$	107.1	$107.5^{+5.1}_{-5.2}$ (−0.3 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.483	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04120	$1.04118^{+0.00073}_{-0.00084}$ (−0.0 $\sigma$ )	$\chi^2_{lensing}$	8.84	$9.25 (\nu: 0.2)$ (−0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.224	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.883	$13.882^{+0.051}_{-0.055}$ (−0.7 $\sigma$ )	$\chi^2_{small}$	396.36	$397.3 (\nu: 1.9)$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.663	$0.66^{+0.20}_{-0.21}$	$z_{drag}$	1060.05	$1060.07^{+0.78}_{-0.78}$ (+1.0 $\sigma$ )	$\chi^2_{lowl}$	22.20	$22.5 (\nu: 1.3)$ (−0.2 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.64}$	$r_{drag}$	147.19	$147.17^{+0.58}_{-0.60}$ (−0.9 $\sigma$ )	$\chi^2_{plik}$	2345.6	$2360.5 (\nu: 16.5)$ (+288.0 $\sigma$ )
$c_{100}$	0.99970	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14082	$0.14084^{+0.00075}_{-0.00073}$ (+1.0 $\sigma$ )	$\chi^2_{6DF}$	0.030	$0.055 (\nu: 0.0)$ (−0.0 $\sigma$ )
$c_{217}$	0.99821	$0.9982^{+0.0015}_{-0.0015}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160691	$0.16069^{+0.00045}_{-0.00045}$ (−1.0 $\sigma$ )	$\chi^2_{MGS}$	1.22	$1.24 (\nu: 0.1)$ (−0.1 $\sigma$ )
$H_0$	67.70	$67.7^{+1.1}_{-1.1}$ (+0.1 $\sigma$ )	$z_{eq}$	3387	$3389^{+55}_{-51}$ (+0.4 $\sigma$ )	$\chi^2_{DR12BAO}$	4.44	$4.9 (\nu: 0.9)$ (+0.1 $\sigma$ )
$\Omega_\Lambda$	0.6893	$0.689^{+0.014}_{-0.015}$ (−0.1 $\sigma$ )	$k_{eq}$	0.010339	$0.01034^{+0.00017}_{-0.00015}$ (+0.4 $\sigma$ )	$\chi^2_{prior}$	1.8	$11.6 (\nu: 10.5)$ (+1.1 $\sigma$ )
$\Omega_m$	0.3107	$0.311^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )	$100\theta_{eq}$	0.8162	$0.8160^{+0.0099}_{-0.010}$ (−0.3 $\sigma$ )	$\chi^2_{CMB}$	2773.0	$2789.6 (\nu: 16.7)$ (+285.4 $\sigma$ )
$\Omega_m h^2$	0.14240	$0.1425^{+0.0023}_{-0.0021}$ (+0.4 $\sigma$ )	$100\theta_{s,eq}$	0.4509	$0.4507^{+0.0050}_{-0.0052}$ (−0.4 $\sigma$ )	$\chi^2_{BAO}$	5.68	$6.2 (\nu: 0.6)$ (+0.0 $\sigma$ )
$\Omega_m h^3$	0.09640	$0.09640^{+0.00078}_{-0.00078}$ (+0.9 $\sigma$ )	$H(0.15)$	72.98	$72.95^{+0.97}_{-0.92}$ (+0.2 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 2780.51$ ;  $\Delta\chi^2_{eff} = 1585.88$ ;  $\bar{\chi}^2_{eff} = 2807.32$ ;  $\Delta\bar{\chi}^2_{eff} = 1591.98$ ;  $R - 1 = 0.02542$

$\chi^2_{eff}$ : BAO - 6DF: 0.03 ( $\Delta$  0.01) MGS: 1.22 ( $\Delta$  -0.06) DR12BAO: 4.43 ( $\Delta$  0.21) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.84 ( $\Delta$  -0.04) small\_100x143\_offlike5\_EE\_Aplanck 396.36 ( $\Delta$  0.18) commander\_dx12\_v3\_2.29: 22.20 ( $\Delta$  -0.50) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.61



# 12.15 base\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022521	$0.02252^{+0.00036}_{-0.00039}$ (+0.5 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09646	$0.09647^{+0.00076}_{-0.00079}$ (+0.7 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4522	$0.4522^{+0.0091}_{-0.0073}$ (−0.8 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11866	$0.1187^{+0.0033}_{-0.0039}$ (+0.7 $\sigma$ )	$\sigma_8$	0.8083	$0.808^{+0.021}_{-0.018}$ (+0.5 $\sigma$ )	$H(0.15)$	73.24	$73.2^{+1.4}_{-1.3}$ (−0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04110	$1.04112^{+0.00084}_{-0.00085}$ (−0.3 $\sigma$ )	$S_8$	0.8172	$0.817^{+0.041}_{-0.045}$ (+0.7 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	637.8	$638^{+13}_{-14}$ (+0.5 $\sigma$ )
$\tau$	0.0574	$0.058^{+0.027}_{-0.020}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4476	$0.448^{+0.023}_{-0.025}$ (+0.7 $\sigma$ )	$H(0.38)$	83.28	$83.28^{+0.98}_{-0.93}$ (−0.4 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0487	$3.049^{+0.051}_{-0.043}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6015	$0.602^{+0.022}_{-0.022}$ (+0.7 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1522.3	$1522^{+25}_{-27}$ (+0.5 $\sigma$ )
$n_{\mathrm{s}}$	0.9685	$0.968^{+0.013}_{-0.012}$ (−0.4 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9802	$0.980^{+0.032}_{-0.030}$ (+0.6 $\sigma$ )	$H(0.51)$	89.96	$89.96^{+0.73}_{-0.73}$ (−0.3 $\sigma$ )
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	−0.0037	$−0.005^{+0.018}_{-0.018}$ (−0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	100.16	$100.2^{+3.1}_{-2.6}$ (−0.7 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1972.7	$1973^{+30}_{-31}$ (+0.4 $\sigma$ )
$y_{\mathrm{cal}}$	1.0006	$1.0007^{+0.0060}_{-0.0060}$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.420	$2.420^{+0.076}_{-0.068}$ (+0.6 $\sigma$ )	$H(0.61)$	95.54	$95.55^{+0.62}_{-0.58}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	48.0	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$z_{\mathrm{re}}$	7.94	$8.0^{+2.4}_{-2.1}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2296.2	$2296^{+32}_{-34}$ (+0.4 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.34	—	$10^9A_{\mathrm{s}}$	2.109	$2.11^{+0.11}_{-0.089}$ (+0.3 $\sigma$ )	$H(2.33)$	235.85	$235.9^{+2.0}_{-2.4}$ (+0.9 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.24	$5.3^{+4.3}_{-4.7}$ (+0.0 $\sigma$ )	$10^9A_{\mathrm{s}}e^{-2\tau}$	1.8800	$1.880^{+0.031}_{-0.029}$ (+0.5 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5751.7	$5752^{+28}_{-25}$ (−0.0 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	251	$261^{+70}_{-80}$ (−0.0 $\sigma$ )	$D_{40}$	1215.3	$1215^{+47}_{-50}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4526	$0.453^{+0.021}_{-0.023}$ (+0.7 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	46.8	$46^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{220}$	5741	$5742^{+100}_{-98}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7474	$0.747^{+0.019}_{-0.016}$ (+0.5 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	45.2	$41^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{810}$	2541.6	$2541^{+34}_{-32}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4720	$0.472^{+0.018}_{-0.018}$ (+0.7 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	118.4	$114^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{1420}$	818.6	$817^{+12}_{-12}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6631	$0.663^{+0.017}_{-0.014}$ (+0.4 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	231.23	$230.8^{+4.7}_{-4.3}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4711	$0.471^{+0.016}_{-0.016}$ (+0.7 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.90	$9.0^{+4.9}_{-4.4}$ (−0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.981	$0.984^{+0.055}_{-0.055}$ (+0.0 $\sigma$ )	$\sigma_8(0.51)$	0.6208	$0.621^{+0.016}_{-0.013}$ (+0.4 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.09	$11.0^{+4.4}_{-4.6}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.245452	$0.24545^{+0.00014}_{-0.00016}$ (+0.5 $\sigma$ )	$f\sigma_8(0.61)$	0.4666	$0.467^{+0.015}_{-0.014}$ (+0.6 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	19.8	$18.6^{+8.5}_{-8.5}$ (+0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246779	$0.24678^{+0.00014}_{-0.00016}$ (+0.5 $\sigma$ )	$\sigma_8(0.61)$	0.5908	$0.591^{+0.015}_{-0.012}$ (+0.4 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.0	$94^{+20}_{-20}$ (−0.0 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.558	$2.559^{+0.073}_{-0.064}$ (−0.5 $\sigma$ )	$f\sigma_8(2.33)$	0.2981	$0.2980^{+0.0077}_{-0.0063}$ (+0.3 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.115^{+0.095}_{-0.10}$	Age/Gyr	13.771	$13.771^{+0.062}_{-0.057}$ (−0.1 $\sigma$ )	$\sigma_8(2.33)$	0.3075	$0.3074^{+0.0085}_{-0.0066}$ (+0.1 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	0.135	$0.134^{+0.080}_{-0.072}$	$z_*$	1089.61	$1089.62^{+0.68}_{-0.63}$ (−0.1 $\sigma$ )	$f_{2000}^{143}$	29.2	$30^{+8}_{-8}$ (−0.3 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	0.480	$0.48^{+0.21}_{-0.23}$	$r_*$	144.66	$144.65^{+0.97}_{-0.76}$ (−1.0 $\sigma$ )	$f_{2000}^{143\times 217}$	32.2	$33^{+6}_{-6}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.224	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04127	$1.04129^{+0.00082}_{-0.00085}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	106.8	$107.4^{+5.0}_{-5.8}$ (−0.2 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	0.663	$0.66^{+0.20}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.893	$13.892^{+0.086}_{-0.071}$ (−0.9 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.5	$397.5$ ( $\nu$ : 3.0) (+0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.07	$2.07^{+0.70}_{-0.63}$	$z_{\mathrm{drag}}$	1060.20	$1060.19^{+0.74}_{-0.79}$ (+0.7 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	21.87	$22.1$ ( $\nu$ : 1.1) (+0.1 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0015}$ (+0.2 $\sigma$ )	$r_{\mathrm{drag}}$	147.28	$147.27^{+0.98}_{-0.76}$ (−1.0 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2346.8	$2362.4$ ( $\nu$ : 21.1) (+251.7 $\sigma$ )
$c_{217}$	0.99821	$0.9982^{+0.0015}_{-0.0015}$ (+0.0 $\sigma$ )	$k_{\mathrm{D}}$	0.14078	$0.14079^{+0.00084}_{-0.00099}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	10.7	$10.9$ ( $\nu$ : 2.8) (+0.5 $\sigma$ )
$H_0$	68.01	$68.0^{+1.6}_{-1.5}$ (−0.5 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.160621	$0.16063^{+0.00047}_{-0.00045}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.8	$11.7$ ( $\nu$ : 10.2) (+1.1 $\sigma$ )
$\Omega_{\Lambda}$	0.6934	$0.693^{+0.022}_{-0.021}$ (−0.6 $\sigma$ )	$z_{\mathrm{eq}}$	3374	$3375^{+76}_{-91}$ (+0.8 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2765.2	$2782.1$ ( $\nu$ : 20.5) (+259.0 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3066	$0.307^{+0.021}_{-0.022}$ (+0.6 $\sigma$ )	$k_{\mathrm{eq}}$	0.010297	$0.01030^{+0.00023}_{-0.00028}$ (+0.8 $\sigma$ )			
$\Omega_{\mathrm{m}}h^2$	0.14183	$0.1419^{+0.0032}_{-0.0038}$ (+0.8 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8190	$0.819^{+0.018}_{-0.014}$ (−0.8 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2777.71$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1586.22$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2804.64$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.48$ ;  $R - 1 = 0.04323$   
 $\chi_{\mathrm{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck.B: 396.48 ( $\Delta$  0.28) commander\_dx12\_v3.2.29: 21.87 ( $\Delta$  0.03) plik\_rd12\_HM\_v22b\_TTTEEE: 2346.81 Hubble - H073p45: 10.74 ( $\Delta$  1.54)



## 12.16 base\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02239^{+0.00041}_{-0.00039} \quad (+1.0\sigma)$	$\Omega_{\mathrm{m}} h^2$	$0.1434^{+0.0033}_{-0.0033} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01041^{+0.00024}_{-0.00024} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1203^{+0.0035}_{-0.0035} \quad (-0.2\sigma)$	$\Omega_{\mathrm{m}} h^3$	$0.09641^{+0.00081}_{-0.00080} \quad (+0.8\sigma)$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.015}_{-0.014} \quad (+0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04090^{+0.00080}_{-0.00082} \quad (+0.2\sigma)$	$\sigma_8$	$0.813^{+0.020}_{-0.018} \quad (-0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4487^{+0.0076}_{-0.0074} \quad (+0.1\sigma)$
$\tau$	$0.057^{+0.020}_{-0.015} \quad (+0.3\sigma)$	$S_8$	$0.836^{+0.043}_{-0.042} \quad (-0.2\sigma)$	$H(0.15)$	$72.6^{+1.4}_{-1.3} \quad (+0.4\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.051^{+0.045}_{-0.035} \quad (+0.3\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.458^{+0.023}_{-0.023} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$644^{+13}_{-13} \quad (-0.4\sigma)$
$n_{\mathrm{s}}$	$0.964^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.022}_{-0.021} \quad (-0.2\sigma)$	$H(0.38)$	$82.8^{+1.0}_{-0.95} \quad (+0.5\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.006^{+0.017}_{-0.017} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.992^{+0.031}_{-0.031} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1535^{+27}_{-27} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0064} \quad (+0.1\sigma)$	$r_{\mathrm{drag}} h$	$98.9^{+2.7}_{-2.7} \quad (+0.2\sigma)$	$H(0.51)$	$89.60^{+0.81}_{-0.74} \quad (+0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.446^{+0.075}_{-0.075} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1988^{+31}_{-31} \quad (-0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_{\mathrm{re}}$	$< 9.72 \quad (+0.2\sigma)$	$H(0.61)$	$95.26^{+0.67}_{-0.59} \quad (+0.6\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.2^{+4.5}_{-4.7} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.114^{+0.098}_{-0.073} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	$2312^{+34}_{-34} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.887^{+0.031}_{-0.031} \quad (+0.1\sigma)$	$H(2.33)$	$236.8^{+2.1}_{-2.1} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20} \quad (-0.3\sigma)$	$D_{40}$	$1221^{+49}_{-47} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5764^{+28}_{-30} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5733^{+100}_{-100} \quad (+0.5\sigma)$	$f\sigma_8(0.15)$	$0.462^{+0.022}_{-0.022} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{810}$	$2542^{+35}_{-35} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.751^{+0.018}_{-0.016} \quad (+0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{1420}$	$816^{+13}_{-13} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.479^{+0.018}_{-0.018} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.6}_{-4.7} \quad (-0.0\sigma)$	$D_{2000}$	$230.2^{+4.5}_{-4.8} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.665^{+0.015}_{-0.013} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.982^{+0.052}_{-0.054} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.477^{+0.016}_{-0.015} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.5}_{-8.3} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24540^{+0.00015}_{-0.00016} \quad (+0.9\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.014}_{-0.011} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00015}_{-0.00016} \quad (+0.9\sigma)$	$f\sigma_8(0.61)$	$0.472^{+0.014}_{-0.014} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.10}_{-0.095}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.583^{+0.074}_{-0.073} \quad (-0.9\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.013}_{-0.010} \quad (+0.2\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.134^{+0.075}_{-0.074}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.797^{+0.063}_{-0.066} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.2982^{+0.0065}_{-0.0051} \quad (+0.2\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.93^{+0.72}_{-0.74} \quad (-0.8\sigma)$	$\sigma_8(2.33)$	$0.3072^{+0.0068}_{-0.0052} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.13}_{-0.14}$	$r_*$	$144.34^{+0.77}_{-0.77} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.21}$	$100\theta_*$	$1.04108^{+0.00079}_{-0.00081} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.09^{+0.68}_{-0.69}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.864^{+0.072}_{-0.072} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$107.8^{+5.1}_{-5.2} \quad (-0.4\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1060.00^{+0.81}_{-0.79} \quad (+1.0\sigma)$	$\chi_{\mathrm{small}}^2$	$397.3 \quad (\nu: 2.1) \quad (+0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}$	$146.99^{+0.77}_{-0.78} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.6 \quad (\nu: 1.3) \quad (-0.2\sigma)$
$H_0$	$67.3^{+1.6}_{-1.5} \quad (+0.4\sigma)$	$k_{\mathrm{D}}$	$0.14099^{+0.00087}_{-0.00085} \quad (+0.6\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.7 \quad (\nu: 17.5) \quad (+278.6\sigma)$
$\Omega_{\Lambda}$	$0.683^{+0.021}_{-0.022} \quad (+0.3\sigma)$	$100\theta_{\mathrm{D}}$	$0.16072^{+0.00046}_{-0.00047} \quad (-1.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.3) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.317^{+0.022}_{-0.021} \quad (-0.3\sigma)$	$z_{\mathrm{eq}}$	$3410^{+78}_{-78} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2780.5 \quad (\nu: 17.2) \quad (+286.2\sigma)$

$\bar{\chi}_{\mathrm{eff}}^2 = 2792.02$ ;  $\Delta \bar{\chi}_{\mathrm{eff}}^2 = 1592.05$ ;  $R - 1 = 0.01357$



# 12.17 base\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02245^{+0.00038}_{-0.00035} \quad (+0.9\sigma)$	$\sigma_8$	$0.811^{+0.019}_{-0.017} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$640.7^{+9.9}_{-10} \quad (-0.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1194^{+0.0026}_{-0.0026} \quad (+0.3\sigma)$	$S_8$	$0.826^{+0.033}_{-0.033} \quad (+0.3\sigma)$	$H(0.38)$	$83.07^{+0.79}_{-0.72} \quad (+0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04101^{+0.00075}_{-0.00081} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.018} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1528^{+20}_{-20} \quad (-0.1\sigma)$
$\tau$	$0.057^{+0.020}_{-0.016} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.019}_{-0.018} \quad (+0.3\sigma)$	$H(0.51)$	$89.79^{+0.65}_{-0.58} \quad (+0.3\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.050^{+0.048}_{-0.036} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.986^{+0.028}_{-0.026} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1980^{+23}_{-24} \quad (-0.1\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.011} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.6^{+2.0}_{-2.0} \quad (-0.2\sigma)$	$H(0.61)$	$95.41^{+0.55}_{-0.48} \quad (+0.4\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.005^{+0.018}_{-0.017} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.067}_{-0.064} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2304^{+25}_{-26} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0060}_{-0.0062} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.83 \quad (+0.1\sigma)$	$H(2.33)$	$236.2^{+1.6}_{-1.6} \quad (+0.6\sigma)$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.11^{+0.10}_{-0.075} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5758^{+23}_{-25} \quad (-0.6\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.029}_{-0.028} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1218^{+46}_{-47} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.017}_{-0.014} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70} \quad (-0.1\sigma)$	$D_{220}$	$5737^{+96}_{-97} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.015}_{-0.014} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.3\sigma)$	$D_{810}$	$2541^{+35}_{-33} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.016}_{-0.012} \quad (+0.3\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.014}_{-0.013} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.5^{+4.3}_{-4.4} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.011} \quad (+0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.982^{+0.053}_{-0.054} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.013}_{-0.012} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.7} \quad (-0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24542^{+0.00014}_{-0.00014} \quad (+0.9\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.014}_{-0.010} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$11.0^{+4.5}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24675^{+0.00014}_{-0.00014} \quad (+0.9\sigma)$	$f\sigma_8(2.33)$	$0.2982^{+0.0068}_{-0.0051} \quad (+0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.6}_{-8.6} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.571^{+0.066}_{-0.068} \quad (-0.9\sigma)$	$\sigma_8(2.33)$	$0.3074^{+0.0072}_{-0.0053} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.784^{+0.053}_{-0.057} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.095}_{-0.095}$	$z_*$	$1089.77^{+0.58}_{-0.61} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.4\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.076}_{-0.074}$	$r_*$	$144.53^{+0.60}_{-0.62} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$107.6^{+5.0}_{-5.2} \quad (-0.3\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04119^{+0.00073}_{-0.00082} \quad (-0.0\sigma)$	$\chi_{\mathrm{small}}^2$	$397.4 \quad (\nu: 2.5) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.881^{+0.057}_{-0.060} \quad (-0.7\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.3 \quad (\nu: 1.2) \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$z_{\mathrm{drag}}$	$1060.07^{+0.77}_{-0.79} \quad (+1.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.8 \quad (\nu: 17.1) \quad (+280.7\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.69}_{-0.65}$	$r_{\mathrm{drag}}$	$147.17^{+0.62}_{-0.64} \quad (-0.9\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.059 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14085^{+0.00078}_{-0.00080} \quad (+1.0\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.24 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16068^{+0.00046}_{-0.00046} \quad (-1.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 \quad (\nu: 1.1) \quad (+0.1\sigma)$
$H_0$	$67.7^{+1.2}_{-1.1} \quad (+0.0\sigma)$	$z_{\mathrm{eq}}$	$3389^{+60}_{-59} \quad (+0.5\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.4) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.689^{+0.015}_{-0.016} \quad (-0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01034^{+0.00018}_{-0.00018} \quad (+0.5\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.2 \quad (\nu: 0.7) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.016}_{-0.015} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.011}_{-0.011} \quad (-0.4\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2780.5 \quad (\nu: 16.5) \quad (+288.9\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0025}_{-0.0025} \quad (+0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4507^{+0.0057}_{-0.0056} \quad (-0.4\sigma)$		
$\Omega_{\mathrm{m}}h^3$	$0.09641^{+0.00077}_{-0.00079} \quad (+0.8\sigma)$	$H(0.15)$	$73.0^{+1.0}_{-0.98} \quad (+0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2798.32; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.10; R - 1 = 0.02163$$



# 12.18 base\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00039}_{-0.00037} \quad (+0.9\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09639^{+0.00077}_{-0.00078} \quad (+0.9\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4493^{+0.0064}_{-0.0064} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1200^{+0.0030}_{-0.0030} \quad (-0.0\sigma)$	$\sigma_8$	$0.812^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$H(0.15)$	$72.7^{+1.2}_{-1.1} \quad (+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04093^{+0.00078}_{-0.00082} \quad (+0.2\sigma)$	$S_8$	$0.832^{+0.033}_{-0.033} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+12}_{-12} \quad (-0.3\sigma)$
$\tau$	$0.056^{+0.018}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.018}_{-0.018} \quad (-0.1\sigma)$	$H(0.38)$	$82.89^{+0.90}_{-0.83} \quad (+0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.049^{+0.040}_{-0.030} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.016}_{-0.017} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1533^{+23}_{-24} \quad (-0.4\sigma)$
$n_{\mathrm{s}}$	$0.964^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.023}_{-0.024} \quad (-0.1\sigma)$	$H(0.51)$	$89.65^{+0.75}_{-0.65} \quad (+0.5\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.005^{+0.018}_{-0.017} \quad (-0.2\sigma)$	$r_{\mathrm{drag}}h$	$99.1^{+2.4}_{-2.3} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1985^{+27}_{-28} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0063}_{-0.0062} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.058}_{-0.060} \quad (-0.1\sigma)$	$H(0.61)$	$95.30^{+0.61}_{-0.54} \quad (+0.6\sigma)$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.48 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2310^{+29}_{-30} \quad (-0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.109^{+0.085}_{-0.063} \quad (+0.3\sigma)$	$H(2.33)$	$236.6^{+1.8}_{-1.7} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.885^{+0.028}_{-0.028} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5762^{+26}_{-28} \quad (-0.7\sigma)$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70} \quad (-0.1\sigma)$	$D_{40}$	$1222^{+45}_{-47} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.017}_{-0.017} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.3\sigma)$	$D_{220}$	$5734^{+97}_{-100} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.750^{+0.014}_{-0.013} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2541^{+34}_{-33} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.013}_{-0.014} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$816^{+12}_{-13} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.012}_{-0.011} \quad (+0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$230.3^{+4.4}_{-4.7} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.476^{+0.012}_{-0.012} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7} \quad (-0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.979^{+0.053}_{-0.052} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.011}_{-0.0097} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$11.0^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24541^{+0.00015}_{-0.00015} \quad (+0.9\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.010}_{-0.011} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.8}_{-8.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00015}_{-0.00015} \quad (+0.9\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0092} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.580^{+0.070}_{-0.071} \quad (-0.9\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0057}_{-0.0046} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.10}_{-0.094}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.794^{+0.058}_{-0.064} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.3070^{+0.0061}_{-0.0048} \quad (+0.3\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.134^{+0.075}_{-0.074}$	$z_*$	$1089.88^{+0.64}_{-0.68} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} \quad (-0.4\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.23}$	$r_*$	$144.41^{+0.66}_{-0.67} \quad (-0.4\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.13}_{-0.14}$	$100\theta_*$	$1.04111^{+0.00074}_{-0.00080} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$107.7^{+5.1}_{-5.1} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.20}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.871^{+0.062}_{-0.063} \quad (-0.4\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.42 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.68}_{-0.65}$	$z_{\mathrm{drag}}$	$1060.01^{+0.80}_{-0.76} \quad (+1.0\sigma)$	$\chi_{\mathrm{small}}^2$	$397.0 \quad (\nu: 1.5) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.06^{+0.68}_{-0.69} \quad (-0.6\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.7 \quad (\nu: 1.4) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14093^{+0.00080}_{-0.00078} \quad (+0.8\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.4 \quad (\nu: 16.7) \quad (+287.3\sigma)$
$H_0$	$67.4^{+1.4}_{-1.3} \quad (+0.3\sigma)$	$100\theta_{\mathrm{D}}$	$0.16072^{+0.00047}_{-0.00046} \quad (-1.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.5) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.685^{+0.018}_{-0.019} \quad (+0.2\sigma)$	$z_{\mathrm{eq}}$	$3403^{+67}_{-65} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.5 \quad (\nu: 17.1) \quad (+286.8\sigma)$
$\Omega_{\mathrm{m}}$	$0.315^{+0.019}_{-0.018} \quad (-0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01039^{+0.00020}_{-0.00020} \quad (+0.1\sigma)$		
$\Omega_{\mathrm{m}}h^2$	$0.1431^{+0.0028}_{-0.0027} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.013}_{-0.013} \quad (-0.0\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2801.11; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.07; R - 1 = 0.02119$$



# 12.19 base\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02245^{+0.00037}_{-0.00035} \quad (+0.9\sigma)$	$\sigma_8$	$0.811^{+0.015}_{-0.014} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$640.6^{+9.2}_{-9.3} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1194^{+0.0024}_{-0.0023} \quad (+0.3\sigma)$	$S_8$	$0.825^{+0.027}_{-0.028} \quad (+0.2\sigma)$	$H(0.38)$	$83.07^{+0.74}_{-0.67} \quad (+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04101^{+0.00075}_{-0.00085} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.015}_{-0.015} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1528^{+18}_{-19} \quad (-0.2\sigma)$
$\tau$	$0.057^{+0.019}_{-0.015} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.014}_{-0.015} \quad (+0.2\sigma)$	$H(0.51)$	$89.79^{+0.62}_{-0.55} \quad (+0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.050^{+0.040}_{-0.031} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.021}_{-0.022} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1979^{+21}_{-22} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010} \quad (+0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.6^{+1.9}_{-1.8} \quad (-0.1\sigma)$	$H(0.61)$	$95.41^{+0.53}_{-0.46} \quad (+0.5\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.004^{+0.018}_{-0.017} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.434^{+0.056}_{-0.057} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2303^{+23}_{-24} \quad (-0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0008^{+0.0060}_{-0.0062} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.58 \quad (+0.0\sigma)$	$H(2.33)$	$236.2^{+1.5}_{-1.4} \quad (+0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.112^{+0.086}_{-0.065} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5758^{+23}_{-25} \quad (-0.6\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.027}_{-0.027} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.014}_{-0.014} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1220^{+44}_{-47} \quad (-0.0\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.013} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$262^{+80}_{-70} \quad (-0.1\sigma)$	$D_{220}$	$5739^{+94}_{-98} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.012}_{-0.012} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20} \quad (-0.3\sigma)$	$D_{810}$	$2541^{+34}_{-33} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.012}_{-0.011} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.011}_{-0.011} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.6^{+4.2}_{-4.4} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.011}_{-0.010} \quad (+0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.979^{+0.053}_{-0.053} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.4689^{+0.0099}_{-0.010} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.5} \quad (-0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24542^{+0.00014}_{-0.00014} \quad (+0.9\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0096} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$11.0^{+4.6}_{-4.8} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24675^{+0.00014}_{-0.00014} \quad (+0.9\sigma)$	$f\sigma_8(2.33)$	$0.2982^{+0.0056}_{-0.0048} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.6}_{-8.7} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.572^{+0.065}_{-0.066} \quad (-0.9\sigma)$	$\sigma_8(2.33)$	$0.3075^{+0.0060}_{-0.0050} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.784^{+0.052}_{-0.056} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.097}_{-0.096}$	$z_*$	$1089.77^{+0.56}_{-0.60} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5} \quad (-0.4\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.134^{+0.078}_{-0.075}$	$r_*$	$144.54^{+0.54}_{-0.57} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$107.5^{+5.1}_{-5.4} \quad (-0.3\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04118^{+0.00073}_{-0.00084} \quad (-0.0\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.23 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.882^{+0.052}_{-0.055} \quad (-0.7\sigma)$	$\chi_{\mathrm{small}}^2$	$397.3 \quad (\nu: 1.9) \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.20}_{-0.21}$	$z_{\mathrm{drag}}$	$1060.07^{+0.78}_{-0.79} \quad (+1.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.5 \quad (\nu: 1.3) \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.69}_{-0.64}$	$r_{\mathrm{drag}}$	$147.18^{+0.57}_{-0.59} \quad (-0.9\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.4 \quad (\nu: 16.4) \quad (+288.4\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14084^{+0.00075}_{-0.00073} \quad (+1.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.054 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16069^{+0.00045}_{-0.00045} \quad (-1.0\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.24 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$H_0$	$67.7^{+1.1}_{-1.1} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3389^{+55}_{-50} \quad (+0.5\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.689^{+0.014}_{-0.015} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01034^{+0.00017}_{-0.00015} \quad (+0.5\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.4) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.015}_{-0.014} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.8160^{+0.0098}_{-0.010} \quad (-0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.5 \quad (\nu: 16.5) \quad (+288.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1424^{+0.0023}_{-0.0021} \quad (+0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4508^{+0.0050}_{-0.0052} \quad (-0.4\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.1 \quad (\nu: 0.6) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09640^{+0.00078}_{-0.00078} \quad (+0.8\sigma)$	$H(0.15)$	$72.96^{+0.96}_{-0.91} \quad (+0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2807.20; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.03; R - 1 = 0.02657$$



## 12.20 base\_nrun\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02252^{+0.00036}_{-0.00039} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09647^{+0.00076}_{-0.00079} \quad (+0.7\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4522^{+0.0091}_{-0.0073} \quad (-0.8\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1187^{+0.0034}_{-0.0039} \quad (+0.7\sigma)$	$\sigma_8$	$0.809^{+0.021}_{-0.018} \quad (+0.5\sigma)$	$H(0.15)$	$73.2^{+1.4}_{-1.3} \quad (-0.5\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04112^{+0.00084}_{-0.00086} \quad (-0.3\sigma)$	$S_8$	$0.818^{+0.041}_{-0.045} \quad (+0.7\sigma)$	$D_{\mathrm{M}}(0.15)$	$638^{+13}_{-13} \quad (+0.5\sigma)$
$\tau$	$0.058^{+0.023}_{-0.017} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.022}_{-0.025} \quad (+0.7\sigma)$	$H(0.38)$	$83.29^{+0.97}_{-0.93} \quad (-0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.051^{+0.050}_{-0.037} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.022}_{-0.022} \quad (+0.6\sigma)$	$D_{\mathrm{M}}(0.38)$	$1522^{+25}_{-27} \quad (+0.5\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.013}_{-0.012} \quad (-0.5\sigma)$	$\sigma_8/h^{0.5}$	$0.980^{+0.032}_{-0.030} \quad (+0.6\sigma)$	$H(0.51)$	$89.96^{+0.73}_{-0.73} \quad (-0.3\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.005^{+0.018}_{-0.018} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$100.2^{+3.1}_{-2.6} \quad (-0.7\sigma)$	$D_{\mathrm{M}}(0.51)$	$1973^{+30}_{-31} \quad (+0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0059}_{-0.0060} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.421^{+0.076}_{-0.069} \quad (+0.6\sigma)$	$H(0.61)$	$95.55^{+0.62}_{-0.58} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$< 10.0 \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2296^{+32}_{-33} \quad (+0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.11^{+0.11}_{-0.077} \quad (+0.3\sigma)$	$H(2.33)$	$235.9^{+2.0}_{-2.4} \quad (+0.9\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.3^{+4.3}_{-4.6} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.880^{+0.031}_{-0.029} \quad (+0.5\sigma)$	$D_{\mathrm{M}}(2.33)$	$5751^{+27}_{-27} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$261^{+70}_{-80} \quad (-0.0\sigma)$	$D_{40}$	$1214^{+47}_{-50} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.453^{+0.021}_{-0.023} \quad (+0.7\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.3\sigma)$	$D_{220}$	$5742^{+100}_{-98} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.018}_{-0.016} \quad (+0.5\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$41^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2541^{+34}_{-32} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.018}_{-0.019} \quad (+0.7\sigma)$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30} \quad (-0.0\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.013} \quad (+0.4\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$230.8^{+4.7}_{-4.2} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.016}_{-0.016} \quad (+0.6\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.9}_{-4.4} \quad (-0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.984^{+0.054}_{-0.054} \quad (+0.0\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.015}_{-0.012} \quad (+0.4\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$11.0^{+4.4}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24545^{+0.00014}_{-0.00016} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.015}_{-0.014} \quad (+0.6\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.5}_{-8.3} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24678^{+0.00014}_{-0.00016} \quad (+0.5\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.014}_{-0.011} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.558^{+0.073}_{-0.064} \quad (-0.5\sigma)$	$f\sigma_8(2.33)$	$0.2982^{+0.0075}_{-0.0051} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.095}_{-0.10}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.770^{+0.062}_{-0.057} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.3076^{+0.0083}_{-0.0054} \quad (+0.1\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.081}_{-0.072}$	$z_*$	$1089.62^{+0.68}_{-0.62} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.3\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.23}$	$r_*$	$144.66^{+0.97}_{-0.76} \quad (-1.0\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.04129^{+0.00082}_{-0.00085} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$107.4^{+5.0}_{-5.8} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.892^{+0.086}_{-0.071} \quad (-0.9\sigma)$	$\chi_{\mathrm{small}}^2$	$397.5 \quad (\nu: 3.1) \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.07^{+0.70}_{-0.63}$	$z_{\mathrm{drag}}$	$1060.19^{+0.73}_{-0.79} \quad (+0.7\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.1 \quad (\nu: 1.1) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.27^{+0.97}_{-0.76} \quad (-1.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2362.4 \quad (\nu: 21.2) \quad (+253.1\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0015} \quad (+0.0\sigma)$	$k_{\mathrm{D}}$	$0.14079^{+0.00083}_{-0.00098} \quad (+1.0\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$10.9 \quad (\nu: 2.8) \quad (+0.5\sigma)$
$H_0$	$68.0^{+1.6}_{-1.5} \quad (-0.5\sigma)$	$100\theta_{\mathrm{D}}$	$0.16062^{+0.00048}_{-0.00045} \quad (-0.8\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.7 \quad (\nu: 10.2) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.693^{+0.022}_{-0.021} \quad (-0.6\sigma)$	$z_{\mathrm{eq}}$	$3374^{+76}_{-91} \quad (+0.8\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2782.0 \quad (\nu: 20.5) \quad (+260.7\sigma)$
$\Omega_{\mathrm{m}}$	$0.307^{+0.021}_{-0.022} \quad (+0.6\sigma)$	$k_{\mathrm{eq}}$	$0.01030^{+0.00023}_{-0.00028} \quad (+0.8\sigma)$		
$\Omega_{\mathrm{m}}h^2$	$0.1419^{+0.0032}_{-0.0038} \quad (+0.8\sigma)$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.017}_{-0.014} \quad (-0.8\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2804.52; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.56; R - 1 = 0.04836$$



## 12.21 base\_nrun\_CamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02215	$0.02216^{+0.00060}_{-0.00060}$	$\sigma_8 \Omega_m^{0.5}$	0.4596	$0.459^{+0.035}_{-0.033}$	$H(0.15)$	72.28	$72.3^{+2.0}_{-2.0}$
$\Omega_c h^2$	0.1207	$0.1206^{+0.0056}_{-0.0053}$	$\sigma_8 \Omega_m^{0.25}$	0.6108	$0.610^{+0.030}_{-0.030}$	$D_M(0.15)$	647.3	$647^{+21}_{-20}$
$100\theta_{MC}$	1.04082	$1.0408^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	0.9925	$0.991^{+0.041}_{-0.041}$	$H(0.38)$	82.55	$82.6^{+1.5}_{-1.4}$
$\tau$	0.0529	$0.053^{+0.023}_{-0.022}$	$r_{\text{drag}} h$	98.46	$98.6^{+4.2}_{-4.2}$	$D_M(0.38)$	1541.6	$1541^{+41}_{-40}$
$\ln(10^{10} A_s)$	3.0419	$3.041^{+0.048}_{-0.048}$	$\langle d^2 \rangle^{1/2}$	2.448	$2.445^{+0.098}_{-0.096}$	$H(0.51)$	89.35	$89.4^{+1.2}_{-1.1}$
$n_s$	0.9624	$0.963^{+0.016}_{-0.016}$	$z_{\text{re}}$	7.59	$7.6^{+2.2}_{-2.5}$	$D_M(0.51)$	1995.6	$1994^{+48}_{-47}$
$dn_s/d \ln k$	-0.0033	$-0.003^{+0.019}_{-0.020}$	$10^9 A_s$	2.094	$2.09^{+0.10}_{-0.098}$	$H(0.61)$	95.04	$95.07^{+0.94}_{-0.89}$
$y_{\text{cal}}$	1.0006	$1.0004^{+0.0065}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	1.8842	$1.883^{+0.039}_{-0.036}$	$D_M(0.61)$	2321	$2320^{+51}_{-51}$
$A_{100}^{\text{PS}}$	245	$244^{+60}_{-70}$	$D_{40}$	1224	$1223^{+54}_{-54}$	$H(2.33)$	236.78	$236.7^{+3.5}_{-3.2}$
$A_{143}^{\text{PS}}$	39.9	$42^{+20}_{-20}$	$D_{220}$	5706	$5704^{+110}_{-110}$	$D_M(2.33)$	5775.7	$5775^{+43}_{-43}$
$A_{217}^{\text{PS}}$	98.4	$100^{+30}_{-40}$	$D_{810}$	2535.5	$2535^{+37}_{-35}$	$f\sigma_8(0.15)$	0.4634	$0.463^{+0.031}_{-0.031}$
$A_{217}^{\text{CIB}}$	45.4	$42^{+20}_{-20}$	$D_{1420}$	813.5	$814^{+14}_{-14}$	$\sigma_8(0.15)$	0.7493	$0.749^{+0.020}_{-0.020}$
$A_{143}^{\text{tSZ}}$	5.16	< 8.66	$D_{2000}$	229.1	$229.1^{+5.2}_{-5.1}$	$f\sigma_8(0.38)$	0.4798	$0.479^{+0.024}_{-0.025}$
$r_{143 \times 217}^{\text{PS}}$	0.549	$0.64^{+0.32}_{-0.32}$	$n_{s,0.002}$	0.973	$0.974^{+0.061}_{-0.058}$	$\sigma_8(0.38)$	0.6632	$0.663^{+0.017}_{-0.017}$
$r_{143 \times 217}^{\text{CIB}}$	0.74	—	$Y_P$	0.245306	$0.24530^{+0.00024}_{-0.00028}$	$f\sigma_8(0.51)$	0.4773	$0.477^{+0.021}_{-0.021}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.00	—	$Y_P^{\text{BBN}}$	0.246632	$0.24663^{+0.00024}_{-0.00029}$	$\sigma_8(0.51)$	0.6202	$0.620^{+0.015}_{-0.015}$
$A^{\text{kSZ}}$	2.6	—	$10^5 D/H$	2.627	$2.63^{+0.12}_{-0.11}$	$f\sigma_8(0.61)$	0.4716	$0.471^{+0.018}_{-0.019}$
$A_{100}^{\text{dust}}$	1.02	$1.02^{+0.50}_{-0.51}$	Age/Gyr	13.825	$13.823^{+0.098}_{-0.097}$	$\sigma_8(0.61)$	0.5899	$0.590^{+0.014}_{-0.014}$
$A_{143}^{\text{dust}}$	0.986	$0.98^{+0.45}_{-0.46}$	$z_*$	1090.26	$1090.2^{+1.1}_{-1.0}$	$f\sigma_8(2.33)$	0.2971	$0.2970^{+0.0072}_{-0.0068}$
$A_{217}^{\text{dust}}$	0.961	$0.97^{+0.27}_{-0.27}$	$r_*$	144.42	$144.5^{+1.2}_{-1.3}$	$\sigma_8(2.33)$	0.3059	$0.3059^{+0.0077}_{-0.0072}$
$A_{143 \times 217}^{\text{dust}}$	1.002	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	1.04103	$1.0410^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	32.0	$32^{+9}_{-9}$
$c_{100}$	0.99751	$0.9975^{+0.0027}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	13.873	$13.88^{+0.12}_{-0.12}$	$f_{2000}^{217}$	108.3	$108.0^{+5.6}_{-5.8}$
$c_{217}$	1.00149	$1.0013^{+0.0041}_{-0.0040}$	$z_{\text{drag}}$	1059.47	$1059.5^{+1.2}_{-1.3}$	$f_{2000}^{143 \times 217}$	33.7	$34^{+6}_{-6}$
$H_0$	66.91	$67.0^{+2.4}_{-2.3}$	$r_{\text{drag}}$	147.16	$147.2^{+1.3}_{-1.3}$	$\chi_{\text{small}}^2$	395.9	$397.0 (\nu: 1.6)$
$\Omega_\Lambda$	0.6795	$0.680^{+0.032}_{-0.036}$	$k_D$	0.14063	$0.1406^{+0.0014}_{-0.0014}$	$\chi_{\text{lowl}}^2$	22.73	$23.1 (\nu: 2.2)$
$\Omega_m$	0.3205	$0.320^{+0.036}_{-0.032}$	$100\theta_D$	0.16103	$0.16103^{+0.00077}_{-0.00073}$	$\chi_{\text{CamSpec}}^2$	7050.5	$7064.2 (\nu: 16.0)$
$\Omega_m h^2$	0.1435	$0.1434^{+0.0054}_{-0.0051}$	$z_{\text{eq}}$	3413	$3410^{+130}_{-120}$	$\chi_{\text{prior}}^2$	2.4	$7.7 (\nu: 6.1)$
$\Omega_m h^3$	0.09599	$0.0960^{+0.0013}_{-0.0013}$	$k_{\text{eq}}$	0.010417	$0.01041^{+0.00039}_{-0.00037}$	$\chi_{\text{CMB}}^2$	7469.1	$7484.4 (\nu: 15.9)$
$\sigma_8$	0.8118	$0.811^{+0.023}_{-0.024}$	$100\theta_{\text{eq}}$	0.8107	$0.811^{+0.023}_{-0.023}$			
$S_8$	0.839	$0.838^{+0.063}_{-0.060}$	$100\theta_{s,\text{eq}}$	0.4482	$0.448^{+0.012}_{-0.012}$			

Best-fit  $\chi_{\text{eff}}^2 = 7471.52$ ;  $\bar{\chi}_{\text{eff}}^2 = 7492.14$ ;  $R - 1 = 0.00818$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.90 commander\_dx12\_v3.2\_29: 22.73 CamSpec like\_10.7HM: 7050.50



## 12.22 base\_nrun\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02225^{+0.00054}_{-0.00055}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.021}_{-0.020}$	$H(0.38)$	$83.01^{+0.91}_{-0.91}$
$\Omega_{\mathrm{c}} h^2$	$0.1189^{+0.0032}_{-0.0031}$	$\sigma_8/h^{0.5}$	$0.981^{+0.031}_{-0.029}$	$D_{\mathrm{M}}(0.38)$	$1528^{+24}_{-23}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	$99.8^{+2.4}_{-2.4}$	$H(0.51)$	$89.71^{+0.76}_{-0.75}$
$\tau$	$0.055^{+0.023}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	$2.422^{+0.074}_{-0.072}$	$D_{\mathrm{M}}(0.51)$	$1980^{+29}_{-28}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.050}_{-0.047}$	$z_{\mathrm{re}}$	$7.7^{+2.2}_{-2.4}$	$H(0.61)$	$95.31^{+0.64}_{-0.64}$
$n_{\mathrm{s}}$	$0.967^{+0.012}_{-0.012}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.11}_{-0.097}$	$D_{\mathrm{M}}(0.61)$	$2305^{+31}_{-30}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.003^{+0.019}_{-0.019}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.876^{+0.032}_{-0.030}$	$H(2.33)$	$235.8^{+2.1}_{-1.9}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0068}_{-0.0064}$	$D_{40}$	$1217^{+53}_{-50}$	$D_{\mathrm{M}}(2.33)$	$5764^{+33}_{-33}$
$A_{100}^{\mathrm{PS}}$	$243^{+60}_{-70}$	$D_{220}$	$5710^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.019}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2534^{+37}_{-34}$	$\sigma_8(0.15)$	$0.746^{+0.018}_{-0.018}$
$A_{217}^{\mathrm{PS}}$	$100^{+30}_{-40}$	$D_{1420}$	$814^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.472^{+0.017}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.5^{+5.1}_{-5.1}$	$\sigma_8(0.38)$	$0.661^{+0.016}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.62$	$n_{\mathrm{s},0.002}$	$0.975^{+0.061}_{-0.058}$	$f\sigma_8(0.51)$	$0.471^{+0.016}_{-0.015}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.64^{+0.32}_{-0.32}$	$Y_{\mathrm{P}}$	$0.24534^{+0.00021}_{-0.00026}$	$\sigma_8(0.51)$	$0.619^{+0.015}_{-0.014}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24667^{+0.00021}_{-0.00026}$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.11}_{-0.098}$	$\sigma_8(0.61)$	$0.589^{+0.014}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.801^{+0.076}_{-0.076}$	$f\sigma_8(2.33)$	$0.2971^{+0.0072}_{-0.0066}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.51}_{-0.53}$	$z_{*}$	$1089.98^{+0.80}_{-0.78}$	$\sigma_8(2.33)$	$0.3063^{+0.0076}_{-0.0068}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.45}$	$r_{*}$	$144.80^{+0.82}_{-0.86}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$100\theta_{*}$	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.7^{+5.6}_{-6.0}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.44}_{-0.42}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.906^{+0.080}_{-0.083}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.6^{+1.2}_{-1.3}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 1.9)$
$c_{217}$	$1.0013^{+0.0039}_{-0.0039}$	$r_{\mathrm{drag}}$	$147.51^{+0.94}_{-0.95}$	$\chi_{\mathrm{lowl}}^2$	$22.6 (\nu: 1.6)$
$H_0$	$67.7^{+1.4}_{-1.4}$	$k_{\mathrm{D}}$	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.6 (\nu: 15.3)$
$\Omega_{\Lambda}$	$0.690^{+0.018}_{-0.019}$	$100\theta_{\mathrm{D}}$	$0.16098^{+0.00074}_{-0.00071}$	$\chi_{6\mathrm{DF}}^2$	$0.054 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.019}_{-0.018}$	$z_{\mathrm{eq}}$	$3374^{+76}_{-71}$	$\chi_{\mathrm{MGS}}^2$	$1.39 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1418^{+0.0032}_{-0.0030}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00023}_{-0.00022}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0013}_{-0.0012}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.013}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 6.2)$
$\sigma_8$	$0.807^{+0.020}_{-0.020}$	$100\theta_{\mathrm{s,eq}}$	$0.4520^{+0.0069}_{-0.0071}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.8)$
$S_8$	$0.820^{+0.039}_{-0.037}$	$H(0.15)$	$72.9^{+1.2}_{-1.2}$	$\chi_{\mathrm{CMB}}^2$	$7484.3 (\nu: 15.1)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.021}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$641^{+12}_{-11}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7498.15; R - 1 = 0.01937$$



### 12.23 base\_nrun\_CamSpecHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02217^{+0.00056}_{-0.00059}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.023}_{-0.022}$	$H(0.15)$	$72.4^{+1.6}_{-1.6}$
$\Omega_{\mathrm{c}} h^2$	$0.1202^{+0.0041}_{-0.0040}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.020}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$646^{+16}_{-16}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.027}$	$H(0.38)$	$82.7^{+1.2}_{-1.2}$
$\tau$	$0.053^{+0.022}_{-0.022}$	$r_{\mathrm{drag}} h$	$98.8^{+3.2}_{-3.1}$	$D_{\mathrm{M}}(0.38)$	$1539^{+32}_{-32}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.044}_{-0.043}$	$\langle d^2 \rangle^{1/2}$	$2.443^{+0.070}_{-0.068}$	$H(0.51)$	$89.43^{+0.97}_{-0.94}$
$n_{\mathrm{s}}$	$0.964^{+0.014}_{-0.013}$	$z_{\mathrm{re}}$	$7.6^{+2.1}_{-2.4}$	$D_{\mathrm{M}}(0.51)$	$1992^{+38}_{-38}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.002^{+0.019}_{-0.019}$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.093}_{-0.088}$	$H(0.61)$	$95.10^{+0.81}_{-0.78}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0065}_{-0.0064}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.881^{+0.032}_{-0.032}$	$D_{\mathrm{M}}(0.61)$	$2317^{+41}_{-41}$
$A_{100}^{\mathrm{PS}}$	$244^{+60}_{-70}$	$D_{40}$	$1224^{+52}_{-51}$	$H(2.33)$	$236.5^{+2.5}_{-2.4}$
$A_{143}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$D_{220}$	$5707^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5773^{+39}_{-39}$
$A_{217}^{\mathrm{PS}}$	$100^{+30}_{-40}$	$D_{810}$	$2534^{+36}_{-35}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+14}_{-14}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.66$	$D_{2000}$	$229.2^{+5.2}_{-5.0}$	$f\sigma_8(0.38)$	$0.478^{+0.016}_{-0.016}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.971^{+0.060}_{-0.058}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.013}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00022}_{-0.00028}$	$f\sigma_8(0.51)$	$0.476^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00022}_{-0.00028}$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	$0.470^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.51}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.820^{+0.089}_{-0.089}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.012}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.45}$	$z_{*}$	$1090.20^{+0.98}_{-0.91}$	$f\sigma_8(2.33)$	$0.2970^{+0.0065}_{-0.0063}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.28}$	$r_{*}$	$144.52^{+0.97}_{-0.97}$	$\sigma_8(2.33)$	$0.3060^{+0.0072}_{-0.0068}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42}$	$100\theta_{*}$	$1.0411^{+0.0011}_{-0.0012}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.882^{+0.092}_{-0.091}$	$f_{2000}^{217}$	$107.9^{+5.7}_{-5.7}$
$c_{217}$	$1.0013^{+0.0040}_{-0.0039}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.3}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$H_0$	$67.1^{+1.8}_{-1.8}$	$r_{\mathrm{drag}}$	$147.3^{+1.0}_{-1.0}$	$\chi_{\mathrm{lensing}}^2$	$9.61 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.682^{+0.025}_{-0.026}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0013}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.5)$
$\Omega_{\mathrm{m}}$	$0.318^{+0.026}_{-0.025}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00078}_{-0.00071}$	$\chi_{\mathrm{lowl}}^2$	$23.2 (\nu: 2.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1431^{+0.0039}_{-0.0038}$	$z_{\mathrm{eq}}$	$3403^{+94}_{-91}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.5 (\nu: 14.6)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0013}_{-0.0012}$	$k_{\mathrm{eq}}$	$0.01039^{+0.00029}_{-0.00028}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 6.0)$
$\sigma_8$	$0.811^{+0.016}_{-0.017}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.017}_{-0.017}$	$\chi_{\mathrm{CMB}}^2$	$7493.4 (\nu: 15.9)$
$S_8$	$0.834^{+0.043}_{-0.041}$	$100\theta_{\mathrm{s,eq}}$	$0.4492^{+0.0089}_{-0.0087}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 7501.08; R - 1 = 0.01225$					



## 12.24 base\_nrun\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02225^{+0.00054}_{-0.00056}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.016}_{-0.016}$	$H(0.38)$	$82.97^{+0.87}_{-0.85}$
$\Omega_{\mathrm{c}} h^2$	$0.1191^{+0.0029}_{-0.0028}$	$\sigma_8/h^{0.5}$	$0.984^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1530^{+23}_{-22}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	$99.7^{+2.2}_{-2.2}$	$H(0.51)$	$89.67^{+0.73}_{-0.72}$
$\tau$	$0.056^{+0.021}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	$2.430^{+0.059}_{-0.059}$	$D_{\mathrm{M}}(0.51)$	$1982^{+27}_{-27}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.045^{+0.042}_{-0.039}$	$z_{\mathrm{re}}$	$7.9^{+2.0}_{-2.1}$	$H(0.61)$	$95.28^{+0.64}_{-0.62}$
$n_{\mathrm{s}}$	$0.966^{+0.012}_{-0.012}$	$10^9 A_{\mathrm{s}}$	$2.101^{+0.090}_{-0.081}$	$D_{\mathrm{M}}(0.61)$	$2306^{+29}_{-29}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.002^{+0.019}_{-0.019}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.029}_{-0.029}$	$H(2.33)$	$235.9^{+1.9}_{-1.8}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0067}_{-0.0064}$	$D_{40}$	$1220^{+51}_{-51}$	$D_{\mathrm{M}}(2.33)$	$5765^{+32}_{-33}$
$A_{100}^{\mathrm{PS}}$	$243^{+60}_{-70}$	$D_{220}$	$5714^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2535^{+36}_{-34}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$101^{+40}_{-30}$	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.7^{+5.0}_{-4.9}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.59$	$n_{\mathrm{s},0.002}$	$0.974^{+0.062}_{-0.059}$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.012}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}$	$0.24534^{+0.00021}_{-0.00026}$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.012}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24667^{+0.00021}_{-0.00026}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.11}_{-0.098}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.803^{+0.075}_{-0.077}$	$f\sigma_8(2.33)$	$0.2977^{+0.0063}_{-0.0058}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.52}$	$z_*$	$1090.00^{+0.79}_{-0.74}$	$\sigma_8(2.33)$	$0.3069^{+0.0069}_{-0.0063}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.44}$	$r_*$	$144.75^{+0.75}_{-0.78}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.6^{+5.6}_{-6.1}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.44}_{-0.43}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.902^{+0.075}_{-0.074}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.6^{+1.2}_{-1.3}$	$\chi_{\mathrm{lensing}}^2$	$9.47 (\nu: 0.3)$
$c_{217}$	$1.0012^{+0.0039}_{-0.0038}$	$r_{\mathrm{drag}}$	$147.46^{+0.86}_{-0.86}$	$\chi_{\mathrm{simall}}^2$	$397.3 (\nu: 1.9)$
$H_0$	$67.6^{+1.3}_{-1.3}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{lowl}}^2$	$22.8 (\nu: 1.8)$
$\Omega_{\Lambda}$	$0.689^{+0.017}_{-0.018}$	$100\theta_{\mathrm{D}}$	$0.16098^{+0.00074}_{-0.00070}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.8 (\nu: 14.3)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.018}_{-0.017}$	$z_{\mathrm{eq}}$	$3378^{+68}_{-65}$	$\chi_{6\mathrm{DF}}^2$	$0.057 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1420^{+0.0028}_{-0.0027}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00021}_{-0.00020}$	$\chi_{\mathrm{MGS}}^2$	$1.30 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0013}_{-0.0012}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.2)$
$\sigma_8$	$0.809^{+0.017}_{-0.016}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0062}_{-0.0063}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 6.1)$
$S_8$	$0.824^{+0.031}_{-0.030}$	$H(0.15)$	$72.9^{+1.1}_{-1.1}$	$\chi_{\mathrm{CMB}}^2$	$7493.4 (\nu: 15.3)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.016}$	$D_{\mathrm{M}}(0.15)$	$641^{+11}_{-11}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.8)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 7507.23; R - 1 = 0.02103$$



## 12.25 base\_nrun\_CamSpecHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02217^{+0.00060}_{-0.00060}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.459^{+0.034}_{-0.033}$	$H(0.15)$	$72.4^{+2.0}_{-2.0}$
$\Omega_{\mathrm{c}} h^2$	$0.1205^{+0.0055}_{-0.0053}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.030}_{-0.030}$	$D_{\mathrm{M}}(0.15)$	$646^{+21}_{-20}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.992^{+0.040}_{-0.041}$	$H(0.38)$	$82.6^{+1.5}_{-1.4}$
$\tau$	$0.055^{+0.020}_{-0.013}$	$r_{\mathrm{drag}} h$	$98.6^{+4.2}_{-4.1}$	$D_{\mathrm{M}}(0.38)$	$1540^{+41}_{-40}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.045^{+0.046}_{-0.033}$	$\langle d^2 \rangle^{1/2}$	$2.447^{+0.098}_{-0.093}$	$H(0.51)$	$89.4^{+1.2}_{-1.1}$
$n_{\mathrm{s}}$	$0.963^{+0.016}_{-0.015}$	$z_{\mathrm{re}}$	$< 9.65$	$D_{\mathrm{M}}(0.51)$	$1994^{+47}_{-47}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.004^{+0.019}_{-0.020}$	$10^9 A_{\mathrm{s}}$	$2.100^{+0.098}_{-0.068}$	$H(0.61)$	$95.08^{+0.93}_{-0.88}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0065}_{-0.0064}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.038}_{-0.036}$	$D_{\mathrm{M}}(0.61)$	$2319^{+51}_{-50}$
$A_{100}^{\mathrm{PS}}$	$244^{+60}_{-70}$	$D_{40}$	$1222^{+54}_{-54}$	$H(2.33)$	$236.7^{+3.4}_{-3.2}$
$A_{143}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$D_{220}$	$5704^{+110}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5774^{+43}_{-43}$
$A_{217}^{\mathrm{PS}}$	$100^{+30}_{-40}$	$D_{810}$	$2535^{+37}_{-35}$	$f\sigma_8(0.15)$	$0.463^{+0.031}_{-0.031}$
$A_{217}^{\mathrm{CIB}}$	$42^{+20}_{-20}$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.15)$	$0.750^{+0.019}_{-0.018}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.64$	$D_{2000}$	$229.2^{+5.2}_{-5.1}$	$f\sigma_8(0.38)$	$0.480^{+0.024}_{-0.025}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.64^{+0.32}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.975^{+0.061}_{-0.058}$	$\sigma_8(0.38)$	$0.664^{+0.016}_{-0.013}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00023}_{-0.00028}$	$f\sigma_8(0.51)$	$0.477^{+0.020}_{-0.021}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00024}_{-0.00028}$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.12}_{-0.11}$	$f\sigma_8(0.61)$	$0.472^{+0.018}_{-0.019}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.50}_{-0.52}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.821^{+0.098}_{-0.096}$	$\sigma_8(0.61)$	$0.591^{+0.014}_{-0.011}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.46}$	$z_*$	$1090.2^{+1.1}_{-1.0}$	$f\sigma_8(2.33)$	$0.2975^{+0.0068}_{-0.0049}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_*$	$144.5^{+1.2}_{-1.3}$	$\sigma_8(2.33)$	$0.3064^{+0.0074}_{-0.0050}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	$31^{+8}_{-9}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.88^{+0.11}_{-0.12}$	$f_{2000}^{217}$	$108.0^{+5.6}_{-5.9}$
$c_{217}$	$1.0013^{+0.0041}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.5^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$H_0$	$67.0^{+2.4}_{-2.3}$	$r_{\mathrm{drag}}$	$147.2^{+1.3}_{-1.3}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.6)$
$\Omega_{\Lambda}$	$0.681^{+0.032}_{-0.035}$	$k_{\mathrm{D}}$	$0.1406^{+0.0014}_{-0.0014}$	$\chi_{\mathrm{lowl}}^2$	$23.0 (\nu: 2.1)$
$\Omega_{\mathrm{m}}$	$0.319^{+0.035}_{-0.032}$	$100\theta_{\mathrm{D}}$	$0.16101^{+0.00077}_{-0.00073}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.2 (\nu: 16.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1433^{+0.0053}_{-0.0051}$	$z_{\mathrm{eq}}$	$3409^{+130}_{-120}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 6.1)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0013}_{-0.0013}$	$k_{\mathrm{eq}}$	$0.01040^{+0.00039}_{-0.00037}$	$\chi_{\mathrm{CMB}}^2$	$7484.1 (\nu: 15.5)$
$\sigma_8$	$0.812^{+0.023}_{-0.022}$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.023}_{-0.023}$		
$S_8$	$0.838^{+0.063}_{-0.060}$	$100\theta_{\mathrm{s,eq}}$	$0.449^{+0.012}_{-0.012}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7491.87; R - 1 = 0.00915$$



## 12.26 base\_nrun\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02226^{+0.00054}_{-0.00054}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.021}_{-0.019}$	$H(0.38)$	$83.02^{+0.90}_{-0.90}$
$\Omega_{\mathrm{c}} h^2$	$0.1189^{+0.0032}_{-0.0030}$	$\sigma_8/h^{0.5}$	$0.982^{+0.030}_{-0.028}$	$D_{\mathrm{M}}(0.38)$	$1528^{+24}_{-23}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	$99.9^{+2.3}_{-2.4}$	$H(0.51)$	$89.72^{+0.75}_{-0.74}$
$\tau$	$0.056^{+0.020}_{-0.015}$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.073}_{-0.068}$	$D_{\mathrm{M}}(0.51)$	$1980^{+29}_{-27}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.048}_{-0.033}$	$z_{\mathrm{re}}$	$< 9.70$	$H(0.61)$	$95.32^{+0.63}_{-0.64}$
$n_{\mathrm{s}}$	$0.967^{+0.012}_{-0.012}$	$10^9 A_{\mathrm{s}}$	$2.098^{+0.096}_{-0.074}$	$D_{\mathrm{M}}(0.61)$	$2304^{+31}_{-30}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.003^{+0.019}_{-0.019}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.876^{+0.032}_{-0.030}$	$H(2.33)$	$235.7^{+2.1}_{-1.9}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0069}_{-0.0064}$	$D_{40}$	$1216^{+53}_{-50}$	$D_{\mathrm{M}}(2.33)$	$5764^{+33}_{-33}$
$A_{100}^{\mathrm{PS}}$	$243^{+60}_{-70}$	$D_{220}$	$5710^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.019}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2533^{+37}_{-34}$	$\sigma_8(0.15)$	$0.747^{+0.018}_{-0.015}$
$A_{217}^{\mathrm{PS}}$	$100^{+40}_{-40}$	$D_{1420}$	$814^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.473^{+0.017}_{-0.016}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.5^{+5.1}_{-5.1}$	$\sigma_8(0.38)$	$0.662^{+0.015}_{-0.012}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.62$	$n_{\mathrm{s},0.002}$	$0.976^{+0.061}_{-0.058}$	$f\sigma_8(0.51)$	$0.472^{+0.015}_{-0.014}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.64^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}$	$0.24535^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	$0.620^{+0.014}_{-0.011}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24667^{+0.00021}_{-0.00026}$	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.013}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.10}_{-0.098}$	$\sigma_8(0.61)$	$0.590^{+0.014}_{-0.010}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.800^{+0.076}_{-0.076}$	$f\sigma_8(2.33)$	$0.2974^{+0.0070}_{-0.0051}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.51}_{-0.53}$	$z_{*}$	$1089.97^{+0.79}_{-0.79}$	$\sigma_8(2.33)$	$0.3067^{+0.0073}_{-0.0052}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.45}$	$r_{*}$	$144.80^{+0.82}_{-0.86}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$100\theta_{*}$	$1.0413^{+0.0010}_{-0.0011}$	$f_{2000}^{217}$	$107.7^{+5.6}_{-5.9}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.906^{+0.081}_{-0.083}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.6^{+1.2}_{-1.3}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.9)$
$c_{217}$	$1.0013^{+0.0039}_{-0.0038}$	$r_{\mathrm{drag}}$	$147.51^{+0.94}_{-0.95}$	$\chi_{\mathrm{lowl}}^2$	$22.5 (\nu: 1.6)$
$H_0$	$67.7^{+1.4}_{-1.4}$	$k_{\mathrm{D}}$	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.5 (\nu: 15.2)$
$\Omega_{\Lambda}$	$0.690^{+0.018}_{-0.019}$	$100\theta_{\mathrm{D}}$	$0.16097^{+0.00075}_{-0.00070}$	$\chi_{6\mathrm{DF}}^2$	$0.053 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.019}_{-0.018}$	$z_{\mathrm{eq}}$	$3374^{+76}_{-70}$	$\chi_{\mathrm{MGS}}^2$	$1.40 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1418^{+0.0032}_{-0.0029}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00023}_{-0.00021}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 (\nu: 1.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0013}_{-0.0012}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.013}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 6.2)$
$\sigma_8$	$0.808^{+0.020}_{-0.017}$	$100\theta_{\mathrm{s,eq}}$	$0.4521^{+0.0069}_{-0.0071}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.8)$
$S_8$	$0.821^{+0.039}_{-0.037}$	$H(0.15)$	$73.0^{+1.2}_{-1.2}$	$\chi_{\mathrm{CMB}}^2$	$7484.1 (\nu: 14.8)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.021}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$641^{+12}_{-11}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7497.95$ ;  $R - 1 = 0.02138$



## 12.27 base\_nrun\_CamSpecHM\_TT\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02218^{+0.00056}_{-0.00058}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.023}_{-0.022}$	$H(0.15)$	$72.5^{+1.6}_{-1.5}$
$\Omega_{\mathrm{c}} h^2$	$0.1201^{+0.0040}_{-0.0039}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.020}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$645^{+16}_{-15}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.027}$	$H(0.38)$	$82.7^{+1.2}_{-1.1}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$r_{\mathrm{drag}} h$	$98.9^{+3.1}_{-3.0}$	$D_{\mathrm{M}}(0.38)$	$1537^{+31}_{-31}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.041}_{-0.029}$	$\langle d^2 \rangle^{1/2}$	$2.443^{+0.070}_{-0.068}$	$H(0.51)$	$89.46^{+0.95}_{-0.90}$
$n_{\mathrm{s}}$	$0.964^{+0.014}_{-0.013}$	$z_{\mathrm{re}}$	$< 9.53$	$D_{\mathrm{M}}(0.51)$	$1991^{+36}_{-37}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.003^{+0.019}_{-0.019}$	$10^9 A_{\mathrm{s}}$	$2.099^{+0.088}_{-0.061}$	$H(0.61)$	$95.12^{+0.80}_{-0.75}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0066}_{-0.0063}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.881^{+0.032}_{-0.031}$	$D_{\mathrm{M}}(0.61)$	$2316^{+39}_{-40}$
$A_{100}^{\mathrm{PS}}$	$244^{+60}_{-70}$	$D_{40}$	$1223^{+51}_{-50}$	$H(2.33)$	$236.4^{+2.5}_{-2.4}$
$A_{143}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$D_{220}$	$5707^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5772^{+37}_{-39}$
$A_{217}^{\mathrm{PS}}$	$100^{+40}_{-40}$	$D_{810}$	$2534^{+36}_{-34}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.020}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.64$	$D_{2000}$	$229.3^{+5.2}_{-5.1}$	$f\sigma_8(0.38)$	$0.478^{+0.016}_{-0.016}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.972^{+0.059}_{-0.057}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.010}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00022}_{-0.00027}$	$f\sigma_8(0.51)$	$0.476^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00022}_{-0.00027}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0095}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	$0.470^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.53}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.818^{+0.085}_{-0.087}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.0090}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.45}$	$z_{*}$	$1090.17^{+0.94}_{-0.90}$	$f\sigma_8(2.33)$	$0.2974^{+0.0062}_{-0.0046}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.28}$	$r_{*}$	$144.55^{+0.96}_{-0.95}$	$\sigma_8(2.33)$	$0.3064^{+0.0069}_{-0.0051}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42}$	$100\theta_{*}$	$1.0411^{+0.0011}_{-0.0012}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.884^{+0.091}_{-0.089}$	$f_{2000}^{217}$	$107.9^{+5.6}_{-5.7}$
$c_{217}$	$1.0013^{+0.0040}_{-0.0039}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.3}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$H_0$	$67.2^{+1.8}_{-1.8}$	$r_{\mathrm{drag}}$	$147.3^{+1.0}_{-0.99}$	$\chi_{\mathrm{lensing}}^2$	$9.59 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.683^{+0.024}_{-0.025}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0013}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.5)$
$\Omega_{\mathrm{m}}$	$0.317^{+0.025}_{-0.024}$	$100\theta_{\mathrm{D}}$	$0.16102^{+0.00076}_{-0.00071}$	$\chi_{\mathrm{lowl}}^2$	$23.1 (\nu: 2.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1429^{+0.0038}_{-0.0037}$	$z_{\mathrm{eq}}$	$3400^{+91}_{-89}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.5 (\nu: 14.7)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0013}_{-0.0012}$	$k_{\mathrm{eq}}$	$0.01038^{+0.00028}_{-0.00027}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 6.0)$
$\sigma_8$	$0.811^{+0.016}_{-0.015}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.017}_{-0.016}$	$\chi_{\mathrm{CMB}}^2$	$7493.1 (\nu: 15.5)$
$S_8$	$0.834^{+0.042}_{-0.040}$	$100\theta_{\mathrm{s,eq}}$	$0.4495^{+0.0088}_{-0.0085}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 7500.82; R - 1 = 0.01490$					



## 12.28 base\_nrun\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02225^{+0.00054}_{-0.00055}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.016}_{-0.016}$	$H(0.38)$	$82.98^{+0.87}_{-0.84}$
$\Omega_{\mathrm{c}} h^2$	$0.1191^{+0.0028}_{-0.0028}$	$\sigma_8/h^{0.5}$	$0.984^{+0.023}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1530^{+22}_{-22}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	$99.7^{+2.2}_{-2.1}$	$H(0.51)$	$89.68^{+0.72}_{-0.71}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.059}_{-0.059}$	$D_{\mathrm{M}}(0.51)$	$1982^{+26}_{-26}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.046^{+0.043}_{-0.032}$	$z_{\mathrm{re}}$	$< 9.66$	$H(0.61)$	$95.29^{+0.63}_{-0.61}$
$n_{\mathrm{s}}$	$0.966^{+0.012}_{-0.011}$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.092}_{-0.066}$	$D_{\mathrm{M}}(0.61)$	$2306^{+28}_{-29}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.002^{+0.019}_{-0.019}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.029}_{-0.029}$	$H(2.33)$	$235.9^{+1.8}_{-1.8}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0067}_{-0.0064}$	$D_{40}$	$1220^{+51}_{-51}$	$D_{\mathrm{M}}(2.33)$	$5765^{+32}_{-33}$
$A_{100}^{\mathrm{PS}}$	$243^{+60}_{-60}$	$D_{220}$	$5714^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2535^{+36}_{-34}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.013}$
$A_{217}^{\mathrm{PS}}$	$100^{+40}_{-30}$	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.7^{+5.0}_{-4.9}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.011}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.57$	$n_{\mathrm{s},0.002}$	$0.974^{+0.062}_{-0.059}$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.011}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}$	$0.24534^{+0.00021}_{-0.00026}$	$\sigma_8(0.51)$	$0.621^{+0.013}_{-0.0099}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24667^{+0.00021}_{-0.00026}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.010}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.11}_{-0.098}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0094}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.802^{+0.075}_{-0.076}$	$f\sigma_8(2.33)$	$0.2978^{+0.0062}_{-0.0047}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.51}_{-0.53}$	$z_*$	$1090.00^{+0.78}_{-0.74}$	$\sigma_8(2.33)$	$0.3071^{+0.0067}_{-0.0050}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.45}$	$r_*$	$144.76^{+0.75}_{-0.77}$	$f_{2000}^{143}$	$31^{+8}_{-9}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.28}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.7^{+5.6}_{-6.1}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.44}_{-0.43}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.902^{+0.075}_{-0.074}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.6^{+1.2}_{-1.3}$	$\chi_{\mathrm{lensing}}^2$	$9.43 (\nu: 0.3)$
$c_{217}$	$1.0012^{+0.0039}_{-0.0038}$	$r_{\mathrm{drag}}$	$147.47^{+0.86}_{-0.86}$	$\chi_{\mathrm{simall}}^2$	$397.3 (\nu: 2.0)$
$H_0$	$67.6^{+1.3}_{-1.3}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{lowl}}^2$	$22.8 (\nu: 1.8)$
$\Omega_{\Lambda}$	$0.689^{+0.017}_{-0.017}$	$100\theta_{\mathrm{D}}$	$0.16098^{+0.00075}_{-0.00070}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.8 (\nu: 14.4)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.017}_{-0.017}$	$z_{\mathrm{eq}}$	$3378^{+67}_{-65}$	$\chi_{6\mathrm{DF}}^2$	$0.054 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1420^{+0.0028}_{-0.0027}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00020}_{-0.00020}$	$\chi_{\mathrm{MGS}}^2$	$1.31 (\nu: 0.1)$
$\Omega_{\mathrm{m}} h^3$	$0.0960^{+0.0013}_{-0.0012}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.1)$
$\sigma_8$	$0.809^{+0.016}_{-0.014}$	$100\theta_{\mathrm{s,eq}}$	$0.4517^{+0.0062}_{-0.0063}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 6.1)$
$S_8$	$0.824^{+0.031}_{-0.030}$	$H(0.15)$	$72.9^{+1.1}_{-1.1}$	$\chi_{\mathrm{CMB}}^2$	$7493.3 (\nu: 15.1)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.016}$	$D_{\mathrm{M}}(0.15)$	$641^{+11}_{-11}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.7)$

$\bar{\chi}_{\mathrm{eff}}^2 = 7507.10$ ;  $R - 1 = 0.02288$



## 12.29 base\_nrun\_CamSpecHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022296	$0.02229^{+0.00041}_{-0.00041}$ (+0.6 $\sigma$ )	$\sigma_8$	0.8086	$0.808^{+0.020}_{-0.020}$ (−0.4 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8148	$0.815^{+0.015}_{-0.016}$ (+0.4 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11967	$0.1196^{+0.0037}_{-0.0035}$ (−0.4 $\sigma$ )	$S_8$	0.8272	$0.826^{+0.044}_{-0.041}$ (−0.5 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4502	$0.4503^{+0.0077}_{-0.0080}$ (+0.4 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04087	$1.04087^{+0.00081}_{-0.00082}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4531	$0.453^{+0.024}_{-0.023}$ (−0.5 $\sigma$ )	$H(0.15)$	72.70	$72.7^{+1.3}_{-1.3}$ (+0.5 $\sigma$ )
$\tau$	0.0532	$0.053^{+0.022}_{-0.023}$ (−0.0 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6053	$0.605^{+0.022}_{-0.022}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	643.1	$643^{+14}_{-13}$ (−0.5 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0394	$3.039^{+0.046}_{-0.045}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9849	$0.984^{+0.031}_{-0.031}$ (−0.5 $\sigma$ )	$H(0.38)$	82.86	$82.86^{+0.98}_{-0.97}$ (+0.5 $\sigma$ )
$n_{\mathrm{s}}$	0.9660	$0.966^{+0.012}_{-0.013}$ (+0.4 $\sigma$ )	$r_{\mathrm{drag}}h$	99.25	$99.3^{+2.7}_{-2.8}$ (+0.4 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1533.1	$1533^{+27}_{-26}$ (−0.5 $\sigma$ )
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	−0.0007	$−0.001^{+0.018}_{-0.017}$ (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.433	$2.432^{+0.074}_{-0.076}$ (−0.4 $\sigma$ )	$H(0.51)$	89.60	$89.60^{+0.78}_{-0.74}$ (+0.5 $\sigma$ )
$y_{\mathrm{cal}}$	1.0003	$1.0004^{+0.0064}_{-0.0065}$ (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.57	$7.5^{+2.2}_{-2.5}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1985.6	$1985^{+32}_{-31}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	237	$241^{+60}_{-70}$ (−0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.089	$2.088^{+0.098}_{-0.093}$ (−0.1 $\sigma$ )	$H(0.61)$	95.24	$95.24^{+0.63}_{-0.60}$ (+0.5 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	42.4	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8786	$1.879^{+0.033}_{-0.032}$ (−0.3 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2310.2	$2310^{+34}_{-33}$ (−0.5 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	102.5	$102^{+30}_{-40}$ (+0.1 $\sigma$ )	$D_{40}$	1223.7	$1224^{+48}_{-44}$ (+0.0 $\sigma$ )	$H(2.33)$	236.26	$236.2^{+2.2}_{-2.1}$ (−0.4 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	42.9	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5715	$5716^{+100}_{-99}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5766.6	$5767^{+28}_{-29}$ (−0.5 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	5.59	< 8.84 (+0.1 $\sigma$ )	$D_{810}$	2534.9	$2535^{+35}_{-36}$ (−0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4574	$0.457^{+0.022}_{-0.021}$ (−0.5 $\sigma$ )
$r_{143\times 217}^{\mathrm{PS}}$	0.627	$0.65^{+0.31}_{-0.33}$ (+0.1 $\sigma$ )	$D_{1420}$	815.6	$815^{+13}_{-13}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7469	$0.746^{+0.018}_{-0.018}$ (−0.3 $\sigma$ )
$r_{143\times 217}^{\mathrm{CIB}}$	0.78	—	$D_{2000}$	230.18	$230.0^{+4.7}_{-4.8}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4752	$0.475^{+0.018}_{-0.018}$ (−0.5 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.33	—	$n_{\mathrm{s},0.002}$	0.968	$0.969^{+0.051}_{-0.053}$ (−0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6618	$0.661^{+0.015}_{-0.015}$ (−0.3 $\sigma$ )
$A^{\mathrm{kSZ}}$	1.5	—	$Y_{\mathrm{P}}$	0.245366	$0.24536^{+0.00016}_{-0.00018}$ (+0.6 $\sigma$ )	$f\sigma_8(0.51)$	0.4735	$0.473^{+0.016}_{-0.016}$ (−0.4 $\sigma$ )
$A_{100}^{\mathrm{dust}}$	1.02	$1.01^{+0.51}_{-0.49}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246692	$0.24669^{+0.00016}_{-0.00018}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6192	$0.619^{+0.014}_{-0.014}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{dust}}$	0.978	$0.97^{+0.46}_{-0.46}$ (−0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.599	$2.601^{+0.078}_{-0.075}$ (−0.6 $\sigma$ )	$f\sigma_8(0.61)$	0.4683	$0.468^{+0.014}_{-0.015}$ (−0.4 $\sigma$ )
$A_{217}^{\mathrm{dust}}$	0.971	$0.97^{+0.27}_{-0.27}$ (+0.1 $\sigma$ )	Age/Gyr	13.805	$13.805^{+0.062}_{-0.063}$ (−0.5 $\sigma$ )	$\sigma_8(0.61)$	0.5891	$0.589^{+0.013}_{-0.013}$ (−0.2 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}}$	0.992	$1.03^{+0.42}_{-0.41}$ (−0.0 $\sigma$ )	$z_*$	1089.99	$1089.99^{+0.74}_{-0.71}$ (−0.6 $\sigma$ )	$f\sigma_8(2.33)$	0.2970	$0.2968^{+0.0068}_{-0.0066}$ (−0.1 $\sigma$ )
$c_{100}$	0.99763	$0.9975^{+0.0028}_{-0.0027}$ (+0.1 $\sigma$ )	$r_*$	144.57	$144.59^{+0.81}_{-0.84}$ (+0.3 $\sigma$ )	$\sigma_8(2.33)$	0.3060	$0.3059^{+0.0071}_{-0.0070}$ (−0.0 $\sigma$ )
$c_{217}$	1.00129	$1.0011^{+0.0040}_{-0.0040}$ (−0.1 $\sigma$ )	$100\theta_*$	1.04107	$1.04106^{+0.00079}_{-0.00081}$ (+0.0 $\sigma$ )	$f_{2000}^{143}$	30.2	$30^{+8}_{-8}$ (−0.4 $\sigma$ )
$c_{TE}$	0.9966	$0.997^{+0.013}_{-0.013}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.887	$13.889^{+0.076}_{-0.079}$ (+0.3 $\sigma$ )	$f_{2000}^{217}$	106.9	$107.1^{+5.7}_{-5.5}$ (−0.4 $\sigma$ )
$c_{EE}$	0.9921	$0.992^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	1059.74	$1059.73^{+0.89}_{-0.86}$ (+0.5 $\sigma$ )	$f_{2000}^{143\times 217}$	32.2	$32^{+6}_{-6}$ (−0.5 $\sigma$ )
$H_0$	67.40	$67.4^{+1.6}_{-1.6}$ (+0.5 $\sigma$ )	$r_{\mathrm{drag}}$	147.26	$147.28^{+0.84}_{-0.86}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{simall}}^2$	395.88	$396.9$ ( $\nu$ : 1.5) (−0.1 $\sigma$ )
$\Omega_{\Lambda}$	0.6860	$0.686^{+0.021}_{-0.023}$ (+0.5 $\sigma$ )	$k_{\mathrm{D}}$	0.14063	$0.1406^{+0.0010}_{-0.00094}$ (+0.0 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	22.85	$23.1$ ( $\nu$ : 1.7) (+0.0 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3140	$0.314^{+0.023}_{-0.021}$ (−0.5 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16086	$0.16087^{+0.00052}_{-0.00050}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{CamSpec}}^2$	11499.9	$11515.5$ ( $\nu$ : 17.5) (+787.8 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.14261	$0.1426^{+0.0035}_{-0.0033}$ (−0.4 $\sigma$ )	$z_{\mathrm{eq}}$	3392	$3391^{+84}_{-79}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	2.2	$7.8$ ( $\nu$ : 6.0) (+0.0 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	0.09611	$0.09609^{+0.00088}_{-0.00083}$ (+0.2 $\sigma$ )	$k_{\mathrm{eq}}$	0.010354	$0.01035^{+0.00026}_{-0.00024}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	11918.6	$11935.6$ ( $\nu$ : 17.6) (+789.2 $\sigma$ )

Best-fit  $\chi_{\mathrm{eff}}^2 = 11920.76$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4449.24$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 11943.38$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.24$ ;  $R - 1 = 0.00835$

$\chi_{\mathrm{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.88 ( $\Delta$  -0.02) commander\_dx12.v3.2.29: 22.85 ( $\Delta$  0.12) CamSpec like\_10.7HM\_1400\_unified: 11499.86



### 12.30 base\_nrun\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02233^{+0.00039}_{-0.00038} \quad (+0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.018}_{-0.018} \quad (-0.1\sigma)$	$H(0.38)$	$83.04^{+0.76}_{-0.72} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1189^{+0.0026}_{-0.0026} \quad (+0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.018}_{-0.019} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1528^{+20}_{-20} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00077}_{-0.00079} \quad (-0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.980^{+0.027}_{-0.027} \quad (-0.1\sigma)$	$H(0.51)$	$89.74^{+0.62}_{-0.58} \quad (+0.1\sigma)$
$\tau$	$0.054^{+0.022}_{-0.022} \quad (-0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.8^{+2.0}_{-2.0} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1980^{+23}_{-24} \quad (-0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.039^{+0.046}_{-0.044} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.423^{+0.066}_{-0.069} \quad (+0.0\sigma)$	$H(0.61)$	$95.34^{+0.52}_{-0.49} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.010} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$7.6^{+2.1}_{-2.4} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2304^{+25}_{-26} \quad (-0.1\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$0.000^{+0.017}_{-0.017} \quad (+0.3\sigma)$	$10^9 A_{\mathrm{s}}$	$2.088^{+0.097}_{-0.091} \quad (-0.1\sigma)$	$H(2.33)$	$235.8^{+1.7}_{-1.6} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0061}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.876^{+0.030}_{-0.029} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5762^{+24}_{-25} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-70} \quad (-0.1\sigma)$	$D_{40}$	$1222^{+46}_{-43} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.453^{+0.017}_{-0.017} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5720^{+100}_{-99} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.745^{+0.017}_{-0.017} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$D_{810}$	$2534^{+35}_{-36} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.661^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.82 \quad (+0.1\sigma)$	$D_{2000}$	$230.3^{+4.5}_{-4.5} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.014}_{-0.014} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.35} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.969^{+0.052}_{-0.054} \quad (-0.3\sigma)$	$\sigma_8(0.51)$	$0.618^{+0.014}_{-0.014} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.593^{+0.072}_{-0.071} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.2968^{+0.0067}_{-0.0065} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.53}_{-0.49} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.796^{+0.054}_{-0.055} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.3061^{+0.0069}_{-0.0067} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.45} \quad (-0.1\sigma)$	$z_*$	$1089.88^{+0.61}_{-0.59} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$r_*$	$144.73^{+0.64}_{-0.66} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.9^{+5.4}_{-5.5} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41} \quad (-0.0\sigma)$	$100\theta_*$	$1.04114^{+0.00076}_{-0.00077} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.901^{+0.062}_{-0.063} \quad (-0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$397.0 \quad (\nu: 1.5) \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0040} \quad (-0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.77^{+0.88}_{-0.83} \quad (+0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.0 \quad (\nu: 1.6) \quad (+0.2\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.41^{+0.70}_{-0.70} \quad (-0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11515.4 \quad (\nu: 17.7) \quad (+804.9\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14050^{+0.00088}_{-0.00087} \quad (+0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.045 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$H_0$	$67.7^{+1.2}_{-1.1} \quad (+0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00052}_{-0.00050} \quad (-0.5\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.36 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.015}_{-0.016} \quad (+0.0\sigma)$	$z_{\mathrm{eq}}$	$3376^{+61}_{-59} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.015} \quad (-0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01030^{+0.00019}_{-0.00018} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 6.0) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1419^{+0.0026}_{-0.0025} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.011}_{-0.011} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.97 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09609^{+0.00088}_{-0.00082} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4518^{+0.0059}_{-0.0058} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11935.4 \quad (\nu: 17.7) \quad (+810.1\sigma)$
$\sigma_8$	$0.806^{+0.020}_{-0.019} \quad (-0.1\sigma)$	$H(0.15)$	$73.0^{+1.0}_{-0.98} \quad (+0.1\sigma)$		
$S_8$	$0.819^{+0.032}_{-0.033} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$640.4^{+9.8}_{-10} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11949.15; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.99; R - 1 = 0.01377$$



### 12.31 base\_nrun\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02229^{+0.00041}_{-0.00040} \quad (+0.5\sigma)$	$S_8$	$0.828^{+0.033}_{-0.032} \quad (-0.4\sigma)$	$H(0.15)$	$72.7^{+1.2}_{-1.2} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1197^{+0.0032}_{-0.0031} \quad (-0.3\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.454^{+0.018}_{-0.018} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+12}_{-12} \quad (-0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04086^{+0.00082}_{-0.00080} \quad (-0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.016}_{-0.017} \quad (-0.4\sigma)$	$H(0.38)$	$82.85^{+0.92}_{-0.86} \quad (+0.4\sigma)$
$\tau$	$0.054^{+0.021}_{-0.021} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.986^{+0.023}_{-0.023} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1533^{+24}_{-24} \quad (-0.4\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.041}_{-0.040} \quad (-0.0\sigma)$	$r_{\mathrm{drag}} h$	$99.2^{+2.5}_{-2.4} \quad (+0.3\sigma)$	$H(0.51)$	$89.59^{+0.74}_{-0.69} \quad (+0.4\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.012} \quad (+0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.060}_{-0.058} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1986^{+28}_{-28} \quad (-0.4\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.001^{+0.017}_{-0.017} \quad (+0.2\sigma)$	$z_{\mathrm{re}}$	$7.6^{+2.0}_{-2.3} \quad (+0.0\sigma)$	$H(0.61)$	$95.23^{+0.60}_{-0.56} \quad (+0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0062}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.088}_{-0.082} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2311^{+30}_{-31} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+70}_{-70} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.030}_{-0.029} \quad (-0.2\sigma)$	$H(2.33)$	$236.3^{+2.0}_{-1.8} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1226^{+47}_{-44} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5767^{+27}_{-28} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.2\sigma)$	$D_{220}$	$5719^{+100}_{-100} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.016} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2535^{+34}_{-35} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.014} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.86 \quad (+0.1\sigma)$	$D_{1420}$	$815^{+13}_{-13} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.013}_{-0.013} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$D_{2000}$	$230.1^{+4.6}_{-4.7} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.013}_{-0.012} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.967^{+0.053}_{-0.053} \quad (-0.2\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.012}_{-0.012} \quad (-0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24536^{+0.00015}_{-0.00018} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00016}_{-0.00018} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.011} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.52}_{-0.50} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.601^{+0.077}_{-0.074} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.012}_{-0.011} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.45} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.806^{+0.060}_{-0.062} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.2971^{+0.0062}_{-0.0059} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26} \quad (+0.1\sigma)$	$z_*$	$1089.99^{+0.68}_{-0.68} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.3062^{+0.0067}_{-0.0065} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41} \quad (-0.0\sigma)$	$r_*$	$144.57^{+0.72}_{-0.75} \quad (+0.1\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$c_{100}$	$0.9976^{+0.0028}_{-0.0028} \quad (+0.1\sigma)$	$100\theta_*$	$1.04105^{+0.00081}_{-0.00079} \quad (-0.0\sigma)$	$f_{2000}^{217}$	$107.0^{+5.5}_{-5.4} \quad (-0.4\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.887^{+0.068}_{-0.070} \quad (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.5\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.73^{+0.89}_{-0.86} \quad (+0.5\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.33 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.26^{+0.74}_{-0.78} \quad (+0.0\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.4) \quad (-0.0\sigma)$
$H_0$	$67.4^{+1.4}_{-1.4} \quad (+0.4\sigma)$	$k_{\mathrm{D}}$	$0.14062^{+0.00093}_{-0.00089} \quad (+0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.4 \quad (\nu: 1.8) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.686^{+0.019}_{-0.020} \quad (+0.4\sigma)$	$100\theta_{\mathrm{D}}$	$0.16087^{+0.00052}_{-0.00051} \quad (-0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.9 \quad (\nu: 17.0) \quad (+824.7\sigma)$
$\Omega_{\mathrm{m}}$	$0.314^{+0.020}_{-0.019} \quad (-0.4\sigma)$	$z_{\mathrm{eq}}$	$3393^{+74}_{-69} \quad (-0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.7 \quad (\nu: 5.9) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1426^{+0.0031}_{-0.0029} \quad (-0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01036^{+0.00023}_{-0.00021} \quad (-0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.5 \quad (\nu: 18.0) \quad (+790.5\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09610^{+0.00088}_{-0.00082} \quad (+0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.013}_{-0.013} \quad (+0.3\sigma)$		
$\sigma_8$	$0.809^{+0.016}_{-0.016} \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4502^{+0.0068}_{-0.0069} \quad (+0.3\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 11952.22$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.15$ ;  $R - 1 = 0.01144$



### 12.32 base\_nrun\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02233^{+0.00039}_{-0.00038} \quad (+0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.015}_{-0.015} \quad (-0.1\sigma)$	$H(0.38)$	$83.01^{+0.74}_{-0.68} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1191^{+0.0024}_{-0.0024} \quad (-0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.015}_{-0.015} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1529^{+18}_{-19} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04094^{+0.00079}_{-0.00076} \quad (-0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.022}_{-0.021} \quad (-0.1\sigma)$	$H(0.51)$	$89.71^{+0.62}_{-0.56} \quad (+0.1\sigma)$
$\tau$	$0.055^{+0.021}_{-0.019} \quad (-0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.7^{+1.9}_{-1.8} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1981^{+22}_{-23} \quad (-0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.041}_{-0.038} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.055}_{-0.056} \quad (+0.0\sigma)$	$H(0.61)$	$95.33^{+0.51}_{-0.47} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.010}_{-0.010} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$7.8^{+2.0}_{-2.1} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2305^{+23}_{-25} \quad (-0.1\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$0.000^{+0.018}_{-0.017} \quad (+0.3\sigma)$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.087}_{-0.079} \quad (-0.1\sigma)$	$H(2.33)$	$235.9^{+1.5}_{-1.5} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0061}_{-0.0063} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.029}_{-0.027} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5763^{+23}_{-24} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-70} \quad (-0.1\sigma)$	$D_{40}$	$1225^{+45}_{-44} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.014} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5724^{+100}_{-96} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.014} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-40} \quad (+0.2\sigma)$	$D_{810}$	$2535^{+34}_{-35} \quad (+0.0\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.013}_{-0.012} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.84 \quad (+0.1\sigma)$	$D_{2000}$	$230.4^{+4.5}_{-4.5} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.011} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.35} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.968^{+0.053}_{-0.053} \quad (-0.3\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.010}_{-0.010} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00015}_{-0.00016} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.594^{+0.073}_{-0.071} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.2974^{+0.0060}_{-0.0056} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.53}_{-0.50} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.797^{+0.054}_{-0.055} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.3067^{+0.0063}_{-0.0060} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.44} \quad (-0.1\sigma)$	$z_*$	$1089.89^{+0.60}_{-0.60} \quad (-0.4\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$r_*$	$144.70^{+0.60}_{-0.61} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.9^{+5.4}_{-5.4} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41} \quad (-0.0\sigma)$	$100\theta_*$	$1.04113^{+0.00077}_{-0.00075} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.4\sigma)$
$c_{100}$	$0.9976^{+0.0028}_{-0.0028} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.898^{+0.059}_{-0.059} \quad (-0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.32 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0040} \quad (-0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.78^{+0.88}_{-0.84} \quad (+0.4\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.6) \quad (-0.1\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.38^{+0.65}_{-0.65} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.2 \quad (\nu: 1.8) \quad (+0.2\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14053^{+0.00083}_{-0.00084} \quad (+0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.8 \quad (\nu: 16.9) \quad (+832.0\sigma)$
$H_0$	$67.6^{+1.1}_{-1.1} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00051}_{-0.00050} \quad (-0.5\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.048 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.689^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3380^{+56}_{-55} \quad (+0.0\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.29 \quad (\nu: 0.1) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.015}_{-0.015} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01031^{+0.00017}_{-0.00017} \quad (+0.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1421^{+0.0023}_{-0.0023} \quad (+0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.011}_{-0.010} \quad (-0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.7 \quad (\nu: 5.9) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09610^{+0.00087}_{-0.00083} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4515^{+0.0055}_{-0.0053} \quad (-0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.4 \quad (\nu: 17.7) \quad (+805.0\sigma)$
$\sigma_8$	$0.808^{+0.016}_{-0.015} \quad (-0.1\sigma)$	$H(0.15)$	$72.92^{+0.98}_{-0.91} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.02 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$S_8$	$0.822^{+0.027}_{-0.027} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$641.0^{+9.2}_{-9.6} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11958.12; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.89; R - 1 = 0.01586$$



### 12.33 base\_nrun\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02242^{+0.00041}_{-0.00041}$	$S_8$	$0.810^{+0.039}_{-0.034}$	$H(0.15)$	$73.3^{+1.1}_{-1.2}$
$\Omega_{\mathrm{c}}h^2$	$0.1181^{+0.0034}_{-0.0032}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.443^{+0.021}_{-0.019}$	$D_{\mathrm{M}}(0.15)$	$637^{+12}_{-11}$
$100\theta_{\mathrm{MC}}$	$1.04107^{+0.00074}_{-0.00079}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.597^{+0.021}_{-0.019}$	$H(0.38)$	$83.31^{+0.90}_{-0.91}$
$\tau$	$0.055^{+0.023}_{-0.022}$	$\sigma_8/h^{0.5}$	$0.974^{+0.030}_{-0.028}$	$D_{\mathrm{M}}(0.38)$	$1521^{+25}_{-22}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.040^{+0.048}_{-0.045}$	$r_{\mathrm{drag}}h$	$100.5^{+2.4}_{-2.6}$	$H(0.51)$	$89.95^{+0.70}_{-0.72}$
$n_{\mathrm{s}}$	$0.970^{+0.012}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.410^{+0.070}_{-0.064}$	$D_{\mathrm{M}}(0.51)$	$1971^{+29}_{-27}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$0.000^{+0.017}_{-0.018}$	$z_{\mathrm{re}}$	$7.7^{+2.2}_{-2.3}$	$H(0.61)$	$95.51^{+0.60}_{-0.59}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0062}_{-0.0064}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.10}_{-0.091}$	$D_{\mathrm{M}}(0.61)$	$2295^{+31}_{-29}$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.872^{+0.032}_{-0.031}$	$H(2.33)$	$235.3^{+2.1}_{-2.0}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{40}$	$1218^{+47}_{-48}$	$D_{\mathrm{M}}(2.33)$	$5755^{+27}_{-29}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40}$	$D_{220}$	$5725^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.449^{+0.020}_{-0.018}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{810}$	$2534^{+35}_{-35}$	$\sigma_8(0.15)$	$0.744^{+0.018}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.95$	$D_{1420}$	$817^{+12}_{-12}$	$f\sigma_8(0.38)$	$0.468^{+0.017}_{-0.015}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.45}$	$D_{2000}$	$230.6^{+4.7}_{-4.6}$	$\sigma_8(0.38)$	$0.660^{+0.016}_{-0.015}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.971^{+0.052}_{-0.052}$	$f\sigma_8(0.51)$	$0.468^{+0.015}_{-0.014}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00015}_{-0.00017}$	$\sigma_8(0.51)$	$0.618^{+0.015}_{-0.014}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00015}_{-0.00017}$	$f\sigma_8(0.61)$	$0.463^{+0.014}_{-0.013}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.57}_{-0.50}$	$10^5\mathrm{D}/\mathrm{H}$	$2.578^{+0.077}_{-0.073}$	$\sigma_8(0.61)$	$0.588^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.44}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.780^{+0.061}_{-0.064}$	$f\sigma_8(2.33)$	$0.2969^{+0.0069}_{-0.0064}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.26}_{-0.27}$	$z_*$	$1089.69^{+0.69}_{-0.67}$	$\sigma_8(2.33)$	$0.3064^{+0.0073}_{-0.0065}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.40}_{-0.41}$	$r_*$	$144.90^{+0.80}_{-0.80}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$c_{100}$	$0.9976^{+0.0029}_{-0.0027}$	$100\theta_*$	$1.04125^{+0.00075}_{-0.00077}$	$f_{2000}^{217}$	$106.6^{+5.4}_{-5.2}$
$c_{217}$	$1.0011^{+0.0039}_{-0.0041}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.916^{+0.076}_{-0.075}$	$f_{2000}^{143\times 217}$	$32^{+6}_{-6}$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.90^{+0.91}_{-0.85}$	$\chi_{\mathrm{simall}}^2$	$397.1\ (\nu: 2.0)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	$147.55^{+0.82}_{-0.82}$	$\chi_{\mathrm{lowl}}^2$	$22.7\ (\nu: 1.5)$
$H_0$	$68.1^{+1.3}_{-1.5}$	$k_{\mathrm{D}}$	$0.14042^{+0.00093}_{-0.00090}$	$\chi_{\mathrm{CamSpec}}^2$	$11517.0\ (\nu: 20.4)$
$\Omega_{\Lambda}$	$0.696^{+0.018}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16078^{+0.00050}_{-0.00052}$	$\chi_{\mathrm{H073p45}}^2$	$10.4\ (\nu: 2.4)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.020}_{-0.018}$	$z_{\mathrm{eq}}$	$3357^{+77}_{-72}$	$\chi_{\mathrm{prior}}^2$	$7.8\ (\nu: 6.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1411^{+0.0032}_{-0.0030}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00024}_{-0.00022}$	$\chi_{\mathrm{CMB}}^2$	$11936.8\ (\nu: 19.8)$
$\Omega_{\mathrm{m}}h^3$	$0.09614^{+0.00085}_{-0.00082}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.014}_{-0.014}$		
$\sigma_8$	$0.804^{+0.021}_{-0.020}$	$100\theta_{\mathrm{s,eq}}$	$0.4537^{+0.0071}_{-0.0074}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11955.07; R - 1 = 0.04651$$



### 12.34 base\_nrun\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02230^{+0.00041}_{-0.00041} \quad (+0.5\sigma)$	$\sigma_8$	$0.809^{+0.019}_{-0.017} \quad (-0.4\sigma)$	$100\theta_{\text{eq}}$	$0.815^{+0.015}_{-0.016} \quad (+0.4\sigma)$
$\Omega_c h^2$	$0.1196^{+0.0037}_{-0.0035} \quad (-0.4\sigma)$	$S_8$	$0.827^{+0.043}_{-0.041} \quad (-0.5\sigma)$	$100\theta_{\text{s,eq}}$	$0.4504^{+0.0078}_{-0.0080} \quad (+0.4\sigma)$
$100\theta_{\text{MC}}$	$1.04088^{+0.00080}_{-0.00081} \quad (+0.0\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.453^{+0.024}_{-0.022} \quad (-0.5\sigma)$	$H(0.15)$	$72.7^{+1.3}_{-1.3} \quad (+0.5\sigma)$
$\tau$	$0.054^{+0.020}_{-0.013} \quad (-0.0\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.605^{+0.022}_{-0.021} \quad (-0.4\sigma)$	$D_{\text{M}}(0.15)$	$643^{+14}_{-13} \quad (-0.5\sigma)$
$\ln(10^{10} A_{\text{s}})$	$3.042^{+0.043}_{-0.031} \quad (-0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.030}_{-0.030} \quad (-0.4\sigma)$	$H(0.38)$	$82.88^{+0.98}_{-0.96} \quad (+0.5\sigma)$
$n_{\text{s}}$	$0.966^{+0.012}_{-0.013} \quad (+0.4\sigma)$	$r_{\text{drag}} h$	$99.3^{+2.7}_{-2.8} \quad (+0.4\sigma)$	$D_{\text{M}}(0.38)$	$1533^{+27}_{-26} \quad (-0.5\sigma)$
$dn_{\text{s}}/d \ln k$	$-0.001^{+0.018}_{-0.017} \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.073}_{-0.072} \quad (-0.3\sigma)$	$H(0.51)$	$89.62^{+0.78}_{-0.75} \quad (+0.5\sigma)$
$y_{\text{cal}}$	$1.0004^{+0.0063}_{-0.0065} \quad (-0.0\sigma)$	$z_{\text{re}}$	$< 9.52 \quad (-0.1\sigma)$	$D_{\text{M}}(0.51)$	$1985^{+32}_{-30} \quad (-0.5\sigma)$
$A_{100}^{\text{PS}}$	$241^{+60}_{-70} \quad (-0.2\sigma)$	$10^9 A_{\text{s}}$	$2.095^{+0.093}_{-0.064} \quad (-0.2\sigma)$	$H(0.61)$	$95.25^{+0.63}_{-0.59} \quad (+0.5\sigma)$
$A_{143}^{\text{PS}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.879^{+0.033}_{-0.032} \quad (-0.3\sigma)$	$D_{\text{M}}(0.61)$	$2310^{+34}_{-33} \quad (-0.5\sigma)$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$D_{40}$	$1223^{+48}_{-44} \quad (+0.0\sigma)$	$H(2.33)$	$236.2^{+2.2}_{-2.1} \quad (-0.4\sigma)$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5716^{+100}_{-98} \quad (+0.3\sigma)$	$D_{\text{M}}(2.33)$	$5766^{+28}_{-28} \quad (-0.5\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.84 \quad (+0.1\sigma)$	$D_{810}$	$2535^{+35}_{-35} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.022}_{-0.021} \quad (-0.5\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$D_{1420}$	$815^{+13}_{-13} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.017}_{-0.014} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$D_{2000}$	$230.0^{+4.7}_{-4.8} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.018}_{-0.017} \quad (-0.4\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$n_{\text{s},0.002}$	$0.970^{+0.051}_{-0.052} \quad (-0.2\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.015}_{-0.011} \quad (-0.3\sigma)$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}$	$0.24537^{+0.00015}_{-0.00018} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.015}_{-0.015} \quad (-0.4\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.50} \quad (-0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24669^{+0.00015}_{-0.00018} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.010} \quad (-0.2\sigma)$
$A_{143}^{\text{dust}}$	$0.97^{+0.46}_{-0.46} \quad (-0.1\sigma)$	$10^5 \text{D}/\text{H}$	$2.599^{+0.078}_{-0.074} \quad (-0.6\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.014}_{-0.014} \quad (-0.4\sigma)$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$\text{Age}/\text{Gyr}$	$13.804^{+0.062}_{-0.063} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.0097} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.41} \quad (-0.0\sigma)$	$z_*$	$1089.97^{+0.72}_{-0.71} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.2972^{+0.0064}_{-0.0046} \quad (-0.1\sigma)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028} \quad (+0.1\sigma)$	$r_*$	$144.59^{+0.81}_{-0.83} \quad (+0.3\sigma)$	$\sigma_8(2.33)$	$0.3063^{+0.0067}_{-0.0047} \quad (-0.0\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040} \quad (-0.1\sigma)$	$100\theta_*$	$1.04107^{+0.00078}_{-0.00079} \quad (+0.0\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.889^{+0.076}_{-0.078} \quad (+0.3\sigma)$	$f_{2000}^{217}$	$107.0^{+5.7}_{-5.5} \quad (-0.4\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$z_{\text{drag}}$	$1059.74^{+0.88}_{-0.88} \quad (+0.5\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.5\sigma)$
$H_0$	$67.4^{+1.5}_{-1.6} \quad (+0.5\sigma)$	$r_{\text{drag}}$	$147.28^{+0.83}_{-0.86} \quad (+0.2\sigma)$	$\chi_{\text{small}}^2$	$396.8 \quad (\nu: 1.4) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.686^{+0.021}_{-0.023} \quad (+0.4\sigma)$	$k_{\text{D}}$	$0.1406^{+0.0010}_{-0.00094} \quad (+0.0\sigma)$	$\chi_{\text{lowl}}^2$	$23.1 \quad (\nu: 1.7) \quad (+0.0\sigma)$
$\Omega_{\text{m}}$	$0.314^{+0.023}_{-0.021} \quad (-0.4\sigma)$	$100\theta_{\text{D}}$	$0.16086^{+0.00052}_{-0.00050} \quad (-0.5\sigma)$	$\chi_{\text{CamSpec}}^2$	$11515.3 \quad (\nu: 17.4) \quad (+787.8\sigma)$
$\Omega_{\text{m}} h^2$	$0.1425^{+0.0035}_{-0.0033} \quad (-0.4\sigma)$	$z_{\text{eq}}$	$3391^{+84}_{-79} \quad (-0.4\sigma)$	$\chi_{\text{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.0\sigma)$
$\Omega_{\text{m}} h^3$	$0.09610^{+0.00087}_{-0.00082} \quad (+0.2\sigma)$	$k_{\text{eq}}$	$0.01035^{+0.00026}_{-0.00024} \quad (-0.4\sigma)$	$\chi_{\text{CMB}}^2$	$11935.2 \quad (\nu: 17.1) \quad (+800.2\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 11943.05; \Delta\bar{\chi}_{\text{eff}}^2 = 4451.18; R - 1 = 0.00888$$



### 12.35 base\_nrun\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02234^{+0.00039}_{-0.00038} \quad (+0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.018}_{-0.018} \quad (-0.0\sigma)$	$H(0.38)$	$83.05^{+0.77}_{-0.71} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1189^{+0.0026}_{-0.0026} \quad (+0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1528^{+20}_{-20} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00075}_{-0.00077} \quad (-0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.981^{+0.026}_{-0.025} \quad (-0.1\sigma)$	$H(0.51)$	$89.75^{+0.62}_{-0.58} \quad (+0.1\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (-0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.8^{+2.0}_{-2.0} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1979^{+23}_{-24} \quad (-0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.043}_{-0.031} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.064}_{-0.063} \quad (+0.1\sigma)$	$H(0.61)$	$95.35^{+0.52}_{-0.48} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.010} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.51 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2303^{+25}_{-26} \quad (-0.1\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.001^{+0.017}_{-0.017} \quad (+0.3\sigma)$	$10^9 A_{\mathrm{s}}$	$2.094^{+0.092}_{-0.065} \quad (-0.1\sigma)$	$H(2.33)$	$235.8^{+1.7}_{-1.6} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0004^{+0.0061}_{-0.0065} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.876^{+0.030}_{-0.029} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5762^{+24}_{-25} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+70}_{-70} \quad (-0.1\sigma)$	$D_{40}$	$1221^{+45}_{-43} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.454^{+0.016}_{-0.017} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5719^{+100}_{-99} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.746^{+0.017}_{-0.013} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.2\sigma)$	$D_{810}$	$2534^{+36}_{-36} \quad (+0.0\sigma)$	$f\sigma_8(0.38)$	$0.473^{+0.014}_{-0.014} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.015}_{-0.011} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.86 \quad (+0.1\sigma)$	$D_{2000}$	$230.3^{+4.5}_{-4.5} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.35} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.970^{+0.052}_{-0.053} \quad (-0.3\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.014}_{-0.010} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.0095} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.592^{+0.073}_{-0.071} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.2972^{+0.0064}_{-0.0046} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.53}_{-0.49} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.795^{+0.054}_{-0.055} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.3065^{+0.0066}_{-0.0047} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.44} \quad (-0.1\sigma)$	$z_*$	$1089.87^{+0.61}_{-0.59} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$r_*$	$144.73^{+0.64}_{-0.66} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.9^{+5.4}_{-5.5} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.40}_{-0.41} \quad (-0.0\sigma)$	$100\theta_*$	$1.04114^{+0.00075}_{-0.00076} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.901^{+0.060}_{-0.063} \quad (-0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.5) \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0040} \quad (-0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.78^{+0.87}_{-0.84} \quad (+0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.0 \quad (\nu: 1.6) \quad (+0.2\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.41^{+0.69}_{-0.71} \quad (-0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11515.3 \quad (\nu: 17.7) \quad (+806.1\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14050^{+0.00087}_{-0.00087} \quad (+0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.044 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$H_0$	$67.7^{+1.2}_{-1.1} \quad (+0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00051}_{-0.00050} \quad (-0.5\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.37 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.015}_{-0.016} \quad (+0.0\sigma)$	$z_{\mathrm{eq}}$	$3376^{+61}_{-59} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.015} \quad (-0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01030^{+0.00019}_{-0.00018} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 6.0) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1419^{+0.0026}_{-0.0025} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.011}_{-0.011} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.96 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09610^{+0.00088}_{-0.00082} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4519^{+0.0059}_{-0.0058} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11935.1 \quad (\nu: 17.2) \quad (+817.9\sigma)$
$\sigma_8$	$0.807^{+0.019}_{-0.015} \quad (-0.1\sigma)$	$H(0.15)$	$73.0^{+1.0}_{-0.97} \quad (+0.1\sigma)$		
$S_8$	$0.820^{+0.032}_{-0.032} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$640.4^{+9.7}_{-10} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11948.86; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.91; R - 1 = 0.01438$$



### 12.36 base\_nrun\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02230^{+0.00041}_{-0.00040} \quad (+0.5\sigma)$	$S_8$	$0.828^{+0.033}_{-0.032} \quad (-0.4\sigma)$	$H(0.15)$	$72.7^{+1.2}_{-1.2} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1196^{+0.0031}_{-0.0030} \quad (-0.3\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.454^{+0.018}_{-0.018} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+12}_{-12} \quad (-0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04087^{+0.00081}_{-0.00079} \quad (-0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.016}_{-0.016} \quad (-0.3\sigma)$	$H(0.38)$	$82.87^{+0.91}_{-0.85} \quad (+0.4\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.986^{+0.023}_{-0.023} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1533^{+24}_{-24} \quad (-0.4\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.040}_{-0.028} \quad (-0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.3^{+2.4}_{-2.3} \quad (+0.3\sigma)$	$H(0.51)$	$89.61^{+0.74}_{-0.66} \quad (+0.4\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.012} \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.059}_{-0.057} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1985^{+28}_{-28} \quad (-0.4\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.001^{+0.017}_{-0.017} \quad (+0.3\sigma)$	$z_{\mathrm{re}}$	$< 9.44 \quad (-0.0\sigma)$	$H(0.61)$	$95.24^{+0.60}_{-0.55} \quad (+0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0061}_{-0.0064} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.084}_{-0.057} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2310^{+30}_{-31} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+70}_{-70} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.029}_{-0.028} \quad (-0.2\sigma)$	$H(2.33)$	$236.2^{+1.9}_{-1.8} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1226^{+47}_{-44} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5766^{+26}_{-27} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.2\sigma)$	$D_{220}$	$5719^{+100}_{-98} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.016} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2535^{+34}_{-35} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.014}_{-0.012} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.86 \quad (+0.1\sigma)$	$D_{1420}$	$815^{+13}_{-13} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.013}_{-0.013} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$D_{2000}$	$230.1^{+4.6}_{-4.7} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.0099} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.968^{+0.052}_{-0.053} \quad (-0.2\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.012}_{-0.012} \quad (-0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24536^{+0.00015}_{-0.00018} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0091} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00015}_{-0.00018} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.011} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.52}_{-0.50} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.600^{+0.077}_{-0.073} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0086} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.44} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.805^{+0.057}_{-0.061} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.2974^{+0.0059}_{-0.0044} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26} \quad (+0.1\sigma)$	$z_*$	$1089.98^{+0.68}_{-0.67} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.3065^{+0.0064}_{-0.0047} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41} \quad (-0.0\sigma)$	$r_*$	$144.59^{+0.71}_{-0.74} \quad (+0.1\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$c_{100}$	$0.9976^{+0.0028}_{-0.0028} \quad (+0.1\sigma)$	$100\theta_*$	$1.04106^{+0.00079}_{-0.00078} \quad (-0.1\sigma)$	$f_{2000}^{217}$	$107.0^{+5.5}_{-5.5} \quad (-0.4\sigma)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0040} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.888^{+0.068}_{-0.068} \quad (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.5\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.74^{+0.88}_{-0.87} \quad (+0.5\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.28 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.27^{+0.74}_{-0.75} \quad (-0.0\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.4) \quad (-0.0\sigma)$
$H_0$	$67.4^{+1.4}_{-1.4} \quad (+0.4\sigma)$	$k_{\mathrm{D}}$	$0.14062^{+0.00090}_{-0.00089} \quad (+0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.3 \quad (\nu: 1.8) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.686^{+0.018}_{-0.019} \quad (+0.3\sigma)$	$100\theta_{\mathrm{D}}$	$0.16087^{+0.00053}_{-0.00050} \quad (-0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.7 \quad (\nu: 16.9) \quad (+821.4\sigma)$
$\Omega_{\mathrm{m}}$	$0.314^{+0.019}_{-0.018} \quad (-0.3\sigma)$	$z_{\mathrm{eq}}$	$3391^{+70}_{-69} \quad (-0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.7 \quad (\nu: 5.9) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1426^{+0.0029}_{-0.0029} \quad (-0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01035^{+0.00021}_{-0.00021} \quad (-0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.2 \quad (\nu: 17.4) \quad (+799.6\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09610^{+0.00088}_{-0.00082} \quad (+0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.013}_{-0.013} \quad (+0.3\sigma)$		
$\sigma_8$	$0.810^{+0.015}_{-0.014} \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4503^{+0.0067}_{-0.0067} \quad (+0.3\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 11951.93$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.11$ ;  $R - 1 = 0.01119$



### 12.37 base\_nrun\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02233^{+0.00039}_{-0.00038} \quad (+0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.014}_{-0.015} \quad (-0.1\sigma)$	$H(0.38)$	$83.02^{+0.73}_{-0.67} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0024}_{-0.0024} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.014}_{-0.014} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1529^{+18}_{-19} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04094^{+0.00078}_{-0.00076} \quad (-0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.021}_{-0.021} \quad (-0.1\sigma)$	$H(0.51)$	$89.72^{+0.61}_{-0.55} \quad (+0.1\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$99.7^{+1.9}_{-1.8} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1980^{+21}_{-23} \quad (-0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.040}_{-0.029} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.054}_{-0.053} \quad (+0.0\sigma)$	$H(0.61)$	$95.33^{+0.50}_{-0.47} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.010}_{-0.0099} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.51 \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2305^{+23}_{-25} \quad (-0.1\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$0.000^{+0.017}_{-0.017} \quad (+0.3\sigma)$	$10^9 A_{\mathrm{s}}$	$2.099^{+0.085}_{-0.061} \quad (-0.1\sigma)$	$H(2.33)$	$235.9^{+1.5}_{-1.5} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0060}_{-0.0064} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.877^{+0.028}_{-0.027} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5763^{+23}_{-24} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+70}_{-70} \quad (-0.1\sigma)$	$D_{40}$	$1225^{+45}_{-43} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.014} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5723^{+100}_{-95} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.014}_{-0.012} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-40} \quad (+0.2\sigma)$	$D_{810}$	$2535^{+34}_{-34} \quad (+0.0\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.010} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.86 \quad (+0.1\sigma)$	$D_{2000}$	$230.4^{+4.5}_{-4.5} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.011} \quad (-0.1\sigma)$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.35} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.968^{+0.053}_{-0.053} \quad (-0.3\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0094} \quad (-0.1\sigma)$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.4676^{+0.0099}_{-0.0096} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0089} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.593^{+0.073}_{-0.070} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.2976^{+0.0059}_{-0.0045} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.53}_{-0.50} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.797^{+0.053}_{-0.054} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.3069^{+0.0062}_{-0.0047} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.44} \quad (-0.1\sigma)$	$z_*$	$1089.89^{+0.59}_{-0.59} \quad (-0.4\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26} \quad (+0.0\sigma)$	$r_*$	$144.70^{+0.60}_{-0.60} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.9^{+5.4}_{-5.4} \quad (-0.4\sigma)$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41} \quad (-0.0\sigma)$	$100\theta_*$	$1.04113^{+0.00077}_{-0.00075} \quad (-0.3\sigma)$	$f_{2000}^{143\times 217}$	$32^{+6}_{-6} \quad (-0.4\sigma)$
$c_{100}$	$0.9976^{+0.0028}_{-0.0028} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.898^{+0.058}_{-0.058} \quad (-0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.27 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0041} \quad (-0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.78^{+0.88}_{-0.84} \quad (+0.4\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.6) \quad (-0.1\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.38^{+0.64}_{-0.65} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.2 \quad (\nu: 1.8) \quad (+0.2\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14053^{+0.00083}_{-0.00084} \quad (+0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.7 \quad (\nu: 16.8) \quad (+830.3\sigma)$
$H_0$	$67.7^{+1.1}_{-1.1} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00051}_{-0.00050} \quad (-0.5\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.046 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.015}_{-0.015} \quad (+0.0\sigma)$	$z_{\mathrm{eq}}$	$3379^{+55}_{-55} \quad (+0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.30 \quad (\nu: 0.1) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.015}_{-0.015} \quad (-0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01031^{+0.00017}_{-0.00017} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1421^{+0.0023}_{-0.0023} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.010}_{-0.010} \quad (-0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.7 \quad (\nu: 5.8) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09611^{+0.00087}_{-0.00083} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4515^{+0.0054}_{-0.0052} \quad (-0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.2 \quad (\nu: 17.3) \quad (+809.0\sigma)$
$\sigma_8$	$0.809^{+0.015}_{-0.013} \quad (-0.1\sigma)$	$H(0.15)$	$72.93^{+0.98}_{-0.91} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.00 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$S_8$	$0.823^{+0.026}_{-0.027} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$640.9^{+9.1}_{-9.6} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11957.93; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.83; R - 1 = 0.01735$$



### 12.38 base\_nrun\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02242^{+0.00040}_{-0.00041}$	$S_8$	$0.810^{+0.039}_{-0.035}$	$H(0.15)$	$73.3^{+1.1}_{-1.2}$
$\Omega_{\mathrm{c}} h^2$	$0.1181^{+0.0034}_{-0.0031}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.021}_{-0.019}$	$D_{\mathrm{M}}(0.15)$	$637^{+12}_{-11}$
$100\theta_{\mathrm{MC}}$	$1.04107^{+0.00074}_{-0.00077}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.598^{+0.020}_{-0.018}$	$H(0.38)$	$83.32^{+0.89}_{-0.90}$
$\tau$	$0.056^{+0.021}_{-0.015}$	$\sigma_8/h^{0.5}$	$0.975^{+0.029}_{-0.026}$	$D_{\mathrm{M}}(0.38)$	$1521^{+25}_{-22}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.046}_{-0.032}$	$r_{\mathrm{drag}} h$	$100.5^{+2.4}_{-2.6}$	$H(0.51)$	$89.96^{+0.70}_{-0.71}$
$n_{\mathrm{s}}$	$0.970^{+0.012}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.412^{+0.069}_{-0.062}$	$D_{\mathrm{M}}(0.51)$	$1971^{+29}_{-26}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.001^{+0.017}_{-0.018}$	$z_{\mathrm{re}}$	$< 9.71$	$H(0.61)$	$95.52^{+0.60}_{-0.59}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0062}_{-0.0065}$	$10^9 A_{\mathrm{s}}$	$2.095^{+0.098}_{-0.066}$	$D_{\mathrm{M}}(0.61)$	$2294^{+31}_{-29}$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.872^{+0.031}_{-0.031}$	$H(2.33)$	$235.3^{+2.1}_{-2.0}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{40}$	$1217^{+46}_{-48}$	$D_{\mathrm{M}}(2.33)$	$5755^{+27}_{-28}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40}$	$D_{220}$	$5725^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.449^{+0.020}_{-0.018}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{810}$	$2534^{+34}_{-35}$	$\sigma_8(0.15)$	$0.745^{+0.018}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.95$	$D_{1420}$	$817^{+12}_{-12}$	$f\sigma_8(0.38)$	$0.469^{+0.017}_{-0.015}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.45}$	$D_{2000}$	$230.7^{+4.7}_{-4.6}$	$\sigma_8(0.38)$	$0.661^{+0.015}_{-0.011}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.971^{+0.052}_{-0.052}$	$f\sigma_8(0.51)$	$0.468^{+0.015}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00015}_{-0.00017}$	$\sigma_8(0.51)$	$0.619^{+0.014}_{-0.010}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00015}_{-0.00017}$	$f\sigma_8(0.61)$	$0.464^{+0.014}_{-0.012}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.57}_{-0.50}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.577^{+0.077}_{-0.072}$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.0097}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.44}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.779^{+0.061}_{-0.063}$	$f\sigma_8(2.33)$	$0.2972^{+0.0067}_{-0.0049}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.26}_{-0.27}$	$z_*$	$1089.69^{+0.69}_{-0.66}$	$\sigma_8(2.33)$	$0.3068^{+0.0071}_{-0.0048}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.40}_{-0.41}$	$r_*$	$144.90^{+0.80}_{-0.79}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$c_{100}$	$0.9976^{+0.0029}_{-0.0027}$	$100\theta_*$	$1.04125^{+0.00075}_{-0.00076}$	$f_{2000}^{217}$	$106.6^{+5.4}_{-5.3}$
$c_{217}$	$1.0011^{+0.0039}_{-0.0041}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.916^{+0.076}_{-0.075}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.91^{+0.93}_{-0.86}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 2.1)$
$c_{EE}$	$0.992^{+0.012}_{-0.012}$	$r_{\mathrm{drag}}$	$147.55^{+0.82}_{-0.82}$	$\chi_{\mathrm{lowl}}^2$	$22.7 (\nu: 1.5)$
$H_0$	$68.1^{+1.3}_{-1.5}$	$k_{\mathrm{D}}$	$0.14042^{+0.00093}_{-0.00090}$	$\chi_{\mathrm{CamSpec}}^2$	$11516.9 (\nu: 20.7)$
$\Omega_{\Lambda}$	$0.696^{+0.018}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16077^{+0.00050}_{-0.00052}$	$\chi_{\mathrm{H073p45}}^2$	$10.4 (\nu: 2.4)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.020}_{-0.018}$	$z_{\mathrm{eq}}$	$3357^{+77}_{-71}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 6.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1411^{+0.0032}_{-0.0030}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00023}_{-0.00022}$	$\chi_{\mathrm{CMB}}^2$	$11936.7 (\nu: 19.8)$
$\Omega_{\mathrm{m}} h^3$	$0.09615^{+0.00082}_{-0.00083}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.014}_{-0.014}$		
$\sigma_8$	$0.805^{+0.020}_{-0.016}$	$100\theta_{\mathrm{s,eq}}$	$0.4538^{+0.0070}_{-0.0074}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11954.85; R - 1 = 0.05101$$



### 12.39 base\_nrun\_plikHM\_TE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02250	$0.02253^{+0.00068}_{-0.00066}$	$r_{\text{drag}} h$	101.34	$101.5^{+4.6}_{-4.3}$	$100\theta_{\text{s,eq}}$	0.4557	$0.456^{+0.013}_{-0.012}$
$\Omega_c h^2$	0.1172	$0.1170^{+0.0057}_{-0.0056}$	$\langle d^2 \rangle^{1/2}$	2.397	$2.39^{+0.12}_{-0.13}$	$H(0.15)$	73.76	$73.8^{+2.3}_{-2.1}$
$100\theta_{\text{MC}}$	1.04145	$1.0414^{+0.0013}_{-0.0013}$	$z_{\text{re}}$	7.07	$6.9^{+2.2}_{-3.0}$	$D_{\text{M}}(0.15)$	632.7	$632^{+21}_{-21}$
$\tau$	0.0491	$0.047^{+0.022}_{-0.026}$	$10^9 A_{\text{s}}$	2.035	$2.03^{+0.12}_{-0.12}$	$H(0.38)$	83.64	$83.7^{+1.7}_{-1.6}$
$\ln(10^{10} A_{\text{s}})$	3.013	$3.009^{+0.057}_{-0.060}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.844	$1.843^{+0.055}_{-0.053}$	$D_{\text{M}}(0.38)$	1512.2	$1511^{+42}_{-43}$
$n_{\text{s}}$	0.9733	$0.975^{+0.042}_{-0.041}$	$D_{40}$	1236	$1240^{+130}_{-120}$	$H(0.51)$	90.22	$90.3^{+1.3}_{-1.2}$
$\text{d}n_{\text{s}}/\text{d} \ln k$	0.015	$0.017^{+0.064}_{-0.064}$	$D_{220}$	5690	$5691^{+150}_{-150}$	$D_{\text{M}}(0.51)$	1961	$1959^{+50}_{-51}$
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.099}_{-0.096}$	$D_{810}$	2506	$2507^{+65}_{-64}$	$H(0.61)$	95.74	$95.8^{+1.1}_{-0.99}$
$A_{100 \times 143}^{\text{dustTE}}$	0.136	$0.136^{+0.077}_{-0.075}$	$D_{1420}$	812.7	$815^{+42}_{-42}$	$D_{\text{M}}(0.61)$	2284	$2282^{+53}_{-55}$
$A_{100 \times 217}^{\text{dustTE}}$	0.477	$0.48^{+0.22}_{-0.22}$	$D_{2000}$	230.7	$232^{+19}_{-18}$	$H(2.33)$	234.92	$234.8^{+3.4}_{-3.4}$
$A_{143}^{\text{dustTE}}$	0.221	$0.22^{+0.14}_{-0.14}$	$n_{\text{s},0.002}$	0.927	$0.92^{+0.18}_{-0.18}$	$D_{\text{M}}(2.33)$	5744.5	$5743^{+45}_{-47}$
$A_{143 \times 217}^{\text{dustTE}}$	0.657	$0.66^{+0.21}_{-0.21}$	$Y_{\text{P}}$	0.245446	$0.24545^{+0.00030}_{-0.00028}$	$f\sigma_8(0.15)$	0.4394	$0.438^{+0.032}_{-0.033}$
$A_{217}^{\text{dustTE}}$	2.04	$2.04^{+0.69}_{-0.69}$	$Y_{\text{P}}^{\text{BBN}}$	0.246773	$0.24678^{+0.00030}_{-0.00028}$	$\sigma_8(0.15)$	0.7356	$0.735^{+0.025}_{-0.027}$
$c_{100}$	1.00016	$1.0002^{+0.0018}_{-0.0018}$	$10^5 \text{D}/\text{H}$	2.561	$2.56^{+0.12}_{-0.12}$	$f\sigma_8(0.38)$	0.4603	$0.459^{+0.026}_{-0.027}$
$c_{217}$	0.99800	$0.9980^{+0.0017}_{-0.0017}$	$\text{Age}/\text{Gyr}$	13.756	$13.75^{+0.10}_{-0.10}$	$\sigma_8(0.38)$	0.6535	$0.653^{+0.021}_{-0.023}$
$y_{\text{cal}}$	0.9999	$1.0000^{+0.0064}_{-0.0065}$	$z_*$	1089.51	$1089.5^{+1.1}_{-1.1}$	$f\sigma_8(0.51)$	0.4605	$0.459^{+0.023}_{-0.024}$
$H_0$	68.62	$68.7^{+2.6}_{-2.5}$	$r_*$	145.05	$145.1^{+1.4}_{-1.3}$	$\sigma_8(0.51)$	0.6122	$0.611^{+0.020}_{-0.021}$
$\Omega_{\Lambda}$	0.7019	$0.703^{+0.032}_{-0.034}$	$100\theta_*$	1.04161	$1.0416^{+0.0013}_{-0.0013}$	$f\sigma_8(0.61)$	0.4567	$0.456^{+0.021}_{-0.022}$
$\Omega_{\text{m}}$	0.2981	$0.297^{+0.034}_{-0.032}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.925	$13.93^{+0.13}_{-0.12}$	$\sigma_8(0.61)$	0.5829	$0.582^{+0.019}_{-0.020}$
$\Omega_{\text{m}} h^2$	0.1404	$0.1402^{+0.0054}_{-0.0053}$	$z_{\text{drag}}$	1060.05	$1060.1^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	0.2944	$0.2942^{+0.0092}_{-0.010}$
$\Omega_{\text{m}} h^3$	0.09633	$0.0963^{+0.0014}_{-0.0013}$	$r_{\text{drag}}$	147.68	$147.7^{+1.4}_{-1.3}$	$\sigma_8(2.33)$	0.3041	$0.3039^{+0.0097}_{-0.011}$
$\sigma_8$	0.7946	$0.793^{+0.028}_{-0.030}$	$k_{\text{D}}$	0.14035	$0.1403^{+0.0015}_{-0.0016}$	$\chi_{\text{simall}}^2$	395.53	$396.7 (\nu: 1.2)$
$S_8$	0.792	$0.790^{+0.063}_{-0.062}$	$100\theta_{\text{D}}$	0.16074	$0.16072^{+0.00084}_{-0.00081}$	$\chi_{\text{plikTE}}^2$	852.5	$860.4 (\nu: 8.0)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4339	$0.432^{+0.035}_{-0.034}$	$z_{\text{eq}}$	3339	$3335^{+130}_{-130}$	$\chi_{\text{prior}}^2$	0.4	$7.4 (\nu: 6.8)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5872	$0.586^{+0.032}_{-0.033}$	$k_{\text{eq}}$	0.010192	$0.01018^{+0.00039}_{-0.00039}$	$\chi_{\text{CMB}}^2$	1248.0	$1257.2 (\nu: 9.2)$
$\sigma_8/h^{0.5}$	0.9592	$0.957^{+0.044}_{-0.046}$	$100\theta_{\text{eq}}$	0.8255	$0.826^{+0.025}_{-0.024}$			

Best-fit  $\chi_{\text{eff}}^2 = 1248.43$ ;  $\bar{\chi}_{\text{eff}}^2 = 1264.57$ ;  $R - 1 = 0.00548$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.53 plik\_rd12\_HM\_v22\_TE: 852.47



## 12.40 base\_nrun\_plikHM\_TE\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02248	$0.02246^{+0.00062}_{-0.00061}$	$\langle d^2 \rangle^{1/2}$	2.410	$2.41^{+0.11}_{-0.11}$	$D_M(0.15)$	635.2	$636^{+12}_{-12}$
$\Omega_c h^2$	0.11793	$0.1180^{+0.0032}_{-0.0033}$	$z_{\text{re}}$	6.83	$6.9^{+2.2}_{-2.8}$	$H(0.38)$	83.46	$83.44^{+0.98}_{-0.93}$
$100\theta_{\text{MC}}$	1.04135	$1.0413^{+0.0012}_{-0.0012}$	$10^9 A_s$	2.029	$2.03^{+0.12}_{-0.12}$	$D_M(0.38)$	1517.2	$1518^{+24}_{-25}$
$\tau$	0.0466	$0.047^{+0.022}_{-0.025}$	$10^9 A_s e^{-2\tau}$	1.8482	$1.849^{+0.049}_{-0.049}$	$H(0.51)$	90.08	$90.06^{+0.83}_{-0.78}$
$\ln(10^{10} A_s)$	3.010	$3.012^{+0.056}_{-0.060}$	$D_{40}$	1247	$1239^{+130}_{-120}$	$D_M(0.51)$	1966.9	$1968^{+29}_{-30}$
$n_s$	0.9727	$0.971^{+0.035}_{-0.037}$	$D_{220}$	5695	$5690^{+150}_{-150}$	$H(0.61)$	95.63	$95.62^{+0.71}_{-0.67}$
$dn_s/d \ln k$	0.018	$0.013^{+0.060}_{-0.060}$	$D_{810}$	2509	$2507^{+64}_{-64}$	$D_M(0.61)$	2289.9	$2291^{+31}_{-32}$
$y_{\text{cal}}$	1.0001	$0.99999^{+0.0064}_{-0.0067}$	$D_{1420}$	814.5	$812^{+40}_{-41}$	$H(2.33)$	235.35	$235.3^{+2.1}_{-2.1}$
$A_{100}^{\text{dustTE}}$	0.114	$0.115^{+0.10}_{-0.091}$	$D_{2000}$	231.5	$230^{+18}_{-18}$	$D_M(2.33)$	5748.6	$5750^{+34}_{-35}$
$A_{100 \times 143}^{\text{dustTE}}$	0.136	$0.137^{+0.078}_{-0.079}$	$n_{s,0.002}$	0.916	$0.93^{+0.17}_{-0.17}$	$f\sigma_8(0.15)$	0.4430	$0.443^{+0.021}_{-0.022}$
$A_{100 \times 217}^{\text{dustTE}}$	0.478	$0.48^{+0.23}_{-0.21}$	$Y_P$	0.245436	$0.24543^{+0.00026}_{-0.00026}$	$\sigma_8(0.15)$	0.7368	$0.736^{+0.024}_{-0.025}$
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$Y_P^{\text{BBN}}$	0.246763	$0.24676^{+0.00026}_{-0.00027}$	$f\sigma_8(0.38)$	0.4631	$0.463^{+0.018}_{-0.020}$
$A_{143 \times 217}^{\text{dustTE}}$	0.661	$0.66^{+0.20}_{-0.20}$	$10^5 \text{D/H}$	2.566	$2.57^{+0.12}_{-0.11}$	$\sigma_8(0.38)$	0.6541	$0.654^{+0.021}_{-0.022}$
$A_{217}^{\text{dustTE}}$	2.05	$2.05^{+0.71}_{-0.69}$	Age/Gyr	13.765	$13.767^{+0.078}_{-0.080}$	$f\sigma_8(0.51)$	0.4628	$0.463^{+0.017}_{-0.018}$
$c_{100}$	1.00017	$1.0002^{+0.0018}_{-0.0018}$	$z_*$	1089.61	$1089.63^{+0.87}_{-0.85}$	$\sigma_8(0.51)$	0.6126	$0.612^{+0.019}_{-0.021}$
$c_{217}$	0.99799	$0.9980^{+0.0017}_{-0.0017}$	$r_*$	144.89	$144.89^{+0.86}_{-0.86}$	$f\sigma_8(0.61)$	0.4586	$0.458^{+0.016}_{-0.017}$
$H_0$	68.32	$68.3^{+1.5}_{-1.4}$	$100\theta_*$	1.04153	$1.0415^{+0.0012}_{-0.0011}$	$\sigma_8(0.61)$	0.5831	$0.583^{+0.018}_{-0.020}$
$\Omega_\Lambda$	0.6978	$0.697^{+0.019}_{-0.019}$	$D_M(z_*)/\text{Gpc}$	13.911	$13.912^{+0.084}_{-0.087}$	$f\sigma_8(2.33)$	0.2944	$0.2941^{+0.0092}_{-0.010}$
$\Omega_m$	0.3022	$0.303^{+0.019}_{-0.019}$	$z_{\text{drag}}$	1060.05	$1060.0^{+1.5}_{-1.4}$	$\sigma_8(2.33)$	0.3039	$0.3036^{+0.0094}_{-0.011}$
$\Omega_m h^2$	0.14105	$0.1411^{+0.0032}_{-0.0031}$	$r_{\text{drag}}$	147.52	$147.53^{+0.96}_{-0.99}$	$\chi_{\text{small}}^2$	395.58	$396.8 (\nu: 1.2)$
$\Omega_m h^3$	0.09637	$0.0963^{+0.0015}_{-0.0014}$	$k_D$	0.14049	$0.1405^{+0.0014}_{-0.0013}$	$\chi_{\text{plikTE}}^2$	852.6	$859.9 (\nu: 6.8)$
$\sigma_8$	0.7963	$0.796^{+0.026}_{-0.027}$	$100\theta_D$	0.16075	$0.16076^{+0.00080}_{-0.00081}$	$\chi_{6\text{DF}}^2$	0.004	$0.042 (\nu: 0.0)$
$S_8$	0.7993	$0.799^{+0.041}_{-0.042}$	$z_{\text{eq}}$	3355	$3356^{+77}_{-75}$	$\chi_{\text{MGS}}^2$	1.89	$1.93 (\nu: 0.2)$
$\sigma_8 \Omega_m^{0.5}$	0.4378	$0.438^{+0.022}_{-0.023}$	$k_{\text{eq}}$	0.010241	$0.01024^{+0.00023}_{-0.00023}$	$\chi_{\text{DR12BAO}}^2$	3.37	$3.99 (\nu: 0.4)$
$\sigma_8 \Omega_m^{0.25}$	0.5904	$0.590^{+0.023}_{-0.024}$	$100\theta_{\text{eq}}$	0.8224	$0.822^{+0.014}_{-0.014}$	$\chi_{\text{prior}}^2$	0.4	$7.4 (\nu: 6.8)$
$\sigma_8/h^{0.5}$	0.9635	$0.963^{+0.034}_{-0.036}$	$100\theta_{s,\text{eq}}$	0.4541	$0.4540^{+0.0074}_{-0.0072}$	$\chi_{\text{BAO}}^2$	5.27	$6.0 (\nu: 0.6)$
$r_{\text{drag}} h$	100.78	$100.7^{+2.5}_{-2.4}$	$H(0.15)$	73.50	$73.5^{+1.3}_{-1.2}$	$\chi_{\text{CMB}}^2$	1248.2	$1256.6 (\nu: 8.0)$

Best-fit  $\chi_{\text{eff}}^2 = 1253.85$ ;  $\bar{\chi}_{\text{eff}}^2 = 1270.03$ ;  $R - 1 = 0.00960$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.89 DR12BAO: 3.37 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.58 plik\_rd12\_HM\_v22\_TE: 852.58



## 12.41 base\_nrun\_plikHM\_TE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02253^{+0.00067}_{-0.00065}$	$r_{\mathrm{drag}} h$	$101.5^{+4.5}_{-4.4}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.013}_{-0.012}$
$\Omega_{\mathrm{c}} h^2$	$0.1171^{+0.0057}_{-0.0056}$	$\langle d^2 \rangle^{1/2}$	$2.40^{+0.12}_{-0.12}$	$H(0.15)$	$73.8^{+2.2}_{-2.1}$
$100\theta_{\mathrm{MC}}$	$1.0414^{+0.0013}_{-0.0013}$	$z_{\mathrm{re}}$	$< 8.94$	$D_{\mathrm{M}}(0.15)$	$632^{+21}_{-21}$
$\tau$	$0.0519^{+0.017}_{-0.0094}$	$10^9 A_{\mathrm{s}}$	$2.05^{+0.10}_{-0.077}$	$H(0.38)$	$83.7^{+1.7}_{-1.6}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.019^{+0.050}_{-0.038}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.846^{+0.054}_{-0.054}$	$D_{\mathrm{M}}(0.38)$	$1511^{+42}_{-42}$
$n_{\mathrm{s}}$	$0.975^{+0.041}_{-0.042}$	$D_{40}$	$1233^{+130}_{-120}$	$H(0.51)$	$90.3^{+1.3}_{-1.2}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$0.013^{+0.062}_{-0.062}$	$D_{220}$	$5690^{+150}_{-150}$	$D_{\mathrm{M}}(0.51)$	$1959^{+50}_{-50}$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.098}_{-0.096}$	$D_{810}$	$2508^{+64}_{-63}$	$H(0.61)$	$95.8^{+1.1}_{-0.98}$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.136^{+0.078}_{-0.074}$	$D_{1420}$	$814^{+42}_{-41}$	$D_{\mathrm{M}}(0.61)$	$2282^{+53}_{-54}$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$D_{2000}$	$231^{+19}_{-18}$	$H(2.33)$	$234.9^{+3.4}_{-3.4}$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$n_{\mathrm{s},0.002}$	$0.93^{+0.17}_{-0.17}$	$D_{\mathrm{M}}(2.33)$	$5743^{+45}_{-47}$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$Y_{\mathrm{P}}$	$0.24546^{+0.00029}_{-0.00028}$	$f\sigma_8(0.15)$	$0.440^{+0.031}_{-0.031}$
$A_{217}^{\mathrm{dustTE}}$	$2.04^{+0.69}_{-0.68}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24678^{+0.00029}_{-0.00028}$	$\sigma_8(0.15)$	$0.738^{+0.023}_{-0.022}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0018}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.56^{+0.12}_{-0.12}$	$f\sigma_8(0.38)$	$0.461^{+0.025}_{-0.026}$
$c_{217}$	$0.9980^{+0.0017}_{-0.0017}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.753^{+0.099}_{-0.10}$	$\sigma_8(0.38)$	$0.655^{+0.020}_{-0.018}$
$y_{\mathrm{cal}}$	$1.0000^{+0.0064}_{-0.0065}$	$z_*$	$1089.5^{+1.1}_{-1.1}$	$f\sigma_8(0.51)$	$0.461^{+0.022}_{-0.023}$
$H_0$	$68.7^{+2.6}_{-2.5}$	$r_*$	$145.1^{+1.3}_{-1.3}$	$\sigma_8(0.51)$	$0.614^{+0.018}_{-0.017}$
$\Omega_{\Lambda}$	$0.703^{+0.032}_{-0.034}$	$100\theta_*$	$1.0416^{+0.0013}_{-0.0013}$	$f\sigma_8(0.61)$	$0.458^{+0.020}_{-0.020}$
$\Omega_{\mathrm{m}}$	$0.297^{+0.034}_{-0.032}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.93^{+0.12}_{-0.12}$	$\sigma_8(0.61)$	$0.585^{+0.017}_{-0.016}$
$\Omega_{\mathrm{m}} h^2$	$0.1403^{+0.0054}_{-0.0053}$	$z_{\mathrm{drag}}$	$1060.1^{+1.4}_{-1.4}$	$f\sigma_8(2.33)$	$0.2953^{+0.0086}_{-0.0078}$
$\Omega_{\mathrm{m}} h^3$	$0.0963^{+0.0013}_{-0.0013}$	$r_{\mathrm{drag}}$	$147.7^{+1.4}_{-1.3}$	$\sigma_8(2.33)$	$0.3051^{+0.0090}_{-0.0083}$
$\sigma_8$	$0.797^{+0.026}_{-0.026}$	$k_{\mathrm{D}}$	$0.1404^{+0.0015}_{-0.0016}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.6)$
$S_8$	$0.793^{+0.062}_{-0.061}$	$100\theta_{\mathrm{D}}$	$0.16071^{+0.00083}_{-0.00079}$	$\chi_{\mathrm{plikTE}}^2$	$860.5 (\nu: 7.8)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.434^{+0.034}_{-0.033}$	$z_{\mathrm{eq}}$	$3336^{+130}_{-130}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 6.7)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.588^{+0.031}_{-0.031}$	$k_{\mathrm{eq}}$	$0.01018^{+0.00039}_{-0.00039}$	$\chi_{\mathrm{CMB}}^2$	$1256.8 (\nu: 8.7)$
$\sigma_8/h^{0.5}$	$0.961^{+0.043}_{-0.043}$	$100\theta_{\mathrm{eq}}$	$0.826^{+0.025}_{-0.024}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1264.22$ ;  $R - 1 = 0.00681$



## 12.42 base\_nrun\_plikHM\_TE\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02247^{+0.00061}_{-0.00058}$	$\langle d^2 \rangle^{1/2}$	$2.41^{+0.10}_{-0.10}$	$D_M(0.15)$	$636^{+12}_{-12}$
$\Omega_c h^2$	$0.1180^{+0.0033}_{-0.0032}$	$z_{\text{re}}$	$< 9.01$	$H(0.38)$	$83.44^{+0.98}_{-0.92}$
$100\theta_{\text{MC}}$	$1.0413^{+0.0012}_{-0.0012}$	$10^9 A_s$	$2.05^{+0.10}_{-0.072}$	$D_M(0.38)$	$1518^{+24}_{-25}$
$\tau$	$0.0518^{+0.017}_{-0.0097}$	$10^9 A_s e^{-2\tau}$	$1.851^{+0.048}_{-0.049}$	$H(0.51)$	$90.07^{+0.83}_{-0.78}$
$\ln(10^{10} A_s)$	$3.022^{+0.049}_{-0.036}$	$D_{40}$	$1231^{+120}_{-120}$	$D_M(0.51)$	$1968^{+29}_{-30}$
$n_s$	$0.971^{+0.035}_{-0.038}$	$D_{220}$	$5689^{+150}_{-150}$	$H(0.61)$	$95.62^{+0.71}_{-0.67}$
$dn_s/d \ln k$	$0.009^{+0.058}_{-0.059}$	$D_{810}$	$2509^{+63}_{-63}$	$D_M(0.61)$	$2291^{+31}_{-32}$
$y_{\text{cal}}$	$0.99996^{+0.0064}_{-0.0068}$	$D_{1420}$	$812^{+41}_{-40}$	$H(2.33)$	$235.4^{+2.1}_{-2.1}$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.099}_{-0.089}$	$D_{2000}$	$230^{+18}_{-17}$	$D_M(2.33)$	$5749^{+34}_{-34}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.136^{+0.079}_{-0.078}$	$n_{s,0.002}$	$0.94^{+0.16}_{-0.16}$	$f\sigma_8(0.15)$	$0.445^{+0.020}_{-0.020}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.23}_{-0.22}$	$Y_{\text{P}}$	$0.24543^{+0.00026}_{-0.00025}$	$\sigma_8(0.15)$	$0.739^{+0.022}_{-0.020}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24676^{+0.00026}_{-0.00025}$	$f\sigma_8(0.38)$	$0.465^{+0.017}_{-0.018}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$10^5 \text{D/H}$	$2.57^{+0.11}_{-0.11}$	$\sigma_8(0.38)$	$0.656^{+0.019}_{-0.017}$
$A_{217}^{\text{dustTE}}$	$2.04^{+0.71}_{-0.69}$	$\text{Age/Gyr}$	$13.766^{+0.078}_{-0.079}$	$f\sigma_8(0.51)$	$0.464^{+0.016}_{-0.016}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0018}$	$z_*$	$1089.62^{+0.84}_{-0.84}$	$\sigma_8(0.51)$	$0.614^{+0.018}_{-0.016}$
$c_{217}$	$0.9980^{+0.0017}_{-0.0017}$	$r_*$	$144.88^{+0.85}_{-0.85}$	$f\sigma_8(0.61)$	$0.460^{+0.015}_{-0.015}$
$H_0$	$68.3^{+1.5}_{-1.4}$	$100\theta_*$	$1.0415^{+0.0012}_{-0.0011}$	$\sigma_8(0.61)$	$0.585^{+0.017}_{-0.015}$
$\Omega_\Lambda$	$0.697^{+0.018}_{-0.019}$	$D_M(z_*)/\text{Gpc}$	$13.910^{+0.084}_{-0.086}$	$f\sigma_8(2.33)$	$0.2953^{+0.0084}_{-0.0079}$
$\Omega_{\text{m}}$	$0.303^{+0.019}_{-0.018}$	$z_{\text{drag}}$	$1060.0^{+1.4}_{-1.3}$	$\sigma_8(2.33)$	$0.3048^{+0.0088}_{-0.0082}$
$\Omega_{\text{m}} h^2$	$0.1411^{+0.0032}_{-0.0031}$	$r_{\text{drag}}$	$147.51^{+0.96}_{-0.97}$	$\chi_{\text{simall}}^2$	$396.4 (\nu: 0.6)$
$\Omega_{\text{m}} h^3$	$0.0964^{+0.0014}_{-0.0013}$	$k_{\text{D}}$	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\text{plikTE}}^2$	$860.0 (\nu: 6.8)$
$\sigma_8$	$0.799^{+0.024}_{-0.022}$	$100\theta_{\text{D}}$	$0.16075^{+0.00078}_{-0.00080}$	$\chi_{6\text{DF}}^2$	$0.041 (\nu: 0.0)$
$S_8$	$0.803^{+0.039}_{-0.039}$	$z_{\text{eq}}$	$3357^{+76}_{-75}$	$\chi_{\text{MGS}}^2$	$1.92 (\nu: 0.2)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.440^{+0.021}_{-0.022}$	$k_{\text{eq}}$	$0.01024^{+0.00023}_{-0.00023}$	$\chi_{\text{DR12BAO}}^2$	$3.99 (\nu: 0.4)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.593^{+0.021}_{-0.022}$	$100\theta_{\text{eq}}$	$0.822^{+0.014}_{-0.014}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.7)$
$\sigma_8/h^{0.5}$	$0.967^{+0.031}_{-0.031}$	$100\theta_{\text{s,eq}}$	$0.4540^{+0.0074}_{-0.0072}$	$\chi_{\text{BAO}}^2$	$6.0 (\nu: 0.6)$
$r_{\text{drag}} h$	$100.7^{+2.5}_{-2.4}$	$H(0.15)$	$73.5^{+1.3}_{-1.2}$	$\chi_{\text{CMB}}^2$	$1256.3 (\nu: 7.7)$

$\bar{\chi}_{\text{eff}}^2 = 1269.67; R - 1 = 0.01461$



### 12.43 base\_nrun\_plikHM\_EE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02363	$0.0235^{+0.0034}_{-0.0034}$	$D_{40}$	1268	$1266^{+100}_{-100}$	$D_M(0.15)$	621	$624^{+60}_{-57}$
$\Omega_c h^2$	0.1145	$0.115^{+0.013}_{-0.012}$	$D_{220}$	5901	$5867^{+550}_{-580}$	$H(0.38)$	84.7	$84.5^{+5.5}_{-4.7}$
$100\theta_{MC}$	1.04011	$1.0401^{+0.0023}_{-0.0023}$	$D_{810}$	2580	$2574^{+110}_{-110}$	$D_M(0.38)$	1487	$1494^{+120}_{-120}$
$\tau$	0.0493	$0.049^{+0.026}_{-0.026}$	$D_{1420}$	852	$849^{+57}_{-55}$	$H(0.51)$	91.14	$91.0^{+4.7}_{-3.9}$
$\ln(10^{10} A_s)$	3.033	$3.032^{+0.085}_{-0.081}$	$D_{2000}$	245.9	$245^{+25}_{-23}$	$D_M(0.51)$	1931	$1939^{+140}_{-140}$
$n_s$	0.993	$0.993^{+0.057}_{-0.056}$	$n_{s,0.002}$	0.902	$0.90^{+0.26}_{-0.24}$	$H(0.61)$	96.54	$96.4^{+4.2}_{-3.4}$
$dn_s/d \ln k$	0.028	$0.029^{+0.086}_{-0.093}$	$Y_P$	0.24592	$0.2458^{+0.0013}_{-0.0015}$	$D_M(0.61)$	2250	$2259^{+160}_{-160}$
$y_{cal}$	1.0001	$1.0001^{+0.0064}_{-0.0065}$	$Y_P^{BBN}$	0.24725	$0.2471^{+0.0013}_{-0.0015}$	$H(2.33)$	234.2	$234.4^{+6.5}_{-6.0}$
$H_0$	70.1	$69.8^{+7.5}_{-6.8}$	$10^5 D/H$	2.37	$2.41^{+0.67}_{-0.50}$	$D_M(2.33)$	5706	$5715^{+170}_{-190}$
$\Omega_\Lambda$	0.717	$0.712^{+0.070}_{-0.087}$	Age/Gyr	13.670	$13.69^{+0.40}_{-0.42}$	$f\sigma_8(0.15)$	0.430	$0.434^{+0.078}_{-0.074}$
$\Omega_m$	0.283	$0.288^{+0.087}_{-0.070}$	$z_*$	1087.95	$1088.3^{+5.3}_{-4.3}$	$\sigma_8(0.15)$	0.7383	$0.740^{+0.035}_{-0.039}$
$\Omega_m h^2$	0.1388	$0.139^{+0.011}_{-0.010}$	$r_*$	144.88	$144.9^{+2.4}_{-2.3}$	$f\sigma_8(0.38)$	0.454	$0.457^{+0.059}_{-0.061}$
$\Omega_m h^3$	0.0973	$0.0971^{+0.0056}_{-0.0051}$	$100\theta_*$	1.04016	$1.0402^{+0.0023}_{-0.0022}$	$\sigma_8(0.38)$	0.6577	$0.658^{+0.025}_{-0.028}$
$\sigma_8$	0.7958	$0.798^{+0.045}_{-0.049}$	$D_M(z_*)/\text{Gpc}$	13.929	$13.93^{+0.23}_{-0.22}$	$f\sigma_8(0.51)$	0.456	$0.459^{+0.049}_{-0.053}$
$S_8$	0.772	$0.78^{+0.16}_{-0.14}$	$z_{drag}$	1062.4	$1062.0^{+6.9}_{-7.4}$	$\sigma_8(0.51)$	0.6168	$0.617^{+0.022}_{-0.025}$
$\sigma_8 \Omega_m^{0.5}$	0.423	$0.428^{+0.086}_{-0.077}$	$r_{drag}$	147.15	$147.2^{+3.0}_{-2.8}$	$f\sigma_8(0.61)$	0.4535	$0.456^{+0.042}_{-0.048}$
$\sigma_8 \Omega_m^{0.25}$	0.580	$0.584^{+0.073}_{-0.071}$	$k_D$	0.14170	$0.1415^{+0.0045}_{-0.0050}$	$\sigma_8(0.61)$	0.5878	$0.588^{+0.020}_{-0.022}$
$\sigma_8/h^{0.5}$	0.951	$0.96^{+0.10}_{-0.10}$	$100\theta_D$	0.15918	$0.1595^{+0.0047}_{-0.0034}$	$f\sigma_8(2.33)$	0.2976	$0.2975^{+0.0093}_{-0.010}$
$r_{drag} h$	103.1	$103^{+11}_{-10}$	$z_{eq}$	3302	$3314^{+260}_{-240}$	$\sigma_8(2.33)$	0.3082	$0.3080^{+0.0097}_{-0.011}$
$\langle d^2 \rangle^{1/2}$	2.387	$2.40^{+0.21}_{-0.20}$	$k_{eq}$	0.01008	$0.01011^{+0.00080}_{-0.00074}$	$\chi_{simall}^2$	395.42	$396.7 (\nu: 1.3)$
$z_{re}$	6.83	$6.8^{+2.2}_{-2.8}$	$100\theta_{eq}$	0.835	$0.832^{+0.055}_{-0.051}$	$\chi_{plikEE}^2$	738.4	$744.2 (\nu: 5.9)$
$10^9 A_s$	2.076	$2.07^{+0.18}_{-0.16}$	$100\theta_{s,eq}$	0.4595	$0.458^{+0.027}_{-0.026}$	$\chi_{prior}^2$	0.00	$0.98 (\nu: 1.0)$
$10^9 A_s e^{-2\tau}$	1.881	$1.880^{+0.094}_{-0.093}$	$H(0.15)$	75.1	$74.8^{+6.7}_{-6.0}$	$\chi_{CMB}^2$	1133.8	$1140.9 (\nu: 7.3)$

Best-fit  $\chi_{eff}^2 = 1133.78$ ;  $\bar{\chi}_{eff}^2 = 1141.92$ ;  $R - 1 = 0.00923$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.42 plik\_rd12\_HM\_v22\_EE: 738.36



## 12.44 base\_nrun\_plikHM\_EE\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02278	$0.0229^{+0.0025}_{-0.0025}$	$D_{810}$	2562	$2564^{+100}_{-100}$	$D_{\mathrm{M}}(0.51)$	1968	$1966^{+55}_{-55}$
$\Omega_{\mathrm{c}}h^2$	0.11736	$0.1174^{+0.0039}_{-0.0038}$	$D_{1420}$	843.7	$843^{+40}_{-40}$	$H(0.61)$	95.55	$95.7^{+1.9}_{-1.8}$
$100\theta_{\mathrm{MC}}$	1.03984	$1.0399^{+0.0021}_{-0.0021}$	$D_{2000}$	242.8	$242^{+18}_{-18}$	$D_{\mathrm{M}}(0.61)$	2292	$2289^{+62}_{-61}$
$\tau$	0.0476	$0.048^{+0.026}_{-0.025}$	$n_{\mathrm{s},0.002}$	0.883	$0.90^{+0.27}_{-0.24}$	$H(2.33)$	235.12	$235.3^{+3.4}_{-3.3}$
$\ln(10^{10}A_{\mathrm{s}})$	3.027	$3.029^{+0.086}_{-0.081}$	$Y_{\mathrm{P}}$	0.24555	$0.24560^{+0.00099}_{-0.0011}$	$D_{\mathrm{M}}(2.33)$	5753	$5748^{+110}_{-110}$
$n_{\mathrm{s}}$	0.9889	$0.988^{+0.047}_{-0.049}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.24687	$0.2469^{+0.0010}_{-0.0011}$	$f\sigma_8(0.15)$	0.4487	$0.448^{+0.026}_{-0.027}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	0.033	$0.029^{+0.085}_{-0.099}$	$10^5\mathrm{D}/\mathrm{H}$	2.512	$2.50^{+0.50}_{-0.39}$	$\sigma_8(0.15)$	0.7464	$0.746^{+0.025}_{-0.027}$
$y_{\mathrm{cal}}$	1.0003	$1.0001^{+0.0060}_{-0.0062}$	Age/Gyr	13.777	$13.76^{+0.25}_{-0.25}$	$f\sigma_8(0.38)$	0.4691	$0.468^{+0.023}_{-0.023}$
$H_0$	68.27	$68.4^{+2.5}_{-2.4}$	$z_*$	1089.18	$1089.1^{+3.4}_{-2.8}$	$\sigma_8(0.38)$	0.6627	$0.662^{+0.021}_{-0.023}$
$\Omega_{\Lambda}$	0.6979	$0.698^{+0.023}_{-0.025}$	$r_*$	144.80	$144.7^{+2.0}_{-2.1}$	$f\sigma_8(0.51)$	0.4688	$0.468^{+0.021}_{-0.021}$
$\Omega_{\mathrm{m}}$	0.3021	$0.302^{+0.025}_{-0.023}$	$100\theta_*$	1.04000	$1.0400^{+0.0023}_{-0.0021}$	$\sigma_8(0.51)$	0.6206	$0.620^{+0.019}_{-0.021}$
$\Omega_{\mathrm{m}}h^2$	0.14078	$0.1410^{+0.0044}_{-0.0043}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.923	$13.91^{+0.19}_{-0.20}$	$f\sigma_8(0.61)$	0.4646	$0.464^{+0.020}_{-0.019}$
$\Omega_{\mathrm{m}}h^3$	0.09611	$0.0964^{+0.0048}_{-0.0041}$	$z_{\mathrm{drag}}$	1060.7	$1060.9^{+5.4}_{-6.0}$	$\sigma_8(0.61)$	0.5908	$0.590^{+0.018}_{-0.019}$
$\sigma_8$	0.8067	$0.806^{+0.028}_{-0.029}$	$r_{\mathrm{drag}}$	147.34	$147.2^{+2.9}_{-2.8}$	$f\sigma_8(2.33)$	0.2982	$0.2981^{+0.0090}_{-0.0094}$
$S_8$	0.810	$0.808^{+0.050}_{-0.051}$	$k_{\mathrm{D}}$	0.14091	$0.1411^{+0.0045}_{-0.0049}$	$\sigma_8(2.33)$	0.3079	$0.3078^{+0.0094}_{-0.0097}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4434	$0.443^{+0.028}_{-0.028}$	$100\theta_{\mathrm{D}}$	0.16012	$0.1600^{+0.0039}_{-0.0030}$	$\chi_{\mathrm{small}}^2$	395.50	$396.8 (\nu: 1.3)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.5981	$0.597^{+0.029}_{-0.028}$	$z_{\mathrm{eq}}$	3349	$3353^{+100}_{-100}$	$\chi_{\mathrm{plikEE}}^2$	738.5	$743.5 (\nu: 4.9)$
$\sigma_8/h^{0.5}$	0.9764	$0.975^{+0.045}_{-0.043}$	$k_{\mathrm{eq}}$	0.010221	$0.01023^{+0.00032}_{-0.00031}$	$\chi_{6\mathrm{DF}}^2$	0.000	$0.057 (\nu: 0.0)$
$r_{\mathrm{drag}}h$	100.59	$100.6^{+3.0}_{-2.9}$	$100\theta_{\mathrm{eq}}$	0.8233	$0.823^{+0.017}_{-0.016}$	$\chi_{\mathrm{MGS}}^2$	1.75	$1.86 (\nu: 0.3)$
$\langle d^2 \rangle^{1/2}$	2.434	$2.43^{+0.12}_{-0.12}$	$100\theta_{\mathrm{s,eq}}$	0.4542	$0.4540^{+0.0095}_{-0.0088}$	$\chi_{\mathrm{DR12BAO}}^2$	3.59	$4.4 (\nu: 0.8)$
$z_{\mathrm{re}}$	6.86	$6.8^{+2.3}_{-2.7}$	$H(0.15)$	73.45	$73.6^{+2.3}_{-2.2}$	$\chi_{\mathrm{prior}}^2$	0.02	$0.9 (\nu: 0.9)$
$10^9 A_{\mathrm{s}}$	2.064	$2.07^{+0.18}_{-0.16}$	$D_{\mathrm{M}}(0.15)$	635.7	$635^{+21}_{-21}$	$\chi_{\mathrm{BAO}}^2$	5.33	$6.3 (\nu: 0.9)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.877	$1.879^{+0.096}_{-0.095}$	$H(0.38)$	83.39	$83.5^{+2.0}_{-2.0}$	$\chi_{\mathrm{CMB}}^2$	1134.0	$1140.3 (\nu: 6.3)$
$D_{40}$	1273	$1267^{+100}_{-100}$	$D_{\mathrm{M}}(0.38)$	1518.4	$1516^{+45}_{-45}$			
$D_{220}$	5778	$5789^{+460}_{-480}$	$H(0.51)$	90.01	$90.1^{+1.9}_{-1.9}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 1139.39$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 1147.51$ ;  $R - 1 = 0.01371$

$\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.59 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.50 plik\_rd12\_HM\_v22\_EE: 738.54



# 12.45 base\_nrun\_plikHM\_EE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0235^{+0.0034}_{-0.0034}$	$D_{40}$	$1255^{+100}_{-100}$	$D_{\mathrm{M}}(0.15)$	$625^{+59}_{-56}$
$\Omega_{\mathrm{c}}h^2$	$0.115^{+0.013}_{-0.012}$	$D_{220}$	$5877^{+560}_{-570}$	$H(0.38)$	$84.5^{+5.4}_{-4.7}$
$100\theta_{\mathrm{MC}}$	$1.0401^{+0.0023}_{-0.0023}$	$D_{810}$	$2576^{+110}_{-110}$	$D_{\mathrm{M}}(0.38)$	$1495^{+120}_{-120}$
$\tau$	$0.054^{+0.023}_{-0.013}$	$D_{1420}$	$847^{+53}_{-53}$	$H(0.51)$	$91.0^{+4.7}_{-3.9}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.077}_{-0.066}$	$D_{2000}$	$244^{+23}_{-23}$	$D_{\mathrm{M}}(0.51)$	$1939^{+140}_{-140}$
$n_{\mathrm{s}}$	$0.990^{+0.055}_{-0.053}$	$n_{\mathrm{s},0.002}$	$0.92^{+0.25}_{-0.23}$	$H(0.61)$	$96.4^{+4.2}_{-3.4}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$0.021^{+0.084}_{-0.092}$	$Y_{\mathrm{P}}$	$0.2458^{+0.0013}_{-0.0015}$	$D_{\mathrm{M}}(0.61)$	$2260^{+160}_{-160}$
$y_{\mathrm{cal}}$	$1.0000^{+0.0064}_{-0.0065}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2472^{+0.0013}_{-0.0015}$	$H(2.33)$	$234.7^{+6.4}_{-5.9}$
$H_0$	$69.7^{+7.3}_{-6.8}$	$10^5\mathrm{D}/\mathrm{H}$	$2.40^{+0.66}_{-0.49}$	$D_{\mathrm{M}}(2.33)$	$5713^{+170}_{-190}$
$\Omega_{\Lambda}$	$0.711^{+0.069}_{-0.086}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.69^{+0.40}_{-0.41}$	$f\sigma_8(0.15)$	$0.437^{+0.077}_{-0.072}$
$\Omega_{\mathrm{m}}$	$0.289^{+0.086}_{-0.069}$	$z_*$	$1088.3^{+5.2}_{-4.2}$	$\sigma_8(0.15)$	$0.742^{+0.034}_{-0.038}$
$\Omega_{\mathrm{m}}h^2$	$0.140^{+0.011}_{-0.0099}$	$r_*$	$144.7^{+2.4}_{-2.2}$	$f\sigma_8(0.38)$	$0.460^{+0.058}_{-0.060}$
$\Omega_{\mathrm{m}}h^3$	$0.0972^{+0.0056}_{-0.0050}$	$100\theta_*$	$1.0401^{+0.0022}_{-0.0022}$	$\sigma_8(0.38)$	$0.661^{+0.024}_{-0.027}$
$\sigma_8$	$0.801^{+0.044}_{-0.048}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.91^{+0.23}_{-0.21}$	$f\sigma_8(0.51)$	$0.461^{+0.048}_{-0.052}$
$S_8$	$0.79^{+0.16}_{-0.14}$	$z_{\mathrm{drag}}$	$1062.2^{+6.8}_{-7.4}$	$\sigma_8(0.51)$	$0.619^{+0.021}_{-0.023}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.431^{+0.085}_{-0.076}$	$r_{\mathrm{drag}}$	$147.0^{+3.0}_{-2.7}$	$f\sigma_8(0.61)$	$0.458^{+0.042}_{-0.046}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.587^{+0.071}_{-0.069}$	$k_{\mathrm{D}}$	$0.1417^{+0.0045}_{-0.0050}$	$\sigma_8(0.61)$	$0.590^{+0.019}_{-0.020}$
$\sigma_8/h^{0.5}$	$0.960^{+0.099}_{-0.099}$	$100\theta_{\mathrm{D}}$	$0.1594^{+0.0046}_{-0.0034}$	$f\sigma_8(2.33)$	$0.2985^{+0.0087}_{-0.0087}$
$r_{\mathrm{drag}}h$	$102^{+11}_{-10}$	$z_{\mathrm{eq}}$	$3322^{+260}_{-240}$	$\sigma_8(2.33)$	$0.3089^{+0.0092}_{-0.0092}$
$\langle d^2 \rangle^{1/2}$	$2.40^{+0.21}_{-0.19}$	$k_{\mathrm{eq}}$	$0.01014^{+0.00079}_{-0.00072}$	$\chi_{\mathrm{simall}}^2$	$396.5 (\nu: 1.1)$
$z_{\mathrm{re}}$	$< 8.97$	$100\theta_{\mathrm{eq}}$	$0.831^{+0.054}_{-0.050}$	$\chi_{\mathrm{plikEE}}^2$	$744.1 (\nu: 5.8)$
$10^9 A_{\mathrm{s}}$	$2.10^{+0.17}_{-0.14}$	$100\theta_{\mathrm{s,eq}}$	$0.458^{+0.026}_{-0.025}$	$\chi_{\mathrm{prior}}^2$	$0.98 (\nu: 1.0)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.885^{+0.091}_{-0.093}$	$H(0.15)$	$74.7^{+6.6}_{-5.9}$	$\chi_{\mathrm{CMB}}^2$	$1140.7 (\nu: 7.0)$

$\bar{\chi}_{\mathrm{eff}}^2 = 1141.65$ ;  $R - 1 = 0.00996$



## 12.46 base\_nrun\_plikHM\_EE\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0230^{+0.0024}_{-0.0026}$	$D_{810}$	$2567^{+100}_{-96}$	$D_{\mathrm{M}}(0.51)$	$1964^{+55}_{-54}$
$\Omega_{\mathrm{c}}h^2$	$0.1175^{+0.0038}_{-0.0039}$	$D_{1420}$	$841^{+40}_{-41}$	$H(0.61)$	$95.8^{+1.9}_{-1.7}$
$100\theta_{\mathrm{MC}}$	$1.0399^{+0.0021}_{-0.0020}$	$D_{2000}$	$241^{+18}_{-18}$	$D_{\mathrm{M}}(0.61)$	$2286^{+62}_{-60}$
$\tau$	$0.053^{+0.020}_{-0.012}$	$n_{\mathrm{s},0.002}$	$0.92^{+0.25}_{-0.23}$	$H(2.33)$	$235.5^{+3.3}_{-3.3}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.042^{+0.075}_{-0.069}$	$Y_{\mathrm{P}}$	$0.24565^{+0.00097}_{-0.0011}$	$D_{\mathrm{M}}(2.33)$	$5742^{+97}_{-100}$
$n_{\mathrm{s}}$	$0.985^{+0.046}_{-0.049}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24698^{+0.00098}_{-0.0011}$	$f\sigma_8(0.15)$	$0.449^{+0.026}_{-0.026}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$0.020^{+0.082}_{-0.092}$	$10^5\mathrm{D}/\mathrm{H}$	$2.48^{+0.51}_{-0.38}$	$\sigma_8(0.15)$	$0.748^{+0.025}_{-0.023}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0068}_{-0.0060}$	Age/Gyr	$13.75^{+0.23}_{-0.24}$	$f\sigma_8(0.38)$	$0.470^{+0.022}_{-0.023}$
$H_0$	$68.5^{+2.5}_{-2.4}$	$z_*$	$1088.9^{+3.5}_{-2.7}$	$\sigma_8(0.38)$	$0.664^{+0.020}_{-0.019}$
$\Omega_{\Lambda}$	$0.699^{+0.023}_{-0.025}$	$r_*$	$144.6^{+2.0}_{-2.0}$	$f\sigma_8(0.51)$	$0.469^{+0.020}_{-0.020}$
$\Omega_{\mathrm{m}}$	$0.301^{+0.025}_{-0.023}$	$100\theta_*$	$1.0400^{+0.0023}_{-0.0020}$	$\sigma_8(0.51)$	$0.622^{+0.018}_{-0.017}$
$\Omega_{\mathrm{m}}h^2$	$0.1411^{+0.0043}_{-0.0043}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.90^{+0.19}_{-0.19}$	$f\sigma_8(0.61)$	$0.465^{+0.019}_{-0.018}$
$\Omega_{\mathrm{m}}h^3$	$0.0966^{+0.0046}_{-0.0041}$	$z_{\mathrm{drag}}$	$1061.2^{+5.3}_{-6.1}$	$\sigma_8(0.61)$	$0.592^{+0.017}_{-0.016}$
$\sigma_8$	$0.808^{+0.028}_{-0.027}$	$r_{\mathrm{drag}}$	$147.0^{+2.9}_{-2.7}$	$f\sigma_8(2.33)$	$0.2990^{+0.0085}_{-0.0079}$
$S_8$	$0.810^{+0.051}_{-0.049}$	$k_{\mathrm{D}}$	$0.1414^{+0.0044}_{-0.0048}$	$\sigma_8(2.33)$	$0.3087^{+0.0087}_{-0.0082}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.028}_{-0.027}$	$100\theta_{\mathrm{D}}$	$0.1599^{+0.0041}_{-0.0030}$	$\chi_{\mathrm{simall}}^2$	$396.6 (\nu: 1.0)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.599^{+0.028}_{-0.027}$	$z_{\mathrm{eq}}$	$3357^{+100}_{-100}$	$\chi_{\mathrm{plikEE}}^2$	$743.5 (\nu: 5.1)$
$\sigma_8/h^{0.5}$	$0.977^{+0.044}_{-0.043}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00031}_{-0.00031}$	$\chi_{6\mathrm{DF}}^2$	$0.057 (\nu: 0.0)$
$r_{\mathrm{drag}}h$	$100.7^{+3.0}_{-2.9}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.017}_{-0.016}$	$\chi_{\mathrm{MGS}}^2$	$1.88 (\nu: 0.3)$
$\langle d^2 \rangle^{1/2}$	$2.43^{+0.12}_{-0.11}$	$100\theta_{\mathrm{s,eq}}$	$0.4537^{+0.0094}_{-0.0088}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 0.8)$
$z_{\mathrm{re}}$	$< 9.06$	$H(0.15)$	$73.6^{+2.2}_{-2.2}$	$\chi_{\mathrm{prior}}^2$	$0.9 (\nu: 0.9)$
$10^9 A_{\mathrm{s}}$	$2.10^{+0.16}_{-0.14}$	$D_{\mathrm{M}}(0.15)$	$634^{+21}_{-20}$	$\chi_{\mathrm{BAO}}^2$	$6.4 (\nu: 0.9)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.885^{+0.093}_{-0.086}$	$H(0.38)$	$83.6^{+2.0}_{-2.0}$	$\chi_{\mathrm{CMB}}^2$	$1140.0 (\nu: 6.1)$
$D_{40}$	$1256^{+100}_{-100}$	$D_{\mathrm{M}}(0.38)$	$1515^{+45}_{-44}$		
$D_{220}$	$5810^{+450}_{-500}$	$H(0.51)$	$90.2^{+1.9}_{-1.8}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1147.29$ ;  $R - 1 = 0.01768$



## 12.47 base\_nrun\_CleanedCamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02214	$0.02215^{+0.00060}_{-0.00059}$	$\sigma_8/h^{0.5}$	0.9912	$0.991^{+0.040}_{-0.042}$	$D_M(0.15)$	647.6	$647^{+20}_{-20}$
$\Omega_c h^2$	0.1207	$0.1205^{+0.0054}_{-0.0055}$	$r_{\text{drag}} h$	98.42	$98.6^{+4.3}_{-4.0}$	$H(0.38)$	82.52	$82.6^{+1.5}_{-1.4}$
$100\theta_{\text{MC}}$	1.04078	$1.0408^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	2.445	$2.445^{+0.097}_{-0.098}$	$D_M(0.38)$	1542.3	$1541^{+40}_{-41}$
$\tau$	0.0532	$0.053^{+0.022}_{-0.022}$	$z_{\text{re}}$	7.63	$7.6^{+2.2}_{-2.4}$	$H(0.51)$	89.32	$89.4^{+1.2}_{-1.1}$
$\ln(10^{10} A_s)$	3.0419	$3.041^{+0.048}_{-0.048}$	$10^9 A_s$	2.095	$2.09^{+0.10}_{-0.098}$	$D_M(0.51)$	1996.4	$1995^{+46}_{-48}$
$n_s$	0.9603	$0.961^{+0.015}_{-0.016}$	$10^9 A_s e^{-2\tau}$	1.8831	$1.883^{+0.038}_{-0.037}$	$H(0.61)$	95.01	$95.05^{+0.95}_{-0.84}$
$dn_s/d \ln k$	-0.0065	$-0.005^{+0.019}_{-0.020}$	$D_{40}$	1220	$1222^{+56}_{-53}$	$D_M(0.61)$	2322	$2320^{+50}_{-52}$
$y_{\text{cal}}$	1.0002	$1.0003^{+0.0064}_{-0.0065}$	$D_{220}$	5704	$5707^{+110}_{-100}$	$H(2.33)$	236.76	$236.7^{+3.3}_{-3.4}$
$A_{100}^{\text{PS}}$	266	$259^{+70}_{-70}$	$D_{810}$	2531.9	$2533^{+37}_{-36}$	$D_M(2.33)$	5777.1	$5776^{+40}_{-43}$
$A_{143}^{\text{tSZ}}$	4.49	$< 8.86$	$D_{1420}$	810.6	$812^{+14}_{-15}$	$f\sigma_8(0.15)$	0.4629	$0.462^{+0.031}_{-0.032}$
$A^{\text{kSZ}}$	3.1	—	$D_{2000}$	227.9	$228.4^{+5.2}_{-5.5}$	$\sigma_8(0.15)$	0.7481	$0.748^{+0.020}_{-0.020}$
$A_{100}^{\text{dust}}$	1.00	$1.01^{+0.50}_{-0.49}$	$n_{s,0.002}$	0.981	$0.977^{+0.060}_{-0.060}$	$f\sigma_8(0.38)$	0.4792	$0.479^{+0.024}_{-0.026}$
$A_{143}^{\text{power}}$	13.0	$11.0^{+7.3}_{-6.1}$	$Y_{\text{P}}$	0.245299	$0.24530^{+0.00023}_{-0.00028}$	$\sigma_8(0.38)$	0.6622	$0.662^{+0.016}_{-0.016}$
$A_{217}^{\text{power}}$	11.2	$8.7^{+8.9}_{-5.1}$	$Y_{\text{P}}^{\text{BBN}}$	0.246625	$0.24663^{+0.00024}_{-0.00028}$	$f\sigma_8(0.51)$	0.4767	$0.476^{+0.020}_{-0.022}$
$A_{143 \times 217}^{\text{power}}$	7.4	$< 12.3$	$10^5 D/H$	2.630	$2.63^{+0.11}_{-0.11}$	$\sigma_8(0.51)$	0.6192	$0.619^{+0.015}_{-0.015}$
$\gamma_{143}^{\text{power}}$	1.20	$> 0.385$	Age/Gyr	13.828	$13.825^{+0.091}_{-0.095}$	$f\sigma_8(0.61)$	0.4710	$0.471^{+0.018}_{-0.020}$
$\gamma_{217}^{\text{power}}$	1.08	—	$z_*$	1090.28	$1090.2^{+1.1}_{-1.0}$	$\sigma_8(0.61)$	0.5890	$0.589^{+0.014}_{-0.014}$
$\gamma_{143 \times 217}^{\text{power}}$	1.03	—	$r_*$	144.43	$144.5^{+1.3}_{-1.2}$	$f\sigma_8(2.33)$	0.2966	$0.2967^{+0.0069}_{-0.0069}$
$c_{100}$	0.99777	$0.9978^{+0.0027}_{-0.0029}$	$100\theta_*$	1.04097	$1.0410^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.3054	$0.3055^{+0.0074}_{-0.0072}$
$c_{217}$	0.99938	$0.9995^{+0.0045}_{-0.0035}$	$D_M(z_*)/\text{Gpc}$	13.875	$13.88^{+0.12}_{-0.11}$	$f_{2000}^{143}$	25.1	$24^{+9}_{-8}$
$H_0$	66.87	$67.0^{+2.4}_{-2.3}$	$z_{\text{drag}}$	1059.44	$1059.5^{+1.2}_{-1.3}$	$f_{2000}^{217}$	18.1	$17.5^{+6.0}_{-5.5}$
$\Omega_\Lambda$	0.6792	$0.680^{+0.033}_{-0.034}$	$r_{\text{drag}}$	147.17	$147.2^{+1.3}_{-1.2}$	$f_{2000}^{143 \times 217}$	12.8	$11.9^{+6.7}_{-6.0}$
$\Omega_m$	0.3208	$0.320^{+0.034}_{-0.033}$	$k_D$	0.14060	$0.1406^{+0.0014}_{-0.0015}$	$\chi_{\text{small}}^2$	395.93	$397.0 (\nu: 1.5)$
$\Omega_m h^2$	0.1435	$0.1433^{+0.0052}_{-0.0053}$	$100\theta_D$	0.16104	$0.16103^{+0.00076}_{-0.00070}$	$\chi_{\text{lowl}}^2$	22.24	$23.0 (\nu: 2.0)$
$\Omega_m h^3$	0.09594	$0.0959^{+0.0013}_{-0.0012}$	$z_{\text{eq}}$	3413	$3410^{+120}_{-130}$	$\chi_{\text{CamSpec}}^2$	6705.0	$6717.4 (\nu: 14.6)$
$\sigma_8$	0.8106	$0.810^{+0.023}_{-0.024}$	$k_{\text{eq}}$	0.010417	$0.01041^{+0.00038}_{-0.00039}$	$\chi_{\text{prior}}^2$	1.4	$5.3 (\nu: 4.2)$
$S_8$	0.838	$0.837^{+0.062}_{-0.063}$	$100\theta_{\text{eq}}$	0.8106	$0.811^{+0.024}_{-0.022}$	$\chi_{\text{CMB}}^2$	7123.1	$7137.4 (\nu: 14.7)$
$\sigma_8 \Omega_m^{0.5}$	0.4591	$0.458^{+0.034}_{-0.034}$	$100\theta_{s,\text{eq}}$	0.4482	$0.449^{+0.012}_{-0.012}$			
$\sigma_8 \Omega_m^{0.25}$	0.6101	$0.610^{+0.030}_{-0.031}$	$H(0.15)$	72.25	$72.3^{+2.1}_{-1.9}$			

Best-fit  $\chi_{\text{eff}}^2 = 7124.55$ ;  $\bar{\chi}_{\text{eff}}^2 = 7142.72$ ;  $R - 1 = 0.00730$

$\chi_{\text{eff}}^2$ : CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.93 commander\_dx12\_v3.2\_29: 22.24 CamSpec like\_10.7cleaned: 6704.97



### 13 nrun+nnu+w+mnu

#### 13.1 base\_nrun\_nnu\_w\_mnu\_plikHM\_TTTEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022447	$0.02248^{+0.00048}_{-0.00048}$	$\Omega_\nu h^2$	0.00002	$< 0.00228$	$D_M(0.15)$	626.7	$626^{+24}_{-23}$
$\Omega_c h^2$	0.1200	$0.1205^{+0.0081}_{-0.0076}$	$\Omega_m h^3$	0.0990	$0.1000^{+0.0091}_{-0.0086}$	$H(0.38)$	83.78	$83.7^{+3.2}_{-3.1}$
$100\theta_{MC}$	1.04098	$1.0409^{+0.0012}_{-0.0011}$	$\sigma_8$	0.8346	$0.829^{+0.032}_{-0.033}$	$D_M(0.38)$	1503	$1503^{+56}_{-54}$
$\tau$	0.0537	$0.056^{+0.022}_{-0.020}$	$S_8$	0.8276	$0.824^{+0.029}_{-0.030}$	$H(0.51)$	90.24	$90.2^{+3.4}_{-3.4}$
$\Sigma m_\nu$ [eV]	0.002	$< 0.213$	$\sigma_8 \Omega_m^{0.5}$	0.4533	$0.451^{+0.016}_{-0.017}$	$D_M(0.51)$	1951	$1952^{+72}_{-70}$
$w_0$	-1.041	$-1.053^{+0.088}_{-0.094}$	$\sigma_8 \Omega_m^{0.25}$	0.6151	$0.612^{+0.021}_{-0.021}$	$H(0.61)$	95.70	$95.7^{+3.7}_{-3.6}$
$N_{\text{eff}}$	3.071	$3.11^{+0.50}_{-0.48}$	$\sigma_8/h^{0.5}$	1.0011	$0.993^{+0.029}_{-0.033}$	$D_M(0.61)$	2274	$2274^{+84}_{-81}$
$\ln(10^{10} A_s)$	3.0431	$3.049^{+0.045}_{-0.043}$	$r_{\text{drag}} h$	102.09	$102.0^{+2.9}_{-2.9}$	$H(2.33)$	235.8	$236.5^{+7.5}_{-7.4}$
$n_s$	0.9667	$0.967^{+0.022}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.445	$2.440^{+0.062}_{-0.059}$	$D_M(2.33)$	5732	$5728^{+200}_{-190}$
$dn_s/d \ln k$	-0.0028	$-0.004^{+0.019}_{-0.019}$	$z_{\text{re}}$	7.59	$7.8^{+2.1}_{-2.1}$	$f\sigma_8(0.15)$	0.4616	$0.461^{+0.017}_{-0.017}$
$y_{\text{cal}}$	1.0003	$1.0006^{+0.0062}_{-0.0063}$	$10^9 A_s$	2.097	$2.109^{+0.098}_{-0.090}$	$\sigma_8(0.15)$	0.7726	$0.767^{+0.030}_{-0.031}$
$A_{217}^{\text{CIB}}$	49.7	$47^{+20}_{-20}$	$10^9 A_s e^{-2\tau}$	1.8837	$1.887^{+0.042}_{-0.043}$	$f\sigma_8(0.38)$	0.4858	$0.485^{+0.020}_{-0.020}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.13	—	$D_{40}$	1220.1	$1219^{+47}_{-45}$	$\sigma_8(0.38)$	0.6857	$0.681^{+0.027}_{-0.028}$
$A_{143}^{\text{tSZ}}$	7.4	—	$D_{220}$	5730	$5737^{+97}_{-98}$	$f\sigma_8(0.51)$	0.4863	$0.486^{+0.021}_{-0.020}$
$A_{100}^{\text{PS}}$	255	$262^{+70}_{-70}$	$D_{810}$	2538.5	$2541^{+34}_{-35}$	$\sigma_8(0.51)$	0.6419	$0.637^{+0.025}_{-0.026}$
$A_{143}^{\text{PS}}$	44.5	$47^{+20}_{-20}$	$D_{1420}$	816.3	$816^{+13}_{-13}$	$f\sigma_8(0.61)$	0.4823	$0.482^{+0.021}_{-0.020}$
$A_{143 \times 217}^{\text{PS}}$	40	$42^{+20}_{-20}$	$D_{2000}$	230.51	$230.3^{+4.8}_{-4.8}$	$\sigma_8(0.61)$	0.6109	$0.606^{+0.024}_{-0.025}$
$A_{217}^{\text{PS}}$	116.2	$114^{+30}_{-30}$	$n_{s,0.002}$	0.976	$0.979^{+0.053}_{-0.053}$	$f\sigma_8(2.33)$	0.3074	$0.306^{+0.012}_{-0.012}$
$A^{\text{kSZ}}$	0.0	—	$Y_P$	0.2458	$0.2462^{+0.0066}_{-0.0067}$	$\sigma_8(2.33)$	0.3167	$0.314^{+0.013}_{-0.013}$
$A_{100}^{\text{dustTT}}$	8.93	$9.0^{+4.8}_{-4.7}$	$Y_P^{\text{BBN}}$	0.2471	$0.2475^{+0.0066}_{-0.0067}$	$f_{2000}^{143}$	29.9	$31^{+8}_{-8}$
$A_{143}^{\text{dustTT}}$	11.05	$11.0^{+4.6}_{-4.6}$	$10^5 D/H$	2.580	$2.59^{+0.13}_{-0.13}$	$f_{2000}^{143 \times 217}$	32.7	$33^{+6}_{-6}$
$A_{143 \times 217}^{\text{dustTT}}$	19.5	$18.7^{+8.4}_{-8.3}$	Age/Gyr	13.708	$13.70^{+0.47}_{-0.45}$	$f_{2000}^{217}$	107.3	$107.7^{+5.2}_{-5.3}$
$A_{217}^{\text{dustTT}}$	94.2	$94^{+20}_{-20}$	$z_*$	1089.84	$1089.88^{+0.95}_{-0.92}$	$\chi^2_{\text{lensing}}$	9.11	$9.47 (\nu: 0.3)$
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.097}_{-0.095}$	$r_*$	144.25	$143.9^{+4.7}_{-4.5}$	$\chi^2_{\text{small}}$	395.88	$397.1 (\nu: 1.7)$
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.076}_{-0.075}$	$100\theta_*$	1.04111	$1.0410^{+0.0015}_{-0.0014}$	$\chi^2_{\text{lowl}}$	22.38	$22.5 (\nu: 1.2)$
$A_{100 \times 217}^{\text{dustTE}}$	0.479	$0.48^{+0.22}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	13.856	$13.83^{+0.43}_{-0.42}$	$\chi^2_{\text{plik}}$	2344.3	$2361.5 (\nu: 21.0)$
$A_{143}^{\text{dustTE}}$	0.225	$0.22^{+0.14}_{-0.14}$	$z_{\text{drag}}$	1060.12	$1060.3^{+1.8}_{-1.8}$	$\chi^2_{\text{H073p45}}$	5.7	$5.8 (\nu: 4.5)$
$A_{143 \times 217}^{\text{dustTE}}$	0.664	$0.66^{+0.21}_{-0.21}$	$r_{\text{drag}}$	146.88	$146.6^{+4.9}_{-4.7}$	$\chi^2_{\text{JLA}}$	1035.46	$1036.3 (\nu: 1.6)$
$A_{217}^{\text{dustTE}}$	2.08	$2.08^{+0.69}_{-0.69}$	$k_D$	0.14104	$0.1413^{+0.0034}_{-0.0035}$	$\chi^2_{6\text{DF}}$	0.075	$0.09 (\nu: 0.0)$
$c_{100}$	0.99970	$0.9997^{+0.0016}_{-0.0016}$	$100\theta_D$	0.16076	$0.1608^{+0.0012}_{-0.0011}$	$\chi^2_{\text{MGS}}$	2.51	$2.42 (\nu: 0.2)$
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$	$z_{\text{eq}}$	3393	$3390^{+72}_{-75}$	$\chi^2_{\text{DR12BAO}}$	3.95	$4.56 (\nu: 0.4)$
$H_0$	69.50	$69.6^{+2.7}_{-2.7}$	$k_{\text{eq}}$	0.010373	$0.01039^{+0.00029}_{-0.00028}$	$\chi^2_{\text{prior}}$	1.9	$11.6 (\nu: 10.3)$
$\Omega_\Lambda$	0.7050	$0.703^{+0.017}_{-0.018}$	$100\theta_{\text{eq}}$	0.8151	$0.816^{+0.014}_{-0.014}$	$\chi^2_{\text{CMB}}$	2771.7	$2790.6 (\nu: 22.6)$
$\Omega_m$	0.2950	$0.297^{+0.018}_{-0.017}$	$100\theta_{s,\text{eq}}$	0.4503	$0.4506^{+0.0073}_{-0.0068}$	$\chi^2_{\text{BAO}}$	6.54	$7.1 (\nu: 0.7)$
$\Omega_m h^2$	0.1425	$0.1437^{+0.0085}_{-0.0082}$	$H(0.15)$	74.26	$74.3^{+2.8}_{-2.7}$			

Best-fit  $\chi^2_{\text{eff}} = 3821.27$ ;  $\bar{\chi}^2_{\text{eff}} = 3851.33$ ;  $R - 1 = 0.00441$

$\chi^2_{\text{eff}}$ : BAO - 6DF: 0.07 MGS: 2.51 DR12BAO: 3.95 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.11 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.88 commander\_dx12\_v3\_2\_29: 22.38 plik\_rd12\_HM\_v22b\_TTTEEE: 2344.32 Hubble - H073p45: 5.65 SN - JLA Pantheon18: 1035.46



### 13.2 base\_nrun\_nnu\_w\_mnu\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02249^{+0.00048}_{-0.00048}$	$\Omega_{\nu}h^2$	$< 0.00229$	$D_{\mathrm{M}}(0.15)$	$626^{+24}_{-23}$
$\Omega_{\mathrm{c}}h^2$	$0.1205^{+0.0081}_{-0.0076}$	$\Omega_{\mathrm{m}}h^3$	$0.1000^{+0.0091}_{-0.0086}$	$H(0.38)$	$83.8^{+3.2}_{-3.1}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0011}$	$\sigma_8$	$0.829^{+0.032}_{-0.033}$	$D_{\mathrm{M}}(0.38)$	$1503^{+56}_{-54}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$S_8$	$0.824^{+0.029}_{-0.030}$	$H(0.51)$	$90.2^{+3.4}_{-3.4}$
$\Sigma m_{\nu} [\mathrm{eV}]$	$< 0.215$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.016}_{-0.016}$	$D_{\mathrm{M}}(0.51)$	$1951^{+72}_{-70}$
$w_0$	$-1.052^{+0.087}_{-0.095}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.612^{+0.021}_{-0.021}$	$H(0.61)$	$95.7^{+3.7}_{-3.6}$
$N_{\mathrm{eff}}$	$3.11^{+0.50}_{-0.48}$	$\sigma_8/h^{0.5}$	$0.994^{+0.029}_{-0.033}$	$D_{\mathrm{M}}(0.61)$	$2274^{+83}_{-82}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.050^{+0.044}_{-0.035}$	$r_{\mathrm{drag}}h$	$102.0^{+2.9}_{-2.9}$	$H(2.33)$	$236.5^{+7.5}_{-7.3}$
$n_{\mathrm{s}}$	$0.968^{+0.022}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	$2.440^{+0.062}_{-0.058}$	$D_{\mathrm{M}}(2.33)$	$5727^{+200}_{-190}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.004^{+0.019}_{-0.019}$	$z_{\mathrm{re}}$	$< 9.63$	$f\sigma_8(0.15)$	$0.461^{+0.017}_{-0.017}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0062}_{-0.0063}$	$10^9 A_{\mathrm{s}}$	$2.112^{+0.095}_{-0.073}$	$\sigma_8(0.15)$	$0.767^{+0.030}_{-0.031}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.887^{+0.042}_{-0.043}$	$f\sigma_8(0.38)$	$0.485^{+0.020}_{-0.020}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{40}$	$1219^{+47}_{-45}$	$\sigma_8(0.38)$	$0.681^{+0.027}_{-0.028}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{220}$	$5736^{+97}_{-98}$	$f\sigma_8(0.51)$	$0.486^{+0.021}_{-0.020}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$D_{810}$	$2541^{+34}_{-35}$	$\sigma_8(0.51)$	$0.637^{+0.025}_{-0.026}$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-13}$	$f\sigma_8(0.61)$	$0.482^{+0.021}_{-0.020}$
$A_{143\times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$D_{2000}$	$230.3^{+4.8}_{-4.8}$	$\sigma_8(0.61)$	$0.606^{+0.024}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$n_{\mathrm{s},0.002}$	$0.979^{+0.053}_{-0.053}$	$f\sigma_8(2.33)$	$0.306^{+0.012}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.2463^{+0.0066}_{-0.0067}$	$\sigma_8(2.33)$	$0.314^{+0.013}_{-0.013}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.8}_{-4.7}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2476^{+0.0066}_{-0.0067}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{143}^{\mathrm{dust}TT}$	$11.0^{+4.6}_{-4.6}$	$10^5\mathrm{D}/\mathrm{H}$	$2.59^{+0.13}_{-0.13}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-6}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.7^{+8.4}_{-8.3}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.69^{+0.46}_{-0.45}$	$f_{2000}^{217}$	$107.7^{+5.2}_{-5.3}$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$z_*$	$1089.88^{+0.96}_{-0.92}$	$\chi^2_{\mathrm{lensing}}$	$9.46 (\nu: 0.3)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.097}_{-0.095}$	$r_*$	$143.9^{+4.7}_{-4.5}$	$\chi^2_{\mathrm{simall}}$	$397.1 (\nu: 1.7)$
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.075}$	$100\theta_*$	$1.0410^{+0.0015}_{-0.0014}$	$\chi^2_{\mathrm{lowl}}$	$22.5 (\nu: 1.2)$
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.83^{+0.43}_{-0.42}$	$\chi^2_{\mathrm{plik}}$	$2361.5 (\nu: 21.0)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1060.3^{+1.8}_{-1.8}$	$\chi^2_{\mathrm{H073p45}}$	$5.8 (\nu: 4.5)$
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.21}$	$r_{\mathrm{drag}}$	$146.5^{+4.8}_{-4.7}$	$\chi^2_{\mathrm{JLA}}$	$1036.3 (\nu: 1.5)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.70}_{-0.69}$	$k_{\mathrm{D}}$	$0.1413^{+0.0035}_{-0.0034}$	$\chi^2_{6\mathrm{DF}}$	$0.09 (\nu: 0.0)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$100\theta_{\mathrm{D}}$	$0.1608^{+0.0012}_{-0.0011}$	$\chi^2_{\mathrm{MGS}}$	$2.42 (\nu: 0.2)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$z_{\mathrm{eq}}$	$3389^{+72}_{-74}$	$\chi^2_{\mathrm{DR12BAO}}$	$4.54 (\nu: 0.4)$
$H_0$	$69.6^{+2.8}_{-2.7}$	$k_{\mathrm{eq}}$	$0.01039^{+0.00029}_{-0.00028}$	$\chi^2_{\mathrm{prior}}$	$11.6 (\nu: 10.3)$
$\Omega_{\Lambda}$	$0.703^{+0.017}_{-0.018}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.014}_{-0.013}$	$\chi^2_{\mathrm{CMB}}$	$2790.4 (\nu: 22.4)$
$\Omega_{\mathrm{m}}$	$0.297^{+0.018}_{-0.017}$	$100\theta_{\mathrm{s,eq}}$	$0.4507^{+0.0073}_{-0.0067}$	$\chi^2_{\mathrm{BAO}}$	$7.1 (\nu: 0.7)$
$\Omega_{\mathrm{m}}h^2$	$0.1437^{+0.0085}_{-0.0081}$	$H(0.15)$	$74.3^{+2.8}_{-2.7}$		

$$\bar{\chi}^2_{\mathrm{eff}} = 3851.17; R - 1 = 0.00442$$



## 14 nrun+nrnunrun

### 14.1 base\_nrun\_nrunrun\_plikHM\_TTTEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022332	$0.02234^{+0.00042}_{-0.00043}$	$\Omega_m h^2$	0.14367	$0.1436^{+0.0037}_{-0.0034}$	$100\theta_{\text{eq}}$	0.8103	$0.811^{+0.016}_{-0.017}$
$\Omega_c h^2$	0.12070	$0.1206^{+0.0040}_{-0.0036}$	$\Omega_m h^3$	0.09633	$0.09636^{+0.00082}_{-0.00078}$	$100\theta_{\text{s,eq}}$	0.4479	$0.4480^{+0.0080}_{-0.0085}$
$100\theta_{\text{MC}}$	1.04082	$1.04086^{+0.00080}_{-0.00078}$	$\sigma_8$	0.8178	$0.817^{+0.023}_{-0.022}$	$H(0.15)$	72.42	$72.5^{+1.4}_{-1.5}$
$\tau$	0.0570	$0.058^{+0.025}_{-0.022}$	$S_8$	0.8441	$0.843^{+0.048}_{-0.045}$	$D_{\text{M}}(0.15)$	646.0	$646^{+15}_{-14}$
$\ln(10^{10} A_{\text{s}})$	3.0513	$3.053^{+0.050}_{-0.044}$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4623	$0.462^{+0.026}_{-0.025}$	$H(0.38)$	82.68	$82.7^{+1.0}_{-1.0}$
$n_{\text{s}}$	0.9624	$0.961^{+0.013}_{-0.014}$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6149	$0.614^{+0.025}_{-0.024}$	$D_{\text{M}}(0.38)$	1538.7	$1538^{+30}_{-28}$
$\text{d}n_{\text{s}}/\text{d} \ln k$	0.0053	$0.001^{+0.026}_{-0.026}$	$\sigma_8/h^{0.5}$	0.9987	$0.997^{+0.036}_{-0.035}$	$H(0.51)$	89.48	$89.51^{+0.81}_{-0.82}$
$\text{d}^2 n_{\text{s}}/\text{d} \ln k^2$	0.0139	$0.012^{+0.032}_{-0.035}$	$r_{\text{drag}} h$	98.53	$98.6^{+2.8}_{-3.1}$	$D_{\text{M}}(0.51)$	1992.0	$1991^{+35}_{-32}$
$y_{\text{cal}}$	1.0005	$1.0006^{+0.0062}_{-0.0062}$	$\langle d^2 \rangle^{1/2}$	2.448	$2.446^{+0.074}_{-0.072}$	$H(0.61)$	95.17	$95.20^{+0.66}_{-0.65}$
$A_{217}^{\text{CIB}}$	45.2	$47^{+20}_{-20}$	$z_{\text{re}}$	7.98	$8.0^{+2.4}_{-2.3}$	$D_{\text{M}}(0.61)$	2316.9	$2316^{+38}_{-35}$
$\xi^{\text{tSZ}} \times \text{CIB}$	0.70	—	$10^9 A_{\text{s}}$	2.114	$2.12^{+0.11}_{-0.091}$	$H(2.33)$	236.97	$237.0^{+2.4}_{-2.2}$
$A_{143}^{\text{tSZ}}$	7.08	$5.4^{+4.5}_{-4.6}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8864	$1.887^{+0.031}_{-0.030}$	$D_{\text{M}}(2.33)$	5768.0	$5767^{+31}_{-30}$
$A_{100}^{\text{PS}}$	247	$259^{+70}_{-70}$	$D_{40}$	1221.4	$1218^{+48}_{-47}$	$f\sigma_8(0.15)$	0.4663	$0.465^{+0.024}_{-0.023}$
$A_{143}^{\text{PS}}$	49.0	$45^{+20}_{-20}$	$D_{220}$	5739	$5740^{+96}_{-100}$	$\sigma_8(0.15)$	0.7549	$0.754^{+0.021}_{-0.020}$
$A_{143 \times 217}^{\text{PS}}$	52.6	$41^{+20}_{-20}$	$D_{810}$	2540.2	$2539^{+36}_{-34}$	$f\sigma_8(0.38)$	0.4829	$0.482^{+0.020}_{-0.019}$
$A_{217}^{\text{PS}}$	121.3	$114^{+20}_{-30}$	$D_{1420}$	818.9	$817^{+13}_{-12}$	$\sigma_8(0.38)$	0.6683	$0.668^{+0.018}_{-0.016}$
$A^{\text{kSZ}}$	0.0	—	$D_{2000}$	232.2	$231.2^{+5.3}_{-5.2}$	$f\sigma_8(0.51)$	0.4806	$0.480^{+0.018}_{-0.017}$
$A_{100}^{\text{dustTT}}$	8.80	$8.9^{+4.8}_{-4.7}$	$n_{\text{s},0.002}$	1.017	$1.02^{+0.11}_{-0.12}$	$\sigma_8(0.51)$	0.6250	$0.624^{+0.017}_{-0.015}$
$A_{143}^{\text{dustTT}}$	11.05	$10.9^{+4.8}_{-4.6}$	$Y_{\text{P}}$	0.245380	$0.24538^{+0.00016}_{-0.00018}$	$f\sigma_8(0.61)$	0.4749	$0.474^{+0.016}_{-0.016}$
$A_{143 \times 217}^{\text{dustTT}}$	20.1	$18.5^{+8.4}_{-8.3}$	$Y_{\text{P}}^{\text{BBN}}$	0.246707	$0.24671^{+0.00016}_{-0.00019}$	$\sigma_8(0.61)$	0.5945	$0.594^{+0.016}_{-0.014}$
$A_{217}^{\text{dustTT}}$	95.6	$94^{+20}_{-20}$	$10^5 \text{D}/\text{H}$	2.593	$2.591^{+0.081}_{-0.076}$	$f\sigma_8(2.33)$	0.2994	$0.2992^{+0.0080}_{-0.0070}$
$A_{100}^{\text{dustTE}}$	0.115	$0.115^{+0.096}_{-0.098}$	Age/Gyr	13.807	$13.804^{+0.069}_{-0.067}$	$\sigma_8(2.33)$	0.3084	$0.3081^{+0.0085}_{-0.0073}$
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.075}_{-0.075}$	$z_*$	1090.03	$1090.01^{+0.79}_{-0.75}$	$f_{2000}^{143}$	27.5	$29^{+9}_{-9}$
$A_{100 \times 217}^{\text{dustTE}}$	0.480	$0.48^{+0.22}_{-0.22}$	$r_*$	144.28	$144.29^{+0.80}_{-0.88}$	$f_{2000}^{143 \times 217}$	31.0	$32^{+6}_{-6}$
$A_{143}^{\text{dustTE}}$	0.225	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	1.04101	$1.04104^{+0.00078}_{-0.00076}$	$f_{2000}^{217}$	105.6	$106.7^{+6.0}_{-5.8}$
$A_{143 \times 217}^{\text{dustTE}}$	0.668	$0.67^{+0.20}_{-0.20}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.860	$13.860^{+0.074}_{-0.081}$	$\chi_{\text{simall}}^2$	396.4	$397.5 (\nu: 2.1)$
$A_{217}^{\text{dustTE}}$	2.09	$2.10^{+0.70}_{-0.71}$	$z_{\text{drag}}$	1059.89	$1059.92^{+0.85}_{-0.87}$	$\chi_{\text{lowl}}^2$	21.69	$22.4 (\nu: 1.1)$
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	146.95	$146.95^{+0.79}_{-0.86}$	$\chi_{\text{plik}}^2$	2344.6	$2360.7 (\nu: 17.5)$
$c_{217}$	0.99815	$0.9982^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	0.14099	$0.14099^{+0.00090}_{-0.00087}$	$\chi_{\text{prior}}^2$	1.5	$11.5 (\nu: 10.4)$
$H_0$	67.05	$67.1^{+1.6}_{-1.8}$	$100\theta_{\text{D}}$	0.160775	$0.16077^{+0.00050}_{-0.00049}$	$\chi_{\text{CMB}}^2$	2762.7	$2780.6 (\nu: 18.7)$
$\Omega_{\Lambda}$	0.6804	$0.681^{+0.022}_{-0.026}$	$z_{\text{eq}}$	3418	$3417^{+89}_{-81}$			
$\Omega_{\text{m}}$	0.3196	$0.319^{+0.026}_{-0.022}$	$k_{\text{eq}}$	0.010432	$0.01043^{+0.00027}_{-0.00025}$			

Best-fit  $\chi_{\text{eff}}^2 = 2764.20$ ;  $\bar{\chi}_{\text{eff}}^2 = 2792.05$ ;  $R - 1 = 0.02103$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.42 commander\_dx12\_v3.2.29: 21.69 plik\_rd12\_HM\_v22b\_TTTEE: 2344.61



## 14.2 base\_nrun\_nrunrun\_plikHM\_TTTEE\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022418	$0.02243^{+0.00036}_{-0.00037}$	$\Omega_m h^3$	0.09639	$0.09638^{+0.00079}_{-0.00077}$	$H(0.15)$	72.87	$72.9^{+1.0}_{-1.0}$
$\Omega_c h^2$	0.11958	$0.1195^{+0.0027}_{-0.0025}$	$\sigma_8$	0.8146	$0.814^{+0.024}_{-0.022}$	$D_M(0.15)$	641.5	$641^{+10}_{-10}$
$100\theta_{MC}$	1.04101	$1.04100^{+0.00074}_{-0.00072}$	$S_8$	0.8313	$0.830^{+0.036}_{-0.036}$	$H(0.38)$	83.00	$83.03^{+0.76}_{-0.77}$
$\tau$	0.0586	$0.059^{+0.025}_{-0.021}$	$\sigma_8 \Omega_m^{0.5}$	0.4553	$0.454^{+0.020}_{-0.020}$	$D_M(0.38)$	1529.8	$1529^{+21}_{-20}$
$\ln(10^{10} A_s)$	3.0524	$3.053^{+0.053}_{-0.041}$	$\sigma_8 \Omega_m^{0.25}$	0.6090	$0.608^{+0.021}_{-0.021}$	$H(0.51)$	89.74	$89.75^{+0.61}_{-0.61}$
$n_s$	0.9652	$0.964^{+0.011}_{-0.012}$	$\sigma_8/h^{0.5}$	0.9910	$0.990^{+0.032}_{-0.031}$	$D_M(0.51)$	1981.5	$1981^{+24}_{-23}$
$dn_s/d \ln k$	0.0033	$0.000^{+0.027}_{-0.027}$	$r_{drag} h$	99.43	$99.5^{+2.0}_{-2.0}$	$H(0.61)$	95.37	$95.38^{+0.52}_{-0.51}$
$d^2 n_s/d \ln k^2$	0.0112	$0.009^{+0.034}_{-0.035}$	$\langle d^2 \rangle^{1/2}$	2.433	$2.432^{+0.067}_{-0.066}$	$D_M(0.61)$	2305.7	$2305^{+26}_{-25}$
$y_{cal}$	1.0006	$1.0007^{+0.0062}_{-0.0061}$	$z_{re}$	8.09	$8.1^{+2.4}_{-2.2}$	$H(2.33)$	236.34	$236.3^{+1.6}_{-1.6}$
$A_{217}^{CIB}$	45.9	$47^{+20}_{-20}$	$10^9 A_s$	2.117	$2.12^{+0.12}_{-0.086}$	$D_M(2.33)$	5759.5	$5759^{+24}_{-24}$
$\xi^{tSZ \times CIB}$	0.58	—	$10^9 A_s e^{-2\tau}$	1.8826	$1.882^{+0.029}_{-0.028}$	$f\sigma_8(0.15)$	0.4599	$0.459^{+0.019}_{-0.019}$
$A_{143}^{tSZ}$	7.19	$> 0.943$	$D_{40}$	1216.6	$1215^{+48}_{-47}$	$\sigma_8(0.15)$	0.7527	$0.752^{+0.022}_{-0.019}$
$A_{100}^{PS}$	248	$259^{+70}_{-70}$	$D_{220}$	5744	$5744^{+98}_{-100}$	$f\sigma_8(0.38)$	0.4781	$0.477^{+0.017}_{-0.017}$
$A_{143}^{PS}$	47.3	$45^{+20}_{-20}$	$D_{810}$	2540.6	$2540^{+36}_{-34}$	$\sigma_8(0.38)$	0.6671	$0.666^{+0.019}_{-0.016}$
$A_{143 \times 217}^{PS}$	49.7	$41^{+20}_{-20}$	$D_{1420}$	819.3	$818^{+13}_{-12}$	$f\sigma_8(0.51)$	0.4766	$0.476^{+0.016}_{-0.015}$
$A_{217}^{PS}$	120.5	$114^{+30}_{-30}$	$D_{2000}$	232.2	$231.4^{+5.9}_{-5.1}$	$\sigma_8(0.51)$	0.6242	$0.624^{+0.018}_{-0.014}$
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	1.013	$1.01^{+0.12}_{-0.11}$	$f\sigma_8(0.61)$	0.4715	$0.471^{+0.015}_{-0.014}$
$A_{100}^{dustTT}$	8.83	$8.9^{+4.8}_{-4.5}$	$Y_P$	0.245414	$0.24542^{+0.00014}_{-0.00015}$	$\sigma_8(0.61)$	0.5939	$0.593^{+0.017}_{-0.014}$
$A_{143}^{dustTT}$	11.06	$10.9^{+4.5}_{-4.7}$	$Y_P^{BBN}$	0.246741	$0.24674^{+0.00014}_{-0.00015}$	$f\sigma_8(2.33)$	0.2994	$0.2992^{+0.0084}_{-0.0067}$
$A_{143 \times 217}^{dustTT}$	19.9	$18.5^{+8.2}_{-8.3}$	$10^5 D/H$	2.577	$2.575^{+0.071}_{-0.064}$	$\sigma_8(2.33)$	0.3087	$0.3084^{+0.0087}_{-0.0072}$
$A_{217}^{dustTT}$	95.4	$93^{+20}_{-20}$	Age/Gyr	13.788	$13.787^{+0.055}_{-0.053}$	$f_{2000}^{143}$	27.7	$29^{+9}_{-9}$
$A_{100}^{dustTE}$	0.114	$0.114^{+0.093}_{-0.095}$	$z_*$	1089.82	$1089.80^{+0.61}_{-0.57}$	$f_{2000}^{143 \times 217}$	31.2	$32^{+6}_{-6}$
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.081}_{-0.073}$	$r_*$	144.50	$144.52^{+0.62}_{-0.63}$	$f_{2000}^{217}$	105.9	$106.7^{+6.5}_{-5.6}$
$A_{100 \times 217}^{dustTE}$	0.481	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04119	$1.04118^{+0.00073}_{-0.00071}$	$\chi_{simall}^2$	396.6	$397.7 (\nu: 2.7)$
$A_{143}^{dustTE}$	0.222	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/Gpc$	13.879	$13.880^{+0.058}_{-0.060}$	$\chi_{lowl}^2$	21.44	$22.2 (\nu: 1.2)$
$A_{143 \times 217}^{dustTE}$	0.666	$0.66^{+0.21}_{-0.21}$	$z_{drag}$	1060.01	$1060.03^{+0.78}_{-0.79}$	$\chi_{plik}^2$	2345.1	$2360.9 (\nu: 18.0)$
$A_{217}^{dustTE}$	2.08	$2.08^{+0.68}_{-0.73}$	$r_{drag}$	147.15	$147.16^{+0.64}_{-0.65}$	$\chi_{6DF}^2$	0.047	$0.068 (\nu: 0.0)$
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$	$k_D$	0.14084	$0.14084^{+0.00077}_{-0.00079}$	$\chi_{MGS}^2$	1.10	$1.19 (\nu: 0.1)$
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$	$100\theta_D$	0.160720	$0.16071^{+0.00048}_{-0.00045}$	$\chi_{DR12BAO}^2$	4.82	$5.1 (\nu: 1.3)$
$H_0$	67.57	$67.6^{+1.2}_{-1.2}$	$z_{eq}$	3393	$3391^{+61}_{-59}$	$\chi_{prior}^2$	1.6	$11.5 (\nu: 9.9)$
$\Omega_\Lambda$	0.6876	$0.688^{+0.016}_{-0.017}$	$k_{eq}$	0.010357	$0.01035^{+0.00019}_{-0.00018}$	$\chi_{BAO}^2$	5.97	$6.4 (\nu: 0.9)$
$\Omega_m$	0.3124	$0.312^{+0.017}_{-0.016}$	$100\theta_{eq}$	0.8151	$0.815^{+0.011}_{-0.011}$	$\chi_{CMB}^2$	2763.2	$2780.9 (\nu: 18.6)$
$\Omega_m h^2$	0.14264	$0.1426^{+0.0026}_{-0.0025}$	$100\theta_{s,eq}$	0.4503	$0.4505^{+0.0058}_{-0.0058}$			

Best-fit  $\chi_{eff}^2 = 2770.78$ ;  $\bar{\chi}_{eff}^2 = 2798.78$ ;  $R - 1 = 0.02726$

$\chi_{eff}^2$ : BAO - 6DF: 0.05 MGS: 1.10 DR12BAO: 4.83 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.62 commander\_dx12\_v3\_2\_29: 21.44 plik\_rd12\_HM\_v22b\_TTTEE: 2345.10



### 14.3 base\_nrun\_nrunrun\_plikHM\_TTTEE\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.022365	$0.02237^{+0.00041}_{-0.00040}$	$\Omega_{\text{m}}h^2$	0.14319	$0.1432^{+0.0029}_{-0.0030}$	$100\theta_{\text{eq}}$	0.8125	$0.813^{+0.014}_{-0.013}$
$\Omega_{\text{c}}h^2$	0.12018	$0.1202^{+0.0031}_{-0.0031}$	$\Omega_{\text{m}}h^3$	0.09634	$0.09634^{+0.00080}_{-0.00076}$	$100\theta_{\text{s,eq}}$	0.4490	$0.4490^{+0.0070}_{-0.0066}$
$100\theta_{\text{MC}}$	1.04091	$1.04090^{+0.00077}_{-0.00073}$	$\sigma_8$	0.8152	$0.814^{+0.018}_{-0.017}$	$H(0.15)$	72.62	$72.6^{+1.2}_{-1.2}$
$\tau$	0.0564	$0.056^{+0.023}_{-0.021}$	$S_8$	0.8371	$0.836^{+0.035}_{-0.034}$	$D_{\text{M}}(0.15)$	644.0	$644^{+12}_{-12}$
$\ln(10^{10}A_{\text{s}})$	3.0482	$3.049^{+0.043}_{-0.038}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4585	$0.458^{+0.019}_{-0.019}$	$H(0.38)$	82.82	$82.83^{+0.89}_{-0.88}$
$n_{\text{s}}$	0.9639	$0.963^{+0.012}_{-0.013}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.6114	$0.611^{+0.018}_{-0.018}$	$D_{\text{M}}(0.38)$	1534.7	$1535^{+25}_{-24}$
$\text{d}n_{\text{s}}/\text{d}\ln k$	0.0057	$0.002^{+0.027}_{-0.025}$	$\sigma_8/h^{0.5}$	0.9939	$0.993^{+0.026}_{-0.025}$	$H(0.51)$	89.59	$89.60^{+0.72}_{-0.70}$
$\text{d}^2n_{\text{s}}/\text{d}\ln k^2$	0.0129	$0.010^{+0.033}_{-0.035}$	$r_{\text{drag}}h$	98.94	$98.9^{+2.5}_{-2.4}$	$D_{\text{M}}(0.51)$	1987.3	$1987^{+29}_{-28}$
$y_{\text{cal}}$	1.0002	$1.0005^{+0.0063}_{-0.0061}$	$\langle d^2 \rangle^{1/2}$	2.439	$2.439^{+0.058}_{-0.057}$	$H(0.61)$	95.25	$95.26^{+0.60}_{-0.56}$
$A_{217}^{\text{CIB}}$	45.3	$47^{+20}_{-20}$	$z_{\text{re}}$	7.90	$7.9^{+2.1}_{-2.2}$	$D_{\text{M}}(0.61)$	2311.9	$2312^{+31}_{-30}$
$\xi^{\text{tSZ}\times\text{CIB}}$	0.70	—	$10^9A_{\text{s}}$	2.108	$2.110^{+0.092}_{-0.079}$	$H(2.33)$	236.67	$236.7^{+1.9}_{-1.9}$
$A_{143}^{\text{tSZ}}$	7.1	—	$10^9A_{\text{s}}e^{-2\tau}$	1.8830	$1.884^{+0.028}_{-0.028}$	$D_{\text{M}}(2.33)$	5764.4	$5764^{+27}_{-28}$
$A_{100}^{\text{PS}}$	246	$259^{+70}_{-70}$	$D_{40}$	1220.7	$1219^{+46}_{-45}$	$f\sigma_8(0.15)$	0.4627	$0.462^{+0.018}_{-0.018}$
$A_{143}^{\text{PS}}$	48.6	$45^{+20}_{-20}$	$D_{220}$	5738	$5740^{+96}_{-99}$	$\sigma_8(0.15)$	0.7528	$0.752^{+0.016}_{-0.015}$
$A_{143\times 217}^{\text{PS}}$	52.4	$41^{+20}_{-20}$	$D_{810}$	2538.6	$2538^{+36}_{-33}$	$f\sigma_8(0.38)$	0.4801	$0.479^{+0.014}_{-0.014}$
$A_{217}^{\text{PS}}$	121.0	$114^{+20}_{-30}$	$D_{1420}$	818.9	$817^{+13}_{-12}$	$\sigma_8(0.38)$	0.6668	$0.666^{+0.014}_{-0.013}$
$A^{\text{kSZ}}$	0.0	—	$D_{2000}$	232.2	$231.2^{+5.6}_{-5.0}$	$f\sigma_8(0.51)$	0.4781	$0.477^{+0.013}_{-0.013}$
$A_{100}^{\text{dust}TT}$	8.81	$8.9^{+4.7}_{-4.6}$	$n_{\text{s},0.002}$	1.012	$1.01^{+0.11}_{-0.11}$	$\sigma_8(0.51)$	0.6238	$0.623^{+0.014}_{-0.012}$
$A_{143}^{\text{dust}TT}$	10.97	$10.9^{+4.6}_{-4.6}$	$Y_{\text{P}}$	0.245394	$0.24539^{+0.00015}_{-0.00017}$	$f\sigma_8(0.61)$	0.4727	$0.472^{+0.012}_{-0.012}$
$A_{143\times 217}^{\text{dust}TT}$	20.0	$18.5^{+8.4}_{-8.3}$	$Y_{\text{P}}^{\text{BBN}}$	0.246720	$0.24672^{+0.00015}_{-0.00017}$	$\sigma_8(0.61)$	0.5934	$0.593^{+0.013}_{-0.012}$
$A_{217}^{\text{dust}TT}$	95.4	$94^{+20}_{-20}$	$10^5\text{D}/\text{H}$	2.586	$2.587^{+0.075}_{-0.073}$	$f\sigma_8(2.33)$	0.2990	$0.2986^{+0.0067}_{-0.0062}$
$A_{100}^{\text{dust}TE}$	0.115	$0.114^{+0.096}_{-0.096}$	Age/Gyr	13.799	$13.799^{+0.061}_{-0.062}$	$\sigma_8(2.33)$	0.3081	$0.3077^{+0.0072}_{-0.0065}$
$A_{100\times 143}^{\text{dust}TE}$	0.135	$0.135^{+0.077}_{-0.074}$	$z_*$	1089.94	$1089.94^{+0.70}_{-0.68}$	$f_{2000}^{143}$	27.3	$29^{+9}_{-9}$
$A_{100\times 217}^{\text{dust}TE}$	0.484	$0.48^{+0.22}_{-0.22}$	$r_*$	144.39	$144.39^{+0.71}_{-0.70}$	$f_{2000}^{143\times 217}$	30.9	$32^{+6}_{-7}$
$A_{143}^{\text{dust}TE}$	0.224	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	1.04109	$1.04108^{+0.00075}_{-0.00072}$	$f_{2000}^{217}$	105.5	$106.6^{+6.2}_{-5.6}$
$A_{143\times 217}^{\text{dust}TE}$	0.668	$0.67^{+0.20}_{-0.21}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.869	$13.869^{+0.065}_{-0.065}$	$\chi_{\text{lensing}}^2$	8.98	$9.47 (\nu: 0.4)$
$A_{217}^{\text{dust}TE}$	2.09	$2.09^{+0.71}_{-0.72}$	$z_{\text{drag}}$	1059.93	$1059.94^{+0.83}_{-0.81}$	$\chi_{\text{simall}}^2$	396.28	$397.2 (\nu: 1.4)$
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.05	$147.05^{+0.72}_{-0.70}$	$\chi_{\text{lowl}}^2$	21.70	$22.5 (\nu: 1.3)$
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	0.14091	$0.14091^{+0.00078}_{-0.00085}$	$\chi_{\text{plik}}^2$	2344.9	$2360.5 (\nu: 16.3)$
$H_0$	67.28	$67.3^{+1.4}_{-1.4}$	$100\theta_{\text{D}}$	0.160757	$0.16075^{+0.00049}_{-0.00047}$	$\chi_{\text{prior}}^2$	1.5	$11.5 (\nu: 10.1)$
$\Omega_{\Lambda}$	0.6837	$0.684^{+0.019}_{-0.020}$	$z_{\text{eq}}$	3406	$3407^{+70}_{-72}$	$\chi_{\text{CMB}}^2$	2771.8	$2789.6 (\nu: 18.4)$
$\Omega_{\text{m}}$	0.3163	$0.316^{+0.020}_{-0.019}$	$k_{\text{eq}}$	0.010396	$0.01040^{+0.00021}_{-0.00022}$			

Best-fit  $\chi_{\text{eff}}^2 = 2773.34$ ;  $\bar{\chi}_{\text{eff}}^2 = 2801.12$ ;  $R - 1 = 0.02893$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.98 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.28 commander\_dx12\_v3.2\_29: 21.70 plik\_rd12\_HM\_v22b\_TTTEEE: 2344.88



#### 14.4 base\_nrun\_nrunrun\_plikHM\_TTTEE\_lowl\_lowE\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02243^{+0.00036}_{-0.00038}$	$\Omega_{\mathrm{m}}h^3$	$0.09637^{+0.00076}_{-0.00076}$	$H(0.15)$	$72.93^{+0.97}_{-0.97}$
$\Omega_{\mathrm{c}}h^2$	$0.1194^{+0.0025}_{-0.0024}$	$\sigma_8$	$0.813^{+0.019}_{-0.017}$	$D_{\mathrm{M}}(0.15)$	$640.9^{+9.7}_{-9.4}$
$100\theta_{\mathrm{MC}}$	$1.04100^{+0.00074}_{-0.00071}$	$S_8$	$0.828^{+0.030}_{-0.028}$	$H(0.38)$	$83.05^{+0.72}_{-0.72}$
$\tau$	$0.059^{+0.022}_{-0.019}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.454^{+0.016}_{-0.015}$	$D_{\mathrm{M}}(0.38)$	$1529^{+19}_{-19}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.052^{+0.042}_{-0.037}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.016}_{-0.016}$	$H(0.51)$	$89.77^{+0.60}_{-0.58}$
$n_{\mathrm{s}}$	$0.965^{+0.010}_{-0.011}$	$\sigma_8/h^{0.5}$	$0.989^{+0.024}_{-0.023}$	$D_{\mathrm{M}}(0.51)$	$1980^{+23}_{-23}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$0.001^{+0.027}_{-0.025}$	$r_{\mathrm{drag}}h$	$99.6^{+1.9}_{-1.9}$	$H(0.61)$	$95.39^{+0.50}_{-0.48}$
$\mathrm{d}^2n_{\mathrm{s}}/\mathrm{d}\ln k^2$	$0.009^{+0.033}_{-0.034}$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.056}_{-0.056}$	$D_{\mathrm{M}}(0.61)$	$2304^{+25}_{-25}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0062}_{-0.0061}$	$z_{\mathrm{re}}$	$8.1^{+2.0}_{-2.0}$	$H(2.33)$	$236.2^{+1.5}_{-1.5}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$10^9 A_{\mathrm{s}}$	$2.117^{+0.091}_{-0.077}$	$D_{\mathrm{M}}(2.33)$	$5759^{+23}_{-23}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.028}_{-0.029}$	$f\sigma_8(0.15)$	$0.458^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	$> 0.943$	$D_{40}$	$1217^{+47}_{-47}$	$\sigma_8(0.15)$	$0.751^{+0.017}_{-0.015}$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70}$	$D_{220}$	$5745^{+97}_{-100}$	$f\sigma_8(0.38)$	$0.477^{+0.013}_{-0.013}$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$	$D_{810}$	$2539^{+35}_{-35}$	$\sigma_8(0.38)$	$0.666^{+0.015}_{-0.013}$
$A_{143\times 217}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{1420}$	$818^{+13}_{-13}$	$f\sigma_8(0.51)$	$0.475^{+0.012}_{-0.012}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$D_{2000}$	$231.5^{+5.9}_{-5.1}$	$\sigma_8(0.51)$	$0.623^{+0.014}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$1.01^{+0.11}_{-0.12}$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.011}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.9}_{-4.5}$	$Y_{\mathrm{P}}$	$0.24542^{+0.00013}_{-0.00015}$	$\sigma_8(0.61)$	$0.593^{+0.014}_{-0.012}$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.5}_{-4.6}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00014}_{-0.00015}$	$f\sigma_8(2.33)$	$0.2990^{+0.0069}_{-0.0060}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.5^{+7.8}_{-8.5}$	$10^5\mathrm{D}/\mathrm{H}$	$2.575^{+0.071}_{-0.064}$	$\sigma_8(2.33)$	$0.3083^{+0.0075}_{-0.0063}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.786^{+0.053}_{-0.052}$	$f_{2000}^{143}$	$29^{+9}_{-9}$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.095}_{-0.095}$	$z_*$	$1089.79^{+0.60}_{-0.57}$	$f_{2000}^{143\times 217}$	$32^{+6}_{-7}$
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.135^{+0.080}_{-0.073}$	$r_*$	$144.54^{+0.59}_{-0.58}$	$f_{2000}^{217}$	$106.6^{+6.3}_{-5.5}$
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04118^{+0.00072}_{-0.00069}$	$\chi_{\mathrm{lensing}}^2$	$9.21\ (\nu: 0.2)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.883^{+0.054}_{-0.056}$	$\chi_{\mathrm{small}}^2$	$397.5\ (\nu: 1.9)$
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.20}$	$z_{\mathrm{drag}}$	$1060.03^{+0.78}_{-0.82}$	$\chi_{\mathrm{lowl}}^2$	$22.3\ (\nu: 1.4)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.68}_{-0.73}$	$r_{\mathrm{drag}}$	$147.19^{+0.61}_{-0.61}$	$\chi_{\mathrm{plik}}^2$	$2360.7\ (\nu: 16.9)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.14081^{+0.00075}_{-0.00077}$	$\chi_{6\mathrm{DF}}^2$	$0.059\ (\nu: 0.0)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0016}$	$100\theta_{\mathrm{D}}$	$0.16071^{+0.00049}_{-0.00045}$	$\chi_{\mathrm{MGS}}^2$	$1.22\ (\nu: 0.1)$
$H_0$	$67.6^{+1.1}_{-1.1}$	$z_{\mathrm{eq}}$	$3389^{+56}_{-55}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0\ (\nu: 1.0)$
$\Omega_{\Lambda}$	$0.689^{+0.014}_{-0.015}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00017}_{-0.00017}$	$\chi_{\mathrm{prior}}^2$	$11.5\ (\nu: 9.8)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.015}_{-0.014}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.010}_{-0.010}$	$\chi_{\mathrm{CMB}}^2$	$2789.8\ (\nu: 18.4)$
$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0023}_{-0.0023}$	$100\theta_{\mathrm{s,eq}}$	$0.4507^{+0.0054}_{-0.0053}$	$\chi_{\mathrm{BAO}}^2$	$6.2\ (\nu: 0.7)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2807.58; R - 1 = 0.02956$$



# 14.5 base\_nrun\_nrunrun\_plikHM\_TTTEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02235^{+0.00042}_{-0.00043}$	$\Omega_{\mathrm{m}}h^2$	$0.1436^{+0.0037}_{-0.0034}$	$100\theta_{\mathrm{eq}}$	$0.811^{+0.016}_{-0.017}$
$\Omega_{\mathrm{c}}h^2$	$0.1206^{+0.0040}_{-0.0036}$	$\Omega_{\mathrm{m}}h^3$	$0.09636^{+0.00081}_{-0.00078}$	$100\theta_{\mathrm{s,eq}}$	$0.4480^{+0.0080}_{-0.0085}$
$100\theta_{\mathrm{MC}}$	$1.04086^{+0.00080}_{-0.00079}$	$\sigma_8$	$0.817^{+0.023}_{-0.020}$	$H(0.15)$	$72.5^{+1.4}_{-1.5}$
$\tau$	$0.058^{+0.023}_{-0.017}$	$S_8$	$0.843^{+0.048}_{-0.044}$	$D_{\mathrm{M}}(0.15)$	$646^{+15}_{-14}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.054^{+0.049}_{-0.034}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.462^{+0.026}_{-0.024}$	$H(0.38)$	$82.7^{+1.0}_{-1.1}$
$n_{\mathrm{s}}$	$0.961^{+0.013}_{-0.014}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.614^{+0.025}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1538^{+30}_{-27}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$0.001^{+0.026}_{-0.026}$	$\sigma_8/h^{0.5}$	$0.998^{+0.035}_{-0.033}$	$H(0.51)$	$89.52^{+0.81}_{-0.83}$
$\mathrm{d}^2n_{\mathrm{s}}/\mathrm{d}\ln k^2$	$0.012^{+0.032}_{-0.035}$	$r_{\mathrm{drag}}h$	$98.6^{+2.8}_{-3.1}$	$D_{\mathrm{M}}(0.51)$	$1991^{+35}_{-32}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0062}_{-0.0062}$	$\langle d^2 \rangle^{1/2}$	$2.447^{+0.074}_{-0.069}$	$H(0.61)$	$95.20^{+0.66}_{-0.65}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$z_{\mathrm{re}}$	$< 10.1$	$D_{\mathrm{M}}(0.61)$	$2316^{+38}_{-35}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^9A_{\mathrm{s}}$	$2.12^{+0.10}_{-0.077}$	$H(2.33)$	$236.9^{+2.4}_{-2.1}$
$A_{143}^{\mathrm{tSZ}}$	$5.4^{+4.5}_{-4.6}$	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.887^{+0.031}_{-0.030}$	$D_{\mathrm{M}}(2.33)$	$5767^{+31}_{-30}$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70}$	$D_{40}$	$1218^{+48}_{-47}$	$f\sigma_8(0.15)$	$0.466^{+0.024}_{-0.023}$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$	$D_{220}$	$5740^{+96}_{-100}$	$\sigma_8(0.15)$	$0.755^{+0.020}_{-0.017}$
$A_{143\times 217}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2539^{+36}_{-34}$	$f\sigma_8(0.38)$	$0.482^{+0.020}_{-0.019}$
$A_{217}^{\mathrm{PS}}$	$114^{+20}_{-30}$	$D_{1420}$	$817^{+13}_{-12}$	$\sigma_8(0.38)$	$0.668^{+0.018}_{-0.014}$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.2^{+5.3}_{-5.2}$	$f\sigma_8(0.51)$	$0.480^{+0.018}_{-0.017}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.7}$	$n_{\mathrm{s},0.002}$	$1.02^{+0.11}_{-0.12}$	$\sigma_8(0.51)$	$0.625^{+0.016}_{-0.013}$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.8}_{-4.6}$	$Y_{\mathrm{P}}$	$0.24538^{+0.00016}_{-0.00019}$	$f\sigma_8(0.61)$	$0.475^{+0.016}_{-0.015}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.5^{+8.4}_{-8.3}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00016}_{-0.00019}$	$\sigma_8(0.61)$	$0.594^{+0.016}_{-0.012}$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$10^5\mathrm{D}/\mathrm{H}$	$2.591^{+0.082}_{-0.076}$	$f\sigma_8(2.33)$	$0.2994^{+0.0079}_{-0.0058}$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.096}_{-0.099}$	Age/Gyr	$13.804^{+0.069}_{-0.067}$	$\sigma_8(2.33)$	$0.3083^{+0.0083}_{-0.0060}$
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.135^{+0.075}_{-0.076}$	$z_*$	$1090.01^{+0.79}_{-0.74}$	$f_{2000}^{143}$	$29^{+9}_{-9}$
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$144.29^{+0.80}_{-0.88}$	$f_{2000}^{143\times 217}$	$32^{+6}_{-6}$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	$1.04105^{+0.00079}_{-0.00077}$	$f_{2000}^{217}$	$106.7^{+6.0}_{-5.8}$
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.67^{+0.20}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.860^{+0.074}_{-0.081}$	$\chi_{\mathrm{small}}^2$	$397.5\,(\nu: 2.2)$
$A_{217}^{\mathrm{dust}TE}$	$2.10^{+0.69}_{-0.72}$	$z_{\mathrm{drag}}$	$1059.93^{+0.85}_{-0.87}$	$\chi_{\mathrm{lowl}}^2$	$22.4\,(\nu: 1.0)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$146.96^{+0.79}_{-0.86}$	$\chi_{\mathrm{plik}}^2$	$2360.5\,(\nu: 17.4)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.14099^{+0.00090}_{-0.00088}$	$\chi_{\mathrm{prior}}^2$	$11.4\,(\nu: 10.3)$
$H_0$	$67.1^{+1.6}_{-1.8}$	$100\theta_{\mathrm{D}}$	$0.16076^{+0.00050}_{-0.00049}$	$\chi_{\mathrm{CMB}}^2$	$2780.4\,(\nu: 18.3)$
$\Omega_{\Lambda}$	$0.681^{+0.022}_{-0.026}$	$z_{\mathrm{eq}}$	$3417^{+89}_{-81}$		
$\Omega_{\mathrm{m}}$	$0.319^{+0.026}_{-0.022}$	$k_{\mathrm{eq}}$	$0.01043^{+0.00027}_{-0.00025}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2791.89; R - 1 = 0.02012$$



# 14.6 base\_nrun\_nrunrun\_plikHM\_TTTEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02243^{+0.00036}_{-0.00038}$	$\Omega_{\mathrm{m}}h^3$	$0.09638^{+0.00079}_{-0.00077}$	$H(0.15)$	$72.9^{+1.0}_{-1.0}$
$\Omega_{\mathrm{c}}h^2$	$0.1195^{+0.0027}_{-0.0026}$	$\sigma_8$	$0.814^{+0.024}_{-0.018}$	$D_{\mathrm{M}}(0.15)$	$641^{+10}_{-9.9}$
$100\theta_{\mathrm{MC}}$	$1.04100^{+0.00075}_{-0.00071}$	$S_8$	$0.830^{+0.036}_{-0.034}$	$H(0.38)$	$83.03^{+0.76}_{-0.77}$
$\tau$	$0.060^{+0.023}_{-0.018}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.020}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1529^{+21}_{-20}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.054^{+0.052}_{-0.035}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.021}_{-0.019}$	$H(0.51)$	$89.76^{+0.61}_{-0.61}$
$n_{\mathrm{s}}$	$0.964^{+0.011}_{-0.012}$	$\sigma_8/h^{0.5}$	$0.990^{+0.032}_{-0.028}$	$D_{\mathrm{M}}(0.51)$	$1981^{+24}_{-23}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$0.000^{+0.027}_{-0.027}$	$r_{\mathrm{drag}}h$	$99.5^{+2.0}_{-2.0}$	$H(0.61)$	$95.38^{+0.51}_{-0.51}$
$\mathrm{d}^2n_{\mathrm{s}}/\mathrm{d}\ln k^2$	$0.0095^{+0.033}_{-0.035}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.067}_{-0.063}$	$D_{\mathrm{M}}(0.61)$	$2305^{+26}_{-25}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0061}$	$z_{\mathrm{re}}$	$< 10.2$	$H(2.33)$	$236.3^{+1.6}_{-1.6}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$10^9 A_{\mathrm{s}}$	$2.12^{+0.11}_{-0.073}$	$D_{\mathrm{M}}(2.33)$	$5759^{+24}_{-24}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.029}_{-0.029}$	$f\sigma_8(0.15)$	$0.459^{+0.019}_{-0.018}$
$A_{143}^{\mathrm{tSZ}}$	$> 0.943$	$D_{40}$	$1215^{+48}_{-47}$	$\sigma_8(0.15)$	$0.752^{+0.021}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70}$	$D_{220}$	$5744^{+99}_{-100}$	$f\sigma_8(0.38)$	$0.478^{+0.017}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$	$D_{810}$	$2539^{+37}_{-34}$	$\sigma_8(0.38)$	$0.667^{+0.019}_{-0.014}$
$A_{143\times 217}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{1420}$	$818^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.476^{+0.016}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$D_{2000}$	$231.4^{+6.0}_{-5.1}$	$\sigma_8(0.51)$	$0.624^{+0.017}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$1.01^{+0.11}_{-0.12}$	$f\sigma_8(0.61)$	$0.471^{+0.015}_{-0.013}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.6}$	$Y_{\mathrm{P}}$	$0.24542^{+0.00014}_{-0.00015}$	$\sigma_8(0.61)$	$0.594^{+0.017}_{-0.012}$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.5}_{-4.6}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00014}_{-0.00015}$	$f\sigma_8(2.33)$	$0.2993^{+0.0083}_{-0.0058}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.5^{+8.0}_{-8.3}$	$10^5\mathrm{D}/\mathrm{H}$	$2.575^{+0.071}_{-0.064}$	$\sigma_8(2.33)$	$0.3086^{+0.0085}_{-0.0060}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.787^{+0.054}_{-0.053}$	$f_{2000}^{143}$	$29^{+9}_{-9}$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.094}_{-0.095}$	$z_*$	$1089.80^{+0.61}_{-0.58}$	$f_{2000}^{143\times 217}$	$32^{+6}_{-6}$
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.135^{+0.080}_{-0.073}$	$r_*$	$144.52^{+0.62}_{-0.63}$	$f_{2000}^{217}$	$106.6^{+6.2}_{-5.5}$
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04118^{+0.00073}_{-0.00070}$	$\chi_{\mathrm{simall}}^2$	$397.7 (\nu: 2.7)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.880^{+0.058}_{-0.059}$	$\chi_{\mathrm{lowl}}^2$	$22.2 (\nu: 1.2)$
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1060.03^{+0.78}_{-0.79}$	$\chi_{\mathrm{plik}}^2$	$2360.8 (\nu: 17.8)$
$A_{217}^{\mathrm{dust}TE}$	$2.09^{+0.68}_{-0.74}$	$r_{\mathrm{drag}}$	$147.16^{+0.64}_{-0.65}$	$\chi_{6\mathrm{DF}}^2$	$0.067 (\nu: 0.0)$
$c_{100}$	$0.9997^{+0.0017}_{-0.0016}$	$k_{\mathrm{D}}$	$0.14084^{+0.00077}_{-0.00079}$	$\chi_{\mathrm{MGS}}^2$	$1.19 (\nu: 0.1)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$100\theta_{\mathrm{D}}$	$0.16071^{+0.00048}_{-0.00045}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.1 (\nu: 1.3)$
$H_0$	$67.6^{+1.2}_{-1.2}$	$z_{\mathrm{eq}}$	$3391^{+61}_{-59}$	$\chi_{\mathrm{prior}}^2$	$11.5 (\nu: 9.7)$
$\Omega_{\Lambda}$	$0.688^{+0.015}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00019}_{-0.00018}$	$\chi_{\mathrm{BAO}}^2$	$6.4 (\nu: 0.9)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.017}_{-0.015}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.011}_{-0.011}$	$\chi_{\mathrm{CMB}}^2$	$2780.8 (\nu: 18.3)$
$\Omega_{\mathrm{m}}h^2$	$0.1426^{+0.0025}_{-0.0025}$	$100\theta_{\mathrm{s,eq}}$	$0.4505^{+0.0058}_{-0.0058}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2798.65; R - 1 = 0.02773$$



## 14.7 base\_nrun\_nrunrun\_plikHM\_TTTEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02237^{+0.00040}_{-0.00039}$	$\Omega_{\text{m}}h^2$	$0.1432^{+0.0029}_{-0.0030}$	$100\theta_{\text{eq}}$	$0.813^{+0.013}_{-0.013}$
$\Omega_{\text{c}}h^2$	$0.1201^{+0.0031}_{-0.0031}$	$\Omega_{\text{m}}h^3$	$0.09634^{+0.00080}_{-0.00077}$	$100\theta_{\text{s,eq}}$	$0.4491^{+0.0069}_{-0.0066}$
$100\theta_{\text{MC}}$	$1.04090^{+0.00077}_{-0.00073}$	$\sigma_8$	$0.815^{+0.018}_{-0.016}$	$H(0.15)$	$72.6^{+1.2}_{-1.2}$
$\tau$	$0.057^{+0.020}_{-0.016}$	$S_8$	$0.836^{+0.035}_{-0.034}$	$D_{\text{M}}(0.15)$	$644^{+12}_{-12}$
$\ln(10^{10}A_{\text{s}})$	$3.050^{+0.042}_{-0.030}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.458^{+0.019}_{-0.019}$	$H(0.38)$	$82.84^{+0.90}_{-0.86}$
$n_{\text{s}}$	$0.963^{+0.012}_{-0.013}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.611^{+0.018}_{-0.018}$	$D_{\text{M}}(0.38)$	$1534^{+24}_{-24}$
$\text{d}n_{\text{s}}/\text{d}\ln k$	$0.002^{+0.027}_{-0.025}$	$\sigma_8/h^{0.5}$	$0.993^{+0.026}_{-0.025}$	$H(0.51)$	$89.61^{+0.72}_{-0.68}$
$\text{d}^2n_{\text{s}}/\text{d}\ln k^2$	$0.011^{+0.032}_{-0.034}$	$r_{\text{drag}}h$	$99.0^{+2.5}_{-2.4}$	$D_{\text{M}}(0.51)$	$1987^{+28}_{-28}$
$y_{\text{cal}}$	$1.0005^{+0.0063}_{-0.0061}$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.058}_{-0.056}$	$H(0.61)$	$95.26^{+0.59}_{-0.55}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$z_{\text{re}}$	$< 9.75$	$D_{\text{M}}(0.61)$	$2312^{+31}_{-31}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_{\text{s}}$	$2.112^{+0.091}_{-0.063}$	$H(2.33)$	$236.7^{+1.8}_{-1.9}$
$A_{143}^{\text{tSZ}}$	$> 0.866$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.884^{+0.028}_{-0.027}$	$D_{\text{M}}(2.33)$	$5764^{+27}_{-28}$
$A_{100}^{\text{PS}}$	$259^{+70}_{-70}$	$D_{40}$	$1219^{+46}_{-45}$	$f\sigma_8(0.15)$	$0.462^{+0.018}_{-0.018}$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20}$	$D_{220}$	$5740^{+97}_{-100}$	$\sigma_8(0.15)$	$0.752^{+0.016}_{-0.014}$
$A_{143 \times 217}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2538^{+35}_{-33}$	$f\sigma_8(0.38)$	$0.480^{+0.014}_{-0.014}$
$A_{217}^{\text{PS}}$	$114^{+20}_{-30}$	$D_{1420}$	$817^{+13}_{-12}$	$\sigma_8(0.38)$	$0.666^{+0.014}_{-0.012}$
$A^{\text{kSZ}}$	—	$D_{2000}$	$231.3^{+5.6}_{-5.0}$	$f\sigma_8(0.51)$	$0.478^{+0.013}_{-0.013}$
$A_{100}^{\text{dust}TT}$	$8.9^{+4.7}_{-4.7}$	$n_{\text{s},0.002}$	$1.01^{+0.11}_{-0.11}$	$\sigma_8(0.51)$	$0.623^{+0.014}_{-0.011}$
$A_{143}^{\text{dust}TT}$	$10.9^{+4.7}_{-4.4}$	$Y_{\text{P}}$	$0.24539^{+0.00015}_{-0.00016}$	$f\sigma_8(0.61)$	$0.472^{+0.012}_{-0.011}$
$A_{143 \times 217}^{\text{dust}TT}$	$18.6^{+8.2}_{-8.3}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24672^{+0.00015}_{-0.00016}$	$\sigma_8(0.61)$	$0.593^{+0.013}_{-0.010}$
$A_{217}^{\text{dust}TT}$	$94^{+20}_{-20}$	$10^5 \text{D}/\text{H}$	$2.586^{+0.074}_{-0.073}$	$f\sigma_8(2.33)$	$0.2988^{+0.0066}_{-0.0053}$
$A_{100}^{\text{dust}TE}$	$0.114^{+0.096}_{-0.096}$	Age/Gyr	$13.798^{+0.060}_{-0.062}$	$\sigma_8(2.33)$	$0.3079^{+0.0071}_{-0.0055}$
$A_{100 \times 143}^{\text{dust}TE}$	$0.135^{+0.077}_{-0.074}$	$z_*$	$1089.93^{+0.68}_{-0.68}$	$f_{2000}^{143}$	$29^{+9}_{-9}$
$A_{100 \times 217}^{\text{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$144.39^{+0.71}_{-0.67}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-7}$
$A_{143}^{\text{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	$1.04109^{+0.00076}_{-0.00071}$	$f_{2000}^{217}$	$106.6^{+6.1}_{-5.7}$
$A_{143 \times 217}^{\text{dust}TE}$	$0.67^{+0.21}_{-0.21}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.870^{+0.064}_{-0.063}$	$\chi_{\text{lensing}}^2$	$9.47 (\nu: 0.4)$
$A_{217}^{\text{dust}TE}$	$2.09^{+0.71}_{-0.72}$	$z_{\text{drag}}$	$1059.95^{+0.82}_{-0.82}$	$\chi_{\text{small}}^2$	$397.2 (\nu: 1.4)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	$147.05^{+0.73}_{-0.69}$	$\chi_{\text{lowl}}^2$	$22.4 (\nu: 1.2)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	$0.14091^{+0.00078}_{-0.00084}$	$\chi_{\text{plik}}^2$	$2360.4 (\nu: 16.1)$
$H_0$	$67.3^{+1.4}_{-1.4}$	$100\theta_{\text{D}}$	$0.16075^{+0.00049}_{-0.00047}$	$\chi_{\text{prior}}^2$	$11.5 (\nu: 10.0)$
$\Omega_{\Lambda}$	$0.684^{+0.019}_{-0.020}$	$z_{\text{eq}}$	$3406^{+69}_{-71}$	$\chi_{\text{CMB}}^2$	$2789.5 (\nu: 17.9)$
$\Omega_{\text{m}}$	$0.316^{+0.020}_{-0.019}$	$k_{\text{eq}}$	$0.01039^{+0.00021}_{-0.00022}$		

$$\bar{\chi}_{\text{eff}}^2 = 2800.94; R - 1 = 0.02757$$



14.8 base\_nrun\_nrunrun\_plikHM\_TTTEE\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02243^{+0.00036}_{-0.00038}$	$\Omega_m h^3$	$0.09637^{+0.00076}_{-0.00076}$	$H(0.15)$	$72.93^{+0.96}_{-0.97}$
$\Omega_c h^2$	$0.1194^{+0.0025}_{-0.0024}$	$\sigma_8$	$0.813^{+0.019}_{-0.016}$	$D_M(0.15)$	$640.9^{+9.7}_{-9.3}$
$100\theta_{MC}$	$1.04100^{+0.00074}_{-0.00070}$	$S_8$	$0.828^{+0.029}_{-0.028}$	$H(0.38)$	$83.05^{+0.71}_{-0.71}$
$\tau$	$0.059^{+0.021}_{-0.015}$	$\sigma_8 \Omega_m^{0.5}$	$0.454^{+0.016}_{-0.015}$	$D_M(0.38)$	$1528^{+19}_{-19}$
$\ln(10^{10} A_s)$	$3.053^{+0.041}_{-0.032}$	$\sigma_8 \Omega_m^{0.25}$	$0.607^{+0.016}_{-0.015}$	$H(0.51)$	$89.77^{+0.59}_{-0.57}$
$n_s$	$0.965^{+0.010}_{-0.011}$	$\sigma_8/h^{0.5}$	$0.989^{+0.024}_{-0.023}$	$D_M(0.51)$	$1980^{+23}_{-23}$
$dn_s/d \ln k$	$0.001^{+0.027}_{-0.025}$	$r_{drag} h$	$99.6^{+1.9}_{-1.9}$	$H(0.61)$	$95.39^{+0.50}_{-0.48}$
$d^2 n_s/d \ln k^2$	$0.009^{+0.034}_{-0.034}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.056}_{-0.054}$	$D_M(0.61)$	$2304^{+25}_{-24}$
$y_{cal}$	$1.0007^{+0.0063}_{-0.0060}$	$z_{re}$	$< 9.97$	$H(2.33)$	$236.2^{+1.5}_{-1.5}$
$A_{217}^{CIB}$	$47^{+20}_{-20}$	$10^9 A_s$	$2.118^{+0.089}_{-0.066}$	$D_M(2.33)$	$5759^{+23}_{-23}$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s e^{-2\tau}$	$1.882^{+0.027}_{-0.029}$	$f\sigma_8(0.15)$	$0.458^{+0.015}_{-0.015}$
$A_{143}^{tSZ}$	$> 0.943$	$D_{40}$	$1217^{+47}_{-47}$	$\sigma_8(0.15)$	$0.752^{+0.017}_{-0.014}$
$A_{100}^{PS}$	$258^{+70}_{-70}$	$D_{220}$	$5745^{+98}_{-100}$	$f\sigma_8(0.38)$	$0.477^{+0.013}_{-0.012}$
$A_{143}^{PS}$	$44^{+20}_{-20}$	$D_{810}$	$2539^{+36}_{-34}$	$\sigma_8(0.38)$	$0.666^{+0.015}_{-0.012}$
$A_{143 \times 217}^{PS}$	$41^{+20}_{-20}$	$D_{1420}$	$818^{+13}_{-13}$	$f\sigma_8(0.51)$	$0.475^{+0.012}_{-0.011}$
$A_{217}^{PS}$	$114^{+30}_{-30}$	$D_{2000}$	$231.5^{+5.9}_{-5.1}$	$\sigma_8(0.51)$	$0.623^{+0.014}_{-0.011}$
$A^{kSZ}$	—	$n_{s,0.002}$	$1.01^{+0.11}_{-0.12}$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.011}$
$A_{100}^{dustTT}$	$8.9^{+4.9}_{-4.5}$	$Y_P$	$0.24542^{+0.00013}_{-0.00015}$	$\sigma_8(0.61)$	$0.593^{+0.013}_{-0.011}$
$A_{143}^{dustTT}$	$10.9^{+4.5}_{-4.5}$	$Y_P^{BBN}$	$0.24674^{+0.00013}_{-0.00015}$	$f\sigma_8(2.33)$	$0.2991^{+0.0070}_{-0.0054}$
$A_{143 \times 217}^{dustTT}$	$18.5^{+7.8}_{-8.5}$	$10^5 D/H$	$2.575^{+0.071}_{-0.064}$	$\sigma_8(2.33)$	$0.3084^{+0.0074}_{-0.0056}$
$A_{217}^{dustTT}$	$93^{+20}_{-20}$	Age/Gyr	$13.786^{+0.052}_{-0.053}$	$f_{2000}^{143}$	$29^{+9}_{-9}$
$A_{100}^{dustTE}$	$0.114^{+0.095}_{-0.095}$	$z_*$	$1089.79^{+0.60}_{-0.57}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.080}_{-0.073}$	$r_*$	$144.55^{+0.59}_{-0.57}$	$f_{2000}^{217}$	$106.5^{+6.3}_{-5.6}$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04118^{+0.00071}_{-0.00068}$	$\chi_{lensing}^2$	$9.20 (\nu: 0.2)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$13.883^{+0.055}_{-0.055}$	$\chi_{small}^2$	$397.5 (\nu: 1.9)$
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.21}_{-0.20}$	$z_{drag}$	$1060.03^{+0.78}_{-0.82}$	$\chi_{lowl}^2$	$22.3 (\nu: 1.3)$
$A_{217}^{dustTE}$	$2.09^{+0.68}_{-0.74}$	$r_{drag}$	$147.19^{+0.61}_{-0.60}$	$\chi_{plik}^2$	$2360.7 (\nu: 16.7)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$	$k_D$	$0.14081^{+0.00075}_{-0.00077}$	$\chi_{6DF}^2$	$0.058 (\nu: 0.0)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0016}$	$100\theta_D$	$0.16071^{+0.00049}_{-0.00045}$	$\chi_{MGS}^2$	$1.23 (\nu: 0.1)$
$H_0$	$67.7^{+1.1}_{-1.1}$	$z_{eq}$	$3389^{+56}_{-55}$	$\chi_{DR12BAO}^2$	$4.9 (\nu: 1.0)$
$\Omega_\Lambda$	$0.689^{+0.014}_{-0.015}$	$k_{eq}$	$0.01034^{+0.00017}_{-0.00017}$	$\chi_{prior}^2$	$11.5 (\nu: 9.6)$
$\Omega_m$	$0.311^{+0.015}_{-0.014}$	$100\theta_{eq}$	$0.816^{+0.010}_{-0.010}$	$\chi_{CMB}^2$	$2789.7 (\nu: 18.2)$
$\Omega_m h^2$	$0.1425^{+0.0023}_{-0.0023}$	$100\theta_{s,eq}$	$0.4507^{+0.0054}_{-0.0053}$	$\chi_{BAO}^2$	$6.2 (\nu: 0.6)$

$$\bar{\chi}_{eff}^2 = 2807.47; R - 1 = 0.02999$$



## 15 nrun+r

### 15.1 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02217	$0.02221^{+0.00061}_{-0.00058}$	$\sigma_8/h^{0.5}$	0.9939	$0.991^{+0.041}_{-0.042}$	$H(0.51)$	89.33	$89.4^{+1.2}_{-1.1}$
$\Omega_c h^2$	0.1208	$0.1205^{+0.0054}_{-0.0054}$	$r_{\text{drag}} h$	98.35	$98.6^{+4.3}_{-4.0}$	$D_M(0.51)$	1996.5	$1993^{+47}_{-48}$
$100\theta_{\text{MC}}$	1.04076	$1.0408^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	2.450	$2.438^{+0.099}_{-0.10}$	$H(0.61)$	95.02	$95.10^{+0.99}_{-0.88}$
$\tau$	0.0529	$0.054^{+0.023}_{-0.023}$	$z_{\text{re}}$	7.60	$7.6^{+2.2}_{-2.5}$	$D_M(0.61)$	2322	$2318^{+50}_{-52}$
$\ln(10^{10} A_s)$	3.0434	$3.045^{+0.047}_{-0.048}$	$10^9 A_s$	2.098	$2.10^{+0.10}_{-0.099}$	$H(2.33)$	236.87	$236.7^{+3.3}_{-3.3}$
$n_s$	0.9625	$0.963^{+0.016}_{-0.015}$	$10^9 A_s e^{-2\tau}$	1.8870	$1.887^{+0.036}_{-0.036}$	$D_M(2.33)$	5776.0	$5773^{+42}_{-44}$
$dn_s/d \ln k$	-0.0036	$-0.008^{+0.021}_{-0.023}$	$D_{40}$	1225	$1233^{+60}_{-55}$	$f\sigma_8(0.15)$	0.4644	$0.462^{+0.032}_{-0.032}$
$r$	0.000	$< 0.215$	$D_{220}$	5712	$5711^{+100}_{-110}$	$\sigma_8(0.15)$	0.7500	$0.749^{+0.020}_{-0.020}$
$y_{\text{cal}}$	1.0004	$1.0005^{+0.0064}_{-0.0064}$	$D_{810}$	2538.8	$2539^{+36}_{-35}$	$f\sigma_8(0.38)$	0.4806	$0.479^{+0.024}_{-0.025}$
$A_{217}^{\text{CIB}}$	50.9	$49^{+20}_{-20}$	$D_{1420}$	814.7	$814^{+13}_{-13}$	$\sigma_8(0.38)$	0.6638	$0.663^{+0.016}_{-0.016}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.07	—	$D_{2000}$	229.49	$229.0^{+5.0}_{-4.8}$	$f\sigma_8(0.51)$	0.4781	$0.476^{+0.021}_{-0.022}$
$A_{143}^{\text{tSZ}}$	7.1	—	$n_{s,0.002}$	0.974	$0.988^{+0.072}_{-0.066}$	$\sigma_8(0.51)$	0.6207	$0.620^{+0.015}_{-0.015}$
$A_{100}^{\text{PS}}$	258	$267^{+70}_{-70}$	$Y_{\text{P}}$	0.245313	$0.24533^{+0.00024}_{-0.00027}$	$f\sigma_8(0.61)$	0.4723	$0.471^{+0.018}_{-0.019}$
$A_{143}^{\text{PS}}$	46.9	$51^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246639	$0.24665^{+0.00024}_{-0.00027}$	$\sigma_8(0.61)$	0.5904	$0.590^{+0.014}_{-0.014}$
$A_{143 \times 217}^{\text{PS}}$	41.0	$44^{+20}_{-20}$	$10^5 D/H$	2.624	$2.62^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	0.2973	$0.2971^{+0.0070}_{-0.0068}$
$A_{217}^{\text{PS}}$	116.7	$115^{+30}_{-30}$	Age/Gyr	13.826	$13.818^{+0.096}_{-0.098}$	$\sigma_8(2.33)$	0.3061	$0.3060^{+0.0074}_{-0.0072}$
$A^{\text{kSZ}}$	0.0	—	$z_*$	1090.25	$1090.2^{+1.1}_{-1.1}$	$r_{0.002}$	0.000	$< 0.232$
$A_{100}^{\text{dust}TT}$	8.90	$9.0^{+4.8}_{-4.8}$	$r_*$	144.38	$144.4^{+1.3}_{-1.3}$	$r_{0.01}$	0.000	$< 0.218$
$A_{143}^{\text{dust}TT}$	10.82	$10.8^{+4.5}_{-4.6}$	$100\theta_*$	1.04097	$1.0410^{+0.0012}_{-0.0012}$	$\ln(10^{10} A_t)$	-6.50	$-0.4^{+2.2}_{-4.1}$
$A_{143 \times 217}^{\text{dust}TT}$	19.0	$18.4^{+8.4}_{-8.5}$	$D_M(z_*)/\text{Gpc}$	13.870	$13.87^{+0.12}_{-0.12}$	$r_{10}$	0.000	$< 0.125$
$A_{217}^{\text{dust}TT}$	93.8	$93^{+20}_{-20}$	$z_{\text{drag}}$	1059.51	$1059.6^{+1.3}_{-1.3}$	$10^9 A_t$	0.000	$< 0.455$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.11	$147.1^{+1.3}_{-1.3}$	$10^9 A_t e^{-2\tau}$	0.000	$< 0.406$
$c_{217}$	0.99828	$0.9983^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	0.14070	$0.1407^{+0.0015}_{-0.0015}$	$f_{2000}^{143}$	31.2	$32^{+8}_{-8}$
$H_0$	66.86	$67.0^{+2.4}_{-2.3}$	$100\theta_{\text{D}}$	0.16099	$0.16095^{+0.00074}_{-0.00074}$	$f_{2000}^{143 \times 217}$	33.8	$34^{+6}_{-6}$
$\Omega_{\Lambda}$	0.6787	$0.681^{+0.033}_{-0.035}$	$z_{\text{eq}}$	3417	$3410^{+120}_{-120}$	$f_{2000}^{217}$	108.3	$108.9^{+5.4}_{-5.4}$
$\Omega_{\text{m}}$	0.3213	$0.319^{+0.035}_{-0.033}$	$k_{\text{eq}}$	0.010428	$0.01041^{+0.00038}_{-0.00038}$	$\chi_{\text{small}}^2$	395.91	$397.3 (\nu: 1.6)$
$\Omega_{\text{m}} h^2$	0.1436	$0.1433^{+0.0052}_{-0.0052}$	$100\theta_{\text{eq}}$	0.8101	$0.812^{+0.024}_{-0.022}$	$\chi_{\text{lowl}}^2$	22.7	$23.7 (\nu: 2.5)$
$\Omega_{\text{m}} h^3$	0.09602	$0.0961^{+0.0013}_{-0.0013}$	$100\theta_{s,\text{eq}}$	0.4478	$0.449^{+0.012}_{-0.012}$	$\chi_{\text{plik}}^2$	759.2	$773.6 (\nu: 17.0)$
$\sigma_8$	0.8127	$0.811^{+0.023}_{-0.024}$	$H(0.15)$	72.24	$72.4^{+2.1}_{-2.0}$	$\chi_{\text{prior}}^2$	1.5	$7.3 (\nu: 6.8)$
$S_8$	0.841	$0.837^{+0.063}_{-0.062}$	$D_M(0.15)$	647.7	$646^{+20}_{-21}$	$\chi_{\text{CMB}}^2$	1177.9	$1194.6 (\nu: 17.4)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4607	$0.458^{+0.035}_{-0.034}$	$H(0.38)$	82.52	$82.6^{+1.5}_{-1.4}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6119	$0.610^{+0.030}_{-0.030}$	$D_M(0.38)$	1542.4	$1540^{+40}_{-41}$			

Best-fit  $\chi_{\text{eff}}^2 = 1179.41$ ;  $\bar{\chi}_{\text{eff}}^2 = 1201.96$ ;  $R - 1 = 0.00730$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.91 commander\_dx12\_v3.2.29: 22.73 plik\_rd12\_HM\_v22\_TT: 759.25



## 15.2 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02227	$0.02230^{+0.00056}_{-0.00056}$	$r_{\text{drag}} h$	99.84	$99.8^{+2.5}_{-2.4}$	$H(0.61)$	95.32	$95.34^{+0.68}_{-0.64}$
$\Omega_c h^2$	0.11893	$0.1189^{+0.0032}_{-0.0032}$	$\langle d^2 \rangle^{1/2}$	2.420	$2.415^{+0.077}_{-0.078}$	$D_M(0.61)$	2304.2	$2304^{+31}_{-32}$
$100\theta_{\text{MC}}$	1.04106	$1.0410^{+0.0011}_{-0.0011}$	$z_{\text{re}}$	7.64	$7.8^{+2.2}_{-2.3}$	$H(2.33)$	235.76	$235.8^{+2.1}_{-2.0}$
$\tau$	0.0539	$0.055^{+0.024}_{-0.022}$	$10^9 A_s$	2.091	$2.10^{+0.10}_{-0.10}$	$D_M(2.33)$	5763.8	$5763^{+32}_{-33}$
$\ln(10^{10} A_s)$	3.0401	$3.045^{+0.048}_{-0.049}$	$10^9 A_s e^{-2\tau}$	1.8772	$1.880^{+0.032}_{-0.031}$	$f\sigma_8(0.15)$	0.4535	$0.454^{+0.020}_{-0.020}$
$n_s$	0.9671	$0.966^{+0.011}_{-0.011}$	$D_{40}$	1217	$1228^{+60}_{-53}$	$\sigma_8(0.15)$	0.7455	$0.746^{+0.019}_{-0.018}$
$dn_s/d\ln k$	-0.0024	$-0.008^{+0.020}_{-0.023}$	$D_{220}$	5715	$5717^{+100}_{-110}$	$f\sigma_8(0.38)$	0.4722	$0.472^{+0.017}_{-0.017}$
$r$	0.000	$< 0.225$	$D_{810}$	2535.9	$2538^{+36}_{-34}$	$\sigma_8(0.38)$	0.6611	$0.661^{+0.016}_{-0.016}$
$y_{\text{cal}}$	1.0002	$1.0006^{+0.0063}_{-0.0062}$	$D_{1420}$	815.4	$815^{+13}_{-12}$	$f\sigma_8(0.51)$	0.4710	$0.471^{+0.015}_{-0.015}$
$A_{217}^{\text{CIB}}$	50.7	$49^{+20}_{-20}$	$D_{2000}$	229.88	$229.3^{+4.8}_{-4.7}$	$\sigma_8(0.51)$	0.6188	$0.619^{+0.015}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.04	—	$n_{s,0.002}$	0.975	$0.991^{+0.075}_{-0.065}$	$f\sigma_8(0.61)$	0.4662	$0.466^{+0.014}_{-0.014}$
$A_{143}^{\text{tSZ}}$	7.2	—	$Y_P$	0.245354	$0.24536^{+0.00022}_{-0.00026}$	$\sigma_8(0.61)$	0.5888	$0.589^{+0.014}_{-0.014}$
$A_{100}^{\text{PS}}$	257	$266^{+70}_{-70}$	$Y_P^{\text{BBN}}$	0.246680	$0.24669^{+0.00022}_{-0.00026}$	$f\sigma_8(2.33)$	0.2970	$0.2971^{+0.0072}_{-0.0067}$
$A_{143}^{\text{PS}}$	45.3	$50^{+20}_{-20}$	$10^5 \text{D/H}$	2.605	$2.60^{+0.11}_{-0.10}$	$\sigma_8(2.33)$	0.3062	$0.3064^{+0.0075}_{-0.0068}$
$A_{143 \times 217}^{\text{PS}}$	39	$43^{+20}_{-20}$	Age/Gyr	13.799	$13.797^{+0.075}_{-0.076}$	$r_{0.002}$	0.000	$< 0.247$
$A_{217}^{\text{PS}}$	115.9	$114^{+30}_{-30}$	$z_*$	1089.95	$1089.92^{+0.80}_{-0.80}$	$r_{0.01}$	0.000	$< 0.228$
$A^{\text{kSZ}}$	0.0	—	$r_*$	144.79	$144.76^{+0.85}_{-0.85}$	$\ln(10^{10} A_t)$	-7.24	$-0.3^{+2.2}_{-4.1}$
$A_{100}^{\text{dustTT}}$	8.96	$9.0^{+4.6}_{-4.8}$	$100\theta_*$	1.04125	$1.0412^{+0.0011}_{-0.0011}$	$r_{10}$	0.000	$< 0.132$
$A_{143}^{\text{dustTT}}$	10.79	$10.8^{+4.5}_{-4.6}$	$D_M(z_*)/\text{Gpc}$	13.905	$13.903^{+0.082}_{-0.084}$	$10^9 A_t$	0.000	$< 0.475$
$A_{143 \times 217}^{\text{dustTT}}$	19.0	$18.4^{+8.3}_{-8.5}$	$z_{\text{drag}}$	1059.63	$1059.7^{+1.3}_{-1.2}$	$10^9 A_t e^{-2\tau}$	0.000	$< 0.423$
$A_{217}^{\text{dustTT}}$	93.8	$93^{+20}_{-20}$	$r_{\text{drag}}$	147.49	$147.45^{+0.94}_{-0.95}$	$f_{2000}^{143}$	30.7	$32^{+8}_{-8}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$k_D$	0.14037	$0.1404^{+0.0013}_{-0.0012}$	$f_{2000}^{143 \times 217}$	33.3	$34^{+6}_{-6}$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$100\theta_D$	0.16096	$0.16091^{+0.00073}_{-0.00073}$	$f_{2000}^{217}$	107.8	$108.6^{+5.2}_{-5.4}$
$H_0$	67.69	$67.7^{+1.5}_{-1.4}$	$z_{\text{eq}}$	3374	$3375^{+75}_{-75}$	$\chi_{\text{small}}^2$	395.9	$397.4 (\nu: 1.8)$
$\Omega_\Lambda$	0.6905	$0.690^{+0.019}_{-0.019}$	$k_{\text{eq}}$	0.010298	$0.01030^{+0.00023}_{-0.00023}$	$\chi_{\text{lowl}}^2$	22.22	$23.2 (\nu: 2.1)$
$\Omega_m$	0.3095	$0.310^{+0.019}_{-0.019}$	$100\theta_{\text{eq}}$	0.8182	$0.818^{+0.014}_{-0.014}$	$\chi_{\text{plik}}^2$	760.6	$774.0 (\nu: 16.1)$
$\Omega_m h^2$	0.14184	$0.1419^{+0.0031}_{-0.0031}$	$100\theta_{s,\text{eq}}$	0.4520	$0.4519^{+0.0073}_{-0.0070}$	$\chi_{6\text{DF}}^2$	0.017	$0.055 (\nu: 0.0)$
$\Omega_m h^3$	0.09601	$0.0961^{+0.0013}_{-0.0013}$	$H(0.15)$	72.95	$73.0^{+1.3}_{-1.2}$	$\chi_{\text{MGS}}^2$	1.34	$1.38 (\nu: 0.1)$
$\sigma_8$	0.8066	$0.807^{+0.021}_{-0.020}$	$D_M(0.15)$	640.6	$641^{+12}_{-12}$	$\chi_{\text{DR12BAO}}^2$	4.08	$4.7 (\nu: 1.2)$
$S_8$	0.8193	$0.820^{+0.039}_{-0.037}$	$H(0.38)$	83.02	$83.04^{+0.96}_{-0.90}$	$\chi_{\text{prior}}^2$	1.5	$7.4 (\nu: 6.9)$
$\sigma_8 \Omega_m^{0.5}$	0.4488	$0.449^{+0.021}_{-0.021}$	$D_M(0.38)$	1528.2	$1528^{+24}_{-25}$	$\chi_{\text{BAO}}^2$	5.44	$6.2 (\nu: 0.8)$
$\sigma_8 \Omega_m^{0.25}$	0.6016	$0.602^{+0.021}_{-0.021}$	$H(0.51)$	89.72	$89.73^{+0.79}_{-0.74}$	$\chi_{\text{CMB}}^2$	1178.8	$1194.6 (\nu: 16.8)$
$\sigma_8/h^{0.5}$	0.9804	$0.981^{+0.030}_{-0.030}$	$D_M(0.51)$	1980.0	$1980^{+28}_{-29}$			

Best-fit  $\chi_{\text{eff}}^2 = 1185.74$ ;  $\bar{\chi}_{\text{eff}}^2 = 1208.12$ ;  $R - 1 = 0.01047$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.34 DR12BAO: 4.08 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.94 commander\_dx12\_v3\_2\_29: 22.22 plik\_rd12\_HM\_v22\_TT: 760.60



### 15.3 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02240	$0.02247^{+0.00059}_{-0.00058}$	$\sigma_8/h^{0.5}$	0.9706	$0.968^{+0.039}_{-0.041}$	$H(0.51)$	90.07	$90.2^{+1.3}_{-1.1}$
$\Omega_c h^2$	0.11731	$0.1170^{+0.0049}_{-0.0042}$	$r_{\text{drag}} h$	101.12	$101.4^{+3.4}_{-3.8}$	$D_M(0.51)$	1965.4	$1961^{+43}_{-44}$
$100\theta_{\text{MC}}$	1.04121	$1.0413^{+0.0014}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	2.400	$2.385^{+0.094}_{-0.087}$	$H(0.61)$	95.60	$95.7^{+1.1}_{-0.87}$
$\tau$	0.0566	$0.058^{+0.025}_{-0.022}$	$z_{\text{re}}$	7.86	$8.0^{+2.3}_{-2.3}$	$D_M(0.61)$	2288.5	$2284^{+46}_{-48}$
$\ln(10^{10} A_s)$	3.043	$3.046^{+0.050}_{-0.050}$	$10^9 A_s$	2.096	$2.10^{+0.11}_{-0.10}$	$H(2.33)$	234.85	$234.7^{+3.0}_{-2.9}$
$n_s$	0.9706	$0.971^{+0.012}_{-0.014}$	$10^9 A_s e^{-2\tau}$	1.8722	$1.872^{+0.036}_{-0.033}$	$D_M(2.33)$	5752.0	$5747^{+41}_{-52}$
$dn_s/d \ln k$	-0.0020	$-0.009^{+0.020}_{-0.024}$	$D_{40}$	1213	$1220^{+62}_{-50}$	$f\sigma_8(0.15)$	0.4450	$0.443^{+0.028}_{-0.028}$
$r$	0.000	$< 0.262$	$D_{220}$	5733	$5727^{+93}_{-110}$	$\sigma_8(0.15)$	0.7431	$0.742^{+0.020}_{-0.021}$
$y_{\text{cal}}$	1.0006	$1.0005^{+0.0062}_{-0.0063}$	$D_{810}$	2537.0	$2537^{+37}_{-33}$	$f\sigma_8(0.38)$	0.4658	$0.464^{+0.023}_{-0.024}$
$A_{217}^{\text{CIB}}$	49.8	$48^{+20}_{-20}$	$D_{1420}$	817.1	$816^{+12}_{-12}$	$\sigma_8(0.38)$	0.6600	$0.659^{+0.017}_{-0.017}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.14	—	$D_{2000}$	230.57	$229.8^{+4.3}_{-4.7}$	$f\sigma_8(0.51)$	0.4658	$0.464^{+0.020}_{-0.022}$
$A_{143}^{\text{tSZ}}$	7.2	—	$n_{s,0.002}$	0.977	$0.999^{+0.074}_{-0.062}$	$\sigma_8(0.51)$	0.6182	$0.618^{+0.016}_{-0.015}$
$A_{100}^{\text{PS}}$	255	$264^{+70}_{-70}$	$Y_{\text{P}}$	0.245407	$0.24543^{+0.00025}_{-0.00025}$	$f\sigma_8(0.61)$	0.4618	$0.461^{+0.018}_{-0.020}$
$A_{143}^{\text{PS}}$	45.8	$49^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246734	$0.24676^{+0.00025}_{-0.00025}$	$\sigma_8(0.61)$	0.5885	$0.588^{+0.015}_{-0.014}$
$A_{143 \times 217}^{\text{PS}}$	41	$42^{+30}_{-20}$	$10^5 \text{D}/\text{H}$	2.580	$2.57^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	0.2972	$0.2972^{+0.0076}_{-0.0067}$
$A_{217}^{\text{PS}}$	116.5	$114^{+30}_{-30}$	Age/Gyr	13.774	$13.762^{+0.091}_{-0.12}$	$\sigma_8(2.33)$	0.3070	$0.3070^{+0.0078}_{-0.0072}$
$A^{\text{kSZ}}$	0.0	—	$z_*$	1089.65	$1089.54^{+0.98}_{-0.98}$	$r_{0.002}$	0.000	$< 0.297$
$A_{100}^{\text{dustTT}}$	8.9	$9.0^{+5.5}_{-5.1}$	$r_*$	145.11	$145.1^{+1.3}_{-1.2}$	$r_{0.01}$	0.000	$< 0.272$
$A_{143}^{\text{dustTT}}$	10.81	$10.8^{+4.3}_{-4.8}$	$100\theta_*$	1.04140	$1.0415^{+0.0014}_{-0.0012}$	$\ln(10^{10} A_t)$	-6.44	$-0.1^{+2.3}_{-3.9}$
$A_{143 \times 217}^{\text{dustTT}}$	19.2	$18.4^{+8.2}_{-8.0}$	$D_M(z_*)/\text{Gpc}$	13.934	$13.93^{+0.11}_{-0.11}$	$r_{10}$	0.000	$< 0.160$
$A_{217}^{\text{dustTT}}$	94.3	$93^{+20}_{-20}$	$z_{\text{drag}}$	1059.82	$1059.9^{+1.4}_{-1.2}$	$10^9 A_t$	0.000	$< 0.562$
$c_{100}$	0.99966	$0.9996^{+0.0017}_{-0.0015}$	$r_{\text{drag}}$	147.77	$147.8^{+1.3}_{-1.2}$	$10^9 A_t e^{-2\tau}$	0.000	$< 0.496$
$c_{217}$	0.99826	$0.9983^{+0.0015}_{-0.0017}$	$k_{\text{D}}$	0.14017	$0.1402^{+0.0014}_{-0.0016}$	$f_{2000}^{143}$	30.2	$31^{+8}_{-8}$
$H_0$	68.43	$68.6^{+2.2}_{-2.1}$	$100\theta_{\text{D}}$	0.16085	$0.16079^{+0.00073}_{-0.00069}$	$f_{2000}^{143 \times 217}$	32.9	$34^{+6}_{-5}$
$\Omega_{\Lambda}$	0.7003	$0.702^{+0.024}_{-0.029}$	$z_{\text{eq}}$	3339	$3334^{+110}_{-100}$	$f_{2000}^{217}$	107.4	$108.2^{+5.3}_{-5.2}$
$\Omega_{\text{m}}$	0.2997	$0.298^{+0.029}_{-0.024}$	$k_{\text{eq}}$	0.010190	$0.01018^{+0.00034}_{-0.00032}$	$\chi_{\text{simall}}^2$	396.3	$397.9 (\nu: 2.8)$
$\Omega_{\text{m}} h^2$	0.14036	$0.1402^{+0.0047}_{-0.0043}$	$100\theta_{\text{eq}}$	0.8251	$0.826^{+0.019}_{-0.021}$	$\chi_{\text{lowl}}^2$	21.83	$22.6 (\nu: 1.6)$
$\Omega_{\text{m}} h^3$	0.09605	$0.0962^{+0.0014}_{-0.0013}$	$100\theta_{\text{s,eq}}$	0.4555	$0.456^{+0.010}_{-0.011}$	$\chi_{\text{plik}}^2$	762.7	$777.2 (\nu: 21.3)$
$\sigma_8$	0.8029	$0.802^{+0.024}_{-0.025}$	$H(0.15)$	73.58	$73.8^{+1.9}_{-1.8}$	$\chi_{\text{H073p45}}^2$	9.1	$8.7 (\nu: 4.4)$
$S_8$	0.803	$0.799^{+0.056}_{-0.053}$	$D_M(0.15)$	634.4	$633^{+18}_{-18}$	$\chi_{\text{prior}}^2$	1.5	$7.5 (\nu: 7.0)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4396	$0.438^{+0.030}_{-0.029}$	$H(0.38)$	83.48	$83.6^{+1.5}_{-1.3}$	$\chi_{\text{CMB}}^2$	1180.8	$1197.6 (\nu: 22.5)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5941	$0.592^{+0.028}_{-0.029}$	$D_M(0.38)$	1515.7	$1512^{+36}_{-37}$			

Best-fit  $\chi_{\text{eff}}^2 = 1191.50$ ;  $\bar{\chi}_{\text{eff}}^2 = 1213.73$ ;  $R - 1 = 0.05584$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.27 commander\_dx12\_v3.2\_29: 21.83 plik\_rd12\_HM\_v22\_TT: 762.71 Hubble - H073p45: 9.14



## 15.4 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02222^{+0.00061}_{-0.00058}$	$\sigma_8/h^{0.5}$	$0.992^{+0.040}_{-0.042}$	$H(0.51)$	$89.4^{+1.2}_{-1.1}$
$\Omega_{\text{c}}h^2$	$0.1204^{+0.0054}_{-0.0054}$	$r_{\text{drag}}h$	$98.7^{+4.3}_{-4.0}$	$D_{\text{M}}(0.51)$	$1992^{+47}_{-48}$
$100\theta_{\text{MC}}$	$1.0408^{+0.0012}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	$2.440^{+0.099}_{-0.10}$	$H(0.61)$	$95.12^{+0.98}_{-0.88}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$z_{\text{re}}$	$< 9.63$	$D_{\text{M}}(0.61)$	$2317^{+50}_{-52}$
$\ln(10^{10}A_{\text{s}})$	$3.048^{+0.045}_{-0.034}$	$10^9 A_{\text{s}}$	$2.107^{+0.096}_{-0.070}$	$H(2.33)$	$236.7^{+3.3}_{-3.3}$
$n_{\text{s}}$	$0.963^{+0.016}_{-0.015}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.887^{+0.036}_{-0.036}$	$D_{\text{M}}(2.33)$	$5772^{+42}_{-44}$
$\text{d}n_{\text{s}}/\text{d} \ln k$	$-0.008^{+0.021}_{-0.022}$	$D_{40}$	$1233^{+60}_{-55}$	$f\sigma_8(0.15)$	$0.462^{+0.032}_{-0.031}$
$r$	$< 0.218$	$D_{220}$	$5711^{+100}_{-110}$	$\sigma_8(0.15)$	$0.750^{+0.019}_{-0.018}$
$y_{\text{cal}}$	$1.0005^{+0.0064}_{-0.0064}$	$D_{810}$	$2539^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.479^{+0.024}_{-0.025}$
$A_{217}^{\text{CIB}}$	$49^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.38)$	$0.664^{+0.015}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{2000}$	$229.0^{+5.0}_{-4.8}$	$f\sigma_8(0.51)$	$0.477^{+0.021}_{-0.021}$
$A_{143}^{\text{tSZ}}$	—	$n_{\text{s},0.002}$	$0.989^{+0.072}_{-0.067}$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.012}$
$A_{100}^{\text{PS}}$	$267^{+70}_{-70}$	$Y_{\text{P}}$	$0.24533^{+0.00024}_{-0.00027}$	$f\sigma_8(0.61)$	$0.471^{+0.018}_{-0.019}$
$A_{143}^{\text{PS}}$	$51^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24666^{+0.00024}_{-0.00027}$	$\sigma_8(0.61)$	$0.591^{+0.013}_{-0.011}$
$A_{143 \times 217}^{\text{PS}}$	$44^{+20}_{-20}$	$10^5 \text{D}/\text{H}$	$2.61^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	$0.2975^{+0.0066}_{-0.0050}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$\text{Age}/\text{Gyr}$	$13.816^{+0.095}_{-0.097}$	$\sigma_8(2.33)$	$0.3064^{+0.0070}_{-0.0051}$
$A^{\text{kSZ}}$	—	$z_*$	$1090.1^{+1.0}_{-1.1}$	$r_{0.002}$	$< 0.235$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.8}_{-4.8}$	$r_*$	$144.4^{+1.3}_{-1.3}$	$r_{0.01}$	$< 0.220$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.5}_{-4.6}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0012}$	$\ln(10^{10}A_{\text{t}})$	$-0.4^{+2.2}_{-4.0}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.4^{+8.3}_{-8.5}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.87^{+0.12}_{-0.12}$	$r_{10}$	$< 0.126$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$z_{\text{drag}}$	$1059.6^{+1.3}_{-1.3}$	$10^9 A_{\text{t}}$	$< 0.459$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	$147.1^{+1.3}_{-1.3}$	$10^9 A_{\text{t}}e^{-2\tau}$	$< 0.410$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	$0.1407^{+0.0015}_{-0.0014}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$H_0$	$67.1^{+2.4}_{-2.3}$	$100\theta_{\text{D}}$	$0.16094^{+0.00072}_{-0.00074}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$\Omega_{\Lambda}$	$0.681^{+0.032}_{-0.034}$	$z_{\text{eq}}$	$3409^{+120}_{-120}$	$f_{2000}^{217}$	$108.8^{+5.4}_{-5.4}$
$\Omega_{\text{m}}$	$0.319^{+0.034}_{-0.032}$	$k_{\text{eq}}$	$0.01040^{+0.00038}_{-0.00037}$	$\chi_{\text{simall}}^2$	$397.2 (\nu: 1.6)$
$\Omega_{\text{m}}h^2$	$0.1433^{+0.0052}_{-0.0051}$	$100\theta_{\text{eq}}$	$0.812^{+0.023}_{-0.022}$	$\chi_{\text{lowl}}^2$	$23.6 (\nu: 2.5)$
$\Omega_{\text{m}}h^3$	$0.0961^{+0.0013}_{-0.0013}$	$100\theta_{\text{s,eq}}$	$0.449^{+0.012}_{-0.012}$	$\chi_{\text{plik}}^2$	$773.6 (\nu: 17.0)$
$\sigma_8$	$0.812^{+0.023}_{-0.022}$	$H(0.15)$	$72.4^{+2.1}_{-2.0}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.8)$
$S_8$	$0.837^{+0.063}_{-0.062}$	$D_{\text{M}}(0.15)$	$646^{+20}_{-21}$	$\chi_{\text{CMB}}^2$	$1194.4 (\nu: 17.2)$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.459^{+0.035}_{-0.034}$	$H(0.38)$	$82.7^{+1.5}_{-1.4}$		
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.610^{+0.030}_{-0.030}$	$D_{\text{M}}(0.38)$	$1539^{+40}_{-41}$		

$$\bar{\chi}_{\text{eff}}^2 = 1201.72; R - 1 = 0.00869$$



### 15.5 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02231^{+0.00056}_{-0.00054}$	$r_{\text{drag}} h$	$99.8^{+2.5}_{-2.4}$	$H(0.61)$	$95.34^{+0.67}_{-0.64}$
$\Omega_c h^2$	$0.1189^{+0.0032}_{-0.0032}$	$\langle d^2 \rangle^{1/2}$	$2.417^{+0.075}_{-0.074}$	$D_M(0.61)$	$2304^{+31}_{-32}$
$100\theta_{\text{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$z_{\text{re}}$	$< 9.79$	$H(2.33)$	$235.8^{+2.1}_{-2.0}$
$\tau$	$0.056^{+0.021}_{-0.015}$	$10^9 A_s$	$2.105^{+0.099}_{-0.071}$	$D_M(2.33)$	$5763^{+33}_{-33}$
$\ln(10^{10} A_s)$	$3.047^{+0.046}_{-0.034}$	$10^9 A_s e^{-2\tau}$	$1.880^{+0.031}_{-0.030}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.019}$
$n_s$	$0.966^{+0.011}_{-0.011}$	$D_{40}$	$1228^{+60}_{-53}$	$\sigma_8(0.15)$	$0.747^{+0.018}_{-0.015}$
$dn_s/d \ln k$	$-0.008^{+0.020}_{-0.023}$	$D_{220}$	$5717^{+100}_{-110}$	$f\sigma_8(0.38)$	$0.473^{+0.016}_{-0.016}$
$r$	$< 0.226$	$D_{810}$	$2538^{+36}_{-34}$	$\sigma_8(0.38)$	$0.662^{+0.015}_{-0.012}$
$y_{\text{cal}}$	$1.0006^{+0.0063}_{-0.0062}$	$D_{1420}$	$815^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.472^{+0.015}_{-0.014}$
$A_{217}^{\text{CIB}}$	$49^{+20}_{-20}$	$D_{2000}$	$229.3^{+4.8}_{-4.7}$	$\sigma_8(0.51)$	$0.620^{+0.014}_{-0.011}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$n_{\text{s},0.002}$	$0.992^{+0.074}_{-0.064}$	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.013}$
$A_{143}^{\text{tSZ}}$	—	$Y_{\text{P}}$	$0.24537^{+0.00022}_{-0.00025}$	$\sigma_8(0.61)$	$0.590^{+0.014}_{-0.010}$
$A_{100}^{\text{PS}}$	$266^{+70}_{-70}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24669^{+0.00022}_{-0.00025}$	$f\sigma_8(2.33)$	$0.2974^{+0.0069}_{-0.0051}$
$A_{143}^{\text{PS}}$	$50^{+20}_{-20}$	$10^5 \text{D/H}$	$2.60^{+0.10}_{-0.10}$	$\sigma_8(2.33)$	$0.3067^{+0.0073}_{-0.0052}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	Age/Gyr	$13.796^{+0.075}_{-0.075}$	$r_{0.002}$	$< 0.250$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30}$	$z_*$	$1089.91^{+0.80}_{-0.80}$	$r_{0.01}$	$< 0.230$
$A^{\text{kSZ}}$	—	$r_*$	$144.76^{+0.85}_{-0.85}$	$\ln(10^{10} A_{\text{t}})$	$-0.3^{+2.2}_{-4.0}$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.7}_{-4.8}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$r_{10}$	$< 0.133$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.5}_{-4.6}$	$D_M(z_*)/\text{Gpc}$	$13.903^{+0.081}_{-0.084}$	$10^9 A_{\text{t}}$	$< 0.477$
$A_{143 \times 217}^{\text{dustTT}}$	$18.4^{+8.3}_{-8.6}$	$z_{\text{drag}}$	$1059.7^{+1.3}_{-1.2}$	$10^9 A_{\text{t}} e^{-2\tau}$	$< 0.427$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$r_{\text{drag}}$	$147.45^{+0.93}_{-0.96}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	$0.1404^{+0.0013}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$100\theta_{\text{D}}$	$0.16090^{+0.00073}_{-0.00073}$	$f_{2000}^{217}$	$108.6^{+5.2}_{-5.3}$
$H_0$	$67.7^{+1.4}_{-1.4}$	$z_{\text{eq}}$	$3375^{+75}_{-75}$	$\chi_{\text{simall}}^2$	$397.4 (\nu: 1.9)$
$\Omega_{\Lambda}$	$0.690^{+0.019}_{-0.019}$	$k_{\text{eq}}$	$0.01030^{+0.00023}_{-0.00023}$	$\chi_{\text{lowl}}^2$	$23.2 (\nu: 2.1)$
$\Omega_{\text{m}}$	$0.310^{+0.019}_{-0.019}$	$100\theta_{\text{eq}}$	$0.818^{+0.014}_{-0.014}$	$\chi_{\text{plik}}^2$	$773.9 (\nu: 16.1)$
$\Omega_{\text{m}} h^2$	$0.1419^{+0.0031}_{-0.0031}$	$100\theta_{\text{s,eq}}$	$0.4519^{+0.0072}_{-0.0070}$	$\chi_{6\text{DF}}^2$	$0.054 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.0961^{+0.0013}_{-0.0012}$	$H(0.15)$	$73.0^{+1.2}_{-1.2}$	$\chi_{\text{MGS}}^2$	$1.39 (\nu: 0.1)$
$\sigma_8$	$0.808^{+0.021}_{-0.017}$	$D_M(0.15)$	$640^{+12}_{-12}$	$\chi_{\text{DR12BAO}}^2$	$4.7 (\nu: 1.2)$
$S_8$	$0.820^{+0.038}_{-0.037}$	$H(0.38)$	$83.05^{+0.95}_{-0.89}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.9)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.449^{+0.021}_{-0.020}$	$D_M(0.38)$	$1528^{+24}_{-25}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.8)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.603^{+0.020}_{-0.020}$	$H(0.51)$	$89.74^{+0.78}_{-0.74}$	$\chi_{\text{CMB}}^2$	$1194.4 (\nu: 16.6)$
$\sigma_8/h^{0.5}$	$0.982^{+0.030}_{-0.028}$	$D_M(0.51)$	$1979^{+28}_{-29}$		

$$\bar{\chi}_{\text{eff}}^2 = 1207.94; R - 1 = 0.01172$$



## 15.6 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02247^{+0.00061}_{-0.00058}$	$\sigma_8/h^{0.5}$	$0.968^{+0.039}_{-0.041}$	$H(0.51)$	$90.2^{+1.3}_{-1.1}$
$\Omega_{\text{c}}h^2$	$0.1170^{+0.0048}_{-0.0042}$	$r_{\text{drag}}h$	$101.4^{+3.3}_{-3.8}$	$D_{\text{M}}(0.51)$	$1961^{+42}_{-44}$
$100\theta_{\text{MC}}$	$1.0413^{+0.0014}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	$2.386^{+0.094}_{-0.084}$	$H(0.61)$	$95.7^{+1.1}_{-0.87}$
$\tau$	$0.059^{+0.023}_{-0.017}$	$z_{\text{re}}$	$< 9.95$	$D_{\text{M}}(0.61)$	$2284^{+46}_{-48}$
$\ln(10^{10}A_{\text{s}})$	$3.048^{+0.048}_{-0.038}$	$10^9 A_{\text{s}}$	$2.11^{+0.10}_{-0.079}$	$H(2.33)$	$234.7^{+3.0}_{-2.9}$
$n_{\text{s}}$	$0.971^{+0.012}_{-0.014}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.872^{+0.036}_{-0.033}$	$D_{\text{M}}(2.33)$	$5746^{+40}_{-51}$
$\text{d}n_{\text{s}}/\text{d} \ln k$	$-0.009^{+0.020}_{-0.024}$	$D_{40}$	$1220^{+61}_{-49}$	$f\sigma_8(0.15)$	$0.443^{+0.028}_{-0.028}$
$r$	$< 0.264$	$D_{220}$	$5727^{+94}_{-110}$	$\sigma_8(0.15)$	$0.743^{+0.020}_{-0.022}$
$y_{\text{cal}}$	$1.0005^{+0.0062}_{-0.0062}$	$D_{810}$	$2537^{+36}_{-32}$	$f\sigma_8(0.38)$	$0.464^{+0.023}_{-0.024}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$816^{+12}_{-12}$	$\sigma_8(0.38)$	$0.660^{+0.017}_{-0.017}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{2000}$	$229.9^{+4.3}_{-4.7}$	$f\sigma_8(0.51)$	$0.465^{+0.020}_{-0.022}$
$A_{143}^{\text{tSZ}}$	—	$n_{\text{s},0.002}$	$0.999^{+0.075}_{-0.062}$	$\sigma_8(0.51)$	$0.618^{+0.016}_{-0.015}$
$A_{100}^{\text{PS}}$	$263^{+70}_{-70}$	$Y_{\text{P}}$	$0.24543^{+0.00026}_{-0.00025}$	$f\sigma_8(0.61)$	$0.461^{+0.018}_{-0.020}$
$A_{143}^{\text{PS}}$	$49^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24676^{+0.00026}_{-0.00025}$	$\sigma_8(0.61)$	$0.589^{+0.015}_{-0.014}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+30}_{-20}$	$10^5 \text{D}/\text{H}$	$2.57^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	$0.2974^{+0.0074}_{-0.0061}$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30}$	$\text{Age}/\text{Gyr}$	$13.762^{+0.090}_{-0.11}$	$\sigma_8(2.33)$	$0.3072^{+0.0082}_{-0.0056}$
$A^{\text{kSZ}}$	—	$z_*$	$1089.53^{+0.98}_{-0.97}$	$r_{0.002}$	$< 0.299$
$A_{100}^{\text{dustTT}}$	$9.1^{+5.6}_{-5.1}$	$r_*$	$145.1^{+1.2}_{-1.2}$	$r_{0.01}$	$< 0.273$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.3}_{-4.8}$	$100\theta_*$	$1.0415^{+0.0013}_{-0.0012}$	$\ln(10^{10}A_{\text{t}})$	$-0.1^{+2.3}_{-3.9}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.4^{+8.2}_{-7.9}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.93^{+0.11}_{-0.11}$	$r_{10}$	$< 0.161$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$z_{\text{drag}}$	$1060.0^{+1.4}_{-1.2}$	$10^9 A_{\text{t}}$	$< 0.568$
$c_{100}$	$0.9996^{+0.0017}_{-0.0015}$	$r_{\text{drag}}$	$147.8^{+1.3}_{-1.2}$	$10^9 A_{\text{t}}e^{-2\tau}$	$< 0.497$
$c_{217}$	$0.9983^{+0.0016}_{-0.0017}$	$k_{\text{D}}$	$0.1402^{+0.0014}_{-0.0016}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$H_0$	$68.6^{+2.1}_{-2.1}$	$100\theta_{\text{D}}$	$0.16078^{+0.00073}_{-0.00068}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-5}$
$\Omega_{\Lambda}$	$0.702^{+0.023}_{-0.029}$	$z_{\text{eq}}$	$3333^{+110}_{-100}$	$f_{2000}^{217}$	$108.2^{+5.1}_{-4.9}$
$\Omega_{\text{m}}$	$0.298^{+0.029}_{-0.023}$	$k_{\text{eq}}$	$0.01017^{+0.00034}_{-0.00032}$	$\chi_{\text{simall}}^2$	$397.8 (\nu: 2.8)$
$\Omega_{\text{m}}h^2$	$0.1401^{+0.0047}_{-0.0043}$	$100\theta_{\text{eq}}$	$0.827^{+0.019}_{-0.021}$	$\chi_{\text{lowl}}^2$	$22.5 (\nu: 1.6)$
$\Omega_{\text{m}}h^3$	$0.0962^{+0.0014}_{-0.0012}$	$100\theta_{\text{s,eq}}$	$0.456^{+0.010}_{-0.011}$	$\chi_{\text{plik}}^2$	$777.1 (\nu: 21.1)$
$\sigma_8$	$0.802^{+0.023}_{-0.026}$	$H(0.15)$	$73.8^{+1.9}_{-1.8}$	$\chi_{\text{H073p45}}^2$	$8.6 (\nu: 4.3)$
$S_8$	$0.799^{+0.055}_{-0.054}$	$D_{\text{M}}(0.15)$	$633^{+18}_{-18}$	$\chi_{\text{prior}}^2$	$7.5 (\nu: 7.0)$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.438^{+0.030}_{-0.029}$	$H(0.38)$	$83.6^{+1.5}_{-1.3}$	$\chi_{\text{CMB}}^2$	$1197.5 (\nu: 22.3)$
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.593^{+0.028}_{-0.030}$	$D_{\text{M}}(0.38)$	$1512^{+36}_{-37}$		

$$\bar{\chi}_{\text{eff}}^2 = 1213.56; R - 1 = 0.05904$$



## 15.7 base\_nrun\_r\_plikHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022399	$0.02241^{+0.00041}_{-0.00040}$ (+0.9 $\sigma$ )	$\sigma_8$	0.8129	$0.812^{+0.020}_{-0.020}$ (+0.1 $\sigma$ )	$H(0.38)$	82.84	$82.9^{+1.0}_{-0.96}$ (+0.4 $\sigma$ )
$\Omega_c h^2$	0.12022	$0.1202^{+0.0036}_{-0.0036}$ (−0.2 $\sigma$ )	$S_8$	0.8348	$0.833^{+0.043}_{-0.043}$ (−0.1 $\sigma$ )	$D_M(0.38)$	1534.5	$1534^{+27}_{-28}$ (−0.4 $\sigma$ )
$100\theta_{MC}$	1.04090	$1.04091^{+0.00080}_{-0.00085}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4572	$0.456^{+0.024}_{-0.024}$ (−0.1 $\sigma$ )	$H(0.51)$	89.61	$89.64^{+0.81}_{-0.76}$ (+0.5 $\sigma$ )
$\tau$	0.0561	$0.056^{+0.023}_{-0.022}$ (+0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6097	$0.609^{+0.022}_{-0.022}$ (−0.1 $\sigma$ )	$D_M(0.51)$	1987.0	$1986^{+32}_{-32}$ (−0.4 $\sigma$ )
$\ln(10^{10} A_s)$	3.0495	$3.050^{+0.045}_{-0.045}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9910	$0.989^{+0.032}_{-0.032}$ (−0.1 $\sigma$ )	$H(0.61)$	95.27	$95.30^{+0.65}_{-0.61}$ (+0.5 $\sigma$ )
$n_s$	0.9647	$0.964^{+0.012}_{-0.012}$ (+0.3 $\sigma$ )	$r_{drag} h$	98.92	$99.0^{+2.8}_{-2.7}$ (+0.2 $\sigma$ )	$D_M(0.61)$	2311.5	$2311^{+34}_{-35}$ (−0.4 $\sigma$ )
$dn_s/d \ln k$	−0.0044	$−0.009^{+0.019}_{-0.020}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.444	$2.433^{+0.080}_{-0.082}$ (−0.1 $\sigma$ )	$H(2.33)$	236.73	$236.7^{+2.2}_{-2.1}$ (−0.0 $\sigma$ )
$r$	0.000	< 0.223 (+0.2 $\sigma$ )	$z_{re}$	7.86	$7.9^{+2.1}_{-2.3}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5763.3	$5762^{+29}_{-29}$ (−0.6 $\sigma$ )
$y_{cal}$	1.0005	$1.0007^{+0.0066}_{-0.0064}$ (+0.1 $\sigma$ )	$10^9 A_s$	2.110	$2.113^{+0.097}_{-0.093}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4614	$0.461^{+0.022}_{-0.022}$ (−0.1 $\sigma$ )
$A_{217}^{CIB}$	48.9	$48^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8865	$1.888^{+0.032}_{-0.031}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7507	$0.750^{+0.018}_{-0.017}$ (+0.1 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.26	—	$D_{40}$	1221	$1232^{+59}_{-51}$ (−0.0 $\sigma$ )	$f\sigma_8(0.38)$	0.4787	$0.478^{+0.018}_{-0.018}$ (−0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.3	—	$D_{220}$	5730	$5726^{+100}_{-100}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6649	$0.664^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )
$A_{100}^{PS}$	253	$264^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{810}$	2541.9	$2543^{+35}_{-35}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4768	$0.476^{+0.016}_{-0.016}$ (−0.1 $\sigma$ )
$A_{143}^{PS}$	46.8	$49^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{1420}$	817.1	$816^{+13}_{-12}$ (+0.4 $\sigma$ )	$\sigma_8(0.51)$	0.6220	$0.621^{+0.014}_{-0.014}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	44.0	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{2000}$	230.61	$229.9^{+4.8}_{-4.7}$ (+0.5 $\sigma$ )	$f\sigma_8(0.61)$	0.4714	$0.471^{+0.014}_{-0.015}$ (−0.0 $\sigma$ )
$A_{217}^{PS}$	118.0	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$n_{s,0.002}$	0.979	$0.995^{+0.065}_{-0.058}$ (+0.3 $\sigma$ )	$\sigma_8(0.61)$	0.5917	$0.591^{+0.013}_{-0.013}$ (+0.3 $\sigma$ )
$A^{kSZ}$	0.0	—	$Y_P$	0.245407	$0.24541^{+0.00015}_{-0.00016}$ (+0.8 $\sigma$ )	$f\sigma_8(2.33)$	0.2982	$0.2979^{+0.0067}_{-0.0065}$ (+0.3 $\sigma$ )
$A_{100}^{dustTT}$	8.90	$8.9^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	$Y_P^{BBN}$	0.246733	$0.24674^{+0.00015}_{-0.00016}$ (+0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3072	$0.3069^{+0.0070}_{-0.0068}$ (+0.3 $\sigma$ )
$A_{143}^{dustTT}$	11.06	$10.9^{+4.6}_{-4.5}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.580	$2.578^{+0.075}_{-0.073}$ (−0.9 $\sigma$ )	$r_{0.002}$	0.000	< 0.243 (+0.2 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.7	$18.6^{+8.4}_{-8.5}$ (+0.1 $\sigma$ )	Age/Gyr	13.796	$13.794^{+0.065}_{-0.064}$ (−0.6 $\sigma$ )	$r_{0.01}$	0.000	< 0.227 (+0.2 $\sigma$ )
$A_{217}^{dustTT}$	94.6	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_*$	1089.90	$1089.88^{+0.72}_{-0.72}$ (−0.7 $\sigma$ )	$\ln(10^{10} A_t)$	−6.53	$−0.1^{+2.0}_{-3.9}$ (+0.2 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.116^{+0.097}_{-0.096}$	$r_*$	144.35	$144.36^{+0.80}_{-0.80}$ (−0.1 $\sigma$ )	$r_{10}$	0.000	< 0.130 (+0.2 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.136^{+0.075}_{-0.076}$	$100\theta_*$	1.04107	$1.04109^{+0.00079}_{-0.00084}$ (+0.2 $\sigma$ )	$10^9 A_t$	0.000	< 0.475 (+0.2 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.484	$0.48^{+0.22}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	13.866	$13.866^{+0.075}_{-0.075}$ (−0.2 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.000	< 0.420 (+0.2 $\sigma$ )
$A_{143}^{dustTE}$	0.226	$0.23^{+0.14}_{-0.14}$	$z_{drag}$	1060.01	$1060.05^{+0.80}_{-0.84}$ (+0.9 $\sigma$ )	$f_{2000}^{143}$	29.9	$31^{+8}_{-8}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.666	$0.66^{+0.20}_{-0.21}$	$r_{drag}$	147.00	$147.00^{+0.80}_{-0.80}$ (−0.3 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.7	$33^{+6}_{-6}$ (−0.4 $\sigma$ )
$A_{217}^{dustTE}$	2.09	$2.08^{+0.69}_{-0.68}$	$k_D$	0.14098	$0.14099^{+0.00089}_{-0.00089}$ (+0.5 $\sigma$ )	$f_{2000}^{217}$	107.3	$108.1^{+5.2}_{-5.2}$ (−0.4 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_D$	0.160708	$0.16069^{+0.00048}_{-0.00047}$ (−0.9 $\sigma$ )	$\chi_{simall}^2$	396.34	$397.6 (\nu: 2.0)$ (+0.2 $\sigma$ )
$c_{217}$	0.99821	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{eq}$	3408	$3407^{+80}_{-80}$ (−0.1 $\sigma$ )	$\chi_{lowl}^2$	22.29	$23.3 (\nu: 1.7)$ (−0.2 $\sigma$ )
$H_0$	67.29	$67.3^{+1.6}_{-1.6}$ (+0.3 $\sigma$ )	$k_{eq}$	0.010402	$0.01040^{+0.00025}_{-0.00024}$ (−0.1 $\sigma$ )	$\chi_{plik}^2$	2344.9	$2361.1 (\nu: 18.7)$ (+272.2 $\sigma$ )
$\Omega_\Lambda$	0.6836	$0.684^{+0.022}_{-0.023}$ (+0.3 $\sigma$ )	$100\theta_{eq}$	0.8123	$0.813^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )	$\chi_{prior}^2$	1.9	$11.6 (\nu: 10.4)$ (+1.2 $\sigma$ )
$\Omega_m$	0.3164	$0.316^{+0.023}_{-0.022}$ (−0.3 $\sigma$ )	$100\theta_{s,eq}$	0.4488	$0.4490^{+0.0078}_{-0.0076}$ (+0.1 $\sigma$ )	$\chi_{CMB}^2$	2763.6	$2782.0 (\nu: 19.3)$ (+268.9 $\sigma$ )
$\Omega_m h^2$	0.14326	$0.1432^{+0.0034}_{-0.0034}$ (−0.1 $\sigma$ )	$H(0.15)$	72.63	$72.7^{+1.4}_{-1.3}$ (+0.4 $\sigma$ )			
$\Omega_m h^3$	0.09640	$0.09643^{+0.00080}_{-0.00080}$ (+0.7 $\sigma$ )	$D_M(0.15)$	643.9	$644^{+14}_{-14}$ (−0.3 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 2765.44$ ;  $\Delta\chi_{eff}^2 = 1586.03$ ;  $\bar{\chi}_{eff}^2 = 2793.62$ ;  $\Delta\bar{\chi}_{eff}^2 = 1591.66$ ;  $R - 1 = 0.01370$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.35 ( $\Delta$  0.44) commander\_dx12\_v3.2.29: 22.29 ( $\Delta$  -0.44) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.95



## 15.8 base\_nrun\_r\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022443	$0.02247^{+0.00037}_{-0.00036}$ (+0.8 $\sigma$ )	$S_8$	0.8261	$0.824^{+0.034}_{-0.033}$ (+0.2 $\sigma$ )	$H(0.51)$	89.77	$89.82^{+0.62}_{-0.59}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.11944	$0.1193^{+0.0027}_{-0.0026}$ (+0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4525	$0.451^{+0.019}_{-0.018}$ (+0.2 $\sigma$ )	$D_M(0.51)$	1980.2	$1978^{+24}_{-24}$ (−0.1 $\sigma$ )
$100\theta_{MC}$	1.04101	$1.04102^{+0.00074}_{-0.00078}$ (−0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6057	$0.604^{+0.018}_{-0.018}$ (+0.3 $\sigma$ )	$H(0.61)$	95.39	$95.44^{+0.51}_{-0.49}$ (+0.4 $\sigma$ )
$\tau$	0.0568	$0.057^{+0.023}_{-0.022}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9858	$0.984^{+0.027}_{-0.027}$ (+0.3 $\sigma$ )	$D_M(0.61)$	2304.2	$2302^{+26}_{-26}$ (−0.1 $\sigma$ )
$\ln(10^{10} A_s)$	3.0489	$3.051^{+0.046}_{-0.045}$ (+0.3 $\sigma$ )	$r_{drag} h$	99.54	$99.7^{+2.0}_{-2.0}$ (−0.2 $\sigma$ )	$H(2.33)$	236.27	$236.2^{+1.6}_{-1.6}$ (+0.5 $\sigma$ )
$n_s$	0.9667	$0.966^{+0.010}_{-0.011}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.432	$2.420^{+0.070}_{-0.072}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5758.2	$5756^{+26}_{-24}$ (−0.5 $\sigma$ )
$dn_s/d \ln k$	−0.0038	$−0.009^{+0.019}_{-0.021}$ (−0.2 $\sigma$ )	$z_{re}$	7.91	$7.9^{+2.2}_{-2.3}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4571	$0.456^{+0.018}_{-0.017}$ (+0.3 $\sigma$ )
$r$	0.001	< 0.231 (+0.2 $\sigma$ )	$10^9 A_s$	2.109	$2.113^{+0.099}_{-0.093}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7491	$0.748^{+0.017}_{-0.017}$ (+0.3 $\sigma$ )
$y_{cal}$	1.0005	$1.0008^{+0.0064}_{-0.0062}$ (+0.1 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8827	$1.884^{+0.030}_{-0.028}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4754	$0.474^{+0.015}_{-0.015}$ (+0.3 $\sigma$ )
$A_{217}^{CIB}$	48.8	$48^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{40}$	1219	$1230^{+57}_{-50}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6641	$0.663^{+0.015}_{-0.015}$ (+0.3 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.25	—	$D_{220}$	5733	$5729^{+100}_{-98}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4740	$0.473^{+0.014}_{-0.013}$ (+0.3 $\sigma$ )
$A_{143}^{tSZ}$	7.3	—	$D_{810}$	2541.1	$2542^{+36}_{-34}$ (+0.3 $\sigma$ )	$\sigma_8(0.51)$	0.6214	$0.621^{+0.014}_{-0.014}$ (+0.3 $\sigma$ )
$A_{100}^{PS}$	253	$263^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{1420}$	817.7	$817^{+13}_{-13}$ (+0.4 $\sigma$ )	$f\sigma_8(0.61)$	0.4690	$0.468^{+0.013}_{-0.013}$ (+0.3 $\sigma$ )
$A_{143}^{PS}$	45.9	$48^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{2000}$	230.87	$230.2^{+4.6}_{-4.7}$ (+0.5 $\sigma$ )	$\sigma_8(0.61)$	0.5913	$0.591^{+0.014}_{-0.013}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{PS}$	43.2	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$n_{s,0.002}$	0.979	$0.996^{+0.068}_{-0.059}$ (+0.2 $\sigma$ )	$f\sigma_8(2.33)$	0.2981	$0.2979^{+0.0068}_{-0.0065}$ (+0.3 $\sigma$ )
$A_{217}^{PS}$	117.6	$114^{+30}_{-30}$ (+0.0 $\sigma$ )	$Y_P$	0.245424	$0.24543^{+0.00014}_{-0.00014}$ (+0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3074	$0.3072^{+0.0071}_{-0.0067}$ (+0.3 $\sigma$ )
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246750	$0.24676^{+0.00014}_{-0.00014}$ (+0.8 $\sigma$ )	$r_{0.002}$	0.001	< 0.254 (+0.2 $\sigma$ )
$A_{100}^{dustTT}$	8.89	$8.9^{+4.7}_{-4.8}$ (−0.0 $\sigma$ )	$10^5 D/H$	2.572	$2.567^{+0.067}_{-0.066}$ (−0.8 $\sigma$ )	$r_{0.01}$	0.001	< 0.236 (+0.2 $\sigma$ )
$A_{143}^{dustTT}$	11.01	$11.0^{+4.6}_{-4.5}$ (+0.1 $\sigma$ )	Age/Gyr	13.785	$13.781^{+0.054}_{-0.054}$ (−0.5 $\sigma$ )	$\ln(10^{10} A_t)$	−3.97	$0.0^{+2.0}_{-4.0}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.6	$18.6^{+8.5}_{-8.4}$ (+0.1 $\sigma$ )	$z_*$	1089.78	$1089.73^{+0.59}_{-0.58}$ (−0.6 $\sigma$ )	$r_{10}$	0.000	< 0.135 (+0.2 $\sigma$ )
$A_{217}^{dustTT}$	94.5	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	$r_*$	144.52	$144.54^{+0.63}_{-0.63}$ (−0.7 $\sigma$ )	$10^9 A_t$	0.002	< 0.492 (+0.2 $\sigma$ )
$A_{100}^{dustTE}$	0.115	$0.116^{+0.096}_{-0.096}$	$100\theta_*$	1.04118	$1.04119^{+0.00073}_{-0.00077}$ (−0.0 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.002	< 0.435 (+0.2 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.074}_{-0.075}$	$D_M(z_*)/\text{Gpc}$	13.881	$13.882^{+0.060}_{-0.061}$ (−0.6 $\sigma$ )	$f_{2000}^{143}$	29.5	$31^{+8}_{-8}$ (−0.4 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.478	$0.48^{+0.22}_{-0.21}$	$z_{drag}$	1060.05	$1060.12^{+0.80}_{-0.76}$ (+0.9 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.4	$33^{+6}_{-6}$ (−0.4 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.22^{+0.14}_{-0.14}$	$r_{drag}$	147.16	$147.17^{+0.65}_{-0.66}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	107.1	$107.9^{+5.2}_{-5.1}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.664	$0.66^{+0.19}_{-0.21}$	$k_D$	0.14085	$0.14086^{+0.00081}_{-0.00082}$ (+0.9 $\sigma$ )	$\chi_{small}^2$	396.4	$397.8 (\nu: 2.3)$ (+0.2 $\sigma$ )
$A_{217}^{dustTE}$	2.07	$2.07^{+0.70}_{-0.67}$	$100\theta_D$	0.160689	$0.16066^{+0.00046}_{-0.00046}$ (−0.9 $\sigma$ )	$\chi_{lowl}^2$	22.15	$23.1 (\nu: 1.6)$ (−0.0 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{eq}$	3390	$3387^{+61}_{-59}$ (+0.4 $\sigma$ )	$\chi_{plik}^2$	2345.5	$2361.2 (\nu: 19.1)$ (+279.5 $\sigma$ )
$c_{217}$	0.99821	$0.9982^{+0.0015}_{-0.0016}$ (−0.1 $\sigma$ )	$k_{eq}$	0.010348	$0.01034^{+0.00019}_{-0.00018}$ (+0.4 $\sigma$ )	$\chi_{6DF}^2$	0.038	$0.053 (\nu: 0.0)$ (−0.0 $\sigma$ )
$H_0$	67.64	$67.7^{+1.2}_{-1.2}$ (+0.1 $\sigma$ )	$100\theta_{eq}$	0.8157	$0.816^{+0.011}_{-0.011}$ (−0.3 $\sigma$ )	$\chi_{MGS}^2$	1.16	$1.29 (\nu: 0.1)$ (−0.2 $\sigma$ )
$\Omega_\Lambda$	0.6885	$0.690^{+0.015}_{-0.016}$ (−0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4506	$0.4509^{+0.0057}_{-0.0058}$ (−0.4 $\sigma$ )	$\chi_{DR12BAO}^2$	4.63	$4.8 (\nu: 1.0)$ (+0.1 $\sigma$ )
$\Omega_m$	0.3115	$0.310^{+0.016}_{-0.015}$ (+0.1 $\sigma$ )	$H(0.15)$	72.93	$73.0^{+1.0}_{-1.0}$ (+0.1 $\sigma$ )	$\chi_{prior}^2$	1.8	$11.6 (\nu: 10.2)$ (+1.1 $\sigma$ )
$\Omega_m h^2$	0.14252	$0.1424^{+0.0026}_{-0.0025}$ (+0.4 $\sigma$ )	$D_M(0.15)$	640.9	$640^{+10}_{-9.9}$ (−0.1 $\sigma$ )	$\chi_{BAO}^2$	5.82	$6.1 (\nu: 0.7)$ (−0.0 $\sigma$ )
$\Omega_m h^3$	0.09640	$0.09643^{+0.00080}_{-0.00077}$ (+0.8 $\sigma$ )	$H(0.38)$	83.05	$83.11^{+0.76}_{-0.74}$ (+0.2 $\sigma$ )	$\chi_{CMB}^2$	2764.1	$2782.0 (\nu: 19.4)$ (+274.0 $\sigma$ )
$\sigma_8$	0.8107	$0.810^{+0.019}_{-0.019}$ (+0.3 $\sigma$ )	$D_M(0.38)$	1528.6	$1527^{+20}_{-20}$ (−0.1 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 2771.67$ ;  $\Delta\chi_{eff}^2 = 1585.93$ ;  $\bar{\chi}_{eff}^2 = 2799.74$ ;  $\Delta\bar{\chi}_{eff}^2 = 1591.62$ ;  $R - 1 = 0.01808$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.04 ( $\Delta$  0.02) MGS: 1.16 ( $\Delta$  -0.19) DR12BAO: 4.63 ( $\Delta$  0.55) CMB - small\_100x143\_offlike5\_EE\_Aplanck.B: 396.43 ( $\Delta$  0.48) commander\_dx12\_v3\_2\_29: 22.15 ( $\Delta$  -0.07) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.48



## 15.9 base\_nrun\_r\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.022512	$0.02255^{+0.00035}_{-0.00038}$ (+0.4 $\sigma$ )	$\Omega_{\text{m}}h^3$	0.09644	$0.09648^{+0.00078}_{-0.00078}$ (+0.6 $\sigma$ )	$H(0.15)$	73.22	$73.3^{+1.3}_{-1.3}$ (−0.6 $\sigma$ )
$\Omega_{\text{c}}h^2$	0.11871	$0.1185^{+0.0034}_{-0.0034}$ (+0.8 $\sigma$ )	$\sigma_8$	0.8089	$0.808^{+0.021}_{-0.022}$ (+0.6 $\sigma$ )	$D_{\text{M}}(0.15)$	638.0	$637^{+13}_{-13}$ (+0.6 $\sigma$ )
$100\theta_{\text{MC}}$	1.04108	$1.04112^{+0.00076}_{-0.00082}$ (−0.4 $\sigma$ )	$S_8$	0.8183	$0.815^{+0.041}_{-0.043}$ (+0.8 $\sigma$ )	$H(0.38)$	83.26	$83.34^{+0.97}_{-0.94}$ (−0.5 $\sigma$ )
$\tau$	0.0578	$0.059^{+0.025}_{-0.022}$ (+0.0 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4482	$0.446^{+0.022}_{-0.024}$ (+0.8 $\sigma$ )	$D_{\text{M}}(0.38)$	1522.8	$1521^{+26}_{-26}$ (+0.6 $\sigma$ )
$\ln(10^{10}A_{\text{s}})$	3.0493	$3.051^{+0.049}_{-0.046}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.6021	$0.600^{+0.021}_{-0.022}$ (+0.8 $\sigma$ )	$H(0.51)$	89.94	$90.01^{+0.76}_{-0.74}$ (−0.5 $\sigma$ )
$n_{\text{s}}$	0.9688	$0.968^{+0.011}_{-0.012}$ (−0.4 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9811	$0.979^{+0.031}_{-0.032}$ (+0.7 $\sigma$ )	$D_{\text{M}}(0.51)$	1973.3	$1971^{+30}_{-30}$ (+0.6 $\sigma$ )
$\text{d}n_{\text{s}}/\text{d}\ln k$	−0.0033	$−0.009^{+0.019}_{-0.021}$ (−0.1 $\sigma$ )	$r_{\text{drag}}h$	100.12	$100.3^{+2.7}_{-2.6}$ (−0.8 $\sigma$ )	$H(0.61)$	95.53	$95.58^{+0.60}_{-0.60}$ (−0.4 $\sigma$ )
$r$	0.001	< 0.238 (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.422	$2.408^{+0.077}_{-0.089}$ (+0.7 $\sigma$ )	$D_{\text{M}}(0.61)$	2296.8	$2294^{+33}_{-33}$ (+0.6 $\sigma$ )
$y_{\text{cal}}$	1.0006	$1.0008^{+0.0061}_{-0.0059}$ (+0.1 $\sigma$ )	$z_{\text{re}}$	7.98	$8.0^{+2.3}_{-2.3}$ (+0.1 $\sigma$ )	$H(2.33)$	235.87	$235.8^{+2.1}_{-2.1}$ (+0.9 $\sigma$ )
$A_{217}^{\text{CIB}}$	47.3	$48^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_{\text{s}}$	2.110	$2.11^{+0.10}_{-0.095}$ (+0.3 $\sigma$ )	$D_{\text{M}}(2.33)$	5752.4	$5750^{+27}_{-25}$ (+0.2 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.45	—	$10^9 A_{\text{s}}e^{-2\tau}$	1.8798	$1.881^{+0.031}_{-0.027}$ (+0.6 $\sigma$ )	$f\sigma_8(0.15)$	0.4531	$0.451^{+0.021}_{-0.022}$ (+0.8 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.2	—	$D_{40}$	1216	$1227^{+58}_{-47}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7480	$0.747^{+0.018}_{-0.019}$ (+0.6 $\sigma$ )
$A_{100}^{\text{PS}}$	250	$263^{+70}_{-70}$ (−0.0 $\sigma$ )	$D_{220}$	5738	$5734^{+98}_{-96}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4725	$0.471^{+0.017}_{-0.018}$ (+0.8 $\sigma$ )
$A_{143}^{\text{PS}}$	48.1	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{810}$	2541.3	$2542^{+35}_{-32}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6635	$0.663^{+0.016}_{-0.017}$ (+0.5 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	48.3	$42^{+20}_{-20}$ (−0.0 $\sigma$ )	$D_{1420}$	818.7	$817^{+14}_{-12}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4716	$0.470^{+0.015}_{-0.016}$ (+0.8 $\sigma$ )
$A_{217}^{\text{PS}}$	119.7	$114^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{2000}$	231.32	$230.5^{+5.2}_{-4.7}$ (+0.3 $\sigma$ )	$\sigma_8(0.51)$	0.6211	$0.620^{+0.015}_{-0.016}$ (+0.4 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$n_{\text{s},0.002}$	0.979	$0.999^{+0.068}_{-0.058}$ (+0.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4670	$0.466^{+0.014}_{-0.015}$ (+0.7 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.90	$9.0^{+4.7}_{-4.9}$ (−0.0 $\sigma$ )	$Y_{\text{P}}$	0.245449	$0.24546^{+0.00014}_{-0.00015}$ (+0.3 $\sigma$ )	$\sigma_8(0.61)$	0.5911	$0.590^{+0.014}_{-0.015}$ (+0.4 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.05	$11.0^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.246775	$0.24679^{+0.00014}_{-0.00015}$ (+0.3 $\sigma$ )	$f\sigma_8(2.33)$	0.2982	$0.2980^{+0.0073}_{-0.0070}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.9	$18.6^{+9.2}_{-8.2}$ (+0.1 $\sigma$ )	$10^5 \text{D/H}$	2.560	$2.554^{+0.071}_{-0.063}$ (−0.4 $\sigma$ )	$\sigma_8(2.33)$	0.3077	$0.3074^{+0.0079}_{-0.0070}$ (+0.2 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.1	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.773	$13.767^{+0.061}_{-0.054}$ (+0.1 $\sigma$ )	$r_{0.002}$	0.000	< 0.265 (+0.1 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.096}_{-0.094}$	$z_*$	1089.63	$1089.57^{+0.69}_{-0.62}$ (+0.1 $\sigma$ )	$r_{0.01}$	0.000	< 0.245 (+0.1 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.136^{+0.075}_{-0.079}$	$r_*$	144.66	$144.69^{+0.84}_{-0.78}$ (−1.0 $\sigma$ )	$\ln(10^{10}A_{\text{t}})$	−4.52	$0.0^{+2.0}_{-3.8}$ (+0.1 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	1.04126	$1.04129^{+0.00076}_{-0.00080}$ (−0.5 $\sigma$ )	$r_{10}$	0.000	< 0.143 (+0.1 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.224	$0.23^{+0.13}_{-0.14}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.892	$13.895^{+0.081}_{-0.073}$ (−0.9 $\sigma$ )	$10^9 A_{\text{t}}$	0.001	< 0.512 (+0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.662	$0.66^{+0.20}_{-0.20}$	$z_{\text{drag}}$	1060.16	$1060.24^{+0.76}_{-0.80}$ (+0.6 $\sigma$ )	$10^9 A_{\text{t}}e^{-2\tau}$	0.001	< 0.451 (+0.1 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.06	$2.06^{+0.71}_{-0.67}$	$r_{\text{drag}}$	147.28	$147.29^{+0.87}_{-0.79}$ (−1.0 $\sigma$ )	$\chi_{\text{simall}}^2$	396.6	$398.0 (\nu: 2.9)$ (+0.1 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{\text{D}}$	0.14078	$0.14079^{+0.00088}_{-0.00090}$ (+1.0 $\sigma$ )	$\chi_{\text{lowl}}^2$	21.95	$22.9 (\nu: 1.4)$ (+0.2 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{\text{D}}$	0.160631	$0.16060^{+0.00046}_{-0.00044}$ (−0.7 $\sigma$ )	$\chi_{\text{plik}}^2$	2346.6	$2362.7 (\nu: 21.6)$ (+243.2 $\sigma$ )
$H_0$	67.98	$68.1^{+1.5}_{-1.5}$ (−0.6 $\sigma$ )	$z_{\text{eq}}$	3375	$3371^{+78}_{-80}$ (+0.9 $\sigma$ )	$\chi_{\text{H073p45}}^2$	10.9	$10.5 (\nu: 2.6)$ (+0.6 $\sigma$ )
$\Omega_{\Lambda}$	0.6930	$0.694^{+0.020}_{-0.021}$ (−0.7 $\sigma$ )	$k_{\text{eq}}$	0.010300	$0.01029^{+0.00024}_{-0.00024}$ (+0.9 $\sigma$ )	$\chi_{\text{prior}}^2$	1.7	$11.5 (\nu: 10.1)$ (+1.1 $\sigma$ )
$\Omega_{\text{m}}$	0.3070	$0.306^{+0.021}_{-0.020}$ (+0.7 $\sigma$ )	$100\theta_{\text{eq}}$	0.8187	$0.820^{+0.015}_{-0.014}$ (−0.8 $\sigma$ )	$\chi_{\text{CMB}}^2$	2765.1	$2783.5 (\nu: 21.7)$ (+236.5 $\sigma$ )
$\Omega_{\text{m}}h^2$	0.14187	$0.1417^{+0.0033}_{-0.0033}$ (+0.9 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4521	$0.4526^{+0.0078}_{-0.0075}$ (−0.8 $\sigma$ )			

Best-fit  $\chi_{\text{eff}}^2 = 2777.70$ ;  $\Delta\chi_{\text{eff}}^2 = 1586.20$ ;  $\bar{\chi}_{\text{eff}}^2 = 2805.57$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.84$ ;  $R - 1 = 0.02989$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.57 ( $\Delta$  0.30) commander\_dx12\_v3.2.29: 21.95 ( $\Delta$  0.12) plik\_rd12\_HM\_v22b\_TTTEEE: 2346.61 Hubble - H073p45: 10.85 ( $\Delta$  1.71)



# 15.10 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02242^{+0.00040}_{-0.00040} \quad (+0.8\sigma)$	$\sigma_8$	$0.812^{+0.020}_{-0.018} \quad (+0.0\sigma)$	$H(0.38)$	$82.9^{+1.0}_{-0.95} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1201^{+0.0036}_{-0.0035} \quad (-0.1\sigma)$	$S_8$	$0.834^{+0.043}_{-0.042} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1534^{+27}_{-27} \quad (-0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00080}_{-0.00085} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.023}_{-0.023} \quad (-0.1\sigma)$	$H(0.51)$	$89.64^{+0.81}_{-0.75} \quad (+0.4\sigma)$
$\tau$	$0.057^{+0.020}_{-0.015} \quad (+0.3\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.022}_{-0.022} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1986^{+32}_{-32} \quad (-0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.052^{+0.044}_{-0.034} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.990^{+0.031}_{-0.031} \quad (-0.1\sigma)$	$H(0.61)$	$95.30^{+0.65}_{-0.61} \quad (+0.5\sigma)$
$n_{\mathrm{s}}$	$0.964^{+0.012}_{-0.012} \quad (+0.3\sigma)$	$r_{\mathrm{drag}} h$	$99.0^{+2.8}_{-2.7} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2310^{+34}_{-34} \quad (-0.4\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.0095^{+0.018}_{-0.020} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.080}_{-0.079} \quad (-0.1\sigma)$	$H(2.33)$	$236.7^{+2.2}_{-2.1} \quad (+0.0\sigma)$
$r$	$< 0.223 \quad (+0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.75 \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5762^{+29}_{-29} \quad (-0.6\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0064} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.116^{+0.094}_{-0.071} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.461^{+0.022}_{-0.022} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.888^{+0.032}_{-0.031} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.750^{+0.017}_{-0.016} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{40}$	$1232^{+59}_{-51} \quad (-0.0\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.018}_{-0.018} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{220}$	$5726^{+100}_{-100} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.665^{+0.015}_{-0.013} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-70} \quad (-0.1\sigma)$	$D_{810}$	$2543^{+35}_{-35} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.476^{+0.016}_{-0.016} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20} \quad (-0.3\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.4\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.014}_{-0.011} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$229.9^{+4.8}_{-4.7} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	$0.471^{+0.014}_{-0.014} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.995^{+0.065}_{-0.057} \quad (+0.2\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.013}_{-0.011} \quad (+0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00015}_{-0.00016} \quad (+0.8\sigma)$	$f\sigma_8(2.33)$	$0.2981^{+0.0065}_{-0.0051} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00015}_{-0.00016} \quad (+0.8\sigma)$	$\sigma_8(2.33)$	$0.3072^{+0.0068}_{-0.0053} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.7}_{-4.5} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.577^{+0.075}_{-0.072} \quad (-0.8\sigma)$	$r_{0.002}$	$< 0.244 \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.7^{+8.4}_{-8.5} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.793^{+0.064}_{-0.064} \quad (-0.6\sigma)$	$r_{0.01}$	$< 0.227 \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20} \quad (+0.0\sigma)$	$z_*$	$1089.87^{+0.72}_{-0.72} \quad (-0.7\sigma)$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.1^{+2.0}_{-3.9} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.116^{+0.097}_{-0.095}$	$r_*$	$144.36^{+0.80}_{-0.80} \quad (-0.2\sigma)$	$r_{10}$	$< 0.130 \quad (+0.2\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.136^{+0.075}_{-0.076}$	$100\theta_*$	$1.04109^{+0.00079}_{-0.00084} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.477 \quad (+0.2\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.866^{+0.075}_{-0.075} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.421 \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1060.06^{+0.83}_{-0.81} \quad (+0.9\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.20}_{-0.21}$	$r_{\mathrm{drag}}$	$147.00^{+0.80}_{-0.80} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-6} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.69}_{-0.68}$	$k_{\mathrm{D}}$	$0.14099^{+0.00089}_{-0.00089} \quad (+0.5\sigma)$	$f_{2000}^{217}$	$108.1^{+5.1}_{-5.2} \quad (-0.4\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16069^{+0.00047}_{-0.00047} \quad (-0.9\sigma)$	$\chi_{\mathrm{small}}^2$	$397.6 \quad (\nu: 2.0) \quad (+0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3407^{+80}_{-80} \quad (-0.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.3 \quad (\nu: 1.7) \quad (-0.2\sigma)$
$H_0$	$67.3^{+1.6}_{-1.6} \quad (+0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01040^{+0.00025}_{-0.00024} \quad (-0.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.9 \quad (\nu: 18.5) \quad (+271.9\sigma)$
$\Omega_{\Lambda}$	$0.684^{+0.021}_{-0.023} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.316^{+0.023}_{-0.021} \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4490^{+0.0077}_{-0.0076} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2781.8 \quad (\nu: 18.9) \quad (+270.9\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1432^{+0.0034}_{-0.0033} \quad (-0.0\sigma)$	$H(0.15)$	$72.7^{+1.4}_{-1.3} \quad (+0.3\sigma)$		
$\Omega_{\mathrm{m}} h^3$	$0.09643^{+0.00081}_{-0.00080} \quad (+0.7\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+14}_{-14} \quad (-0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2793.42; \Delta \bar{\chi}_{\mathrm{eff}}^2 = 1591.70; R - 1 = 0.01323$$



### 15.11 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02248^{+0.00037}_{-0.00035} \quad (+0.8\sigma)$	$S_8$	$0.824^{+0.034}_{-0.032} \quad (+0.2\sigma)$	$H(0.51)$	$89.82^{+0.62}_{-0.59} \quad (+0.3\sigma)$
$\Omega_c h^2$	$0.1193^{+0.0027}_{-0.0026} \quad (+0.3\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.018}_{-0.017} \quad (+0.2\sigma)$	$D_M(0.51)$	$1978^{+24}_{-24} \quad (-0.1\sigma)$
$100\theta_{MC}$	$1.04102^{+0.00074}_{-0.00078} \quad (-0.0\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.605^{+0.018}_{-0.017} \quad (+0.3\sigma)$	$H(0.61)$	$95.44^{+0.51}_{-0.49} \quad (+0.4\sigma)$
$\tau$	$0.058^{+0.020}_{-0.016} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.027}_{-0.026} \quad (+0.2\sigma)$	$D_M(0.61)$	$2302^{+25}_{-26} \quad (-0.1\sigma)$
$\ln(10^{10} A_s)$	$3.052^{+0.045}_{-0.035} \quad (+0.3\sigma)$	$r_{drag} h$	$99.7^{+2.0}_{-2.0} \quad (-0.2\sigma)$	$H(2.33)$	$236.2^{+1.6}_{-1.6} \quad (+0.5\sigma)$
$n_s$	$0.967^{+0.010}_{-0.010} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.422^{+0.069}_{-0.067} \quad (+0.2\sigma)$	$D_M(2.33)$	$5756^{+24}_{-24} \quad (-0.5\sigma)$
$dn_s/d \ln k$	$-0.009^{+0.018}_{-0.021} \quad (-0.2\sigma)$	$z_{re}$	$< 9.84 \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.017}_{-0.016} \quad (+0.2\sigma)$
$r$	$< 0.233 \quad (+0.2\sigma)$	$10^9 A_s$	$2.116^{+0.096}_{-0.073} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.017}_{-0.015} \quad (+0.3\sigma)$
$y_{cal}$	$1.0007^{+0.0064}_{-0.0062} \quad (+0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.884^{+0.030}_{-0.028} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.015}_{-0.014} \quad (+0.3\sigma)$
$A_{217}^{CIB}$	$48^{+20}_{-20} \quad (-0.1\sigma)$	$D_{40}$	$1230^{+57}_{-50} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.015}_{-0.012} \quad (+0.3\sigma)$
$\xi^{tSZ \times CIB}$	—	$D_{220}$	$5729^{+100}_{-98} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.013}_{-0.013} \quad (+0.3\sigma)$
$A_{143}^{tSZ}$	—	$D_{810}$	$2542^{+36}_{-34} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.011} \quad (+0.3\sigma)$
$A_{100}^{PS}$	$263^{+70}_{-70} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+13}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.012}_{-0.012} \quad (+0.3\sigma)$
$A_{143}^{PS}$	$48^{+20}_{-20} \quad (-0.3\sigma)$	$D_{2000}$	$230.2^{+4.6}_{-4.7} \quad (+0.5\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.013}_{-0.011} \quad (+0.3\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$n_{s,0.002}$	$0.997^{+0.068}_{-0.058} \quad (+0.2\sigma)$	$f\sigma_8(2.33)$	$0.2981^{+0.0067}_{-0.0053} \quad (+0.3\sigma)$
$A_{217}^{PS}$	$114^{+30}_{-30} \quad (+0.0\sigma)$	$Y_P$	$0.24543^{+0.00014}_{-0.00014} \quad (+0.8\sigma)$	$\sigma_8(2.33)$	$0.3074^{+0.0069}_{-0.0054} \quad (+0.3\sigma)$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.24676^{+0.00014}_{-0.00014} \quad (+0.8\sigma)$	$r_{0.002}$	$< 0.254 \quad (+0.2\sigma)$
$A_{100}^{dustTT}$	$8.9^{+4.6}_{-4.8} \quad (-0.0\sigma)$	$10^5 D/H$	$2.567^{+0.066}_{-0.065} \quad (-0.8\sigma)$	$r_{0.01}$	$< 0.237 \quad (+0.2\sigma)$
$A_{143}^{dustTT}$	$11.0^{+4.7}_{-4.5} \quad (+0.1\sigma)$	$Age/Gyr$	$13.781^{+0.054}_{-0.054} \quad (-0.5\sigma)$	$\ln(10^{10} A_t)$	$0.0^{+2.0}_{-4.0} \quad (+0.2\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.6^{+8.6}_{-8.4} \quad (+0.1\sigma)$	$z_*$	$1089.72^{+0.59}_{-0.58} \quad (-0.6\sigma)$	$r_{10}$	$< 0.135 \quad (+0.2\sigma)$
$A_{217}^{dustTT}$	$93^{+20}_{-20} \quad (+0.0\sigma)$	$r_*$	$144.54^{+0.62}_{-0.63} \quad (-0.7\sigma)$	$10^9 A_t$	$< 0.493 \quad (+0.2\sigma)$
$A_{100}^{dustTE}$	$0.116^{+0.096}_{-0.095}$	$100\theta_*$	$1.04119^{+0.00074}_{-0.00077} \quad (-0.1\sigma)$	$10^9 A_t e^{-2\tau}$	$< 0.437 \quad (+0.2\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.074}_{-0.075}$	$D_M(z_*)/Gpc$	$13.882^{+0.060}_{-0.061} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} \quad (-0.4\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.21}$	$z_{drag}$	$1060.13^{+0.80}_{-0.77} \quad (+0.9\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6} \quad (-0.4\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.14}$	$r_{drag}$	$147.17^{+0.65}_{-0.66} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$107.9^{+5.2}_{-5.1} \quad (-0.3\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.19}_{-0.21}$	$k_D$	$0.14086^{+0.00081}_{-0.00081} \quad (+0.9\sigma)$	$\chi_{small}^2$	$397.7 \quad (\nu: 2.3) \quad (+0.2\sigma)$
$A_{217}^{dustTE}$	$2.07^{+0.70}_{-0.68}$	$100\theta_D$	$0.16065^{+0.00045}_{-0.00045} \quad (-0.9\sigma)$	$\chi_{lowl}^2$	$23.1 \quad (\nu: 1.6) \quad (-0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{eq}$	$3387^{+61}_{-58} \quad (+0.4\sigma)$	$\chi_{plik}^2$	$2361.0 \quad (\nu: 18.8) \quad (+279.7\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016} \quad (-0.1\sigma)$	$k_{eq}$	$0.01034^{+0.00019}_{-0.00018} \quad (+0.4\sigma)$	$\chi_{6DF}^2$	$0.053 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$H_0$	$67.7^{+1.2}_{-1.2} \quad (+0.0\sigma)$	$100\theta_{eq}$	$0.816^{+0.011}_{-0.011} \quad (-0.3\sigma)$	$\chi_{MGS}^2$	$1.29 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_\Lambda$	$0.690^{+0.015}_{-0.016} \quad (-0.1\sigma)$	$100\theta_{s,eq}$	$0.4509^{+0.0057}_{-0.0058} \quad (-0.4\sigma)$	$\chi_{DR12BAO}^2$	$4.8 \quad (\nu: 1.0) \quad (+0.1\sigma)$
$\Omega_m$	$0.310^{+0.016}_{-0.015} \quad (+0.1\sigma)$	$H(0.15)$	$73.0^{+1.0}_{-1.0} \quad (+0.1\sigma)$	$\chi_{prior}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.1\sigma)$
$\Omega_m h^2$	$0.1424^{+0.0025}_{-0.0024} \quad (+0.4\sigma)$	$D_M(0.15)$	$640^{+10}_{-9.9} \quad (-0.1\sigma)$	$\chi_{BAO}^2$	$6.1 \quad (\nu: 0.6) \quad (+0.0\sigma)$
$\Omega_m h^3$	$0.09644^{+0.00081}_{-0.00078} \quad (+0.7\sigma)$	$H(0.38)$	$83.11^{+0.76}_{-0.74} \quad (+0.2\sigma)$	$\chi_{CMB}^2$	$2781.9 \quad (\nu: 18.9) \quad (+275.3\sigma)$
$\sigma_8$	$0.810^{+0.019}_{-0.017} \quad (+0.3\sigma)$	$D_M(0.38)$	$1527^{+20}_{-20} \quad (-0.1\sigma)$		

$$\bar{\chi}_{eff}^2 = 2799.55; \Delta \bar{\chi}_{eff}^2 = 1591.61; R - 1 = 0.01821$$



# 15.12 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02255^{+0.00035}_{-0.00038} \quad (+0.3\sigma)$	$\sigma_8$	$0.808^{+0.020}_{-0.017} \quad (+0.7\sigma)$	$H(0.38)$	$83.34^{+0.97}_{-0.93} \quad (-0.6\sigma)$
$\Omega_c h^2$	$0.1185^{+0.0034}_{-0.0034} \quad (+0.8\sigma)$	$S_8$	$0.816^{+0.041}_{-0.041} \quad (+0.8\sigma)$	$D_M(0.38)$	$1521^{+26}_{-26} \quad (+0.6\sigma)$
$100\theta_{MC}$	$1.04112^{+0.00077}_{-0.00082} \quad (-0.5\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.447^{+0.022}_{-0.023} \quad (+0.8\sigma)$	$H(0.51)$	$90.01^{+0.76}_{-0.74} \quad (-0.5\sigma)$
$\tau$	$0.059^{+0.022}_{-0.017} \quad (+0.0\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.601^{+0.021}_{-0.021} \quad (+0.8\sigma)$	$D_M(0.51)$	$1971^{+30}_{-30} \quad (+0.6\sigma)$
$\ln(10^{10} A_s)$	$3.053^{+0.047}_{-0.035} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.979^{+0.030}_{-0.030} \quad (+0.7\sigma)$	$H(0.61)$	$95.59^{+0.60}_{-0.59} \quad (-0.4\sigma)$
$n_s$	$0.968^{+0.011}_{-0.012} \quad (-0.5\sigma)$	$r_{drag} h$	$100.3^{+2.7}_{-2.6} \quad (-0.8\sigma)$	$D_M(0.61)$	$2294^{+32}_{-33} \quad (+0.6\sigma)$
$dn_s/d \ln k$	$-0.0095^{+0.019}_{-0.021} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.410^{+0.076}_{-0.081} \quad (+0.7\sigma)$	$H(2.33)$	$235.8^{+2.1}_{-2.1} \quad (+0.9\sigma)$
$r$	$< 0.239 \quad (+0.1\sigma)$	$z_{re}$	$< 10.1 \quad (+0.0\sigma)$	$D_M(2.33)$	$5750^{+27}_{-25} \quad (+0.2\sigma)$
$y_{cal}$	$1.0008^{+0.0061}_{-0.0060} \quad (+0.1\sigma)$	$10^9 A_s$	$2.12^{+0.10}_{-0.074} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.452^{+0.021}_{-0.021} \quad (+0.8\sigma)$
$A_{217}^{CIB}$	$48^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.881^{+0.031}_{-0.026} \quad (+0.6\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.018}_{-0.015} \quad (+0.6\sigma)$
$\xi^{tSZ \times CIB}$	—	$D_{40}$	$1227^{+58}_{-47} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.471^{+0.017}_{-0.018} \quad (+0.8\sigma)$
$A_{143}^{tSZ}$	—	$D_{220}$	$5734^{+98}_{-96} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.012} \quad (+0.5\sigma)$
$A_{100}^{PS}$	$263^{+70}_{-70} \quad (-0.0\sigma)$	$D_{810}$	$2542^{+35}_{-32} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.015} \quad (+0.8\sigma)$
$A_{143}^{PS}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$817^{+14}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.015}_{-0.012} \quad (+0.5\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.0\sigma)$	$D_{2000}$	$230.5^{+5.2}_{-4.7} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.014} \quad (+0.8\sigma)$
$A_{217}^{PS}$	$114^{+30}_{-30} \quad (+0.0\sigma)$	$n_{s,0.002}$	$0.999^{+0.068}_{-0.057} \quad (-0.0\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.014}_{-0.011} \quad (+0.4\sigma)$
$A^{kSZ}$	—	$Y_P$	$0.24546^{+0.00014}_{-0.00015} \quad (+0.3\sigma)$	$f\sigma_8(2.33)$	$0.2982^{+0.0071}_{-0.0052} \quad (+0.3\sigma)$
$A_{100}^{dustTT}$	$9.0^{+4.5}_{-4.8} \quad (-0.1\sigma)$	$Y_P^{BBN}$	$0.24679^{+0.00014}_{-0.00015} \quad (+0.3\sigma)$	$\sigma_8(2.33)$	$0.3077^{+0.0078}_{-0.0054} \quad (+0.2\sigma)$
$A_{143}^{dustTT}$	$11.0^{+4.6}_{-4.4} \quad (+0.1\sigma)$	$10^5 D/H$	$2.554^{+0.071}_{-0.063} \quad (-0.3\sigma)$	$r_{0.002}$	$< 0.269 \quad (+0.1\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.6^{+9.2}_{-8.2} \quad (+0.1\sigma)$	$Age/Gyr$	$13.767^{+0.061}_{-0.054} \quad (+0.2\sigma)$	$r_{0.01}$	$< 0.246 \quad (+0.1\sigma)$
$A_{217}^{dustTT}$	$93^{+20}_{-20} \quad (-0.0\sigma)$	$z_*$	$1089.57^{+0.68}_{-0.63} \quad (+0.1\sigma)$	$\ln(10^{10} A_t)$	$0.0^{+2.0}_{-3.8} \quad (+0.1\sigma)$
$A_{100}^{dustTE}$	$0.114^{+0.096}_{-0.094}$	$r_*$	$144.68^{+0.84}_{-0.77} \quad (-1.0\sigma)$	$r_{10}$	$< 0.145 \quad (+0.1\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.076}_{-0.079}$	$100\theta_*$	$1.04128^{+0.00076}_{-0.00080} \quad (-0.5\sigma)$	$10^9 A_t$	$< 0.513 \quad (+0.1\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.21}_{-0.22}$	$D_M(z_*)/Gpc$	$13.895^{+0.081}_{-0.073} \quad (-0.9\sigma)$	$10^9 A_t e^{-2\tau}$	$< 0.451 \quad (+0.1\sigma)$
$A_{143}^{dustTE}$	$0.23^{+0.13}_{-0.14}$	$z_{drag}$	$1060.24^{+0.76}_{-0.80} \quad (+0.6\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} \quad (-0.3\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.20}_{-0.20}$	$r_{drag}$	$147.29^{+0.87}_{-0.78} \quad (-1.0\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5} \quad (-0.3\sigma)$
$A_{217}^{dustTE}$	$2.06^{+0.71}_{-0.67}$	$k_D$	$0.14079^{+0.00088}_{-0.00090} \quad (+1.0\sigma)$	$f_{2000}^{217}$	$107.7^{+5.2}_{-5.1} \quad (-0.2\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.2\sigma)$	$100\theta_D$	$0.16059^{+0.00046}_{-0.00044} \quad (-0.7\sigma)$	$\chi_{small}^2$	$398.0 (\nu: 3.0) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{eq}$	$3371^{+77}_{-80} \quad (+0.9\sigma)$	$\chi_{lowl}^2$	$22.9 (\nu: 1.4) \quad (+0.2\sigma)$
$H_0$	$68.1^{+1.5}_{-1.5} \quad (-0.7\sigma)$	$k_{eq}$	$0.01029^{+0.00024}_{-0.00024} \quad (+0.9\sigma)$	$\chi_{plik}^2$	$2362.5 (\nu: 21.4) \quad (+244.3\sigma)$
$\Omega_\Lambda$	$0.694^{+0.020}_{-0.021} \quad (-0.7\sigma)$	$100\theta_{eq}$	$0.820^{+0.015}_{-0.014} \quad (-0.8\sigma)$	$\chi_{H073p45}^2$	$10.5 (\nu: 2.6) \quad (+0.6\sigma)$
$\Omega_m$	$0.306^{+0.021}_{-0.020} \quad (+0.7\sigma)$	$100\theta_{s,eq}$	$0.4526^{+0.0077}_{-0.0074} \quad (-0.9\sigma)$	$\chi_{prior}^2$	$11.5 (\nu: 10.0) \quad (+1.1\sigma)$
$\Omega_m h^2$	$0.1417^{+0.0032}_{-0.0033} \quad (+0.9\sigma)$	$H(0.15)$	$73.3^{+1.3}_{-1.3} \quad (-0.6\sigma)$	$\chi_{CMB}^2$	$2783.4 (\nu: 21.4) \quad (+237.2\sigma)$
$\Omega_m h^3$	$0.09649^{+0.00078}_{-0.00078} \quad (+0.6\sigma)$	$D_M(0.15)$	$637^{+13}_{-13} \quad (+0.6\sigma)$		

$$\bar{\chi}_{eff}^2 = 2805.37; \Delta \bar{\chi}_{eff}^2 = 1591.81; R - 1 = 0.03153$$



### 15.13 base\_nrun\_r\_CamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02214	$0.02222^{+0.00064}_{-0.00061}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6117	$0.608^{+0.030}_{-0.031}$	$D_{\mathrm{M}}(0.38)$	1543.1	$1537^{+40}_{-43}$
$\Omega_{\mathrm{c}} h^2$	0.1209	$0.1202^{+0.0054}_{-0.0055}$	$\sigma_8/h^{0.5}$	0.9937	$0.988^{+0.041}_{-0.042}$	$H(0.51)$	89.31	$89.5^{+1.3}_{-1.1}$
$100\theta_{\mathrm{MC}}$	1.04081	$1.0409^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	98.30	$98.9^{+4.4}_{-4.0}$	$D_{\mathrm{M}}(0.51)$	1997.4	$1990^{+47}_{-50}$
$\tau$	0.0529	$0.053^{+0.023}_{-0.023}$	$\langle d^2 \rangle^{1/2}$	2.451	$2.432^{+0.099}_{-0.10}$	$H(0.61)$	95.00	$95.2^{+1.0}_{-0.90}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0421	$3.042^{+0.048}_{-0.048}$	$z_{\mathrm{re}}$	7.60	$7.6^{+2.2}_{-2.5}$	$D_{\mathrm{M}}(0.61)$	2323	$2315^{+51}_{-54}$
$n_{\mathrm{s}}$	0.9616	$0.964^{+0.016}_{-0.015}$	$10^9 A_{\mathrm{s}}$	2.095	$2.10^{+0.10}_{-0.099}$	$H(2.33)$	236.90	$236.5^{+3.3}_{-3.3}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	-0.0039	$-0.007^{+0.021}_{-0.023}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8847	$1.883^{+0.037}_{-0.036}$	$D_{\mathrm{M}}(2.33)$	5777.0	$5771^{+44}_{-46}$
$r$	0.000	$< 0.218$	$D_{40}$	1224	$1232^{+60}_{-56}$	$f\sigma_8(0.15)$	0.4645	$0.460^{+0.031}_{-0.032}$
$y_{\mathrm{cal}}$	1.0004	$1.0005^{+0.0064}_{-0.0064}$	$D_{220}$	5704	$5701^{+110}_{-110}$	$\sigma_8(0.15)$	0.7495	$0.748^{+0.020}_{-0.020}$
$A_{100}^{\mathrm{PS}}$	248	$246^{+70}_{-70}$	$D_{810}$	2534.8	$2536^{+36}_{-36}$	$f\sigma_8(0.38)$	0.4805	$0.477^{+0.024}_{-0.025}$
$A_{143}^{\mathrm{PS}}$	39.7	$43^{+20}_{-20}$	$D_{1420}$	812.8	$814^{+14}_{-14}$	$\sigma_8(0.38)$	0.6633	$0.662^{+0.016}_{-0.016}$
$A_{217}^{\mathrm{PS}}$	98.2	$100^{+30}_{-40}$	$D_{2000}$	228.8	$229.0^{+5.2}_{-5.2}$	$f\sigma_8(0.51)$	0.4779	$0.475^{+0.021}_{-0.022}$
$A_{217}^{\mathrm{CIB}}$	44.6	$42^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	0.974	$0.986^{+0.075}_{-0.065}$	$\sigma_8(0.51)$	0.6203	$0.619^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	4.35	$< 8.67$	$Y_{\mathrm{P}}$	0.245300	$0.24533^{+0.00025}_{-0.00029}$	$f\sigma_8(0.61)$	0.4721	$0.470^{+0.018}_{-0.020}$
$r_{143 \times 217}^{\mathrm{PS}}$	0.548	$0.64^{+0.32}_{-0.32}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246626	$0.24666^{+0.00025}_{-0.00029}$	$\sigma_8(0.61)$	0.5899	$0.589^{+0.014}_{-0.014}$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.68	—	$10^5 \mathrm{D}/\mathrm{H}$	2.630	$2.61^{+0.12}_{-0.12}$	$f\sigma_8(2.33)$	0.2971	$0.2969^{+0.0069}_{-0.0068}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.00	—	Age/Gyr	13.828	$13.81^{+0.10}_{-0.10}$	$\sigma_8(2.33)$	0.3058	$0.3059^{+0.0074}_{-0.0073}$
$A^{\mathrm{kSZ}}$	3.8	—	$z_*$	1090.30	$1090.1^{+1.1}_{-1.1}$	$r_{0.002}$	0.000	$< 0.234$
$A_{100}^{\mathrm{dust}}$	1.02	$1.01^{+0.51}_{-0.51}$	$r_*$	144.38	$144.5^{+1.3}_{-1.2}$	$r_{0.01}$	0.000	$< 0.220$
$A_{143}^{\mathrm{dust}}$	0.984	$0.98^{+0.46}_{-0.46}$	$100\theta_*$	1.04101	$1.0411^{+0.0012}_{-0.0012}$	$\ln(10^{10} A_{\mathrm{t}})$	-6.04	$-0.3^{+2.2}_{-4.0}$
$A_{217}^{\mathrm{dust}}$	0.959	$0.97^{+0.26}_{-0.27}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.869	$13.88^{+0.12}_{-0.11}$	$r_{10}$	0.000	$< 0.125$
$A_{143 \times 217}^{\mathrm{dust}}$	1.006	$1.03^{+0.42}_{-0.42}$	$z_{\mathrm{drag}}$	1059.47	$1059.6^{+1.3}_{-1.3}$	$10^9 A_{\mathrm{t}}$	0.000	$< 0.459$
$c_{100}$	0.99743	$0.9975^{+0.0027}_{-0.0027}$	$r_{\mathrm{drag}}$	147.12	$147.2^{+1.3}_{-1.2}$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	0.000	$< 0.411$
$c_{217}$	1.00143	$1.0013^{+0.0041}_{-0.0041}$	$k_{\mathrm{D}}$	0.14066	$0.1406^{+0.0014}_{-0.0015}$	$f_{2000}^{143}$	32.3	$32^{+9}_{-9}$
$H_0$	66.82	$67.2^{+2.5}_{-2.3}$	$100\theta_{\mathrm{D}}$	0.16104	$0.16096^{+0.00078}_{-0.00075}$	$f_{2000}^{217}$	108.5	$108.2^{+5.7}_{-5.8}$
$\Omega_{\Lambda}$	0.6782	$0.683^{+0.033}_{-0.034}$	$z_{\mathrm{eq}}$	3418	$3403^{+120}_{-130}$	$f_{2000}^{143 \times 217}$	33.9	$34^{+6}_{-6}$
$\Omega_{\mathrm{m}}$	0.3218	$0.317^{+0.034}_{-0.033}$	$k_{\mathrm{eq}}$	0.010431	$0.01039^{+0.00037}_{-0.00038}$	$\chi_{\mathrm{small}}^2$	395.90	$397.3 (\nu: 1.5)$
$\Omega_{\mathrm{m}} h^2$	0.1437	$0.1430^{+0.0051}_{-0.0053}$	$100\theta_{\mathrm{eq}}$	0.8098	$0.813^{+0.024}_{-0.022}$	$\chi_{\mathrm{lowl}}^2$	22.7	$23.7 (\nu: 2.6)$
$\Omega_{\mathrm{m}} h^3$	0.09599	$0.0961^{+0.0013}_{-0.0013}$	$100\theta_{\mathrm{s,eq}}$	0.4477	$0.449^{+0.012}_{-0.012}$	$\chi_{\mathrm{CamSpec}}^2$	7050.5	$7065.1 (\nu: 16.5)$
$\sigma_8$	0.8122	$0.810^{+0.024}_{-0.024}$	$H(0.15)$	72.21	$72.5^{+2.2}_{-2.0}$	$\chi_{\mathrm{prior}}^2$	2.4	$7.7 (\nu: 6.1)$
$S_8$	0.841	$0.833^{+0.062}_{-0.062}$	$D_{\mathrm{M}}(0.15)$	648.1	$645^{+20}_{-21}$	$\chi_{\mathrm{CMB}}^2$	7469.1	$7486.1 (\nu: 17.1)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4607	$0.456^{+0.034}_{-0.034}$	$H(0.38)$	82.49	$82.7^{+1.6}_{-1.4}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 7471.53$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 7493.80$ ;  $R - 1 = 0.00512$

$\chi_{\mathrm{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.90 commander\_dx12\_v3.2\_29: 22.71 CamSpec like\_10.7HM: 7050.49



### 15.14 base\_nrun\_r\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02230^{+0.00059}_{-0.00056}$	$\sigma_8/h^{0.5}$	$0.979^{+0.029}_{-0.031}$	$D_{\mathrm{M}}(0.51)$	$1979^{+29}_{-29}$
$\Omega_{\mathrm{c}} h^2$	$0.1189^{+0.0032}_{-0.0032}$	$r_{\mathrm{drag}} h$	$99.9^{+2.5}_{-2.4}$	$H(0.61)$	$95.35^{+0.68}_{-0.63}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0010}$	$\langle d^2 \rangle^{1/2}$	$2.412^{+0.076}_{-0.077}$	$D_{\mathrm{M}}(0.61)$	$2303^{+31}_{-32}$
$\tau$	$0.055^{+0.022}_{-0.022}$	$z_{\mathrm{re}}$	$7.7^{+2.1}_{-2.4}$	$H(2.33)$	$235.7^{+2.1}_{-2.0}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.048}_{-0.049}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.10}_{-0.10}$	$D_{\mathrm{M}}(2.33)$	$5762^{+32}_{-34}$
$n_{\mathrm{s}}$	$0.967^{+0.012}_{-0.012}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.032}_{-0.031}$	$f\sigma_8(0.15)$	$0.453^{+0.020}_{-0.020}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.006^{+0.021}_{-0.024}$	$D_{40}$	$1228^{+61}_{-55}$	$\sigma_8(0.15)$	$0.745^{+0.018}_{-0.019}$
$r$	$< 0.225$	$D_{220}$	$5707^{+100}_{-110}$	$f\sigma_8(0.38)$	$0.472^{+0.017}_{-0.017}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0066}_{-0.0064}$	$D_{810}$	$2535^{+37}_{-36}$	$\sigma_8(0.38)$	$0.661^{+0.016}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$245^{+70}_{-60}$	$D_{1420}$	$814^{+14}_{-13}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$D_{2000}$	$229.3^{+5.2}_{-5.1}$	$\sigma_8(0.51)$	$0.619^{+0.014}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$100^{+30}_{-40}$	$n_{\mathrm{s},0.002}$	$0.988^{+0.077}_{-0.064}$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$42^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24536^{+0.00023}_{-0.00026}$	$\sigma_8(0.61)$	$0.589^{+0.014}_{-0.014}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.74$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00023}_{-0.00026}$	$f\sigma_8(2.33)$	$0.2969^{+0.0069}_{-0.0068}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.64^{+0.32}_{-0.31}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.60^{+0.11}_{-0.11}$	$\sigma_8(2.33)$	$0.3062^{+0.0073}_{-0.0070}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	Age/Gyr	$13.796^{+0.075}_{-0.078}$	$r_{0.002}$	$< 0.242$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_*$	$1089.91^{+0.81}_{-0.83}$	$r_{0.01}$	$< 0.227$
$A^{\mathrm{kSZ}}$	—	$r_*$	$144.78^{+0.87}_{-0.86}$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.2^{+2.1}_{-4.0}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0010}$	$r_{10}$	$< 0.129$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.46}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.905^{+0.084}_{-0.084}$	$10^9 A_{\mathrm{t}}$	$< 0.475$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$z_{\mathrm{drag}}$	$1059.7^{+1.3}_{-1.3}$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.422$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42}$	$r_{\mathrm{drag}}$	$147.48^{+0.95}_{-0.97}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0013}$	$f_{2000}^{217}$	$108.0^{+5.8}_{-5.6}$
$c_{217}$	$1.0013^{+0.0041}_{-0.0041}$	$100\theta_{\mathrm{D}}$	$0.16092^{+0.00076}_{-0.00074}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$H_0$	$67.7^{+1.4}_{-1.4}$	$z_{\mathrm{eq}}$	$3373^{+75}_{-74}$	$\chi_{\mathrm{simall}}^2$	$397.4 (\nu: 1.6)$
$\Omega_{\Lambda}$	$0.691^{+0.019}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00023}_{-0.00023}$	$\chi_{\mathrm{lowl}}^2$	$23.3 (\nu: 2.2)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.019}_{-0.019}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.014}_{-0.013}$	$\chi_{\mathrm{CamSpec}}^2$	$7065.3 (\nu: 15.8)$
$\Omega_{\mathrm{m}} h^2$	$0.1418^{+0.0031}_{-0.0031}$	$100\theta_{\mathrm{s,eq}}$	$0.4521^{+0.0072}_{-0.0070}$	$\chi_{6\mathrm{DF}}^2$	$0.052 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^3$	$0.0961^{+0.0013}_{-0.0013}$	$H(0.15)$	$73.0^{+1.3}_{-1.2}$	$\chi_{\mathrm{MGS}}^2$	$1.43 (\nu: 0.1)$
$\sigma_8$	$0.806^{+0.020}_{-0.021}$	$D_{\mathrm{M}}(0.15)$	$640^{+12}_{-12}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 (\nu: 1.1)$
$S_8$	$0.818^{+0.039}_{-0.038}$	$H(0.38)$	$83.06^{+0.96}_{-0.90}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 6.1)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.021}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1527^{+24}_{-25}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.7)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.021}_{-0.021}$	$H(0.51)$	$89.75^{+0.80}_{-0.74}$	$\chi_{\mathrm{CMB}}^2$	$7486.0 (\nu: 16.4)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 7499.85; R - 1 = 0.00974$$



### 15.15 base\_nrun\_r\_CamSpecHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02223^{+0.00063}_{-0.00060}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.030}_{-0.031}$	$D_{\mathrm{M}}(0.38)$	$1537^{+40}_{-43}$
$\Omega_{\mathrm{c}} h^2$	$0.1201^{+0.0054}_{-0.0055}$	$\sigma_8/h^{0.5}$	$0.989^{+0.041}_{-0.042}$	$H(0.51)$	$89.5^{+1.3}_{-1.1}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	$98.9^{+4.4}_{-4.0}$	$D_{\mathrm{M}}(0.51)$	$1990^{+47}_{-50}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.098}_{-0.10}$	$H(0.61)$	$95.2^{+1.0}_{-0.89}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.045^{+0.046}_{-0.033}$	$z_{\mathrm{re}}$	$< 9.60$	$D_{\mathrm{M}}(0.61)$	$2314^{+50}_{-54}$
$n_{\mathrm{s}}$	$0.964^{+0.016}_{-0.015}$	$10^9 A_{\mathrm{s}}$	$2.102^{+0.098}_{-0.069}$	$H(2.33)$	$236.5^{+3.3}_{-3.3}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d} \ln k$	$-0.007^{+0.021}_{-0.023}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.038}_{-0.036}$	$D_{\mathrm{M}}(2.33)$	$5770^{+43}_{-45}$
$r$	$< 0.220$	$D_{40}$	$1231^{+60}_{-56}$	$f\sigma_8(0.15)$	$0.460^{+0.031}_{-0.032}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0064}$	$D_{220}$	$5702^{+110}_{-110}$	$\sigma_8(0.15)$	$0.749^{+0.020}_{-0.018}$
$A_{100}^{\mathrm{PS}}$	$245^{+70}_{-70}$	$D_{810}$	$2536^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.478^{+0.024}_{-0.025}$
$A_{143}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$D_{1420}$	$814^{+14}_{-14}$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$100^{+30}_{-40}$	$D_{2000}$	$229.1^{+5.2}_{-5.2}$	$f\sigma_8(0.51)$	$0.476^{+0.021}_{-0.022}$
$A_{217}^{\mathrm{CIB}}$	$42^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.987^{+0.075}_{-0.065}$	$\sigma_8(0.51)$	$0.620^{+0.014}_{-0.012}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.67$	$Y_{\mathrm{P}}$	$0.24534^{+0.00025}_{-0.00028}$	$f\sigma_8(0.61)$	$0.470^{+0.018}_{-0.019}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.64^{+0.32}_{-0.32}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00025}_{-0.00028}$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.011}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.12}_{-0.11}$	$f\sigma_8(2.33)$	$0.2973^{+0.0066}_{-0.0050}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.812^{+0.097}_{-0.10}$	$\sigma_8(2.33)$	$0.3063^{+0.0070}_{-0.0051}$
$A^{\mathrm{kSZ}}$	—	$z_{*}$	$1090.1^{+1.1}_{-1.1}$	$r_{0.002}$	$< 0.236$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.51}$	$r_{*}$	$144.5^{+1.3}_{-1.2}$	$r_{0.01}$	$< 0.222$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.46}$	$100\theta_{*}$	$1.0411^{+0.0012}_{-0.0012}$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.3^{+2.2}_{-4.0}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.88^{+0.12}_{-0.11}$	$r_{10}$	$< 0.126$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42}$	$z_{\mathrm{drag}}$	$1059.6^{+1.3}_{-1.3}$	$10^9 A_{\mathrm{t}}$	$< 0.464$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.2^{+1.3}_{-1.3}$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.414$
$c_{217}$	$1.0013^{+0.0041}_{-0.0041}$	$k_{\mathrm{D}}$	$0.1406^{+0.0014}_{-0.0015}$	$f_{2000}^{143}$	$32^{+9}_{-9}$
$H_0$	$67.2^{+2.5}_{-2.3}$	$100\theta_{\mathrm{D}}$	$0.16095^{+0.00077}_{-0.00074}$	$f_{2000}^{217}$	$108.1^{+5.7}_{-5.8}$
$\Omega_{\Lambda}$	$0.683^{+0.033}_{-0.034}$	$z_{\mathrm{eq}}$	$3401^{+120}_{-130}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$\Omega_{\mathrm{m}}$	$0.317^{+0.034}_{-0.033}$	$k_{\mathrm{eq}}$	$0.01038^{+0.00037}_{-0.00038}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 1.5)$
$\Omega_{\mathrm{m}} h^2$	$0.1430^{+0.0051}_{-0.0052}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.024}_{-0.022}$	$\chi_{\mathrm{lowl}}^2$	$23.6 (\nu: 2.5)$
$\Omega_{\mathrm{m}} h^3$	$0.0961^{+0.0013}_{-0.0013}$	$100\theta_{\mathrm{s,eq}}$	$0.449^{+0.012}_{-0.011}$	$\chi_{\mathrm{CamSpec}}^2$	$7065.0 (\nu: 16.4)$
$\sigma_8$	$0.811^{+0.023}_{-0.022}$	$H(0.15)$	$72.5^{+2.2}_{-2.0}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 6.1)$
$S_8$	$0.833^{+0.062}_{-0.062}$	$D_{\mathrm{M}}(0.15)$	$645^{+20}_{-21}$	$\chi_{\mathrm{CMB}}^2$	$7485.8 (\nu: 16.8)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.034}_{-0.034}$	$H(0.38)$	$82.7^{+1.6}_{-1.4}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7493.58; R - 1 = 0.00549$$



15.16 base\_nrun\_r\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02230^{+0.00058}_{-0.00056}$	$\sigma_8/h^{0.5}$	$0.980^{+0.029}_{-0.027}$	$D_M(0.51)$	$1979^{+28}_{-29}$
$\Omega_c h^2$	$0.1188^{+0.0032}_{-0.0032}$	$r_{\text{drag}} h$	$99.9^{+2.5}_{-2.4}$	$H(0.61)$	$95.36^{+0.68}_{-0.64}$
$100\theta_{\text{MC}}$	$1.0411^{+0.0011}_{-0.0010}$	$\langle d^2 \rangle^{1/2}$	$2.414^{+0.074}_{-0.073}$	$D_M(0.61)$	$2303^{+31}_{-32}$
$\tau$	$0.056^{+0.020}_{-0.014}$	$z_{\text{re}}$	$< 9.64$	$H(2.33)$	$235.7^{+2.1}_{-2.0}$
$\ln(10^{10} A_s)$	$3.044^{+0.047}_{-0.034}$	$10^9 A_s$	$2.10^{+0.10}_{-0.070}$	$D_M(2.33)$	$5762^{+32}_{-34}$
$n_s$	$0.967^{+0.012}_{-0.012}$	$10^9 A_s e^{-2\tau}$	$1.877^{+0.032}_{-0.031}$	$f\sigma_8(0.15)$	$0.453^{+0.020}_{-0.019}$
$dn_s/d \ln k$	$-0.007^{+0.020}_{-0.024}$	$D_{40}$	$1227^{+61}_{-55}$	$\sigma_8(0.15)$	$0.746^{+0.018}_{-0.015}$
$r$	$< 0.226$	$D_{220}$	$5706^{+100}_{-110}$	$f\sigma_8(0.38)$	$0.472^{+0.017}_{-0.016}$
$y_{\text{cal}}$	$1.0005^{+0.0066}_{-0.0064}$	$D_{810}$	$2535^{+37}_{-35}$	$\sigma_8(0.38)$	$0.662^{+0.015}_{-0.012}$
$A_{100}^{\text{PS}}$	$245^{+70}_{-60}$	$D_{1420}$	$814^{+14}_{-13}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.014}$
$A_{143}^{\text{PS}}$	$42^{+20}_{-20}$	$D_{2000}$	$229.3^{+5.2}_{-5.1}$	$\sigma_8(0.51)$	$0.619^{+0.014}_{-0.011}$
$A_{217}^{\text{PS}}$	$100^{+30}_{-40}$	$n_{s,0.002}$	$0.989^{+0.077}_{-0.064}$	$f\sigma_8(0.61)$	$0.466^{+0.013}_{-0.013}$
$A_{217}^{\text{CIB}}$	$42^{+20}_{-20}$	$Y_{\text{P}}$	$0.24536^{+0.00023}_{-0.00026}$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.010}$
$A_{143}^{\text{tSZ}}$	$< 8.73$	$Y_{\text{P}}^{\text{BBN}}$	$0.24669^{+0.00023}_{-0.00026}$	$f\sigma_8(2.33)$	$0.2972^{+0.0067}_{-0.0052}$
$r_{143 \times 217}^{\text{PS}}$	$0.64^{+0.32}_{-0.31}$	$10^5 \text{D/H}$	$2.60^{+0.11}_{-0.11}$	$\sigma_8(2.33)$	$0.3065^{+0.0070}_{-0.0053}$
$r_{143 \times 217}^{\text{CIB}}$	—	Age/Gyr	$13.795^{+0.075}_{-0.078}$	$r_{0.002}$	$< 0.244$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_*$	$1089.91^{+0.81}_{-0.83}$	$r_{0.01}$	$< 0.229$
$A^{\text{kSZ}}$	—	$r_*$	$144.78^{+0.87}_{-0.86}$	$\ln(10^{10} A_{\text{t}})$	$-0.2^{+2.1}_{-4.0}$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.51}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0010}$	$r_{10}$	$< 0.131$
$A_{143}^{\text{dust}}$	$0.98^{+0.46}_{-0.45}$	$D_M(z_*)/\text{Gpc}$	$13.905^{+0.084}_{-0.084}$	$10^9 A_{\text{t}}$	$< 0.478$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.27}$	$z_{\text{drag}}$	$1059.7^{+1.3}_{-1.3}$	$10^9 A_{\text{t}} e^{-2\tau}$	$< 0.425$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.42}$	$r_{\text{drag}}$	$147.48^{+0.96}_{-0.97}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$k_{\text{D}}$	$0.1404^{+0.0013}_{-0.0013}$	$f_{2000}^{217}$	$107.9^{+5.9}_{-5.7}$
$c_{217}$	$1.0013^{+0.0041}_{-0.0041}$	$100\theta_{\text{D}}$	$0.16091^{+0.00076}_{-0.00074}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$H_0$	$67.8^{+1.5}_{-1.4}$	$z_{\text{eq}}$	$3373^{+75}_{-74}$	$\chi_{\text{simall}}^2$	$397.3 (\nu: 1.6)$
$\Omega_{\Lambda}$	$0.691^{+0.019}_{-0.019}$	$k_{\text{eq}}$	$0.01029^{+0.00023}_{-0.00023}$	$\chi_{\text{lowl}}^2$	$23.3 (\nu: 2.2)$
$\Omega_{\text{m}}$	$0.309^{+0.019}_{-0.019}$	$100\theta_{\text{eq}}$	$0.819^{+0.014}_{-0.013}$	$\chi_{\text{CamSpec}}^2$	$7065.3 (\nu: 15.8)$
$\Omega_{\text{m}} h^2$	$0.1418^{+0.0031}_{-0.0031}$	$100\theta_{\text{s,eq}}$	$0.4522^{+0.0072}_{-0.0070}$	$\chi_{6\text{DF}}^2$	$0.051 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.0961^{+0.0013}_{-0.0013}$	$H(0.15)$	$73.0^{+1.3}_{-1.2}$	$\chi_{\text{MGS}}^2$	$1.44 (\nu: 0.1)$
$\sigma_8$	$0.807^{+0.020}_{-0.017}$	$D_M(0.15)$	$640^{+12}_{-12}$	$\chi_{\text{DR12BAO}}^2$	$4.6 (\nu: 1.1)$
$S_8$	$0.819^{+0.039}_{-0.037}$	$H(0.38)$	$83.07^{+0.95}_{-0.90}$	$\chi_{\text{prior}}^2$	$7.7 (\nu: 6.1)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.449^{+0.021}_{-0.020}$	$D_M(0.38)$	$1527^{+24}_{-25}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.602^{+0.020}_{-0.020}$	$H(0.51)$	$89.76^{+0.80}_{-0.74}$	$\chi_{\text{CMB}}^2$	$7485.8 (\nu: 16.1)$

$$\bar{\chi}_{\text{eff}}^2 = 7499.67; R - 1 = 0.00851$$



# 15.17 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02219	$0.02223^{+0.00064}_{-0.00059}$	$\sigma_8/h^{0.5}$	0.9883	$0.988^{+0.026}_{-0.028}$	$H(0.51)$	89.46	$89.49^{+0.99}_{-0.91}$
$\Omega_c h^2$	0.11999	$0.1201^{+0.0040}_{-0.0041}$	$r_{\text{drag}} h$	98.95	$98.9^{+3.2}_{-3.1}$	$D_M(0.51)$	1990.3	$1990^{+38}_{-38}$
$100\theta_{\text{MC}}$	1.04084	$1.0408^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.441	$2.435^{+0.072}_{-0.073}$	$H(0.61)$	95.12	$95.15^{+0.83}_{-0.76}$
$\tau$	0.0528	$0.054^{+0.022}_{-0.021}$	$z_{\text{re}}$	7.56	$7.6^{+2.1}_{-2.2}$	$D_M(0.61)$	2315.4	$2315^{+40}_{-41}$
$\ln(10^{10} A_s)$	3.0406	$3.044^{+0.042}_{-0.040}$	$10^9 A_s$	2.092	$2.099^{+0.090}_{-0.083}$	$H(2.33)$	236.36	$236.5^{+2.5}_{-2.6}$
$n_s$	0.9646	$0.964^{+0.013}_{-0.013}$	$10^9 A_s e^{-2\tau}$	1.8821	$1.885^{+0.030}_{-0.030}$	$D_M(2.33)$	5772.5	$5771^{+37}_{-40}$
$dn_s/d \ln k$	-0.0010	$-0.006^{+0.020}_{-0.022}$	$D_{40}$	1227	$1235^{+60}_{-51}$	$f\sigma_8(0.15)$	0.4599	$0.460^{+0.021}_{-0.022}$
$r$	0.000	$< 0.205$	$D_{220}$	5715	$5716^{+110}_{-100}$	$\sigma_8(0.15)$	0.7480	$0.748^{+0.015}_{-0.015}$
$y_{\text{cal}}$	1.0003	$1.0006^{+0.0063}_{-0.0065}$	$D_{810}$	2537.2	$2539^{+34}_{-34}$	$f\sigma_8(0.38)$	0.4771	$0.477^{+0.016}_{-0.017}$
$A_{217}^{\text{CIB}}$	49.7	$49^{+20}_{-20}$	$D_{1420}$	815.3	$814^{+13}_{-13}$	$\sigma_8(0.38)$	0.6625	$0.663^{+0.013}_{-0.012}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.22	—	$D_{2000}$	229.84	$229.2^{+4.9}_{-5.0}$	$f\sigma_8(0.51)$	0.4751	$0.475^{+0.013}_{-0.015}$
$A_{143}^{\text{tSZ}}$	7.0	—	$n_{s,0.002}$	0.968	$0.983^{+0.070}_{-0.064}$	$\sigma_8(0.51)$	0.6198	$0.620^{+0.012}_{-0.012}$
$A_{100}^{\text{PS}}$	256	$266^{+70}_{-70}$	$Y_{\text{P}}$	0.245320	$0.24533^{+0.00025}_{-0.00028}$	$f\sigma_8(0.61)$	0.4697	$0.470^{+0.012}_{-0.013}$
$A_{143}^{\text{PS}}$	48.4	$50^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246646	$0.24666^{+0.00025}_{-0.00028}$	$\sigma_8(0.61)$	0.5896	$0.590^{+0.012}_{-0.011}$
$A_{143 \times 217}^{\text{PS}}$	44.4	$43^{+20}_{-20}$	$10^5 D/H$	2.621	$2.61^{+0.11}_{-0.12}$	$f\sigma_8(2.33)$	0.2971	$0.2971^{+0.0062}_{-0.0059}$
$A_{217}^{\text{PS}}$	117.9	$114^{+30}_{-30}$	Age/Gyr	13.818	$13.815^{+0.085}_{-0.090}$	$\sigma_8(2.33)$	0.3061	$0.3061^{+0.0070}_{-0.0066}$
$A^{\text{kSZ}}$	0.0	—	$z_*$	1090.15	$1090.11^{+0.97}_{-0.98}$	$r_{0.002}$	0.000	$< 0.220$
$A_{100}^{\text{dustTT}}$	9.07	$9.0^{+4.7}_{-4.8}$	$r_*$	144.57	$144.5^{+1.0}_{-0.97}$	$r_{0.01}$	0.000	$< 0.208$
$A_{143}^{\text{dustTT}}$	10.88	$10.8^{+4.7}_{-4.6}$	$100\theta_*$	1.04105	$1.0410^{+0.0011}_{-0.0011}$	$\ln(10^{10} A_t)$	-8.76	$-0.4^{+2.2}_{-4.0}$
$A_{143 \times 217}^{\text{dustTT}}$	19.3	$18.3^{+8.5}_{-8.6}$	$D_M(z_*)/\text{Gpc}$	13.887	$13.882^{+0.094}_{-0.092}$	$r_{10}$	0.000	$< 0.117$
$A_{217}^{\text{dustTT}}$	94.3	$93^{+20}_{-20}$	$z_{\text{drag}}$	1059.51	$1059.6^{+1.4}_{-1.3}$	$10^9 A_t$	0.000	$< 0.436$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.30	$147.2^{+1.0}_{-1.0}$	$10^9 A_t e^{-2\tau}$	0.000	$< 0.386$
$c_{217}$	0.99830	$0.9983^{+0.0016}_{-0.0016}$	$k_D$	0.14050	$0.1406^{+0.0013}_{-0.0013}$	$f_{2000}^{143}$	30.6	$32^{+8}_{-8}$
$H_0$	67.18	$67.2^{+1.9}_{-1.8}$	$100\theta_D$	0.16101	$0.16095^{+0.00076}_{-0.00078}$	$f_{2000}^{143 \times 217}$	33.4	$34^{+6}_{-6}$
$\Omega_\Lambda$	0.6835	$0.683^{+0.025}_{-0.026}$	$z_{\text{eq}}$	3398	$3401^{+93}_{-94}$	$f_{2000}^{217}$	107.8	$108.6^{+5.3}_{-5.3}$
$\Omega_m$	0.3165	$0.317^{+0.026}_{-0.025}$	$k_{\text{eq}}$	0.010370	$0.01038^{+0.00028}_{-0.00029}$	$\chi^2_{\text{lensing}}$	8.89	$9.69 (\nu: 0.5)$
$\Omega_m h^2$	0.14282	$0.1430^{+0.0039}_{-0.0039}$	$100\theta_{\text{eq}}$	0.8136	$0.813^{+0.018}_{-0.017}$	$\chi^2_{\text{small}}$	395.90	$397.2 (\nu: 1.4)$
$\Omega_m h^3$	0.09595	$0.0960^{+0.0013}_{-0.0012}$	$100\theta_{s,\text{eq}}$	0.4497	$0.4494^{+0.0092}_{-0.0087}$	$\chi^2_{\text{lowl}}$	23.1	$23.9 (\nu: 2.6)$
$\sigma_8$	0.8100	$0.810^{+0.016}_{-0.017}$	$H(0.15)$	72.51	$72.5^{+1.6}_{-1.6}$	$\chi^2_{\text{plik}}$	759.3	$772.8 (\nu: 15.2)$
$S_8$	0.8320	$0.833^{+0.042}_{-0.043}$	$D_M(0.15)$	645.0	$645^{+16}_{-16}$	$\chi^2_{\text{prior}}$	1.4	$7.3 (\nu: 6.7)$
$\sigma_8 \Omega_m^{0.5}$	0.4557	$0.456^{+0.023}_{-0.024}$	$H(0.38)$	82.70	$82.7^{+1.2}_{-1.1}$	$\chi^2_{\text{CMB}}$	1187.1	$1203.5 (\nu: 17.2)$
$\sigma_8 \Omega_m^{0.25}$	0.6076	$0.608^{+0.019}_{-0.021}$	$D_M(0.38)$	1537.0	$1537^{+32}_{-32}$			

Best-fit  $\chi^2_{\text{eff}} = 1188.53$ ;  $\bar{\chi}^2_{\text{eff}} = 1210.83$ ;  $R - 1 = 0.00920$   
 $\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.88 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.90 commander\_dx12\_v3.2.29: 23.09 plik\_rd12\_HM.v22\_TT: 759.26



# 15.18 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.02230^{+0.00062}_{-0.00056}$	$r_{\text{drag}} h$	99.62	$99.7^{+2.2}_{-2.2}$	$H(0.61)$	95.23	$95.32^{+0.68}_{-0.62}$
$\Omega_c h^2$	0.11914	$0.1191^{+0.0029}_{-0.0029}$	$\langle d^2 \rangle^{1/2}$	2.429	$2.424^{+0.061}_{-0.062}$	$D_M(0.61)$	2307.9	$2305^{+29}_{-29}$
$100\theta_{\text{MC}}$	1.04098	$1.0410^{+0.0010}_{-0.0011}$	$z_{\text{re}}$	7.73	$7.9^{+1.9}_{-2.0}$	$H(2.33)$	235.84	$235.9^{+1.9}_{-1.9}$
$\tau$	0.0545	$0.056^{+0.021}_{-0.019}$	$10^9 A_s$	2.095	$2.107^{+0.086}_{-0.083}$	$D_M(2.33)$	5768.0	$5764^{+32}_{-34}$
$\ln(10^{10} A_s)$	3.0420	$3.048^{+0.040}_{-0.040}$	$10^9 A_s e^{-2\tau}$	1.8782	$1.882^{+0.028}_{-0.028}$	$f\sigma_8(0.15)$	0.4557	$0.455^{+0.016}_{-0.016}$
$n_s$	0.9667	$0.966^{+0.011}_{-0.011}$	$D_{40}$	1222	$1232^{+58}_{-51}$	$\sigma_8(0.15)$	0.7471	$0.747^{+0.014}_{-0.014}$
$dn_s/d \ln k$	-0.00099	$-0.006^{+0.021}_{-0.022}$	$D_{220}$	5714	$5723^{+110}_{-100}$	$f\sigma_8(0.38)$	0.4740	$0.474^{+0.013}_{-0.014}$
$r$	0.000	< 0.216	$D_{810}$	2536.3	$2540^{+35}_{-35}$	$\sigma_8(0.38)$	0.6623	$0.663^{+0.013}_{-0.012}$
$y_{\text{cal}}$	1.0004	$1.0008^{+0.0061}_{-0.0065}$	$D_{1420}$	815.6	$815^{+13}_{-13}$	$f\sigma_8(0.51)$	0.4726	$0.473^{+0.012}_{-0.012}$
$A_{217}^{\text{CIB}}$	50.1	$48^{+20}_{-20}$	$D_{2000}$	229.95	$229.6^{+4.8}_{-4.7}$	$\sigma_8(0.51)$	0.6198	$0.620^{+0.012}_{-0.012}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.14	—	$n_{s,0.002}$	0.970	$0.986^{+0.071}_{-0.065}$	$f\sigma_8(0.61)$	0.4677	$0.468^{+0.011}_{-0.011}$
$A_{143}^{\text{tSZ}}$	7.1	—	$Y_{\text{P}}$	0.245328	$0.24536^{+0.00025}_{-0.00026}$	$\sigma_8(0.61)$	0.5897	$0.590^{+0.012}_{-0.011}$
$A_{100}^{\text{PS}}$	256	$265^{+70}_{-70}$	$Y_{\text{P}}^{\text{BBN}}$	0.246655	$0.24669^{+0.00025}_{-0.00026}$	$f\sigma_8(2.33)$	0.2974	$0.2976^{+0.0059}_{-0.0059}$
$A_{143}^{\text{PS}}$	47.0	$50^{+20}_{-20}$	$10^5 \text{D/H}$	2.617	$2.60^{+0.11}_{-0.11}$	$\sigma_8(2.33)$	0.3066	$0.3069^{+0.0064}_{-0.0063}$
$A_{143 \times 217}^{\text{PS}}$	42.2	$43^{+20}_{-20}$	Age/Gyr	13.809	$13.799^{+0.074}_{-0.079}$	$r_{0.002}$	0.000	< 0.236
$A_{217}^{\text{PS}}$	117.2	$115^{+30}_{-30}$	$z_*$	1090.06	$1089.93^{+0.82}_{-0.84}$	$r_{0.01}$	0.000	< 0.220
$A^{\text{kSZ}}$	0.0	—	$r_*$	144.78	$144.73^{+0.79}_{-0.77}$	$\ln(10^{10} A_t)$	-6.05	$-0.3^{+2.2}_{-4.0}$
$A_{100}^{\text{dustTT}}$	8.96	$8.9^{+4.8}_{-4.9}$	$100\theta_*$	1.04117	$1.0412^{+0.0010}_{-0.0011}$	$r_{10}$	0.000	< 0.126
$A_{143}^{\text{dustTT}}$	10.87	$10.7^{+4.7}_{-4.6}$	$D_M(z_*)/\text{Gpc}$	13.905	$13.901^{+0.077}_{-0.076}$	$10^9 A_t$	0.000	< 0.461
$A_{143 \times 217}^{\text{dustTT}}$	19.2	$18.3^{+8.3}_{-8.5}$	$z_{\text{drag}}$	1059.47	$1059.7^{+1.3}_{-1.3}$	$10^9 A_t e^{-2\tau}$	0.000	< 0.408
$A_{217}^{\text{dustTT}}$	94.1	$93^{+20}_{-20}$	$r_{\text{drag}}$	147.50	$147.42^{+0.88}_{-0.87}$	$f_{2000}^{143}$	30.7	$32^{+8}_{-8}$
$c_{100}$	0.99962	$0.9996^{+0.0015}_{-0.0017}$	$k_{\text{D}}$	0.14031	$0.1405^{+0.0013}_{-0.0012}$	$f_{2000}^{143 \times 217}$	33.4	$34^{+6}_{-6}$
$c_{217}$	0.99827	$0.9983^{+0.0015}_{-0.0016}$	$100\theta_{\text{D}}$	0.16102	$0.16090^{+0.00075}_{-0.00075}$	$f_{2000}^{217}$	107.9	$108.4^{+5.2}_{-5.3}$
$H_0$	67.54	$67.6^{+1.3}_{-1.3}$	$z_{\text{eq}}$	3378	$3378^{+67}_{-68}$	$\chi^2_{\text{lensing}}$	8.96	$9.49 (\nu: 0.3)$
$\Omega_{\Lambda}$	0.6887	$0.690^{+0.017}_{-0.017}$	$k_{\text{eq}}$	0.010309	$0.01031^{+0.00021}_{-0.00021}$	$\chi^2_{\text{small}}$	396.1	$397.5 (\nu: 1.7)$
$\Omega_{\text{m}}$	0.3113	$0.310^{+0.017}_{-0.017}$	$100\theta_{\text{eq}}$	0.8173	$0.818^{+0.012}_{-0.012}$	$\chi^2_{\text{lowl}}$	22.7	$23.5 (\nu: 2.3)$
$\Omega_{\text{m}} h^2$	0.14200	$0.1420^{+0.0028}_{-0.0028}$	$100\theta_{s,\text{eq}}$	0.4516	$0.4516^{+0.0065}_{-0.0063}$	$\chi^2_{\text{plik}}$	759.8	$773.1 (\nu: 14.9)$
$\Omega_{\text{m}} h^3$	0.09590	$0.0961^{+0.0013}_{-0.0012}$	$H(0.15)$	72.81	$72.9^{+1.2}_{-1.1}$	$\chi^2_{6\text{DF}}$	0.031	$0.054 (\nu: 0.0)$
$\sigma_8$	0.8085	$0.809^{+0.015}_{-0.016}$	$D_M(0.15)$	641.9	$641^{+11}_{-11}$	$\chi^2_{\text{MGS}}$	1.22	$1.32 (\nu: 0.1)$
$S_8$	0.8236	$0.823^{+0.031}_{-0.032}$	$H(0.38)$	82.91	$83.00^{+0.89}_{-0.85}$	$\chi^2_{\text{DR12BAO}}$	4.41	$4.7 (\nu: 1.1)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4511	$0.451^{+0.017}_{-0.017}$	$D_M(0.38)$	1531.0	$1529^{+23}_{-23}$	$\chi^2_{\text{prior}}$	1.6	$7.3 (\nu: 6.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6039	$0.604^{+0.016}_{-0.017}$	$H(0.51)$	89.62	$89.71^{+0.76}_{-0.71}$	$\chi^2_{\text{CMB}}$	1187.5	$1203.5 (\nu: 16.4)$
$\sigma_8/h^{0.5}$	0.9838	$0.983^{+0.023}_{-0.024}$	$D_M(0.51)$	1983.3	$1981^{+27}_{-27}$	$\chi^2_{\text{BAO}}$	5.66	$6.1 (\nu: 0.7)$

Best-fit  $\chi^2_{\text{eff}} = 1194.69$ ;  $\bar{\chi}^2_{\text{eff}} = 1216.99$ ;  $R - 1 = 0.01565$   
 $\chi^2_{\text{eff}}$ : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.41 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.96 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.06 comman-  
der\_dx12.v3.2.29: 22.68 plik\_rd12\_HM.v22\_TT: 759.76



# 15.19 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02224^{+0.00063}_{-0.00059}$	$\sigma_8/h^{0.5}$	$0.989^{+0.026}_{-0.028}$	$H(0.51)$	$89.51^{+0.98}_{-0.89}$
$\Omega_{\mathrm{c}}h^2$	$0.1200^{+0.0039}_{-0.0040}$	$r_{\mathrm{drag}}h$	$99.0^{+3.2}_{-3.0}$	$D_{\mathrm{M}}(0.51)$	$1989^{+35}_{-38}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.436^{+0.072}_{-0.072}$	$H(0.61)$	$95.17^{+0.82}_{-0.74}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$z_{\mathrm{re}}$	$< 9.53$	$D_{\mathrm{M}}(0.61)$	$2314^{+38}_{-41}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.040}_{-0.030}$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.086}_{-0.062}$	$H(2.33)$	$236.4^{+2.4}_{-2.5}$
$n_{\mathrm{s}}$	$0.964^{+0.013}_{-0.013}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.884^{+0.030}_{-0.030}$	$D_{\mathrm{M}}(2.33)$	$5770^{+37}_{-39}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.006^{+0.020}_{-0.022}$	$D_{40}$	$1234^{+60}_{-51}$	$f\sigma_8(0.15)$	$0.460^{+0.021}_{-0.022}$
$r$	$< 0.207$	$D_{220}$	$5716^{+110}_{-100}$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.013}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0063}_{-0.0065}$	$D_{810}$	$2539^{+34}_{-34}$	$f\sigma_8(0.38)$	$0.477^{+0.016}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$49^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.010}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{2000}$	$229.3^{+4.9}_{-5.0}$	$f\sigma_8(0.51)$	$0.475^{+0.013}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.984^{+0.070}_{-0.064}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0094}$
$A_{100}^{\mathrm{PS}}$	$266^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.24534^{+0.00025}_{-0.00028}$	$f\sigma_8(0.61)$	$0.470^{+0.012}_{-0.013}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00025}_{-0.00028}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0089}$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$10^5\mathrm{D}/\mathrm{H}$	$2.61^{+0.12}_{-0.11}$	$f\sigma_8(2.33)$	$0.2974^{+0.0060}_{-0.0045}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.813^{+0.084}_{-0.089}$	$\sigma_8(2.33)$	$0.3064^{+0.0066}_{-0.0048}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.09^{+0.95}_{-0.97}$	$r_{0.002}$	$< 0.223$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.7}_{-4.8}$	$r_*$	$144.54^{+0.99}_{-0.94}$	$r_{0.01}$	$< 0.209$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.7}_{-4.7}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0011}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.4^{+2.2}_{-4.0}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.3^{+8.5}_{-8.5}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.884^{+0.093}_{-0.089}$	$r_{10}$	$< 0.119$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.6^{+1.4}_{-1.3}$	$10^9 A_{\mathrm{t}}$	$< 0.441$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.2^{+1.0}_{-1.0}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.391$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1406^{+0.0013}_{-0.0013}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$H_0$	$67.2^{+1.9}_{-1.7}$	$100\theta_{\mathrm{D}}$	$0.16094^{+0.00077}_{-0.00078}$	$f_{2000}^{143\times 217}$	$34^{+6}_{-6}$
$\Omega_{\Lambda}$	$0.684^{+0.024}_{-0.025}$	$z_{\mathrm{eq}}$	$3399^{+88}_{-93}$	$f_{2000}^{217}$	$108.6^{+5.3}_{-5.4}$
$\Omega_{\mathrm{m}}$	$0.316^{+0.025}_{-0.024}$	$k_{\mathrm{eq}}$	$0.01037^{+0.00027}_{-0.00028}$	$\chi_{\mathrm{lensing}}^2$	$9.67\ (\nu: 0.4)$
$\Omega_{\mathrm{m}}h^2$	$0.1429^{+0.0037}_{-0.0039}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.018}_{-0.016}$	$\chi_{\mathrm{simall}}^2$	$397.1\ (\nu: 1.4)$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0013}_{-0.0012}$	$100\theta_{\mathrm{s,eq}}$	$0.4496^{+0.0091}_{-0.0083}$	$\chi_{\mathrm{lowl}}^2$	$23.8\ (\nu: 2.6)$
$\sigma_8$	$0.811^{+0.016}_{-0.015}$	$H(0.15)$	$72.6^{+1.6}_{-1.5}$	$\chi_{\mathrm{plik}}^2$	$772.7\ (\nu: 15.2)$
$S_8$	$0.832^{+0.041}_{-0.043}$	$D_{\mathrm{M}}(0.15)$	$645^{+15}_{-16}$	$\chi_{\mathrm{prior}}^2$	$7.3\ (\nu: 6.7)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.023}_{-0.023}$	$H(0.38)$	$82.8^{+1.2}_{-1.1}$	$\chi_{\mathrm{CMB}}^2$	$1203.3\ (\nu: 16.9)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.019}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1536^{+30}_{-32}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1210.63$ ;  $R - 1 = 0.00844$



15.20 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02230^{+0.00062}_{-0.00055}$	$r_{\mathrm{drag}} h$	$99.7^{+2.2}_{-2.1}$	$H(0.61)$	$95.32^{+0.67}_{-0.62}$
$\Omega_{\mathrm{c}} h^2$	$0.1190^{+0.0028}_{-0.0029}$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.061}_{-0.062}$	$D_{\mathrm{M}}(0.61)$	$2305^{+29}_{-30}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0010}_{-0.0011}$	$z_{\mathrm{re}}$	$< 9.64$	$H(2.33)$	$235.9^{+1.9}_{-1.9}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$10^9 A_{\mathrm{s}}$	$2.109^{+0.084}_{-0.067}$	$D_{\mathrm{M}}(2.33)$	$5763^{+32}_{-34}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.049^{+0.039}_{-0.032}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.028}_{-0.028}$	$f\sigma_8(0.15)$	$0.455^{+0.016}_{-0.016}$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011}$	$D_{40}$	$1232^{+59}_{-51}$	$\sigma_8(0.15)$	$0.748^{+0.014}_{-0.013}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.006^{+0.020}_{-0.022}$	$D_{220}$	$5723^{+110}_{-100}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.014}$
$r$	$< 0.220$	$D_{810}$	$2540^{+35}_{-35}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.011}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0062}_{-0.0065}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.012}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{2000}$	$229.6^{+4.8}_{-4.7}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.010}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.987^{+0.070}_{-0.065}$	$f\sigma_8(0.61)$	$0.468^{+0.010}_{-0.011}$
$A_{143}^{\mathrm{tSZ}}$	—	$Y_{\mathrm{P}}$	$0.24536^{+0.00025}_{-0.00025}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0092}$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00025}_{-0.00026}$	$f\sigma_8(2.33)$	$0.2978^{+0.0058}_{-0.0046}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.60^{+0.11}_{-0.11}$	$\sigma_8(2.33)$	$0.3071^{+0.0062}_{-0.0049}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	Age/Gyr	$13.798^{+0.074}_{-0.078}$	$r_{0.002}$	$< 0.237$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$z_*$	$1089.93^{+0.81}_{-0.84}$	$r_{0.01}$	$< 0.224$
$A^{\mathrm{kSZ}}$	—	$r_*$	$144.73^{+0.79}_{-0.77}$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.3^{+2.2}_{-4.0}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.9}$	$100\theta_*$	$1.0412^{+0.0010}_{-0.0011}$	$r_{10}$	$< 0.126$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.8}_{-4.6}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.901^{+0.077}_{-0.076}$	$10^9 A_{\mathrm{t}}$	$< 0.462$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.4}_{-8.6}$	$z_{\mathrm{drag}}$	$1059.7^{+1.3}_{-1.3}$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.415$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$r_{\mathrm{drag}}$	$147.43^{+0.88}_{-0.87}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0017}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$100\theta_{\mathrm{D}}$	$0.16090^{+0.00076}_{-0.00075}$	$f_{2000}^{217}$	$108.4^{+5.2}_{-5.3}$
$H_0$	$67.7^{+1.3}_{-1.3}$	$z_{\mathrm{eq}}$	$3378^{+67}_{-68}$	$\chi_{\mathrm{lensing}}^2$	$9.46 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.690^{+0.017}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00020}_{-0.00021}$	$\chi_{\mathrm{simall}}^2$	$397.4 (\nu: 1.8)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.017}_{-0.017}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.012}$	$\chi_{\mathrm{lowl}}^2$	$23.5 (\nu: 2.3)$
$\Omega_{\mathrm{m}} h^2$	$0.1420^{+0.0028}_{-0.0028}$	$100\theta_{\mathrm{s,eq}}$	$0.4517^{+0.0065}_{-0.0063}$	$\chi_{\mathrm{plik}}^2$	$773.0 (\nu: 14.9)$
$\Omega_{\mathrm{m}} h^3$	$0.0961^{+0.0013}_{-0.0012}$	$H(0.15)$	$72.9^{+1.2}_{-1.1}$	$\chi_{6\mathrm{DF}}^2$	$0.052 (\nu: 0.0)$
$\sigma_8$	$0.809^{+0.015}_{-0.015}$	$D_{\mathrm{M}}(0.15)$	$641^{+11}_{-11}$	$\chi_{\mathrm{MGS}}^2$	$1.33 (\nu: 0.1)$
$S_8$	$0.823^{+0.031}_{-0.032}$	$H(0.38)$	$83.01^{+0.89}_{-0.84}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.0)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.017}$	$D_{\mathrm{M}}(0.38)$	$1529^{+22}_{-23}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.7)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.016}_{-0.016}$	$H(0.51)$	$89.71^{+0.76}_{-0.70}$	$\chi_{\mathrm{CMB}}^2$	$1203.4 (\nu: 16.3)$
$\sigma_8/h^{0.5}$	$0.984^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.51)$	$1981^{+26}_{-27}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.7)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1216.87; R - 1 = 0.01475$$



## 15.21 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022398	$0.02243^{+0.00040}_{-0.00038}$ (+0.9 $\sigma$ )	$\sigma_8$	0.8121	$0.811^{+0.016}_{-0.015}$ (+0.1 $\sigma$ )	$H(0.38)$	82.86	$82.93^{+0.89}_{-0.85}$ (+0.5 $\sigma$ )
$\Omega_c h^2$	0.12015	$0.1199^{+0.0031}_{-0.0029}$ (−0.1 $\sigma$ )	$S_8$	0.8333	$0.830^{+0.033}_{-0.032}$ (−0.2 $\sigma$ )	$D_M(0.38)$	1533.9	$1532^{+23}_{-24}$ (−0.4 $\sigma$ )
$100\theta_{MC}$	1.04094	$1.04093^{+0.00078}_{-0.00076}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4564	$0.455^{+0.018}_{-0.017}$ (−0.2 $\sigma$ )	$H(0.51)$	89.63	$89.69^{+0.72}_{-0.68}$ (+0.5 $\sigma$ )
$\tau$	0.0546	$0.056^{+0.022}_{-0.020}$ (+0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6088	$0.607^{+0.017}_{-0.016}$ (−0.1 $\sigma$ )	$D_M(0.51)$	1986.3	$1984^{+27}_{-28}$ (−0.4 $\sigma$ )
$\ln(10^{10} A_s)$	3.0464	$3.049^{+0.043}_{-0.039}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9897	$0.987^{+0.024}_{-0.023}$ (−0.1 $\sigma$ )	$H(0.61)$	95.29	$95.33^{+0.60}_{-0.55}$ (+0.6 $\sigma$ )
$n_s$	0.9654	$0.965^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )	$r_{drag} h$	98.99	$99.2^{+2.4}_{-2.3}$ (+0.2 $\sigma$ )	$D_M(0.61)$	2310.7	$2308^{+30}_{-30}$ (−0.4 $\sigma$ )
$dn_s/d \ln k$	−0.0025	$−0.008^{+0.019}_{-0.020}$ (−0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.442	$2.431^{+0.061}_{-0.062}$ (−0.2 $\sigma$ )	$H(2.33)$	236.69	$236.6^{+1.8}_{-1.7}$ (+0.1 $\sigma$ )
$r$	0.001	< 0.215 (+0.2 $\sigma$ )	$z_{re}$	7.71	$7.8^{+2.0}_{-2.1}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5762.6	$5761^{+26}_{-28}$ (−0.7 $\sigma$ )
$y_{cal}$	1.0006	$1.0007^{+0.0064}_{-0.0064}$ (+0.1 $\sigma$ )	$10^9 A_s$	2.104	$2.110^{+0.092}_{-0.080}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4606	$0.459^{+0.017}_{-0.016}$ (−0.1 $\sigma$ )
$A_{217}^{CIB}$	47.4	$48^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8862	$1.886^{+0.029}_{-0.028}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7500	$0.749^{+0.014}_{-0.013}$ (+0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.47	—	$D_{40}$	1225	$1233^{+56}_{-49}$ (−0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4780	$0.477^{+0.014}_{-0.013}$ (−0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.1	—	$D_{220}$	5733	$5729^{+100}_{-100}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6643	$0.664^{+0.013}_{-0.012}$ (+0.2 $\sigma$ )
$A_{100}^{PS}$	251	$264^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{810}$	2542.8	$2542^{+35}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(0.51)$	0.4761	$0.475^{+0.012}_{-0.012}$ (−0.1 $\sigma$ )
$A_{143}^{PS}$	49.3	$48^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	818.1	$816^{+13}_{-13}$ (+0.4 $\sigma$ )	$\sigma_8(0.51)$	0.6215	$0.621^{+0.013}_{-0.011}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	49.2	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{2000}$	231.06	$230.0^{+4.7}_{-4.6}$ (+0.4 $\sigma$ )	$f\sigma_8(0.61)$	0.4708	$0.470^{+0.011}_{-0.011}$ (−0.0 $\sigma$ )
$A_{217}^{PS}$	120.2	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$n_{s,0.002}$	0.973	$0.992^{+0.062}_{-0.058}$ (+0.3 $\sigma$ )	$\sigma_8(0.61)$	0.5912	$0.591^{+0.012}_{-0.011}$ (+0.3 $\sigma$ )
$A^{kSZ}$	0.0	—	$Y_P$	0.245407	$0.24542^{+0.00015}_{-0.00016}$ (+0.8 $\sigma$ )	$f\sigma_8(2.33)$	0.2979	$0.2977^{+0.0064}_{-0.0057}$ (+0.3 $\sigma$ )
$A_{100}^{dustTT}$	8.87	$9.0^{+4.8}_{-4.8}$ (−0.0 $\sigma$ )	$Y_P^{BBN}$	0.246733	$0.24674^{+0.00015}_{-0.00016}$ (+0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3070	$0.3068^{+0.0069}_{-0.0062}$ (+0.3 $\sigma$ )
$A_{143}^{dustTT}$	11.05	$11.0^{+4.5}_{-4.6}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.580	$2.575^{+0.072}_{-0.071}$ (−0.9 $\sigma$ )	$r_{0.002}$	0.001	< 0.229 (+0.2 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.9	$18.7^{+8.3}_{-8.6}$ (+0.1 $\sigma$ )	Age/Gyr	13.795	$13.791^{+0.059}_{-0.062}$ (−0.7 $\sigma$ )	$r_{0.01}$	0.001	< 0.217 (+0.2 $\sigma$ )
$A_{217}^{dustTT}$	95.0	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_*$	1089.90	$1089.84^{+0.67}_{-0.66}$ (−0.7 $\sigma$ )	$\ln(10^{10} A_t)$	−4.27	$−0.2^{+2.0}_{-4.0}$ (+0.2 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.115^{+0.10}_{-0.097}$	$r_*$	144.37	$144.41^{+0.66}_{-0.68}$ (−0.3 $\sigma$ )	$r_{10}$	0.000	< 0.122 (+0.2 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.136^{+0.075}_{-0.076}$	$100\theta_*$	1.04111	$1.04111^{+0.00077}_{-0.00075}$ (+0.2 $\sigma$ )	$10^9 A_t$	0.001	< 0.456 (+0.2 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.481	$0.48^{+0.22}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	13.867	$13.871^{+0.062}_{-0.065}$ (−0.3 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.001	< 0.405 (+0.2 $\sigma$ )
$A_{143}^{dustTE}$	0.224	$0.23^{+0.14}_{-0.14}$	$z_{drag}$	1060.01	$1060.06^{+0.82}_{-0.82}$ (+0.9 $\sigma$ )	$f_{2000}^{143}$	29.3	$31^{+8}_{-8}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.666	$0.66^{+0.20}_{-0.20}$	$r_{drag}$	147.02	$147.05^{+0.67}_{-0.70}$ (−0.4 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.4	$33^{+5}_{-6}$ (−0.3 $\sigma$ )
$A_{217}^{dustTE}$	2.09	$2.08^{+0.70}_{-0.69}$	$k_D$	0.14096	$0.14095^{+0.00081}_{-0.00079}$ (+0.7 $\sigma$ )	$f_{2000}^{217}$	106.9	$108.0^{+5.1}_{-5.2}$ (−0.3 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0015}$ (+0.1 $\sigma$ )	$100\theta_D$	0.160717	$0.16068^{+0.00047}_{-0.00048}$ (−0.9 $\sigma$ )	$\chi^2_{lensing}$	8.96	$9.56 (\nu: 0.3)$ (−0.1 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{eq}$	3406	$3401^{+69}_{-66}$ (+0.0 $\sigma$ )	$\chi^2_{small}$	396.06	$397.4 (\nu: 1.7)$ (+0.1 $\sigma$ )
$H_0$	67.33	$67.4^{+1.4}_{-1.4}$ (+0.4 $\sigma$ )	$k_{eq}$	0.010397	$0.01038^{+0.00021}_{-0.00020}$ (+0.0 $\sigma$ )	$\chi^2_{lowl}$	22.66	$23.4 (\nu: 1.8)$ (−0.2 $\sigma$ )
$\Omega_\Lambda$	0.6841	$0.686^{+0.018}_{-0.019}$ (+0.3 $\sigma$ )	$100\theta_{eq}$	0.8126	$0.814^{+0.013}_{-0.013}$ (+0.1 $\sigma$ )	$\chi^2_{plik}$	2345.1	$2360.6 (\nu: 17.6)$ (+287.9 $\sigma$ )
$\Omega_m$	0.3159	$0.314^{+0.019}_{-0.018}$ (−0.3 $\sigma$ )	$100\theta_{s,eq}$	0.4490	$0.4495^{+0.0064}_{-0.0065}$ (+0.0 $\sigma$ )	$\chi^2_{prior}$	1.7	$11.6 (\nu: 10.5)$ (+1.2 $\sigma$ )
$\Omega_m h^2$	0.14319	$0.1430^{+0.0029}_{-0.0028}$ (+0.0 $\sigma$ )	$H(0.15)$	72.66	$72.8^{+1.2}_{-1.2}$ (+0.4 $\sigma$ )	$\chi^2_{CMB}$	2772.8	$2791.0 (\nu: 19.4)$ (+270.6 $\sigma$ )
$\Omega_m h^3$	0.09641	$0.09642^{+0.00081}_{-0.00078}$ (+0.8 $\sigma$ )	$D_M(0.15)$	643.6	$643^{+12}_{-12}$ (−0.4 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 2774.45$ ;  $\Delta\chi^2_{eff} = 1585.92$ ;  $\bar{\chi}^2_{eff} = 2802.59$ ;  $\Delta\bar{\chi}^2_{eff} = 1591.76$ ;  $R - 1 = 0.00905$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp.p\_teb\_consext8: 8.96 ( $\Delta$  0.08) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.06 ( $\Delta$  0.16) commander\_dx12\_v3\_2\_29: 22.66 ( $\Delta$  -0.42) plik\_rd12\_HM\_v22b\_TTTEE: 2345.10



## 15.22 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_lensing\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022442	$0.02248^{+0.00037}_{-0.00037}$ (+0.8 $\sigma$ )	$S_8$	0.8260	$0.824^{+0.028}_{-0.026}$ (+0.1 $\sigma$ )	$H(0.51)$	89.77	$89.82^{+0.58}_{-0.56}$ (+0.4 $\sigma$ )
$\Omega_c h^2$	0.11941	$0.1193^{+0.0025}_{-0.0023}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4524	$0.451^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1980.2	$1978^{+22}_{-22}$ (-0.2 $\sigma$ )
$100\theta_{MC}$	1.04098	$1.04101^{+0.00074}_{-0.00072}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6056	$0.605^{+0.015}_{-0.014}$ (+0.2 $\sigma$ )	$H(0.61)$	95.390	$95.44^{+0.50}_{-0.48}$ (+0.5 $\sigma$ )
$\tau$	0.0569	$0.058^{+0.021}_{-0.018}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9857	$0.984^{+0.021}_{-0.021}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2304.2	$2302^{+24}_{-24}$ (-0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0493	$3.052^{+0.041}_{-0.037}$ (+0.3 $\sigma$ )	$r_{drag} h$	99.54	$99.7^{+1.8}_{-1.9}$ (-0.0 $\sigma$ )	$H(2.33)$	236.25	$236.2^{+1.5}_{-1.4}$ (+0.4 $\sigma$ )
$n_s$	0.9664	$0.966^{+0.010}_{-0.010}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.433	$2.424^{+0.058}_{-0.060}$ (-0.0 $\sigma$ )	$D_M(2.33)$	5758.5	$5756^{+24}_{-24}$ (-0.6 $\sigma$ )
$dn_s/d \ln k$	-0.0037	$-0.008^{+0.019}_{-0.020}$ (-0.2 $\sigma$ )	$z_{re}$	7.92	$8.0^{+2.0}_{-1.9}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4570	$0.456^{+0.014}_{-0.013}$ (+0.1 $\sigma$ )
$r$	0.000	< 0.217 (+0.2 $\sigma$ )	$10^9 A_s$	2.110	$2.115^{+0.089}_{-0.077}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7491	$0.749^{+0.015}_{-0.013}$ (+0.2 $\sigma$ )
$y_{cal}$	1.0007	$1.0008^{+0.0064}_{-0.0064}$ (+0.0 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8831	$1.884^{+0.028}_{-0.027}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4754	$0.475^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )
$A_{217}^{CIB}$	49.0	$48^{+20}_{-20}$ (-0.1 $\sigma$ )	$D_{40}$	1220	$1231^{+57}_{-49}$ (-0.0 $\sigma$ )	$\sigma_8(0.38)$	0.6640	$0.664^{+0.013}_{-0.012}$ (+0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.19	—	$D_{220}$	5736	$5733^{+100}_{-99}$ (+0.2 $\sigma$ )	$f\sigma_8(0.51)$	0.4740	$0.473^{+0.011}_{-0.010}$ (+0.2 $\sigma$ )
$A_{143}^{tSZ}$	7.3	—	$D_{810}$	2541.5	$2542^{+34}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6214	$0.621^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )
$A_{100}^{PS}$	253	$263^{+70}_{-70}$ (-0.1 $\sigma$ )	$D_{1420}$	817.6	$817^{+13}_{-13}$ (+0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4690	$0.4684^{+0.0099}_{-0.0098}$ (+0.2 $\sigma$ )
$A_{143}^{PS}$	45.1	$48^{+20}_{-20}$ (-0.2 $\sigma$ )	$D_{2000}$	230.85	$230.3^{+4.6}_{-4.6}$ (+0.4 $\sigma$ )	$\sigma_8(0.61)$	0.5913	$0.591^{+0.012}_{-0.010}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	41.9	$42^{+20}_{-20}$ (-0.1 $\sigma$ )	$n_{s,0.002}$	0.978	$0.993^{+0.063}_{-0.059}$ (+0.3 $\sigma$ )	$f\sigma_8(2.33)$	0.2981	$0.2981^{+0.0062}_{-0.0053}$ (+0.2 $\sigma$ )
$A_{217}^{PS}$	117.4	$114^{+30}_{-30}$ (-0.0 $\sigma$ )	$Y_P$	0.245423	$0.24543^{+0.00014}_{-0.00015}$ (+0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3074	$0.3074^{+0.0065}_{-0.0057}$ (+0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246750	$0.24676^{+0.00014}_{-0.00015}$ (+0.8 $\sigma$ )	$r_{0.002}$	0.000	< 0.231 (+0.2 $\sigma$ )
$A_{100}^{dustTT}$	8.93	$9.0^{+4.6}_{-4.9}$ (+0.0 $\sigma$ )	$10^5 D/H$	2.572	$2.567^{+0.069}_{-0.066}$ (-0.8 $\sigma$ )	$r_{0.01}$	0.000	< 0.218 (+0.2 $\sigma$ )
$A_{143}^{dustTT}$	11.01	$11.0^{+4.5}_{-4.6}$ (+0.1 $\sigma$ )	Age/Gyr	13.786	$13.781^{+0.053}_{-0.053}$ (-0.6 $\sigma$ )	$\ln(10^{10} A_t)$	-4.68	$-0.1^{+1.9}_{-4.0}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.4	$18.6^{+8.3}_{-8.4}$ (+0.1 $\sigma$ )	$z_*$	1089.78	$1089.72^{+0.58}_{-0.56}$ (-0.7 $\sigma$ )	$r_{10}$	0.000	< 0.122 (+0.2 $\sigma$ )
$A_{217}^{dustTT}$	94.4	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	$r_*$	144.53	$144.54^{+0.55}_{-0.58}$ (-0.6 $\sigma$ )	$10^9 A_t$	0.001	< 0.460 (+0.2 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.115^{+0.10}_{-0.098}$	$100\theta_*$	1.04115	$1.04118^{+0.00073}_{-0.00071}$ (+0.0 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.001	< 0.409 (+0.2 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.136	$0.136^{+0.077}_{-0.075}$	$D_M(z_*)/\text{Gpc}$	13.882	$13.883^{+0.053}_{-0.057}$ (-0.6 $\sigma$ )	$f_{2000}^{143}$	29.6	$31^{+8}_{-8}$ (-0.3 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.481	$0.48^{+0.21}_{-0.22}$	$z_{drag}$	1060.05	$1060.12^{+0.80}_{-0.80}$ (+0.8 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.5	$33^{+5}_{-6}$ (-0.3 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.23^{+0.14}_{-0.14}$	$r_{drag}$	147.17	$147.17^{+0.57}_{-0.63}$ (-0.7 $\sigma$ )	$f_{2000}^{217}$	107.2	$107.9^{+5.0}_{-5.1}$ (-0.3 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.663	$0.66^{+0.21}_{-0.20}$	$k_D$	0.14084	$0.14086^{+0.00080}_{-0.00074}$ (+0.8 $\sigma$ )	$\chi_{lensing}^2$	8.84	$9.42 (\nu: 0.2)$ (-0.1 $\sigma$ )
$A_{217}^{dustTE}$	2.07	$2.07^{+0.72}_{-0.68}$	$100\theta_D$	0.160687	$0.16065^{+0.00046}_{-0.00046}$ (-0.9 $\sigma$ )	$\chi_{small}^2$	396.5	$397.7 (\nu: 2.1)$ (+0.1 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{eq}$	3390	$3387^{+56}_{-52}$ (+0.3 $\sigma$ )	$\chi_{lowl}^2$	22.19	$23.2 (\nu: 1.8)$ (-0.1 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (-0.1 $\sigma$ )	$k_{eq}$	0.010346	$0.01034^{+0.00017}_{-0.00016}$ (+0.3 $\sigma$ )	$\chi_{plik}^2$	2345.4	$2360.6 (\nu: 17.5)$ (+291.0 $\sigma$ )
$H_0$	67.64	$67.7^{+1.1}_{-1.1}$ (+0.2 $\sigma$ )	$100\theta_{eq}$	0.8158	$0.8164^{+0.0099}_{-0.010}$ (-0.2 $\sigma$ )	$\chi_{6DF}^2$	0.037	$0.049 (\nu: 0.0)$ (-0.1 $\sigma$ )
$\Omega_\Lambda$	0.6885	$0.690^{+0.014}_{-0.015}$ (+0.0 $\sigma$ )	$100\theta_{s,eq}$	0.4506	$0.4509^{+0.0050}_{-0.0053}$ (-0.3 $\sigma$ )	$\chi_{MGS}^2$	1.16	$1.29 (\nu: 0.1)$ (-0.1 $\sigma$ )
$\Omega_m$	0.3115	$0.310^{+0.015}_{-0.014}$ (-0.0 $\sigma$ )	$H(0.15)$	72.92	$73.01^{+0.94}_{-0.94}$ (+0.2 $\sigma$ )	$\chi_{DR12BAO}^2$	4.62	$4.7 (\nu: 0.8)$ (-0.0 $\sigma$ )
$\Omega_m h^2$	0.14250	$0.1424^{+0.0023}_{-0.0022}$ (+0.3 $\sigma$ )	$D_M(0.15)$	640.9	$640.1^{+9.4}_{-9.2}$ (-0.2 $\sigma$ )	$\chi_{prior}^2$	1.9	$11.7 (\nu: 10.4)$ (+1.2 $\sigma$ )
$\Omega_m h^3$	0.09638	$0.09643^{+0.00079}_{-0.00079}$ (+0.8 $\sigma$ )	$H(0.38)$	83.04	$83.11^{+0.71}_{-0.70}$ (+0.3 $\sigma$ )	$\chi_{CMB}^2$	2772.8	$2790.9 (\nu: 19.1)$ (+277.1 $\sigma$ )
$\sigma_8$	0.8107	$0.810^{+0.016}_{-0.015}$ (+0.2 $\sigma$ )	$D_M(0.38)$	1528.6	$1527^{+19}_{-19}$ (-0.2 $\sigma$ )	$\chi_{BAO}^2$	5.81	$6.1 (\nu: 0.5)$ (-0.0 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 2780.54$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.85$ ;  $\bar{\chi}_{\text{eff}}^2 = 2808.64$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.65$ ;  $R - 1 = 0.01143$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.04 ( $\Delta$  0.01) MGS: 1.16 ( $\Delta$  -0.06) DR12BAO: 4.62 ( $\Delta$  0.21) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.84 ( $\Delta$  -0.12) simall\_100x143\_offlike5\_EE\_Aplanck  
396.45 ( $\Delta$  0.39) commander\_dx12\_v3\_2.29: 22.19 ( $\Delta$  -0.49) plik\_rd12\_HM\_v22b\_TTTEE: 2345.36



### 15.23 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02243^{+0.00039}_{-0.00038} \quad (+0.8\sigma)$	$\sigma_8$	$0.811^{+0.016}_{-0.014} \quad (+0.1\sigma)$	$H(0.38)$	$82.95^{+0.89}_{-0.85} \quad (+0.4\sigma)$
$\Omega_c h^2$	$0.1199^{+0.0030}_{-0.0029} \quad (-0.1\sigma)$	$S_8$	$0.830^{+0.033}_{-0.032} \quad (-0.1\sigma)$	$D_M(0.38)$	$1532^{+23}_{-24} \quad (-0.4\sigma)$
$100\theta_{MC}$	$1.04094^{+0.00078}_{-0.00077} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.455^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$H(0.51)$	$89.70^{+0.71}_{-0.67} \quad (+0.5\sigma)$
$\tau$	$0.057^{+0.020}_{-0.015} \quad (+0.3\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.607^{+0.017}_{-0.016} \quad (-0.1\sigma)$	$D_M(0.51)$	$1984^{+27}_{-28} \quad (-0.4\sigma)$
$\ln(10^{10} A_s)$	$3.051^{+0.042}_{-0.031} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.988^{+0.024}_{-0.023} \quad (-0.1\sigma)$	$H(0.61)$	$95.34^{+0.59}_{-0.55} \quad (+0.6\sigma)$
$n_s$	$0.965^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$r_{\text{drag}} h$	$99.2^{+2.4}_{-2.3} \quad (+0.2\sigma)$	$D_M(0.61)$	$2308^{+29}_{-30} \quad (-0.4\sigma)$
$dn_s/d \ln k$	$-0.009^{+0.019}_{-0.020} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.060}_{-0.062} \quad (-0.2\sigma)$	$H(2.33)$	$236.5^{+1.8}_{-1.7} \quad (+0.1\sigma)$
$r$	$< 0.216 \quad (+0.2\sigma)$	$z_{\text{re}}$	$< 9.68 \quad (+0.2\sigma)$	$D_M(2.33)$	$5760^{+26}_{-27} \quad (-0.7\sigma)$
$y_{\text{cal}}$	$1.0007^{+0.0064}_{-0.0065} \quad (+0.1\sigma)$	$10^9 A_s$	$2.113^{+0.090}_{-0.064} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.017}_{-0.016} \quad (-0.1\sigma)$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.886^{+0.029}_{-0.028} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.012} \quad (+0.1\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{40}$	$1233^{+56}_{-49} \quad (-0.1\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.014}_{-0.013} \quad (-0.1\sigma)$
$A_{143}^{\text{tSZ}}$	—	$D_{220}$	$5729^{+100}_{-100} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.010} \quad (+0.2\sigma)$
$A_{100}^{\text{PS}}$	$264^{+70}_{-70} \quad (-0.1\sigma)$	$D_{810}$	$2542^{+35}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0096} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$230.0^{+4.7}_{-4.6} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.010} \quad (-0.0\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$n_{s,0.002}$	$0.992^{+0.062}_{-0.058} \quad (+0.3\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0091} \quad (+0.2\sigma)$
$A^{\text{kSZ}}$	—	$Y_P$	$0.24542^{+0.00015}_{-0.00016} \quad (+0.8\sigma)$	$f\sigma_8(2.33)$	$0.2979^{+0.0063}_{-0.0046} \quad (+0.3\sigma)$
$A_{100}^{\text{dust}TT}$	$8.9^{+4.8}_{-4.8} \quad (-0.0\sigma)$	$Y_P^{\text{BBN}}$	$0.24674^{+0.00015}_{-0.00016} \quad (+0.8\sigma)$	$\sigma_8(2.33)$	$0.3070^{+0.0068}_{-0.0049} \quad (+0.3\sigma)$
$A_{143}^{\text{dust}TT}$	$11.0^{+4.5}_{-4.6} \quad (+0.1\sigma)$	$10^5 D/H$	$2.574^{+0.072}_{-0.071} \quad (-0.8\sigma)$	$r_{0.002}$	$< 0.230 \quad (+0.2\sigma)$
$A_{143 \times 217}^{\text{dust}TT}$	$18.7^{+8.3}_{-8.7} \quad (+0.1\sigma)$	$\text{Age/Gyr}$	$13.790^{+0.058}_{-0.061} \quad (-0.7\sigma)$	$r_{0.01}$	$< 0.218 \quad (+0.2\sigma)$
$A_{217}^{\text{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$z_*$	$1089.83^{+0.66}_{-0.65} \quad (-0.7\sigma)$	$\ln(10^{10} A_t)$	$-0.2^{+2.0}_{-4.0} \quad (+0.2\sigma)$
$A_{100}^{\text{dust}TE}$	$0.115^{+0.10}_{-0.097}$	$r_*$	$144.42^{+0.66}_{-0.67} \quad (-0.3\sigma)$	$r_{10}$	$< 0.122 \quad (+0.2\sigma)$
$A_{100 \times 143}^{\text{dust}TE}$	$0.136^{+0.075}_{-0.076}$	$100\theta_*$	$1.04111^{+0.00077}_{-0.00076} \quad (+0.1\sigma)$	$10^9 A_t$	$< 0.457 \quad (+0.2\sigma)$
$A_{100 \times 217}^{\text{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	$13.872^{+0.062}_{-0.064} \quad (-0.3\sigma)$	$10^9 A_t e^{-2\tau}$	$< 0.407 \quad (+0.2\sigma)$
$A_{143}^{\text{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$z_{\text{drag}}$	$1060.07^{+0.82}_{-0.79} \quad (+0.9\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\text{dust}TE}$	$0.66^{+0.20}_{-0.20}$	$r_{\text{drag}}$	$147.06^{+0.67}_{-0.69} \quad (-0.5\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-6} \quad (-0.3\sigma)$
$A_{217}^{\text{dust}TE}$	$2.08^{+0.70}_{-0.69}$	$k_D$	$0.14095^{+0.00080}_{-0.00079} \quad (+0.7\sigma)$	$f_{2000}^{217}$	$108.0^{+5.2}_{-5.2} \quad (-0.3\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_D$	$0.16068^{+0.00047}_{-0.00047} \quad (-0.9\sigma)$	$\chi_{\text{lensing}}^2$	$9.55 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\text{eq}}$	$3400^{+68}_{-65} \quad (+0.0\sigma)$	$\chi_{\text{small}}^2$	$397.4 \quad (\nu: 1.8) \quad (+0.2\sigma)$
$H_0$	$67.5^{+1.4}_{-1.4} \quad (+0.3\sigma)$	$k_{\text{eq}}$	$0.01038^{+0.00021}_{-0.00020} \quad (+0.0\sigma)$	$\chi_{\text{lowl}}^2$	$23.3 \quad (\nu: 1.8) \quad (-0.2\sigma)$
$\Omega_\Lambda$	$0.686^{+0.018}_{-0.019} \quad (+0.2\sigma)$	$100\theta_{\text{eq}}$	$0.814^{+0.013}_{-0.013} \quad (+0.0\sigma)$	$\chi_{\text{plik}}^2$	$2360.5 \quad (\nu: 17.5) \quad (+288.2\sigma)$
$\Omega_m$	$0.314^{+0.019}_{-0.018} \quad (-0.2\sigma)$	$100\theta_{s,\text{eq}}$	$0.4496^{+0.0064}_{-0.0064} \quad (+0.0\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.5) \quad (+1.2\sigma)$
$\Omega_m h^2$	$0.1429^{+0.0028}_{-0.0027} \quad (+0.0\sigma)$	$H(0.15)$	$72.8^{+1.2}_{-1.2} \quad (+0.4\sigma)$	$\chi_{\text{CMB}}^2$	$2790.8 \quad (\nu: 19.1) \quad (+273.1\sigma)$
$\Omega_m h^3$	$0.09642^{+0.00081}_{-0.00078} \quad (+0.8\sigma)$	$D_M(0.15)$	$642^{+12}_{-12} \quad (-0.3\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2802.46; \Delta \bar{\chi}_{\text{eff}}^2 = 1591.82; R - 1 = 0.01057$$



# 15.24 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02248^{+0.00037}_{-0.00037} \quad (+0.8\sigma)$	$S_8$	$0.824^{+0.028}_{-0.026} \quad (+0.1\sigma)$	$H(0.51)$	$89.83^{+0.58}_{-0.56} \quad (+0.4\sigma)$
$\Omega_c h^2$	$0.1192^{+0.0025}_{-0.0023} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.015}_{-0.014} \quad (+0.1\sigma)$	$D_M(0.51)$	$1978^{+22}_{-22} \quad (-0.2\sigma)$
$100\theta_{MC}$	$1.04101^{+0.00074}_{-0.00072} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.605^{+0.015}_{-0.014} \quad (+0.1\sigma)$	$H(0.61)$	$95.44^{+0.50}_{-0.47} \quad (+0.5\sigma)$
$\tau$	$0.058^{+0.020}_{-0.016} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.021}_{-0.021} \quad (+0.1\sigma)$	$D_M(0.61)$	$2302^{+24}_{-24} \quad (-0.3\sigma)$
$\ln(10^{10} A_s)$	$3.052^{+0.041}_{-0.032} \quad (+0.3\sigma)$	$r_{\text{drag}} h$	$99.7^{+1.8}_{-1.8} \quad (-0.1\sigma)$	$H(2.33)$	$236.2^{+1.5}_{-1.4} \quad (+0.4\sigma)$
$n_s$	$0.966^{+0.010}_{-0.010} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.058}_{-0.060} \quad (-0.0\sigma)$	$D_M(2.33)$	$5756^{+23}_{-24} \quad (-0.6\sigma)$
$dn_s/d \ln k$	$-0.008^{+0.019}_{-0.020} \quad (-0.2\sigma)$	$z_{\text{re}}$	$< 9.77 \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.014}_{-0.013} \quad (+0.1\sigma)$
$r$	$< 0.217 \quad (+0.2\sigma)$	$10^9 A_s$	$2.117^{+0.088}_{-0.066} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.012} \quad (+0.2\sigma)$
$y_{\text{cal}}$	$1.0008^{+0.0064}_{-0.0064} \quad (+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	$1.884^{+0.028}_{-0.027} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.012}_{-0.012} \quad (+0.1\sigma)$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20} \quad (-0.1\sigma)$	$D_{40}$	$1231^{+57}_{-49} \quad (-0.0\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.011} \quad (+0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{220}$	$5733^{+110}_{-99} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.011} \quad (+0.2\sigma)$
$A_{143}^{\text{tSZ}}$	—	$D_{810}$	$2542^{+34}_{-34} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0099} \quad (+0.2\sigma)$
$A_{100}^{\text{PS}}$	$263^{+70}_{-70} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+13}_{-13} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.4685^{+0.0099}_{-0.0098} \quad (+0.2\sigma)$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20} \quad (-0.2\sigma)$	$D_{2000}$	$230.3^{+4.6}_{-4.6} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0094} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$n_{s,0.002}$	$0.994^{+0.063}_{-0.060} \quad (+0.3\sigma)$	$f\sigma_8(2.33)$	$0.2982^{+0.0061}_{-0.0047} \quad (+0.2\sigma)$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30} \quad (-0.0\sigma)$	$Y_{\text{P}}$	$0.24543^{+0.00014}_{-0.00015} \quad (+0.8\sigma)$	$\sigma_8(2.33)$	$0.3075^{+0.0064}_{-0.0050} \quad (+0.2\sigma)$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24676^{+0.00014}_{-0.00015} \quad (+0.8\sigma)$	$r_{0.002}$	$< 0.231 \quad (+0.2\sigma)$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.6}_{-4.8} \quad (+0.0\sigma)$	$10^5 \text{D/H}$	$2.566^{+0.069}_{-0.066} \quad (-0.8\sigma)$	$r_{0.01}$	$< 0.218 \quad (+0.2\sigma)$
$A_{143}^{\text{dustTT}}$	$11.0^{+4.5}_{-4.6} \quad (+0.1\sigma)$	$\text{Age/Gyr}$	$13.781^{+0.053}_{-0.054} \quad (-0.6\sigma)$	$\ln(10^{10} A_t)$	$-0.1^{+1.9}_{-4.0} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.3}_{-8.5} \quad (+0.1\sigma)$	$z_*$	$1089.72^{+0.58}_{-0.56} \quad (-0.7\sigma)$	$r_{10}$	$< 0.122 \quad (+0.2\sigma)$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20} \quad (+0.0\sigma)$	$r_*$	$144.55^{+0.55}_{-0.58} \quad (-0.6\sigma)$	$10^9 A_t$	$< 0.460 \quad (+0.2\sigma)$
$A_{100}^{\text{dustTE}}$	$0.115^{+0.10}_{-0.098}$	$100\theta_*$	$1.04119^{+0.00073}_{-0.00071} \quad (+0.0\sigma)$	$10^9 A_t e^{-2\tau}$	$< 0.409 \quad (+0.2\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.136^{+0.077}_{-0.075}$	$D_M(z_*)/\text{Gpc}$	$13.883^{+0.053}_{-0.057} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} \quad (-0.3\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$z_{\text{drag}}$	$1060.13^{+0.80}_{-0.81} \quad (+0.8\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-6} \quad (-0.3\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$r_{\text{drag}}$	$147.17^{+0.58}_{-0.63} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$107.8^{+5.0}_{-5.1} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.20}$	$k_{\text{D}}$	$0.14086^{+0.00080}_{-0.00074} \quad (+0.8\sigma)$	$\chi_{\text{lensing}}^2$	$9.40 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.71}_{-0.68}$	$100\theta_{\text{D}}$	$0.16065^{+0.00046}_{-0.00046} \quad (-0.9\sigma)$	$\chi_{\text{simall}}^2$	$397.7 \quad (\nu: 2.1) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{eq}}$	$3387^{+56}_{-52} \quad (+0.4\sigma)$	$\chi_{\text{lowl}}^2$	$23.2 \quad (\nu: 1.8) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\text{eq}}$	$0.01034^{+0.00017}_{-0.00016} \quad (+0.4\sigma)$	$\chi_{\text{plik}}^2$	$2360.5 \quad (\nu: 17.5) \quad (+291.2\sigma)$
$H_0$	$67.7^{+1.1}_{-1.1} \quad (+0.2\sigma)$	$100\theta_{\text{eq}}$	$0.8165^{+0.0099}_{-0.010} \quad (-0.2\sigma)$	$\chi_{6\text{DF}}^2$	$0.048 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.014}_{-0.015} \quad (-0.0\sigma)$	$100\theta_{s,\text{eq}}$	$0.4510^{+0.0050}_{-0.0053} \quad (-0.3\sigma)$	$\chi_{\text{MGS}}^2$	$1.30 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\Omega_{\text{m}}$	$0.310^{+0.015}_{-0.014} \quad (+0.0\sigma)$	$H(0.15)$	$73.02^{+0.94}_{-0.93} \quad (+0.2\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.7 \quad (\nu: 0.8) \quad (+0.0\sigma)$
$\Omega_{\text{m}} h^2$	$0.1424^{+0.0023}_{-0.0022} \quad (+0.4\sigma)$	$D_M(0.15)$	$640.1^{+9.3}_{-9.1} \quad (-0.2\sigma)$	$\chi_{\text{prior}}^2$	$11.7 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\text{m}} h^3$	$0.09644^{+0.00079}_{-0.00080} \quad (+0.8\sigma)$	$H(0.38)$	$83.12^{+0.71}_{-0.69} \quad (+0.3\sigma)$	$\chi_{\text{CMB}}^2$	$2790.8 \quad (\nu: 19.0) \quad (+278.4\sigma)$
$\sigma_8$	$0.810^{+0.015}_{-0.014} \quad (+0.2\sigma)$	$D_M(0.38)$	$1527^{+19}_{-18} \quad (-0.2\sigma)$	$\chi_{\text{BAO}}^2$	$6.1 \quad (\nu: 0.5) \quad (-0.0\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 2808.56; \Delta \bar{\chi}_{\text{eff}}^2 = 1591.69; R - 1 = 0.01181$$



# 15.25 base\_nrun\_r\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022298	$0.02234^{+0.00043}_{-0.00043}$	$\sigma_8 \Omega_m^{0.5}$	0.4534	$0.453^{+0.018}_{-0.018}$	$D_M(0.38)$	1533.3	$1532^{+25}_{-25}$
$\Omega_c h^2$	0.11968	$0.1195^{+0.0032}_{-0.0033}$	$\sigma_8 \Omega_m^{0.25}$	0.6056	$0.605^{+0.017}_{-0.016}$	$H(0.51)$	89.59	$89.65^{+0.76}_{-0.73}$
$100\theta_{MC}$	1.04085	$1.04088^{+0.00080}_{-0.00079}$	$\sigma_8/h^{0.5}$	0.9855	$0.985^{+0.023}_{-0.023}$	$D_M(0.51)$	1985.9	$1984^{+30}_{-29}$
$\tau$	0.0534	$0.055^{+0.022}_{-0.020}$	$r_{drag}h$	99.23	$99.4^{+2.6}_{-2.5}$	$H(0.61)$	95.23	$95.28^{+0.62}_{-0.59}$
$\ln(10^{10} A_s)$	3.0405	$3.044^{+0.045}_{-0.040}$	$\langle d^2 \rangle^{1/2}$	2.435	$2.425^{+0.062}_{-0.064}$	$D_M(0.61)$	2310.5	$2308^{+32}_{-32}$
$n_s$	0.9659	$0.966^{+0.012}_{-0.012}$	$z_{re}$	7.60	$7.7^{+2.1}_{-2.1}$	$H(2.33)$	236.27	$236.2^{+2.0}_{-2.0}$
$dn_s/d \ln k$	-0.0008	$-0.005^{+0.018}_{-0.020}$	$10^9 A_s$	2.092	$2.099^{+0.096}_{-0.083}$	$D_M(2.33)$	5766.9	$5764^{+28}_{-29}$
$r$	0.020	$< 0.231$	$10^9 A_s e^{-2\tau}$	1.8798	$1.881^{+0.029}_{-0.029}$	$f\sigma_8(0.15)$	0.4578	$0.457^{+0.017}_{-0.017}$
$y_{cal}$	1.0005	$1.0006^{+0.0062}_{-0.0067}$	$D_{40}$	1231	$1239^{+58}_{-50}$	$\sigma_8(0.15)$	0.7473	$0.747^{+0.014}_{-0.014}$
$A_{100}^{PS}$	235	$242^{+60}_{-60}$	$D_{220}$	5718	$5714^{+100}_{-100}$	$f\sigma_8(0.38)$	0.4755	$0.475^{+0.014}_{-0.013}$
$A_{143}^{PS}$	40	$41^{+20}_{-20}$	$D_{810}$	2536.2	$2537^{+34}_{-36}$	$\sigma_8(0.38)$	0.6621	$0.662^{+0.013}_{-0.012}$
$A_{217}^{PS}$	101.9	$102^{+30}_{-30}$	$D_{1420}$	816.0	$815^{+13}_{-13}$	$f\sigma_8(0.51)$	0.4738	$0.473^{+0.012}_{-0.012}$
$A_{217}^{CIB}$	44.6	$40^{+20}_{-20}$	$D_{2000}$	230.28	$229.9^{+4.9}_{-4.8}$	$\sigma_8(0.51)$	0.6195	$0.620^{+0.012}_{-0.012}$
$A_{143}^{tSZ}$	6.54	$< 8.71$	$n_{s,0.002}$	0.968	$0.984^{+0.064}_{-0.058}$	$f\sigma_8(0.61)$	0.4686	$0.468^{+0.011}_{-0.011}$
$r_{143 \times 217}^{PS}$	0.586	$0.65^{+0.31}_{-0.32}$	$Y_P$	0.245367	$0.24538^{+0.00016}_{-0.00019}$	$\sigma_8(0.61)$	0.5894	$0.590^{+0.012}_{-0.011}$
$r_{143 \times 217}^{CIB}$	0.78	—	$Y_P^{BBN}$	0.246693	$0.24671^{+0.00016}_{-0.00019}$	$f\sigma_8(2.33)$	0.2971	$0.2972^{+0.0062}_{-0.0059}$
$\xi^{tSZ \times CIB}$	0.07	—	$10^5 D/H$	2.599	$2.593^{+0.082}_{-0.077}$	$\sigma_8(2.33)$	0.3062	$0.3064^{+0.0068}_{-0.0063}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.805	$13.800^{+0.064}_{-0.064}$	$r_{0.002}$	0.018	$< 0.250$
$A_{100}^{dust}$	1.009	$1.01^{+0.49}_{-0.50}$	$z_*$	1089.98	$1089.92^{+0.73}_{-0.70}$	$r_{0.01}$	0.019	$< 0.235$
$A_{143}^{dust}$	0.969	$0.96^{+0.46}_{-0.46}$	$r_*$	144.57	$144.58^{+0.75}_{-0.74}$	$\ln(10^{10} A_t)$	-0.86	$0.1^{+1.8}_{-3.9}$
$A_{217}^{dust}$	0.969	$0.97^{+0.27}_{-0.27}$	$100\theta_*$	1.04104	$1.04107^{+0.00079}_{-0.00079}$	$r_{10}$	0.009	$< 0.133$
$A_{143 \times 217}^{dust}$	1.003	$1.02^{+0.42}_{-0.40}$	$D_M(z_*)/\text{Gpc}$	13.887	$13.888^{+0.071}_{-0.070}$	$10^9 A_t$	0.042	$< 0.491$
$c_{100}$	0.99769	$0.9975^{+0.0027}_{-0.0028}$	$z_{drag}$	1059.74	$1059.82^{+0.88}_{-0.92}$	$10^9 A_t e^{-2\tau}$	0.038	$< 0.437$
$c_{217}$	1.00132	$1.0012^{+0.0040}_{-0.0040}$	$r_{drag}$	147.26	$147.26^{+0.77}_{-0.75}$	$f_{2000}^{143}$	30.1	$30^{+9}_{-8}$
$c_{TE}$	0.9966	$0.996^{+0.013}_{-0.012}$	$k_D$	0.14064	$0.14066^{+0.00086}_{-0.00090}$	$f_{2000}^{217}$	106.9	$107.4^{+5.6}_{-5.4}$
$c_{EE}$	0.9922	$0.992^{+0.013}_{-0.013}$	$100\theta_D$	0.16086	$0.16082^{+0.00054}_{-0.00051}$	$f_{2000}^{143 \times 217}$	32.1	$33^{+6}_{-6}$
$H_0$	67.38	$67.5^{+1.5}_{-1.4}$	$z_{eq}$	3393	$3390^{+73}_{-73}$	$\chi^2_{lensing}$	8.89	$9.56 (\nu: 0.3)$
$\Omega_\Lambda$	0.6859	$0.687^{+0.019}_{-0.020}$	$k_{eq}$	0.010355	$0.01035^{+0.00022}_{-0.00022}$	$\chi^2_{small}$	396.00	$397.4 (\nu: 1.5)$
$\Omega_m$	0.3141	$0.313^{+0.020}_{-0.019}$	$100\theta_{eq}$	0.8147	$0.815^{+0.014}_{-0.013}$	$\chi^2_{lowl}$	23.5	$24.3 (\nu: 2.5)$
$\Omega_m h^2$	0.14263	$0.1425^{+0.0030}_{-0.0031}$	$100\theta_{s,eq}$	0.4502	$0.4505^{+0.0072}_{-0.0069}$	$\chi^2_{CamSpec}$	11499.1	$11514.1 (\nu: 16.9)$
$\Omega_m h^3$	0.09611	$0.09616^{+0.00087}_{-0.00087}$	$H(0.15)$	72.69	$72.8^{+1.3}_{-1.2}$	$\chi^2_{prior}$	2.1	$7.8 (\nu: 5.9)$
$\sigma_8$	0.8090	$0.809^{+0.016}_{-0.016}$	$D_M(0.15)$	643.2	$642^{+13}_{-12}$	$\chi^2_{CMB}$	11927.5	$11945.3 (\nu: 18.1)$
$S_8$	0.8278	$0.826^{+0.034}_{-0.033}$	$H(0.38)$	82.85	$82.92^{+0.94}_{-0.91}$			

Best-fit  $\chi^2_{eff} = 11929.59$ ;  $\bar{\chi}^2_{eff} = 11953.15$ ;  $R - 1 = 0.01351$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.89 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.00 commander\_dx12\_v3.2\_29: 23.48 CamSpec like\_10.7HM\_1400\_unified: 11499.08



## 15.26 base\_nrun\_r\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02237^{+0.00041}_{-0.00040}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.015}_{-0.014}$	$D_{\mathrm{M}}(0.51)$	$1979^{+22}_{-23}$
$\Omega_{\mathrm{c}}h^2$	$0.1190^{+0.0025}_{-0.0025}$	$\sigma_8/h^{0.5}$	$0.982^{+0.021}_{-0.021}$	$H(0.61)$	$95.37^{+0.51}_{-0.49}$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00075}_{-0.00076}$	$r_{\mathrm{drag}}h$	$99.8^{+2.0}_{-1.9}$	$D_{\mathrm{M}}(0.61)$	$2303^{+24}_{-25}$
$\tau$	$0.056^{+0.021}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	$2.419^{+0.059}_{-0.060}$	$H(2.33)$	$235.9^{+1.5}_{-1.6}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.046}_{-0.039}$	$z_{\mathrm{re}}$	$7.9^{+2.0}_{-2.0}$	$D_{\mathrm{M}}(2.33)$	$5761^{+24}_{-25}$
$n_{\mathrm{s}}$	$0.968^{+0.011}_{-0.011}$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.098}_{-0.081}$	$f\sigma_8(0.15)$	$0.454^{+0.014}_{-0.014}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.005^{+0.018}_{-0.020}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.028}_{-0.029}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.014}$
$r$	$< 0.239$	$D_{40}$	$1238^{+58}_{-50}$	$f\sigma_8(0.38)$	$0.473^{+0.012}_{-0.012}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0062}_{-0.0068}$	$D_{220}$	$5718^{+100}_{-100}$	$\sigma_8(0.38)$	$0.662^{+0.013}_{-0.013}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-70}$	$D_{810}$	$2538^{+34}_{-36}$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.010}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-13}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.012}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{2000}$	$230.1^{+4.9}_{-4.8}$	$f\sigma_8(0.61)$	$0.467^{+0.010}_{-0.0098}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.985^{+0.064}_{-0.058}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.011}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.76$	$Y_{\mathrm{P}}$	$0.24539^{+0.00015}_{-0.00017}$	$f\sigma_8(2.33)$	$0.2976^{+0.0061}_{-0.0058}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.32}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00015}_{-0.00017}$	$\sigma_8(2.33)$	$0.3069^{+0.0067}_{-0.0061}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.586^{+0.077}_{-0.073}$	$r_{0.002}$	$< 0.260$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.792^{+0.055}_{-0.056}$	$r_{0.01}$	$< 0.245$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1089.83^{+0.62}_{-0.61}$	$\ln(10^{10}A_{\mathrm{t}})$	$0.1^{+1.8}_{-3.9}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$r_*$	$144.70^{+0.62}_{-0.59}$	$r_{10}$	$< 0.138$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.45}$	$100\theta_*$	$1.04114^{+0.00075}_{-0.00075}$	$10^9 A_{\mathrm{t}}$	$< 0.506$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.898^{+0.060}_{-0.057}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.450$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.40}$	$z_{\mathrm{drag}}$	$1059.87^{+0.90}_{-0.85}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.36^{+0.66}_{-0.63}$	$f_{2000}^{217}$	$107.3^{+5.6}_{-5.4}$
$c_{217}$	$1.0012^{+0.0038}_{-0.0039}$	$k_{\mathrm{D}}$	$0.14058^{+0.00081}_{-0.00083}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-6}$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16079^{+0.00051}_{-0.00051}$	$\chi_{\mathrm{lensing}}^2$	$9.56\ (\nu: 0.3)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$z_{\mathrm{eq}}$	$3378^{+56}_{-57}$	$\chi_{\mathrm{simall}}^2$	$397.6\ (\nu: 1.8)$
$H_0$	$67.7^{+1.1}_{-1.1}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00017}_{-0.00017}$	$\chi_{\mathrm{lowl}}^2$	$24.1\ (\nu: 2.4)$
$\Omega_{\Lambda}$	$0.690^{+0.015}_{-0.015}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.011}_{-0.010}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.0\ (\nu: 16.5)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.015}_{-0.015}$	$100\theta_{\mathrm{s,eq}}$	$0.4517^{+0.0056}_{-0.0054}$	$\chi_{6\mathrm{DF}}^2$	$0.042\ (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0023}_{-0.0024}$	$H(0.15)$	$72.99^{+0.98}_{-0.95}$	$\chi_{\mathrm{MGS}}^2$	$1.36\ (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^3$	$0.09617^{+0.00086}_{-0.00088}$	$D_{\mathrm{M}}(0.15)$	$640.2^{+9.5}_{-9.5}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5\ (\nu: 0.7)$
$\sigma_8$	$0.808^{+0.016}_{-0.015}$	$H(0.38)$	$83.07^{+0.74}_{-0.71}$	$\chi_{\mathrm{prior}}^2$	$7.9\ (\nu: 5.9)$
$S_8$	$0.821^{+0.027}_{-0.027}$	$D_{\mathrm{M}}(0.38)$	$1527^{+19}_{-19}$	$\chi_{\mathrm{CMB}}^2$	$11945.2\ (\nu: 17.4)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.015}_{-0.015}$	$H(0.51)$	$89.77^{+0.61}_{-0.58}$	$\chi_{\mathrm{BAO}}^2$	$5.93\ (\nu: 0.4)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 11958.98; R - 1 = 0.01470$$



15.27 base\_nrun\_r\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02234^{+0.00042}_{-0.00042}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.018}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1531^{+25}_{-25}$
$\Omega_{\mathrm{c}}h^2$	$0.1195^{+0.0032}_{-0.0032}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.017}_{-0.016}$	$H(0.51)$	$89.66^{+0.75}_{-0.72}$
$100\theta_{\mathrm{MC}}$	$1.04089^{+0.00080}_{-0.00080}$	$\sigma_8/h^{0.5}$	$0.985^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.51)$	$1983^{+29}_{-29}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$r_{\mathrm{drag}}h$	$99.4^{+2.5}_{-2.5}$	$H(0.61)$	$95.29^{+0.62}_{-0.58}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.044}_{-0.030}$	$\langle d^2 \rangle^{1/2}$	$2.426^{+0.062}_{-0.065}$	$D_{\mathrm{M}}(0.61)$	$2308^{+31}_{-31}$
$n_{\mathrm{s}}$	$0.966^{+0.012}_{-0.012}$	$z_{\mathrm{re}}$	$< 9.57$	$H(2.33)$	$236.2^{+1.9}_{-1.9}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.006^{+0.019}_{-0.020}$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.094}_{-0.062}$	$D_{\mathrm{M}}(2.33)$	$5764^{+28}_{-28}$
$r$	$< 0.232$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.880^{+0.029}_{-0.029}$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0062}_{-0.0067}$	$D_{40}$	$1239^{+58}_{-50}$	$\sigma_8(0.15)$	$0.748^{+0.014}_{-0.012}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{220}$	$5714^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.475^{+0.014}_{-0.014}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2537^{+34}_{-36}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.010}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.51)$	$0.474^{+0.012}_{-0.012}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{2000}$	$229.9^{+4.9}_{-4.8}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0094}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.71$	$n_{\mathrm{s},0.002}$	$0.985^{+0.064}_{-0.059}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.32}$	$Y_{\mathrm{P}}$	$0.24538^{+0.00016}_{-0.00018}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0089}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00016}_{-0.00018}$	$f\sigma_8(2.33)$	$0.2975^{+0.0060}_{-0.0046}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.592^{+0.080}_{-0.076}$	$\sigma_8(2.33)$	$0.3066^{+0.0066}_{-0.0050}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.799^{+0.063}_{-0.064}$	$r_{0.002}$	$< 0.251$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.50}$	$z_{*}$	$1089.91^{+0.72}_{-0.70}$	$r_{0.01}$	$< 0.235$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.46}$	$r_{*}$	$144.59^{+0.75}_{-0.73}$	$\ln(10^{10}A_{\mathrm{t}})$	$0.1^{+1.8}_{-3.9}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$100\theta_{*}$	$1.04108^{+0.00079}_{-0.00079}$	$r_{10}$	$< 0.133$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.40}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.889^{+0.071}_{-0.069}$	$10^9 A_{\mathrm{t}}$	$< 0.493$
$c_{100}$	$0.9975^{+0.0026}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.83^{+0.91}_{-0.93}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.438$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.27^{+0.77}_{-0.76}$	$f_{2000}^{143}$	$30^{+9}_{-8}$
$c_{TE}$	$0.996^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14066^{+0.00086}_{-0.00089}$	$f_{2000}^{217}$	$107.4^{+5.6}_{-5.4}$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16081^{+0.00054}_{-0.00051}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-6}$
$H_0$	$67.5^{+1.5}_{-1.4}$	$z_{\mathrm{eq}}$	$3389^{+72}_{-72}$	$\chi_{\mathrm{lensing}}^2$	$9.53\,(\nu: 0.3)$
$\Omega_{\Lambda}$	$0.687^{+0.019}_{-0.020}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00022}_{-0.00022}$	$\chi_{\mathrm{simall}}^2$	$397.4\,(\nu: 1.6)$
$\Omega_{\mathrm{m}}$	$0.313^{+0.020}_{-0.019}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.014}_{-0.013}$	$\chi_{\mathrm{lowl}}^2$	$24.2\,(\nu: 2.5)$
$\Omega_{\mathrm{m}}h^2$	$0.1424^{+0.0030}_{-0.0030}$	$100\theta_{\mathrm{s,eq}}$	$0.4506^{+0.0072}_{-0.0068}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.0\,(\nu: 16.9)$
$\Omega_{\mathrm{m}}h^3$	$0.09616^{+0.00087}_{-0.00087}$	$H(0.15)$	$72.8^{+1.3}_{-1.2}$	$\chi_{\mathrm{prior}}^2$	$7.8\,(\nu: 5.9)$
$\sigma_8$	$0.809^{+0.016}_{-0.014}$	$D_{\mathrm{M}}(0.15)$	$642^{+12}_{-12}$	$\chi_{\mathrm{CMB}}^2$	$11945.1\,(\nu: 17.9)$
$S_8$	$0.826^{+0.034}_{-0.033}$	$H(0.38)$	$82.94^{+0.93}_{-0.90}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11953.00; R - 1 = 0.01489$$



15.28 base\_nrun\_r\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02238^{+0.00041}_{-0.00040}$	$\sigma_8 \Omega_m^{0.25}$	$0.603^{+0.014}_{-0.014}$	$D_M(0.51)$	$1979^{+22}_{-23}$
$\Omega_c h^2$	$0.1189^{+0.0024}_{-0.0025}$	$\sigma_8/h^{0.5}$	$0.982^{+0.021}_{-0.020}$	$H(0.61)$	$95.38^{+0.51}_{-0.49}$
$100\theta_{MC}$	$1.04096^{+0.00075}_{-0.00076}$	$r_{drag}h$	$99.8^{+2.0}_{-1.9}$	$D_M(0.61)$	$2303^{+24}_{-25}$
$\tau$	$0.057^{+0.019}_{-0.015}$	$\langle d^2 \rangle^{1/2}$	$2.420^{+0.059}_{-0.060}$	$H(2.33)$	$235.9^{+1.5}_{-1.6}$
$\ln(10^{10} A_s)$	$3.047^{+0.045}_{-0.032}$	$z_{re}$	$< 9.67$	$D_M(2.33)$	$5760^{+24}_{-25}$
$n_s$	$0.968^{+0.011}_{-0.011}$	$10^9 A_s$	$2.106^{+0.096}_{-0.066}$	$f\sigma_8(0.15)$	$0.454^{+0.014}_{-0.014}$
$dn_s/d \ln k$	$-0.006^{+0.018}_{-0.020}$	$10^9 A_s e^{-2\tau}$	$1.879^{+0.028}_{-0.029}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.012}$
$r$	$< 0.239$	$D_{40}$	$1238^{+58}_{-50}$	$f\sigma_8(0.38)$	$0.473^{+0.012}_{-0.011}$
$y_{cal}$	$1.0008^{+0.0061}_{-0.0068}$	$D_{220}$	$5718^{+100}_{-100}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.011}$
$A_{100}^{PS}$	$241^{+60}_{-70}$	$D_{810}$	$2538^{+34}_{-36}$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.010}$
$A_{143}^{PS}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-13}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0099}$
$A_{217}^{PS}$	$102^{+30}_{-30}$	$D_{2000}$	$230.1^{+4.9}_{-4.8}$	$f\sigma_8(0.61)$	$0.467^{+0.010}_{-0.0094}$
$A_{217}^{CIB}$	$40^{+20}_{-20}$	$n_{s,0.002}$	$0.985^{+0.064}_{-0.058}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.0094}$
$A_{143}^{tSZ}$	$< 8.73$	$Y_P$	$0.24540^{+0.00015}_{-0.00017}$	$f\sigma_8(2.33)$	$0.2977^{+0.0061}_{-0.0048}$
$r_{143 \times 217}^{PS}$	$0.66^{+0.31}_{-0.32}$	$Y_P^{BBN}$	$0.24672^{+0.00015}_{-0.00017}$	$\sigma_8(2.33)$	$0.3070^{+0.0065}_{-0.0050}$
$r_{143 \times 217}^{CIB}$	—	$10^5 D/H$	$2.585^{+0.076}_{-0.073}$	$r_{0.002}$	$< 0.260$
$\xi^{tSZ \times CIB}$	—	Age/Gyr	$13.791^{+0.055}_{-0.056}$	$r_{0.01}$	$< 0.245$
$A^{kSZ}$	—	$z_*$	$1089.82^{+0.62}_{-0.61}$	$\ln(10^{10} A_t)$	$0.1^{+1.8}_{-3.9}$
$A_{100}^{dust}$	$1.01^{+0.50}_{-0.50}$	$r_*$	$144.70^{+0.62}_{-0.59}$	$r_{10}$	$< 0.138$
$A_{143}^{dust}$	$0.96^{+0.45}_{-0.45}$	$100\theta_*$	$1.04114^{+0.00075}_{-0.00075}$	$10^9 A_t$	$< 0.507$
$A_{217}^{dust}$	$0.97^{+0.27}_{-0.26}$	$D_M(z_*)/\text{Gpc}$	$13.898^{+0.060}_{-0.057}$	$10^9 A_t e^{-2\tau}$	$< 0.450$
$A_{143 \times 217}^{dust}$	$1.03^{+0.42}_{-0.40}$	$z_{drag}$	$1059.87^{+0.90}_{-0.86}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027}$	$r_{drag}$	$147.37^{+0.66}_{-0.64}$	$f_{2000}^{217}$	$107.3^{+5.6}_{-5.4}$
$c_{217}$	$1.0012^{+0.0038}_{-0.0040}$	$k_D$	$0.14058^{+0.00082}_{-0.00082}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$100\theta_D$	$0.16079^{+0.00051}_{-0.00051}$	$\chi_{lensing}^2$	$9.52 (\nu: 0.3)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$z_{eq}$	$3377^{+56}_{-57}$	$\chi_{simall}^2$	$397.6 (\nu: 1.8)$
$H_0$	$67.7^{+1.1}_{-1.1}$	$k_{eq}$	$0.01031^{+0.00017}_{-0.00017}$	$\chi_{lowl}^2$	$24.1 (\nu: 2.4)$
$\Omega_\Lambda$	$0.691^{+0.015}_{-0.015}$	$100\theta_{eq}$	$0.818^{+0.011}_{-0.010}$	$\chi_{CamSpec}^2$	$11513.9 (\nu: 16.5)$
$\Omega_m$	$0.309^{+0.015}_{-0.015}$	$100\theta_{s,eq}$	$0.4518^{+0.0056}_{-0.0053}$	$\chi_{6DF}^2$	$0.040 (\nu: 0.0)$
$\Omega_m h^2$	$0.1420^{+0.0023}_{-0.0024}$	$H(0.15)$	$73.00^{+0.97}_{-0.94}$	$\chi_{MGS}^2$	$1.37 (\nu: 0.1)$
$\Omega_m h^3$	$0.09617^{+0.00086}_{-0.00088}$	$D_M(0.15)$	$640.1^{+9.4}_{-9.5}$	$\chi_{DR12BAO}^2$	$4.5 (\nu: 0.7)$
$\sigma_8$	$0.809^{+0.016}_{-0.014}$	$H(0.38)$	$83.08^{+0.74}_{-0.70}$	$\chi_{prior}^2$	$7.9 (\nu: 5.9)$
$S_8$	$0.821^{+0.027}_{-0.027}$	$D_M(0.38)$	$1527^{+19}_{-19}$	$\chi_{CMB}^2$	$11945.1 (\nu: 17.3)$
$\sigma_8 \Omega_m^{0.5}$	$0.450^{+0.015}_{-0.015}$	$H(0.51)$	$89.77^{+0.61}_{-0.57}$	$\chi_{BAO}^2$	$5.90 (\nu: 0.4)$

$$\bar{\chi}_{eff}^2 = 11958.86; R - 1 = 0.01525$$



# 15.29 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_BK15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02212	$0.02215^{+0.00061}_{-0.00059}$	$\Omega_m h^3$	0.09601	$0.0960^{+0.0013}_{-0.0013}$	$D_M(0.15)$	651.0	$650^{+21}_{-20}$
$\Omega_c h^2$	0.1217	$0.1213^{+0.0054}_{-0.0052}$	$\sigma_8$	0.8159	$0.815^{+0.023}_{-0.023}$	$H(0.38)$	82.29	$82.4^{+1.4}_{-1.4}$
$100\theta_{MC}$	1.04064	$1.0407^{+0.0012}_{-0.0012}$	$S_8$	0.852	$0.848^{+0.062}_{-0.059}$	$D_M(0.38)$	1549.0	$1546^{+41}_{-40}$
$\tau$	0.0531	$0.054^{+0.024}_{-0.022}$	$\sigma_8 \Omega_m^{0.5}$	0.4665	$0.464^{+0.034}_{-0.033}$	$H(0.51)$	89.16	$89.3^{+1.1}_{-1.1}$
$\ln(10^{10} A_s)$	3.0459	$3.048^{+0.048}_{-0.046}$	$\sigma_8 \Omega_m^{0.25}$	0.6169	$0.615^{+0.030}_{-0.029}$	$D_M(0.51)$	2004.1	$2001^{+47}_{-46}$
$n_s$	0.9607	$0.961^{+0.015}_{-0.015}$	$\sigma_8/h^{0.5}$	1.0007	$0.998^{+0.040}_{-0.040}$	$H(0.61)$	94.89	$94.97^{+0.92}_{-0.85}$
$dn_s/d \ln k$	-0.0042	$-0.006^{+0.020}_{-0.019}$	$r_{drag} h$	97.68	$98.0^{+4.1}_{-4.0}$	$D_M(0.61)$	2330	$2326^{+50}_{-50}$
$r$	0.0135	$< 0.0804$	$\langle d^2 \rangle^{1/2}$	2.465	$2.459^{+0.097}_{-0.096}$	$H(2.33)$	237.39	$237.2^{+3.3}_{-3.2}$
$y_{cal}$	1.0004	$1.0006^{+0.0064}_{-0.0064}$	$z_{re}$	7.64	$7.7^{+2.2}_{-2.4}$	$D_M(2.33)$	5781.6	$5778^{+41}_{-42}$
$A_{B,dust}$	4.64	$4.9^{+3.2}_{-2.2}$	$10^9 A_s$	2.103	$2.11^{+0.10}_{-0.094}$	$f\sigma_8(0.15)$	0.4698	$0.468^{+0.031}_{-0.030}$
$A_{B,sync}$	1.47	$< 4.90$	$10^9 A_s e^{-2\tau}$	1.8909	$1.891^{+0.037}_{-0.037}$	$\sigma_8(0.15)$	0.7525	$0.752^{+0.020}_{-0.019}$
$\alpha_{B,dust}$	-0.54	—	$D_{40}$	1232	$1232^{+56}_{-53}$	$f\sigma_8(0.38)$	0.4848	$0.483^{+0.024}_{-0.024}$
$\beta_{B,dust}$	1.578	$1.60^{+0.25}_{-0.25}$	$D_{220}$	5707	$5712^{+110}_{-110}$	$\sigma_8(0.38)$	0.6653	$0.665^{+0.016}_{-0.015}$
$\alpha_{B,sync}$	-0.33	—	$D_{810}$	2539.7	$2540^{+37}_{-36}$	$f\sigma_8(0.51)$	0.4815	$0.480^{+0.020}_{-0.021}$
$\beta_{B,sync}$	-3.03	$-3.10^{+0.67}_{-0.74}$	$D_{1420}$	814.2	$814^{+13}_{-13}$	$\sigma_8(0.51)$	0.6220	$0.622^{+0.015}_{-0.014}$
$\epsilon_{dust,sync}$	-0.35	$< 0.363$	$D_{2000}$	229.30	$229.0^{+5.0}_{-4.9}$	$f\sigma_8(0.61)$	0.4753	$0.474^{+0.018}_{-0.018}$
$A_{217}^{CIB}$	50.7	$49^{+20}_{-20}$	$n_{s,0.002}$	0.974	$0.981^{+0.062}_{-0.061}$	$\sigma_8(0.61)$	0.5914	$0.591^{+0.014}_{-0.013}$
$\xi^{tSZ \times CIB}$	0.09	—	$Y_P$	0.245292	$0.24530^{+0.00024}_{-0.00028}$	$f\sigma_8(2.33)$	0.2976	$0.2976^{+0.0071}_{-0.0066}$
$A_{143}^{tSZ}$	7.1	—	$Y_P^{BBN}$	0.246618	$0.24663^{+0.00024}_{-0.00028}$	$\sigma_8(2.33)$	0.3062	$0.3063^{+0.0076}_{-0.0070}$
$A_{100}^{PS}$	258	$267^{+70}_{-70}$	$10^5 D/H$	2.633	$2.63^{+0.11}_{-0.11}$	$r_{0.002}$	0.0122	$< 0.0778$
$A_{143}^{PS}$	47.8	$51^{+20}_{-20}$	Age/Gyr	13.838	$13.831^{+0.094}_{-0.095}$	$r_{0.01}$	0.0128	$< 0.0780$
$A_{143 \times 217}^{PS}$	41.8	$44^{+20}_{-20}$	$z_*$	1090.38	$1090.3^{+1.1}_{-1.0}$	$\ln(10^{10} A_t)$	-1.26	$-0.9^{+1.7}_{-3.7}$
$A_{217}^{PS}$	117.3	$115^{+30}_{-30}$	$r_*$	144.19	$144.3^{+1.3}_{-1.2}$	$r_{10}$	0.0063	$< 0.0405$
$A^{kSZ}$	0.0	—	$100\theta_*$	1.04086	$1.0409^{+0.0012}_{-0.0012}$	$10^9 A_t$	0.028	$< 0.170$
$A_{100}^{dustTT}$	8.89	$9.0^{+4.7}_{-4.7}$	$D_M(z_*)/\text{Gpc}$	13.853	$13.86^{+0.12}_{-0.11}$	$10^9 A_t e^{-2\tau}$	0.026	$< 0.151$
$A_{143}^{dustTT}$	10.80	$10.7^{+4.7}_{-4.6}$	$z_{drag}$	1059.47	$1059.5^{+1.3}_{-1.3}$	$f_{2000}^{143}$	31.4	$32^{+8}_{-8}$
$A_{143 \times 217}^{dustTT}$	19.1	$18.4^{+8.6}_{-8.6}$	$r_{drag}$	146.93	$147.0^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	34.0	$34^{+6}_{-6}$
$A_{217}^{dustTT}$	94.0	$93^{+20}_{-20}$	$k_D$	0.14084	$0.1408^{+0.0014}_{-0.0015}$	$f_{2000}^{217}$	108.4	$108.9^{+5.3}_{-5.3}$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_D$	0.16102	$0.16100^{+0.00075}_{-0.00073}$	$\chi_{BKPLANCK}^2$	734.7	$739.1 (\nu: 3.7)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$z_{eq}$	3436	$3429^{+120}_{-120}$	$\chi_{small}^2$	396.03	$397.3 (\nu: 1.9)$
$H_0$	66.48	$66.7^{+2.3}_{-2.3}$	$k_{eq}$	0.010487	$0.01046^{+0.00038}_{-0.00037}$	$\chi_{lowl}^2$	23.3	$23.6 (\nu: 2.4)$
$\Omega_\Lambda$	0.6732	$0.675^{+0.032}_{-0.035}$	$100\theta_{eq}$	0.8064	$0.808^{+0.023}_{-0.022}$	$\chi_{plik}^2$	759.2	$772.8 (\nu: 16.2)$
$\Omega_m$	0.3268	$0.325^{+0.035}_{-0.032}$	$100\theta_{s,eq}$	0.4460	$0.447^{+0.012}_{-0.011}$	$\chi_{prior}^2$	1.5	$8.9 (\nu: 8.1)$
$\Omega_m h^2$	0.1444	$0.1441^{+0.0052}_{-0.0050}$	$H(0.15)$	71.92	$72.1^{+2.0}_{-2.0}$	$\chi_{CMB}^2$	1913.3	$1932.8 (\nu: 19.7)$

Best-fit  $\chi_{\text{eff}}^2 = 1914.80$ ;  $\bar{\chi}_{\text{eff}}^2 = 1941.72$ ;  $R - 1 = 0.00186$

$\chi_{\text{eff}}^2$ : CMB - BK15\_dust: 734.70 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.03 commander\_dx12\_v3\_2\_29: 23.33 plik\_rd12\_HM\_v22\_TT: 759.19



### 15.30 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02224	$0.02227^{+0.00055}_{-0.00054}$	$S_8$	0.8255	$0.825^{+0.039}_{-0.038}$	$D_M(0.51)$	1983.5	$1983^{+28}_{-28}$
$\Omega_c h^2$	0.11928	$0.1192^{+0.0032}_{-0.0032}$	$\sigma_8 \Omega_m^{0.5}$	0.4522	$0.452^{+0.021}_{-0.021}$	$H(0.61)$	95.25	$95.28^{+0.65}_{-0.63}$
$100\theta_{MC}$	1.04097	$1.0410^{+0.0011}_{-0.0011}$	$\sigma_8 \Omega_m^{0.25}$	0.6051	$0.605^{+0.021}_{-0.020}$	$D_M(0.61)$	2308.0	$2307^{+31}_{-30}$
$\tau$	0.0559	$0.056^{+0.024}_{-0.021}$	$\sigma_8/h^{0.5}$	0.9854	$0.985^{+0.030}_{-0.029}$	$H(2.33)$	235.96	$236.0^{+2.1}_{-2.0}$
$\ln(10^{10} A_s)$	3.0462	$3.048^{+0.050}_{-0.045}$	$r_{drag} h$	99.54	$99.6^{+2.5}_{-2.4}$	$D_M(2.33)$	5766.8	$5765^{+32}_{-32}$
$n_s$	0.9660	$0.965^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	2.430	$2.428^{+0.075}_{-0.073}$	$f\sigma_8(0.15)$	0.4567	$0.456^{+0.020}_{-0.019}$
$dn_s/d \ln k$	-0.0041	$-0.006^{+0.020}_{-0.020}$	$z_{re}$	7.86	$7.9^{+2.2}_{-2.2}$	$\sigma_8(0.15)$	0.7481	$0.748^{+0.019}_{-0.017}$
$r$	0.0146	$< 0.0853$	$10^9 A_s$	2.104	$2.11^{+0.11}_{-0.092}$	$f\sigma_8(0.38)$	0.4750	$0.475^{+0.017}_{-0.017}$
$y_{cal}$	1.0006	$1.0008^{+0.0065}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	1.8810	$1.882^{+0.032}_{-0.032}$	$\sigma_8(0.38)$	0.6631	$0.663^{+0.016}_{-0.015}$
$A_{B,dust}$	4.66	$4.9^{+3.2}_{-2.2}$	$D_{40}$	1222	$1225^{+53}_{-51}$	$f\sigma_8(0.51)$	0.4735	$0.473^{+0.015}_{-0.015}$
$A_{B,sync}$	1.51	$< 4.87$	$D_{220}$	5717	$5721^{+110}_{-100}$	$\sigma_8(0.51)$	0.6206	$0.621^{+0.015}_{-0.014}$
$\alpha_{B,dust}$	-0.50	—	$D_{810}$	2538.4	$2539^{+37}_{-36}$	$f\sigma_8(0.61)$	0.4685	$0.468^{+0.014}_{-0.014}$
$\beta_{B,dust}$	1.577	$1.60^{+0.25}_{-0.25}$	$D_{1420}$	815.4	$815^{+13}_{-13}$	$\sigma_8(0.61)$	0.5905	$0.590^{+0.014}_{-0.013}$
$\alpha_{B,sync}$	-0.16	—	$D_{2000}$	229.73	$229.5^{+4.9}_{-4.7}$	$f\sigma_8(2.33)$	0.2977	$0.2977^{+0.0073}_{-0.0065}$
$\beta_{B,sync}$	-3.03	$-3.10^{+0.68}_{-0.74}$	$n_{s,0.002}$	0.979	$0.984^{+0.063}_{-0.063}$	$\sigma_8(2.33)$	0.3069	$0.3069^{+0.0075}_{-0.0068}$
$\epsilon_{dust,sync}$	-0.33	$< 0.357$	$Y_P$	0.245343	$0.24535^{+0.00021}_{-0.00025}$	$r_{0.002}$	0.0134	$< 0.0829$
$A_{217}^{CIB}$	50.8	$48^{+20}_{-20}$	$Y_P^{BBN}$	0.246669	$0.24668^{+0.00022}_{-0.00025}$	$r_{0.01}$	0.0139	$< 0.0831$
$\xi^{tSZ \times CIB}$	0.05	—	$10^5 D/H$	2.610	$2.61^{+0.10}_{-0.10}$	$\ln(10^{10} A_t)$	-1.18	$-0.8^{+1.6}_{-3.6}$
$A_{143}^{tSZ}$	7.1	—	Age/Gyr	13.806	$13.803^{+0.075}_{-0.075}$	$r_{10}$	0.0069	$< 0.0432$
$A_{100}^{PS}$	259	$266^{+70}_{-70}$	$z_*$	1090.02	$1089.99^{+0.79}_{-0.79}$	$10^9 A_t$	0.031	$< 0.180$
$A_{143}^{PS}$	46.8	$50^{+20}_{-20}$	$r_*$	144.72	$144.71^{+0.87}_{-0.85}$	$10^9 A_t e^{-2\tau}$	0.027	$< 0.160$
$A_{143 \times 217}^{PS}$	40	$43^{+20}_{-20}$	$100\theta_*$	1.04117	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	31.2	$32^{+8}_{-8}$
$A_{217}^{PS}$	116.5	$114^{+30}_{-30}$	$D_M(z_*)/\text{Gpc}$	13.899	$13.898^{+0.084}_{-0.082}$	$f_{2000}^{143 \times 217}$	33.8	$34^{+6}_{-6}$
$A^{kSZ}$	0.0	—	$z_{drag}$	1059.59	$1059.6^{+1.2}_{-1.3}$	$f_{2000}^{217}$	108.3	$108.5^{+5.4}_{-5.3}$
$A_{100}^{dustTT}$	8.86	$8.9^{+4.6}_{-4.7}$	$r_{drag}$	147.43	$147.41^{+0.96}_{-0.95}$	$\chi_{BKPLANCK}^2$	735.6	$739.8 (\nu: 3.5)$
$A_{143}^{dustTT}$	10.80	$10.8^{+4.6}_{-4.5}$	$k_D$	0.14042	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{small}^2$	396.3	$397.5 (\nu: 2.4)$
$A_{143 \times 217}^{dustTT}$	19.1	$18.3^{+8.6}_{-8.6}$	$100\theta_D$	0.16097	$0.16094^{+0.00075}_{-0.00072}$	$\chi_{lowl}^2$	22.42	$23.0 (\nu: 1.9)$
$A_{217}^{dustTT}$	94.0	$93^{+20}_{-20}$	$z_{eq}$	3382	$3382^{+75}_{-73}$	$\chi_{plik}^2$	760.1	$773.1 (\nu: 16.2)$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$k_{eq}$	0.010322	$0.01032^{+0.00023}_{-0.00022}$	$\chi_{6DF}^2$	0.038	$0.070 (\nu: 0.0)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0017}$	$100\theta_{eq}$	0.8166	$0.817^{+0.014}_{-0.013}$	$\chi_{MGS}^2$	1.16	$1.25 (\nu: 0.1)$
$H_0$	67.52	$67.6^{+1.4}_{-1.4}$	$100\theta_{s,eq}$	0.4512	$0.4513^{+0.0071}_{-0.0070}$	$\chi_{DR12BAO}^2$	4.57	$5.1 (\nu: 1.7)$
$\Omega_\Lambda$	0.6881	$0.688^{+0.019}_{-0.019}$	$H(0.15)$	72.80	$72.8^{+1.2}_{-1.2}$	$\chi_{prior}^2$	1.6	$9.0 (\nu: 8.0)$
$\Omega_m$	0.3119	$0.312^{+0.019}_{-0.019}$	$D_M(0.15)$	642.1	$642^{+12}_{-12}$	$\chi_{BAO}^2$	5.76	$6.4 (\nu: 1.1)$
$\Omega_m h^2$	0.14217	$0.1422^{+0.0031}_{-0.0031}$	$H(0.38)$	82.91	$82.95^{+0.91}_{-0.89}$	$\chi_{CMB}^2$	1914.4	$1933.4 (\nu: 20.0)$
$\Omega_m h^3$	0.09599	$0.0960^{+0.0013}_{-0.0013}$	$D_M(0.38)$	1531.2	$1530^{+24}_{-24}$			
$\sigma_8$	0.8097	$0.810^{+0.021}_{-0.020}$	$H(0.51)$	89.63	$89.66^{+0.76}_{-0.73}$			

Best-fit  $\chi_{\text{eff}}^2 = 1921.76$ ;  $\bar{\chi}_{\text{eff}}^2 = 1948.77$ ;  $R - 1 = 0.00528$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.04 MGS: 1.16 DR12BAO: 4.57 CMB - BK15\_dust: 735.55 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.34 commander\_dx12\_v3\_2\_29: 22.42 plik\_rd12\_HM\_v22\_TT: 760.08



### 15.31 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02218^{+0.00059}_{-0.00058}$	$\sigma_8$	0.8121	$0.812^{+0.016}_{-0.016}$	$D_M(0.38)$	1540.3	$1540^{+32}_{-32}$
$\Omega_c h^2$	0.12050	$0.1205^{+0.0040}_{-0.0040}$	$S_8$	0.8380	$0.837^{+0.042}_{-0.041}$	$H(0.51)$	89.39	$89.39^{+0.95}_{-0.91}$
$100\theta_{MC}$	1.04080	$1.0408^{+0.0011}_{-0.0012}$	$\sigma_8 \Omega_m^{0.5}$	0.4590	$0.459^{+0.023}_{-0.023}$	$D_M(0.51)$	1994.0	$1994^{+37}_{-37}$
$\tau$	0.0534	$0.054^{+0.023}_{-0.021}$	$\sigma_8 \Omega_m^{0.25}$	0.6105	$0.610^{+0.019}_{-0.020}$	$H(0.61)$	95.07	$95.07^{+0.80}_{-0.77}$
$\ln(10^{10} A_s)$	3.0435	$3.044^{+0.044}_{-0.041}$	$\sigma_8/h^{0.5}$	0.9922	$0.992^{+0.026}_{-0.027}$	$D_M(0.61)$	2319.3	$2319^{+40}_{-40}$
$n_s$	0.9632	$0.962^{+0.013}_{-0.013}$	$r_{\text{drag}} h$	98.58	$98.6^{+3.2}_{-3.1}$	$H(2.33)$	236.69	$236.7^{+2.5}_{-2.5}$
$dn_s/d \ln k$	-0.0029	$-0.005^{+0.020}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	2.448	$2.445^{+0.069}_{-0.069}$	$D_M(2.33)$	5774.4	$5774^{+38}_{-38}$
$r$	0.0134	$< 0.0808$	$z_{\text{re}}$	7.64	$7.6^{+2.1}_{-2.3}$	$f\sigma_8(0.15)$	0.4629	$0.463^{+0.021}_{-0.021}$
$y_{\text{cal}}$	1.0005	$1.0006^{+0.0064}_{-0.0063}$	$10^9 A_s$	2.098	$2.100^{+0.094}_{-0.085}$	$\sigma_8(0.15)$	0.7496	$0.749^{+0.015}_{-0.014}$
$A_{B,\text{dust}}$	4.66	$4.9^{+3.2}_{-2.2}$	$10^9 A_s e^{-2\tau}$	1.8854	$1.886^{+0.031}_{-0.030}$	$f\sigma_8(0.38)$	0.4795	$0.479^{+0.016}_{-0.016}$
$A_{B,\text{sync}}$	1.44	$< 4.89$	$D_{40}$	1230	$1232^{+53}_{-52}$	$\sigma_8(0.38)$	0.6636	$0.663^{+0.013}_{-0.013}$
$\alpha_{B,\text{dust}}$	-0.52	—	$D_{220}$	5714	$5715^{+110}_{-110}$	$f\sigma_8(0.51)$	0.4772	$0.477^{+0.013}_{-0.014}$
$\beta_{B,\text{dust}}$	1.575	$1.60^{+0.25}_{-0.25}$	$D_{810}$	2538.4	$2538^{+36}_{-35}$	$\sigma_8(0.51)$	0.6207	$0.620^{+0.012}_{-0.012}$
$\alpha_{B,\text{sync}}$	-0.44	—	$D_{1420}$	814.9	$814^{+14}_{-13}$	$f\sigma_8(0.61)$	0.4715	$0.471^{+0.012}_{-0.012}$
$\beta_{B,\text{sync}}$	-3.04	$-3.10^{+0.67}_{-0.73}$	$D_{2000}$	229.60	$229.2^{+4.9}_{-4.9}$	$\sigma_8(0.61)$	0.5904	$0.590^{+0.012}_{-0.011}$
$\epsilon_{\text{dust,sync}}$	-0.34	$< 0.369$	$n_{s,0.002}$	0.972	$0.978^{+0.062}_{-0.061}$	$f\sigma_8(2.33)$	0.2974	$0.2972^{+0.0064}_{-0.0060}$
$A_{217}^{\text{CIB}}$	50.8	$48^{+20}_{-20}$	$Y_P$	0.245319	$0.24531^{+0.00023}_{-0.00027}$	$\sigma_8(2.33)$	0.3062	$0.3061^{+0.0070}_{-0.0067}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.06	—	$Y_P^{\text{BBN}}$	0.246645	$0.24664^{+0.00023}_{-0.00027}$	$r_{0.002}$	0.0121	$< 0.0779$
$A_{143}^{\text{tSZ}}$	7.2	—	$10^5 D/H$	2.621	$2.62^{+0.11}_{-0.11}$	$r_{0.01}$	0.0127	$< 0.0781$
$A_{100}^{\text{PS}}$	259	$266^{+70}_{-70}$	Age/Gyr	13.822	$13.822^{+0.088}_{-0.087}$	$\ln(10^{10} A_t)$	-1.27	$-0.9^{+1.7}_{-3.6}$
$A_{143}^{\text{PS}}$	46.8	$50^{+20}_{-20}$	$z_*$	1090.20	$1090.21^{+0.94}_{-0.91}$	$r_{10}$	0.0062	$< 0.0405$
$A_{143 \times 217}^{\text{PS}}$	41	$44^{+20}_{-20}$	$r_*$	144.45	$144.46^{+0.98}_{-0.95}$	$10^9 A_t$	0.028	$< 0.170$
$A_{217}^{\text{PS}}$	116.5	$115^{+30}_{-30}$	$100\theta_*$	1.04100	$1.0410^{+0.0011}_{-0.0012}$	$10^9 A_t e^{-2\tau}$	0.025	$< 0.152$
$A^{\text{kSZ}}$	0.0	—	$D_M(z_*)/\text{Gpc}$	13.876	$13.877^{+0.091}_{-0.090}$	$f_{2000}^{143}$	31.2	$32^{+8}_{-8}$
$A_{100}^{\text{dustTT}}$	8.93	$8.9^{+4.7}_{-4.7}$	$z_{\text{drag}}$	1059.55	$1059.5^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	33.8	$34^{+6}_{-6}$
$A_{143}^{\text{dustTT}}$	10.86	$10.8^{+4.7}_{-4.6}$	$r_{\text{drag}}$	147.17	$147.2^{+1.0}_{-1.0}$	$f_{2000}^{217}$	108.2	$108.7^{+5.3}_{-5.3}$
$A_{143 \times 217}^{\text{dustTT}}$	19.1	$18.4^{+8.7}_{-8.5}$	$k_D$	0.14064	$0.1406^{+0.0013}_{-0.0013}$	$\chi^2_{\text{lensing}}$	9.08	$9.7 (\nu: 0.6)$
$A_{217}^{\text{dustTT}}$	93.9	$93^{+20}_{-20}$	$100\theta_D$	0.16099	$0.16100^{+0.00074}_{-0.00074}$	$\chi^2_{\text{BKPLANCK}}$	735.2	$739.4 (\nu: 3.5)$
$c_{100}$	0.99962	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{eq}}$	3410	$3409^{+91}_{-92}$	$\chi^2_{\text{small}}$	396.02	$397.1 (\nu: 1.4)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$k_{\text{eq}}$	0.010407	$0.01040^{+0.00028}_{-0.00028}$	$\chi^2_{\text{lowl}}$	23.2	$23.6 (\nu: 2.4)$
$H_0$	66.98	$67.0^{+1.8}_{-1.8}$	$100\theta_{\text{eq}}$	0.8114	$0.812^{+0.017}_{-0.017}$	$\chi^2_{\text{plik}}$	759.0	$772.3 (\nu: 15.3)$
$\Omega_\Lambda$	0.6806	$0.681^{+0.025}_{-0.026}$	$100\theta_{s,\text{eq}}$	0.4485	$0.4486^{+0.0090}_{-0.0086}$	$\chi^2_{\text{prior}}$	1.7	$8.9 (\nu: 8.1)$
$\Omega_m$	0.3194	$0.319^{+0.026}_{-0.025}$	$H(0.15)$	72.35	$72.4^{+1.6}_{-1.5}$	$\chi^2_{\text{CMB}}$	1922.5	$1942.2 (\nu: 19.9)$
$\Omega_m h^2$	0.14333	$0.1433^{+0.0038}_{-0.0038}$	$D_M(0.15)$	646.6	$647^{+16}_{-16}$			
$\Omega_m h^3$	0.09601	$0.0960^{+0.0013}_{-0.0013}$	$H(0.38)$	82.59	$82.6^{+1.2}_{-1.1}$			

Best-fit  $\chi^2_{\text{eff}} = 1924.17$ ;  $\bar{\chi}^2_{\text{eff}} = 1951.15$ ;  $R - 1 = 0.00356$

$\chi^2_{\text{eff}}$ : CMB - smicadx12.Dec5.ftl.mv2.ndclpp.p.teb.consext8: 9.09 BK15.dust: 735.20 simall.100x143\_offlike5.EE.Aplanck\_B: 396.02 commander\_dx12.v3.2.29: 23.21 plik\_rd12\_HM.v22.TT: 758.99



### 15.32 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02225	$0.02226^{+0.00055}_{-0.00054}$	$S_8$	0.8257	$0.826^{+0.031}_{-0.031}$	$D_M(0.51)$	1983.3	$1983^{+26}_{-26}$
$\Omega_c h^2$	0.11929	$0.1193^{+0.0028}_{-0.0028}$	$\sigma_8 \Omega_m^{0.5}$	0.4523	$0.452^{+0.017}_{-0.017}$	$H(0.61)$	95.26	$95.27^{+0.64}_{-0.62}$
$100\theta_{MC}$	1.04098	$1.0410^{+0.0011}_{-0.0011}$	$\sigma_8 \Omega_m^{0.25}$	0.6052	$0.605^{+0.016}_{-0.016}$	$D_M(0.61)$	2307.8	$2307^{+29}_{-28}$
$\tau$	0.0558	$0.057^{+0.022}_{-0.019}$	$\sigma_8/h^{0.5}$	0.9856	$0.986^{+0.023}_{-0.023}$	$H(2.33)$	235.98	$236.0^{+1.8}_{-1.8}$
$\ln(10^{10} A_s)$	3.0466	$3.049^{+0.043}_{-0.040}$	$r_{drag} h$	99.54	$99.6^{+2.2}_{-2.1}$	$D_M(2.33)$	5766.4	$5766^{+32}_{-32}$
$n_s$	0.9656	$0.965^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	2.433	$2.432^{+0.061}_{-0.061}$	$f\sigma_8(0.15)$	0.4568	$0.457^{+0.016}_{-0.016}$
$dn_s/d \ln k$	-0.0032	$-0.005^{+0.020}_{-0.020}$	$z_{re}$	7.84	$7.9^{+2.0}_{-2.0}$	$\sigma_8(0.15)$	0.7483	$0.749^{+0.015}_{-0.014}$
$r$	0.0155	$< 0.0833$	$10^9 A_s$	2.104	$2.109^{+0.092}_{-0.082}$	$f\sigma_8(0.38)$	0.4751	$0.475^{+0.013}_{-0.013}$
$y_{cal}$	1.0008	$1.0008^{+0.0064}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	1.8823	$1.882^{+0.030}_{-0.029}$	$\sigma_8(0.38)$	0.6633	$0.664^{+0.013}_{-0.012}$
$A_{B,dust}$	4.62	$4.9^{+3.2}_{-2.2}$	$D_{40}$	1227	$1227^{+52}_{-50}$	$f\sigma_8(0.51)$	0.4736	$0.474^{+0.012}_{-0.012}$
$A_{B,sync}$	1.46	$< 4.93$	$D_{220}$	5726	$5724^{+110}_{-100}$	$\sigma_8(0.51)$	0.6207	$0.621^{+0.013}_{-0.012}$
$\alpha_{B,dust}$	-0.50	—	$D_{810}$	2539.9	$2539^{+37}_{-35}$	$f\sigma_8(0.61)$	0.4686	$0.469^{+0.011}_{-0.011}$
$\beta_{B,dust}$	1.577	$1.60^{+0.25}_{-0.25}$	$D_{1420}$	816.0	$815^{+13}_{-13}$	$\sigma_8(0.61)$	0.5906	$0.591^{+0.012}_{-0.011}$
$\alpha_{B,sync}$	-0.24	—	$D_{2000}$	229.97	$229.6^{+4.8}_{-4.7}$	$f\sigma_8(2.33)$	0.2978	$0.2979^{+0.0063}_{-0.0057}$
$\beta_{B,sync}$	-3.04	$-3.10^{+0.67}_{-0.73}$	$n_{s,0.002}$	0.976	$0.981^{+0.062}_{-0.062}$	$\sigma_8(2.33)$	0.3070	$0.3071^{+0.0067}_{-0.0061}$
$\epsilon_{dust,sync}$	-0.34	$< 0.350$	$Y_P$	0.245346	$0.24535^{+0.00021}_{-0.00025}$	$r_{0.002}$	0.0142	$< 0.0812$
$A_{217}^{CIB}$	50.9	$48^{+20}_{-20}$	$Y_P^{BBN}$	0.246673	$0.24667^{+0.00021}_{-0.00025}$	$r_{0.01}$	0.0148	$< 0.0816$
$\xi^{tSZ \times CIB}$	0.06	—	$10^5 D/H$	2.608	$2.61^{+0.10}_{-0.099}$	$\ln(10^{10} A_t)$	-1.12	$-0.8^{+1.6}_{-3.6}$
$A_{143}^{tSZ}$	7.1	—	Age/Gyr	13.805	$13.804^{+0.074}_{-0.074}$	$r_{10}$	0.0073	$< 0.0421$
$A_{100}^{PS}$	259	$265^{+70}_{-70}$	$z_*$	1090.01	$1090.00^{+0.78}_{-0.77}$	$10^9 A_t$	0.033	$< 0.175$
$A_{143}^{PS}$	46.6	$50^{+20}_{-20}$	$r_*$	144.71	$144.71^{+0.77}_{-0.76}$	$10^9 A_t e^{-2\tau}$	0.029	$< 0.157$
$A_{143 \times 217}^{PS}$	40	$43^{+20}_{-20}$	$100\theta_*$	1.04117	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	31.1	$32^{+8}_{-8}$
$A_{217}^{PS}$	116.3	$115^{+30}_{-30}$	$D_M(z_*)/\text{Gpc}$	13.898	$13.898^{+0.077}_{-0.075}$	$f_{2000}^{143 \times 217}$	33.6	$34^{+6}_{-6}$
$A^{kSZ}$	0.0	—	$z_{drag}$	1059.59	$1059.6^{+1.2}_{-1.3}$	$f_{2000}^{217}$	108.1	$108.5^{+5.4}_{-5.3}$
$A_{100}^{dustTT}$	8.86	$8.9^{+4.6}_{-4.7}$	$r_{drag}$	147.41	$147.41^{+0.90}_{-0.86}$	$\chi^2_{lensing}$	8.87	$9.38 (\nu: 0.2)$
$A_{143}^{dustTT}$	10.72	$10.7^{+4.6}_{-4.6}$	$k_D$	0.14044	$0.1404^{+0.0012}_{-0.0012}$	$\chi^2_{BKPLANCK}$	735.5	$739.8 (\nu: 3.4)$
$A_{143 \times 217}^{dustTT}$	19.0	$18.3^{+8.6}_{-8.5}$	$100\theta_D$	0.16096	$0.16095^{+0.00074}_{-0.00072}$	$\chi^2_{small}$	396.35	$397.5 (\nu: 2.0)$
$A_{217}^{dustTT}$	93.8	$93^{+20}_{-20}$	$z_{eq}$	3382	$3382^{+66}_{-65}$	$\chi^2_{lowl}$	22.81	$23.2 (\nu: 2.1)$
$c_{100}$	0.99968	$0.9996^{+0.0016}_{-0.0016}$	$k_{eq}$	0.010323	$0.01032^{+0.00020}_{-0.00020}$	$\chi^2_{plik}$	759.8	$772.6 (\nu: 15.6)$
$c_{217}$	0.99828	$0.9983^{+0.0016}_{-0.0016}$	$100\theta_{eq}$	0.8166	$0.817^{+0.012}_{-0.012}$	$\chi^2_{6DF}$	0.037	$0.064 (\nu: 0.0)$
$H_0$	67.52	$67.5^{+1.3}_{-1.3}$	$100\theta_{s,eq}$	0.4512	$0.4513^{+0.0063}_{-0.0062}$	$\chi^2_{MGS}$	1.16	$1.24 (\nu: 0.1)$
$\Omega_\Lambda$	0.6881	$0.688^{+0.016}_{-0.017}$	$H(0.15)$	72.80	$72.8^{+1.1}_{-1.1}$	$\chi^2_{DR12BAO}$	4.57	$5.0 (\nu: 1.3)$
$\Omega_m$	0.3119	$0.312^{+0.017}_{-0.016}$	$D_M(0.15)$	642.0	$642^{+11}_{-11}$	$\chi^2_{prior}$	1.6	$9.0 (\nu: 8.0)$
$\Omega_m h^2$	0.14219	$0.1422^{+0.0028}_{-0.0027}$	$H(0.38)$	82.92	$82.94^{+0.86}_{-0.83}$	$\chi^2_{CMB}$	1923.3	$1942.4 (\nu: 20.1)$
$\Omega_m h^3$	0.09601	$0.0960^{+0.0013}_{-0.0013}$	$D_M(0.38)$	1531.1	$1531^{+22}_{-22}$	$\chi^2_{BAO}$	5.76	$6.3 (\nu: 0.9)$
$\sigma_8$	0.8099	$0.810^{+0.016}_{-0.016}$	$H(0.51)$	89.64	$89.65^{+0.72}_{-0.70}$			

Best-fit  $\chi^2_{eff} = 1930.66$ ;  $\bar{\chi}^2_{eff} = 1957.70$ ;  $R - 1 = 0.00643$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.04 MGS: 1.16 DR12BAO: 4.57 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.87 BK15\_dust: 735.50 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.35 commander\_dx12\_v3.2.29: 22.81 plik\_rd12\_HM\_v22.TT: 759.81



### 15.33 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02216^{+0.00060}_{-0.00058}$	$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0013}_{-0.0013}$	$D_{\mathrm{M}}(0.15)$	$649^{+20}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.1213^{+0.0053}_{-0.0052}$	$\sigma_8$	$0.816^{+0.022}_{-0.022}$	$H(0.38)$	$82.4^{+1.4}_{-1.4}$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0012}_{-0.0012}$	$S_8$	$0.848^{+0.062}_{-0.060}$	$D_{\mathrm{M}}(0.38)$	$1545^{+40}_{-40}$
$\tau$	$0.055^{+0.021}_{-0.014}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.465^{+0.034}_{-0.033}$	$H(0.51)$	$89.3^{+1.1}_{-1.1}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.050^{+0.047}_{-0.033}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.616^{+0.030}_{-0.029}$	$D_{\mathrm{M}}(0.51)$	$2000^{+46}_{-46}$
$n_{\mathrm{s}}$	$0.961^{+0.015}_{-0.015}$	$\sigma_8/h^{0.5}$	$0.999^{+0.040}_{-0.040}$	$H(0.61)$	$94.98^{+0.92}_{-0.84}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.007^{+0.020}_{-0.019}$	$r_{\mathrm{drag}}h$	$98.0^{+4.1}_{-4.0}$	$D_{\mathrm{M}}(0.61)$	$2326^{+49}_{-50}$
$r$	$< 0.0806$	$\langle d^2 \rangle^{1/2}$	$2.460^{+0.096}_{-0.096}$	$H(2.33)$	$237.2^{+3.3}_{-3.2}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0064}$	$z_{\mathrm{re}}$	$< 9.76$	$D_{\mathrm{M}}(2.33)$	$5778^{+41}_{-42}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.2}$	$10^9 A_{\mathrm{s}}$	$2.11^{+0.10}_{-0.070}$	$f\sigma_8(0.15)$	$0.468^{+0.031}_{-0.030}$
$A_{B,\mathrm{sync}}$	$< 4.89$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.891^{+0.037}_{-0.036}$	$\sigma_8(0.15)$	$0.753^{+0.019}_{-0.018}$
$\alpha_{B,\mathrm{dust}}$	—	$D_{40}$	$1232^{+55}_{-53}$	$f\sigma_8(0.38)$	$0.484^{+0.024}_{-0.024}$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25}$	$D_{220}$	$5712^{+110}_{-110}$	$\sigma_8(0.38)$	$0.666^{+0.016}_{-0.013}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{810}$	$2540^{+37}_{-36}$	$f\sigma_8(0.51)$	$0.481^{+0.020}_{-0.021}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.67}_{-0.74}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.51)$	$0.622^{+0.015}_{-0.012}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.363$	$D_{2000}$	$229.0^{+5.0}_{-4.9}$	$f\sigma_8(0.61)$	$0.475^{+0.018}_{-0.018}$
$A_{217}^{\mathrm{CIB}}$	$49^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.982^{+0.062}_{-0.060}$	$\sigma_8(0.61)$	$0.592^{+0.014}_{-0.011}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24530^{+0.00024}_{-0.00027}$	$f\sigma_8(2.33)$	$0.2980^{+0.0069}_{-0.0050}$
$A_{143}^{\mathrm{tSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00024}_{-0.00027}$	$\sigma_8(2.33)$	$0.3067^{+0.0073}_{-0.0052}$
$A_{100}^{\mathrm{PS}}$	$267^{+70}_{-70}$	$10^5\mathrm{D}/\mathrm{H}$	$2.63^{+0.11}_{-0.11}$	$r_{0.002}$	$< 0.0781$
$A_{143}^{\mathrm{PS}}$	$51^{+20}_{-20}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.829^{+0.093}_{-0.094}$	$r_{0.01}$	$< 0.0782$
$A_{143\times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$z_*$	$1090.3^{+1.0}_{-1.0}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.9^{+1.7}_{-3.7}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$r_*$	$144.3^{+1.3}_{-1.2}$	$r_{10}$	$< 0.0407$
$A^{\mathrm{kSZ}}$	—	$100\theta_*$	$1.0409^{+0.0012}_{-0.0012}$	$10^9 A_{\mathrm{t}}$	$< 0.170$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.7}_{-4.7}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.86^{+0.12}_{-0.11}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.152$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.7}_{-4.6}$	$z_{\mathrm{drag}}$	$1059.5^{+1.3}_{-1.3}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.4^{+8.6}_{-8.6}$	$r_{\mathrm{drag}}$	$147.0^{+1.3}_{-1.3}$	$f_{2000}^{143\times 217}$	$34^{+6}_{-6}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$k_{\mathrm{D}}$	$0.1408^{+0.0014}_{-0.0015}$	$f_{2000}^{217}$	$108.9^{+5.3}_{-5.3}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_{\mathrm{D}}$	$0.16099^{+0.00074}_{-0.00073}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.1 (\nu: 3.7)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{eq}}$	$3427^{+120}_{-120}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 1.9)$
$H_0$	$66.7^{+2.3}_{-2.3}$	$k_{\mathrm{eq}}$	$0.01046^{+0.00037}_{-0.00037}$	$\chi_{\mathrm{lowl}}^2$	$23.5 (\nu: 2.3)$
$\Omega_{\Lambda}$	$0.676^{+0.032}_{-0.035}$	$100\theta_{\mathrm{eq}}$	$0.808^{+0.023}_{-0.022}$	$\chi_{\mathrm{plik}}^2$	$772.7 (\nu: 16.2)$
$\Omega_{\mathrm{m}}$	$0.324^{+0.035}_{-0.032}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.447^{+0.012}_{-0.011}$	$\chi_{\mathrm{prior}}^2$	$8.9 (\nu: 8.1)$
$\Omega_{\mathrm{m}}h^2$	$0.1441^{+0.0051}_{-0.0050}$	$H(0.15)$	$72.1^{+2.0}_{-1.9}$	$\chi_{\mathrm{CMB}}^2$	$1932.6 (\nu: 19.4)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1941.52; R - 1 = 0.00204$$



### 15.34 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02227^{+0.00055}_{-0.00054}$	$S_8$	$0.825^{+0.039}_{-0.037}$	$D_M(0.51)$	$1982^{+28}_{-28}$
$\Omega_c h^2$	$0.1192^{+0.0032}_{-0.0032}$	$\sigma_8 \Omega_m^{0.5}$	$0.452^{+0.021}_{-0.020}$	$H(0.61)$	$95.28^{+0.66}_{-0.63}$
$100\theta_{MC}$	$1.0410^{+0.0011}_{-0.0011}$	$\sigma_8 \Omega_m^{0.25}$	$0.605^{+0.021}_{-0.020}$	$D_M(0.61)$	$2307^{+30}_{-30}$
$\tau$	$0.057^{+0.021}_{-0.015}$	$\sigma_8/h^{0.5}$	$0.986^{+0.030}_{-0.028}$	$H(2.33)$	$236.0^{+2.1}_{-2.0}$
$\ln(10^{10} A_s)$	$3.049^{+0.048}_{-0.035}$	$r_{\text{drag}} h$	$99.6^{+2.5}_{-2.4}$	$D_M(2.33)$	$5765^{+32}_{-33}$
$n_s$	$0.966^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.074}_{-0.071}$	$f\sigma_8(0.15)$	$0.457^{+0.020}_{-0.019}$
$dn_s/d \ln k$	$-0.006^{+0.020}_{-0.020}$	$z_{\text{re}}$	$< 9.91$	$\sigma_8(0.15)$	$0.749^{+0.019}_{-0.015}$
$r$	$< 0.0851$	$10^9 A_s$	$2.11^{+0.10}_{-0.072}$	$f\sigma_8(0.38)$	$0.475^{+0.017}_{-0.016}$
$y_{\text{cal}}$	$1.0007^{+0.0065}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	$1.882^{+0.032}_{-0.032}$	$\sigma_8(0.38)$	$0.664^{+0.016}_{-0.013}$
$A_{B,\text{dust}}$	$4.9^{+3.2}_{-2.2}$	$D_{40}$	$1224^{+53}_{-51}$	$f\sigma_8(0.51)$	$0.474^{+0.015}_{-0.014}$
$A_{B,\text{sync}}$	$< 4.86$	$D_{220}$	$5721^{+110}_{-100}$	$\sigma_8(0.51)$	$0.621^{+0.015}_{-0.011}$
$\alpha_{B,\text{dust}}$	—	$D_{810}$	$2539^{+37}_{-36}$	$f\sigma_8(0.61)$	$0.469^{+0.014}_{-0.013}$
$\beta_{B,\text{dust}}$	$1.60^{+0.25}_{-0.25}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.61)$	$0.591^{+0.014}_{-0.011}$
$\alpha_{B,\text{sync}}$	—	$D_{2000}$	$229.5^{+4.9}_{-4.7}$	$f\sigma_8(2.33)$	$0.2980^{+0.0071}_{-0.0052}$
$\beta_{B,\text{sync}}$	$-3.10^{+0.68}_{-0.74}$	$n_{s,0.002}$	$0.985^{+0.062}_{-0.062}$	$\sigma_8(2.33)$	$0.3072^{+0.0074}_{-0.0054}$
$\epsilon_{\text{dust,sync}}$	$< 0.357$	$Y_P$	$0.24535^{+0.00021}_{-0.00025}$	$r_{0.002}$	$< 0.0828$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$Y_P^{\text{BBN}}$	$0.24668^{+0.00021}_{-0.00025}$	$r_{0.01}$	$< 0.0828$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^5 \text{D/H}$	$2.61^{+0.10}_{-0.10}$	$\ln(10^{10} A_t)$	$-0.8^{+1.6}_{-3.5}$
$A_{143}^{\text{tSZ}}$	—	$\text{Age/Gyr}$	$13.802^{+0.075}_{-0.075}$	$r_{10}$	$< 0.0432$
$A_{100}^{\text{PS}}$	$266^{+70}_{-70}$	$z_*$	$1089.98^{+0.79}_{-0.79}$	$10^9 A_t$	$< 0.180$
$A_{143}^{\text{PS}}$	$50^{+20}_{-20}$	$r_*$	$144.71^{+0.87}_{-0.85}$	$10^9 A_t e^{-2\tau}$	$< 0.160$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A_{217}^{\text{PS}}$	$114^{+30}_{-30}$	$D_M(z_*)/\text{Gpc}$	$13.898^{+0.084}_{-0.082}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A^{\text{kSZ}}$	—	$z_{\text{drag}}$	$1059.6^{+1.3}_{-1.3}$	$f_{2000}^{217}$	$108.5^{+5.4}_{-5.3}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.6}_{-4.7}$	$r_{\text{drag}}$	$147.41^{+0.95}_{-0.95}$	$\chi_{\text{BKPLANCK}}^2$	$739.8 (\nu: 3.5)$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.7}_{-4.5}$	$k_D$	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\text{simall}}^2$	$397.5 (\nu: 2.5)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.5}_{-8.6}$	$100\theta_D$	$0.16094^{+0.00074}_{-0.00072}$	$\chi_{\text{lowl}}^2$	$22.9 (\nu: 1.9)$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$z_{\text{eq}}$	$3382^{+74}_{-73}$	$\chi_{\text{plik}}^2$	$773.0 (\nu: 16.1)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$k_{\text{eq}}$	$0.01032^{+0.00023}_{-0.00022}$	$\chi_{6\text{DF}}^2$	$0.069 (\nu: 0.0)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0017}$	$100\theta_{\text{eq}}$	$0.817^{+0.014}_{-0.013}$	$\chi_{\text{MGS}}^2$	$1.26 (\nu: 0.1)$
$H_0$	$67.6^{+1.4}_{-1.4}$	$100\theta_{s,\text{eq}}$	$0.4513^{+0.0070}_{-0.0070}$	$\chi_{\text{DR12BAO}}^2$	$5.0 (\nu: 1.6)$
$\Omega_\Lambda$	$0.689^{+0.018}_{-0.019}$	$H(0.15)$	$72.8^{+1.2}_{-1.2}$	$\chi_{\text{prior}}^2$	$9.0 (\nu: 8.0)$
$\Omega_m$	$0.311^{+0.019}_{-0.018}$	$D_M(0.15)$	$642^{+12}_{-12}$	$\chi_{\text{BAO}}^2$	$6.4 (\nu: 1.1)$
$\Omega_m h^2$	$0.1421^{+0.0031}_{-0.0031}$	$H(0.38)$	$82.95^{+0.91}_{-0.88}$	$\chi_{\text{CMB}}^2$	$1933.2 (\nu: 19.6)$
$\Omega_m h^3$	$0.0960^{+0.0013}_{-0.0013}$	$D_M(0.38)$	$1530^{+24}_{-24}$		
$\sigma_8$	$0.810^{+0.021}_{-0.018}$	$H(0.51)$	$89.67^{+0.76}_{-0.73}$		

$$\bar{\chi}_{\text{eff}}^2 = 1948.61; R - 1 = 0.00617$$



15.35 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02219^{+0.00058}_{-0.00057}$	$\sigma_8$	$0.812^{+0.016}_{-0.015}$	$D_{\mathrm{M}}(0.38)$	$1539^{+30}_{-31}$
$\Omega_{\mathrm{c}}h^2$	$0.1204^{+0.0038}_{-0.0039}$	$S_8$	$0.837^{+0.041}_{-0.041}$	$H(0.51)$	$89.42^{+0.94}_{-0.89}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0011}_{-0.0012}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.458^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.51)$	$1993^{+36}_{-36}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.019}_{-0.020}$	$H(0.61)$	$95.09^{+0.79}_{-0.75}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.042}_{-0.030}$	$\sigma_8/h^{0.5}$	$0.992^{+0.026}_{-0.027}$	$D_{\mathrm{M}}(0.61)$	$2318^{+38}_{-39}$
$n_{\mathrm{s}}$	$0.963^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}h$	$98.7^{+3.1}_{-2.9}$	$H(2.33)$	$236.6^{+2.4}_{-2.4}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.005^{+0.019}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	$2.446^{+0.068}_{-0.069}$	$D_{\mathrm{M}}(2.33)$	$5774^{+37}_{-38}$
$r$	$< 0.0812$	$z_{\mathrm{re}}$	$< 9.60$	$f\sigma_8(0.15)$	$0.462^{+0.021}_{-0.021}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0063}$	$10^9 A_{\mathrm{s}}$	$2.105^{+0.091}_{-0.062}$	$\sigma_8(0.15)$	$0.750^{+0.014}_{-0.013}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.2}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.886^{+0.031}_{-0.030}$	$f\sigma_8(0.38)$	$0.479^{+0.016}_{-0.016}$
$A_{B,\mathrm{sync}}$	$< 4.87$	$D_{40}$	$1231^{+52}_{-51}$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.011}$
$\alpha_{B,\mathrm{dust}}$	—	$D_{220}$	$5715^{+110}_{-110}$	$f\sigma_8(0.51)$	$0.477^{+0.013}_{-0.014}$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25}$	$D_{810}$	$2538^{+36}_{-34}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0096}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.61)$	$0.471^{+0.012}_{-0.012}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.66}_{-0.73}$	$D_{2000}$	$229.2^{+4.9}_{-4.9}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0090}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.366$	$n_{\mathrm{s},0.002}$	$0.979^{+0.062}_{-0.061}$	$f\sigma_8(2.33)$	$0.2976^{+0.0061}_{-0.0046}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00023}_{-0.00027}$	$\sigma_8(2.33)$	$0.3065^{+0.0067}_{-0.0050}$
$\xi^{\mathrm{tSZ}} \times \mathrm{CIB}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00023}_{-0.00027}$	$r_{0.002}$	$< 0.0782$
$A_{143}^{\mathrm{tSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.11}$	$r_{0.01}$	$< 0.0786$
$A_{100}^{\mathrm{PS}}$	$266^{+70}_{-70}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.820^{+0.086}_{-0.085}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.9^{+1.7}_{-3.6}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$z_*$	$1090.18^{+0.92}_{-0.90}$	$r_{10}$	$< 0.0408$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$r_*$	$144.48^{+0.96}_{-0.92}$	$10^9 A_{\mathrm{t}}$	$< 0.171$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0011}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.153$
$A^{\mathrm{kSZ}}$	—	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.879^{+0.091}_{-0.088}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7}$	$z_{\mathrm{drag}}$	$1059.5^{+1.3}_{-1.2}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-6}$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.7}_{-4.6}$	$r_{\mathrm{drag}}$	$147.2^{+1.0}_{-0.99}$	$f_{2000}^{217}$	$108.7^{+5.3}_{-5.2}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.4^{+8.6}_{-8.4}$	$k_{\mathrm{D}}$	$0.1406^{+0.0012}_{-0.0013}$	$\chi_{\mathrm{lensing}}^2$	$9.7 (\nu: 0.6)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$100\theta_{\mathrm{D}}$	$0.16099^{+0.00074}_{-0.00073}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.4 (\nu: 3.5)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{eq}}$	$3406^{+88}_{-90}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.5)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{eq}}$	$0.01040^{+0.00027}_{-0.00028}$	$\chi_{\mathrm{lowl}}^2$	$23.6 (\nu: 2.3)$
$H_0$	$67.0^{+1.8}_{-1.7}$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.017}_{-0.016}$	$\chi_{\mathrm{plik}}^2$	$772.2 (\nu: 15.3)$
$\Omega_{\Lambda}$	$0.681^{+0.024}_{-0.025}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4488^{+0.0088}_{-0.0083}$	$\chi_{\mathrm{prior}}^2$	$8.9 (\nu: 8.1)$
$\Omega_{\mathrm{m}}$	$0.319^{+0.025}_{-0.024}$	$H(0.15)$	$72.4^{+1.6}_{-1.5}$	$\chi_{\mathrm{CMB}}^2$	$1942.0 (\nu: 19.5)$
$\Omega_{\mathrm{m}}h^2$	$0.1432^{+0.0037}_{-0.0038}$	$D_{\mathrm{M}}(0.15)$	$646^{+15}_{-15}$		
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0013}_{-0.0013}$	$H(0.38)$	$82.6^{+1.2}_{-1.1}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1950.93; R - 1 = 0.00327$$



### 15.36 base\_nrun\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02226^{+0.00055}_{-0.00054}$	$S_8$	$0.826^{+0.031}_{-0.031}$	$D_{\mathrm{M}}(0.51)$	$1983^{+26}_{-26}$
$\Omega_{\mathrm{c}}h^2$	$0.1192^{+0.0028}_{-0.0028}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.017}_{-0.017}$	$H(0.61)$	$95.28^{+0.64}_{-0.61}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.016}_{-0.016}$	$D_{\mathrm{M}}(0.61)$	$2307^{+28}_{-28}$
$\tau$	$0.057^{+0.020}_{-0.015}$	$\sigma_8/h^{0.5}$	$0.986^{+0.023}_{-0.022}$	$H(2.33)$	$236.0^{+1.8}_{-1.8}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.050^{+0.042}_{-0.032}$	$r_{\mathrm{drag}}h$	$99.6^{+2.2}_{-2.1}$	$D_{\mathrm{M}}(2.33)$	$5766^{+32}_{-32}$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.061}_{-0.061}$	$f\sigma_8(0.15)$	$0.457^{+0.016}_{-0.016}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.005^{+0.020}_{-0.020}$	$z_{\mathrm{re}}$	$< 9.77$	$\sigma_8(0.15)$	$0.749^{+0.015}_{-0.013}$
$r$	$< 0.0832$	$10^9 A_{\mathrm{s}}$	$2.111^{+0.090}_{-0.067}$	$f\sigma_8(0.38)$	$0.475^{+0.013}_{-0.013}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0064}_{-0.0062}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.030}_{-0.029}$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.011}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.2}$	$D_{40}$	$1227^{+52}_{-51}$	$f\sigma_8(0.51)$	$0.474^{+0.012}_{-0.011}$
$A_{B,\mathrm{sync}}$	$< 4.93$	$D_{220}$	$5724^{+110}_{-100}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.010}$
$\alpha_{B,\mathrm{dust}}$	—	$D_{810}$	$2539^{+36}_{-35}$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.010}$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0097}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{2000}$	$229.6^{+4.8}_{-4.7}$	$f\sigma_8(2.33)$	$0.2980^{+0.0062}_{-0.0049}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.67}_{-0.73}$	$n_{\mathrm{s},0.002}$	$0.982^{+0.062}_{-0.062}$	$\sigma_8(2.33)$	$0.3073^{+0.0067}_{-0.0051}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.348$	$Y_{\mathrm{P}}$	$0.24535^{+0.00021}_{-0.00025}$	$r_{0.002}$	$< 0.0812$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24667^{+0.00021}_{-0.00025}$	$r_{0.01}$	$< 0.0816$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.61^{+0.10}_{-0.099}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.8^{+1.6}_{-3.6}$
$A_{143}^{\mathrm{tSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.803^{+0.074}_{-0.073}$	$r_{10}$	$< 0.0421$
$A_{100}^{\mathrm{PS}}$	$265^{+70}_{-70}$	$z_*$	$1089.99^{+0.77}_{-0.76}$	$10^9 A_{\mathrm{t}}$	$< 0.175$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$r_*$	$144.71^{+0.78}_{-0.75}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.156$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$32^{+8}_{-8}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.899^{+0.077}_{-0.074}$	$f_{2000}^{143\times 217}$	$34^{+6}_{-6}$
$A^{\mathrm{kSZ}}$	—	$z_{\mathrm{drag}}$	$1059.6^{+1.3}_{-1.3}$	$f_{2000}^{217}$	$108.5^{+5.4}_{-5.3}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.6}_{-4.7}$	$r_{\mathrm{drag}}$	$147.41^{+0.90}_{-0.86}$	$\chi_{\mathrm{lensing}}^2$	$9.36 (\nu: 0.2)$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.7}_{-4.6}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.7 (\nu: 3.3)$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.3^{+8.6}_{-8.5}$	$100\theta_{\mathrm{D}}$	$0.16094^{+0.00073}_{-0.00072}$	$\chi_{\mathrm{simall}}^2$	$397.5 (\nu: 2.1)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{eq}}$	$3381^{+65}_{-65}$	$\chi_{\mathrm{lowl}}^2$	$23.2 (\nu: 2.0)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$k_{\mathrm{eq}}$	$0.01032^{+0.00020}_{-0.00020}$	$\chi_{\mathrm{plik}}^2$	$772.6 (\nu: 15.5)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0017}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{6\mathrm{DF}}^2$	$0.062 (\nu: 0.0)$
$H_0$	$67.6^{+1.3}_{-1.3}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4513^{+0.0063}_{-0.0061}$	$\chi_{\mathrm{MGS}}^2$	$1.25 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.017}$	$H(0.15)$	$72.8^{+1.1}_{-1.1}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.017}_{-0.016}$	$D_{\mathrm{M}}(0.15)$	$642^{+11}_{-11}$	$\chi_{\mathrm{prior}}^2$	$9.0 (\nu: 8.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1421^{+0.0027}_{-0.0027}$	$H(0.38)$	$82.94^{+0.85}_{-0.83}$	$\chi_{\mathrm{CMB}}^2$	$1942.4 (\nu: 19.9)$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0013}_{-0.0013}$	$D_{\mathrm{M}}(0.38)$	$1531^{+22}_{-22}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 0.8)$
$\sigma_8$	$0.810^{+0.016}_{-0.014}$	$H(0.51)$	$89.66^{+0.71}_{-0.70}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1957.58; R - 1 = 0.00713$$



### 15.37 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_BK15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022384	$0.02238^{+0.00040}_{-0.00040}$ (+1.0 $\sigma$ )	$H_0$	67.14	$67.1^{+1.6}_{-1.6}$ (+0.5 $\sigma$ )	$100\theta_{s,eq}$	0.4480	$0.4480^{+0.0079}_{-0.0078}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.12062	$0.1206^{+0.0037}_{-0.0036}$ (−0.4 $\sigma$ )	$\Omega_\Lambda$	0.6813	$0.681^{+0.022}_{-0.023}$ (+0.5 $\sigma$ )	$H(0.15)$	72.50	$72.5^{+1.4}_{-1.3}$ (+0.6 $\sigma$ )
$100\theta_{MC}$	1.04088	$1.04087^{+0.00081}_{-0.00082}$ (+0.3 $\sigma$ )	$\Omega_m$	0.3187	$0.319^{+0.023}_{-0.022}$ (−0.5 $\sigma$ )	$D_M(0.15)$	645.2	$645^{+14}_{-14}$ (−0.6 $\sigma$ )
$\tau$	0.0559	$0.057^{+0.023}_{-0.021}$ (+0.3 $\sigma$ )	$\Omega_m h^2$	0.14365	$0.1436^{+0.0035}_{-0.0034}$ (−0.3 $\sigma$ )	$H(0.38)$	82.75	$82.8^{+1.0}_{-0.95}$ (+0.6 $\sigma$ )
$\ln(10^{10} A_s)$	3.0504	$3.053^{+0.048}_{-0.044}$ (+0.3 $\sigma$ )	$\Omega_m h^3$	0.09644	$0.09643^{+0.00080}_{-0.00080}$ (+0.8 $\sigma$ )	$D_M(0.38)$	1537.1	$1537^{+27}_{-27}$ (−0.6 $\sigma$ )
$n_s$	0.9637	$0.963^{+0.012}_{-0.012}$ (+0.4 $\sigma$ )	$\sigma_8$	0.8139	$0.814^{+0.020}_{-0.019}$ (−0.1 $\sigma$ )	$H(0.51)$	89.55	$89.55^{+0.79}_{-0.74}$ (+0.7 $\sigma$ )
$dn_s/d \ln k$	−0.0063	$−0.008^{+0.018}_{-0.018}$ (−0.2 $\sigma$ )	$S_8$	0.8389	$0.839^{+0.042}_{-0.041}$ (−0.4 $\sigma$ )	$D_M(0.51)$	1990.0	$1990^{+31}_{-32}$ (−0.6 $\sigma$ )
$r$	0.0167	< 0.0857 (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4595	$0.460^{+0.023}_{-0.023}$ (−0.4 $\sigma$ )	$H(0.61)$	95.23	$95.23^{+0.64}_{-0.59}$ (+0.8 $\sigma$ )
$y_{cal}$	1.0005	$1.0008^{+0.0065}_{-0.0063}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6116	$0.612^{+0.021}_{-0.021}$ (−0.3 $\sigma$ )	$D_M(0.61)$	2314.7	$2315^{+34}_{-35}$ (−0.6 $\sigma$ )
$A_{B,dust}$	4.62	$4.9^{+3.2}_{-2.2}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9934	$0.994^{+0.031}_{-0.030}$ (−0.3 $\sigma$ )	$H(2.33)$	236.98	$237.0^{+2.2}_{-2.1}$ (−0.2 $\sigma$ )
$A_{B,sync}$	1.49	< 4.87 (−0.0 $\sigma$ )	$r_{drag} h$	98.63	$98.7^{+2.8}_{-2.7}$ (+0.4 $\sigma$ )	$D_M(2.33)$	5765.0	$5765^{+28}_{-29}$ (−0.8 $\sigma$ )
$\alpha_{B,dust}$	−0.51	—	$\langle d^2 \rangle^{1/2}$	2.446	$2.447^{+0.074}_{-0.074}$ (−0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4635	$0.464^{+0.021}_{-0.021}$ (−0.3 $\sigma$ )
$\beta_{B,dust}$	1.579	$1.60^{+0.25}_{-0.25}$ (+0.0 $\sigma$ )	$z_{re}$	7.85	$7.9^{+2.2}_{-2.2}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7514	$0.752^{+0.018}_{-0.017}$ (−0.0 $\sigma$ )
$\alpha_{B,sync}$	−0.32	—	$10^9 A_s$	2.112	$2.12^{+0.10}_{-0.092}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4803	$0.480^{+0.017}_{-0.017}$ (−0.3 $\sigma$ )
$\beta_{B,sync}$	−3.04	$−3.10^{+0.68}_{-0.73}$ (−0.0 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8888	$1.890^{+0.032}_{-0.031}$ (−0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6653	$0.666^{+0.016}_{-0.015}$ (+0.1 $\sigma$ )
$\epsilon_{dust,sync}$	−0.35	< 0.354 (−0.0 $\sigma$ )	$D_{40}$	1224.0	$1227^{+50}_{-48}$ (−0.2 $\sigma$ )	$f\sigma_8(0.51)$	0.4780	$0.478^{+0.015}_{-0.015}$ (−0.3 $\sigma$ )
$A_{217}^{CIB}$	49.5	$48^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{220}$	5727	$5730^{+100}_{-98}$ (+0.4 $\sigma$ )	$\sigma_8(0.51)$	0.6223	$0.623^{+0.014}_{-0.013}$ (+0.1 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.17	—	$D_{810}$	2542.7	$2543^{+35}_{-35}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4725	$0.473^{+0.014}_{-0.014}$ (−0.2 $\sigma$ )
$A_{143}^{tSZ}$	7.3	—	$D_{1420}$	816.6	$816^{+13}_{-13}$ (+0.4 $\sigma$ )	$\sigma_8(0.61)$	0.5919	$0.592^{+0.014}_{-0.013}$ (+0.2 $\sigma$ )
$A_{100}^{PS}$	255	$264^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{2000}$	230.31	$230.0^{+4.7}_{-4.6}$ (+0.5 $\sigma$ )	$f\sigma_8(2.33)$	0.2982	$0.2983^{+0.0071}_{-0.0064}$ (+0.3 $\sigma$ )
$A_{143}^{PS}$	46.6	$49^{+20}_{-20}$ (−0.3 $\sigma$ )	$n_{s,0.002}$	0.984	$0.989^{+0.057}_{-0.054}$ (+0.3 $\sigma$ )	$\sigma_8(2.33)$	0.3071	$0.3073^{+0.0075}_{-0.0067}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{PS}$	42.4	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$Y_P$	0.245401	$0.24540^{+0.00015}_{-0.00017}$ (+1.0 $\sigma$ )	$r_{0.002}$	0.0155	< 0.0838 (+0.2 $\sigma$ )
$A_{217}^{PS}$	117.6	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$Y_P^{BBN}$	0.246728	$0.24672^{+0.00015}_{-0.00017}$ (+1.0 $\sigma$ )	$r_{0.01}$	0.0160	< 0.0836 (+0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.583	$2.584^{+0.075}_{-0.072}$ (−1.0 $\sigma$ )	$\ln(10^{10} A_t)$	−1.04	$−0.8^{+1.6}_{-3.5}$ (+0.1 $\sigma$ )
$A_{100}^{dustTT}$	8.88	$8.9^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	Age/Gyr	13.800	$13.800^{+0.063}_{-0.063}$ (−0.8 $\sigma$ )	$r_{10}$	0.0080	< 0.0439 (+0.2 $\sigma$ )
$A_{143}^{dustTT}$	11.02	$11.0^{+4.5}_{-4.6}$ (+0.1 $\sigma$ )	$z_*$	1089.96	$1089.96^{+0.72}_{-0.72}$ (−0.9 $\sigma$ )	$10^9 A_t$	0.035	< 0.181 (+0.2 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.6	$18.7^{+8.4}_{-8.4}$ (+0.1 $\sigma$ )	$r_*$	144.26	$144.27^{+0.80}_{-0.80}$ (+0.0 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.032	< 0.162 (+0.2 $\sigma$ )
$A_{217}^{dustTT}$	94.5	$93^{+20}_{-20}$ (+0.0 $\sigma$ )	$100\theta_*$	1.04106	$1.04105^{+0.00079}_{-0.00081}$ (+0.3 $\sigma$ )	$f_{2000}^{143}$	30.4	$31^{+8}_{-8}$ (−0.4 $\sigma$ )
$A_{100}^{dustTE}$	0.115	$0.115^{+0.099}_{-0.097}$	$D_M(z_*)/\text{Gpc}$	13.857	$13.858^{+0.075}_{-0.075}$ (−0.0 $\sigma$ )	$f_{2000}^{143 \times 217}$	33.1	$33^{+6}_{-6}$ (−0.4 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.076}_{-0.076}$	$z_{drag}$	1060.01	$1060.01^{+0.80}_{-0.80}$ (+1.0 $\sigma$ )	$f_{2000}^{217}$	107.6	$108.1^{+5.2}_{-5.1}$ (−0.4 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.22}$	$r_{drag}$	146.91	$146.92^{+0.80}_{-0.80}$ (−0.1 $\sigma$ )	$\chi_{BKPLANCK}^2$	735.1	$739.4$ ( $\nu$ : 3.6) (+0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.226	$0.23^{+0.14}_{-0.14}$	$k_D$	0.14107	$0.14106^{+0.00087}_{-0.00088}$ (+0.5 $\sigma$ )	$\chi_{small}^2$	396.4	$397.6$ ( $\nu$ : 2.5) (+0.2 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.665	$0.66^{+0.21}_{-0.21}$	$100\theta_D$	0.160712	$0.16072^{+0.00048}_{-0.00047}$ (−1.0 $\sigma$ )	$\chi_{lowl}^2$	22.43	$22.9$ ( $\nu$ : 1.4) (−0.3 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.69}$	$z_{eq}$	3417	$3417^{+83}_{-80}$ (−0.3 $\sigma$ )	$\chi_{plik}^2$	2345.1	$2360.7$ ( $\nu$ : 18.6) (+278.9 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010430	$0.01043^{+0.00025}_{-0.00025}$ (−0.3 $\sigma$ )	$\chi_{prior}^2$	1.9	$13.2$ ( $\nu$ : 11.6) (+1.1 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{eq}$	0.8106	$0.811^{+0.015}_{-0.015}$ (+0.3 $\sigma$ )	$\chi_{CMB}^2$	3499.0	$3520.6$ ( $\nu$ : 22.1) (+252.8 $\sigma$ )

Best-fit  $\chi_{eff}^2 = 3500.83$ ;  $\Delta\chi_{eff}^2 = 1586.03$ ;  $\bar{\chi}_{eff}^2 = 3533.84$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.12$ ;  $R - 1 = 0.00338$   
 $\chi_{eff}^2$ : CMB - BK15\_dust: 735.07 ( $\Delta$  0.37) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.36 ( $\Delta$  0.32) commander\_dx12\_v3\_2\_29: 22.43 ( $\Delta$  -0.90) plik\_rd12\_HM\_v22b\_TTTEE: 2345.11



### 15.38 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_BK15\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022446	$0.02245^{+0.00036}_{-0.00036}$ (+0.9 $\sigma$ )	$\Omega_m$	0.3125	$0.312^{+0.016}_{-0.016}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1529.6	$1529^{+20}_{-20}$ (-0.2 $\sigma$ )
$\Omega_c h^2$	0.11961	$0.1195^{+0.0026}_{-0.0026}$ (+0.2 $\sigma$ )	$\Omega_m h^2$	0.14270	$0.1426^{+0.0025}_{-0.0025}$ (+0.4 $\sigma$ )	$H(0.51)$	89.75	$89.77^{+0.62}_{-0.59}$ (+0.4 $\sigma$ )
$100\theta_{MC}$	1.04098	$1.04099^{+0.00075}_{-0.00077}$ (-0.0 $\sigma$ )	$\Omega_m h^3$	0.09643	$0.09643^{+0.00080}_{-0.00081}$ (+0.8 $\sigma$ )	$D_M(0.51)$	1981.3	$1981^{+23}_{-24}$ (-0.2 $\sigma$ )
$\tau$	0.0580	$0.058^{+0.023}_{-0.021}$ (+0.2 $\sigma$ )	$\sigma_8$	0.8126	$0.812^{+0.020}_{-0.019}$ (+0.3 $\sigma$ )	$H(0.61)$	95.379	$95.40^{+0.51}_{-0.49}$ (+0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0531	$3.054^{+0.050}_{-0.044}$ (+0.3 $\sigma$ )	$S_8$	0.8293	$0.828^{+0.034}_{-0.032}$ (+0.2 $\sigma$ )	$D_M(0.61)$	2305.4	$2305^{+25}_{-26}$ (-0.2 $\sigma$ )
$n_s$	0.9664	$0.9656^{+0.0098}_{-0.011}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4542	$0.453^{+0.018}_{-0.018}$ (+0.2 $\sigma$ )	$H(2.33)$	236.39	$236.3^{+1.6}_{-1.6}$ (+0.5 $\sigma$ )
$dn_s/d \ln k$	-0.0053	$-0.007^{+0.018}_{-0.018}$ (-0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6075	$0.607^{+0.019}_{-0.018}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5758.6	$5758^{+23}_{-24}$ (-0.6 $\sigma$ )
$r$	0.0218	$< 0.0879$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9885	$0.987^{+0.028}_{-0.026}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4588	$0.458^{+0.017}_{-0.017}$ (+0.2 $\sigma$ )
$y_{cal}$	1.0010	$1.0009^{+0.0066}_{-0.0064}$ (+0.1 $\sigma$ )	$r_{drag} h$	99.41	$99.5^{+2.0}_{-2.0}$ (-0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7508	$0.750^{+0.019}_{-0.017}$ (+0.3 $\sigma$ )
$A_{B,dust}$	4.61	$4.9^{+3.1}_{-2.1}$ (-0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.436	$2.433^{+0.068}_{-0.067}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4769	$0.476^{+0.015}_{-0.014}$ (+0.2 $\sigma$ )
$A_{B,sync}$	1.40	$< 4.87$ (+0.0 $\sigma$ )	$z_{re}$	8.03	$8.1^{+2.2}_{-2.2}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6654	$0.665^{+0.016}_{-0.015}$ (+0.3 $\sigma$ )
$\alpha_{B,dust}$	-0.51	—	$10^9 A_s$	2.118	$2.12^{+0.11}_{-0.091}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4754	$0.475^{+0.014}_{-0.013}$ (+0.2 $\sigma$ )
$\beta_{B,dust}$	1.580	$1.60^{+0.24}_{-0.24}$ (+0.0 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8862	$1.885^{+0.030}_{-0.029}$ (+0.3 $\sigma$ )	$\sigma_8(0.51)$	0.6226	$0.622^{+0.015}_{-0.014}$ (+0.3 $\sigma$ )
$\alpha_{B,sync}$	-0.37	—	$D_{40}$	1224.1	$1224^{+48}_{-46}$ (-0.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4703	$0.470^{+0.013}_{-0.012}$ (+0.3 $\sigma$ )
$\beta_{B,sync}$	-3.04	$-3.11^{+0.69}_{-0.73}$ (-0.0 $\sigma$ )	$D_{220}$	5736	$5735^{+100}_{-98}$ (+0.4 $\sigma$ )	$\sigma_8(0.61)$	0.5924	$0.592^{+0.014}_{-0.013}$ (+0.3 $\sigma$ )
$\epsilon_{dust,sync}$	-0.37	$< 0.361$ (-0.0 $\sigma$ )	$D_{810}$	2544.5	$2543^{+36}_{-35}$ (+0.3 $\sigma$ )	$f\sigma_8(2.33)$	0.2987	$0.2985^{+0.0073}_{-0.0065}$ (+0.3 $\sigma$ )
$A_{217}^{CIB}$	48.6	$48^{+20}_{-20}$ (-0.1 $\sigma$ )	$D_{1420}$	818.3	$817^{+13}_{-13}$ (+0.4 $\sigma$ )	$\sigma_8(2.33)$	0.3079	$0.3077^{+0.0077}_{-0.0067}$ (+0.3 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.31	—	$D_{2000}$	231.01	$230.4^{+4.6}_{-4.6}$ (+0.4 $\sigma$ )	$r_{0.002}$	0.0203	$< 0.0863$ (+0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.2	—	$n_{s,0.002}$	0.983	$0.989^{+0.056}_{-0.055}$ (+0.2 $\sigma$ )	$r_{0.01}$	0.0209	$< 0.0862$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	253	$263^{+70}_{-70}$ (-0.1 $\sigma$ )	$Y_P$	0.245425	$0.24543^{+0.00014}_{-0.00014}$ (+0.9 $\sigma$ )	$\ln(10^{10} A_t)$	-0.77	$-0.7^{+1.6}_{-3.5}$ (+0.1 $\sigma$ )
$A_{143}^{PS}$	47.4	$48^{+20}_{-20}$ (-0.3 $\sigma$ )	$Y_P^{BBN}$	0.246752	$0.24675^{+0.00014}_{-0.00014}$ (+0.9 $\sigma$ )	$r_{10}$	0.0104	$< 0.0450$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	45.4	$43^{+20}_{-20}$ (-0.1 $\sigma$ )	$10^5 D/H$	2.572	$2.571^{+0.067}_{-0.065}$ (-0.9 $\sigma$ )	$10^9 A_t$	0.046	$< 0.186$ (+0.1 $\sigma$ )
$A_{217}^{PS}$	118.7	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	Age/Gyr	13.786	$13.785^{+0.053}_{-0.054}$ (-0.6 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.041	$< 0.165$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$z_*$	1089.79	$1089.78^{+0.59}_{-0.58}$ (-0.7 $\sigma$ )	$f_{2000}^{143}$	29.7	$31^{+8}_{-8}$ (-0.3 $\sigma$ )
$A_{100}^{dust TT}$	8.84	$9.0^{+4.7}_{-4.6}$ (+0.0 $\sigma$ )	$r_*$	144.47	$144.49^{+0.63}_{-0.63}$ (-0.6 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.6	$33^{+6}_{-5}$ (-0.4 $\sigma$ )
$A_{143}^{dust TT}$	11.02	$11.0^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$100\theta_*$	1.04117	$1.04117^{+0.00074}_{-0.00076}$ (-0.1 $\sigma$ )	$f_{2000}^{217}$	107.3	$107.8^{+5.2}_{-5.0}$ (-0.3 $\sigma$ )
$A_{143 \times 217}^{dust TT}$	19.6	$18.7^{+8.4}_{-8.5}$ (+0.1 $\sigma$ )	$D_M(z_*)/Gpc$	13.876	$13.878^{+0.060}_{-0.060}$ (-0.6 $\sigma$ )	$\chi_{BKPLANCK}^2$	735.3	$739.8$ ( $\nu$ : 3.6) (-0.0 $\sigma$ )
$A_{217}^{dust TT}$	94.5	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_{drag}$	1060.09	$1060.09^{+0.79}_{-0.77}$ (+0.9 $\sigma$ )	$\chi_{simall}^2$	396.8	$397.9$ ( $\nu$ : 3.0) (+0.2 $\sigma$ )
$A_{100}^{dust TE}$	0.114	$0.115^{+0.098}_{-0.096}$	$r_{drag}$	147.11	$147.13^{+0.67}_{-0.65}$ (-0.8 $\sigma$ )	$\chi_{lowl}^2$	22.40	$22.6$ ( $\nu$ : 1.3) (-0.2 $\sigma$ )
$A_{100 \times 143}^{dust TE}$	0.134	$0.135^{+0.077}_{-0.078}$	$k_D$	0.14090	$0.14089^{+0.00079}_{-0.00081}$ (+0.9 $\sigma$ )	$\chi_{plik}^2$	2345.0	$2360.4$ ( $\nu$ : 18.2) (+279.3 $\sigma$ )
$A_{100 \times 217}^{dust TE}$	0.482	$0.48^{+0.22}_{-0.21}$	$100\theta_D$	0.160677	$0.16067^{+0.00046}_{-0.00046}$ (-0.9 $\sigma$ )	$\chi_{6DF}^2$	0.049	$0.068$ ( $\nu$ : 0.0) (-0.0 $\sigma$ )
$A_{143}^{dust TE}$	0.225	$0.22^{+0.14}_{-0.14}$	$z_{eq}$	3395	$3393^{+60}_{-59}$ (+0.4 $\sigma$ )	$\chi_{MGS}^2$	1.10	$1.18$ ( $\nu$ : 0.1) (-0.1 $\sigma$ )
$A_{143 \times 217}^{dust TE}$	0.665	$0.66^{+0.21}_{-0.20}$	$k_{eq}$	0.010361	$0.01035^{+0.00018}_{-0.00018}$ (+0.4 $\sigma$ )	$\chi_{DR12BAO}^2$	4.88	$5.1$ ( $\nu$ : 1.3) (+0.0 $\sigma$ )
$A_{217}^{dust TE}$	2.07	$2.07^{+0.69}_{-0.69}$	$100\theta_{eq}$	0.8149	$0.815^{+0.011}_{-0.011}$ (-0.3 $\sigma$ )	$\chi_{prior}^2$	1.9	$13.2$ ( $\nu$ : 12.0) (+1.1 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4502	$0.4504^{+0.0058}_{-0.0057}$ (-0.3 $\sigma$ )	$\chi_{BAO}^2$	6.02	$6.4$ ( $\nu$ : 0.9) (+0.0 $\sigma$ )
$c_{217}$	0.99821	$0.9982^{+0.0016}_{-0.0016}$ (-0.1 $\sigma$ )	$H(0.15)$	72.87	$72.9^{+1.0}_{-0.99}$ (+0.1 $\sigma$ )	$\chi_{CMB}^2$	3499.5	$3520.8$ ( $\nu$ : 22.0) (+251.3 $\sigma$ )
$H_0$	67.58	$67.6^{+1.2}_{-1.2}$ (+0.1 $\sigma$ )	$D_M(0.15)$	641.5	$641^{+10}_{-10}$ (-0.1 $\sigma$ )			
$\Omega_\Lambda$	0.6875	$0.688^{+0.016}_{-0.016}$ (-0.1 $\sigma$ )	$H(0.38)$	83.01	$83.04^{+0.76}_{-0.73}$ (+0.3 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 3507.39$ ;  $\Delta\chi^2_{eff} = 1585.63$ ;  $\bar{\chi}^2_{eff} = 3540.38$ ;  $\Delta\bar{\chi}^2_{eff} = 1591.62$ ;  $R - 1 = 0.00677$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.05 ( $\Delta$  0.01) MGS: 1.10 ( $\Delta$  -0.06) DR12BAO: 4.88 ( $\Delta$  0.31) CMB - BK15\_dust: 735.29 ( $\Delta$  -0.26) simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.77 ( $\Delta$  0.44) commander\_dx12\_v3\_2.29: 22.40 ( $\Delta$  -0.02) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.00



### 15.39 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_BK15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02239^{+0.00040}_{-0.00039} \quad (+1.0\sigma)$	$H_0$	$67.2^{+1.6}_{-1.6} \quad (+0.5\sigma)$	$100\theta_{s,eq}$	$0.4481^{+0.0078}_{-0.0078} \quad (+0.3\sigma)$
$\Omega_c h^2$	$0.1206^{+0.0037}_{-0.0036} \quad (-0.3\sigma)$	$\Omega_\Lambda$	$0.681^{+0.022}_{-0.023} \quad (+0.4\sigma)$	$H(0.15)$	$72.5^{+1.4}_{-1.3} \quad (+0.6\sigma)$
$100\theta_{MC}$	$1.04087^{+0.00081}_{-0.00082} \quad (+0.3\sigma)$	$\Omega_m$	$0.319^{+0.023}_{-0.022} \quad (-0.4\sigma)$	$D_M(0.15)$	$645^{+14}_{-14} \quad (-0.5\sigma)$
$\tau$	$0.058^{+0.021}_{-0.016} \quad (+0.3\sigma)$	$\Omega_m h^2$	$0.1436^{+0.0034}_{-0.0034} \quad (-0.2\sigma)$	$H(0.38)$	$82.8^{+1.0}_{-0.94} \quad (+0.6\sigma)$
$\ln(10^{10} A_s)$	$3.054^{+0.047}_{-0.034} \quad (+0.3\sigma)$	$\Omega_m h^3$	$0.09643^{+0.00079}_{-0.00080} \quad (+0.7\sigma)$	$D_M(0.38)$	$1537^{+27}_{-27} \quad (-0.6\sigma)$
$n_s$	$0.963^{+0.012}_{-0.012} \quad (+0.4\sigma)$	$\sigma_8$	$0.815^{+0.020}_{-0.017} \quad (-0.1\sigma)$	$H(0.51)$	$89.56^{+0.79}_{-0.74} \quad (+0.7\sigma)$
$dn_s/d \ln k$	$-0.008^{+0.017}_{-0.018} \quad (-0.2\sigma)$	$S_8$	$0.840^{+0.042}_{-0.041} \quad (-0.4\sigma)$	$D_M(0.51)$	$1990^{+31}_{-32} \quad (-0.6\sigma)$
$r$	$< 0.0859 \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.460^{+0.023}_{-0.023} \quad (-0.4\sigma)$	$H(0.61)$	$95.23^{+0.64}_{-0.59} \quad (+0.7\sigma)$
$y_{cal}$	$1.0008^{+0.0065}_{-0.0063} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.612^{+0.021}_{-0.021} \quad (-0.3\sigma)$	$D_M(0.61)$	$2314^{+34}_{-34} \quad (-0.6\sigma)$
$A_{B,dust}$	$4.9^{+3.2}_{-2.2} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.994^{+0.030}_{-0.029} \quad (-0.3\sigma)$	$H(2.33)$	$236.9^{+2.2}_{-2.1} \quad (-0.2\sigma)$
$A_{B,sync}$	$< 4.88 \quad (-0.0\sigma)$	$r_{drag} h$	$98.7^{+2.8}_{-2.7} \quad (+0.4\sigma)$	$D_M(2.33)$	$5765^{+28}_{-29} \quad (-0.8\sigma)$
$\alpha_{B,dust}$	—	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.073}_{-0.072} \quad (-0.3\sigma)$	$f\sigma_8(0.15)$	$0.464^{+0.021}_{-0.021} \quad (-0.3\sigma)$
$\beta_{B,dust}$	$1.60^{+0.25}_{-0.25} \quad (+0.0\sigma)$	$z_{re}$	$< 9.91 \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.752^{+0.018}_{-0.015} \quad (-0.0\sigma)$
$\alpha_{B,sync}$	—	$10^9 A_s$	$2.12^{+0.10}_{-0.071} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.481^{+0.017}_{-0.017} \quad (-0.3\sigma)$
$\beta_{B,sync}$	$-3.10^{+0.68}_{-0.73} \quad (-0.0\sigma)$	$10^9 A_s e^{-2\tau}$	$1.890^{+0.032}_{-0.031} \quad (-0.1\sigma)$	$\sigma_8(0.38)$	$0.666^{+0.015}_{-0.012} \quad (+0.1\sigma)$
$\epsilon_{dust,sync}$	$< 0.353 \quad (-0.0\sigma)$	$D_{40}$	$1227^{+50}_{-47} \quad (-0.2\sigma)$	$f\sigma_8(0.51)$	$0.478^{+0.015}_{-0.015} \quad (-0.3\sigma)$
$A_{217}^{CIB}$	$48^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5730^{+100}_{-98} \quad (+0.4\sigma)$	$\sigma_8(0.51)$	$0.623^{+0.014}_{-0.011} \quad (+0.1\sigma)$
$\xi^{tSZ \times CIB}$	—	$D_{810}$	$2543^{+36}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.473^{+0.014}_{-0.013} \quad (-0.2\sigma)$
$A_{143}^{tSZ}$	—	$D_{1420}$	$816^{+13}_{-13} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.593^{+0.013}_{-0.010} \quad (+0.1\sigma)$
$A_{100}^{PS}$	$264^{+70}_{-70} \quad (-0.1\sigma)$	$D_{2000}$	$230.0^{+4.7}_{-4.6} \quad (+0.5\sigma)$	$f\sigma_8(2.33)$	$0.2985^{+0.0069}_{-0.0051} \quad (+0.2\sigma)$
$A_{143}^{PS}$	$49^{+20}_{-20} \quad (-0.3\sigma)$	$n_{s,0.002}$	$0.989^{+0.057}_{-0.054} \quad (+0.3\sigma)$	$\sigma_8(2.33)$	$0.3075^{+0.0073}_{-0.0053} \quad (+0.3\sigma)$
$A_{143 \times 217}^{PS}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$Y_P$	$0.24540^{+0.00015}_{-0.00016} \quad (+1.0\sigma)$	$r_{0.002}$	$< 0.0840 \quad (+0.2\sigma)$
$A_{217}^{PS}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$Y_P^{BBN}$	$0.24673^{+0.00015}_{-0.00016} \quad (+1.0\sigma)$	$r_{0.01}$	$< 0.0837 \quad (+0.2\sigma)$
$A^{kSZ}$	—	$10^5 D/H$	$2.583^{+0.075}_{-0.071} \quad (-1.0\sigma)$	$\ln(10^{10} A_t)$	$-0.8^{+1.6}_{-3.5} \quad (+0.1\sigma)$
$A_{100}^{dustTT}$	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$Age/Gyr$	$13.800^{+0.063}_{-0.063} \quad (-0.8\sigma)$	$r_{10}$	$< 0.0440 \quad (+0.2\sigma)$
$A_{143}^{dustTT}$	$11.0^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$z_*$	$1089.95^{+0.72}_{-0.71} \quad (-0.9\sigma)$	$10^9 A_t$	$< 0.182 \quad (+0.2\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.6^{+8.4}_{-8.4} \quad (+0.1\sigma)$	$r_*$	$144.27^{+0.80}_{-0.81} \quad (+0.0\sigma)$	$10^9 A_t e^{-2\tau}$	$< 0.162 \quad (+0.2\sigma)$
$A_{217}^{dustTT}$	$93^{+20}_{-20} \quad (+0.0\sigma)$	$100\theta_*$	$1.04105^{+0.00079}_{-0.00081} \quad (+0.2\sigma)$	$f_{2000}^{143}$	$31^{+8}_{-8} \quad (-0.4\sigma)$
$A_{100}^{dustTE}$	$0.115^{+0.099}_{-0.097}$	$D_M(z_*)/Gpc$	$13.859^{+0.075}_{-0.075} \quad (-0.0\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6} \quad (-0.4\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.076}_{-0.076}$	$z_{drag}$	$1060.01^{+0.80}_{-0.81} \quad (+1.0\sigma)$	$f_{2000}^{217}$	$108.1^{+5.2}_{-5.1} \quad (-0.4\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.22}$	$r_{drag}$	$146.93^{+0.80}_{-0.80} \quad (-0.1\sigma)$	$\chi_{BKPLANCK}^2$	$739.4 \quad (\nu: 3.6) \quad (+0.1\sigma)$
$A_{143}^{dustTE}$	$0.23^{+0.14}_{-0.14}$	$k_D$	$0.14105^{+0.00088}_{-0.00089} \quad (+0.4\sigma)$	$\chi_{small}^2$	$397.6 \quad (\nu: 2.5) \quad (+0.2\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.21}_{-0.21}$	$100\theta_D$	$0.16071^{+0.00048}_{-0.00046} \quad (-1.0\sigma)$	$\chi_{lowl}^2$	$22.9 \quad (\nu: 1.4) \quad (-0.3\sigma)$
$A_{217}^{dustTE}$	$2.08^{+0.69}_{-0.69}$	$z_{eq}$	$3416^{+82}_{-80} \quad (-0.2\sigma)$	$\chi_{plik}^2$	$2360.6 \quad (\nu: 18.4) \quad (+279.2\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{eq}$	$0.01043^{+0.00025}_{-0.00024} \quad (-0.2\sigma)$	$\chi_{prior}^2$	$13.2 \quad (\nu: 11.6) \quad (+1.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{eq}$	$0.811^{+0.015}_{-0.015} \quad (+0.3\sigma)$	$\chi_{CMB}^2$	$3520.5 \quad (\nu: 21.6) \quad (+254.8\sigma)$

$$\bar{\chi}_{eff}^2 = 3533.65; \Delta \bar{\chi}_{eff}^2 = 1592.14; R - 1 = 0.00314$$



## 15.40 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_BK15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02245^{+0.00036}_{-0.00036}$ (+0.9 $\sigma$ )	$\Omega_{\mathrm{m}}$	$0.312^{+0.016}_{-0.016}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1529^{+20}_{-20}$ (−0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1195^{+0.0026}_{-0.0026}$ (+0.2 $\sigma$ )	$\Omega_{\mathrm{m}}h^2$	$0.1426^{+0.0025}_{-0.0025}$ (+0.4 $\sigma$ )	$H(0.51)$	$89.77^{+0.62}_{-0.58}$ (+0.3 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.04100^{+0.00075}_{-0.00077}$ (−0.0 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	$0.09643^{+0.00079}_{-0.00081}$ (+0.8 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1980^{+23}_{-24}$ (−0.2 $\sigma$ )
$\tau$	$0.059^{+0.021}_{-0.017}$ (+0.2 $\sigma$ )	$\sigma_8$	$0.812^{+0.020}_{-0.016}$ (+0.3 $\sigma$ )	$H(0.61)$	$95.40^{+0.51}_{-0.48}$ (+0.4 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.055^{+0.049}_{-0.036}$ (+0.3 $\sigma$ )	$S_8$	$0.828^{+0.034}_{-0.032}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2304^{+25}_{-26}$ (−0.2 $\sigma$ )
$n_{\mathrm{s}}$	$0.9656^{+0.0098}_{-0.011}$ (+0.0 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.454^{+0.018}_{-0.017}$ (+0.2 $\sigma$ )	$H(2.33)$	$236.3^{+1.6}_{-1.6}$ (+0.5 $\sigma$ )
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.007^{+0.018}_{-0.018}$ (−0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.019}_{-0.017}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5758^{+23}_{-24}$ (−0.6 $\sigma$ )
$r$	$< 0.0881$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.988^{+0.028}_{-0.025}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.016}$ (+0.2 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0009^{+0.0066}_{-0.0064}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	$99.5^{+2.0}_{-2.0}$ (−0.1 $\sigma$ )	$\sigma_8(0.15)$	$0.750^{+0.018}_{-0.014}$ (+0.3 $\sigma$ )
$A_{B,\mathrm{dust}}$	$4.8^{+3.1}_{-2.1}$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.068}_{-0.063}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	$0.476^{+0.015}_{-0.014}$ (+0.2 $\sigma$ )
$A_{B,\mathrm{sync}}$	$< 4.90$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	$< 10.0$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	$0.665^{+0.016}_{-0.012}$ (+0.3 $\sigma$ )
$\alpha_{B,\mathrm{dust}}$	—	$10^9A_{\mathrm{s}}$	$2.12^{+0.11}_{-0.075}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	$0.475^{+0.014}_{-0.012}$ (+0.2 $\sigma$ )
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.24}_{-0.24}$ (+0.0 $\sigma$ )	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.885^{+0.030}_{-0.029}$ (+0.3 $\sigma$ )	$\sigma_8(0.51)$	$0.622^{+0.015}_{-0.011}$ (+0.3 $\sigma$ )
$\alpha_{B,\mathrm{sync}}$	—	$D_{40}$	$1223^{+48}_{-46}$ (−0.0 $\sigma$ )	$f\sigma_8(0.61)$	$0.470^{+0.013}_{-0.011}$ (+0.2 $\sigma$ )
$\beta_{B,\mathrm{sync}}$	$-3.11^{+0.69}_{-0.72}$ (−0.0 $\sigma$ )	$D_{220}$	$5735^{+100}_{-98}$ (+0.4 $\sigma$ )	$\sigma_8(0.61)$	$0.592^{+0.014}_{-0.011}$ (+0.3 $\sigma$ )
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.361$ (−0.0 $\sigma$ )	$D_{810}$	$2543^{+36}_{-35}$ (+0.3 $\sigma$ )	$f\sigma_8(2.33)$	$0.2986^{+0.0073}_{-0.0053}$ (+0.3 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	$817^{+13}_{-13}$ (+0.4 $\sigma$ )	$\sigma_8(2.33)$	$0.3078^{+0.0076}_{-0.0055}$ (+0.3 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{2000}$	$230.4^{+4.6}_{-4.6}$ (+0.4 $\sigma$ )	$r_{0.002}$	$< 0.0865$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.990^{+0.057}_{-0.055}$ (+0.2 $\sigma$ )	$r_{0.01}$	$< 0.0862$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$ (−0.1 $\sigma$ )	$Y_{\mathrm{P}}$	$0.24543^{+0.00014}_{-0.00014}$ (+0.8 $\sigma$ )	$\ln(10^{10}A_{\mathrm{t}})$	$-0.7^{+1.6}_{-3.5}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$ (−0.3 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24675^{+0.00014}_{-0.00014}$ (+0.8 $\sigma$ )	$r_{10}$	$< 0.0452$ (+0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	$2.571^{+0.067}_{-0.064}$ (−0.9 $\sigma$ )	$10^9A_{\mathrm{t}}$	$< 0.186$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$\mathrm{Age}/\mathrm{Gyr}$	$13.785^{+0.053}_{-0.054}$ (−0.6 $\sigma$ )	$10^9A_{\mathrm{t}}e^{-2\tau}$	$< 0.166$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$z_*$	$1089.77^{+0.58}_{-0.58}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	$31^{+8}_{-8}$ (−0.3 $\sigma$ )
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.7}_{-4.6}$ (+0.0 $\sigma$ )	$r_*$	$144.49^{+0.63}_{-0.63}$ (−0.6 $\sigma$ )	$f_{2000}^{143\times 217}$	$33^{+6}_{-5}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{dust}TT}$	$11.0^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$100\theta_*$	$1.04117^{+0.00075}_{-0.00076}$ (−0.1 $\sigma$ )	$f_{2000}^{217}$	$107.8^{+5.2}_{-5.0}$ (−0.3 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.7^{+8.4}_{-8.5}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.878^{+0.060}_{-0.060}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{BKPLANCK}}^2$	$739.8$ ( $\nu$ : 3.6) (+0.0 $\sigma$ )
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_{\mathrm{drag}}$	$1060.09^{+0.79}_{-0.77}$ (+0.9 $\sigma$ )	$\chi_{\mathrm{small}}^2$	$397.9$ ( $\nu$ : 3.1) (+0.2 $\sigma$ )
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.099}_{-0.096}$	$r_{\mathrm{drag}}$	$147.13^{+0.67}_{-0.65}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$22.6$ ( $\nu$ : 1.3) (−0.2 $\sigma$ )
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.135^{+0.077}_{-0.078}$	$k_{\mathrm{D}}$	$0.14089^{+0.00079}_{-0.00082}$ (+0.9 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	$2360.3$ ( $\nu$ : 18.1) (+279.9 $\sigma$ )
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.21}$	$100\theta_{\mathrm{D}}$	$0.16067^{+0.00045}_{-0.00045}$ (−0.9 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	$0.067$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{eq}}$	$3393^{+60}_{-59}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$1.19$ ( $\nu$ : 0.1) (−0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.20}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00018}_{-0.00018}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$5.1$ ( $\nu$ : 1.3) (+0.0 $\sigma$ )
$A_{217}^{\mathrm{dust}TE}$	$2.07^{+0.69}_{-0.69}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.011}_{-0.011}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$13.2$ ( $\nu$ : 12.0) (+1.1 $\sigma$ )
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4504^{+0.0058}_{-0.0057}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$6.4$ ( $\nu$ : 0.9) (+0.0 $\sigma$ )
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$H(0.15)$	$72.9^{+1.0}_{-0.99}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$3520.7$ ( $\nu$ : 21.7) (+253.2 $\sigma$ )
$H_0$	$67.6^{+1.2}_{-1.2}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$641^{+10}_{-10}$ (−0.1 $\sigma$ )		
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.016}$ (−0.1 $\sigma$ )	$H(0.38)$	$83.04^{+0.76}_{-0.73}$ (+0.2 $\sigma$ )		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3540.25; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.64; R - 1 = 0.00710$$



# 15.41 base\_nrun\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02213	$0.02215^{+0.00061}_{-0.00060}$	$\Omega_{\mathrm{m}}h^3$	0.09605	$0.0961^{+0.0013}_{-0.0013}$	$H(0.38)$	82.39	$82.5^{+1.5}_{-1.4}$
$\Omega_{\mathrm{c}}h^2$	0.1214	$0.1211^{+0.0054}_{-0.0053}$	$\sigma_8$	0.8144	$0.814^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	1546.2	$1544^{+40}_{-41}$
$100\theta_{\mathrm{MC}}$	1.04079	$1.0408^{+0.0012}_{-0.0012}$	$S_8$	0.847	$0.845^{+0.062}_{-0.060}$	$H(0.51)$	89.24	$89.3^{+1.2}_{-1.1}$
$\tau$	0.0534	$0.054^{+0.025}_{-0.022}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4640	$0.463^{+0.034}_{-0.033}$	$D_{\mathrm{M}}(0.51)$	2000.9	$1999^{+47}_{-48}$
$\ln(10^{10}A_{\mathrm{s}})$	3.0451	$3.046^{+0.050}_{-0.046}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6147	$0.614^{+0.030}_{-0.030}$	$H(0.61)$	94.96	$95.00^{+0.97}_{-0.85}$
$n_{\mathrm{s}}$	0.9605	$0.962^{+0.016}_{-0.015}$	$\sigma_8/h^{0.5}$	0.9977	$0.997^{+0.041}_{-0.041}$	$D_{\mathrm{M}}(0.61)$	2327	$2324^{+50}_{-52}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	-0.0056	$-0.005^{+0.019}_{-0.019}$	$r_{\mathrm{drag}}h$	97.95	$98.1^{+4.2}_{-4.0}$	$H(2.33)$	237.21	$237.1^{+3.2}_{-3.2}$
$r$	0.0137	$< 0.0838$	$\langle d^2 \rangle^{1/2}$	2.457	$2.454^{+0.098}_{-0.099}$	$D_{\mathrm{M}}(2.33)$	5778.8	$5777^{+41}_{-44}$
$y_{\mathrm{cal}}$	1.0007	$1.0007^{+0.0064}_{-0.0065}$	$z_{\mathrm{re}}$	7.66	$7.7^{+2.3}_{-2.4}$	$f\sigma_8(0.15)$	0.4675	$0.467^{+0.031}_{-0.031}$
$A_{B,\mathrm{dust}}$	4.62	$4.9^{+3.2}_{-2.1}$	$10^9 A_{\mathrm{s}}$	2.101	$2.10^{+0.11}_{-0.095}$	$\sigma_8(0.15)$	0.7512	$0.751^{+0.020}_{-0.019}$
$A_{B,\mathrm{sync}}$	1.48	$< 4.94$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8884	$1.887^{+0.037}_{-0.037}$	$f\sigma_8(0.38)$	0.4830	$0.482^{+0.024}_{-0.024}$
$\alpha_{B,\mathrm{dust}}$	-0.53	—	$D_{40}$	1228	$1231^{+56}_{-54}$	$\sigma_8(0.38)$	0.6645	$0.665^{+0.017}_{-0.016}$
$\beta_{B,\mathrm{dust}}$	1.579	$1.60^{+0.25}_{-0.25}$	$D_{220}$	5704	$5703^{+110}_{-110}$	$f\sigma_8(0.51)$	0.4800	$0.479^{+0.020}_{-0.021}$
$\alpha_{B,\mathrm{sync}}$	-0.25	—	$D_{810}$	2536.8	$2537^{+36}_{-37}$	$\sigma_8(0.51)$	0.6213	$0.621^{+0.015}_{-0.014}$
$\beta_{B,\mathrm{sync}}$	-3.04	$-3.10^{+0.68}_{-0.74}$	$D_{1420}$	812.8	$814^{+14}_{-14}$	$f\sigma_8(0.61)$	0.4740	$0.473^{+0.018}_{-0.019}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	-0.34	$< 0.350$	$D_{2000}$	228.7	$229.0^{+5.1}_{-5.2}$	$\sigma_8(0.61)$	0.5908	$0.591^{+0.014}_{-0.013}$
$A_{100}^{\mathrm{PS}}$	250	$246^{+60}_{-60}$	$n_{\mathrm{s},0.002}$	0.979	$0.979^{+0.061}_{-0.060}$	$f\sigma_8(2.33)$	0.2974	$0.2975^{+0.0072}_{-0.0067}$
$A_{143}^{\mathrm{PS}}$	39	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	0.245296	$0.24530^{+0.00024}_{-0.00028}$	$\sigma_8(2.33)$	0.3060	$0.3063^{+0.0078}_{-0.0071}$
$A_{217}^{\mathrm{PS}}$	97.9	$100^{+30}_{-40}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246622	$0.24663^{+0.00024}_{-0.00028}$	$r_{0.002}$	0.0125	$< 0.0812$
$A_{217}^{\mathrm{CIB}}$	44.0	$42^{+20}_{-20}$	$10^5\mathrm{D}/\mathrm{H}$	2.632	$2.63^{+0.12}_{-0.11}$	$r_{0.01}$	0.0130	$< 0.0815$
$A_{143}^{\mathrm{tSZ}}$	3.85	$< 8.68$	$\mathrm{Age}/\mathrm{Gyr}$	13.831	$13.827^{+0.094}_{-0.098}$	$\ln(10^{10}A_{\mathrm{t}})$	-1.25	$-0.9^{+1.7}_{-3.6}$
$r_{143\times 217}^{\mathrm{PS}}$	0.542	$0.64^{+0.31}_{-0.31}$	$z_{*}$	1090.35	$1090.3^{+1.1}_{-1.1}$	$r_{10}$	0.0065	$< 0.0424$
$r_{143\times 217}^{\mathrm{CIB}}$	0.66	—	$r_{*}$	144.26	$144.3^{+1.2}_{-1.2}$	$10^9 A_{\mathrm{t}}$	0.029	$< 0.176$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.00	—	$100\theta_{*}$	1.04099	$1.0410^{+0.0012}_{-0.0012}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	0.026	$< 0.158$
$A^{\mathrm{kSZ}}$	4.7	—	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	13.858	$13.86^{+0.12}_{-0.11}$	$f_{2000}^{143}$	32.5	$32^{+9}_{-9}$
$A_{100}^{\mathrm{dust}}$	1.02	$1.01^{+0.51}_{-0.50}$	$z_{\mathrm{drag}}$	1059.47	$1059.5^{+1.3}_{-1.3}$	$f_{2000}^{217}$	108.7	$108.3^{+5.7}_{-5.6}$
$A_{143}^{\mathrm{dust}}$	0.984	$0.98^{+0.46}_{-0.45}$	$r_{\mathrm{drag}}$	147.00	$147.0^{+1.3}_{-1.2}$	$f_{2000}^{143\times 217}$	34.1	$34^{+6}_{-6}$
$A_{217}^{\mathrm{dust}}$	0.962	$0.97^{+0.27}_{-0.27}$	$k_{\mathrm{D}}$	0.14078	$0.1408^{+0.0014}_{-0.0015}$	$\chi_{\mathrm{BKPLANCK}}^2$	734.9	$739.2 (\nu: 3.7)$
$A_{143\times 217}^{\mathrm{dust}}$	1.007	$1.03^{+0.42}_{-0.41}$	$100\theta_{\mathrm{D}}$	0.16103	$0.16101^{+0.00076}_{-0.00073}$	$\chi_{\mathrm{small}}^2$	396.0	$397.3 (\nu: 1.9)$
$c_{100}$	0.99739	$0.9975^{+0.0027}_{-0.0027}$	$z_{\mathrm{eq}}$	3429	$3424^{+120}_{-120}$	$\chi_{\mathrm{lowl}}^2$	22.9	$23.6 (\nu: 2.4)$
$c_{217}$	1.00143	$1.0013^{+0.0040}_{-0.0040}$	$k_{\mathrm{eq}}$	0.010466	$0.01045^{+0.00037}_{-0.00037}$	$\chi_{\mathrm{CamSpec}}^2$	7050.6	$7064.4 (\nu: 15.8)$
$H_0$	66.63	$66.7^{+2.4}_{-2.3}$	$100\theta_{\mathrm{eq}}$	0.8078	$0.809^{+0.023}_{-0.022}$	$\chi_{\mathrm{prior}}^2$	2.6	$9.3 (\nu: 7.4)$
$\Omega_{\Lambda}$	0.6753	$0.677^{+0.032}_{-0.035}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	0.4467	$0.447^{+0.012}_{-0.011}$	$\chi_{\mathrm{CMB}}^2$	8204.4	$8224.5 (\nu: 20.0)$
$\Omega_{\mathrm{m}}$	0.3247	$0.323^{+0.035}_{-0.032}$	$H(0.15)$	72.05	$72.2^{+2.1}_{-1.9}$			
$\Omega_{\mathrm{m}}h^2$	0.1441	$0.1439^{+0.0051}_{-0.0050}$	$D_{\mathrm{M}}(0.15)$	649.7	$649^{+20}_{-20}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 8206.96$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 8233.85$ ;  $R - 1 = 0.00340$

$\chi_{\mathrm{eff}}^2$ : CMB - BK15\_dust: 734.86 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.03 commander\_dx12\_v3\_2\_29: 22.86 CamSpec like\_10.7HM: 7050.61



# 15.42 base\_nrun\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02224	$0.02226^{+0.00058}_{-0.00055}$	$\sigma_8$	0.8082	$0.809^{+0.022}_{-0.020}$	$H(0.51)$	89.66	$89.68^{+0.80}_{-0.74}$
$\Omega_c h^2$	0.11917	$0.1192^{+0.0032}_{-0.0031}$	$S_8$	0.8229	$0.824^{+0.039}_{-0.038}$	$D_M(0.51)$	1982.2	$1982^{+28}_{-30}$
$100\theta_{MC}$	1.04104	$1.0411^{+0.0011}_{-0.0011}$	$\sigma_8 \Omega_m^{0.5}$	0.4507	$0.451^{+0.021}_{-0.021}$	$H(0.61)$	95.28	$95.29^{+0.69}_{-0.63}$
$\tau$	0.0553	$0.056^{+0.025}_{-0.022}$	$\sigma_8 \Omega_m^{0.25}$	0.6035	$0.604^{+0.021}_{-0.021}$	$D_M(0.61)$	2306.6	$2306^{+31}_{-32}$
$\ln(10^{10} A_s)$	3.0438	$3.046^{+0.052}_{-0.047}$	$\sigma_8/h^{0.5}$	0.9831	$0.984^{+0.031}_{-0.030}$	$H(2.33)$	235.89	$235.9^{+2.1}_{-2.0}$
$n_s$	0.9657	$0.966^{+0.012}_{-0.011}$	$r_{\text{drag}} h$	99.65	$99.6^{+2.5}_{-2.4}$	$D_M(2.33)$	5765.6	$5765^{+32}_{-34}$
$dn_s/d \ln k$	-0.0048	$-0.005^{+0.019}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	2.424	$2.426^{+0.075}_{-0.074}$	$f\sigma_8(0.15)$	0.4553	$0.456^{+0.020}_{-0.020}$
$r$	0.0170	$< 0.0856$	$z_{\text{re}}$	7.80	$7.8^{+2.4}_{-2.3}$	$\sigma_8(0.15)$	0.7468	$0.748^{+0.020}_{-0.018}$
$y_{\text{cal}}$	1.0008	$1.0008^{+0.0065}_{-0.0066}$	$10^9 A_s$	2.098	$2.10^{+0.11}_{-0.097}$	$f\sigma_8(0.38)$	0.4737	$0.474^{+0.017}_{-0.017}$
$A_{B,\text{dust}}$	4.60	$4.9^{+3.1}_{-2.1}$	$10^9 A_s e^{-2\tau}$	1.8789	$1.879^{+0.032}_{-0.032}$	$\sigma_8(0.38)$	0.6621	$0.663^{+0.017}_{-0.015}$
$A_{B,\text{sync}}$	1.45	$< 4.84$	$D_{40}$	1220	$1224^{+53}_{-51}$	$f\sigma_8(0.51)$	0.4724	$0.473^{+0.015}_{-0.015}$
$\alpha_{B,\text{dust}}$	-0.50	—	$D_{220}$	5713	$5712^{+100}_{-100}$	$\sigma_8(0.51)$	0.6196	$0.620^{+0.016}_{-0.014}$
$\beta_{B,\text{dust}}$	1.575	$1.60^{+0.25}_{-0.25}$	$D_{810}$	2535.7	$2537^{+36}_{-37}$	$f\sigma_8(0.61)$	0.4675	$0.468^{+0.014}_{-0.014}$
$\alpha_{B,\text{sync}}$	-0.38	—	$D_{1420}$	814.3	$815^{+13}_{-14}$	$\sigma_8(0.61)$	0.5896	$0.590^{+0.015}_{-0.013}$
$\beta_{B,\text{sync}}$	-3.05	$-3.10^{+0.70}_{-0.76}$	$D_{2000}$	229.3	$229.6^{+5.1}_{-5.1}$	$f\sigma_8(2.33)$	0.2973	$0.2976^{+0.0076}_{-0.0066}$
$\epsilon_{\text{dust,sync}}$	-0.34	$< 0.357$	$n_{s,0.002}$	0.981	$0.982^{+0.060}_{-0.059}$	$\sigma_8(2.33)$	0.3065	$0.3068^{+0.0079}_{-0.0070}$
$A_{100}^{\text{PS}}$	249	$245^{+60}_{-70}$	$Y_P$	0.245343	$0.24535^{+0.00022}_{-0.00026}$	$r_{0.002}$	0.0157	$< 0.0843$
$A_{143}^{\text{PS}}$	41.7	$42^{+20}_{-20}$	$Y_P^{\text{BBN}}$	0.246670	$0.24667^{+0.00023}_{-0.00026}$	$r_{0.01}$	0.0162	$< 0.0834$
$A_{217}^{\text{PS}}$	98.5	$100^{+30}_{-30}$	$10^5 D/H$	2.610	$2.61^{+0.11}_{-0.10}$	$\ln(10^{10} A_t)$	-1.03	$-0.8^{+1.7}_{-3.5}$
$A_{217}^{\text{CIB}}$	42.9	$42^{+20}_{-20}$	Age/Gyr	13.803	$13.801^{+0.075}_{-0.078}$	$r_{10}$	0.0081	$< 0.0437$
$A_{143}^{\text{tSZ}}$	3.55	$< 8.71$	$z_*$	1090.01	$1089.99^{+0.80}_{-0.83}$	$10^9 A_t$	0.036	$< 0.179$
$r_{143 \times 217}^{\text{PS}}$	0.583	$0.64^{+0.32}_{-0.32}$	$r_*$	144.74	$144.72^{+0.85}_{-0.85}$	$10^9 A_t e^{-2\tau}$	0.032	$< 0.161$
$r_{143 \times 217}^{\text{CIB}}$	0.68	—	$100\theta_*$	1.04124	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	32.0	$31^{+9}_{-9}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.29	—	$D_M(z_*)/\text{Gpc}$	13.901	$13.899^{+0.082}_{-0.083}$	$f_{2000}^{217}$	108.3	$108.0^{+5.7}_{-5.6}$
$A^{\text{kSZ}}$	5.1	—	$z_{\text{drag}}$	1059.59	$1059.6^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	33.6	$33^{+6}_{-6}$
$A_{100}^{\text{dust}}$	1.02	$1.01^{+0.50}_{-0.50}$	$r_{\text{drag}}$	147.45	$147.43^{+0.93}_{-0.94}$	$\chi_{\text{BKPLANCK}}^2$	735.6	$740.0 (\nu: 3.6)$
$A_{143}^{\text{dust}}$	0.988	$0.97^{+0.46}_{-0.46}$	$k_D$	0.14039	$0.1404^{+0.0013}_{-0.0013}$	$\chi_{\text{simall}}^2$	396.2	$397.5 (\nu: 2.5)$
$A_{217}^{\text{dust}}$	0.966	$0.97^{+0.26}_{-0.27}$	$100\theta_D$	0.16098	$0.16096^{+0.00076}_{-0.00073}$	$\chi_{\text{lowl}}^2$	22.26	$23.0 (\nu: 1.9)$
$A_{143 \times 217}^{\text{dust}}$	0.996	$1.03^{+0.42}_{-0.41}$	$z_{\text{eq}}$	3379	$3380^{+75}_{-72}$	$\chi_{\text{CamSpec}}^2$	7051.6	$7064.6 (\nu: 15.3)$
$c_{100}$	0.99743	$0.9975^{+0.0027}_{-0.0027}$	$k_{\text{eq}}$	0.010314	$0.01032^{+0.00023}_{-0.00022}$	$\chi_{6\text{DF}}^2$	0.029	$0.066 (\nu: 0.0)$
$c_{217}$	1.00144	$1.0013^{+0.0040}_{-0.0040}$	$100\theta_{\text{eq}}$	0.8172	$0.817^{+0.014}_{-0.013}$	$\chi_{\text{MGS}}^2$	1.22	$1.29 (\nu: 0.1)$
$H_0$	67.58	$67.6^{+1.4}_{-1.4}$	$100\theta_{s,\text{eq}}$	0.4515	$0.4514^{+0.0071}_{-0.0070}$	$\chi_{\text{DR12BAO}}^2$	4.37	$5.0 (\nu: 1.5)$
$\Omega_\Lambda$	0.6890	$0.689^{+0.019}_{-0.019}$	$H(0.15)$	72.85	$72.9^{+1.3}_{-1.2}$	$\chi_{\text{prior}}^2$	2.5	$9.4 (\nu: 7.4)$
$\Omega_m$	0.3110	$0.311^{+0.019}_{-0.019}$	$D_M(0.15)$	641.5	$641^{+12}_{-12}$	$\chi_{\text{BAO}}^2$	5.61	$6.3 (\nu: 1.1)$
$\Omega_m h^2$	0.14205	$0.1421^{+0.0031}_{-0.0030}$	$H(0.38)$	82.95	$82.97^{+0.97}_{-0.89}$	$\chi_{\text{CMB}}^2$	8205.7	$8225.0 (\nu: 19.8)$
$\Omega_m h^3$	0.09600	$0.0960^{+0.0013}_{-0.0013}$	$D_M(0.38)$	1530.1	$1530^{+24}_{-25}$			

Best-fit  $\chi_{\text{eff}}^2 = 8213.81$ ;  $\bar{\chi}_{\text{eff}}^2 = 8240.71$ ;  $R - 1 = 0.00691$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.37 CMB - BK15\_dust: 735.64 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.20 commander\_dx12\_v3\_2\_29: 22.25 CamSpec like\_10.7HM: 7051.59



### 15.43 base\_nrun\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02214	$0.02217^{+0.00060}_{-0.00057}$	$\Omega_m h^3$	0.09596	$0.0960^{+0.0012}_{-0.0012}$	$H(0.38)$	82.54	$82.6^{+1.3}_{-1.1}$
$\Omega_c h^2$	0.12063	$0.1205^{+0.0040}_{-0.0041}$	$\sigma_8$	0.8119	$0.812^{+0.016}_{-0.016}$	$D_M(0.38)$	1541.6	$1540^{+32}_{-34}$
$100\theta_{MC}$	1.04082	$1.0409^{+0.0012}_{-0.0011}$	$S_8$	0.8389	$0.838^{+0.042}_{-0.041}$	$H(0.51)$	89.34	$89.4^{+1.0}_{-0.92}$
$\tau$	0.0535	$0.054^{+0.025}_{-0.022}$	$\sigma_8 \Omega_m^{0.5}$	0.4595	$0.459^{+0.023}_{-0.023}$	$D_M(0.51)$	1995.6	$1994^{+38}_{-40}$
$\ln(10^{10} A_s)$	3.0430	$3.043^{+0.046}_{-0.041}$	$\sigma_8 \Omega_m^{0.25}$	0.6108	$0.610^{+0.020}_{-0.020}$	$H(0.61)$	95.03	$95.08^{+0.85}_{-0.76}$
$n_s$	0.9620	$0.963^{+0.014}_{-0.013}$	$\sigma_8/h^{0.5}$	0.9925	$0.992^{+0.027}_{-0.027}$	$D_M(0.61)$	2321.0	$2319^{+40}_{-43}$
$dn_s/d \ln k$	-0.0041	$-0.004^{+0.019}_{-0.019}$	$r_{drag} h$	98.48	$98.6^{+3.3}_{-3.1}$	$H(2.33)$	236.74	$236.7^{+2.5}_{-2.5}$
$r$	0.0130	$< 0.0827$	$\langle d^2 \rangle^{1/2}$	2.448	$2.445^{+0.069}_{-0.068}$	$D_M(2.33)$	5776.2	$5774^{+38}_{-40}$
$y_{cal}$	1.0006	$1.0007^{+0.0065}_{-0.0064}$	$z_{re}$	7.66	$7.7^{+2.3}_{-2.3}$	$f\sigma_8(0.15)$	0.4634	$0.463^{+0.021}_{-0.021}$
$A_{B,dust}$	4.63	$4.9^{+3.2}_{-2.2}$	$10^9 A_s$	2.097	$2.098^{+0.098}_{-0.085}$	$\sigma_8(0.15)$	0.7493	$0.749^{+0.015}_{-0.014}$
$A_{B,sync}$	1.47	$< 4.92$	$10^9 A_s e^{-2\tau}$	1.8842	$1.884^{+0.031}_{-0.031}$	$f\sigma_8(0.38)$	0.4797	$0.479^{+0.016}_{-0.016}$
$\alpha_{B,dust}$	-0.52	—	$D_{40}$	1228	$1231^{+53}_{-52}$	$\sigma_8(0.38)$	0.6633	$0.663^{+0.013}_{-0.013}$
$\beta_{B,dust}$	1.577	$1.60^{+0.25}_{-0.25}$	$D_{220}$	5706	$5706^{+110}_{-110}$	$f\sigma_8(0.51)$	0.4773	$0.477^{+0.014}_{-0.014}$
$\alpha_{B,sync}$	-0.26	—	$D_{810}$	2535.1	$2536^{+36}_{-35}$	$\sigma_8(0.51)$	0.6203	$0.621^{+0.013}_{-0.012}$
$\beta_{B,sync}$	-3.04	$-3.10^{+0.67}_{-0.74}$	$D_{1420}$	812.9	$814^{+14}_{-14}$	$f\sigma_8(0.61)$	0.4716	$0.471^{+0.012}_{-0.012}$
$\epsilon_{dust,sync}$	-0.33	$< 0.346$	$D_{2000}$	228.8	$229.2^{+5.1}_{-5.2}$	$\sigma_8(0.61)$	0.5900	$0.590^{+0.012}_{-0.012}$
$A_{100}^{PS}$	249	$245^{+60}_{-60}$	$n_{s,0.002}$	0.975	$0.976^{+0.061}_{-0.061}$	$f\sigma_8(2.33)$	0.2971	$0.2973^{+0.0067}_{-0.0061}$
$A_{143}^{PS}$	39	$42^{+20}_{-20}$	$Y_P$	0.245301	$0.24531^{+0.00023}_{-0.00027}$	$\sigma_8(2.33)$	0.3060	$0.3062^{+0.0076}_{-0.0067}$
$A_{217}^{PS}$	97.7	$100^{+30}_{-30}$	$Y_P^{BBN}$	0.246627	$0.24664^{+0.00023}_{-0.00027}$	$r_{0.002}$	0.0118	$< 0.0802$
$A_{217}^{CIB}$	44.5	$42^{+20}_{-20}$	$10^5 D/H$	2.629	$2.62^{+0.11}_{-0.11}$	$r_{0.01}$	0.0124	$< 0.0805$
$A_{143}^{tSZ}$	4.11	$< 8.71$	Age/Gyr	13.826	$13.821^{+0.086}_{-0.090}$	$\ln(10^{10} A_t)$	-1.30	$-0.9^{+1.7}_{-3.5}$
$r_{143 \times 217}^{PS}$	0.544	$0.64^{+0.32}_{-0.31}$	$z_*$	1090.27	$1090.21^{+0.95}_{-0.97}$	$r_{10}$	0.0061	$< 0.0417$
$r_{143 \times 217}^{CIB}$	0.67	—	$r_*$	144.44	$144.45^{+0.97}_{-0.95}$	$10^9 A_t$	0.027	$< 0.174$
$\xi^{tSZ \times CIB}$	0.00	—	$100\theta_*$	1.04102	$1.0411^{+0.0012}_{-0.0011}$	$10^9 A_t e^{-2\tau}$	0.025	$< 0.156$
$A^{kSZ}$	4.2	—	$D_M(z_*)/\text{Gpc}$	13.875	$13.876^{+0.092}_{-0.090}$	$f_{2000}^{143}$	32.4	$32^{+9}_{-9}$
$A_{100}^{dust}$	1.02	$1.01^{+0.51}_{-0.50}$	$z_{drag}$	1059.44	$1059.5^{+1.3}_{-1.3}$	$f_{2000}^{217}$	108.5	$108.1^{+5.7}_{-5.6}$
$A_{143}^{dust}$	0.979	$0.98^{+0.45}_{-0.45}$	$r_{drag}$	147.18	$147.2^{+1.0}_{-1.0}$	$f_{2000}^{143 \times 217}$	33.9	$34^{+6}_{-6}$
$A_{217}^{dust}$	0.959	$0.97^{+0.26}_{-0.27}$	$k_D$	0.14059	$0.1406^{+0.0012}_{-0.0013}$	$\chi^2_{lensing}$	9.11	$9.71 (\nu: 0.5)$
$A_{143 \times 217}^{dust}$	1.005	$1.03^{+0.42}_{-0.41}$	$100\theta_D$	0.16104	$0.16101^{+0.00074}_{-0.00072}$	$\chi^2_{BKPLANCK}$	735.2	$739.5 (\nu: 3.5)$
$c_{100}$	0.99744	$0.9975^{+0.0027}_{-0.0027}$	$z_{eq}$	3412	$3409^{+92}_{-92}$	$\chi^2_{small}$	396.02	$397.1 (\nu: 1.6)$
$c_{217}$	1.00145	$1.0013^{+0.0041}_{-0.0041}$	$k_{eq}$	0.010413	$0.01041^{+0.00028}_{-0.00028}$	$\chi^2_{lowl}$	22.9	$23.7 (\nu: 2.5)$
$H_0$	66.91	$67.0^{+2.0}_{-1.8}$	$100\theta_{eq}$	0.8109	$0.811^{+0.018}_{-0.017}$	$\chi^2_{CamSpec}$	7050.4	$7063.8 (\nu: 14.7)$
$\Omega_\Lambda$	0.6797	$0.681^{+0.026}_{-0.026}$	$100\theta_{s,eq}$	0.4483	$0.4486^{+0.0091}_{-0.0087}$	$\chi^2_{prior}$	2.5	$9.3 (\nu: 7.3)$
$\Omega_m$	0.3203	$0.319^{+0.026}_{-0.026}$	$H(0.15)$	72.28	$72.4^{+1.7}_{-1.6}$	$\chi^2_{CMB}$	8213.7	$8233.8 (\nu: 19.8)$
$\Omega_m h^2$	0.14341	$0.1433^{+0.0039}_{-0.0038}$	$D_M(0.15)$	647.3	$647^{+16}_{-17}$			

Best-fit  $\chi^2_{eff} = 8216.23$ ;  $\bar{\chi}^2_{eff} = 8243.12$ ;  $R - 1 = 0.00347$

$\chi^2_{eff}$ : CMB - smicadx12.Dec5.ftl\_mv2.ndclpp.p.teb\_consext8: 9.11 BK15.dust: 735.18 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.02 commander\_dx12\_v3\_2.29: 22.95 CamSpec like\_10.7HM: 7050.44



# 15.44 base\_nrun\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02226	$0.02226^{+0.00058}_{-0.00055}$	$\sigma_8$	0.8095	$0.810^{+0.017}_{-0.016}$	$H(0.51)$	89.65	$89.66^{+0.78}_{-0.71}$
$\Omega_c h^2$	0.11935	$0.1193^{+0.0028}_{-0.0028}$	$S_8$	0.8255	$0.826^{+0.031}_{-0.030}$	$D_M(0.51)$	1983.1	$1983^{+26}_{-29}$
$100\theta_{MC}$	1.04105	$1.0410^{+0.0011}_{-0.0011}$	$\sigma_8 \Omega_m^{0.5}$	0.4521	$0.452^{+0.017}_{-0.017}$	$H(0.61)$	95.27	$95.28^{+0.67}_{-0.62}$
$\tau$	0.0563	$0.057^{+0.023}_{-0.019}$	$\sigma_8 \Omega_m^{0.25}$	0.6050	$0.605^{+0.016}_{-0.016}$	$D_M(0.61)$	2307.5	$2307^{+29}_{-31}$
$\ln(10^{10} A_s)$	3.0461	$3.048^{+0.046}_{-0.039}$	$\sigma_8/h^{0.5}$	0.9851	$0.986^{+0.023}_{-0.023}$	$H(2.33)$	236.03	$236.0^{+1.8}_{-1.8}$
$n_s$	0.9652	$0.966^{+0.011}_{-0.011}$	$r_{\text{drag}} h$	99.53	$99.6^{+2.3}_{-2.2}$	$D_M(2.33)$	5765.4	$5765^{+32}_{-33}$
$dn_s/d \ln k$	-0.0045	$-0.004^{+0.019}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	2.431	$2.431^{+0.060}_{-0.060}$	$f\sigma_8(0.15)$	0.4567	$0.457^{+0.016}_{-0.015}$
$r$	0.0155	$< 0.0832$	$z_{\text{re}}$	7.89	$7.9^{+2.1}_{-2.0}$	$\sigma_8(0.15)$	0.7480	$0.749^{+0.015}_{-0.014}$
$y_{\text{cal}}$	1.0007	$1.0010^{+0.0064}_{-0.0064}$	$10^9 A_s$	2.103	$2.107^{+0.099}_{-0.081}$	$f\sigma_8(0.38)$	0.4749	$0.475^{+0.013}_{-0.013}$
$A_{B,\text{dust}}$	4.62	$4.9^{+3.1}_{-2.2}$	$10^9 A_s e^{-2\tau}$	1.8796	$1.880^{+0.030}_{-0.028}$	$\sigma_8(0.38)$	0.6630	$0.664^{+0.014}_{-0.012}$
$A_{B,\text{sync}}$	1.42	$< 4.97$	$D_{40}$	1222	$1227^{+51}_{-51}$	$f\sigma_8(0.51)$	0.4734	$0.474^{+0.012}_{-0.012}$
$\alpha_{B,\text{dust}}$	-0.51	—	$D_{220}$	5716	$5716^{+110}_{-100}$	$\sigma_8(0.51)$	0.6204	$0.621^{+0.013}_{-0.012}$
$\beta_{B,\text{dust}}$	1.574	$1.60^{+0.25}_{-0.25}$	$D_{810}$	2535.7	$2537^{+36}_{-36}$	$f\sigma_8(0.61)$	0.4684	$0.469^{+0.011}_{-0.011}$
$\alpha_{B,\text{sync}}$	-0.48	—	$D_{1420}$	814.2	$815^{+13}_{-14}$	$\sigma_8(0.61)$	0.5903	$0.591^{+0.012}_{-0.011}$
$\beta_{B,\text{sync}}$	-3.04	$-3.10^{+0.68}_{-0.74}$	$D_{2000}$	229.4	$229.7^{+5.0}_{-5.1}$	$f\sigma_8(2.33)$	0.2976	$0.2980^{+0.0066}_{-0.0057}$
$\epsilon_{\text{dust,sync}}$	-0.34	$< 0.359$	$n_{s,0.002}$	0.980	$0.980^{+0.061}_{-0.059}$	$\sigma_8(2.33)$	0.3068	$0.3072^{+0.0072}_{-0.0061}$
$A_{100}^{\text{PS}}$	248	$245^{+60}_{-70}$	$Y_P$	0.245349	$0.24535^{+0.00022}_{-0.00026}$	$r_{0.002}$	0.0143	$< 0.0813$
$A_{143}^{\text{PS}}$	40	$42^{+20}_{-20}$	$Y_P^{\text{BBN}}$	0.246676	$0.24667^{+0.00023}_{-0.00026}$	$r_{0.01}$	0.0148	$< 0.0814$
$A_{217}^{\text{PS}}$	98.1	$101^{+30}_{-30}$	$10^5 D/H$	2.607	$2.61^{+0.11}_{-0.10}$	$\ln(10^{10} A_t)$	-1.12	$-0.8^{+1.7}_{-3.4}$
$A_{217}^{\text{CIB}}$	43.7	$41^{+20}_{-20}$	Age/Gyr	13.803	$13.802^{+0.074}_{-0.076}$	$r_{10}$	0.0073	$< 0.0424$
$A_{143}^{\text{tSZ}}$	3.97	$< 8.71$	$z_*$	1090.01	$1090.00^{+0.80}_{-0.82}$	$10^9 A_t$	0.033	$< 0.176$
$r_{143 \times 217}^{\text{PS}}$	0.561	$0.64^{+0.32}_{-0.32}$	$r_*$	144.69	$144.71^{+0.76}_{-0.76}$	$10^9 A_t e^{-2\tau}$	0.029	$< 0.156$
$r_{143 \times 217}^{\text{CIB}}$	0.66	—	$100\theta_*$	1.04124	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	31.9	$31^{+9}_{-9}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.09	—	$D_M(z_*)/\text{Gpc}$	13.896	$13.898^{+0.075}_{-0.074}$	$f_{2000}^{217}$	108.2	$107.9^{+5.7}_{-5.5}$
$A^{\text{kSZ}}$	4.5	—	$z_{\text{drag}}$	1059.63	$1059.6^{+1.3}_{-1.2}$	$f_{2000}^{143 \times 217}$	33.6	$33^{+6}_{-6}$
$A_{100}^{\text{dust}}$	1.02	$1.01^{+0.51}_{-0.50}$	$r_{\text{drag}}$	147.39	$147.41^{+0.88}_{-0.86}$	$\chi_{\text{lensing}}^2$	9.03	$9.45 (\nu: 0.3)$
$A_{143}^{\text{dust}}$	0.984	$0.97^{+0.46}_{-0.46}$	$k_D$	0.14047	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\text{BKPLANCK}}^2$	735.6	$739.8 (\nu: 3.5)$
$A_{217}^{\text{dust}}$	0.960	$0.97^{+0.26}_{-0.27}$	$100\theta_D$	0.16095	$0.16096^{+0.00074}_{-0.00071}$	$\chi_{\text{small}}^2$	396.4	$397.5 (\nu: 2.4)$
$A_{143 \times 217}^{\text{dust}}$	1.006	$1.03^{+0.42}_{-0.41}$	$z_{\text{eq}}$	3384	$3382^{+66}_{-65}$	$\chi_{\text{lowl}}^2$	22.43	$23.2 (\nu: 2.1)$
$c_{100}$	0.99745	$0.9975^{+0.0027}_{-0.0027}$	$k_{\text{eq}}$	0.010328	$0.01032^{+0.00020}_{-0.00020}$	$\chi_{\text{CamSpec}}^2$	7051.2	$7064.1 (\nu: 14.7)$
$c_{217}$	1.00137	$1.0013^{+0.0040}_{-0.0041}$	$100\theta_{\text{eq}}$	0.8164	$0.817^{+0.012}_{-0.012}$	$\chi_{6\text{DF}}^2$	0.038	$0.064 (\nu: 0.0)$
$H_0$	67.53	$67.6^{+1.4}_{-1.3}$	$100\theta_{s,\text{eq}}$	0.4511	$0.4512^{+0.0064}_{-0.0062}$	$\chi_{\text{MGS}}^2$	1.16	$1.25 (\nu: 0.1)$
$\Omega_\Lambda$	0.6881	$0.688^{+0.017}_{-0.017}$	$H(0.15)$	72.81	$72.8^{+1.2}_{-1.1}$	$\chi_{\text{DR12BAO}}^2$	4.57	$5.0 (\nu: 1.3)$
$\Omega_m$	0.3119	$0.312^{+0.017}_{-0.017}$	$D_M(0.15)$	641.9	$642^{+11}_{-12}$	$\chi_{\text{prior}}^2$	2.5	$9.3 (\nu: 7.4)$
$\Omega_m h^2$	0.14225	$0.1422^{+0.0028}_{-0.0027}$	$H(0.38)$	82.93	$82.95^{+0.92}_{-0.84}$	$\chi_{\text{CMB}}^2$	8214.6	$8234.1 (\nu: 19.7)$
$\Omega_m h^3$	0.09606	$0.0960^{+0.0012}_{-0.0012}$	$D_M(0.38)$	1530.9	$1531^{+22}_{-24}$	$\chi_{\text{BAO}}^2$	5.77	$6.3 (\nu: 0.9)$

Best-fit  $\chi_{\text{eff}}^2 = 8222.87$ ;  $\bar{\chi}_{\text{eff}}^2 = 8249.75$ ;  $R - 1 = 0.00778$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.04 MGS: 1.16 DR12BAO: 4.57 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.03 BK15\_dust: 735.56 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.42 commander\_dx12\_v3.2.29: 22.43 CamSpec like\_10.7HM: 7051.18



## 15.45 base\_nrun\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02216^{+0.00061}_{-0.00059}$	$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0013}_{-0.0013}$	$H(0.38)$	$82.5^{+1.5}_{-1.4}$
$\Omega_{\mathrm{c}}h^2$	$0.1211^{+0.0054}_{-0.0053}$	$\sigma_8$	$0.815^{+0.023}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1544^{+40}_{-41}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0012}_{-0.0012}$	$S_8$	$0.846^{+0.062}_{-0.060}$	$H(0.51)$	$89.3^{+1.2}_{-1.1}$
$\tau$	$0.055^{+0.022}_{-0.014}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.463^{+0.034}_{-0.033}$	$D_{\mathrm{M}}(0.51)$	$1998^{+46}_{-48}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.048^{+0.048}_{-0.033}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.614^{+0.029}_{-0.029}$	$H(0.61)$	$95.02^{+0.97}_{-0.85}$
$n_{\mathrm{s}}$	$0.962^{+0.016}_{-0.015}$	$\sigma_8/h^{0.5}$	$0.997^{+0.040}_{-0.040}$	$D_{\mathrm{M}}(0.61)$	$2324^{+50}_{-52}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.006^{+0.019}_{-0.019}$	$r_{\mathrm{drag}}h$	$98.2^{+4.2}_{-4.0}$	$H(2.33)$	$237.1^{+3.2}_{-3.2}$
$r$	$< 0.0839$	$\langle d^2 \rangle^{1/2}$	$2.455^{+0.097}_{-0.098}$	$D_{\mathrm{M}}(2.33)$	$5776^{+41}_{-44}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0064}_{-0.0066}$	$z_{\mathrm{re}}$	$< 9.80$	$f\sigma_8(0.15)$	$0.467^{+0.031}_{-0.030}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.1}$	$10^9 A_{\mathrm{s}}$	$2.11^{+0.10}_{-0.070}$	$\sigma_8(0.15)$	$0.752^{+0.020}_{-0.017}$
$A_{B,\mathrm{sync}}$	$< 4.95$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.887^{+0.037}_{-0.037}$	$f\sigma_8(0.38)$	$0.483^{+0.024}_{-0.024}$
$\alpha_{B,\mathrm{dust}}$	—	$D_{40}$	$1230^{+56}_{-53}$	$\sigma_8(0.38)$	$0.665^{+0.016}_{-0.013}$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25}$	$D_{220}$	$5703^{+110}_{-110}$	$f\sigma_8(0.51)$	$0.480^{+0.020}_{-0.021}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{810}$	$2537^{+36}_{-37}$	$\sigma_8(0.51)$	$0.622^{+0.015}_{-0.012}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.68}_{-0.74}$	$D_{1420}$	$814^{+14}_{-14}$	$f\sigma_8(0.61)$	$0.474^{+0.018}_{-0.018}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.351$	$D_{2000}$	$229.1^{+5.1}_{-5.2}$	$\sigma_8(0.61)$	$0.592^{+0.014}_{-0.011}$
$A_{100}^{\mathrm{PS}}$	$246^{+60}_{-60}$	$n_{\mathrm{s},0.002}$	$0.980^{+0.060}_{-0.060}$	$f\sigma_8(2.33)$	$0.2979^{+0.0070}_{-0.0051}$
$A_{143}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00024}_{-0.00028}$	$\sigma_8(2.33)$	$0.3066^{+0.0075}_{-0.0052}$
$A_{217}^{\mathrm{PS}}$	$100^{+30}_{-40}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00024}_{-0.00028}$	$r_{0.002}$	$< 0.0813$
$A_{217}^{\mathrm{CIB}}$	$42^{+20}_{-20}$	$10^5\mathrm{D}/\mathrm{H}$	$2.63^{+0.12}_{-0.11}$	$r_{0.01}$	$< 0.0816$
$A_{143}^{\mathrm{tSZ}}$	$< 8.68$	$\mathrm{Age}/\mathrm{Gyr}$	$13.826^{+0.093}_{-0.097}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.9^{+1.7}_{-3.5}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.64^{+0.32}_{-0.31}$	$z_*$	$1090.3^{+1.1}_{-1.1}$	$r_{10}$	$< 0.0424$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$r_*$	$144.3^{+1.2}_{-1.2}$	$10^9 A_{\mathrm{t}}$	$< 0.177$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$100\theta_*$	$1.0410^{+0.0012}_{-0.0012}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.158$
$A^{\mathrm{kSZ}}$	—	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.86^{+0.11}_{-0.11}$	$f_{2000}^{143}$	$32^{+9}_{-9}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50}$	$z_{\mathrm{drag}}$	$1059.5^{+1.3}_{-1.3}$	$f_{2000}^{217}$	$108.3^{+5.7}_{-5.6}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.45}$	$r_{\mathrm{drag}}$	$147.0^{+1.3}_{-1.2}$	$f_{2000}^{143\times 217}$	$34^{+6}_{-6}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$k_{\mathrm{D}}$	$0.1408^{+0.0014}_{-0.0015}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.2 (\nu: 3.7)$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_{\mathrm{D}}$	$0.16101^{+0.00076}_{-0.00073}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 2.0)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$z_{\mathrm{eq}}$	$3423^{+120}_{-120}$	$\chi_{\mathrm{lowl}}^2$	$23.5 (\nu: 2.4)$
$c_{217}$	$1.0013^{+0.0040}_{-0.0040}$	$k_{\mathrm{eq}}$	$0.01045^{+0.00037}_{-0.00037}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.3 (\nu: 15.7)$
$H_0$	$66.8^{+2.4}_{-2.3}$	$100\theta_{\mathrm{eq}}$	$0.809^{+0.023}_{-0.022}$	$\chi_{\mathrm{prior}}^2$	$9.3 (\nu: 7.4)$
$\Omega_{\Lambda}$	$0.677^{+0.032}_{-0.035}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.447^{+0.012}_{-0.011}$	$\chi_{\mathrm{CMB}}^2$	$8224.3 (\nu: 19.6)$
$\Omega_{\mathrm{m}}$	$0.323^{+0.035}_{-0.032}$	$H(0.15)$	$72.2^{+2.1}_{-1.9}$		
$\Omega_{\mathrm{m}}h^2$	$0.1439^{+0.0051}_{-0.0050}$	$D_{\mathrm{M}}(0.15)$	$649^{+20}_{-20}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 8233.63; R - 1 = 0.00394$$



15.46 base\_nrun\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02226^{+0.00057}_{-0.00054}$	$\sigma_8$	$0.810^{+0.021}_{-0.017}$	$H(0.51)$	$89.68^{+0.80}_{-0.73}$
$\Omega_{\mathrm{c}}h^2$	$0.1192^{+0.0032}_{-0.0031}$	$S_8$	$0.824^{+0.039}_{-0.036}$	$D_{\mathrm{M}}(0.51)$	$1982^{+28}_{-29}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.021}_{-0.020}$	$H(0.61)$	$95.30^{+0.69}_{-0.63}$
$\tau$	$0.057^{+0.023}_{-0.015}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.021}_{-0.019}$	$D_{\mathrm{M}}(0.61)$	$2306^{+31}_{-32}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.051}_{-0.034}$	$\sigma_8/h^{0.5}$	$0.985^{+0.030}_{-0.027}$	$H(2.33)$	$235.9^{+2.1}_{-2.0}$
$n_{\mathrm{s}}$	$0.966^{+0.012}_{-0.011}$	$r_{\mathrm{drag}}h$	$99.7^{+2.5}_{-2.4}$	$D_{\mathrm{M}}(2.33)$	$5764^{+32}_{-34}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.005^{+0.019}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	$2.427^{+0.074}_{-0.071}$	$f\sigma_8(0.15)$	$0.456^{+0.020}_{-0.019}$
$r$	$< 0.0856$	$z_{\mathrm{re}}$	$< 9.99$	$\sigma_8(0.15)$	$0.748^{+0.019}_{-0.015}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0065}_{-0.0066}$	$10^9 A_{\mathrm{s}}$	$2.11^{+0.11}_{-0.071}$	$f\sigma_8(0.38)$	$0.475^{+0.017}_{-0.015}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.1}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.032}_{-0.032}$	$\sigma_8(0.38)$	$0.663^{+0.017}_{-0.013}$
$A_{B,\mathrm{sync}}$	$< 4.84$	$D_{40}$	$1223^{+53}_{-51}$	$f\sigma_8(0.51)$	$0.473^{+0.015}_{-0.014}$
$\alpha_{B,\mathrm{dust}}$	—	$D_{220}$	$5712^{+100}_{-100}$	$\sigma_8(0.51)$	$0.621^{+0.015}_{-0.012}$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25}$	$D_{810}$	$2537^{+36}_{-37}$	$f\sigma_8(0.61)$	$0.468^{+0.014}_{-0.013}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{1420}$	$815^{+13}_{-14}$	$\sigma_8(0.61)$	$0.591^{+0.015}_{-0.011}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.70}_{-0.75}$	$D_{2000}$	$229.5^{+5.1}_{-5.1}$	$f\sigma_8(2.33)$	$0.2979^{+0.0074}_{-0.0053}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.360$	$n_{\mathrm{s},0.002}$	$0.983^{+0.060}_{-0.060}$	$\sigma_8(2.33)$	$0.3071^{+0.0077}_{-0.0055}$
$A_{100}^{\mathrm{PS}}$	$245^{+60}_{-70}$	$Y_{\mathrm{P}}$	$0.24535^{+0.00022}_{-0.00025}$	$r_{0.002}$	$< 0.0841$
$A_{143}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24667^{+0.00022}_{-0.00025}$	$r_{0.01}$	$< 0.0833$
$A_{217}^{\mathrm{PS}}$	$100^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.10}_{-0.10}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.8^{+1.7}_{-3.4}$
$A_{217}^{\mathrm{CIB}}$	$42^{+20}_{-20}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.801^{+0.074}_{-0.078}$	$r_{10}$	$< 0.0437$
$A_{143}^{\mathrm{tSZ}}$	$< 8.72$	$z_*$	$1089.99^{+0.80}_{-0.82}$	$10^9 A_{\mathrm{t}}$	$< 0.180$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.64^{+0.32}_{-0.32}$	$r_*$	$144.72^{+0.84}_{-0.85}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.161$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$100\theta_*$	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.899^{+0.082}_{-0.083}$	$f_{2000}^{217}$	$108.0^{+5.8}_{-5.6}$
$A^{\mathrm{kSZ}}$	—	$z_{\mathrm{drag}}$	$1059.6^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50}$	$r_{\mathrm{drag}}$	$147.43^{+0.93}_{-0.94}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.9 (\nu: 3.6)$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.45}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{simall}}^2$	$397.5 (\nu: 2.6)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$100\theta_{\mathrm{D}}$	$0.16096^{+0.00074}_{-0.00075}$	$\chi_{\mathrm{lowl}}^2$	$22.9 (\nu: 1.8)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$z_{\mathrm{eq}}$	$3380^{+75}_{-72}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.5 (\nu: 15.1)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$k_{\mathrm{eq}}$	$0.01032^{+0.00023}_{-0.00022}$	$\chi_{6\mathrm{DF}}^2$	$0.065 (\nu: 0.0)$
$c_{217}$	$1.0013^{+0.0040}_{-0.0041}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.014}_{-0.013}$	$\chi_{\mathrm{MGS}}^2$	$1.29 (\nu: 0.1)$
$H_0$	$67.6^{+1.4}_{-1.4}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4514^{+0.0070}_{-0.0070}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 (\nu: 1.5)$
$\Omega_{\Lambda}$	$0.689^{+0.018}_{-0.019}$	$H(0.15)$	$72.9^{+1.3}_{-1.2}$	$\chi_{\mathrm{prior}}^2$	$9.4 (\nu: 7.4)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.019}_{-0.018}$	$D_{\mathrm{M}}(0.15)$	$641^{+12}_{-12}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 1.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1421^{+0.0031}_{-0.0030}$	$H(0.38)$	$82.97^{+0.97}_{-0.89}$	$\chi_{\mathrm{CMB}}^2$	$8224.8 (\nu: 19.4)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0013}_{-0.0013}$	$D_{\mathrm{M}}(0.38)$	$1530^{+24}_{-25}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 8240.52; R - 1 = 0.00672$$



# 15.47 base\_nrun\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02218^{+0.00059}_{-0.00056}$	$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0012}_{-0.0012}$	$H(0.38)$	$82.6^{+1.3}_{-1.1}$
$\Omega_{\mathrm{c}}h^2$	$0.1204^{+0.0039}_{-0.0040}$	$\sigma_8$	$0.812^{+0.016}_{-0.015}$	$D_{\mathrm{M}}(0.38)$	$1539^{+30}_{-34}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0011}$	$S_8$	$0.837^{+0.042}_{-0.041}$	$H(0.51)$	$89.4^{+1.0}_{-0.88}$
$\tau$	$0.055^{+0.021}_{-0.014}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.459^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.51)$	$1993^{+36}_{-39}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.044}_{-0.030}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.020}_{-0.020}$	$H(0.61)$	$95.10^{+0.85}_{-0.73}$
$n_{\mathrm{s}}$	$0.963^{+0.013}_{-0.013}$	$\sigma_8/h^{0.5}$	$0.992^{+0.027}_{-0.027}$	$D_{\mathrm{M}}(0.61)$	$2318^{+38}_{-43}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.004^{+0.019}_{-0.019}$	$r_{\mathrm{drag}}h$	$98.7^{+3.3}_{-2.9}$	$H(2.33)$	$236.6^{+2.4}_{-2.4}$
$r$	$< 0.0828$	$\langle d^2 \rangle^{1/2}$	$2.445^{+0.069}_{-0.068}$	$D_{\mathrm{M}}(2.33)$	$5773^{+36}_{-40}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0065}_{-0.0064}$	$z_{\mathrm{re}}$	$< 9.68$	$f\sigma_8(0.15)$	$0.463^{+0.021}_{-0.021}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.2}$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.095}_{-0.062}$	$\sigma_8(0.15)$	$0.750^{+0.014}_{-0.013}$
$A_{B,\mathrm{sync}}$	$< 4.95$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.884^{+0.031}_{-0.030}$	$f\sigma_8(0.38)$	$0.479^{+0.016}_{-0.016}$
$\alpha_{B,\mathrm{dust}}$	—	$D_{40}$	$1230^{+53}_{-52}$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.010}$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25}$	$D_{220}$	$5706^{+110}_{-110}$	$f\sigma_8(0.51)$	$0.477^{+0.014}_{-0.014}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{810}$	$2536^{+35}_{-35}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0096}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.68}_{-0.74}$	$D_{1420}$	$814^{+14}_{-14}$	$f\sigma_8(0.61)$	$0.471^{+0.012}_{-0.012}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.348$	$D_{2000}$	$229.2^{+5.1}_{-5.2}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0091}$
$A_{100}^{\mathrm{PS}}$	$245^{+60}_{-60}$	$n_{\mathrm{s},0.002}$	$0.977^{+0.061}_{-0.059}$	$f\sigma_8(2.33)$	$0.2976^{+0.0065}_{-0.0046}$
$A_{143}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00023}_{-0.00027}$	$\sigma_8(2.33)$	$0.3065^{+0.0073}_{-0.0051}$
$A_{217}^{\mathrm{PS}}$	$100^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00023}_{-0.00027}$	$r_{0.002}$	$< 0.0805$
$A_{217}^{\mathrm{CIB}}$	$42^{+20}_{-20}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.11}$	$r_{0.01}$	$< 0.0806$
$A_{143}^{\mathrm{tSZ}}$	$< 8.71$	$\mathrm{Age}/\mathrm{Gyr}$	$13.819^{+0.084}_{-0.089}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.9^{+1.7}_{-3.5}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.64^{+0.32}_{-0.31}$	$z_{*}$	$1090.19^{+0.91}_{-0.96}$	$r_{10}$	$< 0.0418$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$r_{*}$	$144.47^{+0.96}_{-0.92}$	$10^9 A_{\mathrm{t}}$	$< 0.175$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$100\theta_{*}$	$1.0411^{+0.0012}_{-0.0011}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.156$
$A^{\mathrm{kSZ}}$	—	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.877^{+0.091}_{-0.088}$	$f_{2000}^{143}$	$32^{+9}_{-9}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.51}$	$z_{\mathrm{drag}}$	$1059.5^{+1.3}_{-1.2}$	$f_{2000}^{217}$	$108.1^{+5.8}_{-5.5}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.45}$	$r_{\mathrm{drag}}$	$147.2^{+1.0}_{-0.98}$	$f_{2000}^{143\times 217}$	$34^{+6}_{-6}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$k_{\mathrm{D}}$	$0.1406^{+0.0012}_{-0.0013}$	$\chi_{\mathrm{lensing}}^2$	$9.70\ (\nu: 0.5)$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_{\mathrm{D}}$	$0.16100^{+0.00074}_{-0.00072}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.5\ (\nu: 3.5)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$z_{\mathrm{eq}}$	$3407^{+89}_{-91}$	$\chi_{\mathrm{simall}}^2$	$397.1\ (\nu: 1.7)$
$c_{217}$	$1.0013^{+0.0041}_{-0.0041}$	$k_{\mathrm{eq}}$	$0.01040^{+0.00027}_{-0.00028}$	$\chi_{\mathrm{lowl}}^2$	$23.6\ (\nu: 2.4)$
$H_0$	$67.1^{+2.0}_{-1.7}$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.017}_{-0.016}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.8\ (\nu: 14.7)$
$\Omega_{\Lambda}$	$0.681^{+0.025}_{-0.025}$	$100\theta_{\mathrm{s,eq}}$	$0.4488^{+0.0089}_{-0.0083}$	$\chi_{\mathrm{prior}}^2$	$9.3\ (\nu: 7.3)$
$\Omega_{\mathrm{m}}$	$0.319^{+0.025}_{-0.025}$	$H(0.15)$	$72.4^{+1.7}_{-1.5}$	$\chi_{\mathrm{CMB}}^2$	$8233.6\ (\nu: 19.5)$
$\Omega_{\mathrm{m}}h^2$	$0.1432^{+0.0037}_{-0.0038}$	$D_{\mathrm{M}}(0.15)$	$646^{+15}_{-17}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 8242.90; R - 1 = 0.00417$$



## 15.48 base\_nrun\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02226^{+0.00057}_{-0.00054}$	$\sigma_8$	$0.811^{+0.016}_{-0.015}$	$H(0.51)$	$89.67^{+0.78}_{-0.70}$
$\Omega_{\mathrm{c}}h^2$	$0.1193^{+0.0028}_{-0.0028}$	$S_8$	$0.826^{+0.031}_{-0.030}$	$D_{\mathrm{M}}(0.51)$	$1982^{+26}_{-28}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.017}_{-0.017}$	$H(0.61)$	$95.28^{+0.67}_{-0.62}$
$\tau$	$0.057^{+0.021}_{-0.015}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.016}_{-0.016}$	$D_{\mathrm{M}}(0.61)$	$2307^{+28}_{-31}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.049^{+0.045}_{-0.033}$	$\sigma_8/h^{0.5}$	$0.986^{+0.023}_{-0.022}$	$H(2.33)$	$236.0^{+1.8}_{-1.8}$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011}$	$r_{\mathrm{drag}}h$	$99.6^{+2.3}_{-2.1}$	$D_{\mathrm{M}}(2.33)$	$5765^{+32}_{-33}$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.004^{+0.019}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.060}_{-0.059}$	$f\sigma_8(0.15)$	$0.457^{+0.016}_{-0.015}$
$r$	$< 0.0832$	$z_{\mathrm{re}}$	$< 9.91$	$\sigma_8(0.15)$	$0.749^{+0.015}_{-0.013}$
$y_{\mathrm{cal}}$	$1.0010^{+0.0064}_{-0.0064}$	$10^9 A_{\mathrm{s}}$	$2.109^{+0.097}_{-0.068}$	$f\sigma_8(0.38)$	$0.475^{+0.013}_{-0.013}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.1}_{-2.2}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.880^{+0.029}_{-0.028}$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.011}$
$A_{B,\mathrm{sync}}$	$< 4.96$	$D_{40}$	$1226^{+51}_{-51}$	$f\sigma_8(0.51)$	$0.474^{+0.012}_{-0.011}$
$\alpha_{B,\mathrm{dust}}$	—	$D_{220}$	$5716^{+100}_{-100}$	$\sigma_8(0.51)$	$0.621^{+0.013}_{-0.010}$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25}$	$D_{810}$	$2537^{+36}_{-35}$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.010}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{1420}$	$815^{+13}_{-14}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0098}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.68}_{-0.74}$	$D_{2000}$	$229.7^{+5.0}_{-5.1}$	$f\sigma_8(2.33)$	$0.2981^{+0.0065}_{-0.0049}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.360$	$n_{\mathrm{s},0.002}$	$0.980^{+0.060}_{-0.059}$	$\sigma_8(2.33)$	$0.3074^{+0.0071}_{-0.0053}$
$A_{100}^{\mathrm{PS}}$	$245^{+60}_{-70}$	$Y_{\mathrm{P}}$	$0.24535^{+0.00022}_{-0.00025}$	$r_{0.002}$	$< 0.0814$
$A_{143}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24667^{+0.00022}_{-0.00025}$	$r_{0.01}$	$< 0.0814$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$10^5\mathrm{D}/\mathrm{H}$	$2.61^{+0.10}_{-0.10}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.8^{+1.7}_{-3.4}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.802^{+0.074}_{-0.076}$	$r_{10}$	$< 0.0424$
$A_{143}^{\mathrm{tSZ}}$	$< 8.71$	$z_*$	$1090.00^{+0.79}_{-0.82}$	$10^9 A_{\mathrm{t}}$	$< 0.176$
$r_{143\times 217}^{\mathrm{PS}}$	$0.64^{+0.32}_{-0.32}$	$r_*$	$144.71^{+0.76}_{-0.76}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.156$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$31^{+9}_{-9}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.898^{+0.075}_{-0.074}$	$f_{2000}^{217}$	$107.9^{+5.7}_{-5.5}$
$A^{\mathrm{kSZ}}$	—	$z_{\mathrm{drag}}$	$1059.6^{+1.3}_{-1.2}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-6}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50}$	$r_{\mathrm{drag}}$	$147.41^{+0.88}_{-0.86}$	$\chi_{\mathrm{lensing}}^2$	$9.42\ (\nu: 0.2)$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.46}_{-0.46}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.8\ (\nu: 3.5)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$100\theta_{\mathrm{D}}$	$0.16096^{+0.00073}_{-0.00072}$	$\chi_{\mathrm{simall}}^2$	$397.5\ (\nu: 2.4)$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.41}$	$z_{\mathrm{eq}}$	$3382^{+66}_{-65}$	$\chi_{\mathrm{lowl}}^2$	$23.2\ (\nu: 2.0)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$k_{\mathrm{eq}}$	$0.01032^{+0.00020}_{-0.00020}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.1\ (\nu: 14.7)$
$c_{217}$	$1.0013^{+0.0040}_{-0.0041}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{6\mathrm{DF}}^2$	$0.062\ (\nu: 0.0)$
$H_0$	$67.6^{+1.4}_{-1.3}$	$100\theta_{\mathrm{s,eq}}$	$0.4513^{+0.0063}_{-0.0062}$	$\chi_{\mathrm{MGS}}^2$	$1.26\ (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.689^{+0.017}_{-0.017}$	$H(0.15)$	$72.8^{+1.2}_{-1.1}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9\ (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.017}_{-0.017}$	$D_{\mathrm{M}}(0.15)$	$642^{+11}_{-12}$	$\chi_{\mathrm{prior}}^2$	$9.3\ (\nu: 7.4)$
$\Omega_{\mathrm{m}}h^2$	$0.1422^{+0.0027}_{-0.0027}$	$H(0.38)$	$82.95^{+0.92}_{-0.83}$	$\chi_{\mathrm{CMB}}^2$	$8234.0\ (\nu: 19.6)$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0013}_{-0.0012}$	$D_{\mathrm{M}}(0.38)$	$1530^{+22}_{-24}$	$\chi_{\mathrm{BAO}}^2$	$6.3\ (\nu: 0.8)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 8249.63; R - 1 = 0.00812$$



# 15.49 base\_nrun\_r\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BK15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022290	$0.02230^{+0.00043}_{-0.00041}$ (+0.6 $\sigma$ )	$\Omega_{\mathrm{m}}$	0.3158	$0.315^{+0.022}_{-0.022}$ (−0.6 $\sigma$ )	$H(0.15)$	72.60	$72.6^{+1.4}_{-1.3}$ (+0.6 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11998	$0.1198^{+0.0035}_{-0.0036}$ (−0.6 $\sigma$ )	$\Omega_{\mathrm{m}}h^2$	0.14292	$0.1428^{+0.0034}_{-0.0034}$ (−0.6 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	644.2	$644^{+13}_{-14}$ (−0.6 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04085	$1.04085^{+0.00079}_{-0.00079}$ (+0.1 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09614	$0.09613^{+0.00086}_{-0.00085}$ (+0.2 $\sigma$ )	$H(0.38)$	82.78	$82.8^{+1.0}_{-0.94}$ (+0.6 $\sigma$ )
$\tau$	0.0542	$0.054^{+0.024}_{-0.021}$ (+0.0 $\sigma$ )	$\sigma_8$	0.8105	$0.810^{+0.020}_{-0.020}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1535.2	$1534^{+27}_{-27}$ (−0.6 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0437	$3.043^{+0.048}_{-0.044}$ (−0.1 $\sigma$ )	$S_8$	0.8316	$0.830^{+0.042}_{-0.042}$ (−0.6 $\sigma$ )	$H(0.51)$	89.55	$89.57^{+0.79}_{-0.73}$ (+0.6 $\sigma$ )
$n_{\mathrm{s}}$	0.9649	$0.965^{+0.012}_{-0.012}$ (+0.6 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4555	$0.455^{+0.023}_{-0.023}$ (−0.6 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1988.1	$1987^{+31}_{-32}$ (−0.6 $\sigma$ )
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	−0.0032	$−0.004^{+0.018}_{-0.018}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6076	$0.607^{+0.021}_{-0.022}$ (−0.6 $\sigma$ )	$H(0.61)$	95.20	$95.22^{+0.64}_{-0.59}$ (+0.6 $\sigma$ )
$r$	0.0243	< 0.0936 (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9882	$0.987^{+0.031}_{-0.031}$ (−0.6 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2312.9	$2312^{+33}_{-34}$ (−0.6 $\sigma$ )
$y_{\mathrm{cal}}$	1.0007	$1.0007^{+0.0064}_{-0.0063}$ (−0.0 $\sigma$ )	$r_{\mathrm{drag}}h$	99.01	$99.1^{+2.8}_{-2.7}$ (+0.6 $\sigma$ )	$H(2.33)$	236.46	$236.4^{+2.2}_{-2.2}$ (−0.6 $\sigma$ )
$A_{B,\mathrm{dust}}$	4.60	$4.9^{+3.2}_{-2.2}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.438	$2.434^{+0.075}_{-0.075}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5768.0	$5767^{+28}_{-29}$ (−0.6 $\sigma$ )
$A_{B,\mathrm{sync}}$	1.38	< 4.95 (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.69	$7.7^{+2.2}_{-2.3}$ (−0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4597	$0.459^{+0.021}_{-0.022}$ (−0.6 $\sigma$ )
$\alpha_{B,\mathrm{dust}}$	−0.52	—	$10^9A_{\mathrm{s}}$	2.098	$2.10^{+0.10}_{-0.090}$ (−0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7485	$0.748^{+0.018}_{-0.017}$ (−0.4 $\sigma$ )
$\beta_{B,\mathrm{dust}}$	1.584	$1.60^{+0.25}_{-0.25}$ (+0.0 $\sigma$ )	$10^9A_{\mathrm{s}}e^{-2\tau}$	1.8826	$1.882^{+0.032}_{-0.031}$ (−0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4771	$0.476^{+0.017}_{-0.018}$ (−0.6 $\sigma$ )
$\alpha_{B,\mathrm{sync}}$	−0.42	—	$D_{40}$	1229.4	$1230^{+50}_{-48}$ (−0.0 $\sigma$ )	$\sigma_8(0.38)$	0.6630	$0.663^{+0.015}_{-0.015}$ (−0.3 $\sigma$ )
$\beta_{B,\mathrm{sync}}$	−3.04	$−3.10^{+0.67}_{-0.73}$ (−0.0 $\sigma$ )	$D_{220}$	5717	$5715^{+100}_{-98}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4752	$0.474^{+0.015}_{-0.016}$ (−0.6 $\sigma$ )
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	−0.37	< 0.341 (−0.0 $\sigma$ )	$D_{810}$	2537.8	$2537^{+35}_{-34}$ (−0.0 $\sigma$ )	$\sigma_8(0.51)$	0.6203	$0.620^{+0.014}_{-0.013}$ (−0.3 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	237	$242^{+60}_{-70}$ (−0.1 $\sigma$ )	$D_{1420}$	815.6	$815^{+13}_{-13}$ (+0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4699	$0.469^{+0.014}_{-0.014}$ (−0.6 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	40.4	$41^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{2000}$	230.00	$229.9^{+4.8}_{-4.7}$ (+0.4 $\sigma$ )	$\sigma_8(0.61)$	0.5901	$0.590^{+0.014}_{-0.013}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	100.9	$102^{+30}_{-40}$ (+0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.975	$0.977^{+0.055}_{-0.054}$ (−0.1 $\sigma$ )	$f\sigma_8(2.33)$	0.2974	$0.2972^{+0.0069}_{-0.0064}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	45.6	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$Y_{\mathrm{P}}$	0.245363	$0.24536^{+0.00016}_{-0.00018}$ (+0.6 $\sigma$ )	$\sigma_8(2.33)$	0.3064	$0.3063^{+0.0074}_{-0.0067}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	6.54	< 8.72 (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246689	$0.24669^{+0.00016}_{-0.00018}$ (+0.6 $\sigma$ )	$r_{0.002}$	0.0222	< 0.0907 (+0.3 $\sigma$ )
$r_{143\times 217}^{\mathrm{PS}}$	0.578	$0.65^{+0.31}_{-0.33}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.601	$2.599^{+0.079}_{-0.077}$ (−0.6 $\sigma$ )	$r_{0.01}$	0.0231	< 0.0912 (+0.3 $\sigma$ )
$r_{143\times 217}^{\mathrm{CIB}}$	0.79	—	Age/Gyr	13.808	$13.806^{+0.063}_{-0.064}$ (−0.6 $\sigma$ )	$\ln(10^{10}A_{\mathrm{t}})$	−0.68	$−0.6^{+1.6}_{-3.3}$ (+0.3 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.05	—	$z_*$	1090.02	$1090.00^{+0.73}_{-0.74}$ (−0.7 $\sigma$ )	$r_{10}$	0.0114	< 0.0472 (+0.3 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.1	—	$r_*$	144.50	$144.53^{+0.83}_{-0.83}$ (+0.5 $\sigma$ )	$10^9A_{\mathrm{t}}$	0.051	< 0.196 (+0.3 $\sigma$ )
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.51}_{-0.50}$ (−0.0 $\sigma$ )	$100\theta_*$	1.04104	$1.04104^{+0.00078}_{-0.00077}$ (+0.1 $\sigma$ )	$10^9A_{\mathrm{t}}e^{-2\tau}$	0.046	< 0.176 (+0.3 $\sigma$ )
$A_{143}^{\mathrm{dust}}$	0.974	$0.96^{+0.45}_{-0.46}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.880	$13.883^{+0.077}_{-0.078}$ (+0.5 $\sigma$ )	$f_{2000}^{143}$	30.8	$30^{+8}_{-8}$ (−0.4 $\sigma$ )
$A_{217}^{\mathrm{dust}}$	0.966	$0.97^{+0.26}_{-0.26}$ (+0.1 $\sigma$ )	$z_{\mathrm{drag}}$	1059.74	$1059.76^{+0.90}_{-0.89}$ (+0.5 $\sigma$ )	$f_{2000}^{217}$	107.4	$107.4^{+5.6}_{-5.5}$ (−0.4 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}}$	1.000	$1.03^{+0.41}_{-0.41}$ (−0.0 $\sigma$ )	$r_{\mathrm{drag}}$	147.19	$147.21^{+0.84}_{-0.85}$ (+0.4 $\sigma$ )	$f_{2000}^{143\times 217}$	32.7	$33^{+6}_{-6}$ (−0.4 $\sigma$ )
$c_{100}$	0.99764	$0.9975^{+0.0027}_{-0.0027}$ (+0.0 $\sigma$ )	$k_{\mathrm{D}}$	0.14071	$0.14068^{+0.00099}_{-0.00097}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{BKPLANCK}}^2$	735.3	$740.0$ ( $\nu$ : 3.8) (+0.3 $\sigma$ )
$c_{217}$	1.00138	$1.0012^{+0.0041}_{-0.0041}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16086	$0.16085^{+0.00053}_{-0.00052}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.13	$397.2$ ( $\nu$ : 1.8) (−0.0 $\sigma$ )
$c_{TE}$	0.9962	$0.996^{+0.013}_{-0.013}$	$z_{\mathrm{eq}}$	3400	$3397^{+81}_{-82}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.09	$23.5$ ( $\nu$ : 1.9) (−0.0 $\sigma$ )
$c_{EE}$	0.9919	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{eq}}$	0.010377	$0.01037^{+0.00025}_{-0.00025}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{CamSpec}}^2$	11499.2	$11514.7$ ( $\nu$ : 17.3) (+792.2 $\sigma$ )
$H_0$	67.27	$67.3^{+1.6}_{-1.5}$ (+0.6 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8134	$0.814^{+0.016}_{-0.015}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	2.4	$9.5$ ( $\nu$ : 7.2) (+0.0 $\sigma$ )
$\Omega_{\Lambda}$	0.6842	$0.685^{+0.022}_{-0.022}$ (+0.6 $\sigma$ )	$100\theta_{\mathrm{s},\mathrm{eq}}$	0.4495	$0.4498^{+0.0080}_{-0.0076}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	12653.8	$12675.4$ ( $\nu$ : 21.3) (+704.1 $\sigma$ )

Best-fit  $\chi_{\mathrm{eff}}^2 = 12656.13$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4449.17$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 12684.91$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.06$ ;  $R - 1 = 0.00385$   
 $\chi_{\mathrm{eff}}^2$ : CMB - BK15\_dust: 735.31 ( $\Delta$  0.45) simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.13 ( $\Delta$  0.09) commander\_dx12\_v3.2\_29: 23.09 ( $\Delta$  0.23) CamSpec like\_10.7HM\_1400\_unified: 11499.22



# 15.50 base\_nrun\_r\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BK15\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022346	$0.02234^{+0.00039}_{-0.00039}$ (+0.4 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09617	$0.09612^{+0.00085}_{-0.00086}$ (+0.2 $\sigma$ )	$H(0.51)$	89.72	$89.73^{+0.59}_{-0.59}$ (+0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11919	$0.1191^{+0.0027}_{-0.0026}$ (−0.1 $\sigma$ )	$\sigma_8$	0.8078	$0.808^{+0.020}_{-0.019}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1980.7	$1980^{+23}_{-23}$ (−0.2 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04099	$1.04094^{+0.00074}_{-0.00075}$ (−0.3 $\sigma$ )	$S_8$	0.8221	$0.821^{+0.033}_{-0.033}$ (−0.2 $\sigma$ )	$H(0.61)$	95.338	$95.34^{+0.50}_{-0.49}$ (+0.2 $\sigma$ )
$\tau$	0.0546	$0.055^{+0.023}_{-0.021}$ (−0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4503	$0.450^{+0.018}_{-0.018}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2304.9	$2304^{+25}_{-25}$ (−0.2 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0419	$3.043^{+0.049}_{-0.043}$ (−0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6031	$0.603^{+0.019}_{-0.018}$ (−0.2 $\sigma$ )	$H(2.33)$	236.01	$235.9^{+1.7}_{-1.6}$ (−0.0 $\sigma$ )
$n_{\mathrm{s}}$	0.9669	$0.967^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9822	$0.982^{+0.028}_{-0.027}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5762.0	$5762^{+24}_{-24}$ (−0.2 $\sigma$ )
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	−0.0028	$−0.003^{+0.018}_{-0.018}$ (+0.2 $\sigma$ )	$r_{\mathrm{drag}}h$	99.65	$99.7^{+2.0}_{-2.0}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4549	$0.455^{+0.017}_{-0.017}$ (−0.2 $\sigma$ )
$r$	0.0247	< 0.0950 (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.424	$2.423^{+0.069}_{-0.066}$ (−0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7465	$0.747^{+0.018}_{-0.017}$ (−0.2 $\sigma$ )
$y_{\mathrm{cal}}$	1.0005	$1.0007^{+0.0065}_{-0.0063}$ (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.70	$7.7^{+2.2}_{-2.2}$ (−0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4734	$0.473^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )
$A_{B,\mathrm{dust}}$	4.62	$4.9^{+3.1}_{-2.2}$ (+0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.095	$2.10^{+0.10}_{-0.089}$ (−0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6618	$0.662^{+0.016}_{-0.014}$ (−0.2 $\sigma$ )
$A_{B,\mathrm{sync}}$	1.37	< 5.01 (−0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8780	$1.878^{+0.029}_{-0.029}$ (−0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4721	$0.472^{+0.014}_{-0.014}$ (−0.2 $\sigma$ )
$\alpha_{B,\mathrm{dust}}$	−0.50	—	$D_{40}$	1225.4	$1228^{+49}_{-47}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6193	$0.619^{+0.015}_{-0.013}$ (−0.1 $\sigma$ )
$\beta_{B,\mathrm{dust}}$	1.583	$1.60^{+0.25}_{-0.26}$ (+0.0 $\sigma$ )	$D_{220}$	5717	$5719^{+100}_{-98}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4672	$0.467^{+0.013}_{-0.013}$ (−0.2 $\sigma$ )
$\alpha_{B,\mathrm{sync}}$	−0.48	—	$D_{810}$	2535.9	$2536^{+35}_{-34}$ (−0.0 $\sigma$ )	$\sigma_8(0.61)$	0.5893	$0.589^{+0.014}_{-0.013}$ (−0.1 $\sigma$ )
$\beta_{B,\mathrm{sync}}$	−3.05	$−3.10^{+0.67}_{-0.73}$ (−0.0 $\sigma$ )	$D_{1420}$	815.8	$816^{+13}_{-13}$ (+0.2 $\sigma$ )	$f\sigma_8(2.33)$	0.2972	$0.2973^{+0.0070}_{-0.0064}$ (−0.1 $\sigma$ )
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	−0.38	< 0.338 (−0.0 $\sigma$ )	$D_{2000}$	230.16	$230.1^{+4.8}_{-4.7}$ (+0.3 $\sigma$ )	$\sigma_8(2.33)$	0.3064	$0.3065^{+0.0074}_{-0.0066}$ (−0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	236	$241^{+60}_{-60}$ (−0.2 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.976	$0.978^{+0.055}_{-0.054}$ (−0.2 $\sigma$ )	$r_{0.002}$	0.0228	< 0.0929 (+0.2 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	40.8	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$Y_{\mathrm{P}}$	0.245386	$0.24538^{+0.00015}_{-0.00017}$ (+0.4 $\sigma$ )	$r_{0.01}$	0.0236	< 0.0928 (+0.3 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	101.3	$102^{+30}_{-40}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246712	$0.24671^{+0.00015}_{-0.00017}$ (+0.4 $\sigma$ )	$\ln(10^{10}A_{\mathrm{t}})$	−0.66	$−0.6^{+1.5}_{-3.3}$ (+0.2 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	44.9	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.590	$2.591^{+0.075}_{-0.070}$ (−0.4 $\sigma$ )	$r_{10}$	0.0117	< 0.0482 (+0.2 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	6.46	< 8.76 (+0.1 $\sigma$ )	Age/Gyr	13.795	$13.795^{+0.054}_{-0.054}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{t}}$	0.052	< 0.200 (+0.3 $\sigma$ )
$r_{143\times 217}^{\mathrm{PS}}$	0.592	$0.65^{+0.32}_{-0.34}$ (+0.1 $\sigma$ )	$z_*$	1089.88	$1089.87^{+0.61}_{-0.60}$ (−0.4 $\sigma$ )	$10^9 A_{\mathrm{t}}e^{-2\tau}$	0.046	< 0.179 (+0.3 $\sigma$ )
$r_{143\times 217}^{\mathrm{CIB}}$	0.80	—	$r_*$	144.66	$144.70^{+0.64}_{-0.66}$ (−0.1 $\sigma$ )	$f_{2000}^{143}$	30.6	$30^{+8}_{-8}$ (−0.4 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.12	—	$100\theta_*$	1.04117	$1.04113^{+0.00074}_{-0.00074}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	107.2	$107.2^{+5.6}_{-5.5}$ (−0.4 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.3	—	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.894	$13.898^{+0.062}_{-0.063}$ (−0.0 $\sigma$ )	$f_{2000}^{143\times 217}$	32.5	$32^{+6}_{-6}$ (−0.4 $\sigma$ )
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.52}_{-0.50}$ (−0.0 $\sigma$ )	$z_{\mathrm{drag}}$	1059.82	$1059.81^{+0.85}_{-0.86}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{BKPLANCK}}^2$	735.7	$740.2(\nu: 3.7)$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dust}}$	0.977	$0.96^{+0.45}_{-0.46}$ (−0.1 $\sigma$ )	$r_{\mathrm{drag}}$	147.33	$147.37^{+0.68}_{-0.70}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{simall}}^2$	396.1	$397.3(\nu: 2.0)$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{dust}}$	0.968	$0.97^{+0.26}_{-0.26}$ (+0.0 $\sigma$ )	$k_{\mathrm{D}}$	0.14059	$0.14055^{+0.00089}_{-0.00088}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	22.83	$23.3(\nu: 1.8)$ (+0.2 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}}$	0.998	$1.02^{+0.41}_{-0.42}$ (−0.0 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16083	$0.16083^{+0.00051}_{-0.00051}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{CamSpec}}^2$	11499.5	$11514.5(\nu: 16.9)$ (+804.0 $\sigma$ )
$c_{100}$	0.99760	$0.9975^{+0.0027}_{-0.0027}$ (+0.0 $\sigma$ )	$z_{\mathrm{eq}}$	3382	$3379^{+61}_{-60}$ (−0.0 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.029	$0.050(\nu: 0.0)$ (−0.2 $\sigma$ )
$c_{217}$	1.00137	$1.0012^{+0.0041}_{-0.0041}$ (−0.1 $\sigma$ )	$k_{\mathrm{eq}}$	0.010323	$0.01031^{+0.00019}_{-0.00018}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	1.22	$1.32(\nu: 0.1)$ (+0.1 $\sigma$ )
$c_{TE}$	0.9965	$0.996^{+0.013}_{-0.013}$	$100\theta_{\mathrm{eq}}$	0.8168	$0.817^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	4.40	$4.7(\nu: 0.9)$ (−0.2 $\sigma$ )
$c_{EE}$	0.9921	$0.992^{+0.013}_{-0.012}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	0.4513	$0.4516^{+0.0058}_{-0.0058}$ (+0.0 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	2.4	$9.5(\nu: 7.2)$ (+0.0 $\sigma$ )
$H_0$	67.64	$67.7^{+1.1}_{-1.2}$ (+0.1 $\sigma$ )	$H(0.15)$	72.91	$72.94^{+0.99}_{-0.99}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	5.64	$6.1(\nu: 0.6)$ (−0.2 $\sigma$ )
$\Omega_{\Lambda}$	0.6892	$0.690^{+0.015}_{-0.016}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	641.0	$641^{+10}_{-9.6}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	12654.2	$12675.4(\nu: 20.8)$ (+706.6 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3108	$0.310^{+0.016}_{-0.015}$ (−0.1 $\sigma$ )	$H(0.38)$	83.01	$83.03^{+0.73}_{-0.73}$ (+0.2 $\sigma$ )			
$\Omega_{\mathrm{m}}h^2$	0.14218	$0.1420^{+0.0026}_{-0.0025}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1528.9	$1528^{+20}_{-20}$ (−0.2 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 12662.16$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4448.35$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 12690.95$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.23$ ;  $R - 1 = 0.00720$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.03 ( $\Delta$  0.00) MGS: 1.22 ( $\Delta$  0.00) DR12BAO: 4.40 ( $\Delta$  0.03) CMB - BK15\_dust: 735.68 ( $\Delta$  0.05) simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.13 ( $\Delta$  -0.07) commander\_dx12\_v3.2\_29: 22.83 ( $\Delta$  0.57) CamSpec like\_10.7HM\_1400\_unified: 11499.52



# 15.51 base\_nrun\_r\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BK15\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022287	$0.02230^{+0.00042}_{-0.00041}$ $(+0.5\sigma)$	$\Omega_{\mathrm{m}}h^2$	0.14282	$0.1428^{+0.0030}_{-0.0030}$ $(-0.4\sigma)$	$H(0.38)$	82.80	$82.83^{+0.90}_{-0.86}$ $(+0.5\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.11988	$0.1198^{+0.0031}_{-0.0031}$ $(-0.4\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.09611	$0.09613^{+0.00085}_{-0.00085}$ $(+0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	1534.8	$1534^{+24}_{-24}$ $(-0.5\sigma)$
$100\theta_{\mathrm{MC}}$	1.04084	$1.04085^{+0.00077}_{-0.00077}$ $(-0.0\sigma)$	$\sigma_8$	0.8099	$0.810^{+0.016}_{-0.015}$ $(-0.3\sigma)$	$H(0.51)$	89.55	$89.58^{+0.72}_{-0.68}$ $(+0.5\sigma)$
$\tau$	0.0536	$0.055^{+0.022}_{-0.019}$ $(+0.1\sigma)$	$S_8$	0.8303	$0.830^{+0.033}_{-0.033}$ $(-0.5\sigma)$	$D_{\mathrm{M}}(0.51)$	1987.5	$1987^{+28}_{-28}$ $(-0.5\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0420	$3.044^{+0.042}_{-0.038}$ $(+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4548	$0.455^{+0.018}_{-0.018}$ $(-0.5\sigma)$	$H(0.61)$	95.20	$95.22^{+0.59}_{-0.56}$ $(+0.5\sigma)$
$n_{\mathrm{s}}$	0.9652	$0.965^{+0.012}_{-0.012}$ $(+0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6069	$0.607^{+0.016}_{-0.016}$ $(-0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	2312.3	$2311^{+30}_{-30}$ $(-0.5\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	-0.0018	$-0.003^{+0.017}_{-0.018}$ $(+0.1\sigma)$	$\sigma_8/h^{0.5}$	0.9872	$0.987^{+0.023}_{-0.023}$ $(-0.4\sigma)$	$H(2.33)$	236.39	$236.4^{+1.9}_{-1.9}$ $(-0.3\sigma)$
$r$	0.0215	$< 0.0917$ $(+0.3\sigma)$	$r_{\mathrm{drag}}h$	99.07	$99.1^{+2.5}_{-2.4}$ $(+0.4\sigma)$	$D_{\mathrm{M}}(2.33)$	5768.0	$5767^{+27}_{-27}$ $(-0.5\sigma)$
$y_{\mathrm{cal}}$	1.0008	$1.0007^{+0.0064}_{-0.0062}$ $(+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	2.437	$2.436^{+0.060}_{-0.060}$ $(-0.3\sigma)$	$f\sigma_8(0.15)$	0.4591	$0.459^{+0.017}_{-0.017}$ $(-0.5\sigma)$
$A_{B,\mathrm{dust}}$	4.62	$4.9^{+3.1}_{-2.2}$ $(+0.0\sigma)$	$z_{\mathrm{re}}$	7.62	$7.7^{+2.0}_{-2.1}$ $(+0.1\sigma)$	$\sigma_8(0.15)$	0.7480	$0.748^{+0.014}_{-0.014}$ $(-0.2\sigma)$
$A_{B,\mathrm{sync}}$	1.42	$< 4.99$ $(-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	2.095	$2.099^{+0.089}_{-0.079}$ $(+0.0\sigma)$	$f\sigma_8(0.38)$	0.4765	$0.476^{+0.013}_{-0.014}$ $(-0.4\sigma)$
$\alpha_{B,\mathrm{dust}}$	-0.51	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8820	$1.882^{+0.029}_{-0.028}$ $(-0.2\sigma)$	$\sigma_8(0.38)$	0.6626	$0.663^{+0.013}_{-0.012}$ $(-0.1\sigma)$
$\beta_{B,\mathrm{dust}}$	1.583	$1.60^{+0.25}_{-0.26}$ $(+0.0\sigma)$	$D_{40}$	1231.2	$1233^{+49}_{-47}$ $(+0.1\sigma)$	$f\sigma_8(0.51)$	0.4747	$0.475^{+0.012}_{-0.012}$ $(-0.4\sigma)$
$\alpha_{B,\mathrm{sync}}$	-0.38	—	$D_{220}$	5720	$5718^{+100}_{-98}$ $(+0.3\sigma)$	$\sigma_8(0.51)$	0.6199	$0.620^{+0.012}_{-0.011}$ $(-0.1\sigma)$
$\beta_{B,\mathrm{sync}}$	-3.04	$-3.10^{+0.67}_{-0.72}$ $(-0.0\sigma)$	$D_{810}$	2537.8	$2537^{+35}_{-33}$ $(+0.1\sigma)$	$f\sigma_8(0.61)$	0.4694	$0.469^{+0.011}_{-0.011}$ $(-0.4\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	-0.36	$< 0.333$ $(-0.0\sigma)$	$D_{1420}$	816.0	$815^{+13}_{-13}$ $(+0.3\sigma)$	$\sigma_8(0.61)$	0.5898	$0.590^{+0.012}_{-0.011}$ $(-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	237	$242^{+60}_{-60}$ $(-0.2\sigma)$	$D_{2000}$	230.20	$230.0^{+4.9}_{-4.7}$ $(+0.4\sigma)$	$f\sigma_8(2.33)$	0.2972	$0.2974^{+0.0062}_{-0.0057}$ $(+0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	42.9	$40^{+20}_{-20}$ $(-0.2\sigma)$	$n_{\mathrm{s},0.002}$	0.971	$0.975^{+0.055}_{-0.053}$ $(-0.1\sigma)$	$\sigma_8(2.33)$	0.3063	$0.3065^{+0.0068}_{-0.0061}$ $(+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	102.2	$102^{+30}_{-40}$ $(+0.1\sigma)$	$Y_{\mathrm{P}}$	0.245362	$0.24536^{+0.00016}_{-0.00018}$ $(+0.6\sigma)$	$r_{0.002}$	0.0196	$< 0.0884$ $(+0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	43.6	$40^{+20}_{-20}$ $(-0.2\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246688	$0.24669^{+0.00016}_{-0.00018}$ $(+0.6\sigma)$	$r_{0.01}$	0.0205	$< 0.0895$ $(+0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	5.77	$< 8.74$ $(+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	2.601	$2.599^{+0.079}_{-0.075}$ $(-0.6\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	-0.80	$-0.7^{+1.6}_{-3.4}$ $(+0.2\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	0.630	$0.65^{+0.31}_{-0.33}$ $(+0.1\sigma)$	Age/Gyr	13.808	$13.806^{+0.061}_{-0.062}$ $(-0.4\sigma)$	$r_{10}$	0.0100	$< 0.0460$ $(+0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.77	—	$z_*$	1090.02	$1089.99^{+0.69}_{-0.69}$ $(-0.6\sigma)$	$10^9 A_{\mathrm{t}}$	0.045	$< 0.193$ $(+0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.31	—	$r_*$	144.52	$144.53^{+0.73}_{-0.74}$ $(+0.2\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	0.040	$< 0.173$ $(+0.3\sigma)$
$A^{\mathrm{kSZ}}$	1.3	—	$100\theta_*$	1.04103	$1.04104^{+0.00076}_{-0.00076}$ $(-0.0\sigma)$	$f_{2000}^{143}$	30.5	$30^{+9}_{-8}$ $(-0.4\sigma)$
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.51}_{-0.50}$ $(-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.883	$13.884^{+0.069}_{-0.069}$ $(+0.2\sigma)$	$f_{2000}^{217}$	107.2	$107.3^{+5.6}_{-5.6}$ $(-0.4\sigma)$
$A_{143}^{\mathrm{dust}}$	0.973	$0.96^{+0.45}_{-0.46}$ $(-0.1\sigma)$	$z_{\mathrm{drag}}$	1059.74	$1059.76^{+0.90}_{-0.89}$ $(+0.5\sigma)$	$f_{2000}^{143 \times 217}$	32.5	$33^{+6}_{-6}$ $(-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	0.970	$0.97^{+0.26}_{-0.26}$ $(+0.1\sigma)$	$r_{\mathrm{drag}}$	147.21	$147.22^{+0.76}_{-0.76}$ $(+0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	8.90	$9.39$ $(\nu: 0.2)$ $(-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	1.004	$1.02^{+0.41}_{-0.42}$ $(-0.0\sigma)$	$k_{\mathrm{D}}$	0.14067	$0.14068^{+0.00092}_{-0.00091}$ $(+0.1\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	735.4	$739.9$ $(\nu: 3.7)$ $(+0.2\sigma)$
$c_{100}$	0.99766	$0.9975^{+0.0027}_{-0.0027}$ $(+0.1\sigma)$	$100\theta_{\mathrm{D}}$	0.16086	$0.16085^{+0.00053}_{-0.00051}$ $(-0.5\sigma)$	$\chi_{\mathrm{small}}^2$	396.03	$397.2$ $(\nu: 1.5)$ $(+0.0\sigma)$
$c_{217}$	1.00131	$1.0012^{+0.0041}_{-0.0041}$ $(-0.1\sigma)$	$z_{\mathrm{eq}}$	3397	$3396^{+71}_{-71}$ $(-0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	23.34	$23.7$ $(\nu: 2.0)$ $(+0.0\sigma)$
$c_{TE}$	0.9964	$0.996^{+0.013}_{-0.013}$	$k_{\mathrm{eq}}$	0.010369	$0.01037^{+0.00022}_{-0.00022}$ $(-0.4\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	11499.2	$11514.2$ $(\nu: 16.4)$ $(+821.2\sigma)$
$c_{EE}$	0.9920	$0.992^{+0.013}_{-0.012}$	$100\theta_{\mathrm{eq}}$	0.8139	$0.814^{+0.014}_{-0.013}$ $(+0.4\sigma)$	$\chi_{\mathrm{prior}}^2$	2.3	$9.5$ $(\nu: 7.2)$ $(+0.0\sigma)$
$H_0$	67.30	$67.3^{+1.4}_{-1.4}$ $(+0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4497	$0.4499^{+0.0070}_{-0.0068}$ $(+0.4\sigma)$	$\chi_{\mathrm{CMB}}^2$	12662.8	$12684.4$ $(\nu: 21.2)$ $(+706.8\sigma)$
$\Omega_{\Lambda}$	0.6847	$0.685^{+0.019}_{-0.020}$ $(+0.5\sigma)$	$H(0.15)$	72.62	$72.7^{+1.2}_{-1.2}$ $(+0.5\sigma)$			
$\Omega_{\mathrm{m}}$	0.3153	$0.315^{+0.020}_{-0.019}$ $(-0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	643.9	$644^{+12}_{-12}$ $(-0.5\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 12665.09$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4448.87$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 12693.83$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.71$ ;  $R - 1 = 0.00535$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.90 ( $\Delta$  -0.21) BK15.dust: 735.38 ( $\Delta$  0.20) small\_100x143.offlike5\_EE\_Aplanck.B: 396.03 ( $\Delta$  0.01) com-  
mander\_dx12\_v3\_2.29: 23.34 ( $\Delta$  0.39) CamSpec like\_10.7HM\_1400\_unified: 11499.17



# 15.52 base\_nrun\_r\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BK15\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022335	$0.02234^{+0.00039}_{-0.00039}$ (+0.4 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09612	$0.09613^{+0.00085}_{-0.00086}$ (+0.2 $\sigma$ )	$H(0.51)$	89.70	$89.71^{+0.58}_{-0.57}$ (+0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11917	$0.1191^{+0.0025}_{-0.0024}$ (−0.1 $\sigma$ )	$\sigma_8$	0.8088	$0.809^{+0.016}_{-0.015}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1981.2	$1981^{+22}_{-22}$ (−0.2 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04092	$1.04093^{+0.00073}_{-0.00075}$ (−0.3 $\sigma$ )	$S_8$	0.8234	$0.824^{+0.027}_{-0.027}$ (−0.2 $\sigma$ )	$H(0.61)$	95.317	$95.33^{+0.49}_{-0.48}$ (+0.2 $\sigma$ )
$\tau$	0.0558	$0.056^{+0.021}_{-0.018}$ (−0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4510	$0.451^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2305.5	$2305^{+24}_{-24}$ (−0.2 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0452	$3.046^{+0.042}_{-0.038}$ (−0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6040	$0.604^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )	$H(2.33)$	235.98	$236.0^{+1.5}_{-1.5}$ (−0.0 $\sigma$ )
$n_{\mathrm{s}}$	0.9667	$0.967^{+0.010}_{-0.010}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9836	$0.984^{+0.022}_{-0.022}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5763.2	$5763^{+24}_{-24}$ (−0.2 $\sigma$ )
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	−0.0031	$−0.003^{+0.017}_{-0.018}$ (+0.2 $\sigma$ )	$r_{\mathrm{drag}}h$	99.64	$99.7^{+1.9}_{-1.9}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4556	$0.456^{+0.014}_{-0.014}$ (−0.2 $\sigma$ )
$r$	0.0248	< 0.0926 (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.428	$2.429^{+0.057}_{-0.056}$ (−0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7475	$0.748^{+0.015}_{-0.014}$ (−0.2 $\sigma$ )
$y_{\mathrm{cal}}$	1.0008	$1.0009^{+0.0064}_{-0.0062}$ (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.83	$7.9^{+2.0}_{-1.9}$ (−0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4741	$0.474^{+0.012}_{-0.012}$ (−0.2 $\sigma$ )
$A_{B,\mathrm{dust}}$	4.62	$4.9^{+3.1}_{-2.2}$ (+0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.102	$2.104^{+0.090}_{-0.078}$ (−0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6626	$0.663^{+0.013}_{-0.012}$ (−0.1 $\sigma$ )
$A_{B,\mathrm{sync}}$	1.40	< 5.01 (−0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8795	$1.879^{+0.028}_{-0.027}$ (−0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4727	$0.473^{+0.011}_{-0.011}$ (−0.2 $\sigma$ )
$\alpha_{B,\mathrm{dust}}$	−0.52	—	$D_{40}$	1226.4	$1231^{+48}_{-47}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6201	$0.621^{+0.012}_{-0.011}$ (−0.1 $\sigma$ )
$\beta_{B,\mathrm{dust}}$	1.584	$1.60^{+0.25}_{-0.26}$ (+0.0 $\sigma$ )	$D_{220}$	5722	$5723^{+100}_{-97}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4678	$0.468^{+0.010}_{-0.010}$ (−0.2 $\sigma$ )
$\alpha_{B,\mathrm{sync}}$	−0.35	—	$D_{810}$	2537.6	$2538^{+35}_{-33}$ (+0.0 $\sigma$ )	$\sigma_8(0.61)$	0.5901	$0.590^{+0.012}_{-0.011}$ (−0.1 $\sigma$ )
$\beta_{B,\mathrm{sync}}$	−3.04	$−3.10^{+0.67}_{-0.73}$ (−0.0 $\sigma$ )	$D_{1420}$	816.1	$816^{+13}_{-13}$ (+0.2 $\sigma$ )	$f\sigma_8(2.33)$	0.2976	$0.2977^{+0.0061}_{-0.0056}$ (−0.1 $\sigma$ )
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	−0.37	< 0.331 (−0.0 $\sigma$ )	$D_{2000}$	230.19	$230.3^{+4.8}_{-4.7}$ (+0.3 $\sigma$ )	$\sigma_8(2.33)$	0.3068	$0.3070^{+0.0065}_{-0.0059}$ (−0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	236	$241^{+60}_{-70}$ (−0.2 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.977	$0.976^{+0.055}_{-0.054}$ (−0.2 $\sigma$ )	$r_{0.002}$	0.0229	< 0.0897 (+0.2 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	39.2	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$Y_{\mathrm{P}}$	0.245382	$0.24538^{+0.00015}_{-0.00017}$ (+0.4 $\sigma$ )	$r_{0.01}$	0.0238	< 0.0903 (+0.3 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	101.7	$102^{+30}_{-40}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246708	$0.24671^{+0.00015}_{-0.00017}$ (+0.4 $\sigma$ )	$\ln(10^{10}A_{\mathrm{t}})$	−0.65	$−0.6^{+1.6}_{-3.4}$ (+0.2 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	45.2	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.592	$2.591^{+0.074}_{-0.070}$ (−0.4 $\sigma$ )	$r_{10}$	0.0117	< 0.0468 (+0.2 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	6.65	< 8.74 (+0.1 $\sigma$ )	Age/Gyr	13.797	$13.796^{+0.054}_{-0.054}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{t}}$	0.052	< 0.195 (+0.3 $\sigma$ )
$r_{143\times 217}^{\mathrm{PS}}$	0.577	$0.65^{+0.31}_{-0.34}$ (+0.1 $\sigma$ )	$z_*$	1089.89	$1089.88^{+0.60}_{-0.60}$ (−0.4 $\sigma$ )	$10^9 A_{\mathrm{t}}e^{-2\tau}$	0.047	< 0.174 (+0.3 $\sigma$ )
$r_{143\times 217}^{\mathrm{CIB}}$	0.77	—	$r_*$	144.67	$144.67^{+0.61}_{-0.61}$ (−0.1 $\sigma$ )	$f_{2000}^{143}$	30.5	$30^{+8}_{-8}$ (−0.4 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.02	—	$100\theta_*$	1.04111	$1.04112^{+0.00072}_{-0.00074}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	107.2	$107.1^{+5.6}_{-5.5}$ (−0.4 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.896	$13.896^{+0.058}_{-0.058}$ (−0.1 $\sigma$ )	$f_{2000}^{143\times 217}$	32.5	$32^{+6}_{-6}$ (−0.4 $\sigma$ )
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.52}_{-0.50}$ (−0.0 $\sigma$ )	$z_{\mathrm{drag}}$	1059.78	$1059.81^{+0.85}_{-0.87}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	8.97	$9.34$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$A_{143}^{\mathrm{dust}}$	0.967	$0.96^{+0.45}_{-0.46}$ (−0.1 $\sigma$ )	$r_{\mathrm{drag}}$	147.35	$147.35^{+0.65}_{-0.66}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{BKPLANCK}}^2$	735.6	$740.1$ ( $\nu$ : 3.6) (+0.1 $\sigma$ )
$A_{217}^{\mathrm{dust}}$	0.967	$0.97^{+0.26}_{-0.26}$ (+0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.14057	$0.14057^{+0.00086}_{-0.00085}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{simall}}^2$	396.36	$397.4$ ( $\nu$ : 1.9) (−0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}}$	1.004	$1.02^{+0.41}_{-0.42}$ (−0.0 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16083	$0.16083^{+0.00051}_{-0.00050}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	22.82	$23.5$ ( $\nu$ : 1.9) (+0.2 $\sigma$ )
$c_{100}$	0.99771	$0.9976^{+0.0027}_{-0.0027}$ (+0.0 $\sigma$ )	$z_{\mathrm{eq}}$	3382	$3381^{+57}_{-56}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{CamSpec}}^2$	11499.5	$11514.0$ ( $\nu$ : 16.3) (+820.3 $\sigma$ )
$c_{217}$	1.00132	$1.0012^{+0.0041}_{-0.0041}$ (−0.1 $\sigma$ )	$k_{\mathrm{eq}}$	0.010321	$0.01032^{+0.00017}_{-0.00017}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{6DF}}^2$	0.030	$0.051$ ( $\nu$ : 0.0) (−0.2 $\sigma$ )
$c_{TE}$	0.9964	$0.996^{+0.012}_{-0.013}$	$100\theta_{\mathrm{eq}}$	0.8169	$0.817^{+0.011}_{-0.010}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	1.22	$1.27$ ( $\nu$ : 0.1) (+0.1 $\sigma$ )
$c_{EE}$	0.9925	$0.992^{+0.013}_{-0.012}$	$100\theta_{\mathrm{s,eq}}$	0.4513	$0.4513^{+0.0054}_{-0.0054}$ (+0.0 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	4.43	$4.8$ ( $\nu$ : 0.9) (−0.1 $\sigma$ )
$H_0$	67.62	$67.6^{+1.1}_{-1.1}$ (+0.2 $\sigma$ )	$H(0.15)$	72.89	$72.91^{+0.94}_{-0.94}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	2.2	$9.4$ ( $\nu$ : 7.3) (+0.0 $\sigma$ )
$\Omega_{\Lambda}$	0.6891	$0.689^{+0.014}_{-0.015}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	641.2	$641.1^{+9.4}_{-9.2}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	12663.2	$12684.4$ ( $\nu$ : 20.9) (+708.3 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3109	$0.311^{+0.015}_{-0.014}$ (−0.1 $\sigma$ )	$H(0.38)$	82.99	$83.01^{+0.71}_{-0.69}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	5.68	$6.1$ ( $\nu$ : 0.5) (−0.1 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.14215	$0.1421^{+0.0024}_{-0.0023}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1529.3	$1529^{+19}_{-19}$ (−0.2 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 12671.14$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4448.26$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 12699.90$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.15$ ;  $R - 1 = 0.00769$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.03 ( $\Delta$  -0.01) MGS: 1.22 ( $\Delta$  0.06) DR12BAO: 4.43 ( $\Delta$  -0.14) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.96 ( $\Delta$  -0.06) BK15\_dust: 735.57 ( $\Delta$  0.01) simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.36 ( $\Delta$  -0.06) commander\_dx12.v3.2\_29: 22.82 ( $\Delta$  0.39) CamSpec like\_10.7HM\_1400\_unified: 11499.49



15.53 base\_nrun\_r\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BK15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02230^{+0.00042}_{-0.00041} \quad (+0.6\sigma)$	$\Omega_{\mathrm{m}}$	$0.315^{+0.022}_{-0.022} \quad (-0.6\sigma)$	$H(0.15)$	$72.7^{+1.4}_{-1.3} \quad (+0.6\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1198^{+0.0035}_{-0.0036} \quad (-0.6\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1428^{+0.0034}_{-0.0034} \quad (-0.6\sigma)$	$D_{\mathrm{M}}(0.15)$	$644^{+13}_{-14} \quad (-0.6\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04085^{+0.00079}_{-0.00079} \quad (+0.1\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09614^{+0.00086}_{-0.00085} \quad (+0.1\sigma)$	$H(0.38)$	$82.8^{+1.0}_{-0.93} \quad (+0.6\sigma)$
$\tau$	$0.055^{+0.020}_{-0.014} \quad (+0.0\sigma)$	$\sigma_8$	$0.811^{+0.019}_{-0.017} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.38)$	$1534^{+26}_{-27} \quad (-0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.047}_{-0.032} \quad (-0.2\sigma)$	$S_8$	$0.830^{+0.042}_{-0.042} \quad (-0.6\sigma)$	$H(0.51)$	$89.58^{+0.79}_{-0.73} \quad (+0.6\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.012}_{-0.012} \quad (+0.6\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.023}_{-0.023} \quad (-0.6\sigma)$	$D_{\mathrm{M}}(0.51)$	$1987^{+31}_{-32} \quad (-0.6\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.004^{+0.018}_{-0.018} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.021}_{-0.021} \quad (-0.6\sigma)$	$H(0.61)$	$95.23^{+0.64}_{-0.59} \quad (+0.6\sigma)$
$r$	$< 0.0934 \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.988^{+0.030}_{-0.030} \quad (-0.6\sigma)$	$D_{\mathrm{M}}(0.61)$	$2311^{+33}_{-34} \quad (-0.6\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0064}_{-0.0063} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.1^{+2.8}_{-2.7} \quad (+0.6\sigma)$	$H(2.33)$	$236.4^{+2.2}_{-2.2} \quad (-0.5\sigma)$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.2} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.436^{+0.074}_{-0.073} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(2.33)$	$5767^{+28}_{-29} \quad (-0.6\sigma)$
$A_{B,\mathrm{sync}}$	$< 4.95 \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.66 \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.021}_{-0.021} \quad (-0.6\sigma)$
$\alpha_{B,\mathrm{dust}}$	—	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.066} \quad (-0.2\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.017}_{-0.015} \quad (-0.5\sigma)$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.032}_{-0.031} \quad (-0.4\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.017}_{-0.017} \quad (-0.6\sigma)$
$\alpha_{B,\mathrm{sync}}$	—	$D_{40}$	$1230^{+50}_{-47} \quad (-0.0\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.015}_{-0.012} \quad (-0.4\sigma)$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.67}_{-0.74} \quad (-0.0\sigma)$	$D_{220}$	$5715^{+100}_{-98} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.015}_{-0.015} \quad (-0.6\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.340 \quad (-0.0\sigma)$	$D_{810}$	$2537^{+35}_{-34} \quad (-0.0\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.011} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-70} \quad (-0.1\sigma)$	$D_{1420}$	$815^{+13}_{-13} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.014}_{-0.014} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20} \quad (-0.3\sigma)$	$D_{2000}$	$229.9^{+4.8}_{-4.7} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.0098} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.978^{+0.055}_{-0.054} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.2975^{+0.0067}_{-0.0047} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$Y_{\mathrm{P}}$	$0.24537^{+0.00016}_{-0.00018} \quad (+0.6\sigma)$	$\sigma_8(2.33)$	$0.3066^{+0.0071}_{-0.0049} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.72 \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00016}_{-0.00018} \quad (+0.6\sigma)$	$r_{0.002}$	$< 0.0907 \quad (+0.3\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.33} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.599^{+0.079}_{-0.077} \quad (-0.6\sigma)$	$r_{0.01}$	$< 0.0911 \quad (+0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.805^{+0.062}_{-0.064} \quad (-0.6\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.6^{+1.6}_{-3.3} \quad (+0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_*$	$1089.99^{+0.72}_{-0.74} \quad (-0.7\sigma)$	$r_{10}$	$< 0.0472 \quad (+0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$r_*$	$144.53^{+0.83}_{-0.83} \quad (+0.4\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.196 \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50} \quad (-0.0\sigma)$	$100\theta_*$	$1.04104^{+0.00078}_{-0.00078} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.176 \quad (+0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.46} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.883^{+0.077}_{-0.078} \quad (+0.5\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.77^{+0.89}_{-0.87} \quad (+0.5\sigma)$	$f_{2000}^{217}$	$107.4^{+5.5}_{-5.5} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}$	$147.21^{+0.84}_{-0.85} \quad (+0.3\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$k_{\mathrm{D}}$	$0.14069^{+0.00099}_{-0.00097} \quad (-0.1\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.9 \quad (\nu: 3.8) \quad (+0.3\sigma)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0041} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00052}_{-0.00052} \quad (-0.5\sigma)$	$\chi_{\mathrm{small}}^2$	$397.2 \quad (\nu: 1.8) \quad (-0.0\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$z_{\mathrm{eq}}$	$3396^{+81}_{-82} \quad (-0.6\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.5 \quad (\nu: 1.9) \quad (-0.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{eq}}$	$0.01037^{+0.00025}_{-0.00025} \quad (-0.6\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.6 \quad (\nu: 17.2) \quad (+793.7\sigma)$
$H_0$	$67.3^{+1.6}_{-1.5} \quad (+0.6\sigma)$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.016}_{-0.015} \quad (+0.6\sigma)$	$\chi_{\mathrm{prior}}^2$	$9.5 \quad (\nu: 7.2) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.685^{+0.022}_{-0.022} \quad (+0.6\sigma)$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4499^{+0.0080}_{-0.0077} \quad (+0.6\sigma)$	$\chi_{\mathrm{CMB}}^2$	$12675.2 \quad (\nu: 20.9) \quad (+710.9\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 12684.69; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.06; R - 1 = 0.00378$$



15.54 base\_nrun\_r\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BK15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02235^{+0.00039}_{-0.00038} \quad (+0.4\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09613^{+0.00085}_{-0.00086} \quad (+0.2\sigma)$	$H(0.51)$	$89.74^{+0.59}_{-0.59} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1190^{+0.0027}_{-0.0026} \quad (-0.1\sigma)$	$\sigma_8$	$0.808^{+0.019}_{-0.016} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1980^{+23}_{-23} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00074}_{-0.00075} \quad (-0.3\sigma)$	$S_8$	$0.822^{+0.033}_{-0.032} \quad (-0.2\sigma)$	$H(0.61)$	$95.34^{+0.49}_{-0.49} \quad (+0.2\sigma)$
$\tau$	$0.056^{+0.021}_{-0.014} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.018}_{-0.018} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2304^{+25}_{-25} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.047}_{-0.032} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.018}_{-0.017} \quad (-0.2\sigma)$	$H(2.33)$	$235.9^{+1.7}_{-1.6} \quad (-0.0\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.027}_{-0.025} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5762^{+24}_{-24} \quad (-0.2\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.003^{+0.017}_{-0.018} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$99.7^{+2.0}_{-2.0} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.017}_{-0.017} \quad (-0.2\sigma)$
$r$	$< 0.0946 \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.067}_{-0.063} \quad (-0.1\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.018}_{-0.014} \quad (-0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0063} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.75 \quad (-0.1\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.015}_{-0.014} \quad (-0.2\sigma)$
$A_{B,\mathrm{dust}}$	$4.9^{+3.1}_{-2.2} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.067} \quad (-0.1\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.015}_{-0.012} \quad (-0.2\sigma)$
$A_{B,\mathrm{sync}}$	$< 5.03 \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.029}_{-0.029} \quad (-0.1\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.014}_{-0.013} \quad (-0.2\sigma)$
$\alpha_{B,\mathrm{dust}}$	—	$D_{40}$	$1228^{+49}_{-48} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.014}_{-0.011} \quad (-0.1\sigma)$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.26} \quad (+0.0\sigma)$	$D_{220}$	$5719^{+100}_{-98} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.013}_{-0.012} \quad (-0.2\sigma)$
$\alpha_{B,\mathrm{sync}}$	—	$D_{810}$	$2536^{+35}_{-34} \quad (-0.0\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.0099} \quad (-0.1\sigma)$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.67}_{-0.73} \quad (-0.0\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(2.33)$	$0.2976^{+0.0068}_{-0.0048} \quad (-0.1\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.333 \quad (-0.0\sigma)$	$D_{2000}$	$230.1^{+4.9}_{-4.7} \quad (+0.3\sigma)$	$\sigma_8(2.33)$	$0.3068^{+0.0071}_{-0.0049} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-60} \quad (-0.2\sigma)$	$n_{\mathrm{s},0.002}$	$0.978^{+0.055}_{-0.054} \quad (-0.2\sigma)$	$r_{0.002}$	$< 0.0929 \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.4\sigma)$	$r_{0.01}$	$< 0.0926 \quad (+0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+0.4\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.6^{+1.5}_{-3.3} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$10^5\mathrm{D}/\mathrm{H}$	$2.591^{+0.073}_{-0.070} \quad (-0.4\sigma)$	$r_{10}$	$< 0.0480 \quad (+0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.74 \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.795^{+0.054}_{-0.054} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.200 \quad (+0.3\sigma)$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.34} \quad (+0.1\sigma)$	$z_*$	$1089.87^{+0.60}_{-0.60} \quad (-0.4\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.178 \quad (+0.3\sigma)$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$r_*$	$144.70^{+0.64}_{-0.66} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$100\theta_*$	$1.04113^{+0.00074}_{-0.00074} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$107.2^{+5.6}_{-5.5} \quad (-0.4\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.898^{+0.062}_{-0.063} \quad (-0.0\sigma)$	$f_{2000}^{143\times 217}$	$32^{+6}_{-6} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.52}_{-0.50} \quad (-0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.81^{+0.85}_{-0.87} \quad (+0.4\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	$740.2 \quad (\nu: 3.7) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.46} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}$	$147.37^{+0.68}_{-0.70} \quad (-0.2\sigma)$	$\chi_{\mathrm{small}}^2$	$397.3 \quad (\nu: 2.1) \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26} \quad (+0.0\sigma)$	$k_{\mathrm{D}}$	$0.14055^{+0.00089}_{-0.00089} \quad (+0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.3 \quad (\nu: 1.7) \quad (+0.2\sigma)$
$A_{143\times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.42} \quad (-0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16083^{+0.00051}_{-0.00051} \quad (-0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.4 \quad (\nu: 16.9) \quad (+808.9\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$z_{\mathrm{eq}}$	$3379^{+61}_{-60} \quad (-0.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.049 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01031^{+0.00019}_{-0.00018} \quad (-0.0\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.32 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{TE}$	$0.996^{+0.012}_{-0.013}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.011}_{-0.011} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 \quad (\nu: 0.9) \quad (-0.2\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0058}_{-0.0058} \quad (+0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$9.5 \quad (\nu: 7.3) \quad (+0.0\sigma)$
$H_0$	$67.7^{+1.2}_{-1.2} \quad (+0.1\sigma)$	$H(0.15)$	$72.95^{+0.99}_{-0.99} \quad (+0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.1 \quad (\nu: 0.6) \quad (-0.2\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.015}_{-0.016} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$640.7^{+9.9}_{-9.7} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$12675.2 \quad (\nu: 20.5) \quad (+714.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.015} \quad (-0.1\sigma)$	$H(0.38)$	$83.03^{+0.73}_{-0.73} \quad (+0.2\sigma)$		
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0026}_{-0.0025} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1528^{+20}_{-19} \quad (-0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12690.74; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.22; R - 1 = 0.00701$$



15.55 base\_nrun\_r\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BK15\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02230^{+0.00041}_{-0.00041} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1427^{+0.0029}_{-0.0030} \quad (-0.3\sigma)$	$H(0.38)$	$82.84^{+0.89}_{-0.84} \quad (+0.5\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1198^{+0.0030}_{-0.0031} \quad (-0.4\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09613^{+0.00085}_{-0.00085} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1534^{+23}_{-24} \quad (-0.5\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04085^{+0.00076}_{-0.00077} \quad (-0.0\sigma)$	$\sigma_8$	$0.811^{+0.015}_{-0.014} \quad (-0.3\sigma)$	$H(0.51)$	$89.59^{+0.71}_{-0.67} \quad (+0.5\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (+0.1\sigma)$	$S_8$	$0.830^{+0.033}_{-0.033} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1986^{+27}_{-28} \quad (-0.5\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.040}_{-0.030} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.018}_{-0.018} \quad (-0.4\sigma)$	$H(0.61)$	$95.23^{+0.58}_{-0.55} \quad (+0.4\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.016}_{-0.016} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	$2311^{+29}_{-30} \quad (-0.5\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.003^{+0.017}_{-0.018} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.988^{+0.023}_{-0.023} \quad (-0.4\sigma)$	$H(2.33)$	$236.3^{+1.9}_{-1.9} \quad (-0.3\sigma)$
$r$	$< 0.0917 \quad (+0.3\sigma)$	$r_{\mathrm{drag}}h$	$99.2^{+2.4}_{-2.3} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(2.33)$	$5767^{+27}_{-27} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0064}_{-0.0062} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.060}_{-0.059} \quad (-0.3\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.016}_{-0.017} \quad (-0.4\sigma)$
$A_{B,\mathrm{dust}}$	$4.9^{+3.1}_{-2.2} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.55 \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.012} \quad (-0.2\sigma)$
$A_{B,\mathrm{sync}}$	$< 4.99 \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.102^{+0.086}_{-0.062} \quad (-0.0\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.013}_{-0.013} \quad (-0.4\sigma)$
$\alpha_{B,\mathrm{dust}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.881^{+0.029}_{-0.028} \quad (-0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.010} \quad (-0.1\sigma)$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.26} \quad (+0.0\sigma)$	$D_{40}$	$1232^{+49}_{-47} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.012}_{-0.012} \quad (-0.4\sigma)$
$\alpha_{B,\mathrm{sync}}$	—	$D_{220}$	$5718^{+100}_{-98} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0093} \quad (-0.1\sigma)$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.67}_{-0.72} \quad (-0.0\sigma)$	$D_{810}$	$2537^{+34}_{-33} \quad (+0.1\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.011} \quad (-0.4\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.332 \quad (-0.0\sigma)$	$D_{1420}$	$815^{+13}_{-13} \quad (+0.3\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0089} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-60} \quad (-0.2\sigma)$	$D_{2000}$	$230.0^{+4.9}_{-4.7} \quad (+0.4\sigma)$	$f\sigma_8(2.33)$	$0.2976^{+0.0060}_{-0.0045} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$n_{\mathrm{s},0.002}$	$0.975^{+0.055}_{-0.054} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.3067^{+0.0066}_{-0.0048} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24537^{+0.00016}_{-0.00018} \quad (+0.5\sigma)$	$r_{0.002}$	$< 0.0884 \quad (+0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00016}_{-0.00018} \quad (+0.5\sigma)$	$r_{0.01}$	$< 0.0893 \quad (+0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.74 \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.599^{+0.078}_{-0.075} \quad (-0.5\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.6^{+1.6}_{-3.4} \quad (+0.2\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.805^{+0.060}_{-0.061} \quad (-0.4\sigma)$	$r_{10}$	$< 0.0459 \quad (+0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$z_*$	$1089.98^{+0.68}_{-0.68} \quad (-0.6\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.193 \quad (+0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$r_*$	$144.54^{+0.73}_{-0.72} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.173 \quad (+0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$100\theta_*$	$1.04104^{+0.00076}_{-0.00076} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.885^{+0.068}_{-0.068} \quad (+0.2\sigma)$	$f_{2000}^{217}$	$107.3^{+5.6}_{-5.6} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.46} \quad (-0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.76^{+0.89}_{-0.90} \quad (+0.5\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.23^{+0.75}_{-0.76} \quad (+0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.37 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.42} \quad (-0.0\sigma)$	$k_{\mathrm{D}}$	$0.14067^{+0.00092}_{-0.00091} \quad (+0.1\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.9 \quad (\nu: 3.7) \quad (+0.2\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00053}_{-0.00051} \quad (-0.5\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.6) \quad (+0.0\sigma)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0041} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3395^{+70}_{-71} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.7 \quad (\nu: 2.0) \quad (+0.1\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$k_{\mathrm{eq}}$	$0.01036^{+0.00021}_{-0.00022} \quad (-0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.1 \quad (\nu: 16.3) \quad (+820.6\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.013}_{-0.013} \quad (+0.4\sigma)$	$\chi_{\mathrm{prior}}^2$	$9.5 \quad (\nu: 7.2) \quad (+0.0\sigma)$
$H_0$	$67.4^{+1.4}_{-1.3} \quad (+0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4500^{+0.0069}_{-0.0066} \quad (+0.4\sigma)$	$\chi_{\mathrm{CMB}}^2$	$12684.2 \quad (\nu: 20.9) \quad (+711.9\sigma)$
$\Omega_{\Lambda}$	$0.685^{+0.019}_{-0.019} \quad (+0.4\sigma)$	$H(0.15)$	$72.7^{+1.2}_{-1.1} \quad (+0.4\sigma)$		
$\Omega_{\mathrm{m}}$	$0.315^{+0.019}_{-0.019} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+12}_{-12} \quad (-0.4\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12693.65; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.75; R - 1 = 0.00582$$



15.56 base\_nrun\_r\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BK15\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02234^{+0.00039}_{-0.00038} \quad (+0.4\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09613^{+0.00085}_{-0.00086} \quad (+0.2\sigma)$	$H(0.51)$	$89.72^{+0.58}_{-0.56} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0024}_{-0.0024} \quad (-0.1\sigma)$	$\sigma_8$	$0.810^{+0.016}_{-0.014} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1981^{+22}_{-22} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04093^{+0.00073}_{-0.00075} \quad (-0.3\sigma)$	$S_8$	$0.824^{+0.027}_{-0.027} \quad (-0.2\sigma)$	$H(0.61)$	$95.33^{+0.48}_{-0.47} \quad (+0.2\sigma)$
$\tau$	$0.057^{+0.019}_{-0.015} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.015}_{-0.015} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2305^{+24}_{-24} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.041}_{-0.031} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.015}_{-0.014} \quad (-0.2\sigma)$	$H(2.33)$	$236.0^{+1.5}_{-1.5} \quad (-0.0\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.022}_{-0.021} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5763^{+23}_{-24} \quad (-0.2\sigma)$
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.003^{+0.017}_{-0.018} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$99.7^{+1.9}_{-1.8} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.014}_{-0.014} \quad (-0.2\sigma)$
$r$	$< 0.0926 \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.430^{+0.056}_{-0.055} \quad (-0.1\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.014}_{-0.012} \quad (-0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0062} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.68 \quad (-0.1\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.012}_{-0.012} \quad (-0.2\sigma)$
$A_{B,\mathrm{dust}}$	$4.9^{+3.1}_{-2.2} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.106^{+0.088}_{-0.065} \quad (-0.1\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.010} \quad (-0.1\sigma)$
$A_{B,\mathrm{sync}}$	$< 5.02 \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.028}_{-0.027} \quad (-0.1\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.010} \quad (-0.2\sigma)$
$\alpha_{B,\mathrm{dust}}$	—	$D_{40}$	$1230^{+49}_{-47} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0097} \quad (-0.1\sigma)$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.26} \quad (+0.0\sigma)$	$D_{220}$	$5723^{+100}_{-97} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.010}_{-0.0096} \quad (-0.2\sigma)$
$\alpha_{B,\mathrm{sync}}$	—	$D_{810}$	$2537^{+34}_{-33} \quad (+0.0\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0092} \quad (-0.1\sigma)$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.67}_{-0.72} \quad (-0.0\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(2.33)$	$0.2979^{+0.0060}_{-0.0047} \quad (-0.1\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.331 \quad (-0.0\sigma)$	$D_{2000}$	$230.3^{+4.9}_{-4.7} \quad (+0.3\sigma)$	$\sigma_8(2.33)$	$0.3071^{+0.0065}_{-0.0049} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-70} \quad (-0.2\sigma)$	$n_{\mathrm{s},0.002}$	$0.976^{+0.055}_{-0.054} \quad (-0.2\sigma)$	$r_{0.002}$	$< 0.0896 \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.4\sigma)$	$r_{0.01}$	$< 0.0901 \quad (+0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+0.4\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.6^{+1.6}_{-3.4} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$10^5\mathrm{D}/\mathrm{H}$	$2.591^{+0.073}_{-0.070} \quad (-0.4\sigma)$	$r_{10}$	$< 0.0467 \quad (+0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.74 \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.796^{+0.054}_{-0.053} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.195 \quad (+0.3\sigma)$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$z_*$	$1089.88^{+0.59}_{-0.59} \quad (-0.4\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.174 \quad (+0.3\sigma)$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$r_*$	$144.68^{+0.60}_{-0.60} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$30^{+8}_{-8} \quad (-0.4\sigma)$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$100\theta_*$	$1.04112^{+0.00072}_{-0.00074} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$107.1^{+5.6}_{-5.4} \quad (-0.4\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.896^{+0.058}_{-0.058} \quad (-0.1\sigma)$	$f_{2000}^{143\times 217}$	$32^{+6}_{-6} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.52}_{-0.50} \quad (-0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.81^{+0.85}_{-0.87} \quad (+0.4\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.31 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.46} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}$	$147.35^{+0.65}_{-0.66} \quad (-0.2\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	$740.1 \quad (\nu: 3.6) \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26} \quad (+0.0\sigma)$	$k_{\mathrm{D}}$	$0.14057^{+0.00086}_{-0.00085} \quad (+0.3\sigma)$	$\chi_{\mathrm{small}}^2$	$397.4 \quad (\nu: 2.0) \quad (-0.1\sigma)$
$A_{143\times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.42} \quad (-0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16083^{+0.00051}_{-0.00051} \quad (-0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.5 \quad (\nu: 1.9) \quad (+0.2\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$z_{\mathrm{eq}}$	$3381^{+56}_{-55} \quad (-0.0\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.0 \quad (\nu: 16.3) \quad (+820.9\sigma)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0041} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01032^{+0.00017}_{-0.00017} \quad (-0.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.050 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$c_{TE}$	$0.996^{+0.012}_{-0.013}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.011}_{-0.010} \quad (+0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.28 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$100\theta_{\mathrm{s,eq}}$	$0.4514^{+0.0054}_{-0.0053} \quad (+0.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$H_0$	$67.6^{+1.1}_{-1.1} \quad (+0.1\sigma)$	$H(0.15)$	$72.91^{+0.94}_{-0.92} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$9.4 \quad (\nu: 7.3) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.689^{+0.014}_{-0.015} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$641.0^{+9.3}_{-9.2} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$12684.3 \quad (\nu: 20.7) \quad (+711.3\sigma)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.015}_{-0.014} \quad (-0.1\sigma)$	$H(0.38)$	$83.01^{+0.71}_{-0.69} \quad (+0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.1 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1421^{+0.0023}_{-0.0023} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1529^{+19}_{-19} \quad (-0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12699.77; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.14; R - 1 = 0.00794$$



# 15.57 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_BK15\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022394	$0.02240^{+0.00039}_{-0.00039}$ (+1.0 $\sigma$ )	$\Omega_{\Lambda}$	0.6837	$0.684^{+0.019}_{-0.020}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	643.9	$644^{+12}_{-12}$ (−0.5 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.12021	$0.1202^{+0.0031}_{-0.0031}$ (−0.2 $\sigma$ )	$\Omega_{\mathrm{m}}$	0.3163	$0.316^{+0.020}_{-0.019}$ (−0.3 $\sigma$ )	$H(0.38)$	82.84	$82.85^{+0.89}_{-0.85}$ (+0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04090	$1.04090^{+0.00078}_{-0.00078}$ (+0.2 $\sigma$ )	$\Omega_{\mathrm{m}}h^2$	0.14325	$0.1432^{+0.0029}_{-0.0030}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1534.4	$1534^{+24}_{-24}$ (−0.5 $\sigma$ )
$\tau$	0.0551	$0.056^{+0.021}_{-0.019}$ (+0.3 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09640	$0.09640^{+0.00076}_{-0.00079}$ (+0.8 $\sigma$ )	$H(0.51)$	89.61	$89.62^{+0.72}_{-0.68}$ (+0.6 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0470	$3.050^{+0.041}_{-0.038}$ (+0.4 $\sigma$ )	$\sigma_8$	0.8117	$0.812^{+0.016}_{-0.015}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1987.0	$1987^{+28}_{-28}$ (−0.5 $\sigma$ )
$n_{\mathrm{s}}$	0.9645	$0.964^{+0.011}_{-0.011}$ (+0.3 $\sigma$ )	$S_8$	0.8335	$0.834^{+0.033}_{-0.032}$ (−0.2 $\sigma$ )	$H(0.61)$	95.27	$95.28^{+0.58}_{-0.55}$ (+0.7 $\sigma$ )
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	−0.0051	$−0.007^{+0.018}_{-0.018}$ (−0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4565	$0.457^{+0.018}_{-0.017}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2311.5	$2311^{+30}_{-30}$ (−0.5 $\sigma$ )
$r$	0.0194	< 0.0862 (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6087	$0.609^{+0.017}_{-0.016}$ (−0.1 $\sigma$ )	$H(2.33)$	236.72	$236.7^{+1.9}_{-1.9}$ (+0.0 $\sigma$ )
$y_{\mathrm{cal}}$	1.0003	$1.0008^{+0.0064}_{-0.0065}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9895	$0.990^{+0.023}_{-0.023}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5763.3	$5763^{+26}_{-26}$ (−0.8 $\sigma$ )
$A_{B,\mathrm{dust}}$	4.63	$4.9^{+3.1}_{-2.1}$ (+0.0 $\sigma$ )	$r_{\mathrm{drag}}h$	98.93	$98.9^{+2.5}_{-2.4}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4607	$0.461^{+0.017}_{-0.016}$ (−0.2 $\sigma$ )
$A_{B,\mathrm{sync}}$	1.41	< 4.85 (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.439	$2.440^{+0.060}_{-0.057}$ (−0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7496	$0.750^{+0.014}_{-0.014}$ (+0.2 $\sigma$ )
$\alpha_{B,\mathrm{dust}}$	−0.52	—	$z_{\mathrm{re}}$	7.76	$7.8^{+2.0}_{-2.0}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4780	$0.478^{+0.013}_{-0.013}$ (−0.1 $\sigma$ )
$\beta_{B,\mathrm{dust}}$	1.583	$1.60^{+0.25}_{-0.24}$ (+0.0 $\sigma$ )	$10^9A_{\mathrm{s}}$	2.105	$2.112^{+0.089}_{-0.080}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6639	$0.664^{+0.013}_{-0.012}$ (+0.2 $\sigma$ )
$\alpha_{B,\mathrm{sync}}$	−0.39	—	$10^9A_{\mathrm{s}}e^{-2\tau}$	1.8855	$1.887^{+0.029}_{-0.029}$ (+0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4760	$0.476^{+0.012}_{-0.011}$ (−0.1 $\sigma$ )
$\beta_{B,\mathrm{sync}}$	−3.04	$−3.10^{+0.68}_{-0.73}$ (−0.0 $\sigma$ )	$D_{40}$	1225.3	$1227^{+49}_{-48}$ (−0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6211	$0.622^{+0.012}_{-0.011}$ (+0.3 $\sigma$ )
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	−0.36	< 0.354 (−0.0 $\sigma$ )	$D_{220}$	5726	$5731^{+100}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.61)$	0.4707	$0.471^{+0.011}_{-0.010}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	50.0	$48^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2540.4	$2542^{+35}_{-35}$ (+0.3 $\sigma$ )	$\sigma_8(0.61)$	0.5909	$0.591^{+0.012}_{-0.011}$ (+0.3 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.09	—	$D_{1420}$	816.4	$816^{+13}_{-13}$ (+0.4 $\sigma$ )	$f\sigma_8(2.33)$	0.2977	$0.2980^{+0.0061}_{-0.0057}$ (+0.3 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.3	—	$D_{2000}$	230.30	$230.1^{+4.7}_{-4.7}$ (+0.5 $\sigma$ )	$\sigma_8(2.33)$	0.3067	$0.3070^{+0.0067}_{-0.0061}$ (+0.3 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	256	$263^{+70}_{-70}$ (−0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.981	$0.986^{+0.055}_{-0.056}$ (+0.3 $\sigma$ )	$r_{0.002}$	0.0179	< 0.0844 (+0.2 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	44.8	$48^{+20}_{-20}$ (−0.3 $\sigma$ )	$Y_{\mathrm{P}}$	0.245405	$0.24540^{+0.00015}_{-0.00016}$ (+0.9 $\sigma$ )	$r_{0.01}$	0.0185	< 0.0841 (+0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	40	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246731	$0.24673^{+0.00015}_{-0.00016}$ (+0.9 $\sigma$ )	$\ln(10^{10}A_{\mathrm{t}})$	−0.90	$−0.8^{+1.6}_{-3.4}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	116.2	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.581	$2.581^{+0.074}_{-0.070}$ (−1.0 $\sigma$ )	$r_{10}$	0.0092	< 0.0440 (+0.2 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	Age/Gyr	13.796	$13.796^{+0.060}_{-0.059}$ (−0.8 $\sigma$ )	$10^9A_{\mathrm{t}}$	0.041	< 0.183 (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dust}TT}$	8.89	$8.9^{+4.6}_{-4.8}$ (+0.0 $\sigma$ )	$z_{\ast}$	1089.91	$1089.90^{+0.67}_{-0.66}$ (−0.8 $\sigma$ )	$10^9A_{\mathrm{t}}e^{-2\tau}$	0.037	< 0.163 (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dust}TT}$	11.04	$11.0^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$r_{\ast}$	144.36	$144.36^{+0.72}_{-0.70}$ (−0.3 $\sigma$ )	$f_{2000}^{143}$	30.24	$9.6^{+3.2}_{-1.3}$ (−7.0 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}TT}$	19.4	$18.7^{+8.5}_{-8.5}$ (+0.1 $\sigma$ )	$100\theta_{\ast}$	1.04108	$1.04108^{+0.00077}_{-0.00077}$ (+0.2 $\sigma$ )	$f_{2000}^{143\times 217}$	32.9	$739.6^{+8.7}_{-4.7}$ (+315.8 $\sigma$ )
$A_{217}^{\mathrm{dust}TT}$	94.1	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(z_{\ast})/\mathrm{Gpc}$	13.866	$13.867^{+0.067}_{-0.065}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	107.52	$397.3^{+7.0}_{-1.7}$ (+139.9 $\sigma$ )
$A_{100}^{\mathrm{dust}TE}$	0.114	$0.115^{+0.099}_{-0.095}$	$z_{\mathrm{drag}}$	1060.01	$1060.01^{+0.80}_{-0.80}$ (+1.0 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	9.04	23.0 ( $\nu$ : 1.5) (+12.6 $\sigma$ )
$A_{100\times 143}^{\mathrm{dust}TE}$	0.134	$0.135^{+0.076}_{-0.075}$	$r_{\mathrm{drag}}$	147.01	$147.01^{+0.72}_{-0.70}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{BKPLANCK}}^2$	735.3	2360.3 ( $\nu$ : 17.0) (+615.7 $\sigma$ )
$A_{100\times 217}^{\mathrm{dust}TE}$	0.477	$0.48^{+0.22}_{-0.22}$	$k_{\mathrm{D}}$	0.14097	$0.14097^{+0.00081}_{-0.00082}$ (+0.7 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.2	13.2 ( $\nu$ : 11.8) (−225.8 $\sigma$ )
$A_{143}^{\mathrm{dust}TE}$	0.224	$0.23^{+0.14}_{-0.14}$	$100\theta_{\mathrm{D}}$	0.160716	$0.16071^{+0.00049}_{-0.00047}$ (−1.0 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	22.6	31.0 ( $\nu$ : 4.9) (+3.3 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}TE}$	0.664	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{eq}}$	3408	$3407^{+70}_{-71}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2344.9	33.3 ( $\nu$ : 2.3) (−133.5 $\sigma$ )
$A_{217}^{\mathrm{dust}TE}$	2.08	$2.08^{+0.69}_{-0.69}$	$k_{\mathrm{eq}}$	0.010401	$0.01040^{+0.00021}_{-0.00022}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.9	107.9 ( $\nu$ : 2.0) (+24.7 $\sigma$ )
$c_{100}$	0.99968	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8124	$0.812^{+0.014}_{-0.013}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	3508.1	3529.8 ( $\nu$ : 21.4) (+251.6 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{s},\mathrm{eq}}$	0.4489	$0.4489^{+0.0069}_{-0.0066}$ (+0.1 $\sigma$ )			
$H_0$	67.30	$67.3^{+1.4}_{-1.4}$ (+0.4 $\sigma$ )	$H(0.15)$	72.63	$72.6^{+1.2}_{-1.2}$ (+0.5 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 3510.02$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.85$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 3542.98$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.83$ ;  $R - 1 = 0.00382$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.04 ( $\Delta$  -0.05) BK15\_dust: 735.27 ( $\Delta$  0.07) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.20 ( $\Delta$  0.18) com-  
mander\_dx12\_v3\_2\_29: 22.64 ( $\Delta$  -0.57) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.94



15.58 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_BK15\_lensing\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022461	$0.02245^{+0.00036}_{-0.00036}$ (+0.9 $\sigma$ )	$\Omega_m$	0.3106	$0.312^{+0.015}_{-0.015}$ (−0.0 $\sigma$ )	$D_M(0.38)$	1527.4	$1528^{+19}_{-19}$ (−0.3 $\sigma$ )
$\Omega_c h^2$	0.11930	$0.1194^{+0.0024}_{-0.0025}$ (+0.2 $\sigma$ )	$\Omega_m h^2$	0.14240	$0.1425^{+0.0023}_{-0.0023}$ (+0.3 $\sigma$ )	$H(0.51)$	89.81	$89.78^{+0.58}_{-0.56}$ (+0.4 $\sigma$ )
$100\theta_{MC}$	1.04102	$1.04100^{+0.00074}_{-0.00073}$ (+0.0 $\sigma$ )	$\Omega_m h^3$	0.09642	$0.09642^{+0.00075}_{-0.00079}$ (+0.8 $\sigma$ )	$D_M(0.51)$	1978.7	$1980^{+22}_{-22}$ (−0.3 $\sigma$ )
$\tau$	0.0580	$0.058^{+0.021}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8$	0.8116	$0.811^{+0.016}_{-0.015}$ (+0.2 $\sigma$ )	$H(0.61)$	95.425	$95.40^{+0.49}_{-0.47}$ (+0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0514	$3.053^{+0.041}_{-0.038}$ (+0.3 $\sigma$ )	$S_8$	0.8258	$0.827^{+0.027}_{-0.027}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2302.6	$2304^{+24}_{-24}$ (−0.3 $\sigma$ )
$n_s$	0.9677	$0.966^{+0.010}_{-0.010}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4523	$0.453^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )	$H(2.33)$	236.20	$236.3^{+1.5}_{-1.5}$ (+0.4 $\sigma$ )
$dn_s/d \ln k$	−0.0034	$−0.007^{+0.018}_{-0.018}$ (−0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6059	$0.606^{+0.015}_{-0.014}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5756.8	$5758^{+23}_{-23}$ (−0.6 $\sigma$ )
$r$	0.0201	< 0.0869 (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9863	$0.987^{+0.021}_{-0.021}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4570	$0.457^{+0.014}_{-0.014}$ (+0.1 $\sigma$ )
$y_{cal}$	1.0007	$1.0009^{+0.0063}_{-0.0065}$ (+0.0 $\sigma$ )	$r_{drag} h$	99.65	$99.5^{+1.9}_{-1.8}$ (−0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7500	$0.750^{+0.015}_{-0.014}$ (+0.2 $\sigma$ )
$A_{B,dust}$	4.60	$4.9^{+3.2}_{-2.1}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.433	$2.432^{+0.057}_{-0.054}$ (+0.0 $\sigma$ )	$f\sigma_8(0.38)$	0.4756	$0.476^{+0.012}_{-0.012}$ (+0.1 $\sigma$ )
$A_{B,sync}$	1.43	< 4.84 (−0.0 $\sigma$ )	$z_{re}$	8.02	$8.0^{+1.9}_{-2.0}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6649	$0.665^{+0.013}_{-0.012}$ (+0.2 $\sigma$ )
$\alpha_{B,dust}$	−0.51	—	$10^9 A_s$	2.114	$2.118^{+0.088}_{-0.079}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4742	$0.474^{+0.011}_{-0.010}$ (+0.2 $\sigma$ )
$\beta_{B,dust}$	1.577	$1.60^{+0.25}_{-0.24}$ (+0.0 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8829	$1.885^{+0.028}_{-0.028}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6223	$0.622^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )
$\alpha_{B,sync}$	−0.32	—	$D_{40}$	1224.9	$1225^{+47}_{-47}$ (−0.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4693	$0.469^{+0.010}_{-0.0097}$ (+0.2 $\sigma$ )
$\beta_{B,sync}$	−3.04	$−3.10^{+0.70}_{-0.72}$ (+0.0 $\sigma$ )	$D_{220}$	5734	$5737^{+99}_{-98}$ (+0.3 $\sigma$ )	$\sigma_8(0.61)$	0.5922	$0.592^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )
$\epsilon_{dust,sync}$	−0.35	< 0.339 (−0.0 $\sigma$ )	$D_{810}$	2542.6	$2543^{+34}_{-35}$ (+0.2 $\sigma$ )	$f\sigma_8(2.33)$	0.2986	$0.2984^{+0.0061}_{-0.0056}$ (+0.2 $\sigma$ )
$A_{217}^{CIB}$	46.7	$48^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	818.7	$817^{+12}_{-13}$ (+0.4 $\sigma$ )	$\sigma_8(2.33)$	0.3079	$0.3077^{+0.0066}_{-0.0059}$ (+0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.54	—	$D_{2000}$	231.28	$230.5^{+4.5}_{-4.7}$ (+0.4 $\sigma$ )	$r_{0.002}$	0.0186	< 0.0850 (+0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.1	—	$n_{s,0.002}$	0.979	$0.987^{+0.057}_{-0.055}$ (+0.2 $\sigma$ )	$r_{0.01}$	0.0193	< 0.0848 (+0.1 $\sigma$ )
$A_{100}^{PS}$	250	$262^{+70}_{-70}$ (−0.1 $\sigma$ )	$Y_P$	0.245430	$0.24542^{+0.00014}_{-0.00015}$ (+0.9 $\sigma$ )	$\ln(10^{10} A_t)$	−0.85	$−0.7^{+1.6}_{-3.4}$ (+0.1 $\sigma$ )
$A_{143}^{PS}$	49.7	$48^{+20}_{-20}$ (−0.3 $\sigma$ )	$Y_P^{BBN}$	0.246757	$0.24675^{+0.00014}_{-0.00015}$ (+0.9 $\sigma$ )	$r_{10}$	0.0095	< 0.0441 (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	50.7	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^5 D/H$	2.569	$2.571^{+0.068}_{-0.064}$ (−0.9 $\sigma$ )	$10^9 A_t$	0.043	< 0.184 (+0.1 $\sigma$ )
$A_{217}^{PS}$	121.1	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	Age/Gyr	13.782	$13.785^{+0.052}_{-0.051}$ (−0.7 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.038	< 0.164 (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$z_*$	1089.74	$1089.77^{+0.57}_{-0.56}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	29.0	$31^{+8}_{-8}$ (−0.3 $\sigma$ )
$A_{100}^{dust TT}$	8.87	$8.9^{+4.6}_{-4.7}$ (+0.0 $\sigma$ )	$r_*$	144.54	$144.52^{+0.59}_{-0.58}$ (−0.6 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.2	$33^{+6}_{-6}$ (−0.4 $\sigma$ )
$A_{143}^{dust TT}$	11.03	$10.9^{+4.6}_{-4.7}$ (+0.1 $\sigma$ )	$100\theta_*$	1.04120	$1.04118^{+0.00072}_{-0.00072}$ (−0.0 $\sigma$ )	$f_{2000}^{217}$	106.8	$107.7^{+5.3}_{-5.2}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{dust TT}$	20.0	$18.7^{+8.4}_{-8.7}$ (+0.1 $\sigma$ )	$D_M(z_*)/Gpc$	13.882	$13.880^{+0.058}_{-0.056}$ (−0.6 $\sigma$ )	$\chi^2_{lensing}$	8.83	9.32 ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$A_{217}^{dust TT}$	95.4	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_{drag}$	1060.09	$1060.08^{+0.77}_{-0.80}$ (+0.9 $\sigma$ )	$\chi^2_{BKPLANCK}$	735.5	739.8 ( $\nu$ : 3.4) (+0.0 $\sigma$ )
$A_{100}^{dust TE}$	0.114	$0.115^{+0.098}_{-0.094}$	$r_{drag}$	147.18	$147.15^{+0.62}_{-0.61}$ (−0.8 $\sigma$ )	$\chi^2_{small}$	396.8	397.7 ( $\nu$ : 2.2) (+0.1 $\sigma$ )
$A_{100 \times 143}^{dust TE}$	0.135	$0.135^{+0.078}_{-0.076}$	$k_D$	0.14085	$0.14087^{+0.00076}_{-0.00077}$ (+0.9 $\sigma$ )	$\chi^2_{lowl}$	22.64	22.8 ( $\nu$ : 1.4) (−0.2 $\sigma$ )
$A_{100 \times 217}^{dust TE}$	0.481	$0.48^{+0.21}_{-0.22}$	$100\theta_D$	0.160670	$0.16068^{+0.00047}_{-0.00046}$ (−0.9 $\sigma$ )	$\chi^2_{plik}$	2345.2	2360.2 ( $\nu$ : 16.8) (+284.5 $\sigma$ )
$A_{143}^{dust TE}$	0.225	$0.22^{+0.14}_{-0.13}$	$z_{eq}$	3388	$3391^{+55}_{-56}$ (+0.3 $\sigma$ )	$\chi^2_{6DF}$	0.029	0.060 ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$A_{143 \times 217}^{dust TE}$	0.664	$0.66^{+0.20}_{-0.20}$	$k_{eq}$	0.010339	$0.01035^{+0.00017}_{-0.00017}$ (+0.3 $\sigma$ )	$\chi^2_{MGS}$	1.22	1.21 ( $\nu$ : 0.1) (−0.1 $\sigma$ )
$A_{217}^{dust TE}$	2.08	$2.07^{+0.69}_{-0.70}$	$100\theta_{eq}$	0.8162	$0.816^{+0.011}_{-0.010}$ (−0.2 $\sigma$ )	$\chi^2_{DR12BAO}$	4.43	5.0 ( $\nu$ : 1.0) (−0.0 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4509	$0.4506^{+0.0055}_{-0.0052}$ (−0.3 $\sigma$ )	$\chi^2_{prior}$	1.7	13.2 ( $\nu$ : 11.9) (+1.1 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$H(0.15)$	72.99	$72.93^{+0.96}_{-0.93}$ (+0.2 $\sigma$ )	$\chi^2_{CMB}$	3508.9	3529.8 ( $\nu$ : 20.8) (+250.3 $\sigma$ )
$H_0$	67.71	$67.6^{+1.1}_{-1.1}$ (+0.2 $\sigma$ )	$D_M(0.15)$	640.3	$640.9^{+9.3}_{-9.3}$ (−0.2 $\sigma$ )	$\chi^2_{BAO}$	5.68	6.2 ( $\nu$ : 0.7) (−0.0 $\sigma$ )
$\Omega_\Lambda$	0.6894	$0.688^{+0.015}_{-0.015}$ (+0.0 $\sigma$ )	$H(0.38)$	83.09	$83.05^{+0.71}_{-0.69}$ (+0.4 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 3516.32$ ;  $\Delta\chi^2_{eff} = 1585.66$ ;  $\bar{\chi}^2_{eff} = 3549.29$ ;  $\Delta\bar{\chi}^2_{eff} = 1591.59$ ;  $R - 1 = 0.00618$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.03 ( $\Delta$  -0.01) MGS: 1.22 ( $\Delta$  0.06) DR12BAO: 4.43 ( $\Delta$  -0.14) CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.83 ( $\Delta$  -0.04) BK15\_dust: 735.47 ( $\Delta$  -0.03) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.79 ( $\Delta$  0.44) commander\_dx12\_v3\_2\_29: 22.64 ( $\Delta$  -0.17) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.18



## 15.59 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_BK15\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00039}_{-0.00039}$ (+0.9 $\sigma$ )	$\Omega_{\Lambda}$	$0.684^{+0.019}_{-0.019}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$644^{+12}_{-12}$ (−0.4 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1202^{+0.0031}_{-0.0031}$ (−0.1 $\sigma$ )	$\Omega_{\mathrm{m}}$	$0.316^{+0.019}_{-0.019}$ (−0.3 $\sigma$ )	$H(0.38)$	$82.86^{+0.89}_{-0.84}$ (+0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00078}_{-0.00078}$ (+0.2 $\sigma$ )	$\Omega_{\mathrm{m}}h^2$	$0.1432^{+0.0029}_{-0.0030}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1534^{+24}_{-24}$ (−0.4 $\sigma$ )
$\tau$	$0.057^{+0.019}_{-0.015}$ (+0.3 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	$0.09640^{+0.00076}_{-0.00079}$ (+0.8 $\sigma$ )	$H(0.51)$	$89.63^{+0.71}_{-0.67}$ (+0.6 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.051^{+0.040}_{-0.030}$ (+0.3 $\sigma$ )	$\sigma_8$	$0.813^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1986^{+27}_{-28}$ (−0.5 $\sigma$ )
$n_{\mathrm{s}}$	$0.964^{+0.011}_{-0.011}$ (+0.3 $\sigma$ )	$S_8$	$0.834^{+0.033}_{-0.032}$ (−0.2 $\sigma$ )	$H(0.61)$	$95.29^{+0.58}_{-0.55}$ (+0.7 $\sigma$ )
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.007^{+0.018}_{-0.018}$ (−0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.018}_{-0.017}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2311^{+30}_{-30}$ (−0.5 $\sigma$ )
$r$	$< 0.0862$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.016}_{-0.016}$ (−0.1 $\sigma$ )	$H(2.33)$	$236.7^{+1.8}_{-1.9}$ (+0.1 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0008^{+0.0064}_{-0.0065}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.990^{+0.023}_{-0.022}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5763^{+26}_{-26}$ (−0.7 $\sigma$ )
$A_{B,\mathrm{dust}}$	$4.9^{+3.1}_{-2.1}$ (−0.0 $\sigma$ )	$r_{\mathrm{drag}}h$	$99.0^{+2.5}_{-2.3}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	$0.461^{+0.017}_{-0.016}$ (−0.2 $\sigma$ )
$A_{B,\mathrm{sync}}$	$< 4.86$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.060}_{-0.057}$ (−0.2 $\sigma$ )	$\sigma_8(0.15)$	$0.751^{+0.014}_{-0.012}$ (+0.1 $\sigma$ )
$\alpha_{B,\mathrm{dust}}$	—	$z_{\mathrm{re}}$	$< 9.62$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	$0.478^{+0.013}_{-0.013}$ (−0.1 $\sigma$ )
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.24}$ (+0.0 $\sigma$ )	$10^9A_{\mathrm{s}}$	$2.114^{+0.087}_{-0.063}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	$0.665^{+0.013}_{-0.010}$ (+0.2 $\sigma$ )
$\alpha_{B,\mathrm{sync}}$	—	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.887^{+0.029}_{-0.029}$ (+0.1 $\sigma$ )	$f\sigma_8(0.51)$	$0.476^{+0.012}_{-0.011}$ (−0.1 $\sigma$ )
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.68}_{-0.73}$ (+0.0 $\sigma$ )	$D_{40}$	$1227^{+48}_{-48}$ (−0.2 $\sigma$ )	$\sigma_8(0.51)$	$0.622^{+0.012}_{-0.0096}$ (+0.2 $\sigma$ )
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.354$ (−0.0 $\sigma$ )	$D_{220}$	$5731^{+100}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.61)$	$0.471^{+0.011}_{-0.010}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	$2542^{+35}_{-35}$ (+0.3 $\sigma$ )	$\sigma_8(0.61)$	$0.592^{+0.011}_{-0.0091}$ (+0.2 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{1420}$	$816^{+13}_{-13}$ (+0.4 $\sigma$ )	$f\sigma_8(2.33)$	$0.2981^{+0.0059}_{-0.0046}$ (+0.3 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$230.1^{+4.7}_{-4.7}$ (+0.5 $\sigma$ )	$\sigma_8(2.33)$	$0.3072^{+0.0065}_{-0.0049}$ (+0.3 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$ (−0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	$0.986^{+0.055}_{-0.055}$ (+0.3 $\sigma$ )	$r_{0.002}$	$< 0.0845$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$ (−0.3 $\sigma$ )	$Y_{\mathrm{P}}$	$0.24541^{+0.00015}_{-0.00016}$ (+0.9 $\sigma$ )	$r_{0.01}$	$< 0.0841$ (+0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00015}_{-0.00016}$ (+0.9 $\sigma$ )	$\ln(10^{10}A_{\mathrm{t}})$	$-0.8^{+1.6}_{-3.4}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	$2.580^{+0.073}_{-0.070}$ (−0.9 $\sigma$ )	$r_{10}$	$< 0.0440$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.795^{+0.059}_{-0.059}$ (−0.8 $\sigma$ )	$10^9A_{\mathrm{t}}$	$< 0.183$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.6}_{-4.7}$ (−0.0 $\sigma$ )	$z_*$	$1089.90^{+0.67}_{-0.66}$ (−0.8 $\sigma$ )	$10^9A_{\mathrm{t}}e^{-2\tau}$	$< 0.163$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dust}TT}$	$11.0^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$r_*$	$144.37^{+0.72}_{-0.69}$ (−0.3 $\sigma$ )	$f_{2000}^{143}$	$9.6^{+3.3}_{-1.3}$ (−7.0 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.7^{+8.5}_{-8.5}$ (+0.1 $\sigma$ )	$100\theta_*$	$1.04109^{+0.00077}_{-0.00077}$ (+0.2 $\sigma$ )	$f_{2000}^{143\times 217}$	$739.6^{+8.7}_{-4.7}$ (+316.6 $\sigma$ )
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.867^{+0.067}_{-0.064}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	$397.3^{+7.1}_{-1.7}$ (+140.4 $\sigma$ )
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.098}_{-0.095}$	$z_{\mathrm{drag}}$	$1060.02^{+0.79}_{-0.81}$ (+1.0 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	$23.0$ ( $\nu$ : 1.5) (+12.4 $\sigma$ )
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.076}$	$r_{\mathrm{drag}}$	$147.02^{+0.72}_{-0.70}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{BKPLANCK}}^2$	$2360.2$ ( $\nu$ : 16.9) (+616.8 $\sigma$ )
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$k_{\mathrm{D}}$	$0.14097^{+0.00081}_{-0.00082}$ (+0.7 $\sigma$ )	$\chi_{\mathrm{small}}^2$	$13.2$ ( $\nu$ : 11.7) (−223.6 $\sigma$ )
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$100\theta_{\mathrm{D}}$	$0.16071^{+0.00048}_{-0.00047}$ (−1.0 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$31.0$ ( $\nu$ : 4.8) (+3.4 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.20}$	$z_{\mathrm{eq}}$	$3407^{+69}_{-71}$ (+0.0 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	$33.3$ ( $\nu$ : 2.3) (−133.7 $\sigma$ )
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.69}_{-0.69}$	$k_{\mathrm{eq}}$	$0.01040^{+0.00021}_{-0.00022}$ (+0.0 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$107.9$ ( $\nu$ : 2.0) (+24.6 $\sigma$ )
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.813^{+0.013}_{-0.013}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$3529.6$ ( $\nu$ : 21.1) (+254.0 $\sigma$ )
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4490^{+0.0069}_{-0.0065}$ (+0.0 $\sigma$ )		
$H_0$	$67.3^{+1.4}_{-1.4}$ (+0.4 $\sigma$ )	$H(0.15)$	$72.7^{+1.2}_{-1.2}$ (+0.4 $\sigma$ )		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3542.82; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.88; R - 1 = 0.00386$$



## 15.60 base\_nrun\_r\_plikHM\_TTTEE\_lowl\_lowE\_BK15\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02245^{+0.00036}_{-0.00036}$ (+0.9 $\sigma$ )	$\Omega_{\mathrm{m}}$	$0.311^{+0.015}_{-0.015}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1528^{+19}_{-19}$ (−0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1194^{+0.0024}_{-0.0025}$ (+0.2 $\sigma$ )	$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0023}_{-0.0023}$ (+0.4 $\sigma$ )	$H(0.51)$	$89.78^{+0.58}_{-0.56}$ (+0.4 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.04100^{+0.00074}_{-0.00073}$ (+0.0 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	$0.09642^{+0.00075}_{-0.00079}$ (+0.8 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1980^{+22}_{-22}$ (−0.3 $\sigma$ )
$\tau$	$0.059^{+0.019}_{-0.016}$ (+0.2 $\sigma$ )	$\sigma_8$	$0.812^{+0.016}_{-0.014}$ (+0.2 $\sigma$ )	$H(0.61)$	$95.40^{+0.48}_{-0.46}$ (+0.5 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.054^{+0.041}_{-0.032}$ (+0.3 $\sigma$ )	$S_8$	$0.827^{+0.027}_{-0.026}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2304^{+24}_{-24}$ (−0.3 $\sigma$ )
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )	$H(2.33)$	$236.3^{+1.5}_{-1.5}$ (+0.4 $\sigma$ )
$\mathrm{d}n_{\mathrm{s}}/\mathrm{d}\ln k$	$-0.007^{+0.018}_{-0.018}$ (−0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.014}_{-0.014}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5758^{+23}_{-23}$ (−0.6 $\sigma$ )
$r$	$< 0.0869$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.987^{+0.021}_{-0.020}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	$0.458^{+0.014}_{-0.013}$ (+0.1 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0065}$ (+0.0 $\sigma$ )	$r_{\mathrm{drag}}h$	$99.6^{+1.9}_{-1.8}$ (−0.0 $\sigma$ )	$\sigma_8(0.15)$	$0.750^{+0.015}_{-0.012}$ (+0.2 $\sigma$ )
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.1}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.057}_{-0.053}$ (+0.0 $\sigma$ )	$f\sigma_8(0.38)$	$0.476^{+0.012}_{-0.011}$ (+0.1 $\sigma$ )
$A_{B,\mathrm{sync}}$	$< 4.84$ (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	$< 9.78$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	$0.665^{+0.013}_{-0.011}$ (+0.2 $\sigma$ )
$\alpha_{B,\mathrm{dust}}$	—	$10^9A_{\mathrm{s}}$	$2.119^{+0.088}_{-0.067}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	$0.475^{+0.011}_{-0.010}$ (+0.2 $\sigma$ )
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.24}_{-0.24}$ (+0.0 $\sigma$ )	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.885^{+0.028}_{-0.028}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	$0.622^{+0.012}_{-0.0099}$ (+0.2 $\sigma$ )
$\alpha_{B,\mathrm{sync}}$	—	$D_{40}$	$1225^{+47}_{-47}$ (−0.1 $\sigma$ )	$f\sigma_8(0.61)$	$0.4696^{+0.0099}_{-0.0092}$ (+0.2 $\sigma$ )
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.69}_{-0.72}$ (+0.0 $\sigma$ )	$D_{220}$	$5737^{+99}_{-98}$ (+0.3 $\sigma$ )	$\sigma_8(0.61)$	$0.592^{+0.012}_{-0.0095}$ (+0.2 $\sigma$ )
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.339$ (−0.0 $\sigma$ )	$D_{810}$	$2543^{+34}_{-35}$ (+0.2 $\sigma$ )	$f\sigma_8(2.33)$	$0.2985^{+0.0060}_{-0.0048}$ (+0.2 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	$817^{+12}_{-13}$ (+0.4 $\sigma$ )	$\sigma_8(2.33)$	$0.3078^{+0.0065}_{-0.0051}$ (+0.2 $\sigma$ )
$\xi^{\mathrm{tSZ}} \times \mathrm{CIB}$	—	$D_{2000}$	$230.5^{+4.5}_{-4.6}$ (+0.4 $\sigma$ )	$r_{0.002}$	$< 0.0850$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.987^{+0.057}_{-0.055}$ (+0.2 $\sigma$ )	$r_{0.01}$	$< 0.0848$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$ (−0.1 $\sigma$ )	$Y_{\mathrm{P}}$	$0.24543^{+0.00014}_{-0.00015}$ (+0.9 $\sigma$ )	$\ln(10^{10}A_{\mathrm{t}})$	$-0.7^{+1.6}_{-3.4}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$ (−0.3 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24675^{+0.00014}_{-0.00015}$ (+0.9 $\sigma$ )	$r_{10}$	$< 0.0441$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	$2.571^{+0.068}_{-0.064}$ (−0.9 $\sigma$ )	$10^9A_{\mathrm{t}}$	$< 0.185$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$\mathrm{Age}/\mathrm{Gyr}$	$13.784^{+0.052}_{-0.051}$ (−0.6 $\sigma$ )	$10^9A_{\mathrm{t}}e^{-2\tau}$	$< 0.164$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$z_*$	$1089.77^{+0.57}_{-0.56}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	$31^{+8}_{-8}$ (−0.3 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.6}_{-4.7}$ (+0.0 $\sigma$ )	$r_*$	$144.52^{+0.59}_{-0.58}$ (−0.6 $\sigma$ )	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.7}$ (+0.1 $\sigma$ )	$100\theta_*$	$1.04118^{+0.00072}_{-0.00072}$ (−0.0 $\sigma$ )	$f_{2000}^{217}$	$107.7^{+5.3}_{-5.2}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.7^{+8.4}_{-8.7}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.880^{+0.057}_{-0.056}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	$9.31$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_{\mathrm{drag}}$	$1060.08^{+0.80}_{-0.80}$ (+0.9 $\sigma$ )	$\chi_{\mathrm{BKPLANCK}}^2$	$739.8$ ( $\nu$ : 3.4) (+0.0 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.098}_{-0.094}$	$r_{\mathrm{drag}}$	$147.15^{+0.62}_{-0.61}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{simall}}^2$	$397.7$ ( $\nu$ : 2.3) (+0.1 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.078}_{-0.077}$	$k_{\mathrm{D}}$	$0.14086^{+0.00075}_{-0.00077}$ (+0.9 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$22.8$ ( $\nu$ : 1.4) (−0.2 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$100\theta_{\mathrm{D}}$	$0.16068^{+0.00046}_{-0.00046}$ (−0.9 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	$2360.1$ ( $\nu$ : 16.8) (+284.8 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$z_{\mathrm{eq}}$	$3390^{+55}_{-56}$ (+0.4 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	$0.059$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.20}_{-0.20}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00017}_{-0.00017}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$1.21$ ( $\nu$ : 0.1) (−0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	$2.07^{+0.69}_{-0.70}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.011}_{-0.010}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$5.0$ ( $\nu$ : 1.0) (+0.0 $\sigma$ )
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4506^{+0.0055}_{-0.0052}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$13.2$ ( $\nu$ : 11.9) (+1.1 $\sigma$ )
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$H(0.15)$	$72.94^{+0.95}_{-0.93}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$3529.7$ ( $\nu$ : 20.6) (+251.7 $\sigma$ )
$H_0$	$67.7^{+1.1}_{-1.1}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$640.8^{+9.3}_{-9.3}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$6.2$ ( $\nu$ : 0.6) (−0.0 $\sigma$ )
$\Omega_{\Lambda}$	$0.689^{+0.015}_{-0.015}$ (+0.0 $\sigma$ )	$H(0.38)$	$83.06^{+0.71}_{-0.69}$ (+0.3 $\sigma$ )		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3549.18; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.61; R - 1 = 0.00588$$



## 16 omegak

### 16.1 base\_omegak\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02261	$0.02255^{+0.00070}_{-0.00068}$	$\sigma_8 \Omega_m^{0.5}$	0.553	$0.552^{+0.085}_{-0.086}$	$100\theta_{s,eq}$	0.4557	$0.455^{+0.013}_{-0.013}$
$\Omega_c h^2$	0.1171	$0.1173^{+0.0060}_{-0.0056}$	$\sigma_8 \Omega_m^{0.25}$	0.6506	$0.649^{+0.035}_{-0.044}$	$H(0.15)$	58.2	$58^{+10}_{-10}$
$100\theta_{MC}$	1.04130	$1.0413^{+0.0013}_{-0.0013}$	$\sigma_8/h^{0.5}$	1.063	$1.061^{+0.053}_{-0.069}$	$D_M(0.15)$	819	$820^{+200}_{-100}$
$\tau$	0.0493	$0.048^{+0.021}_{-0.026}$	$r_{drag}h$	76.7	$77^{+20}_{-20}$	$H(0.38)$	69.6	$70^{+10}_{-8}$
$\Omega_K$	-0.055	$-0.056^{+0.050}_{-0.079}$	$\langle d^2 \rangle^{1/2}$	2.678	$2.68^{+0.20}_{-0.22}$	$D_M(0.38)$	1902	$1902^{+300}_{-300}$
$\ln(10^{10} A_s)$	3.027	$3.026^{+0.045}_{-0.056}$	$z_{re}$	6.91	$6.8^{+2.1}_{-3.1}$	$H(0.51)$	77.1	$77^{+10}_{-8}$
$n_s$	0.9744	$0.972^{+0.017}_{-0.017}$	$10^9 A_s$	2.065	$2.061^{+0.095}_{-0.11}$	$D_M(0.51)$	2432	$2431^{+400}_{-400}$
$y_{cal}$	0.9999	$1.0000^{+0.0066}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	1.8706	$1.871^{+0.036}_{-0.036}$	$H(0.61)$	83.2	$83^{+9}_{-8}$
$A_{217}^{CIB}$	42.4	$45^{+20}_{-20}$	$D_{40}$	1197.5	$1203^{+44}_{-44}$	$D_M(0.61)$	2805	$2803^{+400}_{-400}$
$\xi^{tSZ \times CIB}$	0.999	—	$D_{220}$	5740	$5745^{+110}_{-110}$	$H(2.33)$	227.3	$227.6^{+7.9}_{-7.4}$
$A_{143}^{tSZ}$	6.81	$> 1.11$	$D_{810}$	2531.7	$2529^{+36}_{-35}$	$D_M(2.33)$	6471	$6463^{+580}_{-570}$
$A_{100}^{PS}$	236	$250^{+70}_{-70}$	$D_{1420}$	815.7	$814^{+13}_{-13}$	$f\sigma_8(0.15)$	0.539	$0.537^{+0.055}_{-0.069}$
$A_{143}^{PS}$	48.6	$42^{+20}_{-20}$	$D_{2000}$	233.3	$232.3^{+5.3}_{-5.1}$	$\sigma_8(0.15)$	0.691	$0.690^{+0.054}_{-0.066}$
$A_{143 \times 217}^{PS}$	56.2	$40^{+20}_{-20}$	$n_{s,0.002}$	0.9744	$0.972^{+0.017}_{-0.017}$	$f\sigma_8(0.38)$	0.5139	$0.512^{+0.021}_{-0.033}$
$A_{217}^{PS}$	122.6	$114^{+30}_{-30}$	$Y_P$	0.245485	$0.24546^{+0.00031}_{-0.00029}$	$\sigma_8(0.38)$	0.595	$0.594^{+0.060}_{-0.069}$
$A^{kSZ}$	0.00	$< 8.95$	$Y_P^{BBN}$	0.246811	$0.24679^{+0.00031}_{-0.00029}$	$f\sigma_8(0.51)$	0.4928	$0.491^{+0.017}_{-0.020}$
$A_{100}^{dustTT}$	8.96	$9.0^{+4.7}_{-4.9}$	$10^5 D/H$	2.542	$2.55^{+0.13}_{-0.12}$	$\sigma_8(0.51)$	0.550	$0.550^{+0.062}_{-0.068}$
$A_{143}^{dustTT}$	10.62	$10.5^{+4.6}_{-4.7}$	Age/Gyr	15.64	$15.6^{+1.6}_{-1.5}$	$f\sigma_8(0.61)$	0.4753	$0.473^{+0.017}_{-0.023}$
$A_{143 \times 217}^{dustTT}$	19.8	$18.0^{+8.2}_{-8.3}$	$z_*$	1089.36	$1089.5^{+1.3}_{-1.2}$	$\sigma_8(0.61)$	0.519	$0.519^{+0.062}_{-0.067}$
$A_{217}^{dustTT}$	96.1	$94^{+20}_{-20}$	$r_*$	145.00	$145.0^{+1.2}_{-1.3}$	$f\sigma_8(2.33)$	0.2572	$0.257^{+0.035}_{-0.036}$
$c_{100}$	0.99971	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04146	$1.0414^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	0.2561	$0.257^{+0.042}_{-0.041}$
$c_{217}$	0.99815	$0.9982^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.922	$13.92^{+0.11}_{-0.12}$	$f_{2000}^{143}$	25.2	$27^{+8}_{-8}$
$H_0$	51.9	$52^{+10}_{-10}$	$z_{drag}$	1060.28	$1060.2^{+1.3}_{-1.4}$	$f_{2000}^{143 \times 217}$	29.1	$30^{+6}_{-6}$
$\Omega_\Lambda$	0.535	$0.53^{+0.14}_{-0.19}$	$r_{drag}$	147.59	$147.6^{+1.2}_{-1.2}$	$f_{2000}^{217}$	103.8	$104.9^{+5.6}_{-5.5}$
$\Omega_m$	0.520	$0.53^{+0.27}_{-0.18}$	$k_D$	0.14052	$0.1404^{+0.0013}_{-0.0013}$	$\chi_{simall}^2$	395.52	$396.8 (\nu: 1.5)$
$\Omega_m h^2$	0.1404	$0.1405^{+0.0056}_{-0.0053}$	$100\theta_D$	0.16058	$0.16066^{+0.00079}_{-0.00074}$	$\chi_{lowl}^2$	20.97	$21.39 (\nu: 0.2)$
$\Omega_m h^3$	0.0729	$0.073^{+0.018}_{-0.016}$	$z_{eq}$	3339	$3342^{+130}_{-130}$	$\chi_{plik}^2$	752.3	$766.6 (\nu: 14.8)$
$\sigma_8$	0.766	$0.765^{+0.047}_{-0.057}$	$k_{eq}$	0.010191	$0.01020^{+0.00041}_{-0.00039}$	$\chi_{prior}^2$	1.0	$7.1 (\nu: 6.3)$
$S_8$	1.009	$1.01^{+0.15}_{-0.16}$	$100\theta_{eq}$	0.8257	$0.825^{+0.026}_{-0.025}$	$\chi_{CMB}^2$	1168.8	$1184.8 (\nu: 16.3)$

Best-fit  $\chi_{eff}^2 = 1169.83$ ;  $\bar{\chi}_{eff}^2 = 1191.91$ ;  $R - 1 = 0.01634$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.52 commander\_dx12\_v3.2\_29: 20.97 plik\_rd12\_HM\_v22\_TT: 752.34



## 16.2 base\_omegak\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02255^{+0.00069}_{-0.00066}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.549^{+0.083}_{-0.085}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.013}_{-0.013}$
$\Omega_{\mathrm{c}} h^2$	$0.1173^{+0.0062}_{-0.0056}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.650^{+0.034}_{-0.044}$	$H(0.15)$	$59^{+10}_{-10}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0013}_{-0.0013}$	$\sigma_8/h^{0.5}$	$1.062^{+0.053}_{-0.068}$	$D_{\mathrm{M}}(0.15)$	$811^{+200}_{-100}$
$\tau$	$0.053^{+0.016}_{-0.010}$	$r_{\mathrm{drag}} h$	$78^{+20}_{-20}$	$H(0.38)$	$70^{+10}_{-9}$
$\Omega_K$	$-0.053^{+0.048}_{-0.076}$	$\langle d^2 \rangle^{1/2}$	$2.68^{+0.20}_{-0.22}$	$D_{\mathrm{M}}(0.38)$	$1885^{+300}_{-300}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.035^{+0.040}_{-0.025}$	$z_{\mathrm{re}}$	$< 8.87$	$H(0.51)$	$78^{+10}_{-8}$
$n_{\mathrm{s}}$	$0.972^{+0.017}_{-0.016}$	$10^9 A_{\mathrm{s}}$	$2.080^{+0.085}_{-0.052}$	$D_{\mathrm{M}}(0.51)$	$2411^{+400}_{-400}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0063}_{-0.0063}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.871^{+0.036}_{-0.036}$	$H(0.61)$	$84^{+9}_{-8}$
$A_{217}^{\mathrm{CIB}}$	$45^{+20}_{-20}$	$D_{40}$	$1204^{+44}_{-44}$	$D_{\mathrm{M}}(0.61)$	$2781^{+400}_{-400}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{220}$	$5744^{+110}_{-110}$	$H(2.33)$	$227.8^{+7.8}_{-7.4}$
$A_{143}^{\mathrm{tSZ}}$	$5.6^{+4.4}_{-4.5}$	$D_{810}$	$2529^{+35}_{-36}$	$D_{\mathrm{M}}(2.33)$	$6435^{+590}_{-570}$
$A_{100}^{\mathrm{PS}}$	$250^{+70}_{-70}$	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.15)$	$0.536^{+0.054}_{-0.069}$
$A_{143}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$D_{2000}$	$232.4^{+5.2}_{-5.4}$	$\sigma_8(0.15)$	$0.696^{+0.050}_{-0.061}$
$A_{143 \times 217}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.972^{+0.017}_{-0.016}$	$f\sigma_8(0.38)$	$0.513^{+0.021}_{-0.033}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$Y_{\mathrm{P}}$	$0.24546^{+0.00030}_{-0.00028}$	$\sigma_8(0.38)$	$0.600^{+0.057}_{-0.066}$
$A^{\mathrm{kSZ}}$	$< 8.91$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24679^{+0.00030}_{-0.00028}$	$f\sigma_8(0.51)$	$0.493^{+0.016}_{-0.019}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.6}_{-4.8}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.55^{+0.12}_{-0.12}$	$\sigma_8(0.51)$	$0.555^{+0.058}_{-0.066}$
$A_{143}^{\mathrm{dust}TT}$	$10.5^{+4.5}_{-4.8}$	$\mathrm{Age}/\mathrm{Gyr}$	$15.5^{+1.6}_{-1.5}$	$f\sigma_8(0.61)$	$0.476^{+0.016}_{-0.018}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.0^{+8.2}_{-8.4}$	$z_*$	$1089.5^{+1.3}_{-1.2}$	$\sigma_8(0.61)$	$0.524^{+0.058}_{-0.065}$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$r_*$	$145.0^{+1.2}_{-1.3}$	$f\sigma_8(2.33)$	$0.260^{+0.033}_{-0.036}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0414^{+0.0012}_{-0.0013}$	$\sigma_8(2.33)$	$0.260^{+0.041}_{-0.040}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.92^{+0.11}_{-0.12}$	$f_{2000}^{143}$	$27^{+8}_{-8}$
$H_0$	$53^{+10}_{-10}$	$z_{\mathrm{drag}}$	$1060.2^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6}$
$\Omega_{\Lambda}$	$0.54^{+0.13}_{-0.17}$	$r_{\mathrm{drag}}$	$147.6^{+1.2}_{-1.3}$	$f_{2000}^{217}$	$104.9^{+5.5}_{-5.6}$
$\Omega_{\mathrm{m}}$	$0.51^{+0.25}_{-0.18}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0014}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.9)$
$\Omega_{\mathrm{m}} h^2$	$0.1405^{+0.0058}_{-0.0053}$	$100\theta_{\mathrm{D}}$	$0.16066^{+0.00074}_{-0.00068}$	$\chi_{\mathrm{lowl}}^2$	$21.39 (\nu: 0.3)$
$\Omega_{\mathrm{m}} h^3$	$0.074^{+0.018}_{-0.016}$	$z_{\mathrm{eq}}$	$3341^{+140}_{-130}$	$\chi_{\mathrm{plik}}^2$	$766.6 (\nu: 15.0)$
$\sigma_8$	$0.770^{+0.043}_{-0.052}$	$k_{\mathrm{eq}}$	$0.01020^{+0.00042}_{-0.00038}$	$\chi_{\mathrm{prior}}^2$	$7.1 (\nu: 6.3)$
$S_8$	$1.00^{+0.15}_{-0.16}$	$100\theta_{\mathrm{eq}}$	$0.825^{+0.025}_{-0.026}$	$\chi_{\mathrm{CMB}}^2$	$1184.4 (\nu: 16.1)$

$\bar{\chi}_{\mathrm{eff}}^2 = 1191.43$ ;  $R - 1 = 0.01578$



### 16.3 base\_omegak\_plikHM\_TTTEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022632	$0.02260^{+0.00045}_{-0.00043}$ (+0.2 $\sigma$ )	$\Omega_m h^2$	0.14120	$0.1413^{+0.0038}_{-0.0036}$ (+0.4 $\sigma$ )	$k_{\text{eq}}$	0.010251	$0.01026^{+0.00028}_{-0.00026}$ (+0.4 $\sigma$ )
$\Omega_c h^2$	0.11792	$0.1181^{+0.0040}_{-0.0039}$ (+0.3 $\sigma$ )	$\Omega_m h^3$	0.0764	$0.077^{+0.015}_{-0.013}$ (+0.5 $\sigma$ )	$100\theta_{\text{eq}}$	0.8221	$0.821^{+0.017}_{-0.017}$ (−0.4 $\sigma$ )
$100\theta_{\text{MC}}$	1.04119	$1.04116^{+0.00085}_{-0.00082}$ (−0.2 $\sigma$ )	$\sigma_8$	0.7750	$0.774^{+0.038}_{-0.043}$ (+0.5 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4538	$0.4534^{+0.0087}_{-0.0087}$ (−0.4 $\sigma$ )
$\tau$	0.0495	$0.049^{+0.022}_{-0.024}$ (+0.0 $\sigma$ )	$S_8$	0.983	$0.98^{+0.12}_{-0.12}$ (−0.4 $\sigma$ )	$H(0.15)$	60.2	$60^{+9}_{-8}$ (+0.5 $\sigma$ )
$\Omega_K$	−0.0438	$−0.044^{+0.037}_{-0.051}$ (+0.5 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.538	$0.537^{+0.067}_{-0.068}$ (−0.4 $\sigma$ )	$D_{\text{M}}(0.15)$	789	$788^{+100}_{-100}$ (−0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0304	$3.028^{+0.044}_{-0.050}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6460	$0.645^{+0.028}_{-0.033}$ (−0.3 $\sigma$ )	$H(0.38)$	71.5	$72^{+9}_{-7}$ (+0.5 $\sigma$ )
$n_s$	0.9724	$0.971^{+0.012}_{-0.013}$ (−0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	1.0538	$1.051^{+0.045}_{-0.054}$ (−0.4 $\sigma$ )	$D_{\text{M}}(0.38)$	1841	$1838^{+300}_{-200}$ (−0.5 $\sigma$ )
$y_{\text{cal}}$	1.0001	$0.9999^{+0.0065}_{-0.0066}$ (−0.0 $\sigma$ )	$r_{\text{drag}} h$	79.7	$80^{+10}_{-10}$ (+0.5 $\sigma$ )	$H(0.51)$	78.8	$79.1^{+8.1}_{-6.6}$ (+0.5 $\sigma$ )
$A_{217}^{\text{CIB}}$	42.1	$45^{+20}_{-20}$ (−0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.646	$2.64^{+0.16}_{-0.17}$ (−0.4 $\sigma$ )	$D_{\text{M}}(0.51)$	2358	$2355^{+300}_{-300}$ (−0.5 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	1.00	—	$z_{\text{re}}$	6.96	$6.9^{+2.2}_{-2.8}$ (+0.0 $\sigma$ )	$H(0.61)$	84.9	$85.2^{+7.8}_{-6.3}$ (+0.5 $\sigma$ )
$A_{143}^{\text{tSZ}}$	6.82	$> 1.43$ (+0.1 $\sigma$ )	$10^9 A_s$	2.071	$2.066^{+0.093}_{-0.10}$ (+0.1 $\sigma$ )	$D_{\text{M}}(0.61)$	2723	$2719^{+300}_{-300}$ (−0.5 $\sigma$ )
$A_{100}^{\text{PS}}$	238	$248^{+70}_{-70}$ (−0.1 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8754	$1.875^{+0.033}_{-0.031}$ (+0.3 $\sigma$ )	$H(2.33)$	228.9	$229.2^{+6.3}_{-5.5}$ (+0.5 $\sigma$ )
$A_{143}^{\text{PS}}$	48.5	$41^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{40}$	1204.9	$1208^{+39}_{-37}$ (+0.3 $\sigma$ )	$D_{\text{M}}(2.33)$	6357	$6346^{+440}_{-460}$ (−0.5 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	56.4	$41^{+20}_{-20}$ (+0.1 $\sigma$ )	$D_{220}$	5748	$5748^{+100}_{-99}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.529	$0.527^{+0.047}_{-0.055}$ (−0.4 $\sigma$ )
$A_{217}^{\text{PS}}$	123.6	$115^{+20}_{-30}$ (+0.1 $\sigma$ )	$D_{810}$	2535.4	$2532^{+36}_{-35}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7017	$0.701^{+0.044}_{-0.049}$ (+0.5 $\sigma$ )
$A^{\text{kSZ}}$	0.00	$< 8.54$ (−0.1 $\sigma$ )	$D_{1420}$	817.0	$815^{+12}_{-12}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.5110	$0.509^{+0.018}_{-0.027}$ (−0.3 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.77	$8.9^{+4.7}_{-4.6}$ (−0.0 $\sigma$ )	$D_{2000}$	233.33	$232.5^{+4.2}_{-4.2}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.607	$0.607^{+0.050}_{-0.053}$ (+0.5 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.68	$10.6^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9724	$0.971^{+0.012}_{-0.013}$ (−0.2 $\sigma$ )	$f\sigma_8(0.51)$	0.4928	$0.491^{+0.013}_{-0.015}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.7	$18.1^{+8.2}_{-8.4}$ (+0.0 $\sigma$ )	$Y_{\text{P}}$	0.245491	$0.24548^{+0.00020}_{-0.00017}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.562	$0.562^{+0.051}_{-0.053}$ (+0.5 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.6	$94^{+20}_{-20}$ (−0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.246818	$0.24681^{+0.00020}_{-0.00017}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4771	$0.476^{+0.012}_{-0.015}$ (+0.3 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.10}_{-0.095}$	$10^5 \text{D/H}$	2.539	$2.545^{+0.079}_{-0.081}$ (−0.2 $\sigma$ )	$\sigma_8(0.61)$	0.531	$0.531^{+0.051}_{-0.052}$ (+0.5 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.134^{+0.076}_{-0.075}$	Age/Gyr	15.33	$15.3^{+1.2}_{-1.2}$ (−0.5 $\sigma$ )	$f\sigma_8(2.33)$	0.2638	$0.264^{+0.028}_{-0.029}$ (+0.5 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.481	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.41	$1089.47^{+0.80}_{-0.80}$ (+0.0 $\sigma$ )	$\sigma_8(2.33)$	0.2639	$0.264^{+0.035}_{-0.033}$ (+0.5 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$r_*$	144.77	$144.75^{+0.83}_{-0.84}$ (−0.5 $\sigma$ )	$f_{2000}^{143}$	25.1	$26^{+8}_{-7}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.661	$0.66^{+0.21}_{-0.21}$	$100\theta_*$	1.04134	$1.04132^{+0.00083}_{-0.00081}$ (−0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	29.2	$30^{+5}_{-5}$ (−0.1 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.05	$2.06^{+0.69}_{-0.67}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.902	$13.901^{+0.075}_{-0.078}$ (−0.5 $\sigma$ )	$f_{2000}^{217}$	103.94	$104.7^{+5.0}_{-5.0}$ (−0.1 $\sigma$ )
$c_{100}$	0.99977	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1060.39	$1060.33^{+0.87}_{-0.81}$ (+0.3 $\sigma$ )	$\chi_{\text{small}}^2$	395.55	$396.7$ ( $\nu$ : 1.2) (−0.1 $\sigma$ )
$c_{217}$	0.99808	$0.9981^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	147.35	$147.35^{+0.78}_{-0.79}$ (−0.6 $\sigma$ )	$\chi_{\text{lowl}}^2$	21.16	$21.51$ ( $\nu$ : 0.2) (+0.2 $\sigma$ )
$H_0$	54.1	$54^{+10}_{-9}$ (+0.5 $\sigma$ )	$k_{\text{D}}$	0.14079	$0.14077^{+0.00080}_{-0.00078}$ (+0.6 $\sigma$ )	$\chi_{\text{plik}}^2$	2336.5	$2353.2$ ( $\nu$ : 16.0) (+291.4 $\sigma$ )
$\Omega_{\Lambda}$	0.561	$0.56^{+0.11}_{-0.13}$ (+0.5 $\sigma$ )	$100\theta_{\text{D}}$	0.160509	$0.16055^{+0.00046}_{-0.00048}$ (−0.4 $\sigma$ )	$\chi_{\text{prior}}^2$	1.3	$11.2$ ( $\nu$ : 9.6) (+1.2 $\sigma$ )
$\Omega_{\text{m}}$	0.483	$0.48^{+0.18}_{-0.14}$ (−0.5 $\sigma$ )	$z_{\text{eq}}$	3359	$3362^{+90}_{-86}$ (+0.4 $\sigma$ )	$\chi_{\text{CMB}}^2$	2753.2	$2771.4$ ( $\nu$ : 17.5) (+277.9 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 2754.51$ ;  $\Delta\chi_{\text{eff}}^2 = 1584.68$ ;  $\bar{\chi}_{\text{eff}}^2 = 2782.60$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1590.69$ ;  $R - 1 = 0.01257$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.55 ( $\Delta$  0.03) commander\_dx12\_v3.2.29: 21.16 ( $\Delta$  0.20) plik\_rd12\_HM\_v22b\_TTTEE: 2336.53



## 16.4 base\_omegak\_plikHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02260^{+0.00045}_{-0.00043} \quad (+0.2\sigma)$	$\Omega_{\text{m}}h^2$	$0.1413^{+0.0037}_{-0.0035} \quad (+0.4\sigma)$	$k_{\text{eq}}$	$0.01026^{+0.00027}_{-0.00026} \quad (+0.4\sigma)$
$\Omega_{\text{c}}h^2$	$0.1181^{+0.0040}_{-0.0038} \quad (+0.4\sigma)$	$\Omega_{\text{m}}h^3$	$0.078^{+0.015}_{-0.013} \quad (+0.6\sigma)$	$100\theta_{\text{eq}}$	$0.822^{+0.017}_{-0.017} \quad (-0.4\sigma)$
$100\theta_{\text{MC}}$	$1.04116^{+0.00085}_{-0.00084} \quad (-0.2\sigma)$	$\sigma_8$	$0.779^{+0.034}_{-0.035} \quad (+0.5\sigma)$	$100\theta_{\text{s,eq}}$	$0.4535^{+0.0085}_{-0.0086} \quad (-0.4\sigma)$
$\tau$	$0.0528^{+0.017}_{-0.0093} \quad (-0.0\sigma)$	$S_8$	$0.97^{+0.12}_{-0.12} \quad (-0.5\sigma)$	$H(0.15)$	$61^{+9}_{-8} \quad (+0.5\sigma)$
$\Omega_K$	$-0.041^{+0.035}_{-0.048} \quad (+0.5\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.534^{+0.066}_{-0.066} \quad (-0.5\sigma)$	$D_{\text{M}}(0.15)$	$779^{+100}_{-100} \quad (-0.5\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.037^{+0.038}_{-0.026} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.645^{+0.029}_{-0.033} \quad (-0.4\sigma)$	$H(0.38)$	$72^{+8}_{-7} \quad (+0.5\sigma)$
$n_{\text{s}}$	$0.971^{+0.012}_{-0.012} \quad (-0.2\sigma)$	$\sigma_8/h^{0.5}$	$1.051^{+0.046}_{-0.054} \quad (-0.4\sigma)$	$D_{\text{M}}(0.38)$	$1819^{+200}_{-200} \quad (-0.5\sigma)$
$y_{\text{cal}}$	$0.99996^{+0.0065}_{-0.0066} \quad (-0.0\sigma)$	$r_{\text{drag}}h$	$81^{+10}_{-10} \quad (+0.5\sigma)$	$H(0.51)$	$79.6^{+7.9}_{-6.5} \quad (+0.6\sigma)$
$A_{217}^{\text{CIB}}$	$45^{+20}_{-20} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.64^{+0.16}_{-0.16} \quad (-0.5\sigma)$	$D_{\text{M}}(0.51)$	$2332^{+300}_{-300} \quad (-0.5\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 8.92 \quad (-0.0\sigma)$	$H(0.61)$	$85.6^{+7.6}_{-6.2} \quad (+0.6\sigma)$
$A_{143}^{\text{tSZ}}$	$> 1.42 \quad (+0.1\sigma)$	$10^9 A_{\text{s}}$	$2.083^{+0.081}_{-0.053} \quad (+0.1\sigma)$	$D_{\text{M}}(0.61)$	$2694^{+300}_{-300} \quad (-0.5\sigma)$
$A_{100}^{\text{PS}}$	$248^{+70}_{-70} \quad (-0.1\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.874^{+0.033}_{-0.031} \quad (+0.3\sigma)$	$H(2.33)$	$229.5^{+6.3}_{-5.4} \quad (+0.6\sigma)$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20} \quad (-0.1\sigma)$	$D_{40}$	$1209^{+39}_{-37} \quad (+0.3\sigma)$	$D_{\text{M}}(2.33)$	$6314^{+430}_{-450} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$41^{+20}_{-20} \quad (+0.1\sigma)$	$D_{220}$	$5748^{+100}_{-100} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.525^{+0.047}_{-0.055} \quad (-0.5\sigma)$
$A_{217}^{\text{PS}}$	$116^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2532^{+37}_{-35} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.707^{+0.041}_{-0.042} \quad (+0.5\sigma)$
$A^{\text{kSZ}}$	$< 8.60 \quad (-0.1\sigma)$	$D_{1420}$	$815^{+12}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.509^{+0.019}_{-0.027} \quad (-0.3\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.8}_{-4.6} \quad (-0.0\sigma)$	$D_{2000}$	$232.6^{+4.1}_{-4.2} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.612^{+0.046}_{-0.047} \quad (+0.5\sigma)$
$A_{143}^{\text{dustTT}}$	$10.6^{+4.6}_{-4.5} \quad (+0.0\sigma)$	$n_{\text{s},0.002}$	$0.971^{+0.012}_{-0.012} \quad (-0.2\sigma)$	$f\sigma_8(0.51)$	$0.492^{+0.013}_{-0.016} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.1^{+8.3}_{-8.3} \quad (+0.0\sigma)$	$Y_{\text{P}}$	$0.24548^{+0.00019}_{-0.00017} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.567^{+0.047}_{-0.047} \quad (+0.5\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (-0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24681^{+0.00019}_{-0.00017} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.477^{+0.012}_{-0.011} \quad (+0.3\sigma)$
$A_{100}^{\text{dustTE}}$	$0.113^{+0.099}_{-0.094}$	$10^5 \text{D}/\text{H}$	$2.544^{+0.079}_{-0.080} \quad (-0.2\sigma)$	$\sigma_8(0.61)$	$0.536^{+0.047}_{-0.047} \quad (+0.5\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.077}_{-0.074}$	$\text{Age}/\text{Gyr}$	$15.2^{+1.2}_{-1.2} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.267^{+0.026}_{-0.026} \quad (+0.5\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.46^{+0.80}_{-0.79} \quad (+0.0\sigma)$	$\sigma_8(2.33)$	$0.268^{+0.033}_{-0.030} \quad (+0.5\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$r_*$	$144.76^{+0.81}_{-0.83} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$26^{+8}_{-7} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.20}$	$100\theta_*$	$1.04132^{+0.00083}_{-0.00082} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+5}_{-5} \quad (-0.1\sigma)$
$A_{217}^{\text{dustTE}}$	$2.06^{+0.69}_{-0.67}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.901^{+0.074}_{-0.076} \quad (-0.5\sigma)$	$f_{2000}^{217}$	$104.7^{+4.9}_{-5.1} \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1060.33^{+0.86}_{-0.82} \quad (+0.3\sigma)$	$\chi_{\text{small}}^2$	$396.3 \quad (\nu: 0.9) \quad (-0.0\sigma)$
$c_{217}$	$0.9981^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\text{drag}}$	$147.35^{+0.78}_{-0.79} \quad (-0.6\sigma)$	$\chi_{\text{lowl}}^2$	$21.53 \quad (\nu: 0.2) \quad (+0.2\sigma)$
$H_0$	$55^{+10}_{-8} \quad (+0.5\sigma)$	$k_{\text{D}}$	$0.14077^{+0.00080}_{-0.00077} \quad (+0.6\sigma)$	$\chi_{\text{plik}}^2$	$2353.2 \quad (\nu: 16.0) \quad (+289.4\sigma)$
$\Omega_{\Lambda}$	$0.569^{+0.099}_{-0.12} \quad (+0.5\sigma)$	$100\theta_{\text{D}}$	$0.16055^{+0.00047}_{-0.00048} \quad (-0.4\sigma)$	$\chi_{\text{prior}}^2$	$11.2 \quad (\nu: 9.7) \quad (+1.2\sigma)$
$\Omega_{\text{m}}$	$0.47^{+0.17}_{-0.13} \quad (-0.5\sigma)$	$z_{\text{eq}}$	$3361^{+88}_{-85} \quad (+0.4\sigma)$	$\chi_{\text{CMB}}^2$	$2771.0 \quad (\nu: 17.1) \quad (+279.9\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 2782.22; \Delta\bar{\chi}_{\text{eff}}^2 = 1590.79; R - 1 = 0.01621$$



## 16.5 base\_omegak\_CamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02258	$0.02258^{+0.00077}_{-0.00071}$	$\sigma_8 \Omega_m^{0.5}$	0.555	$0.554^{+0.087}_{-0.087}$	$H(0.15)$	58.1	$58^{+10}_{-10}$
$\Omega_c h^2$	0.1175	$0.1173^{+0.0058}_{-0.0057}$	$\sigma_8 \Omega_m^{0.25}$	0.6521	$0.650^{+0.035}_{-0.043}$	$D_M(0.15)$	820	$823^{+200}_{-200}$
$100\theta_{MC}$	1.04131	$1.0414^{+0.0013}_{-0.0013}$	$\sigma_8/h^{0.5}$	1.065	$1.062^{+0.054}_{-0.069}$	$H(0.38)$	69.6	$70^{+10}_{-9}$
$\tau$	0.0492	$0.049^{+0.020}_{-0.025}$	$r_{drag} h$	76.5	$77^{+20}_{-20}$	$D_M(0.38)$	1904	$1909^{+400}_{-300}$
$\Omega_K$	-0.055	$-0.058^{+0.052}_{-0.082}$	$\langle d^2 \rangle^{1/2}$	2.682	$2.68^{+0.21}_{-0.22}$	$H(0.51)$	77.1	$77^{+10}_{-8}$
$\ln(10^{10} A_s)$	3.0265	$3.026^{+0.042}_{-0.052}$	$z_{re}$	6.91	$6.9^{+2.0}_{-2.9}$	$D_M(0.51)$	2435	$2439^{+400}_{-400}$
$n_s$	0.9738	$0.973^{+0.018}_{-0.016}$	$10^9 A_s$	2.063	$2.062^{+0.088}_{-0.10}$	$H(0.61)$	83.2	$83^{+10}_{-8}$
$y_{cal}$	0.9998	$1.0000^{+0.0063}_{-0.0061}$	$10^9 A_s e^{-2\tau}$	1.8692	$1.869^{+0.035}_{-0.033}$	$D_M(0.61)$	2807	$2811^{+500}_{-400}$
$A_{100}^{PS}$	220	$229^{+70}_{-60}$	$D_{40}$	1196.9	$1199^{+43}_{-46}$	$H(2.33)$	227.6	$227.5^{+8.2}_{-7.6}$
$A_{143}^{PS}$	40	$33^{+20}_{-20}$	$D_{220}$	5727	$5735^{+110}_{-110}$	$D_M(2.33)$	6470	$6473^{+590}_{-590}$
$A_{217}^{PS}$	107.4	$104^{+30}_{-40}$	$D_{810}$	2528.2	$2527^{+36}_{-33}$	$f\sigma_8(0.15)$	0.540	$0.539^{+0.057}_{-0.069}$
$A_{217}^{CIB}$	38.2	$37^{+20}_{-20}$	$D_{1420}$	814.4	$814^{+14}_{-12}$	$\sigma_8(0.15)$	0.691	$0.689^{+0.054}_{-0.067}$
$A_{143}^{tSZ}$	6.27	$< 8.82$	$D_{2000}$	232.9	$232.5^{+5.9}_{-5.1}$	$f\sigma_8(0.38)$	0.5149	$0.512^{+0.021}_{-0.033}$
$r_{143 \times 217}^{PS}$	0.742	$> 0.359$	$n_{s,0.002}$	0.9738	$0.973^{+0.018}_{-0.016}$	$\sigma_8(0.38)$	0.595	$0.594^{+0.061}_{-0.070}$
$r_{143 \times 217}^{CIB}$	0.69	—	$Y_P$	0.245473	$0.24547^{+0.00033}_{-0.00030}$	$f\sigma_8(0.51)$	0.4935	$0.491^{+0.016}_{-0.018}$
$\xi^{tSZ \times CIB}$	0.65	—	$Y_P^{BBN}$	0.246800	$0.24680^{+0.00033}_{-0.00030}$	$\sigma_8(0.51)$	0.550	$0.549^{+0.061}_{-0.070}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.548	$2.55^{+0.13}_{-0.14}$	$f\sigma_8(0.61)$	0.4758	$0.474^{+0.016}_{-0.022}$
$A_{100}^{dust}$	0.999	$1.01^{+0.51}_{-0.50}$	Age/Gyr	15.64	$15.7^{+1.6}_{-1.5}$	$\sigma_8(0.61)$	0.519	$0.518^{+0.062}_{-0.069}$
$A_{143}^{dust}$	0.955	$0.95^{+0.46}_{-0.44}$	$z_*$	1089.44	$1089.4^{+1.3}_{-1.3}$	$f\sigma_8(2.33)$	0.2571	$0.257^{+0.034}_{-0.037}$
$A_{217}^{dust}$	0.980	$0.98^{+0.26}_{-0.26}$	$r_*$	144.92	$145.0^{+1.3}_{-1.2}$	$\sigma_8(2.33)$	0.2560	$0.256^{+0.042}_{-0.042}$
$A_{143 \times 217}^{dust}$	1.019	$1.02^{+0.44}_{-0.41}$	$100\theta_*$	1.04147	$1.0415^{+0.0013}_{-0.0013}$	$f_{2000}^{143}$	25.5	$26^{+9}_{-9}$
$c_{100}$	0.99778	$0.9976^{+0.0027}_{-0.0028}$	$D_M(z_*)/\text{Gpc}$	13.915	$13.92^{+0.12}_{-0.11}$	$f_{2000}^{217}$	103.5	$104.1^{+6.2}_{-6.1}$
$c_{217}$	1.00072	$1.0008^{+0.0041}_{-0.0040}$	$z_{drag}$	1060.24	$1060.2^{+1.5}_{-1.4}$	$f_{2000}^{143 \times 217}$	28.7	$29^{+7}_{-7}$
$H_0$	51.8	$52^{+10}_{-10}$	$r_{drag}$	147.53	$147.6^{+1.3}_{-1.2}$	$\chi_{simall}^2$	395.53	$396.7 (\nu: 1.1)$
$\Omega_\Lambda$	0.532	$0.53^{+0.14}_{-0.19}$	$k_D$	0.14056	$0.1405^{+0.0013}_{-0.0014}$	$\chi_{lowl}^2$	20.98	$21.28 (\nu: 0.2)$
$\Omega_m$	0.523	$0.53^{+0.27}_{-0.19}$	$100\theta_D$	0.16061	$0.16064^{+0.00078}_{-0.00076}$	$\chi_{CamSpec}^2$	7045.3	$7059.5 (\nu: 14.0)$
$\Omega_m h^2$	0.1407	$0.1405^{+0.0054}_{-0.0053}$	$z_{eq}$	3347	$3343^{+130}_{-130}$	$\chi_{prior}^2$	1.5	$7.1 (\nu: 5.5)$
$\Omega_m h^3$	0.0730	$0.073^{+0.019}_{-0.016}$	$k_{eq}$	0.010216	$0.01020^{+0.00039}_{-0.00039}$	$\chi_{CMB}^2$	7461.8	$7477.5 (\nu: 15.3)$
$\sigma_8$	0.767	$0.765^{+0.045}_{-0.058}$	$100\theta_{eq}$	0.8241	$0.825^{+0.026}_{-0.024}$			
$S_8$	1.013	$1.01^{+0.16}_{-0.16}$	$100\theta_{s,eq}$	0.4549	$0.455^{+0.013}_{-0.012}$			

Best-fit  $\chi_{eff}^2 = 7463.28$ ;  $\bar{\chi}_{eff}^2 = 7484.59$ ;  $R - 1 = 0.03021$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.53 commander\_dx12\_v3.2\_29: 20.98 CamSpec like\_10.7HM: 7045.30



## 16.6 base\_omegak\_CamSpecHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02258^{+0.00076}_{-0.00069}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.551^{+0.085}_{-0.084}$	$H(0.15)$	$59^{+10}_{-9}$
$\Omega_{\mathrm{c}} h^2$	$0.1173^{+0.0059}_{-0.0058}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.651^{+0.036}_{-0.043}$	$D_{\mathrm{M}}(0.15)$	$814^{+200}_{-100}$
$100\theta_{\mathrm{MC}}$	$1.0414^{+0.0014}_{-0.0014}$	$\sigma_8/h^{0.5}$	$1.063^{+0.055}_{-0.070}$	$H(0.38)$	$70^{+10}_{-8}$
$\tau$	$0.0532^{+0.015}_{-0.0099}$	$r_{\mathrm{drag}} h$	$78^{+20}_{-10}$	$D_{\mathrm{M}}(0.38)$	$1891^{+300}_{-300}$
$\Omega_K$	$-0.054^{+0.048}_{-0.076}$	$\langle d^2 \rangle^{1/2}$	$2.68^{+0.21}_{-0.22}$	$H(0.51)$	$78^{+9}_{-8}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.034^{+0.037}_{-0.026}$	$z_{\mathrm{re}}$	$< 8.79$	$D_{\mathrm{M}}(0.51)$	$2418^{+400}_{-400}$
$n_{\mathrm{s}}$	$0.973^{+0.018}_{-0.016}$	$10^9 A_{\mathrm{s}}$	$2.078^{+0.078}_{-0.053}$	$H(0.61)$	$83.7^{+9.1}_{-7.6}$
$y_{\mathrm{cal}}$	$1.0000^{+0.0063}_{-0.0061}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.868^{+0.035}_{-0.032}$	$D_{\mathrm{M}}(0.61)$	$2788^{+400}_{-400}$
$A_{100}^{\mathrm{PS}}$	$229^{+70}_{-60}$	$D_{40}$	$1200^{+44}_{-45}$	$H(2.33)$	$227.7^{+8.0}_{-7.6}$
$A_{143}^{\mathrm{PS}}$	$33^{+20}_{-20}$	$D_{220}$	$5734^{+110}_{-110}$	$D_{\mathrm{M}}(2.33)$	$6444^{+570}_{-550}$
$A_{217}^{\mathrm{PS}}$	$104^{+30}_{-40}$	$D_{810}$	$2527^{+36}_{-33}$	$f\sigma_8(0.15)$	$0.537^{+0.057}_{-0.068}$
$A_{217}^{\mathrm{CIB}}$	$37^{+20}_{-20}$	$D_{1420}$	$814^{+14}_{-12}$	$\sigma_8(0.15)$	$0.695^{+0.050}_{-0.060}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.83$	$D_{2000}$	$232.5^{+5.8}_{-4.9}$	$f\sigma_8(0.38)$	$0.513^{+0.022}_{-0.034}$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.357$	$n_{\mathrm{s},0.002}$	$0.973^{+0.018}_{-0.016}$	$\sigma_8(0.38)$	$0.599^{+0.057}_{-0.064}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24548^{+0.00033}_{-0.00029}$	$f\sigma_8(0.51)$	$0.493^{+0.015}_{-0.019}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24680^{+0.00033}_{-0.00029}$	$\sigma_8(0.51)$	$0.554^{+0.058}_{-0.064}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.55^{+0.13}_{-0.13}$	$f\sigma_8(0.61)$	$0.476^{+0.015}_{-0.017}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$15.6^{+1.6}_{-1.5}$	$\sigma_8(0.61)$	$0.523^{+0.058}_{-0.063}$
$A_{143}^{\mathrm{dust}}$	$0.95^{+0.46}_{-0.44}$	$z_*$	$1089.4^{+1.3}_{-1.3}$	$f\sigma_8(2.33)$	$0.259^{+0.032}_{-0.034}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.25}_{-0.26}$	$r_*$	$145.0^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	$0.259^{+0.039}_{-0.039}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.44}_{-0.42}$	$100\theta_*$	$1.0415^{+0.0014}_{-0.0014}$	$f_{2000}^{143}$	$26^{+9}_{-9}$
$c_{100}$	$0.9976^{+0.0026}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.92^{+0.12}_{-0.11}$	$f_{2000}^{217}$	$104.1^{+6.0}_{-5.9}$
$c_{217}$	$1.0008^{+0.0042}_{-0.0039}$	$z_{\mathrm{drag}}$	$1060.2^{+1.5}_{-1.3}$	$f_{2000}^{143 \times 217}$	$29^{+6}_{-7}$
$H_0$	$53^{+10}_{-10}$	$r_{\mathrm{drag}}$	$147.6^{+1.3}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.8)$
$\Omega_{\Lambda}$	$0.54^{+0.13}_{-0.18}$	$k_{\mathrm{D}}$	$0.1405^{+0.0013}_{-0.0014}$	$\chi_{\mathrm{lowl}}^2$	$21.27 (\nu: 0.2)$
$\Omega_{\mathrm{m}}$	$0.52^{+0.25}_{-0.17}$	$100\theta_{\mathrm{D}}$	$0.16064^{+0.00073}_{-0.00075}$	$\chi_{\mathrm{CamSpec}}^2$	$7059.4 (\nu: 13.9)$
$\Omega_{\mathrm{m}} h^2$	$0.1405^{+0.0055}_{-0.0053}$	$z_{\mathrm{eq}}$	$3342^{+130}_{-130}$	$\chi_{\mathrm{prior}}^2$	$7.1 (\nu: 5.4)$
$\Omega_{\mathrm{m}} h^3$	$0.074^{+0.018}_{-0.016}$	$k_{\mathrm{eq}}$	$0.01020^{+0.00040}_{-0.00039}$	$\chi_{\mathrm{CMB}}^2$	$7477.1 (\nu: 14.7)$
$\sigma_8$	$0.769^{+0.042}_{-0.050}$	$100\theta_{\mathrm{eq}}$	$0.825^{+0.026}_{-0.025}$		
$S_8$	$1.01^{+0.16}_{-0.15}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.013}_{-0.013}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7484.13; R - 1 = 0.03650$$



## 16.7 base\_omegak\_CamSpecHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022535	$0.02254^{+0.00047}_{-0.00045} \quad (-0.1\sigma)$	$\sigma_8$	0.7817	$0.777^{+0.036}_{-0.044} \quad (+0.6\sigma)$	$100\theta_{\text{eq}}$	0.8226	$0.822^{+0.017}_{-0.017} \quad (-0.3\sigma)$
$\Omega_c h^2$	0.11783	$0.1179^{+0.0041}_{-0.0038} \quad (+0.3\sigma)$	$S_8$	0.943	$0.95^{+0.13}_{-0.14} \quad (-0.9\sigma)$	$100\theta_{\text{s,eq}}$	0.4541	$0.4540^{+0.0086}_{-0.0087} \quad (-0.3\sigma)$
$100\theta_{\text{MC}}$	1.04110	$1.04111^{+0.00083}_{-0.00082} \quad (-0.5\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.516	$0.522^{+0.073}_{-0.075} \quad (-0.9\sigma)$	$H(0.15)$	62.7	$62^{+10}_{-9} \quad (+0.9\sigma)$
$\tau$	0.0509	$0.048^{+0.021}_{-0.029} \quad (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6353	$0.637^{+0.031}_{-0.038} \quad (-0.9\sigma)$	$D_{\text{M}}(0.15)$	754	$766^{+100}_{-100} \quad (-0.9\sigma)$
$\Omega_K$	-0.0320	$-0.037^{+0.037}_{-0.053} \quad (+0.8\sigma)$	$\sigma_8/h^{0.5}$	1.037	$1.039^{+0.049}_{-0.063} \quad (-1.0\sigma)$	$H(0.38)$	73.7	$73^{+10}_{-8} \quad (+0.9\sigma)$
$\ln(10^{10} A_s)$	3.030	$3.025^{+0.043}_{-0.059} \quad (-0.0\sigma)$	$r_{\text{drag}} h$	83.8	$83^{+20}_{-10} \quad (+0.9\sigma)$	$D_{\text{M}}(0.38)$	1769	$1793^{+300}_{-300} \quad (-0.9\sigma)$
$n_s$	0.9719	$0.971^{+0.012}_{-0.012} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	2.591	$2.60^{+0.18}_{-0.19} \quad (-0.9\sigma)$	$H(0.51)$	80.9	$80^{+9}_{-7} \quad (+0.9\sigma)$
$y_{\text{cal}}$	0.9997	$1.0000^{+0.0063}_{-0.0064} \quad (+0.0\sigma)$	$z_{\text{re}}$	7.15	$6.8^{+2.1}_{-3.4} \quad (-0.1\sigma)$	$D_{\text{M}}(0.51)$	2272	$2301^{+300}_{-300} \quad (-0.9\sigma)$
$A_{100}^{\text{PS}}$	225	$230^{+60}_{-60} \quad (+0.0\sigma)$	$10^9 A_s$	2.070	$2.060^{+0.091}_{-0.12} \quad (-0.0\sigma)$	$H(0.61)$	86.9	$86.4^{+9.1}_{-7.0} \quad (+0.9\sigma)$
$A_{143}^{\text{PS}}$	42.6	$34^{+20}_{-20} \quad (+0.2\sigma)$	$10^9 A_s e^{-2\tau}$	1.8700	$1.871^{+0.029}_{-0.031} \quad (+0.2\sigma)$	$D_{\text{M}}(0.61)$	2629	$2660^{+400}_{-400} \quad (-0.9\sigma)$
$A_{217}^{\text{PS}}$	106.3	$104^{+30}_{-30} \quad (+0.0\sigma)$	$D_{40}$	1204.1	$1205^{+37}_{-36} \quad (+0.3\sigma)$	$H(2.33)$	230.0	$229.8^{+6.9}_{-5.8} \quad (+0.7\sigma)$
$A_{217}^{\text{CIB}}$	38.8	$37^{+20}_{-20} \quad (+0.1\sigma)$	$D_{220}$	5727	$5733^{+99}_{-100} \quad (-0.0\sigma)$	$D_{\text{M}}(2.33)$	6232	$6269^{+480}_{-510} \quad (-0.9\sigma)$
$A_{143}^{\text{tSZ}}$	5.71	$< 8.94 \quad (+0.0\sigma)$	$D_{810}$	2529.7	$2529^{+35}_{-34} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	0.511	$0.515^{+0.053}_{-0.063} \quad (-1.0\sigma)$
$r_{143 \times 217}^{\text{PS}}$	0.718	$> 0.354 \quad (-0.0\sigma)$	$D_{1420}$	814.9	$815^{+13}_{-13} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	0.7114	$0.706^{+0.043}_{-0.052} \quad (+0.7\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	0.74	—	$D_{2000}$	232.05	$231.9^{+4.5}_{-4.5} \quad (-0.2\sigma)$	$f\sigma_8(0.38)$	0.5031	$0.503^{+0.022}_{-0.033} \quad (-0.9\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.73	—	$n_{\text{s},0.002}$	0.9719	$0.971^{+0.012}_{-0.012} \quad (-0.3\sigma)$	$\sigma_8(0.38)$	0.619	$0.613^{+0.049}_{-0.057} \quad (+0.8\sigma)$
$A^{\text{kSZ}}$	0.9	—	$Y_{\text{P}}$	0.245457	$0.24546^{+0.00020}_{-0.00018} \quad (-0.1\sigma)$	$f\sigma_8(0.51)$	0.4890	$0.488^{+0.015}_{-0.020} \quad (-0.5\sigma)$
$A_{100}^{\text{dust}}$	1.01	$1.02^{+0.52}_{-0.49} \quad (+0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	0.246784	$0.24678^{+0.00020}_{-0.00018} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	0.574	$0.569^{+0.051}_{-0.058} \quad (+0.8\sigma)$
$A_{143}^{\text{dust}}$	0.959	$0.95^{+0.45}_{-0.44} \quad (-0.0\sigma)$	$10^5 \text{D}/\text{H}$	2.556	$2.556^{+0.084}_{-0.085} \quad (+0.1\sigma)$	$f\sigma_8(0.61)$	0.4757	$0.474^{+0.013}_{-0.015} \quad (+0.0\sigma)$
$A_{217}^{\text{dust}}$	0.981	$0.98^{+0.27}_{-0.26} \quad (-0.1\sigma)$	Age/Gyr	15.00	$15.1^{+1.3}_{-1.3} \quad (-0.9\sigma)$	$\sigma_8(0.61)$	0.543	$0.538^{+0.052}_{-0.057} \quad (+0.8\sigma)$
$A_{143 \times 217}^{\text{dust}}$	1.002	$1.01^{+0.40}_{-0.41} \quad (-0.1\sigma)$	$z_*$	1089.53	$1089.53^{+0.84}_{-0.79} \quad (+0.2\sigma)$	$f\sigma_8(2.33)$	0.2710	$0.268^{+0.029}_{-0.031} \quad (+0.8\sigma)$
$c_{100}$	0.99779	$0.9976^{+0.0027}_{-0.0027} \quad (-0.0\sigma)$	$r_*$	144.87	$144.85^{+0.82}_{-0.87} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	0.2727	$0.269^{+0.037}_{-0.036} \quad (+0.8\sigma)$
$c_{217}$	1.00089	$1.0008^{+0.0042}_{-0.0039} \quad (+0.0\sigma)$	$100\theta_*$	1.04127	$1.04127^{+0.00082}_{-0.00080} \quad (-0.5\sigma)$	$f_{2000}^{143}$	26.9	$27^{+8}_{-8} \quad (+0.2\sigma)$
$c_{TE}$	0.9927	$0.992^{+0.013}_{-0.013}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.913	$13.911^{+0.076}_{-0.082} \quad (-0.2\sigma)$	$f_{2000}^{217}$	104.3	$104.6^{+5.2}_{-5.2} \quad (+0.2\sigma)$
$c_{EE}$	0.9899	$0.990^{+0.013}_{-0.013}$	$z_{\text{drag}}$	1060.16	$1060.17^{+0.95}_{-0.92} \quad (-0.1\sigma)$	$f_{2000}^{143 \times 217}$	29.5	$30^{+6}_{-6} \quad (+0.2\sigma)$
$H_0$	56.9	$56^{+10}_{-10} \quad (+0.9\sigma)$	$r_{\text{drag}}$	147.49	$147.47^{+0.82}_{-0.86} \quad (-0.2\sigma)$	$\chi_{\text{small}}^2$	395.63	$396.7 \quad (\nu: 1.4) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	0.596	$0.58^{+0.11}_{-0.14} \quad (+0.9\sigma)$	$k_{\text{D}}$	0.14058	$0.14059^{+0.00089}_{-0.00090} \quad (+0.2\sigma)$	$\chi_{\text{lowl}}^2$	21.16	$21.40 \quad (\nu: 0.2) \quad (+0.2\sigma)$
$\Omega_{\text{m}}$	0.436	$0.45^{+0.20}_{-0.15} \quad (-0.9\sigma)$	$100\theta_{\text{D}}$	0.16063	$0.16063^{+0.00052}_{-0.00054} \quad (-0.0\sigma)$	$\chi_{\text{CamSpec}}^2$	11495.3	$11511.3 \quad (\nu: 15.1) \quad (+840.6\sigma)$
$\Omega_{\text{m}} h^2$	0.14101	$0.1411^{+0.0038}_{-0.0035} \quad (+0.3\sigma)$	$z_{\text{eq}}$	3354	$3356^{+90}_{-85} \quad (+0.3\sigma)$	$\chi_{\text{prior}}^2$	1.9	$7.7 \quad (\nu: 5.4) \quad (+0.2\sigma)$
$\Omega_{\text{m}} h^3$	0.0802	$0.079^{+0.017}_{-0.014} \quad (+0.9\sigma)$	$k_{\text{eq}}$	0.010238	$0.01024^{+0.00027}_{-0.00026} \quad (+0.3\sigma)$	$\chi_{\text{CMB}}^2$	11912.1	$11929.5 \quad (\nu: 16.8) \quad (+804.8\sigma)$

Best-fit  $\chi_{\text{eff}}^2 = 11914.02$ ;  $\Delta\chi_{\text{eff}}^2 = 4450.74$ ;  $\bar{\chi}_{\text{eff}}^2 = 11937.16$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 4452.57$ ;  $R - 1 = 0.03285$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.63 ( $\Delta$  0.10) commander\_dx12\_v3.2.29: 21.16 ( $\Delta$  0.19) CamSpec like\_10.7HM\_1400\_unified: 11495.33



# 16.8 base\_omegak\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02253^{+0.00047}_{-0.00046} \quad (-0.2\sigma)$	$\sigma_8$	$0.782^{+0.033}_{-0.037} \quad (+0.7\sigma)$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.016}_{-0.017} \quad (-0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1179^{+0.0040}_{-0.0037} \quad (+0.3\sigma)$	$S_8$	$0.95^{+0.13}_{-0.14} \quad (-1.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4540^{+0.0084}_{-0.0087} \quad (-0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04111^{+0.00081}_{-0.00082} \quad (-0.5\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.518^{+0.070}_{-0.074} \quad (-1.0\sigma)$	$H(0.15)$	$63^{+10}_{-9} \quad (+1.0\sigma)$
$\tau$	$0.0524^{+0.016}_{-0.0093} \quad (-0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.636^{+0.031}_{-0.038} \quad (-0.9\sigma)$	$D_{\mathrm{M}}(0.15)$	$757^{+100}_{-100} \quad (-0.9\sigma)$
$\Omega_K$	$-0.034^{+0.035}_{-0.049} \quad (+0.9\sigma)$	$\sigma_8/h^{0.5}$	$1.038^{+0.051}_{-0.063} \quad (-1.0\sigma)$	$H(0.38)$	$74^{+10}_{-8} \quad (+1.0\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.034^{+0.036}_{-0.024} \quad (-0.0\sigma)$	$r_{\mathrm{drag}} h$	$84^{+20}_{-10} \quad (+1.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1773^{+300}_{-300} \quad (-0.9\sigma)$
$n_{\mathrm{s}}$	$0.971^{+0.012}_{-0.012} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.60^{+0.17}_{-0.19} \quad (-1.0\sigma)$	$H(0.51)$	$81^{+9}_{-7} \quad (+1.0\sigma)$
$y_{\mathrm{cal}}$	$1.0000^{+0.0064}_{-0.0064} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 8.82 \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$2277^{+300}_{-300} \quad (-0.9\sigma)$
$A_{100}^{\mathrm{PS}}$	$230^{+60}_{-60} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.077^{+0.077}_{-0.049} \quad (-0.0\sigma)$	$H(0.61)$	$86.9^{+8.9}_{-6.9} \quad (+1.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$34^{+20}_{-20} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.871^{+0.030}_{-0.031} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2634^{+300}_{-300} \quad (-0.9\sigma)$
$A_{217}^{\mathrm{PS}}$	$104^{+30}_{-30} \quad (+0.0\sigma)$	$D_{40}$	$1206^{+36}_{-36} \quad (+0.3\sigma)$	$H(2.33)$	$230.1^{+6.8}_{-5.8} \quad (+0.8\sigma)$
$A_{217}^{\mathrm{CIB}}$	$37^{+20}_{-20} \quad (+0.1\sigma)$	$D_{220}$	$5731^{+97}_{-100} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$6236^{+470}_{-500} \quad (-0.9\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.95 \quad (+0.0\sigma)$	$D_{810}$	$2529^{+36}_{-34} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.512^{+0.052}_{-0.063} \quad (-1.0\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$> 0.357 \quad (-0.0\sigma)$	$D_{1420}$	$815^{+13}_{-12} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.712^{+0.039}_{-0.045} \quad (+0.8\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$231.9^{+4.6}_{-4.6} \quad (-0.3\sigma)$	$f\sigma_8(0.38)$	$0.503^{+0.022}_{-0.034} \quad (-1.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.971^{+0.012}_{-0.012} \quad (-0.3\sigma)$	$\sigma_8(0.38)$	$0.619^{+0.046}_{-0.050} \quad (+0.8\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24546^{+0.00019}_{-0.00018} \quad (-0.2\sigma)$	$f\sigma_8(0.51)$	$0.489^{+0.014}_{-0.020} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.53}_{-0.49} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24678^{+0.00020}_{-0.00018} \quad (-0.2\sigma)$	$\sigma_8(0.51)$	$0.574^{+0.048}_{-0.051} \quad (+0.9\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.94^{+0.44}_{-0.44} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.556^{+0.086}_{-0.084} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.475^{+0.012}_{-0.013} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$15.0^{+1.3}_{-1.3} \quad (-0.9\sigma)$	$\sigma_8(0.61)$	$0.544^{+0.048}_{-0.051} \quad (+0.9\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.01^{+0.39}_{-0.42} \quad (-0.1\sigma)$	$z_*$	$1089.53^{+0.86}_{-0.77} \quad (+0.2\sigma)$	$f\sigma_8(2.33)$	$0.271^{+0.027}_{-0.028} \quad (+0.9\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$r_*$	$144.86^{+0.81}_{-0.87} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.273^{+0.035}_{-0.033} \quad (+0.9\sigma)$
$c_{217}$	$1.0008^{+0.0043}_{-0.0039} \quad (+0.0\sigma)$	$100\theta_*$	$1.04128^{+0.00079}_{-0.00079} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$27^{+8}_{-8} \quad (+0.2\sigma)$
$c_{TE}$	$0.992^{+0.013}_{-0.013}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.912^{+0.075}_{-0.082} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$104.6^{+5.3}_{-5.1} \quad (+0.2\sigma)$
$c_{EE}$	$0.990^{+0.012}_{-0.012}$	$z_{\mathrm{drag}}$	$1060.16^{+0.92}_{-0.91} \quad (-0.1\sigma)$	$f_{2000}^{143 \times 217}$	$30^{+6}_{-6} \quad (+0.2\sigma)$
$H_0$	$57^{+10}_{-9} \quad (+1.0\sigma)$	$r_{\mathrm{drag}}$	$147.48^{+0.81}_{-0.87} \quad (-0.2\sigma)$	$\chi_{\mathrm{small}}^2$	$396.2 \quad (\nu: 0.6) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.59^{+0.10}_{-0.12} \quad (+0.9\sigma)$	$k_{\mathrm{D}}$	$0.14058^{+0.00091}_{-0.00090} \quad (+0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$21.43 \quad (\nu: 0.2) \quad (+0.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.44^{+0.17}_{-0.14} \quad (-0.9\sigma)$	$100\theta_{\mathrm{D}}$	$0.16064^{+0.00052}_{-0.00052} \quad (-0.0\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11511.3 \quad (\nu: 15.3) \quad (+843.4\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1410^{+0.0038}_{-0.0035} \quad (+0.3\sigma)$	$z_{\mathrm{eq}}$	$3355^{+90}_{-83} \quad (+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.7 \quad (\nu: 5.5) \quad (+0.2\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.080^{+0.017}_{-0.014} \quad (+1.0\sigma)$	$k_{\mathrm{eq}}$	$0.01024^{+0.00027}_{-0.00025} \quad (+0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11929.0 \quad (\nu: 16.2) \quad (+821.9\sigma)$
$\bar{\chi}_{\mathrm{eff}}^2 = 11936.68; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4452.55; R - 1 = 0.03528$					



## 16.9 base\_omegak\_plikHM\_TT\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02216^{+0.00060}_{-0.00057}$	$\sigma_8/h^{0.5}$	0.9841	$0.984^{+0.034}_{-0.031}$	$D_M(0.38)$	1524.4	$1525^{+36}_{-35}$
$\Omega_c h^2$	0.1199	$0.1198^{+0.0056}_{-0.0053}$	$r_{\text{drag}} h$	99.95	$99.9^{+2.7}_{-2.5}$	$H(0.51)$	89.99	$89.9^{+1.8}_{-1.7}$
$100\theta_{\text{MC}}$	1.04090	$1.0409^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	2.431	$2.431^{+0.078}_{-0.075}$	$D_M(0.51)$	1974.9	$1976^{+44}_{-43}$
$\tau$	0.0527	$0.053^{+0.021}_{-0.020}$	$z_{\text{re}}$	7.56	$7.6^{+2.0}_{-2.2}$	$H(0.61)$	95.61	$95.6^{+1.9}_{-1.8}$
$\Omega_K$	0.0012	$0.0012^{+0.0065}_{-0.0065}$	$10^9 A_s$	2.091	$2.091^{+0.096}_{-0.087}$	$D_M(0.61)$	2298.2	$2299^{+50}_{-50}$
$\ln(10^{10} A_s)$	3.0401	$3.040^{+0.045}_{-0.042}$	$10^9 A_s e^{-2\tau}$	1.8815	$1.881^{+0.036}_{-0.035}$	$H(2.33)$	236.58	$236.5^{+4.6}_{-4.5}$
$n_s$	0.9651	$0.965^{+0.015}_{-0.015}$	$D_{40}$	1228.2	$1229^{+41}_{-40}$	$D_M(2.33)$	5748	$5751^{+96}_{-97}$
$y_{\text{cal}}$	1.0006	$1.0006^{+0.0065}_{-0.0063}$	$D_{220}$	5714	$5717^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4559	$0.456^{+0.022}_{-0.021}$
$A_{217}^{\text{CIB}}$	49.5	$48^{+20}_{-20}$	$D_{810}$	2538.1	$2537^{+35}_{-35}$	$\sigma_8(0.15)$	0.7492	$0.749^{+0.025}_{-0.023}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.19	—	$D_{1420}$	815.8	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4745	$0.474^{+0.019}_{-0.018}$
$A_{143}^{\text{tSZ}}$	7.1	—	$D_{2000}$	230.09	$229.7^{+4.8}_{-4.6}$	$\sigma_8(0.38)$	0.6643	$0.664^{+0.022}_{-0.020}$
$A_{100}^{\text{PS}}$	256	$263^{+70}_{-70}$	$n_{s,0.002}$	0.9651	$0.965^{+0.015}_{-0.015}$	$f\sigma_8(0.51)$	0.4733	$0.473^{+0.018}_{-0.017}$
$A_{143}^{\text{PS}}$	48.0	$49^{+20}_{-20}$	$Y_{\text{P}}$	0.245317	$0.24530^{+0.00023}_{-0.00027}$	$\sigma_8(0.51)$	0.6217	$0.621^{+0.020}_{-0.019}$
$A_{143 \times 217}^{\text{PS}}$	43.7	$44^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246644	$0.24663^{+0.00024}_{-0.00027}$	$f\sigma_8(0.61)$	0.4684	$0.468^{+0.017}_{-0.016}$
$A_{217}^{\text{PS}}$	118.1	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.622	$2.63^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	0.5916	$0.591^{+0.019}_{-0.018}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.757	$13.76^{+0.25}_{-0.25}$	$f\sigma_8(2.33)$	0.2983	$0.2982^{+0.0096}_{-0.0088}$
$A_{100}^{\text{dustTT}}$	8.90	$9.0^{+4.7}_{-4.8}$	$z_*$	1090.15	$1090.2^{+1.1}_{-1.1}$	$\sigma_8(2.33)$	0.3078	$0.308^{+0.011}_{-0.0098}$
$A_{143}^{\text{dustTT}}$	10.77	$10.7^{+4.6}_{-4.5}$	$r_*$	144.61	$144.6^{+1.2}_{-1.3}$	$f_{2000}^{143}$	30.7	$31^{+8}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	19.3	$18.3^{+8.2}_{-8.7}$	$100\theta_*$	1.04110	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	33.4	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	94.5	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.890	$13.89^{+0.11}_{-0.12}$	$f_{2000}^{217}$	107.87	$108.1^{+5.0}_{-4.8}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.47	$1059.4^{+1.2}_{-1.2}$	$\chi_{\text{small}}^2$	395.85	$397.0 (\nu: 1.4)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.34	$147.4^{+1.2}_{-1.3}$	$\chi_{\text{lowl}}^2$	23.34	$23.6 (\nu: 1.1)$
$H_0$	67.84	$67.8^{+1.8}_{-1.7}$	$k_{\text{D}}$	0.14046	$0.1404^{+0.0013}_{-0.0013}$	$\chi_{\text{plik}}^2$	759.6	$772.4 (\nu: 14.7)$
$\Omega_\Lambda$	0.6887	$0.689^{+0.019}_{-0.020}$	$100\theta_{\text{D}}$	0.16102	$0.16106^{+0.00069}_{-0.00069}$	$\chi_{6\text{DF}}^2$	0.011	$0.056 (\nu: 0.0)$
$\Omega_{\text{m}}$	0.3101	$0.310^{+0.019}_{-0.018}$	$z_{\text{eq}}$	3395	$3392^{+130}_{-120}$	$\chi_{\text{MGS}}^2$	1.41	$1.48 (\nu: 0.2)$
$\Omega_{\text{m}} h^2$	0.1427	$0.1426^{+0.0053}_{-0.0050}$	$k_{\text{eq}}$	0.010361	$0.01035^{+0.00039}_{-0.00037}$	$\chi_{\text{DR12BAO}}^2$	3.66	$4.6 (\nu: 1.7)$
$\Omega_{\text{m}} h^3$	0.09681	$0.0967^{+0.0047}_{-0.0044}$	$100\theta_{\text{eq}}$	0.8141	$0.815^{+0.023}_{-0.023}$	$\chi_{\text{prior}}^2$	1.5	$7.3 (\nu: 6.9)$
$\sigma_8$	0.8106	$0.810^{+0.028}_{-0.025}$	$100\theta_{\text{s,eq}}$	0.4499	$0.450^{+0.012}_{-0.012}$	$\chi_{\text{BAO}}^2$	5.08	$6.1 (\nu: 1.3)$
$S_8$	0.8241	$0.824^{+0.043}_{-0.041}$	$H(0.15)$	73.13	$73.1^{+1.7}_{-1.7}$	$\chi_{\text{CMB}}^2$	1178.8	$1192.9 (\nu: 15.0)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4514	$0.451^{+0.024}_{-0.022}$	$D_M(0.15)$	639.1	$639^{+16}_{-16}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6049	$0.605^{+0.025}_{-0.023}$	$H(0.38)$	83.26	$83.2^{+1.8}_{-1.7}$			

Best-fit  $\chi_{\text{eff}}^2 = 1185.37$ ;  $\bar{\chi}_{\text{eff}}^2 = 1206.26$ ;  $R - 1 = 0.01197$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.66 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.85 commander\_dx12\_v3.2.29: 23.34 plik\_rd12\_HM\_v22.TT: 759.63



16.10 base\_omegak\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02221	$0.02217^{+0.00061}_{-0.00057}$	$\sigma_8/h^{0.5}$	0.9849	$0.986^{+0.025}_{-0.025}$	$D_{\text{M}}(0.38)$	1525.9	$1526^{+35}_{-35}$
$\Omega_{\text{c}}h^2$	0.11978	$0.1198^{+0.0049}_{-0.0048}$	$r_{\text{drag}}h$	99.84	$99.8^{+2.6}_{-2.4}$	$H(0.51)$	89.92	$89.9^{+1.9}_{-1.7}$
$100\theta_{\text{MC}}$	1.04088	$1.0409^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	2.435	$2.436^{+0.058}_{-0.057}$	$D_{\text{M}}(0.51)$	1976.7	$1977^{+44}_{-46}$
$\tau$	0.0539	$0.054^{+0.020}_{-0.019}$	$z_{\text{re}}$	7.68	$7.7^{+1.9}_{-2.0}$	$H(0.61)$	95.54	$95.5^{+1.9}_{-1.7}$
$\Omega_K$	0.0010	$0.0011^{+0.0065}_{-0.0064}$	$10^9 A_{\text{s}}$	2.095	$2.097^{+0.080}_{-0.075}$	$D_{\text{M}}(0.61)$	2300	$2301^{+50}_{-52}$
$\ln(10^{10} A_{\text{s}})$	3.0422	$3.043^{+0.038}_{-0.036}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8811	$1.882^{+0.033}_{-0.032}$	$H(2.33)$	236.49	$236.5^{+4.2}_{-4.3}$
$n_{\text{s}}$	0.9649	$0.964^{+0.014}_{-0.014}$	$D_{40}$	1229.1	$1231^{+38}_{-37}$	$D_{\text{M}}(2.33)$	5752	$5752^{+93}_{-99}$
$y_{\text{cal}}$	1.0004	$1.0007^{+0.0067}_{-0.0063}$	$D_{220}$	5718	$5721^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4564	$0.457^{+0.017}_{-0.017}$
$A_{217}^{\text{CIB}}$	49.4	$48^{+20}_{-20}$	$D_{810}$	2537.5	$2538^{+34}_{-34}$	$\sigma_8(0.15)$	0.7493	$0.750^{+0.020}_{-0.019}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.12	—	$D_{1420}$	815.6	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4749	$0.475^{+0.015}_{-0.014}$
$A_{143}^{\text{tSZ}}$	7.1	—	$D_{2000}$	230.07	$229.8^{+4.7}_{-4.7}$	$\sigma_8(0.38)$	0.6643	$0.665^{+0.018}_{-0.017}$
$A_{100}^{\text{PS}}$	257	$263^{+70}_{-70}$	$n_{\text{s},0.002}$	0.9649	$0.964^{+0.014}_{-0.014}$	$f\sigma_8(0.51)$	0.4736	$0.474^{+0.013}_{-0.013}$
$A_{143}^{\text{PS}}$	46.7	$49^{+20}_{-20}$	$Y_{\text{P}}$	0.245329	$0.24531^{+0.00024}_{-0.00027}$	$\sigma_8(0.51)$	0.6217	$0.622^{+0.017}_{-0.016}$
$A_{143 \times 217}^{\text{PS}}$	41.4	$44^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246656	$0.24663^{+0.00024}_{-0.00027}$	$f\sigma_8(0.61)$	0.4687	$0.469^{+0.013}_{-0.013}$
$A_{217}^{\text{PS}}$	117.7	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.616	$2.62^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	0.5916	$0.592^{+0.016}_{-0.016}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.766	$13.77^{+0.24}_{-0.26}$	$f\sigma_8(2.33)$	0.2983	$0.2985^{+0.0083}_{-0.0079}$
$A_{100}^{\text{dustTT}}$	8.8	$8.9^{+5.1}_{-4.9}$	$z_*$	1090.11	$1090.2^{+1.0}_{-1.1}$	$\sigma_8(2.33)$	0.3077	$0.3079^{+0.0094}_{-0.0088}$
$A_{143}^{\text{dustTT}}$	10.84	$10.7^{+4.8}_{-4.6}$	$r_*$	144.61	$144.6^{+1.1}_{-1.1}$	$f_{2000}^{143}$	30.6	$31^{+8}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	19.3	$18.3^{+8.2}_{-8.8}$	$100\theta_*$	1.04107	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	33.2	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	94.7	$93^{+20}_{-20}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.891	$13.893^{+0.098}_{-0.10}$	$f_{2000}^{217}$	107.8	$108.1^{+5.1}_{-4.9}$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0015}$	$z_{\text{drag}}$	1059.55	$1059.4^{+1.2}_{-1.2}$	$\chi_{\text{lensing}}^2$	8.88	$9.34 (\nu: 0.3)$
$c_{217}$	0.99825	$0.9982^{+0.0016}_{-0.0017}$	$r_{\text{drag}}$	147.33	$147.4^{+1.1}_{-1.1}$	$\chi_{\text{small}}^2$	396	$295 (\nu: 13816.6)$
$H_0$	67.77	$67.7^{+1.8}_{-1.7}$	$k_{\text{D}}$	0.14049	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\text{lowl}}^2$	23	$125 (\nu: 13829.3)$
$\Omega_{\Lambda}$	0.6884	$0.688^{+0.017}_{-0.017}$	$100\theta_{\text{D}}$	0.16098	$0.16104^{+0.00070}_{-0.00071}$	$\chi_{\text{plik}}^2$	759.4	$771.7 (\nu: 13.5)$
$\Omega_{\text{m}}$	0.3106	$0.311^{+0.017}_{-0.017}$	$z_{\text{eq}}$	3393	$3393^{+110}_{-110}$	$\chi_{6\text{DF}}^2$	0.02	$0.43 (\nu: 0.2)$
$\Omega_{\text{m}}h^2$	0.14264	$0.1426^{+0.0047}_{-0.0045}$	$k_{\text{eq}}$	0.010356	$0.01036^{+0.00034}_{-0.00033}$	$\chi_{\text{MGS}}^2$	1.34	$1.04 (\nu: 0.3)$
$\Omega_{\text{m}}h^3$	0.09666	$0.0966^{+0.0047}_{-0.0042}$	$100\theta_{\text{eq}}$	0.8144	$0.814^{+0.021}_{-0.021}$	$\chi_{\text{DR12BAO}}^2$	3.85	$4.7 (\nu: 1.8)$
$\sigma_8$	0.8108	$0.811^{+0.022}_{-0.021}$	$100\theta_{\text{s,eq}}$	0.4501	$0.450^{+0.011}_{-0.011}$	$\chi_{\text{prior}}^2$	1.4	$7.3 (\nu: 6.8)$
$S_8$	0.8249	$0.826^{+0.033}_{-0.033}$	$H(0.15)$	73.06	$73.0^{+1.7}_{-1.7}$	$\chi_{\text{CMB}}^2$	1187.7	$1201.7 (\nu: 15.2)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4518	$0.452^{+0.018}_{-0.018}$	$D_{\text{M}}(0.15)$	639.7	$640^{+16}_{-15}$	$\chi_{\text{BAO}}^2$	5.21	$6.1 (\nu: 1.3)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6052	$0.606^{+0.019}_{-0.019}$	$H(0.38)$	83.19	$83.2^{+1.8}_{-1.7}$			

Best-fit  $\chi_{\text{eff}}^2 = 1194.36$ ;  $\bar{\chi}_{\text{eff}}^2 = 1215.14$ ;  $R - 1 = 0.01348$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.34 DR12BAO: 3.85 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.88 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.03 comman-  
der\_dx12.v3.2.29: 23.43 plik\_rd12\_HM.v22\_TT: 759.40



16.11 base\_omegak\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02218^{+0.00060}_{-0.00056}$	$\sigma_8/h^{0.5}$	$0.985^{+0.025}_{-0.025}$	$D_{\mathrm{M}}(0.38)$	$1525^{+35}_{-35}$
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0049}_{-0.0047}$	$r_{\mathrm{drag}}h$	$99.96^{+2.5}_{-2.3}$	$H(0.51)$	$89.9^{+1.9}_{-1.7}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.058}_{-0.057}$	$D_{\mathrm{M}}(0.51)$	$1976^{+44}_{-44}$
$\tau$	$0.054^{+0.019}_{-0.019}$	$z_{\mathrm{re}}$	$7.7^{+1.9}_{-2.0}$	$H(0.61)$	$95.6^{+1.9}_{-1.8}$
$\Omega_K$	$0.0011^{+0.0065}_{-0.0064}$	$10^9 A_{\mathrm{s}}$	$2.098^{+0.081}_{-0.076}$	$D_{\mathrm{M}}(0.61)$	$2299^{+49}_{-51}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.038}_{-0.037}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.032}_{-0.031}$	$H(2.33)$	$236.4^{+4.3}_{-4.2}$
$n_{\mathrm{s}}$	$0.965^{+0.014}_{-0.014}$	$D_{40}$	$1230^{+38}_{-37}$	$D_{\mathrm{M}}(2.33)$	$5751^{+94}_{-99}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0067}_{-0.0063}$	$D_{220}$	$5722^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2538^{+34}_{-34}$	$\sigma_8(0.15)$	$0.750^{+0.020}_{-0.019}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.475^{+0.014}_{-0.014}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.9^{+4.6}_{-4.6}$	$\sigma_8(0.38)$	$0.665^{+0.018}_{-0.017}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.014}_{-0.014}$	$f\sigma_8(0.51)$	$0.473^{+0.013}_{-0.013}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00024}_{-0.00027}$	$\sigma_8(0.51)$	$0.622^{+0.017}_{-0.016}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00024}_{-0.00027}$	$f\sigma_8(0.61)$	$0.469^{+0.013}_{-0.013}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	$0.592^{+0.016}_{-0.016}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.77^{+0.24}_{-0.25}$	$f\sigma_8(2.33)$	$0.2985^{+0.0083}_{-0.0078}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+5.1}_{-4.9}$	$z_*$	$1090.1^{+1.0}_{-1.0}$	$\sigma_8(2.33)$	$0.3080^{+0.0094}_{-0.0089}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.9}_{-4.6}$	$r_*$	$144.7^{+1.1}_{-1.1}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.2}_{-8.8}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.895^{+0.096}_{-0.10}$	$f_{2000}^{217}$	$108.1^{+5.2}_{-4.9}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0015}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$9.34 (\nu: 0.3)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.4^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$294 (\nu: 13920.3)$
$H_0$	$67.8^{+1.7}_{-1.7}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{lowl}}^2$	$127 (\nu: 13931.4)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.017}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00070}_{-0.00071}$	$\chi_{\mathrm{plik}}^2$	$771.8 (\nu: 13.6)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.016}$	$z_{\mathrm{eq}}$	$3390^{+110}_{-110}$	$\chi_{\mathrm{JLA}}^2$	$1035.08 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0047}_{-0.0045}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00034}_{-0.00033}$	$\chi_{6\mathrm{DF}}^2$	$0.45 (\nu: 0.3)$
$\Omega_{\mathrm{m}}h^3$	$0.0966^{+0.0047}_{-0.0043}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.021}_{-0.021}$	$\chi_{\mathrm{MGS}}^2$	$1.08 (\nu: 0.3)$
$\sigma_8$	$0.811^{+0.022}_{-0.021}$	$100\theta_{\mathrm{s,eq}}$	$0.450^{+0.011}_{-0.011}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 (\nu: 1.5)$
$S_8$	$0.824^{+0.032}_{-0.032}$	$H(0.15)$	$73.1^{+1.7}_{-1.7}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.018}$	$D_{\mathrm{M}}(0.15)$	$639^{+16}_{-15}$	$\chi_{\mathrm{CMB}}^2$	$1201.7 (\nu: 15.1)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.019}_{-0.018}$	$H(0.38)$	$83.2^{+1.8}_{-1.7}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 1.1)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2250.15; R - 1 = 0.01337$$



# 16.12 base\_omegak\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02217^{+0.00060}_{-0.00058}$	$\sigma_8/h^{0.5}$	$0.985^{+0.033}_{-0.031}$	$D_{\mathrm{M}}(0.38)$	$1525^{+36}_{-35}$
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0056}_{-0.0053}$	$r_{\mathrm{drag}}h$	$99.9^{+2.7}_{-2.5}$	$H(0.51)$	$89.9^{+1.8}_{-1.7}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	$2.434^{+0.076}_{-0.072}$	$D_{\mathrm{M}}(0.51)$	$1976^{+44}_{-43}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$z_{\mathrm{re}}$	$< 9.46$	$H(0.61)$	$95.6^{+1.9}_{-1.8}$
$\Omega_K$	$0.0011^{+0.0065}_{-0.0064}$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.092}_{-0.064}$	$D_{\mathrm{M}}(0.61)$	$2300^{+50}_{-49}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.043}_{-0.031}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.881^{+0.036}_{-0.035}$	$H(2.33)$	$236.4^{+4.7}_{-4.4}$
$n_{\mathrm{s}}$	$0.965^{+0.015}_{-0.015}$	$D_{40}$	$1229^{+42}_{-40}$	$D_{\mathrm{M}}(2.33)$	$5751^{+95}_{-98}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0066}_{-0.0064}$	$D_{220}$	$5717^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.456^{+0.022}_{-0.021}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+35}_{-35}$	$\sigma_8(0.15)$	$0.750^{+0.025}_{-0.022}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.475^{+0.019}_{-0.018}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.8^{+4.8}_{-4.5}$	$\sigma_8(0.38)$	$0.665^{+0.021}_{-0.019}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.015}_{-0.015}$	$f\sigma_8(0.51)$	$0.474^{+0.018}_{-0.017}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00024}_{-0.00027}$	$\sigma_8(0.51)$	$0.622^{+0.020}_{-0.018}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00024}_{-0.00027}$	$f\sigma_8(0.61)$	$0.469^{+0.017}_{-0.016}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	$0.592^{+0.019}_{-0.017}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.77^{+0.25}_{-0.25}$	$f\sigma_8(2.33)$	$0.2985^{+0.0094}_{-0.0084}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.8}_{-4.9}$	$z_*$	$1090.2^{+1.1}_{-1.1}$	$\sigma_8(2.33)$	$0.308^{+0.010}_{-0.0094}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.5}$	$r_*$	$144.7^{+1.2}_{-1.3}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.2}_{-8.7}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.90^{+0.11}_{-0.12}$	$f_{2000}^{217}$	$108.1^{+5.0}_{-4.8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.4^{+1.2}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.4)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.4^{+1.2}_{-1.3}$	$\chi_{\mathrm{lowl}}^2$	$23.6 (\nu: 1.1)$
$H_0$	$67.8^{+1.8}_{-1.7}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{plik}}^2$	$772.2 (\nu: 14.6)$
$\Omega_{\Lambda}$	$0.689^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16105^{+0.00070}_{-0.00069}$	$\chi_{6\mathrm{DF}}^2$	$0.057 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.019}_{-0.018}$	$z_{\mathrm{eq}}$	$3391^{+130}_{-120}$	$\chi_{\mathrm{MGS}}^2$	$1.48 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0054}_{-0.0050}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00039}_{-0.00037}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 (\nu: 1.7)$
$\Omega_{\mathrm{m}}h^3$	$0.0967^{+0.0047}_{-0.0043}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.023}_{-0.023}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$\sigma_8$	$0.811^{+0.027}_{-0.025}$	$100\theta_{\mathrm{s,eq}}$	$0.450^{+0.012}_{-0.012}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 1.3)$
$S_8$	$0.825^{+0.043}_{-0.041}$	$H(0.15)$	$73.1^{+1.7}_{-1.7}$	$\chi_{\mathrm{CMB}}^2$	$1192.6 (\nu: 14.7)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.15)$	$639^{+16}_{-16}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.025}_{-0.023}$	$H(0.38)$	$83.2^{+1.8}_{-1.7}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1206.04; R - 1 = 0.01397$



### 16.13 base\_omegak\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02217^{+0.00061}_{-0.00058}$	$\sigma_8/h^{0.5}$	$0.986^{+0.025}_{-0.024}$	$D_{\mathrm{M}}(0.38)$	$1526^{+35}_{-35}$
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0049}_{-0.0047}$	$r_{\mathrm{drag}}h$	$99.9^{+2.6}_{-2.4}$	$H(0.51)$	$89.9^{+1.8}_{-1.7}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.057}_{-0.056}$	$D_{\mathrm{M}}(0.51)$	$1977^{+44}_{-44}$
$\tau$	$0.055^{+0.018}_{-0.014}$	$z_{\mathrm{re}}$	$< 9.42$	$H(0.61)$	$95.5^{+1.9}_{-1.7}$
$\Omega_K$	$0.00099^{+0.0064}_{-0.0064}$	$10^9 A_{\mathrm{s}}$	$2.100^{+0.078}_{-0.059}$	$D_{\mathrm{M}}(0.61)$	$2301^{+50}_{-51}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.036}_{-0.028}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.031}_{-0.031}$	$H(2.33)$	$236.4^{+4.2}_{-4.3}$
$n_{\mathrm{s}}$	$0.965^{+0.014}_{-0.014}$	$D_{40}$	$1230^{+38}_{-37}$	$D_{\mathrm{M}}(2.33)$	$5753^{+92}_{-100}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0068}_{-0.0063}$	$D_{220}$	$5721^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+34}_{-34}$	$\sigma_8(0.15)$	$0.750^{+0.020}_{-0.019}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.475^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.9^{+4.7}_{-4.6}$	$\sigma_8(0.38)$	$0.665^{+0.018}_{-0.017}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.014}_{-0.014}$	$f\sigma_8(0.51)$	$0.474^{+0.013}_{-0.013}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00024}_{-0.00027}$	$\sigma_8(0.51)$	$0.622^{+0.017}_{-0.016}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00024}_{-0.00028}$	$f\sigma_8(0.61)$	$0.469^{+0.013}_{-0.013}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	$0.592^{+0.016}_{-0.016}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.77^{+0.24}_{-0.25}$	$f\sigma_8(2.33)$	$0.2986^{+0.0081}_{-0.0077}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+5.1}_{-4.9}$	$z_*$	$1090.2^{+1.0}_{-1.0}$	$\sigma_8(2.33)$	$0.3081^{+0.0093}_{-0.0089}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.8}_{-4.6}$	$r_*$	$144.6^{+1.1}_{-1.1}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.1}_{-8.8}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.894^{+0.097}_{-0.10}$	$f_{2000}^{217}$	$108.1^{+5.1}_{-4.9}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0015}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$9.29 (\nu: 0.2)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.4^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$296 (\nu: 13777.7)$
$H_0$	$67.8^{+1.8}_{-1.7}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{lowl}}^2$	$125 (\nu: 13788.8)$
$\Omega_{\Lambda}$	$0.688^{+0.017}_{-0.017}$	$100\theta_{\mathrm{D}}$	$0.16104^{+0.00071}_{-0.00071}$	$\chi_{\mathrm{plik}}^2$	$771.6 (\nu: 13.5)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.017}_{-0.016}$	$z_{\mathrm{eq}}$	$3391^{+110}_{-110}$	$\chi_{6\mathrm{DF}}^2$	$0.43 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1426^{+0.0047}_{-0.0045}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00034}_{-0.00033}$	$\chi_{\mathrm{MGS}}^2$	$1.04 (\nu: 0.3)$
$\Omega_{\mathrm{m}}h^3$	$0.0966^{+0.0047}_{-0.0042}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.021}_{-0.021}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.8)$
$\sigma_8$	$0.812^{+0.022}_{-0.021}$	$100\theta_{\mathrm{s,eq}}$	$0.450^{+0.011}_{-0.011}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.8)$
$S_8$	$0.826^{+0.033}_{-0.033}$	$H(0.15)$	$73.0^{+1.7}_{-1.7}$	$\chi_{\mathrm{CMB}}^2$	$1201.5 (\nu: 14.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.018}$	$D_{\mathrm{M}}(0.15)$	$640^{+16}_{-16}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 1.3)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.019}_{-0.019}$	$H(0.38)$	$83.2^{+1.8}_{-1.7}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1214.95$ ;  $R - 1 = 0.01494$



## 16.14 base\_omegak\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02219^{+0.00060}_{-0.00057}$	$\sigma_8/h^{0.5}$	$0.985^{+0.024}_{-0.024}$	$D_{\mathrm{M}}(0.38)$	$1525^{+36}_{-35}$
$\Omega_{\mathrm{c}} h^2$	$0.1196^{+0.0048}_{-0.0047}$	$r_{\mathrm{drag}} h$	$99.97^{+2.5}_{-2.4}$	$H(0.51)$	$89.9^{+1.9}_{-1.7}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	$2.436^{+0.057}_{-0.054}$	$D_{\mathrm{M}}(0.51)$	$1976^{+44}_{-44}$
$\tau$	$0.055^{+0.018}_{-0.014}$	$z_{\mathrm{re}}$	$< 9.43$	$H(0.61)$	$95.5^{+1.9}_{-1.7}$
$\Omega_K$	$0.00099^{+0.0065}_{-0.0063}$	$10^9 A_{\mathrm{s}}$	$2.101^{+0.080}_{-0.060}$	$D_{\mathrm{M}}(0.61)$	$2300^{+50}_{-51}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.045^{+0.037}_{-0.029}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.881^{+0.032}_{-0.031}$	$H(2.33)$	$236.3^{+4.2}_{-4.2}$
$n_{\mathrm{s}}$	$0.965^{+0.014}_{-0.014}$	$D_{40}$	$1230^{+38}_{-37}$	$D_{\mathrm{M}}(2.33)$	$5752^{+93}_{-99}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0067}_{-0.0064}$	$D_{220}$	$5722^{+100}_{-98}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.016}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+34}_{-34}$	$\sigma_8(0.15)$	$0.750^{+0.020}_{-0.019}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$816^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.475^{+0.014}_{-0.014}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.9^{+4.6}_{-4.6}$	$\sigma_8(0.38)$	$0.665^{+0.018}_{-0.017}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.014}_{-0.014}$	$f\sigma_8(0.51)$	$0.474^{+0.013}_{-0.013}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00023}_{-0.00027}$	$\sigma_8(0.51)$	$0.622^{+0.017}_{-0.016}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00024}_{-0.00027}$	$f\sigma_8(0.61)$	$0.469^{+0.013}_{-0.012}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	$0.592^{+0.016}_{-0.016}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.77^{+0.24}_{-0.26}$	$f\sigma_8(2.33)$	$0.2987^{+0.0082}_{-0.0076}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+5.1}_{-4.9}$	$z_*$	$1090.1^{+1.0}_{-1.0}$	$\sigma_8(2.33)$	$0.3082^{+0.0093}_{-0.0090}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.8}_{-4.6}$	$r_*$	$144.7^{+1.1}_{-1.1}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.2}_{-8.8}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.897^{+0.096}_{-0.10}$	$f_{2000}^{217}$	$108.0^{+5.1}_{-4.9}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0015}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$9.29 (\nu: 0.2)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.4^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$294 (\nu: 13886.3)$
$H_0$	$67.8^{+1.7}_{-1.7}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{lowl}}^2$	$126 (\nu: 13895.9)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.016}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00071}_{-0.00070}$	$\chi_{\mathrm{plik}}^2$	$771.7 (\nu: 13.6)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.016}$	$z_{\mathrm{eq}}$	$3388^{+110}_{-100}$	$\chi_{\mathrm{JLA}}^2$	$1035.07 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1424^{+0.0046}_{-0.0044}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00033}_{-0.00032}$	$\chi_{6\mathrm{DF}}^2$	$0.45 (\nu: 0.3)$
$\Omega_{\mathrm{m}} h^3$	$0.0966^{+0.0047}_{-0.0042}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.020}_{-0.020}$	$\chi_{\mathrm{MGS}}^2$	$1.08 (\nu: 0.3)$
$\sigma_8$	$0.811^{+0.022}_{-0.021}$	$100\theta_{\mathrm{s,eq}}$	$0.451^{+0.010}_{-0.010}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 (\nu: 1.5)$
$S_8$	$0.824^{+0.032}_{-0.032}$	$H(0.15)$	$73.1^{+1.7}_{-1.7}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.8)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.018}$	$D_{\mathrm{M}}(0.15)$	$639^{+16}_{-16}$	$\chi_{\mathrm{CMB}}^2$	$1201.5 (\nu: 14.8)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.019}_{-0.018}$	$H(0.38)$	$83.2^{+1.8}_{-1.7}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 1.1)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2249.97; R - 1 = 0.01495$$



16.15 base\_omegak\_plikHM\_TTTEEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022396	$0.02239^{+0.00041}_{-0.00040}$ (+1.0 $\sigma$ )	$\sigma_8$	0.8109	$0.811^{+0.022}_{-0.022}$ (+0.1 $\sigma$ )	$D_M(0.15)$	638.9	$639^{+15}_{-16}$ (−0.1 $\sigma$ )
$\Omega_c h^2$	0.11972	$0.1197^{+0.0036}_{-0.0036}$ (−0.0 $\sigma$ )	$S_8$	0.8242	$0.824^{+0.035}_{-0.032}$ (+0.0 $\sigma$ )	$H(0.38)$	83.28	$83.3^{+1.7}_{-1.5}$ (+0.1 $\sigma$ )
$100\theta_{MC}$	1.04095	$1.04095^{+0.00078}_{-0.00081}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4515	$0.451^{+0.019}_{-0.018}$ (+0.0 $\sigma$ )	$D_M(0.38)$	1523.9	$1524^{+34}_{-35}$ (−0.1 $\sigma$ )
$\tau$	0.0544	$0.055^{+0.021}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6051	$0.605^{+0.019}_{-0.019}$ (+0.0 $\sigma$ )	$H(0.51)$	90.00	$90.0^{+1.7}_{-1.5}$ (+0.1 $\sigma$ )
$\Omega_K$	0.0008	$0.0008^{+0.0053}_{-0.0049}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9843	$0.984^{+0.028}_{-0.026}$ (+0.0 $\sigma$ )	$D_M(0.51)$	1974.3	$1974^{+41}_{-44}$ (−0.1 $\sigma$ )
$\ln(10^{10} A_s)$	3.0441	$3.044^{+0.043}_{-0.043}$ (+0.3 $\sigma$ )	$r_{drag} h$	99.86	$99.9^{+2.7}_{-2.5}$ (−0.0 $\sigma$ )	$H(0.61)$	95.63	$95.6^{+1.7}_{-1.5}$ (+0.1 $\sigma$ )
$n_s$	0.9664	$0.966^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.434	$2.434^{+0.067}_{-0.065}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2297.5	$2297^{+46}_{-49}$ (−0.1 $\sigma$ )
$y_{cal}$	1.0006	$1.0006^{+0.0063}_{-0.0065}$ (−0.0 $\sigma$ )	$z_{re}$	7.69	$7.7^{+2.0}_{-2.1}$ (+0.2 $\sigma$ )	$H(2.33)$	236.59	$236.6^{+3.1}_{-3.1}$ (+0.1 $\sigma$ )
$A_{217}^{CIB}$	47.4	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.099	$2.100^{+0.092}_{-0.089}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5746	$5746^{+81}_{-87}$ (−0.1 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.43	—	$10^9 A_s e^{-2\tau}$	1.8827	$1.882^{+0.031}_{-0.030}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4561	$0.456^{+0.018}_{-0.017}$ (+0.0 $\sigma$ )
$A_{143}^{tSZ}$	7.2	—	$D_{40}$	1228.1	$1229^{+34}_{-35}$ (−0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7495	$0.750^{+0.020}_{-0.020}$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	251	$259^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{220}$	5733	$5734^{+100}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4747	$0.475^{+0.015}_{-0.015}$ (+0.0 $\sigma$ )
$A_{143}^{PS}$	48.1	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2541.2	$2539^{+36}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6646	$0.665^{+0.018}_{-0.018}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	47.6	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	818.2	$817^{+12}_{-12}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4735	$0.473^{+0.014}_{-0.014}$ (+0.1 $\sigma$ )
$A_{217}^{PS}$	119.5	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{2000}$	231.28	$230.9^{+4.2}_{-4.0}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6220	$0.622^{+0.017}_{-0.017}$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9664	$0.966^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4686	$0.469^{+0.013}_{-0.013}$ (+0.1 $\sigma$ )
$A_{100}^{dustTT}$	8.79	$8.9^{+4.8}_{-4.7}$ (−0.0 $\sigma$ )	$Y_P$	0.245406	$0.24540^{+0.00015}_{-0.00016}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5919	$0.592^{+0.016}_{-0.016}$ (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	11.01	$10.9^{+4.7}_{-4.6}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246732	$0.24673^{+0.00015}_{-0.00017}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.2985	$0.2985^{+0.0082}_{-0.0083}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.8	$18.6^{+8.5}_{-8.6}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.581	$2.583^{+0.075}_{-0.073}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3079	$0.3080^{+0.0093}_{-0.0093}$ (+0.1 $\sigma$ )
$A_{217}^{dustTT}$	94.9	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.755	$13.75^{+0.21}_{-0.22}$ (−0.1 $\sigma$ )	$f_{2000}^{143}$	29.1	$30^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.115^{+0.10}_{-0.095}$	$z_*$	1089.86	$1089.88^{+0.73}_{-0.72}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.10	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.076}_{-0.078}$	$r_*$	144.48	$144.50^{+0.81}_{-0.80}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	106.68	$107.0^{+4.8}_{-4.7}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04113	$1.04113^{+0.00076}_{-0.00081}$ (+0.1 $\sigma$ )	$\chi_{small}^2$	396.06	$397.2$ ( $\nu$ : 1.8) (+0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.878	$13.879^{+0.077}_{-0.074}$ (−0.3 $\sigma$ )	$\chi_{lowl}^2$	23.21	$23.4$ ( $\nu$ : 0.6) (−0.1 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.666	$0.67^{+0.21}_{-0.20}$	$z_{drag}$	1059.97	$1059.95^{+0.82}_{-0.78}$ (+1.1 $\sigma$ )	$\chi_{plik}^2$	2345.1	$2360.2$ ( $\nu$ : 17.0) (+292.9 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.68}$	$r_{drag}$	147.14	$147.15^{+0.80}_{-0.78}$ (−0.5 $\sigma$ )	$\chi_{6DF}^2$	0.016	$0.057$ ( $\nu$ : 0.0) (+0.0 $\sigma$ )
$c_{100}$	0.99969	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14084	$0.14081^{+0.00082}_{-0.00083}$ (+0.8 $\sigma$ )	$\chi_{MGS}^2$	1.34	$1.44$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160736	$0.16075^{+0.00046}_{-0.00045}$ (−1.1 $\sigma$ )	$\chi_{DR12BAO}^2$	3.92	$4.7$ ( $\nu$ : 1.9) (+0.1 $\sigma$ )
$H_0$	67.87	$67.9^{+1.8}_{-1.7}$ (+0.1 $\sigma$ )	$z_{eq}$	3396	$3396^{+81}_{-82}$ (+0.1 $\sigma$ )	$\chi_{prior}^2$	1.7	$11.6$ ( $\nu$ : 10.2) (+1.2 $\sigma$ )
$\Omega_\Lambda$	0.6893	$0.689^{+0.016}_{-0.017}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010365	$0.01036^{+0.00025}_{-0.00025}$ (+0.1 $\sigma$ )	$\chi_{BAO}^2$	5.28	$6.2$ ( $\nu$ : 1.4) (+0.1 $\sigma$ )
$\Omega_m$	0.3099	$0.310^{+0.018}_{-0.017}$ (−0.1 $\sigma$ )	$100\theta_{eq}$	0.8145	$0.815^{+0.016}_{-0.015}$ (+0.0 $\sigma$ )	$\chi_{CMB}^2$	2764.4	$2780.7$ ( $\nu$ : 17.0) (+289.5 $\sigma$ )
$\Omega_m h^2$	0.14276	$0.1427^{+0.0034}_{-0.0034}$ (+0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4500	$0.4501^{+0.0081}_{-0.0078}$ (−0.0 $\sigma$ )			
$\Omega_m h^3$	0.09689	$0.0969^{+0.0038}_{-0.0034}$ (+0.1 $\sigma$ )	$H(0.15)$	73.15	$73.2^{+1.8}_{-1.6}$ (+0.1 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 2771.38$ ;  $\Delta\chi_{eff}^2 = 1586.02$ ;  $\bar{\chi}_{eff}^2 = 2798.58$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.32$ ;  $R - 1 = 0.01668$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.02 ( $\Delta$  0.01) MGS: 1.34 ( $\Delta$  -0.06) DR12BAO: 3.92 ( $\Delta$  0.25) CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 396.06 ( $\Delta$  0.21) commander\_dx12\_v3\_2\_29: 23.21 ( $\Delta$  -0.13) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.09



16.16 base\_omegak\_plikHM\_TTTEE\_lowl\_lowE\_BAO\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022412	$0.02239^{+0.00040}_{-0.00040}$ (+1.0 $\sigma$ )	$\sigma_8$	0.8118	$0.812^{+0.019}_{-0.018}$ (+0.0 $\sigma$ )	$D_M(0.15)$	638.8	$639^{+15}_{-15}$ (−0.2 $\sigma$ )
$\Omega_c h^2$	0.11970	$0.1197^{+0.0035}_{-0.0033}$ (−0.1 $\sigma$ )	$S_8$	0.8250	$0.825^{+0.028}_{-0.026}$ (−0.1 $\sigma$ )	$H(0.38)$	83.28	$83.3^{+1.6}_{-1.5}$ (+0.1 $\sigma$ )
$100\theta_{MC}$	1.04099	$1.04095^{+0.00077}_{-0.00085}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4519	$0.452^{+0.015}_{-0.014}$ (−0.1 $\sigma$ )	$D_M(0.38)$	1523.8	$1524^{+33}_{-33}$ (−0.2 $\sigma$ )
$\tau$	0.0556	$0.056^{+0.019}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6057	$0.606^{+0.016}_{-0.015}$ (−0.0 $\sigma$ )	$H(0.51)$	90.00	$90.0^{+1.6}_{-1.6}$ (+0.1 $\sigma$ )
$\Omega_K$	0.0007	$0.0007^{+0.0052}_{-0.0049}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9854	$0.985^{+0.022}_{-0.021}$ (−0.1 $\sigma$ )	$D_M(0.51)$	1974.2	$1975^{+40}_{-41}$ (−0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0462	$3.046^{+0.037}_{-0.036}$ (+0.2 $\sigma$ )	$r_{drag} h$	99.86	$99.9^{+2.5}_{-2.4}$ (+0.0 $\sigma$ )	$H(0.61)$	95.63	$95.6^{+1.6}_{-1.5}$ (+0.1 $\sigma$ )
$n_s$	0.9669	$0.966^{+0.012}_{-0.011}$ (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.435	$2.437^{+0.054}_{-0.052}$ (+0.0 $\sigma$ )	$D_M(0.61)$	2297.4	$2298^{+46}_{-46}$ (−0.1 $\sigma$ )
$y_{cal}$	1.0005	$1.0007^{+0.0061}_{-0.0063}$ (−0.0 $\sigma$ )	$z_{re}$	7.80	$7.8^{+1.8}_{-2.0}$ (+0.1 $\sigma$ )	$H(2.33)$	236.58	$236.6^{+3.1}_{-2.8}$ (+0.0 $\sigma$ )
$A_{217}^{CIB}$	46.8	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.104	$2.104^{+0.080}_{-0.074}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5746	$5747^{+81}_{-82}$ (−0.1 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.47	—	$10^9 A_s e^{-2\tau}$	1.8821	$1.882^{+0.030}_{-0.029}$ (+0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4565	$0.456^{+0.014}_{-0.014}$ (−0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.2	—	$D_{40}$	1226.9	$1230^{+32}_{-32}$ (−0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7503	$0.750^{+0.018}_{-0.017}$ (+0.0 $\sigma$ )
$A_{100}^{PS}$	249	$259^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{220}$	5730	$5737^{+97}_{-98}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4752	$0.475^{+0.012}_{-0.012}$ (−0.0 $\sigma$ )
$A_{143}^{PS}$	47.7	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2540.9	$2540^{+34}_{-32}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6653	$0.665^{+0.016}_{-0.016}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	48.3	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	818.4	$818^{+12}_{-12}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4740	$0.474^{+0.011}_{-0.011}$ (−0.0 $\sigma$ )
$A_{217}^{PS}$	120.2	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{2000}$	231.41	$231.0^{+4.1}_{-4.0}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6227	$0.622^{+0.016}_{-0.015}$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9669	$0.966^{+0.012}_{-0.011}$ (+0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4692	$0.469^{+0.011}_{-0.010}$ (+0.0 $\sigma$ )
$A_{100}^{dustTT}$	8.83	$8.9^{+4.6}_{-4.6}$ (−0.0 $\sigma$ )	$Y_P$	0.245412	$0.24540^{+0.00015}_{-0.00016}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5926	$0.592^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	11.00	$10.9^{+4.7}_{-4.8}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246738	$0.24673^{+0.00015}_{-0.00017}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.2988	$0.2987^{+0.0076}_{-0.0077}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.8	$18.6^{+8.5}_{-8.5}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.578	$2.582^{+0.075}_{-0.071}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3082	$0.3081^{+0.0087}_{-0.0088}$ (+0.1 $\sigma$ )
$A_{217}^{dustTT}$	95.1	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.755	$13.76^{+0.21}_{-0.21}$ (−0.1 $\sigma$ )	$f_{2000}^{143}$	28.6	$30^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.10}_{-0.094}$	$z_*$	1089.84	$1089.86^{+0.73}_{-0.71}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.86	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.133	$0.135^{+0.075}_{-0.077}$	$r_*$	144.48	$144.50^{+0.76}_{-0.77}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	106.50	$107.0^{+4.9}_{-4.7}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04116	$1.04113^{+0.00077}_{-0.00084}$ (+0.1 $\sigma$ )	$\chi^2_{lensing}$	8.79	$9.13$ ( $\nu$ : 0.2) (−0.3 $\sigma$ )
$A_{143}^{dustTE}$	0.223	$0.22^{+0.15}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.877	$13.879^{+0.071}_{-0.072}$ (−0.3 $\sigma$ )	$\chi^2_{small}$	396	$291$ ( $\nu$ : 14169.0) (−0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.665	$0.66^{+0.20}_{-0.21}$	$z_{drag}$	1060.01	$1059.97^{+0.80}_{-0.80}$ (+1.1 $\sigma$ )	$\chi^2_{lowl}$	23	$129$ ( $\nu$ : 14165.2) (+0.0 $\sigma$ )
$A_{217}^{dustTE}$	2.09	$2.08^{+0.67}_{-0.69}$	$r_{drag}$	147.13	$147.15^{+0.76}_{-0.76}$ (−0.5 $\sigma$ )	$\chi^2_{plik}$	2345.0	$2359.8$ ( $\nu$ : 16.8) (+305.1 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14086	$0.14082^{+0.00079}_{-0.00080}$ (+0.8 $\sigma$ )	$\chi^2_{6DF}$	0.02	$0.44$ ( $\nu$ : 0.2) (+0.0 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0015}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160720	$0.16074^{+0.00047}_{-0.00045}$ (−1.1 $\sigma$ )	$\chi^2_{MGS}$	1.34	$1.03$ ( $\nu$ : 0.3) (−0.0 $\sigma$ )
$H_0$	67.87	$67.9^{+1.7}_{-1.6}$ (+0.2 $\sigma$ )	$z_{eq}$	3396	$3395^{+78}_{-75}$ (+0.0 $\sigma$ )	$\chi^2_{DR12BAO}$	3.93	$4.7$ ( $\nu$ : 1.8) (+0.0 $\sigma$ )
$\Omega_\Lambda$	0.6894	$0.689^{+0.014}_{-0.015}$ (+0.2 $\sigma$ )	$k_{eq}$	0.010365	$0.01036^{+0.00024}_{-0.00023}$ (+0.0 $\sigma$ )	$\chi^2_{prior}$	1.7	$11.5$ ( $\nu$ : 9.9) (+1.1 $\sigma$ )
$\Omega_m$	0.3099	$0.310^{+0.016}_{-0.016}$ (−0.1 $\sigma$ )	$100\theta_{eq}$	0.8146	$0.815^{+0.014}_{-0.015}$ (+0.0 $\sigma$ )	$\chi^2_{CMB}$	2773.2	$2789.5$ ( $\nu$ : 17.6) (+288.3 $\sigma$ )
$\Omega_m h^2$	0.14275	$0.1427^{+0.0033}_{-0.0031}$ (+0.0 $\sigma$ )	$100\theta_{s,eq}$	0.4500	$0.4501^{+0.0073}_{-0.0074}$ (+0.0 $\sigma$ )	$\chi^2_{BAO}$	5.29	$6.2$ ( $\nu$ : 1.3) (+0.0 $\sigma$ )
$\Omega_m h^3$	0.09689	$0.0969^{+0.0038}_{-0.0035}$ (+0.1 $\sigma$ )	$H(0.15)$	73.16	$73.1^{+1.6}_{-1.6}$ (+0.2 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 2780.16$ ;  $\Delta\chi^2_{eff} = 1585.80$ ;  $\bar{\chi}^2_{eff} = 2807.21$ ;  $\Delta\bar{\chi}^2_{eff} = 1592.06$ ;  $R - 1 = 0.02276$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.02 ( $\Delta$  0.00) MGS: 1.34 ( $\Delta$  0.00) DR12BAO: 3.93 ( $\Delta$  0.08) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.79 ( $\Delta$  -0.09) small\_100x143\_offlike5\_EE\_Aplanck: 396.28 ( $\Delta$  0.26) commander\_dx12\_v3\_2.29: 23.14 ( $\Delta$  -0.29) plik\_rd12\_HM\_v22b.TTTEE: 2344.96



16.17 base\_omegak\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022420	$0.02240^{+0.00039}_{-0.00040}$ (+1.0 $\sigma$ )	$\sigma_8$	0.8117	$0.812^{+0.019}_{-0.018}$ (+0.1 $\sigma$ )	$D_M(0.15)$	638.2	$638^{+15}_{-15}$ (−0.2 $\sigma$ )
$\Omega_c h^2$	0.11956	$0.1196^{+0.0035}_{-0.0033}$ (−0.0 $\sigma$ )	$S_8$	0.8238	$0.824^{+0.027}_{-0.026}$ (−0.0 $\sigma$ )	$H(0.38)$	83.32	$83.3^{+1.6}_{-1.5}$ (+0.1 $\sigma$ )
$100\theta_{MC}$	1.04097	$1.04096^{+0.00077}_{-0.00085}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4512	$0.451^{+0.015}_{-0.014}$ (−0.0 $\sigma$ )	$D_M(0.38)$	1522.7	$1523^{+32}_{-33}$ (−0.2 $\sigma$ )
$\tau$	0.0559	$0.056^{+0.019}_{-0.018}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6052	$0.605^{+0.016}_{-0.015}$ (+0.0 $\sigma$ )	$H(0.51)$	90.04	$90.0^{+1.6}_{-1.5}$ (+0.1 $\sigma$ )
$\Omega_K$	0.0008	$0.0008^{+0.0052}_{-0.0049}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9848	$0.985^{+0.022}_{-0.021}$ (−0.0 $\sigma$ )	$D_M(0.51)$	1972.9	$1973^{+40}_{-41}$ (−0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0470	$3.047^{+0.037}_{-0.036}$ (+0.2 $\sigma$ )	$r_{drag} h$	99.98	$99.97^{+2.4}_{-2.3}$ (+0.0 $\sigma$ )	$H(0.61)$	95.66	$95.7^{+1.6}_{-1.5}$ (+0.1 $\sigma$ )
$n_s$	0.9672	$0.966^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.434	$2.436^{+0.052}_{-0.051}$ (+0.0 $\sigma$ )	$D_M(0.61)$	2296.0	$2296^{+45}_{-45}$ (−0.2 $\sigma$ )
$y_{cal}$	1.0008	$1.0007^{+0.0061}_{-0.0063}$ (−0.0 $\sigma$ )	$z_{re}$	7.83	$7.8^{+1.8}_{-2.0}$ (+0.1 $\sigma$ )	$H(2.33)$	236.51	$236.5^{+3.1}_{-2.8}$ (+0.1 $\sigma$ )
$A_{217}^{CIB}$	46.4	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.105	$2.105^{+0.079}_{-0.074}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5745	$5745^{+79}_{-81}$ (−0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.61	—	$10^9 A_s e^{-2\tau}$	1.8825	$1.882^{+0.030}_{-0.028}$ (+0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4559	$0.456^{+0.014}_{-0.013}$ (−0.0 $\sigma$ )
$A_{143}^{tSZ}$	7.1	—	$D_{40}$	1227.0	$1229^{+32}_{-32}$ (−0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7503	$0.750^{+0.018}_{-0.017}$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	249	$259^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{220}$	5734	$5738^{+99}_{-98}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4748	$0.475^{+0.012}_{-0.012}$ (+0.0 $\sigma$ )
$A_{143}^{PS}$	49.9	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2542.2	$2540^{+34}_{-32}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6654	$0.665^{+0.016}_{-0.016}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	51.9	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	818.9	$818^{+12}_{-12}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4737	$0.474^{+0.011}_{-0.011}$ (+0.0 $\sigma$ )
$A_{217}^{PS}$	121.2	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{2000}$	231.57	$231.1^{+4.1}_{-4.0}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6228	$0.623^{+0.016}_{-0.015}$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9672	$0.966^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4689	$0.469^{+0.011}_{-0.010}$ (+0.0 $\sigma$ )
$A_{100}^{dustTT}$	8.84	$8.9^{+4.6}_{-4.6}$ (−0.0 $\sigma$ )	$Y_P$	0.245415	$0.24541^{+0.00015}_{-0.00016}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5927	$0.593^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	11.07	$10.9^{+4.7}_{-4.8}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246742	$0.24673^{+0.00015}_{-0.00016}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.2989	$0.2988^{+0.0075}_{-0.0074}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.1	$18.6^{+8.5}_{-8.5}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.576	$2.580^{+0.075}_{-0.070}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3084	$0.3083^{+0.0086}_{-0.0086}$ (+0.1 $\sigma$ )
$A_{217}^{dustTT}$	95.4	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.752	$13.75^{+0.20}_{-0.21}$ (−0.1 $\sigma$ )	$f_{2000}^{143}$	28.6	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.10}_{-0.094}$	$z_*$	1089.82	$1089.85^{+0.73}_{-0.72}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.97	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.075}_{-0.077}$	$r_*$	144.51	$144.51^{+0.75}_{-0.77}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	106.52	$107.0^{+4.9}_{-4.7}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04115	$1.04114^{+0.00077}_{-0.00084}$ (+0.1 $\sigma$ )	$\chi^2_{lensing}$	8.77	$9.13$ ( $\nu$ : 0.2) (−0.3 $\sigma$ )
$A_{143}^{dustTE}$	0.226	$0.22^{+0.15}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.879	$13.880^{+0.072}_{-0.072}$ (−0.4 $\sigma$ )	$\chi^2_{small}$	396	$291$ ( $\nu$ : 14174.2) (−0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.668	$0.66^{+0.20}_{-0.21}$	$z_{drag}$	1060.01	$1059.98^{+0.79}_{-0.81}$ (+1.1 $\sigma$ )	$\chi^2_{lowl}$	23	$129$ ( $\nu$ : 14170.3) (+0.0 $\sigma$ )
$A_{217}^{dustTE}$	2.09	$2.08^{+0.67}_{-0.69}$	$r_{drag}$	147.15	$147.16^{+0.75}_{-0.76}$ (−0.5 $\sigma$ )	$\chi^2_{plik}$	2345.1	$2359.9$ ( $\nu$ : 17.0) (+304.4 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14084	$0.14081^{+0.00078}_{-0.00080}$ (+0.9 $\sigma$ )	$\chi^2_{JLA}$	1034.96	$1035.03$ ( $\nu$ : 0.0) (−0.2 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0015}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160711	$0.16074^{+0.00046}_{-0.00046}$ (−1.1 $\sigma$ )	$\chi^2_{6DF}$	0.01	$0.46$ ( $\nu$ : 0.3) (+0.0 $\sigma$ )
$H_0$	67.94	$67.9^{+1.7}_{-1.6}$ (+0.2 $\sigma$ )	$z_{eq}$	3393	$3393^{+78}_{-73}$ (+0.1 $\sigma$ )	$\chi^2_{MGS}$	1.41	$1.07$ ( $\nu$ : 0.3) (−0.0 $\sigma$ )
$\Omega_\Lambda$	0.6902	$0.690^{+0.014}_{-0.015}$ (+0.2 $\sigma$ )	$k_{eq}$	0.010356	$0.01036^{+0.00024}_{-0.00022}$ (+0.1 $\sigma$ )	$\chi^2_{DR12BAO}$	3.79	$4.5$ ( $\nu$ : 1.4) (+0.0 $\sigma$ )
$\Omega_m$	0.3090	$0.309^{+0.016}_{-0.015}$ (−0.1 $\sigma$ )	$100\theta_{eq}$	0.8151	$0.815^{+0.014}_{-0.015}$ (+0.0 $\sigma$ )	$\chi^2_{prior}$	1.7	$11.5$ ( $\nu$ : 9.9) (+1.1 $\sigma$ )
$\Omega_m h^2$	0.14263	$0.1426^{+0.0033}_{-0.0031}$ (+0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4503	$0.4503^{+0.0073}_{-0.0074}$ (−0.0 $\sigma$ )	$\chi^2_{CMB}$	2773.3	$2789.6$ ( $\nu$ : 17.6) (+289.2 $\sigma$ )
$\Omega_m h^3$	0.09690	$0.0969^{+0.0037}_{-0.0034}$ (+0.1 $\sigma$ )	$H(0.15)$	73.22	$73.2^{+1.7}_{-1.5}$ (+0.2 $\sigma$ )	$\chi^2_{BAO}$	5.20	$6.1$ ( $\nu$ : 1.0) (+0.0 $\sigma$ )

Best-fit  $\chi^2_{eff} = 3815.13$ ;  $\bar{\chi}^2_{eff} = 3842.20$ ;  $\Delta\bar{\chi}^2_{eff} = 1592.05$ ;  $R - 1 = 0.02228$

$\chi^2_{eff}$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.79 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.77 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.34 commander\_dx12\_v3\_2\_29: 23.10 plik\_rd12\_HM\_v22b\_TTTEEE: 2345.08 SN - JLA Pantheon18: 1034.96



## 16.18 base\_omegak\_plikHM\_TTTEE\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00040}_{-0.00040} \quad (+1.0\sigma)$	$\sigma_8$	$0.812^{+0.021}_{-0.020} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$639^{+15}_{-16} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0036}_{-0.0036} \quad (-0.0\sigma)$	$S_8$	$0.825^{+0.034}_{-0.032} \quad (+0.0\sigma)$	$H(0.38)$	$83.3^{+1.7}_{-1.6} \quad (+0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00077}_{-0.00081} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.019}_{-0.017} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1524^{+34}_{-36} \quad (-0.1\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.019}_{-0.017} \quad (+0.0\sigma)$	$H(0.51)$	$90.0^{+1.7}_{-1.5} \quad (+0.1\sigma)$
$\Omega_K$	$0.0008^{+0.0053}_{-0.0049} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.028}_{-0.024} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1974^{+41}_{-44} \quad (-0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.041}_{-0.031} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$99.9^{+2.7}_{-2.5} \quad (-0.0\sigma)$	$H(0.61)$	$95.6^{+1.7}_{-1.5} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.012}_{-0.011} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.436^{+0.065}_{-0.058} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2297^{+46}_{-49} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0063}_{-0.0065} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.56 \quad (+0.1\sigma)$	$H(2.33)$	$236.6^{+3.2}_{-3.0} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.089}_{-0.064} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5746^{+81}_{-87} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.031}_{-0.030} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.018}_{-0.016} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1229^{+34}_{-34} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.750^{+0.020}_{-0.018} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.1\sigma)$	$D_{220}$	$5734^{+100}_{-100} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.015}_{-0.014} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2539^{+35}_{-34} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.665^{+0.017}_{-0.016} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.014}_{-0.013} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{2000}$	$230.9^{+4.1}_{-4.0} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.623^{+0.016}_{-0.015} \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.012}_{-0.011} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.013}_{-0.012} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.7} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24540^{+0.00015}_{-0.00017} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.593^{+0.016}_{-0.014} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00015}_{-0.00017} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.2988^{+0.0080}_{-0.0072} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.5}_{-8.5} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.583^{+0.075}_{-0.072} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	$0.3083^{+0.0090}_{-0.0083} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.75^{+0.21}_{-0.22} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.10}_{-0.095}$	$z_*$	$1089.87^{+0.72}_{-0.72} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.076}_{-0.077}$	$r_*$	$144.50^{+0.81}_{-0.80} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$107.0^{+4.7}_{-4.7} \quad (-0.5\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04113^{+0.00075}_{-0.00081} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.9) \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.879^{+0.077}_{-0.074} \quad (-0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.4 \quad (\nu: 0.6) \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.95^{+0.78}_{-0.78} \quad (+1.1\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.0 \quad (\nu: 16.6) \quad (+293.9\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.69}_{-0.68}$	$r_{\mathrm{drag}}$	$147.16^{+0.80}_{-0.78} \quad (-0.5\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.057 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14081^{+0.00082}_{-0.00083} \quad (+0.8\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.45 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16075^{+0.00046}_{-0.00045} \quad (-1.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 \quad (\nu: 1.8) \quad (+0.1\sigma)$
$H_0$	$67.9^{+1.9}_{-1.7} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3395^{+82}_{-81} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.016} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01036^{+0.00025}_{-0.00025} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.2 \quad (\nu: 1.4) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.016}_{-0.015} \quad (-0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2780.5 \quad (\nu: 16.5) \quad (+292.8\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1427^{+0.0034}_{-0.0034} \quad (+0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4501^{+0.0080}_{-0.0078} \quad (-0.1\sigma)$		
$\Omega_{\mathrm{m}}h^3$	$0.0969^{+0.0038}_{-0.0034} \quad (+0.1\sigma)$	$H(0.15)$	$73.2^{+1.8}_{-1.6} \quad (+0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2798.34; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.29; R - 1 = 0.01378$$



16.19 base\_omegak\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00040}_{-0.00040}$ (+1.0 $\sigma$ )	$\sigma_8$	$0.812^{+0.019}_{-0.017}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$639^{+15}_{-15}$ (−0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0035}_{-0.0033}$ (−0.0 $\sigma$ )	$S_8$	$0.825^{+0.028}_{-0.026}$ (−0.1 $\sigma$ )	$H(0.38)$	$83.3^{+1.6}_{-1.5}$ (+0.2 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.04096^{+0.00076}_{-0.00086}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.015}_{-0.014}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1524^{+33}_{-33}$ (−0.2 $\sigma$ )
$\tau$	$0.056^{+0.018}_{-0.014}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.016}_{-0.015}$ (−0.0 $\sigma$ )	$H(0.51)$	$90.0^{+1.6}_{-1.5}$ (+0.1 $\sigma$ )
$\Omega_K$	$0.0007^{+0.0052}_{-0.0050}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.986^{+0.022}_{-0.020}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1974^{+41}_{-41}$ (−0.2 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.036}_{-0.029}$ (+0.2 $\sigma$ )	$r_{\mathrm{drag}}h$	$99.9^{+2.5}_{-2.3}$ (+0.0 $\sigma$ )	$H(0.61)$	$95.6^{+1.6}_{-1.5}$ (+0.1 $\sigma$ )
$n_{\mathrm{s}}$	$0.966^{+0.012}_{-0.010}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.053}_{-0.051}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2298^{+46}_{-46}$ (−0.2 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0007^{+0.0061}_{-0.0063}$ (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	$< 9.44$ (+0.1 $\sigma$ )	$H(2.33)$	$236.5^{+3.2}_{-2.8}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}$	$2.106^{+0.078}_{-0.061}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5747^{+81}_{-82}$ (−0.2 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.029}_{-0.028}$ (+0.0 $\sigma$ )	$f\sigma_8(0.15)$	$0.457^{+0.014}_{-0.014}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1229^{+32}_{-32}$ (−0.0 $\sigma$ )	$\sigma_8(0.15)$	$0.750^{+0.018}_{-0.016}$ (+0.0 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	$5737^{+97}_{-97}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	$0.475^{+0.012}_{-0.012}$ (−0.0 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	$2540^{+33}_{-32}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	$0.665^{+0.016}_{-0.015}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	$818^{+12}_{-12}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	$0.474^{+0.011}_{-0.011}$ (−0.0 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{2000}$	$231.0^{+4.2}_{-4.0}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	$0.623^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.012}_{-0.010}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.010}$ (−0.0 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.6}_{-4.6}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}$	$0.24540^{+0.00015}_{-0.00016}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	$0.593^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.7}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00015}_{-0.00017}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	$0.2989^{+0.0075}_{-0.0070}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.5^{+8.5}_{-8.5}$ (+0.1 $\sigma$ )	$10^5 \mathrm{D}/\mathrm{H}$	$2.581^{+0.075}_{-0.071}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	$0.3083^{+0.0086}_{-0.0080}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$\mathrm{Age}/\mathrm{Gyr}$	$13.76^{+0.21}_{-0.21}$ (−0.1 $\sigma$ )	$f_{2000}^{143}$	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.10}_{-0.094}$	$z_*$	$1089.86^{+0.72}_{-0.71}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.075}_{-0.077}$	$r_*$	$144.50^{+0.76}_{-0.77}$ (−0.3 $\sigma$ )	$f_{2000}^{217}$	$107.0^{+4.9}_{-4.7}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04114^{+0.00075}_{-0.00085}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	9.11 ( $\nu$ : 0.1) (−0.3 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.15}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.879^{+0.071}_{-0.072}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{small}}^2$	291 ( $\nu$ : 14235.6) (−0.0 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.97^{+0.80}_{-0.80}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	130 ( $\nu$ : 14232.1) (+0.0 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.67}_{-0.69}$	$r_{\mathrm{drag}}$	$147.16^{+0.76}_{-0.76}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2359.7 ( $\nu$ : 16.6) (+305.7 $\sigma$ )
$c_{100}$	$0.9997^{+0.0016}_{-0.0015}$ (+0.1 $\sigma$ )	$k_{\mathrm{D}}$	$0.14082^{+0.00081}_{-0.00080}$ (+0.9 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.45 ( $\nu$ : 0.2) (+0.0 $\sigma$ )
$c_{217}$	$0.9982^{+0.0016}_{-0.0015}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00047}_{-0.00045}$ (−1.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	1.03 ( $\nu$ : 0.3) (−0.0 $\sigma$ )
$H_0$	$67.9^{+1.7}_{-1.6}$ (+0.2 $\sigma$ )	$z_{\mathrm{eq}}$	$3395^{+78}_{-74}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	4.7 ( $\nu$ : 1.7) (+0.0 $\sigma$ )
$\Omega_{\Lambda}$	$0.689^{+0.014}_{-0.015}$ (+0.2 $\sigma$ )	$k_{\mathrm{eq}}$	$0.01036^{+0.00024}_{-0.00023}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	11.5 ( $\nu$ : 9.8) (+1.1 $\sigma$ )
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.815^{+0.014}_{-0.014}$ (+0.0 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2789.4 ( $\nu$ : 17.2) (+291.6 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	$0.1427^{+0.0033}_{-0.0031}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4502^{+0.0073}_{-0.0073}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	6.2 ( $\nu$ : 1.2) (+0.0 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	$0.0969^{+0.0038}_{-0.0035}$ (+0.1 $\sigma$ )	$H(0.15)$	$73.2^{+1.6}_{-1.6}$ (+0.2 $\sigma$ )		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2807.05; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.10; R - 1 = 0.02354$$



16.20 base\_omegak\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02240^{+0.00039}_{-0.00040} \quad (+1.0\sigma)$	$\sigma_8$	$0.812^{+0.019}_{-0.017} \quad (+0.1\sigma)$	$D_{\text{M}}(0.15)$	$638^{+14}_{-15} \quad (-0.2\sigma)$
$\Omega_{\text{c}}h^2$	$0.1196^{+0.0035}_{-0.0032} \quad (-0.0\sigma)$	$S_8$	$0.824^{+0.027}_{-0.026} \quad (-0.0\sigma)$	$H(0.38)$	$83.3^{+1.6}_{-1.5} \quad (+0.2\sigma)$
$100\theta_{\text{MC}}$	$1.04096^{+0.00076}_{-0.00086} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.451^{+0.015}_{-0.014} \quad (-0.0\sigma)$	$D_{\text{M}}(0.38)$	$1523^{+32}_{-33} \quad (-0.2\sigma)$
$\tau$	$0.056^{+0.018}_{-0.015} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.605^{+0.015}_{-0.015} \quad (+0.0\sigma)$	$H(0.51)$	$90.0^{+1.6}_{-1.5} \quad (+0.2\sigma)$
$\Omega_K$	$0.0008^{+0.0053}_{-0.0049} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.022}_{-0.020} \quad (-0.0\sigma)$	$D_{\text{M}}(0.51)$	$1973^{+40}_{-41} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.048^{+0.036}_{-0.029} \quad (+0.2\sigma)$	$r_{\text{drag}}h$	$99.99^{+2.4}_{-2.3} \quad (+0.0\sigma)$	$H(0.61)$	$95.7^{+1.6}_{-1.5} \quad (+0.2\sigma)$
$n_{\text{s}}$	$0.966^{+0.012}_{-0.011} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.436^{+0.052}_{-0.050} \quad (+0.0\sigma)$	$D_{\text{M}}(0.61)$	$2296^{+45}_{-45} \quad (-0.2\sigma)$
$y_{\text{cal}}$	$1.0007^{+0.0061}_{-0.0063} \quad (-0.0\sigma)$	$z_{\text{re}}$	$< 9.45 \quad (+0.1\sigma)$	$H(2.33)$	$236.5^{+3.2}_{-2.8} \quad (+0.1\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\text{s}}$	$2.107^{+0.077}_{-0.061} \quad (+0.2\sigma)$	$D_{\text{M}}(2.33)$	$5745^{+80}_{-81} \quad (-0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_{\text{s}} e^{-2\tau}$	$1.882^{+0.029}_{-0.028} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.014}_{-0.013} \quad (-0.0\sigma)$
$A_{143}^{\text{tSZ}}$	—	$D_{40}$	$1229^{+32}_{-32} \quad (-0.0\sigma)$	$\sigma_8(0.15)$	$0.750^{+0.018}_{-0.016} \quad (+0.1\sigma)$
$A_{100}^{\text{PS}}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5738^{+96}_{-98} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.012}_{-0.011} \quad (+0.0\sigma)$
$A_{143}^{\text{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2540^{+33}_{-32} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.666^{+0.016}_{-0.015} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.011}_{-0.011} \quad (+0.0\sigma)$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{2000}$	$231.1^{+4.1}_{-4.0} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.623^{+0.015}_{-0.014} \quad (+0.1\sigma)$
$A^{\text{kSZ}}$	—	$n_{\text{s},0.002}$	$0.966^{+0.012}_{-0.011} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.010} \quad (+0.0\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.6}_{-4.6} \quad (+0.0\sigma)$	$Y_{\text{P}}$	$0.24541^{+0.00015}_{-0.00016} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.593^{+0.015}_{-0.014} \quad (+0.1\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.6}_{-4.7} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24673^{+0.00015}_{-0.00016} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.2990^{+0.0074}_{-0.0071} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.5^{+8.5}_{-8.5} \quad (+0.1\sigma)$	$10^5 \text{D}/\text{H}$	$2.580^{+0.075}_{-0.070} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	$0.3085^{+0.0085}_{-0.0080} \quad (+0.1\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\text{Age}/\text{Gyr}$	$13.75^{+0.20}_{-0.21} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.094}$	$z_*$	$1089.84^{+0.73}_{-0.71} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.075}_{-0.077}$	$r_*$	$144.52^{+0.76}_{-0.77} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$106.9^{+4.9}_{-4.7} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04114^{+0.00076}_{-0.00084} \quad (+0.1\sigma)$	$\chi_{\text{lensing}}^2$	$9.10 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.15}_{-0.14}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.881^{+0.072}_{-0.072} \quad (-0.4\sigma)$	$\chi_{\text{small}}^2$	$291 \quad (\nu: 14237.3) \quad (-0.0\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$z_{\text{drag}}$	$1059.98^{+0.79}_{-0.81} \quad (+1.1\sigma)$	$\chi_{\text{lowl}}^2$	$130 \quad (\nu: 14233.8) \quad (+0.0\sigma)$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.67}_{-0.69}$	$r_{\text{drag}}$	$147.17^{+0.75}_{-0.76} \quad (-0.6\sigma)$	$\chi_{\text{plik}}^2$	$2359.8 \quad (\nu: 16.8) \quad (+304.6\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$k_{\text{D}}$	$0.14081^{+0.00081}_{-0.00080} \quad (+0.9\sigma)$	$\chi_{\text{JLA}}^2$	$1035.03 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015} \quad (-0.1\sigma)$	$100\theta_{\text{D}}$	$0.16074^{+0.00046}_{-0.00044} \quad (-1.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.46 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$H_0$	$67.9^{+1.7}_{-1.6} \quad (+0.2\sigma)$	$z_{\text{eq}}$	$3393^{+78}_{-75} \quad (+0.1\sigma)$	$\chi_{\text{MGS}}^2$	$1.07 \quad (\nu: 0.3) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.014}_{-0.014} \quad (+0.1\sigma)$	$k_{\text{eq}}$	$0.01036^{+0.00024}_{-0.00023} \quad (+0.1\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.5 \quad (\nu: 1.4) \quad (+0.0\sigma)$
$\Omega_{\text{m}}$	$0.309^{+0.015}_{-0.015} \quad (-0.1\sigma)$	$100\theta_{\text{eq}}$	$0.815^{+0.014}_{-0.014} \quad (-0.0\sigma)$	$\chi_{\text{prior}}^2$	$11.5 \quad (\nu: 9.9) \quad (+1.1\sigma)$
$\Omega_{\text{m}}h^2$	$0.1426^{+0.0033}_{-0.0031} \quad (+0.1\sigma)$	$100\theta_{\text{s,eq}}$	$0.4503^{+0.0072}_{-0.0074} \quad (-0.1\sigma)$	$\chi_{\text{CMB}}^2$	$2789.5 \quad (\nu: 17.3) \quad (+292.0\sigma)$
$\Omega_{\text{m}}h^3$	$0.0969^{+0.0037}_{-0.0034} \quad (+0.2\sigma)$	$H(0.15)$	$73.2^{+1.7}_{-1.5} \quad (+0.2\sigma)$	$\chi_{\text{BAO}}^2$	$6.0 \quad (\nu: 1.0) \quad (+0.0\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 3842.05; \Delta\bar{\chi}_{\text{eff}}^2 = 1592.08; R - 1 = 0.02292$$



## 16.21 base\_omegak\_CamSpecHM\_TT\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02217^{+0.00060}_{-0.00058}$	$\sigma_8 \Omega_m^{0.25}$	0.6036	$0.604^{+0.027}_{-0.024}$	$H(0.38)$	83.23	$83.3^{+1.7}_{-1.7}$
$\Omega_c h^2$	0.1197	$0.1197^{+0.0059}_{-0.0055}$	$\sigma_8/h^{0.5}$	0.9824	$0.982^{+0.036}_{-0.033}$	$D_M(0.38)$	1524.9	$1524^{+35}_{-34}$
$100\theta_{MC}$	1.04093	$1.0409^{+0.0013}_{-0.0013}$	$r_{drag}h$	99.96	$100.0^{+2.6}_{-2.6}$	$H(0.51)$	89.95	$90.0^{+1.8}_{-1.7}$
$\tau$	0.0528	$0.053^{+0.024}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.428	$2.425^{+0.082}_{-0.073}$	$D_M(0.51)$	1975.5	$1975^{+43}_{-42}$
$\Omega_K$	0.0011	$0.0011^{+0.0065}_{-0.0064}$	$z_{re}$	7.57	$7.5^{+2.3}_{-2.3}$	$H(0.61)$	95.57	$95.6^{+1.8}_{-1.8}$
$\ln(10^{10} A_s)$	3.0378	$3.038^{+0.047}_{-0.043}$	$10^9 A_s$	2.086	$2.09^{+0.10}_{-0.088}$	$D_M(0.61)$	2299.0	$2298^{+49}_{-48}$
$n_s$	0.9652	$0.966^{+0.015}_{-0.015}$	$10^9 A_s e^{-2\tau}$	1.8769	$1.877^{+0.035}_{-0.035}$	$H(2.33)$	236.44	$236.4^{+4.8}_{-4.5}$
$y_{cal}$	1.0003	$1.0004^{+0.0061}_{-0.0065}$	$D_{40}$	1225.3	$1224^{+41}_{-39}$	$D_M(2.33)$	5750	$5749^{+96}_{-94}$
$A_{100}^{PS}$	243	$242^{+60}_{-60}$	$D_{220}$	5703	$5703^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4550	$0.455^{+0.024}_{-0.021}$
$A_{143}^{PS}$	38	$41^{+20}_{-20}$	$D_{810}$	2532.5	$2533^{+35}_{-35}$	$\sigma_8(0.15)$	0.7478	$0.748^{+0.026}_{-0.024}$
$A_{217}^{PS}$	100.4	$101^{+30}_{-30}$	$D_{1420}$	814.0	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4736	$0.474^{+0.021}_{-0.019}$
$A_{217}^{CIB}$	43.3	$41^{+20}_{-20}$	$D_{2000}$	229.53	$229.6^{+4.8}_{-4.8}$	$\sigma_8(0.38)$	0.6631	$0.663^{+0.023}_{-0.021}$
$A_{143}^{tSZ}$	4.78	$< 8.73$	$n_{s,0.002}$	0.9652	$0.966^{+0.015}_{-0.015}$	$f\sigma_8(0.51)$	0.4724	$0.472^{+0.019}_{-0.017}$
$r_{143 \times 217}^{PS}$	0.594	$0.65^{+0.32}_{-0.33}$	$Y_P$	0.245317	$0.24531^{+0.00023}_{-0.00027}$	$\sigma_8(0.51)$	0.6206	$0.621^{+0.021}_{-0.020}$
$r_{143 \times 217}^{CIB}$	0.60	—	$Y_P^{BBN}$	0.246643	$0.24664^{+0.00023}_{-0.00027}$	$f\sigma_8(0.61)$	0.4675	$0.468^{+0.018}_{-0.016}$
$\xi^{tSZ \times CIB}$	0.01	—	$10^5 D/H$	2.622	$2.62^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	0.5906	$0.591^{+0.020}_{-0.019}$
$A^{kSZ}$	3.1	—	Age/Gyr	13.764	$13.76^{+0.25}_{-0.24}$	$f\sigma_8(2.33)$	0.2978	$0.298^{+0.010}_{-0.0093}$
$A_{100}^{dust}$	1.006	$1.01^{+0.48}_{-0.50}$	$z_*$	1090.14	$1090.1^{+1.1}_{-1.1}$	$\sigma_8(2.33)$	0.3072	$0.307^{+0.011}_{-0.010}$
$A_{143}^{dust}$	0.971	$0.98^{+0.44}_{-0.44}$	$r_*$	144.65	$144.7^{+1.2}_{-1.3}$	$f_{2000}^{143}$	30.9	$31^{+8}_{-8}$
$A_{217}^{dust}$	0.961	$0.97^{+0.26}_{-0.26}$	$100\theta_*$	1.04114	$1.0411^{+0.0013}_{-0.0013}$	$f_{2000}^{217}$	107.6	$107.5^{+5.2}_{-5.3}$
$A_{143 \times 217}^{dust}$	1.040	$1.03^{+0.41}_{-0.40}$	$D_M(z_*)/\text{Gpc}$	13.893	$13.89^{+0.11}_{-0.12}$	$f_{2000}^{143 \times 217}$	33.2	$33^{+6}_{-6}$
$c_{100}$	0.99748	$0.9975^{+0.0028}_{-0.0026}$	$z_{drag}$	1059.47	$1059.5^{+1.2}_{-1.2}$	$\chi_{simall}^2$	395.87	$397.0 (\nu: 1.6)$
$c_{217}$	1.00125	$1.0012^{+0.0040}_{-0.0040}$	$r_{drag}$	147.38	$147.4^{+1.2}_{-1.3}$	$\chi_{lowl}^2$	23.19	$23.2 (\nu: 1.0)$
$H_0$	67.82	$67.9^{+1.8}_{-1.7}$	$k_D$	0.14042	$0.1404^{+0.0013}_{-0.0013}$	$\chi_{CamSpec}^2$	7051.1	$7064.3 (\nu: 14.7)$
$\Omega_\Lambda$	0.6890	$0.689^{+0.020}_{-0.021}$	$100\theta_D$	0.16104	$0.16105^{+0.00070}_{-0.00066}$	$\chi_{6DF}^2$	0.011	$0.053 (\nu: 0.0)$
$\Omega_m$	0.3099	$0.310^{+0.020}_{-0.018}$	$z_{eq}$	3391	$3390^{+130}_{-120}$	$\chi_{MGS}^2$	1.41	$1.52 (\nu: 0.2)$
$\Omega_m h^2$	0.1425	$0.1425^{+0.0056}_{-0.0051}$	$k_{eq}$	0.010350	$0.01035^{+0.00041}_{-0.00037}$	$\chi_{DR12BAO}^2$	3.68	$4.5 (\nu: 1.6)$
$\Omega_m h^3$	0.09668	$0.0967^{+0.0046}_{-0.0044}$	$100\theta_{eq}$	0.8148	$0.815^{+0.024}_{-0.025}$	$\chi_{prior}^2$	2.3	$7.5 (\nu: 5.6)$
$\sigma_8$	0.8091	$0.809^{+0.029}_{-0.026}$	$100\theta_{s,eq}$	0.4503	$0.450^{+0.012}_{-0.013}$	$\chi_{BAO}^2$	5.10	$6.1 (\nu: 1.2)$
$S_8$	0.8223	$0.822^{+0.046}_{-0.041}$	$H(0.15)$	73.11	$73.1^{+1.7}_{-1.7}$	$\chi_{CMB}^2$	7470.1	$7484.5 (\nu: 15.1)$
$\sigma_8 \Omega_m^{0.5}$	0.4504	$0.450^{+0.025}_{-0.023}$	$D_M(0.15)$	639.3	$639^{+16}_{-15}$			

Best-fit  $\chi_{eff}^2 = 7477.49$ ;  $\bar{\chi}_{eff}^2 = 7498.13$ ;  $R - 1 = 0.00836$

$\chi_{eff}^2$ : BAO - 6DF: 0.01 MGS: 1.41 DR12BAO: 3.69 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2\_29: 23.19 CamSpec like\_10.7HM: 7051.07



## 16.22 base\_omegak\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02218^{+0.00060}_{-0.00059}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.020}_{-0.019}$	$H(0.38)$	$83.2^{+1.8}_{-1.7}$
$\Omega_{\mathrm{c}} h^2$	$0.1199^{+0.0051}_{-0.0048}$	$\sigma_8/h^{0.5}$	$0.985^{+0.025}_{-0.024}$	$D_{\mathrm{M}}(0.38)$	$1525^{+34}_{-35}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0013}_{-0.0012}$	$r_{\mathrm{drag}} h$	$99.9^{+2.6}_{-2.3}$	$H(0.51)$	$89.9^{+1.8}_{-1.7}$
$\tau$	$0.054^{+0.024}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	$2.434^{+0.058}_{-0.058}$	$D_{\mathrm{M}}(0.51)$	$1976^{+43}_{-43}$
$\Omega_K$	$0.0011^{+0.0062}_{-0.0061}$	$z_{\mathrm{re}}$	$7.7^{+2.2}_{-2.1}$	$H(0.61)$	$95.6^{+1.8}_{-1.8}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.042}_{-0.037}$	$10^9 A_{\mathrm{s}}$	$2.095^{+0.091}_{-0.076}$	$D_{\mathrm{M}}(0.61)$	$2300^{+49}_{-49}$
$n_{\mathrm{s}}$	$0.965^{+0.015}_{-0.014}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.032}_{-0.031}$	$H(2.33)$	$236.6^{+4.3}_{-4.1}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0061}_{-0.0066}$	$D_{40}$	$1227^{+35}_{-36}$	$D_{\mathrm{M}}(2.33)$	$5750^{+95}_{-93}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{220}$	$5708^{+110}_{-110}$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2534^{+35}_{-34}$	$\sigma_8(0.15)$	$0.750^{+0.021}_{-0.020}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.475^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.7^{+4.8}_{-4.7}$	$\sigma_8(0.38)$	$0.665^{+0.019}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.77$	$n_{\mathrm{s},0.002}$	$0.965^{+0.015}_{-0.014}$	$f\sigma_8(0.51)$	$0.474^{+0.014}_{-0.013}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00024}_{-0.00028}$	$\sigma_8(0.51)$	$0.622^{+0.018}_{-0.017}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00024}_{-0.00028}$	$f\sigma_8(0.61)$	$0.469^{+0.013}_{-0.013}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.12}_{-0.11}$	$\sigma_8(0.61)$	$0.592^{+0.017}_{-0.016}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.76^{+0.24}_{-0.24}$	$f\sigma_8(2.33)$	$0.2985^{+0.0088}_{-0.0080}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.47}_{-0.52}$	$z_*$	$1090.2^{+1.1}_{-1.0}$	$\sigma_8(2.33)$	$0.308^{+0.010}_{-0.0091}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.43}$	$r_*$	$144.6^{+1.1}_{-1.1}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.25}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{217}$	$107.5^{+5.3}_{-5.2}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.39}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.89^{+0.10}_{-0.10}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0026}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$9.49 (\nu: 0.3)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0043}$	$r_{\mathrm{drag}}$	$147.3^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.8)$
$H_0$	$67.8^{+1.8}_{-1.7}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{lowl}}^2$	$23.4 (\nu: 0.8)$
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.018}$	$100\theta_{\mathrm{D}}$	$0.16104^{+0.00071}_{-0.00068}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.5 (\nu: 13.3)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.017}_{-0.017}$	$z_{\mathrm{eq}}$	$3395^{+110}_{-110}$	$\chi_{6\mathrm{DF}}^2$	$0.055 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1427^{+0.0048}_{-0.0046}$	$k_{\mathrm{eq}}$	$0.01036^{+0.00035}_{-0.00033}$	$\chi_{\mathrm{MGS}}^2$	$1.44 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0967^{+0.0045}_{-0.0043}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.021}_{-0.021}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 (\nu: 1.7)$
$\sigma_8$	$0.811^{+0.023}_{-0.021}$	$100\theta_{\mathrm{s,eq}}$	$0.450^{+0.011}_{-0.011}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.6)$
$S_8$	$0.826^{+0.034}_{-0.032}$	$H(0.15)$	$73.1^{+1.7}_{-1.6}$	$\chi_{\mathrm{CMB}}^2$	$7493.5 (\nu: 14.9)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.019}_{-0.018}$	$D_{\mathrm{M}}(0.15)$	$640^{+15}_{-16}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 1.3)$

$\bar{\chi}_{\mathrm{eff}}^2 = 7507.17$ ;  $R - 1 = 0.01378$



## 16.23 base\_omegak\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02219^{+0.00061}_{-0.00058}$	$\sigma_8/h^{0.5}$	$0.985^{+0.025}_{-0.024}$	$H(0.51)$	$90.0^{+1.8}_{-1.7}$
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0051}_{-0.0048}$	$r_{\mathrm{drag}}h$	$100.0^{+2.5}_{-2.4}$	$D_{\mathrm{M}}(0.51)$	$1975^{+41}_{-43}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0013}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.057}_{-0.056}$	$H(0.61)$	$95.6^{+1.8}_{-1.8}$
$\tau$	$0.055^{+0.023}_{-0.020}$	$z_{\mathrm{re}}$	$7.7^{+2.1}_{-2.1}$	$D_{\mathrm{M}}(0.61)$	$2298^{+47}_{-49}$
$\Omega_K$	$0.0011^{+0.0062}_{-0.0061}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.092}_{-0.077}$	$H(2.33)$	$236.4^{+4.3}_{-4.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.043}_{-0.037}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.032}_{-0.031}$	$D_{\mathrm{M}}(2.33)$	$5749^{+95}_{-93}$
$n_{\mathrm{s}}$	$0.966^{+0.014}_{-0.014}$	$D_{40}$	$1226^{+35}_{-36}$	$f\sigma_8(0.15)$	$0.456^{+0.017}_{-0.016}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0061}_{-0.0066}$	$D_{220}$	$5710^{+110}_{-110}$	$\sigma_8(0.15)$	$0.750^{+0.021}_{-0.019}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{810}$	$2534^{+35}_{-35}$	$f\sigma_8(0.38)$	$0.475^{+0.015}_{-0.014}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.665^{+0.019}_{-0.017}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{2000}$	$229.8^{+4.8}_{-4.7}$	$f\sigma_8(0.51)$	$0.473^{+0.014}_{-0.013}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.014}_{-0.014}$	$\sigma_8(0.51)$	$0.622^{+0.018}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.77$	$Y_{\mathrm{P}}$	$0.24532^{+0.00024}_{-0.00028}$	$f\sigma_8(0.61)$	$0.469^{+0.013}_{-0.012}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00024}_{-0.00028}$	$\sigma_8(0.61)$	$0.592^{+0.017}_{-0.016}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	$0.2986^{+0.0089}_{-0.0080}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.76^{+0.24}_{-0.24}$	$\sigma_8(2.33)$	$0.308^{+0.010}_{-0.0091}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.1^{+1.1}_{-1.0}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.47}_{-0.53}$	$r_*$	$144.6^{+1.1}_{-1.1}$	$f_{2000}^{217}$	$107.5^{+5.1}_{-5.2}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.43}$	$100\theta_*$	$1.0411^{+0.0013}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.25}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.89^{+0.10}_{-0.10}$	$\chi_{\mathrm{lensing}}^2$	$9.50 (\nu: 0.4)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.39}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 1.9)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.4^{+1.1}_{-1.1}$	$\chi_{\mathrm{lowl}}^2$	$23.3 (\nu: 0.8)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0043}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0013}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.6 (\nu: 13.3)$
$H_0$	$67.9^{+1.8}_{-1.7}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00070}_{-0.00070}$	$\chi_{\mathrm{JLA}}^2$	$1035.07 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.017}$	$z_{\mathrm{eq}}$	$3391^{+110}_{-110}$	$\chi_{6\mathrm{DF}}^2$	$0.047 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.017}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00035}_{-0.00033}$	$\chi_{\mathrm{MGS}}^2$	$1.51 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0048}_{-0.0045}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.021}_{-0.021}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 1.4)$
$\Omega_{\mathrm{m}}h^3$	$0.0967^{+0.0045}_{-0.0043}$	$100\theta_{\mathrm{s,eq}}$	$0.450^{+0.011}_{-0.011}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.6)$
$\sigma_8$	$0.811^{+0.023}_{-0.021}$	$H(0.15)$	$73.1^{+1.7}_{-1.6}$	$\chi_{\mathrm{CMB}}^2$	$7493.6 (\nu: 14.8)$
$S_8$	$0.824^{+0.033}_{-0.032}$	$D_{\mathrm{M}}(0.15)$	$639^{+15}_{-15}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 1.0)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.018}_{-0.017}$	$H(0.38)$	$83.3^{+1.7}_{-1.7}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.019}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1524^{+33}_{-34}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 8542.21; R - 1 = 0.01384$$



## 16.24 base\_omegak\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02218^{+0.00060}_{-0.00058}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.026}_{-0.023}$	$H(0.38)$	$83.3^{+1.7}_{-1.7}$
$\Omega_{\mathrm{c}} h^2$	$0.1196^{+0.0059}_{-0.0054}$	$\sigma_8/h^{0.5}$	$0.984^{+0.035}_{-0.031}$	$D_{\mathrm{M}}(0.38)$	$1524^{+35}_{-34}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0013}_{-0.0013}$	$r_{\mathrm{drag}} h$	$100.0^{+2.6}_{-2.6}$	$H(0.51)$	$90.0^{+1.8}_{-1.7}$
$\tau$	$0.054^{+0.021}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.080}_{-0.071}$	$D_{\mathrm{M}}(0.51)$	$1975^{+43}_{-42}$
$\Omega_K$	$0.0011^{+0.0065}_{-0.0064}$	$z_{\mathrm{re}}$	$< 9.59$	$H(0.61)$	$95.6^{+1.8}_{-1.8}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.045}_{-0.030}$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.095}_{-0.062}$	$D_{\mathrm{M}}(0.61)$	$2298^{+49}_{-48}$
$n_{\mathrm{s}}$	$0.966^{+0.015}_{-0.015}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.035}_{-0.035}$	$H(2.33)$	$236.4^{+4.8}_{-4.5}$
$y_{\mathrm{cal}}$	$1.0003^{+0.0062}_{-0.0066}$	$D_{40}$	$1224^{+42}_{-40}$	$D_{\mathrm{M}}(2.33)$	$5750^{+96}_{-94}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{220}$	$5703^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.455^{+0.024}_{-0.021}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2533^{+35}_{-35}$	$\sigma_8(0.15)$	$0.749^{+0.025}_{-0.022}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.020}_{-0.018}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.6^{+4.7}_{-4.8}$	$\sigma_8(0.38)$	$0.664^{+0.022}_{-0.019}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.70$	$n_{\mathrm{s},0.002}$	$0.966^{+0.015}_{-0.015}$	$f\sigma_8(0.51)$	$0.473^{+0.019}_{-0.017}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.33}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00023}_{-0.00027}$	$\sigma_8(0.51)$	$0.622^{+0.021}_{-0.018}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00023}_{-0.00027}$	$f\sigma_8(0.61)$	$0.468^{+0.018}_{-0.016}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	$0.592^{+0.020}_{-0.017}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.76^{+0.25}_{-0.24}$	$f\sigma_8(2.33)$	$0.2983^{+0.0098}_{-0.0084}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.47}_{-0.50}$	$z_*$	$1090.1^{+1.1}_{-1.1}$	$\sigma_8(2.33)$	$0.308^{+0.011}_{-0.0095}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.44}_{-0.44}$	$r_*$	$144.7^{+1.2}_{-1.3}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.25}$	$100\theta_*$	$1.0411^{+0.0013}_{-0.0013}$	$f_{2000}^{217}$	$107.5^{+5.3}_{-5.3}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.90^{+0.11}_{-0.12}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0026}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.7)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$r_{\mathrm{drag}}$	$147.4^{+1.2}_{-1.3}$	$\chi_{\mathrm{lowl}}^2$	$23.2 (\nu: 1.0)$
$H_0$	$67.9^{+1.8}_{-1.7}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.1 (\nu: 14.5)$
$\Omega_{\Lambda}$	$0.689^{+0.020}_{-0.021}$	$100\theta_{\mathrm{D}}$	$0.16104^{+0.00071}_{-0.00067}$	$\chi_{6\mathrm{DF}}^2$	$0.052 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.020}_{-0.018}$	$z_{\mathrm{eq}}$	$3389^{+140}_{-120}$	$\chi_{\mathrm{MGS}}^2$	$1.53 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1425^{+0.0057}_{-0.0051}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00041}_{-0.00037}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 (\nu: 1.5)$
$\Omega_{\mathrm{m}} h^3$	$0.0967^{+0.0046}_{-0.0044}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.024}_{-0.025}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 5.6)$
$\sigma_8$	$0.810^{+0.028}_{-0.025}$	$100\theta_{\mathrm{s,eq}}$	$0.451^{+0.012}_{-0.013}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 1.2)$
$S_8$	$0.823^{+0.046}_{-0.041}$	$H(0.15)$	$73.1^{+1.7}_{-1.7}$	$\chi_{\mathrm{CMB}}^2$	$7484.3 (\nu: 14.7)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.025}_{-0.022}$	$D_{\mathrm{M}}(0.15)$	$639^{+16}_{-15}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7497.90; R - 1 = 0.01053$



16.25 base\_omegak\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02218^{+0.00061}_{-0.00059}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.019}_{-0.019}$	$H(0.38)$	$83.2^{+1.8}_{-1.7}$
$\Omega_{\mathrm{c}} h^2$	$0.1198^{+0.0051}_{-0.0048}$	$\sigma_8 / h^{0.5}$	$0.986^{+0.025}_{-0.024}$	$D_{\mathrm{M}}(0.38)$	$1525^{+34}_{-35}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0013}_{-0.0012}$	$r_{\mathrm{drag}} h$	$99.9^{+2.6}_{-2.3}$	$H(0.51)$	$89.9^{+1.8}_{-1.7}$
$\tau$	$0.055^{+0.021}_{-0.015}$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.057}_{-0.056}$	$D_{\mathrm{M}}(0.51)$	$1976^{+43}_{-44}$
$\Omega_K$	$0.0011^{+0.0062}_{-0.0061}$	$z_{\mathrm{re}}$	$< 9.72$	$H(0.61)$	$95.6^{+1.8}_{-1.8}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.042}_{-0.029}$	$10^9 A_{\mathrm{s}}$	$2.099^{+0.089}_{-0.061}$	$D_{\mathrm{M}}(0.61)$	$2300^{+49}_{-50}$
$n_{\mathrm{s}}$	$0.965^{+0.015}_{-0.014}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.032}_{-0.030}$	$H(2.33)$	$236.5^{+4.3}_{-4.1}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0062}_{-0.0067}$	$D_{40}$	$1227^{+35}_{-36}$	$D_{\mathrm{M}}(2.33)$	$5751^{+94}_{-94}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{220}$	$5708^{+110}_{-110}$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2534^{+34}_{-34}$	$\sigma_8(0.15)$	$0.750^{+0.021}_{-0.019}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{1420}$	$815^{+13}_{-14}$	$f\sigma_8(0.38)$	$0.475^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.7^{+4.7}_{-4.8}$	$\sigma_8(0.38)$	$0.665^{+0.019}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.76$	$n_{\mathrm{s},0.002}$	$0.965^{+0.015}_{-0.014}$	$f\sigma_8(0.51)$	$0.474^{+0.014}_{-0.013}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00024}_{-0.00028}$	$\sigma_8(0.51)$	$0.623^{+0.018}_{-0.016}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00024}_{-0.00028}$	$f\sigma_8(0.61)$	$0.469^{+0.013}_{-0.012}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	$0.592^{+0.017}_{-0.015}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.77^{+0.24}_{-0.24}$	$f\sigma_8(2.33)$	$0.2987^{+0.0088}_{-0.0076}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.47}_{-0.51}$	$z_*$	$1090.1^{+1.1}_{-1.0}$	$\sigma_8(2.33)$	$0.308^{+0.010}_{-0.0089}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.43}$	$r_*$	$144.6^{+1.1}_{-1.1}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.25}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{217}$	$107.5^{+5.3}_{-5.2}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.39}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.89^{+0.10}_{-0.10}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0026}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$9.43 (\nu: 0.3)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0043}$	$r_{\mathrm{drag}}$	$147.4^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.9)$
$H_0$	$67.8^{+1.8}_{-1.6}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0013}$	$\chi_{\mathrm{lowl}}^2$	$23.4 (\nu: 0.8)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.018}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00071}_{-0.00070}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.4 (\nu: 13.2)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.017}$	$z_{\mathrm{eq}}$	$3393^{+110}_{-110}$	$\chi_{6\mathrm{DF}}^2$	$0.054 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1426^{+0.0048}_{-0.0046}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00035}_{-0.00033}$	$\chi_{\mathrm{MGS}}^2$	$1.45 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0967^{+0.0045}_{-0.0043}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.021}_{-0.021}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 (\nu: 1.7)$
$\sigma_8$	$0.812^{+0.022}_{-0.021}$	$100\theta_{\mathrm{s,eq}}$	$0.450^{+0.011}_{-0.011}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.6)$
$S_8$	$0.826^{+0.034}_{-0.033}$	$H(0.15)$	$73.1^{+1.8}_{-1.6}$	$\chi_{\mathrm{CMB}}^2$	$7493.3 (\nu: 14.5)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.019}_{-0.018}$	$D_{\mathrm{M}}(0.15)$	$640^{+15}_{-16}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 1.2)$

$\bar{\chi}_{\mathrm{eff}}^2 = 7506.97$ ;  $R - 1 = 0.01641$



16.26 base\_omegak\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02219^{+0.00062}_{-0.00058}$	$\sigma_8/h^{0.5}$	$0.985^{+0.025}_{-0.024}$	$H(0.51)$	$90.0^{+1.8}_{-1.7}$
$\Omega_{\text{c}}h^2$	$0.1196^{+0.0051}_{-0.0048}$	$r_{\text{drag}}h$	$100.0^{+2.5}_{-2.4}$	$D_{\text{M}}(0.51)$	$1975^{+41}_{-44}$
$100\theta_{\text{MC}}$	$1.0409^{+0.0013}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.057}_{-0.055}$	$H(0.61)$	$95.6^{+1.8}_{-1.8}$
$\tau$	$0.056^{+0.021}_{-0.015}$	$z_{\text{re}}$	$< 9.72$	$D_{\text{M}}(0.61)$	$2298^{+47}_{-49}$
$\Omega_K$	$0.0010^{+0.0062}_{-0.0061}$	$10^9 A_{\text{s}}$	$2.100^{+0.088}_{-0.061}$	$H(2.33)$	$236.4^{+4.3}_{-4.0}$
$\ln(10^{10} A_{\text{s}})$	$3.044^{+0.041}_{-0.029}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.878^{+0.032}_{-0.030}$	$D_{\text{M}}(2.33)$	$5750^{+95}_{-93}$
$n_{\text{s}}$	$0.966^{+0.014}_{-0.014}$	$D_{40}$	$1226^{+35}_{-36}$	$f\sigma_8(0.15)$	$0.456^{+0.017}_{-0.016}$
$y_{\text{cal}}$	$1.0006^{+0.0062}_{-0.0067}$	$D_{220}$	$5710^{+110}_{-110}$	$\sigma_8(0.15)$	$0.750^{+0.021}_{-0.019}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-60}$	$D_{810}$	$2534^{+35}_{-34}$	$f\sigma_8(0.38)$	$0.475^{+0.015}_{-0.014}$
$A_{143}^{\text{PS}}$	$40^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.665^{+0.019}_{-0.017}$
$A_{217}^{\text{PS}}$	$101^{+30}_{-30}$	$D_{2000}$	$229.8^{+4.8}_{-4.7}$	$f\sigma_8(0.51)$	$0.474^{+0.014}_{-0.013}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$n_{\text{s},0.002}$	$0.966^{+0.014}_{-0.014}$	$\sigma_8(0.51)$	$0.623^{+0.018}_{-0.016}$
$A_{143}^{\text{tSZ}}$	$< 8.77$	$Y_{\text{P}}$	$0.24532^{+0.00024}_{-0.00027}$	$f\sigma_8(0.61)$	$0.469^{+0.013}_{-0.012}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.33}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24665^{+0.00024}_{-0.00027}$	$\sigma_8(0.61)$	$0.592^{+0.017}_{-0.015}$
$r_{143 \times 217}^{\text{CIB}}$	—	$10^5 \text{D}/\text{H}$	$2.62^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	$0.2988^{+0.0088}_{-0.0077}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	Age/Gyr	$13.76^{+0.24}_{-0.24}$	$\sigma_8(2.33)$	$0.308^{+0.010}_{-0.0089}$
$A^{\text{kSZ}}$	—	$z_*$	$1090.1^{+1.1}_{-1.0}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{100}^{\text{dust}}$	$1.01^{+0.47}_{-0.51}$	$r_*$	$144.7^{+1.1}_{-1.1}$	$f_{2000}^{217}$	$107.5^{+5.2}_{-5.2}$
$A_{143}^{\text{dust}}$	$0.97^{+0.45}_{-0.43}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.25}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.89^{+0.10}_{-0.10}$	$\chi_{\text{lensing}}^2$	$9.44 (\nu: 0.3)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.39}$	$z_{\text{drag}}$	$1059.5^{+1.2}_{-1.2}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 2.0)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$r_{\text{drag}}$	$147.4^{+1.1}_{-1.1}$	$\chi_{\text{lowl}}^2$	$23.3 (\nu: 0.8)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0042}$	$k_{\text{D}}$	$0.1404^{+0.0012}_{-0.0013}$	$\chi_{\text{CamSpec}}^2$	$7063.5 (\nu: 13.3)$
$H_0$	$67.9^{+1.8}_{-1.7}$	$100\theta_{\text{D}}$	$0.16102^{+0.00070}_{-0.00070}$	$\chi_{\text{JLA}}^2$	$1035.06 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.690^{+0.016}_{-0.017}$	$z_{\text{eq}}$	$3389^{+110}_{-110}$	$\chi_{6\text{DF}}^2$	$0.047 (\nu: 0.0)$
$\Omega_{\text{m}}$	$0.309^{+0.017}_{-0.017}$	$k_{\text{eq}}$	$0.01034^{+0.00035}_{-0.00033}$	$\chi_{\text{MGS}}^2$	$1.51 (\nu: 0.2)$
$\Omega_{\text{m}}h^2$	$0.1425^{+0.0047}_{-0.0045}$	$100\theta_{\text{eq}}$	$0.815^{+0.021}_{-0.021}$	$\chi_{\text{DR12BAO}}^2$	$4.4 (\nu: 1.4)$
$\Omega_{\text{m}}h^3$	$0.0967^{+0.0045}_{-0.0042}$	$100\theta_{\text{s,eq}}$	$0.451^{+0.011}_{-0.011}$	$\chi_{\text{prior}}^2$	$7.6 (\nu: 5.6)$
$\sigma_8$	$0.811^{+0.022}_{-0.021}$	$H(0.15)$	$73.1^{+1.7}_{-1.6}$	$\chi_{\text{CMB}}^2$	$7493.4 (\nu: 14.4)$
$S_8$	$0.824^{+0.033}_{-0.032}$	$D_{\text{M}}(0.15)$	$639^{+15}_{-15}$	$\chi_{\text{BAO}}^2$	$6.0 (\nu: 1.0)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.451^{+0.018}_{-0.017}$	$H(0.38)$	$83.2^{+1.7}_{-1.7}$		
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.605^{+0.019}_{-0.018}$	$D_{\text{M}}(0.38)$	$1524^{+33}_{-35}$		
$\bar{\chi}_{\text{eff}}^2 = 8542.02; R - 1 = 0.01706$					



## 16.27 base\_omegak\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.022328	$0.02232^{+0.00042}_{-0.00044}$ $(+0.7\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4488	$0.449^{+0.019}_{-0.019}$ $(-0.2\sigma)$	$H(0.38)$	83.29	$83.2^{+1.6}_{-1.5}$ $(-0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	0.11934	$0.1192^{+0.0041}_{-0.0037}$ $(-0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6022	$0.602^{+0.020}_{-0.019}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	1523.0	$1525^{+32}_{-33}$ $(+0.0\sigma)$
$100\theta_{\mathrm{MC}}$	1.04093	$1.04092^{+0.00080}_{-0.00081}$ $(-0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9805	$0.980^{+0.028}_{-0.028}$ $(-0.2\sigma)$	$H(0.51)$	89.99	$89.9^{+1.6}_{-1.5}$ $(-0.1\sigma)$
$\tau$	0.0531	$0.053^{+0.021}_{-0.022}$ $(+0.1\sigma)$	$r_{\mathrm{drag}} h$	100.08	$100.0^{+2.5}_{-2.4}$ $(-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	1973.4	$1975^{+39}_{-41}$ $(+0.0\sigma)$
$\Omega_K$	0.0008	$0.0005^{+0.0051}_{-0.0051}$ $(-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	2.423	$2.423^{+0.068}_{-0.063}$ $(-0.1\sigma)$	$H(0.61)$	95.60	$95.5^{+1.6}_{-1.5}$ $(-0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	3.0392	$3.038^{+0.043}_{-0.043}$ $(+0.0\sigma)$	$z_{\mathrm{re}}$	7.56	$7.5^{+2.0}_{-2.4}$ $(+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	2296.7	$2299^{+44}_{-46}$ $(+0.0\sigma)$
$n_{\mathrm{s}}$	0.9672	$0.967^{+0.011}_{-0.012}$ $(+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	2.089	$2.088^{+0.092}_{-0.087}$ $(+0.0\sigma)$	$H(2.33)$	236.27	$236.1^{+3.4}_{-3.2}$ $(-0.2\sigma)$
$y_{\mathrm{cal}}$	1.0005	$1.0004^{+0.0064}_{-0.0062}$ $(+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8784	$1.877^{+0.032}_{-0.028}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	5749	$5753^{+78}_{-81}$ $(+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	235	$240^{+60}_{-60}$ $(-0.1\sigma)$	$D_{40}$	1223.3	$1223^{+36}_{-32}$ $(-0.1\sigma)$	$f\sigma_8(0.15)$	0.4535	$0.453^{+0.018}_{-0.018}$ $(-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	49.2	$39^{+20}_{-20}$ $(-0.2\sigma)$	$D_{220}$	5719	$5720^{+100}_{-98}$ $(+0.4\sigma)$	$\sigma_8(0.15)$	0.7471	$0.746^{+0.020}_{-0.020}$ $(-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	105.6	$102^{+30}_{-30}$ $(+0.1\sigma)$	$D_{810}$	2537.3	$2534^{+36}_{-33}$ $(+0.1\sigma)$	$f\sigma_8(0.38)$	0.4725	$0.472^{+0.016}_{-0.016}$ $(-0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	39.9	$40^{+20}_{-20}$ $(-0.1\sigma)$	$D_{1420}$	816.9	$816^{+13}_{-12}$ $(+0.3\sigma)$	$\sigma_8(0.38)$	0.6626	$0.662^{+0.018}_{-0.018}$ $(-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	5.0	—	$D_{2000}$	230.71	$230.3^{+4.2}_{-4.2}$ $(+0.4\sigma)$	$f\sigma_8(0.51)$	0.4714	$0.471^{+0.015}_{-0.014}$ $(-0.2\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	0.758	$0.66^{+0.31}_{-0.35}$ $(+0.1\sigma)$	$n_{\mathrm{s},0.002}$	0.9672	$0.967^{+0.011}_{-0.012}$ $(+0.2\sigma)$	$\sigma_8(0.51)$	0.6203	$0.619^{+0.017}_{-0.017}$ $(-0.2\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.71	—	$Y_{\mathrm{P}}$	0.245378	$0.24538^{+0.00016}_{-0.00019}$ $(+0.7\sigma)$	$f\sigma_8(0.61)$	0.4667	$0.466^{+0.014}_{-0.013}$ $(-0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.95	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246705	$0.24670^{+0.00016}_{-0.00019}$ $(+0.7\sigma)$	$\sigma_8(0.61)$	0.5903	$0.590^{+0.016}_{-0.016}$ $(-0.2\sigma)$
$A^{\mathrm{kSZ}}$	2.5	—	$10^5 \mathrm{D}/\mathrm{H}$	2.593	$2.595^{+0.084}_{-0.076}$ $(-0.7\sigma)$	$f\sigma_8(2.33)$	0.2977	$0.2973^{+0.0081}_{-0.0081}$ $(-0.2\sigma)$
$A_{100}^{\mathrm{dust}}$	1.008	$1.01^{+0.50}_{-0.50}$ $(-0.0\sigma)$	Age/Gyr	13.761	$13.77^{+0.20}_{-0.21}$ $(+0.1\sigma)$	$\sigma_8(2.33)$	0.3072	$0.3067^{+0.0091}_{-0.0089}$ $(-0.2\sigma)$
$A_{143}^{\mathrm{dust}}$	0.952	$0.97^{+0.44}_{-0.45}$ $(-0.1\sigma)$	$z_*$	1089.92	$1089.91^{+0.84}_{-0.75}$ $(-0.5\sigma)$	$f_{2000}^{143}$	29.7	$30^{+7}_{-7}$ $(-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	0.966	$0.97^{+0.28}_{-0.28}$ $(+0.1\sigma)$	$r_*$	144.63	$144.67^{+0.82}_{-0.89}$ $(+0.0\sigma)$	$f_{2000}^{217}$	106.35	$106.8^{+5.0}_{-4.9}$ $(-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	1.019	$1.03^{+0.42}_{-0.42}$ $(-0.0\sigma)$	$100\theta_*$	1.04111	$1.04111^{+0.00079}_{-0.00080}$ $(-0.1\sigma)$	$f_{2000}^{143 \times 217}$	32.1	$32^{+5}_{-5}$ $(-0.4\sigma)$
$c_{100}$	0.99785	$0.9975^{+0.0027}_{-0.0027}$ $(+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.892	$13.896^{+0.077}_{-0.082}$ $(+0.0\sigma)$	$\chi_{\mathrm{small}}^2$	395.85	$396.9 (\nu: 1.4)$ $(-0.0\sigma)$
$c_{217}$	1.00095	$1.0011^{+0.0040}_{-0.0042}$ $(-0.0\sigma)$	$z_{\mathrm{drag}}$	1059.78	$1059.77^{+0.85}_{-0.87}$ $(+0.7\sigma)$	$\chi_{\mathrm{lowl}}^2$	22.88	$23.0 (\nu: 0.5)$ $(-0.2\sigma)$
$c_{TE}$	0.9969	$0.997^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	147.31	$147.35^{+0.80}_{-0.86}$ $(-0.1\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	11500.8	$11514.9 (\nu: 15.9)$ $(+822.1\sigma)$
$c_{EE}$	0.9922	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	0.14060	$0.14056^{+0.00088}_{-0.00085}$ $(+0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	0.006	$0.052 (\nu: 0.0)$ $(-0.0\sigma)$
$H_0$	67.94	$67.9^{+1.7}_{-1.6}$ $(+0.0\sigma)$	$100\theta_{\mathrm{D}}$	0.16084	$0.16085^{+0.00052}_{-0.00049}$ $(-0.8\sigma)$	$\chi_{\mathrm{MGS}}^2$	1.47	$1.50 (\nu: 0.2)$ $(-0.0\sigma)$
$\Omega_{\Lambda}$	0.6909	$0.691^{+0.016}_{-0.017}$ $(+0.2\sigma)$	$z_{\mathrm{eq}}$	3385	$3382^{+93}_{-82}$ $(-0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	3.65	$4.6 (\nu: 1.7)$ $(+0.1\sigma)$
$\Omega_{\mathrm{m}}$	0.3083	$0.309^{+0.017}_{-0.016}$ $(-0.1\sigma)$	$k_{\mathrm{eq}}$	0.010333	$0.01032^{+0.00028}_{-0.00025}$ $(-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	1.8	$7.8 (\nu: 5.9)$ $(+0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	0.14231	$0.1422^{+0.0039}_{-0.0035}$ $(-0.2\sigma)$	$100\theta_{\mathrm{eq}}$	0.8162	$0.817^{+0.016}_{-0.017}$ $(+0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	5.13	$6.2 (\nu: 1.2)$ $(+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	0.09668	$0.0965^{+0.0037}_{-0.0034}$ $(-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4509	$0.4512^{+0.0082}_{-0.0088}$ $(+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	11919.5	$11934.9 (\nu: 16.6)$ $(+810.8\sigma)$
$\sigma_8$	0.8082	$0.807^{+0.022}_{-0.021}$ $(-0.2\sigma)$	$H(0.15)$	73.20	$73.1^{+1.6}_{-1.5}$ $(-0.0\sigma)$			
$S_8$	0.8193	$0.819^{+0.035}_{-0.034}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	638.3	$639^{+14}_{-15}$ $(-0.0\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 11926.45$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4448.97$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 11948.83$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.70$ ;  $R - 1 = 0.01869$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.01 ( $\Delta$  -0.00) MGS: 1.47 ( $\Delta$  0.07) DR12BAO: 3.65 ( $\Delta$  -0.03) CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 ( $\Delta$  -0.03) commander\_dx12\_v3\_2\_29: 22.88 ( $\Delta$  -0.31) CamSpec like\_10.7HM\_1400\_unified: 11500.78



16.28 base\_omegak\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02233^{+0.00042}_{-0.00043} \quad (+0.7\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.016}_{-0.015} \quad (-0.3\sigma)$	$H(0.38)$	$83.2^{+1.6}_{-1.4} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1193^{+0.0039}_{-0.0035} \quad (-0.3\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.016}_{-0.016} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1526^{+31}_{-32} \quad (+0.0\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00078}_{-0.00079} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.022}_{-0.022} \quad (-0.3\sigma)$	$H(0.51)$	$89.9^{+1.6}_{-1.5} \quad (-0.1\sigma)$
$\tau$	$0.055^{+0.020}_{-0.020} \quad (+0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.9^{+2.4}_{-2.3} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1977^{+39}_{-40} \quad (+0.0\sigma)$
$\Omega_K$	$0.0005^{+0.0050}_{-0.0053} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.050}_{-0.052} \quad (-0.1\sigma)$	$H(0.61)$	$95.5^{+1.6}_{-1.5} \quad (-0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.038}_{-0.037} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$7.7^{+1.9}_{-2.1} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2301^{+43}_{-45} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.081}_{-0.077} \quad (+0.1\sigma)$	$H(2.33)$	$236.2^{+3.4}_{-3.2} \quad (-0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0066}_{-0.0062} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.030}_{-0.027} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5755^{+79}_{-81} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+70}_{-60} \quad (-0.1\sigma)$	$D_{40}$	$1225^{+34}_{-31} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.015}_{-0.014} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5724^{+97}_{-98} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.018}_{-0.018} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2536^{+35}_{-32} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.012}_{-0.013} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.016} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$230.4^{+4.3}_{-4.1} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.012} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.35} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.015}_{-0.015} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00016}_{-0.00019} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011} \quad (-0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00016}_{-0.00019} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.015}_{-0.014} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.594^{+0.082}_{-0.076} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.2979^{+0.0075}_{-0.0072} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.78^{+0.21}_{-0.21} \quad (+0.1\sigma)$	$\sigma_8(2.33)$	$0.3073^{+0.0085}_{-0.0081} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.44}_{-0.44} \quad (-0.1\sigma)$	$z_*$	$1089.92^{+0.81}_{-0.74} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-8} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27} \quad (+0.0\sigma)$	$r_*$	$144.64^{+0.79}_{-0.84} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$106.8^{+5.4}_{-4.9} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.40}_{-0.42} \quad (-0.0\sigma)$	$100\theta_*$	$1.04110^{+0.00078}_{-0.00076} \quad (-0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.893^{+0.074}_{-0.079} \quad (+0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.31 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0042} \quad (-0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.79^{+0.87}_{-0.85} \quad (+0.7\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.5) \quad (-0.0\sigma)$
$c_{TE}$	$0.996^{+0.012}_{-0.013}$	$r_{\mathrm{drag}}$	$147.32^{+0.80}_{-0.82} \quad (-0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.1 \quad (\nu: 0.5) \quad (-0.2\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14059^{+0.00088}_{-0.00086} \quad (+0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.4 \quad (\nu: 15.7) \quad (+863.3\sigma)$
$H_0$	$67.8^{+1.7}_{-1.6} \quad (-0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00051}_{-0.00047} \quad (-0.7\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.056 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.014}_{-0.016} \quad (+0.2\sigma)$	$z_{\mathrm{eq}}$	$3385^{+88}_{-78} \quad (-0.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.42 \quad (\nu: 0.2) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01033^{+0.00027}_{-0.00024} \quad (-0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 \quad (\nu: 1.9) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1423^{+0.0037}_{-0.0033} \quad (-0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.015}_{-0.017} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 6.1) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0965^{+0.0036}_{-0.0036} \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4510^{+0.0078}_{-0.0085} \quad (+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11943.9 \quad (\nu: 17.2) \quad (+814.6\sigma)$
$\sigma_8$	$0.809^{+0.019}_{-0.019} \quad (-0.2\sigma)$	$H(0.15)$	$73.1^{+1.6}_{-1.5} \quad (-0.0\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.2 \quad (\nu: 1.3) \quad (+0.1\sigma)$
$S_8$	$0.822^{+0.029}_{-0.028} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+14}_{-15} \quad (+0.0\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11957.96; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.79; R - 1 = 0.03026$$



16.29 base\_omegak\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02233^{+0.00044}_{-0.00042} \quad (+0.6\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.450^{+0.015}_{-0.015} \quad (-0.2\sigma)$	$H(0.38)$	$83.2^{+1.6}_{-1.5} \quad (-0.1\sigma)$
$\Omega_{\text{c}} h^2$	$0.1192^{+0.0039}_{-0.0035} \quad (-0.2\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.603^{+0.016}_{-0.016} \quad (-0.2\sigma)$	$D_{\text{M}}(0.38)$	$1525^{+31}_{-32} \quad (+0.0\sigma)$
$100\theta_{\text{MC}}$	$1.04092^{+0.00077}_{-0.00080} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.982^{+0.022}_{-0.022} \quad (-0.2\sigma)$	$H(0.51)$	$89.9^{+1.6}_{-1.5} \quad (-0.1\sigma)$
$\tau$	$0.055^{+0.020}_{-0.020} \quad (+0.1\sigma)$	$r_{\text{drag}} h$	$99.97^{+2.3}_{-2.3} \quad (-0.0\sigma)$	$D_{\text{M}}(0.51)$	$1976^{+38}_{-40} \quad (+0.0\sigma)$
$\Omega_K$	$0.0005^{+0.0050}_{-0.0052} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.430^{+0.051}_{-0.052} \quad (-0.1\sigma)$	$H(0.61)$	$95.5^{+1.6}_{-1.5} \quad (-0.1\sigma)$
$\ln(10^{10} A_{\text{s}})$	$3.043^{+0.038}_{-0.037} \quad (+0.1\sigma)$	$z_{\text{re}}$	$7.8^{+1.9}_{-2.1} \quad (+0.0\sigma)$	$D_{\text{M}}(0.61)$	$2299^{+44}_{-44} \quad (+0.0\sigma)$
$n_{\text{s}}$	$0.967^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$10^9 A_{\text{s}}$	$2.098^{+0.081}_{-0.077} \quad (+0.0\sigma)$	$H(2.33)$	$236.2^{+3.3}_{-3.2} \quad (-0.2\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0066}_{-0.0062} \quad (+0.0\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.878^{+0.030}_{-0.027} \quad (-0.1\sigma)$	$D_{\text{M}}(2.33)$	$5753^{+80}_{-80} \quad (+0.1\sigma)$
$A_{100}^{\text{PS}}$	$240^{+70}_{-60} \quad (-0.1\sigma)$	$D_{40}$	$1225^{+34}_{-31} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.014} \quad (-0.2\sigma)$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5725^{+98}_{-97} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.018}_{-0.018} \quad (-0.2\sigma)$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2536^{+35}_{-32} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.473^{+0.012}_{-0.012} \quad (-0.2\sigma)$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.016} \quad (-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$230.4^{+4.3}_{-4.1} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.011} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.35} \quad (+0.1\sigma)$	$n_{\text{s},0.002}$	$0.967^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.015}_{-0.015} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.24538^{+0.00017}_{-0.00018} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011} \quad (-0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24671^{+0.00017}_{-0.00018} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.015}_{-0.014} \quad (-0.2\sigma)$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.593^{+0.079}_{-0.080} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0074}_{-0.0073} \quad (-0.2\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.50} \quad (-0.0\sigma)$	$\text{Age}/\text{Gyr}$	$13.77^{+0.21}_{-0.21} \quad (+0.1\sigma)$	$\sigma_8(2.33)$	$0.3075^{+0.0084}_{-0.0082} \quad (-0.2\sigma)$
$A_{143}^{\text{dust}}$	$0.96^{+0.44}_{-0.44} \quad (-0.1\sigma)$	$z_*$	$1089.90^{+0.80}_{-0.74} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-8} \quad (-0.3\sigma)$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.28} \quad (+0.0\sigma)$	$r_*$	$144.66^{+0.78}_{-0.84} \quad (+0.0\sigma)$	$f_{2000}^{217}$	$106.8^{+5.3}_{-4.9} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.40}_{-0.42} \quad (-0.0\sigma)$	$100\theta_*$	$1.04110^{+0.00077}_{-0.00077} \quad (-0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028} \quad (+0.0\sigma)$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.894^{+0.072}_{-0.078} \quad (+0.0\sigma)$	$\chi_{\text{lensing}}^2$	$9.33 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0042} \quad (-0.1\sigma)$	$z_{\text{drag}}$	$1059.80^{+0.90}_{-0.86} \quad (+0.7\sigma)$	$\chi_{\text{small}}^2$	$397.1 \quad (\nu: 1.6) \quad (-0.0\sigma)$
$c_{TE}$	$0.996^{+0.012}_{-0.013}$	$r_{\text{drag}}$	$147.33^{+0.79}_{-0.82} \quad (-0.1\sigma)$	$\chi_{\text{lowl}}^2$	$23.1 \quad (\nu: 0.5) \quad (-0.2\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$k_{\text{D}}$	$0.14058^{+0.00088}_{-0.00086} \quad (+0.3\sigma)$	$\chi_{\text{CamSpec}}^2$	$11514.4 \quad (\nu: 15.6) \quad (+861.4\sigma)$
$H_0$	$67.9^{+1.6}_{-1.6} \quad (-0.0\sigma)$	$100\theta_{\text{D}}$	$0.16083^{+0.00052}_{-0.00048} \quad (-0.7\sigma)$	$\chi_{\text{JLA}}^2$	$1035.02 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$\Omega_{\Lambda}$	$0.691^{+0.014}_{-0.015} \quad (+0.2\sigma)$	$z_{\text{eq}}$	$3383^{+88}_{-77} \quad (-0.2\sigma)$	$\chi_{6\text{DF}}^2$	$0.048 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$\Omega_{\text{m}}$	$0.309^{+0.016}_{-0.015} \quad (-0.1\sigma)$	$k_{\text{eq}}$	$0.01033^{+0.00027}_{-0.00024} \quad (-0.2\sigma)$	$\chi_{\text{MGS}}^2$	$1.48 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$\Omega_{\text{m}} h^2$	$0.1422^{+0.0037}_{-0.0032} \quad (-0.2\sigma)$	$100\theta_{\text{eq}}$	$0.817^{+0.015}_{-0.016} \quad (+0.2\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.6 \quad (\nu: 1.5) \quad (+0.1\sigma)$
$\Omega_{\text{m}} h^3$	$0.0965^{+0.0036}_{-0.0036} \quad (-0.1\sigma)$	$100\theta_{\text{s,eq}}$	$0.4511^{+0.0077}_{-0.0085} \quad (+0.2\sigma)$	$\chi_{\text{prior}}^2$	$7.8 \quad (\nu: 6.1) \quad (+0.1\sigma)$
$\sigma_8$	$0.809^{+0.019}_{-0.019} \quad (-0.2\sigma)$	$H(0.15)$	$73.1^{+1.6}_{-1.5} \quad (-0.0\sigma)$	$\chi_{\text{CMB}}^2$	$11944.0 \quad (\nu: 17.0) \quad (+817.9\sigma)$
$S_8$	$0.821^{+0.028}_{-0.027} \quad (-0.2\sigma)$	$D_{\text{M}}(0.15)$	$639^{+14}_{-14} \quad (+0.0\sigma)$	$\chi_{\text{BAO}}^2$	$6.1 \quad (\nu: 1.1) \quad (+0.1\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 12992.90; \Delta\bar{\chi}_{\text{eff}}^2 = 4450.70; R - 1 = 0.03012$$



### 16.30 base\_omegak\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02233^{+0.00042}_{-0.00044} \quad (+0.6\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.449^{+0.019}_{-0.018} \quad (-0.2\sigma)$	$H(0.38)$	$83.2^{+1.6}_{-1.5} \quad (-0.1\sigma)$
$\Omega_{\text{c}} h^2$	$0.1192^{+0.0041}_{-0.0037} \quad (-0.2\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.602^{+0.020}_{-0.018} \quad (-0.2\sigma)$	$D_{\text{M}}(0.38)$	$1524^{+32}_{-33} \quad (+0.0\sigma)$
$100\theta_{\text{MC}}$	$1.04092^{+0.00080}_{-0.00081} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.981^{+0.027}_{-0.025} \quad (-0.2\sigma)$	$H(0.51)$	$89.9^{+1.6}_{-1.5} \quad (-0.1\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.1\sigma)$	$r_{\text{drag}} h$	$100.0^{+2.5}_{-2.4} \quad (-0.0\sigma)$	$D_{\text{M}}(0.51)$	$1975^{+39}_{-41} \quad (+0.0\sigma)$
$\Omega_K$	$0.0005^{+0.0052}_{-0.0052} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.426^{+0.066}_{-0.057} \quad (-0.1\sigma)$	$H(0.61)$	$95.5^{+1.6}_{-1.5} \quad (-0.1\sigma)$
$\ln(10^{10} A_{\text{s}})$	$3.041^{+0.041}_{-0.029} \quad (+0.0\sigma)$	$z_{\text{re}}$	$< 9.45 \quad (-0.0\sigma)$	$D_{\text{M}}(0.61)$	$2299^{+44}_{-46} \quad (+0.0\sigma)$
$n_{\text{s}}$	$0.967^{+0.011}_{-0.012} \quad (+0.2\sigma)$	$10^9 A_{\text{s}}$	$2.093^{+0.086}_{-0.061} \quad (+0.0\sigma)$	$H(2.33)$	$236.1^{+3.5}_{-3.2} \quad (-0.2\sigma)$
$y_{\text{cal}}$	$1.0004^{+0.0064}_{-0.0062} \quad (+0.0\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.876^{+0.032}_{-0.028} \quad (-0.1\sigma)$	$D_{\text{M}}(2.33)$	$5753^{+79}_{-82} \quad (+0.1\sigma)$
$A_{100}^{\text{PS}}$	$240^{+60}_{-60} \quad (-0.1\sigma)$	$D_{40}$	$1223^{+36}_{-32} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.454^{+0.018}_{-0.017} \quad (-0.2\sigma)$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5719^{+100}_{-98} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.019}_{-0.017} \quad (-0.2\sigma)$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$D_{810}$	$2534^{+35}_{-33} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.473^{+0.016}_{-0.014} \quad (-0.2\sigma)$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.017}_{-0.015} \quad (-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$230.3^{+4.2}_{-4.2} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.014}_{-0.013} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.35} \quad (+0.1\sigma)$	$n_{\text{s},0.002}$	$0.967^{+0.011}_{-0.012} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.016}_{-0.014} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.24538^{+0.00016}_{-0.00019} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.013}_{-0.012} \quad (-0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24670^{+0.00016}_{-0.00019} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.015}_{-0.014} \quad (-0.2\sigma)$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.594^{+0.084}_{-0.076} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.2977^{+0.0078}_{-0.0069} \quad (-0.2\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.49}_{-0.50} \quad (-0.0\sigma)$	$\text{Age}/\text{Gyr}$	$13.77^{+0.20}_{-0.21} \quad (+0.1\sigma)$	$\sigma_8(2.33)$	$0.3072^{+0.0087}_{-0.0078} \quad (-0.2\sigma)$
$A_{143}^{\text{dust}}$	$0.97^{+0.44}_{-0.45} \quad (-0.1\sigma)$	$z_*$	$1089.90^{+0.84}_{-0.75} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\text{dust}}$	$0.97^{+0.28}_{-0.28} \quad (+0.1\sigma)$	$r_*$	$144.68^{+0.82}_{-0.89} \quad (+0.0\sigma)$	$f_{2000}^{217}$	$106.8^{+5.0}_{-4.9} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.41}_{-0.42} \quad (-0.0\sigma)$	$100\theta_*$	$1.04111^{+0.00079}_{-0.00080} \quad (-0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.896^{+0.0077}_{-0.0082} \quad (+0.0\sigma)$	$\chi_{\text{small}}^2$	$396.9 \quad (\nu: 1.4) \quad (-0.0\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0042} \quad (-0.1\sigma)$	$z_{\text{drag}}$	$1059.78^{+0.84}_{-0.84} \quad (+0.7\sigma)$	$\chi_{\text{lowl}}^2$	$23.0 \quad (\nu: 0.5) \quad (-0.2\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$147.36^{+0.81}_{-0.86} \quad (-0.1\sigma)$	$\chi_{\text{CamSpec}}^2$	$11514.7 \quad (\nu: 15.7) \quad (+826.6\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$k_{\text{D}}$	$0.14056^{+0.00089}_{-0.00085} \quad (+0.3\sigma)$	$\chi_{6\text{DF}}^2$	$0.052 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$H_0$	$67.9^{+1.7}_{-1.6} \quad (+0.0\sigma)$	$100\theta_{\text{D}}$	$0.16084^{+0.00052}_{-0.00049} \quad (-0.7\sigma)$	$\chi_{\text{MGS}}^2$	$1.51 \quad (\nu: 0.2) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.691^{+0.016}_{-0.017} \quad (+0.2\sigma)$	$z_{\text{eq}}$	$3382^{+92}_{-83} \quad (-0.2\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.6 \quad (\nu: 1.7) \quad (+0.1\sigma)$
$\Omega_{\text{m}}$	$0.309^{+0.017}_{-0.016} \quad (-0.1\sigma)$	$k_{\text{eq}}$	$0.01032^{+0.00028}_{-0.00025} \quad (-0.2\sigma)$	$\chi_{\text{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\Omega_{\text{m}} h^2$	$0.1422^{+0.0039}_{-0.0035} \quad (-0.2\sigma)$	$100\theta_{\text{eq}}$	$0.817^{+0.016}_{-0.017} \quad (+0.2\sigma)$	$\chi_{\text{BAO}}^2$	$6.2 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$\Omega_{\text{m}} h^3$	$0.0965^{+0.0037}_{-0.0035} \quad (-0.1\sigma)$	$100\theta_{\text{s,eq}}$	$0.4513^{+0.0082}_{-0.0088} \quad (+0.2\sigma)$	$\chi_{\text{CMB}}^2$	$11934.6 \quad (\nu: 16.2) \quad (+820.7\sigma)$
$\sigma_8$	$0.808^{+0.021}_{-0.019} \quad (-0.2\sigma)$	$H(0.15)$	$73.1^{+1.7}_{-1.5} \quad (-0.0\sigma)$		
$S_8$	$0.820^{+0.035}_{-0.033} \quad (-0.2\sigma)$	$D_{\text{M}}(0.15)$	$639^{+14}_{-15} \quad (-0.0\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 11948.57; \Delta\bar{\chi}_{\text{eff}}^2 = 4450.67; R - 1 = 0.01907$$



16.31 base\_omegak\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits		Parameter	99% limits		Parameter	99% limits	
$\Omega_{\text{b}} h^2$	$0.02233^{+0.00043}_{-0.00043}$	$(+0.7\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.451^{+0.016}_{-0.015}$	$(-0.2\sigma)$	$H(0.38)$	$83.2^{+1.6}_{-1.4}$	$(-0.1\sigma)$
$\Omega_{\text{c}} h^2$	$0.1193^{+0.0039}_{-0.0035}$	$(-0.3\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.604^{+0.016}_{-0.016}$	$(-0.3\sigma)$	$D_{\text{M}}(0.38)$	$1526^{+31}_{-32}$	$(+0.0\sigma)$
$100\theta_{\text{MC}}$	$1.04091^{+0.00078}_{-0.00080}$	$(-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.022}_{-0.021}$	$(-0.3\sigma)$	$H(0.51)$	$89.9^{+1.6}_{-1.5}$	$(-0.1\sigma)$
$\tau$	$0.056^{+0.018}_{-0.014}$	$(+0.1\sigma)$	$r_{\text{drag}} h$	$99.9^{+2.4}_{-2.3}$	$(-0.0\sigma)$	$D_{\text{M}}(0.51)$	$1977^{+39}_{-40}$	$(+0.0\sigma)$
$\Omega_K$	$0.0005^{+0.0051}_{-0.0053}$	$(-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.050}_{-0.051}$	$(-0.1\sigma)$	$H(0.61)$	$95.5^{+1.6}_{-1.5}$	$(-0.1\sigma)$
$\ln(10^{10} A_{\text{s}})$	$3.044^{+0.037}_{-0.029}$	$(+0.0\sigma)$	$z_{\text{re}}$	$< 9.52$	$(+0.0\sigma)$	$D_{\text{M}}(0.61)$	$2301^{+43}_{-45}$	$(+0.0\sigma)$
$n_{\text{s}}$	$0.967^{+0.011}_{-0.011}$	$(+0.2\sigma)$	$10^9 A_{\text{s}}$	$2.100^{+0.079}_{-0.061}$	$(+0.0\sigma)$	$H(2.33)$	$236.2^{+3.4}_{-3.2}$	$(-0.2\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0066}_{-0.0062}$	$(+0.0\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.878^{+0.030}_{-0.026}$	$(-0.1\sigma)$	$D_{\text{M}}(2.33)$	$5755^{+79}_{-81}$	$(+0.1\sigma)$
$A_{100}^{\text{PS}}$	$240^{+70}_{-60}$	$(-0.1\sigma)$	$D_{40}$	$1225^{+34}_{-31}$	$(-0.1\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.015}_{-0.014}$	$(-0.2\sigma)$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20}$	$(-0.1\sigma)$	$D_{220}$	$5724^{+98}_{-97}$	$(+0.4\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.017}_{-0.017}$	$(-0.2\sigma)$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30}$	$(+0.1\sigma)$	$D_{810}$	$2535^{+34}_{-32}$	$(+0.1\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.012}_{-0.012}$	$(-0.2\sigma)$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$(-0.1\sigma)$	$D_{1420}$	$816^{+13}_{-12}$	$(+0.3\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.016}_{-0.015}$	$(-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	—		$D_{2000}$	$230.4^{+4.3}_{-4.1}$	$(+0.4\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.011}$	$(-0.3\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.35}$	$(+0.1\sigma)$	$n_{\text{s},0.002}$	$0.967^{+0.011}_{-0.011}$	$(+0.2\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.015}_{-0.014}$	$(-0.2\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—		$Y_{\text{P}}$	$0.24538^{+0.00016}_{-0.00019}$	$(+0.7\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011}$	$(-0.3\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—		$Y_{\text{P}}^{\text{BBN}}$	$0.24670^{+0.00016}_{-0.00019}$	$(+0.7\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.014}_{-0.013}$	$(-0.2\sigma)$
$A^{\text{kSZ}}$	—		$10^5 \text{D}/\text{H}$	$2.594^{+0.082}_{-0.078}$	$(-0.7\sigma)$	$f\sigma_8(2.33)$	$0.2981^{+0.0073}_{-0.0068}$	$(-0.2\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.50}$	$(-0.0\sigma)$	$\text{Age}/\text{Gyr}$	$13.78^{+0.21}_{-0.21}$	$(+0.1\sigma)$	$\sigma_8(2.33)$	$0.3075^{+0.0083}_{-0.0080}$	$(-0.2\sigma)$
$A_{143}^{\text{dust}}$	$0.96^{+0.43}_{-0.44}$	$(-0.1\sigma)$	$z_*$	$1089.91^{+0.80}_{-0.74}$	$(-0.6\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-8}$	$(-0.3\sigma)$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.28}$	$(+0.0\sigma)$	$r_*$	$144.65^{+0.78}_{-0.85}$	$(+0.0\sigma)$	$f_{2000}^{217}$	$106.8^{+5.3}_{-4.9}$	$(-0.4\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.40}_{-0.42}$	$(-0.0\sigma)$	$100\theta_*$	$1.04110^{+0.00077}_{-0.00077}$	$(-0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$	$(-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$(+0.0\sigma)$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.894^{+0.073}_{-0.079}$	$(+0.0\sigma)$	$\chi_{\text{lensing}}^2$	$9.26 (\nu: 0.2)$	$(-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0042}$	$(-0.1\sigma)$	$z_{\text{drag}}$	$1059.79^{+0.87}_{-0.85}$	$(+0.7\sigma)$	$\chi_{\text{small}}^2$	$397.1 (\nu: 1.6)$	$(-0.0\sigma)$
$c_{TE}$	$0.996^{+0.012}_{-0.013}$		$r_{\text{drag}}$	$147.32^{+0.79}_{-0.83}$	$(-0.1\sigma)$	$\chi_{\text{lowl}}^2$	$23.1 (\nu: 0.5)$	$(-0.2\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$		$k_{\text{D}}$	$0.14059^{+0.00088}_{-0.00086}$	$(+0.3\sigma)$	$\chi_{\text{CamSpec}}^2$	$11514.3 (\nu: 15.6)$	$(+866.2\sigma)$
$H_0$	$67.8^{+1.7}_{-1.6}$	$(+0.0\sigma)$	$100\theta_{\text{D}}$	$0.16084^{+0.00051}_{-0.00048}$	$(-0.7\sigma)$	$\chi_{6\text{DF}}^2$	$0.055 (\nu: 0.0)$	$(+0.0\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.014}_{-0.016}$	$(+0.2\sigma)$	$z_{\text{eq}}$	$3384^{+88}_{-78}$	$(-0.2\sigma)$	$\chi_{\text{MGS}}^2$	$1.43 (\nu: 0.2)$	$(-0.0\sigma)$
$\Omega_{\text{m}}$	$0.310^{+0.016}_{-0.016}$	$(-0.1\sigma)$	$k_{\text{eq}}$	$0.01033^{+0.00027}_{-0.00024}$	$(-0.2\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.8 (\nu: 1.9)$	$(+0.1\sigma)$
$\Omega_{\text{m}} h^2$	$0.1423^{+0.0037}_{-0.0033}$	$(-0.2\sigma)$	$100\theta_{\text{eq}}$	$0.816^{+0.015}_{-0.017}$	$(+0.2\sigma)$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.2)$	$(+0.1\sigma)$
$\Omega_{\text{m}} h^3$	$0.0965^{+0.0037}_{-0.0036}$	$(-0.1\sigma)$	$100\theta_{\text{s,eq}}$	$0.4510^{+0.0078}_{-0.0085}$	$(+0.2\sigma)$	$\chi_{\text{CMB}}^2$	$11943.7 (\nu: 16.8)$	$(+825.6\sigma)$
$\sigma_8$	$0.810^{+0.018}_{-0.018}$	$(-0.2\sigma)$	$H(0.15)$	$73.1^{+1.6}_{-1.5}$	$(-0.0\sigma)$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 1.3)$	$(+0.1\sigma)$
$S_8$	$0.823^{+0.030}_{-0.027}$	$(-0.2\sigma)$	$D_{\text{M}}(0.15)$	$640^{+14}_{-15}$	$(+0.0\sigma)$			

$$\bar{\chi}_{\text{eff}}^2 = 11957.78; \Delta\bar{\chi}_{\text{eff}}^2 = 4450.80; R - 1 = 0.03337$$



**16.32 base\_omegak\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_Pantheon18\_zre6p5**

Parameter	99% limits		Parameter	99% limits		Parameter	99% limits	
$\Omega_{\text{b}} h^2$	$0.02234^{+0.00044}_{-0.00041}$	$(+0.6\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.450^{+0.015}_{-0.015}$	$(-0.2\sigma)$	$H(0.38)$	$83.2^{+1.6}_{-1.5}$	$(-0.1\sigma)$
$\Omega_{\text{c}} h^2$	$0.1192^{+0.0039}_{-0.0034}$	$(-0.2\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.604^{+0.016}_{-0.015}$	$(-0.2\sigma)$	$D_{\text{M}}(0.38)$	$1525^{+31}_{-32}$	$(+0.0\sigma)$
$100\theta_{\text{MC}}$	$1.04092^{+0.00077}_{-0.00080}$	$(-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.021}_{-0.021}$	$(-0.2\sigma)$	$H(0.51)$	$89.9^{+1.6}_{-1.5}$	$(-0.1\sigma)$
$\tau$	$0.056^{+0.018}_{-0.014}$	$(+0.1\sigma)$	$r_{\text{drag}} h$	$99.99^{+2.3}_{-2.3}$	$(-0.0\sigma)$	$D_{\text{M}}(0.51)$	$1975^{+39}_{-40}$	$(+0.0\sigma)$
$\Omega_K$	$0.0005^{+0.0050}_{-0.0053}$	$(-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.050}_{-0.051}$	$(-0.1\sigma)$	$H(0.61)$	$95.5^{+1.6}_{-1.5}$	$(-0.1\sigma)$
$\ln(10^{10} A_{\text{s}})$	$3.045^{+0.037}_{-0.030}$	$(+0.0\sigma)$	$z_{\text{re}}$	$< 9.54$	$(+0.0\sigma)$	$D_{\text{M}}(0.61)$	$2299^{+44}_{-45}$	$(+0.0\sigma)$
$n_{\text{s}}$	$0.967^{+0.011}_{-0.011}$	$(+0.2\sigma)$	$10^9 A_{\text{s}}$	$2.101^{+0.078}_{-0.061}$	$(+0.0\sigma)$	$H(2.33)$	$236.1^{+3.3}_{-3.2}$	$(-0.2\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0066}_{-0.0062}$	$(+0.0\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.878^{+0.031}_{-0.026}$	$(-0.1\sigma)$	$D_{\text{M}}(2.33)$	$5753^{+80}_{-83}$	$(+0.1\sigma)$
$A_{100}^{\text{PS}}$	$240^{+70}_{-60}$	$(-0.1\sigma)$	$D_{40}$	$1225^{+34}_{-31}$	$(-0.1\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.014}$	$(-0.2\sigma)$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20}$	$(-0.1\sigma)$	$D_{220}$	$5724^{+99}_{-96}$	$(+0.4\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.017}_{-0.017}$	$(-0.2\sigma)$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30}$	$(+0.1\sigma)$	$D_{810}$	$2535^{+35}_{-32}$	$(+0.1\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.012}_{-0.012}$	$(-0.2\sigma)$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$(-0.1\sigma)$	$D_{1420}$	$816^{+13}_{-12}$	$(+0.3\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.016}_{-0.015}$	$(-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	—		$D_{2000}$	$230.4^{+4.4}_{-4.1}$	$(+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.011}$	$(-0.2\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.35}$	$(+0.1\sigma)$	$n_{\text{s},0.002}$	$0.967^{+0.011}_{-0.011}$	$(+0.2\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.015}_{-0.014}$	$(-0.2\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—		$Y_{\text{P}}$	$0.24538^{+0.00017}_{-0.00018}$	$(+0.6\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011}$	$(-0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—		$Y_{\text{P}}^{\text{BBN}}$	$0.24671^{+0.00017}_{-0.00018}$	$(+0.6\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.014}_{-0.014}$	$(-0.2\sigma)$
$A^{\text{kSZ}}$	—		$10^5 \text{D}/\text{H}$	$2.592^{+0.079}_{-0.080}$	$(-0.6\sigma)$	$f\sigma_8(2.33)$	$0.2982^{+0.0073}_{-0.0068}$	$(-0.2\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.50}$	$(-0.0\sigma)$	$\text{Age}/\text{Gyr}$	$13.77^{+0.21}_{-0.21}$	$(+0.1\sigma)$	$\sigma_8(2.33)$	$0.3077^{+0.0082}_{-0.0081}$	$(-0.2\sigma)$
$A_{143}^{\text{dust}}$	$0.96^{+0.44}_{-0.44}$	$(-0.1\sigma)$	$z_*$	$1089.90^{+0.79}_{-0.73}$	$(-0.5\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-8}$	$(-0.3\sigma)$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.28}$	$(+0.0\sigma)$	$r_*$	$144.66^{+0.77}_{-0.84}$	$(-0.0\sigma)$	$f_{2000}^{217}$	$106.7^{+5.2}_{-4.9}$	$(-0.4\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.40}_{-0.42}$	$(-0.0\sigma)$	$100\theta_*$	$1.04111^{+0.00077}_{-0.00077}$	$(-0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$	$(-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$(+0.0\sigma)$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.895^{+0.072}_{-0.078}$	$(+0.0\sigma)$	$\chi_{\text{lensing}}^2$	$9.27 (\nu: 0.3)$	$(-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0042}$	$(-0.1\sigma)$	$z_{\text{drag}}$	$1059.80^{+0.90}_{-0.82}$	$(+0.7\sigma)$	$\chi_{\text{small}}^2$	$397.1 (\nu: 1.7)$	$(-0.0\sigma)$
$c_{TE}$	$0.996^{+0.012}_{-0.013}$		$r_{\text{drag}}$	$147.34^{+0.79}_{-0.83}$	$(-0.1\sigma)$	$\chi_{\text{lowl}}^2$	$23.1 (\nu: 0.5)$	$(-0.2\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$		$k_{\text{D}}$	$0.14058^{+0.00088}_{-0.00086}$	$(+0.3\sigma)$	$\chi_{\text{CamSpec}}^2$	$11514.3 (\nu: 15.5)$	$(+864.3\sigma)$
$H_0$	$67.9^{+1.6}_{-1.6}$	$(+0.0\sigma)$	$100\theta_{\text{D}}$	$0.16083^{+0.00051}_{-0.00048}$	$(-0.7\sigma)$	$\chi_{\text{JLA}}^2$	$1035.01 (\nu: 0.0)$	$(-0.2\sigma)$
$\Omega_{\Lambda}$	$0.691^{+0.014}_{-0.014}$	$(+0.2\sigma)$	$z_{\text{eq}}$	$3383^{+88}_{-77}$	$(-0.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.048 (\nu: 0.0)$	$(+0.0\sigma)$
$\Omega_{\text{m}}$	$0.309^{+0.016}_{-0.015}$	$(-0.1\sigma)$	$k_{\text{eq}}$	$0.01032^{+0.00027}_{-0.00023}$	$(-0.1\sigma)$	$\chi_{\text{MGS}}^2$	$1.48 (\nu: 0.2)$	$(-0.0\sigma)$
$\Omega_{\text{m}} h^2$	$0.1422^{+0.0037}_{-0.0032}$	$(-0.1\sigma)$	$100\theta_{\text{eq}}$	$0.817^{+0.015}_{-0.016}$	$(+0.2\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.6 (\nu: 1.5)$	$(+0.1\sigma)$
$\Omega_{\text{m}} h^3$	$0.0965^{+0.0037}_{-0.0036}$	$(-0.1\sigma)$	$100\theta_{\text{s,eq}}$	$0.4512^{+0.0076}_{-0.0084}$	$(+0.2\sigma)$	$\chi_{\text{prior}}^2$	$7.8 (\nu: 6.2)$	$(+0.1\sigma)$
$\sigma_8$	$0.810^{+0.018}_{-0.018}$	$(-0.2\sigma)$	$H(0.15)$	$73.1^{+1.6}_{-1.5}$	$(-0.0\sigma)$	$\chi_{\text{CMB}}^2$	$11943.8 (\nu: 16.6)$	$(+828.2\sigma)$
$S_8$	$0.821^{+0.028}_{-0.027}$	$(-0.2\sigma)$	$D_{\text{M}}(0.15)$	$639^{+14}_{-14}$	$(+0.0\sigma)$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 1.1)$	$(+0.1\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 12992.73; \Delta\bar{\chi}_{\text{eff}}^2 = 4450.71; R - 1 = 0.03308$$



### 16.33 base\_omegak\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_JLA

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02217	$0.02217^{+0.00058}_{-0.00057}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6030	$0.602^{+0.024}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	1508.4	$1508^{+33}_{-32}$
$\Omega_{\mathrm{c}} h^2$	0.1200	$0.1201^{+0.0058}_{-0.0054}$	$\sigma_8/h^{0.5}$	0.9808	$0.980^{+0.032}_{-0.032}$	$H(0.51)$	90.70	$90.7^{+1.7}_{-1.8}$
$100\theta_{\mathrm{MC}}$	1.04087	$1.0409^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	101.16	$101.2^{+2.4}_{-2.4}$	$D_{\mathrm{M}}(0.51)$	1955.2	$1954^{+41}_{-40}$
$\tau$	0.0540	$0.053^{+0.021}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.422	$2.420^{+0.074}_{-0.073}$	$H(0.61)$	96.31	$96.4^{+1.8}_{-1.9}$
$\Omega_K$	0.0030	$0.0032^{+0.0065}_{-0.0063}$	$z_{\mathrm{re}}$	7.70	$7.6^{+2.0}_{-2.4}$	$D_{\mathrm{M}}(0.61)$	2276.2	$2275^{+47}_{-46}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0422	$3.040^{+0.044}_{-0.046}$	$10^9 A_{\mathrm{s}}$	2.095	$2.092^{+0.093}_{-0.095}$	$H(2.33)$	237.12	$237.2^{+4.9}_{-4.6}$
$n_{\mathrm{s}}$	0.9645	$0.964^{+0.015}_{-0.016}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8809	$1.882^{+0.038}_{-0.036}$	$D_{\mathrm{M}}(2.33)$	5714	$5712^{+98}_{-92}$
$\alpha_{\mathrm{JLA}}$	0.1412	$0.141^{+0.016}_{-0.017}$	$D_{40}$	1229.6	$1231^{+44}_{-40}$	$f\sigma_8(0.15)$	0.4523	$0.452^{+0.021}_{-0.020}$
$\beta_{\mathrm{JLA}}$	3.101	$3.10^{+0.21}_{-0.20}$	$D_{220}$	5710	$5717^{+120}_{-110}$	$\sigma_8(0.15)$	0.7519	$0.751^{+0.024}_{-0.024}$
$y_{\mathrm{cal}}$	1.0002	$1.0004^{+0.0067}_{-0.0068}$	$D_{810}$	2536.4	$2537^{+37}_{-38}$	$f\sigma_8(0.38)$	0.4724	$0.472^{+0.019}_{-0.018}$
$A_{217}^{\mathrm{CIB}}$	50.0	$48^{+20}_{-20}$	$D_{1420}$	815.2	$815^{+13}_{-14}$	$\sigma_8(0.38)$	0.6676	$0.667^{+0.021}_{-0.021}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.11	—	$D_{2000}$	229.80	$229.7^{+4.9}_{-4.7}$	$f\sigma_8(0.51)$	0.4720	$0.471^{+0.017}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	7.1	—	$n_{\mathrm{s},0.002}$	0.9645	$0.964^{+0.015}_{-0.016}$	$\sigma_8(0.51)$	0.6252	$0.625^{+0.020}_{-0.020}$
$A_{100}^{\mathrm{PS}}$	256	$264^{+70}_{-70}$	$Y_{\mathrm{P}}$	0.245315	$0.24531^{+0.00023}_{-0.00027}$	$f\sigma_8(0.61)$	0.4677	$0.467^{+0.017}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	46.9	$49^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246641	$0.24664^{+0.00023}_{-0.00027}$	$\sigma_8(0.61)$	0.5952	$0.595^{+0.019}_{-0.019}$
$A_{143 \times 217}^{\mathrm{PS}}$	41.7	$43^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	2.623	$2.62^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	0.3003	$0.3001^{+0.0093}_{-0.0093}$
$A_{217}^{\mathrm{PS}}$	117.2	$115^{+30}_{-30}$	Age/Gyr	13.672	$13.67^{+0.25}_{-0.24}$	$\sigma_8(2.33)$	0.3104	$0.310^{+0.010}_{-0.010}$
$A^{\mathrm{kSZ}}$	0.0	—	$z_*$	1090.17	$1090.2^{+1.2}_{-1.0}$	$f_{2000}^{143}$	30.8	$31^{+8}_{-7}$
$A_{100}^{\mathrm{dustTT}}$	8.98	$8.9^{+4.8}_{-4.7}$	$r_*$	144.57	$144.6^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	33.5	$34^{+5}_{-5}$
$A_{143}^{\mathrm{dustTT}}$	10.69	$10.7^{+4.8}_{-4.8}$	$100\theta_*$	1.04107	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	107.97	$108.1^{+4.9}_{-4.9}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.1	$18.3^{+8.8}_{-8.6}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.887	$13.89^{+0.12}_{-0.12}$	$\chi_{\mathrm{small}}^2$	396.06	$397.0 (\nu: 1.5)$
$A_{217}^{\mathrm{dustTT}}$	94.3	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	1059.47	$1059.5^{+1.1}_{-1.2}$	$\chi_{\mathrm{lowl}}^2$	23.66	$23.9 (\nu: 1.2)$
$c_{100}$	0.99961	$0.9996^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	147.30	$147.3^{+1.3}_{-1.3}$	$\chi_{\mathrm{plik}}^2$	760.0	$773.0 (\nu: 14.8)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	0.14049	$0.1405^{+0.0014}_{-0.0014}$	$\chi_{\mathrm{H073p45}}^2$	8.3	$8.3 (\nu: 2.5)$
$H_0$	68.67	$68.7^{+1.7}_{-1.6}$	$100\theta_{\mathrm{D}}$	0.16102	$0.16103^{+0.00071}_{-0.00066}$	$\chi_{\mathrm{JLA}}^2$	695.12	$697.2 (\nu: 2.0)$
$\Omega_{\Lambda}$	0.6940	$0.694^{+0.018}_{-0.019}$	$z_{\mathrm{eq}}$	3398	$3400^{+130}_{-120}$	$\chi_{6\mathrm{DF}}^2$	0.023	$0.067 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	0.3029	$0.303^{+0.017}_{-0.017}$	$k_{\mathrm{eq}}$	0.010372	$0.01038^{+0.00041}_{-0.00037}$	$\chi_{\mathrm{MGS}}^2$	2.19	$2.30 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	0.1429	$0.1429^{+0.0056}_{-0.0051}$	$100\theta_{\mathrm{eq}}$	0.8134	$0.813^{+0.024}_{-0.024}$	$\chi_{\mathrm{DR12BAO}}^2$	3.30	$4.1 (\nu: 0.9)$
$\Omega_{\mathrm{m}} h^3$	0.09810	$0.0982^{+0.0048}_{-0.0046}$	$100\theta_{\mathrm{s,eq}}$	0.4496	$0.450^{+0.012}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	1.6	$7.4 (\nu: 6.9)$
$\sigma_8$	0.8128	$0.812^{+0.027}_{-0.026}$	$H(0.15)$	73.93	$74.0^{+1.6}_{-1.6}$	$\chi_{\mathrm{BAO}}^2$	5.52	$6.5 (\nu: 1.8)$
$S_8$	0.8167	$0.816^{+0.041}_{-0.039}$	$D_{\mathrm{M}}(0.15)$	631.8	$631^{+15}_{-14}$	$\chi_{\mathrm{CMB}}^2$	1179.7	$1194.0 (\nu: 15.5)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4473	$0.447^{+0.022}_{-0.021}$	$H(0.38)$	84.00	$84.1^{+1.7}_{-1.7}$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 1890.21$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 1913.25$ ;  $R - 1 = 0.01616$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.02 MGS: 2.19 DR12BAO: 3.30 CMB - small-100x143.offlike5\_EE\_Aplanck\_B: 396.06 commander\_dx12\_v3.2.29: 23.66 plik\_rd12\_HM\_v22.TT: 760.01  
Hubble - H073p45: 8.28 SN - JLA December\_2013: 695.12



### 16.34 base\_omegak\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02217^{+0.00057}_{-0.00056}$	$\sigma_8 \Omega_m^{0.25}$	0.6052	$0.605^{+0.019}_{-0.019}$	$D_M(0.38)$	1507.3	$1508^{+33}_{-31}$
$\Omega_c h^2$	0.1204	$0.1204^{+0.0053}_{-0.0052}$	$\sigma_8/h^{0.5}$	0.9839	$0.983^{+0.026}_{-0.026}$	$H(0.51)$	90.79	$90.7^{+1.7}_{-1.8}$
$100\theta_{MC}$	1.04081	$1.0408^{+0.0012}_{-0.0011}$	$r_{drag}h$	101.15	$101.1^{+2.3}_{-2.4}$	$D_M(0.51)$	1953.7	$1955^{+41}_{-39}$
$\tau$	0.0551	$0.055^{+0.021}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	2.429	$2.430^{+0.058}_{-0.057}$	$H(0.61)$	96.40	$96.4^{+1.8}_{-1.9}$
$\Omega_K$	0.0034	$0.0033^{+0.0062}_{-0.0064}$	$z_{re}$	7.82	$7.8^{+1.8}_{-2.1}$	$D_M(0.61)$	2274.4	$2276^{+47}_{-45}$
$\ln(10^{10} A_s)$	3.0464	$3.046^{+0.040}_{-0.037}$	$10^9 A_s$	2.104	$2.102^{+0.085}_{-0.077}$	$H(2.33)$	237.43	$237.4^{+4.4}_{-4.4}$
$n_s$	0.9640	$0.963^{+0.014}_{-0.015}$	$10^9 A_s e^{-2\tau}$	1.8846	$1.884^{+0.034}_{-0.034}$	$D_M(2.33)$	5708	$5711^{+98}_{-90}$
$y_{cal}$	1.0006	$1.0006^{+0.0066}_{-0.0069}$	$D_{40}$	1232.8	$1235^{+41}_{-37}$	$f\sigma_8(0.15)$	0.4541	$0.454^{+0.017}_{-0.017}$
$\alpha_{JLA}$	0.1413	$0.141^{+0.016}_{-0.016}$	$D_{220}$	5716	$5722^{+110}_{-110}$	$\sigma_8(0.15)$	0.7545	$0.754^{+0.020}_{-0.020}$
$\beta_{JLA}$	3.099	$3.10^{+0.22}_{-0.20}$	$D_{810}$	2539.8	$2538^{+36}_{-39}$	$f\sigma_8(0.38)$	0.4742	$0.474^{+0.015}_{-0.015}$
$A_{217}^{CIB}$	48.9	$48^{+20}_{-20}$	$D_{1420}$	816.3	$815^{+14}_{-14}$	$\sigma_8(0.38)$	0.6698	$0.669^{+0.018}_{-0.018}$
$\xi^{tSZ \times CIB}$	0.31	—	$D_{2000}$	230.17	$229.8^{+5.0}_{-4.7}$	$f\sigma_8(0.51)$	0.4737	$0.473^{+0.014}_{-0.014}$
$A_{143}^{tSZ}$	7.0	—	$n_{s,0.002}$	0.9640	$0.963^{+0.014}_{-0.015}$	$\sigma_8(0.51)$	0.6272	$0.627^{+0.017}_{-0.017}$
$A_{100}^{PS}$	255	$263^{+70}_{-80}$	$Y_P$	0.245318	$0.24531^{+0.00022}_{-0.00026}$	$f\sigma_8(0.61)$	0.4693	$0.469^{+0.013}_{-0.013}$
$A_{143}^{PS}$	49.5	$49^{+20}_{-20}$	$Y_P^{BBN}$	0.246644	$0.24664^{+0.00022}_{-0.00026}$	$\sigma_8(0.61)$	0.5971	$0.597^{+0.016}_{-0.016}$
$A_{143 \times 217}^{PS}$	46.8	$44^{+20}_{-20}$	$10^5 D/H$	2.622	$2.62^{+0.11}_{-0.10}$	$f\sigma_8(2.33)$	0.3012	$0.3009^{+0.0080}_{-0.0080}$
$A_{217}^{PS}$	119.2	$115^{+20}_{-30}$	Age/Gyr	13.658	$13.66^{+0.25}_{-0.23}$	$\sigma_8(2.33)$	0.3115	$0.3111^{+0.0092}_{-0.0092}$
$A^{kSZ}$	0.0	—	$z_*$	1090.19	$1090.2^{+1.1}_{-1.0}$	$f_{2000}^{143}$	30.4	$31^{+8}_{-7}$
$A_{100}^{dustTT}$	8.85	$8.8^{+4.9}_{-4.5}$	$r_*$	144.48	$144.5^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	33.2	$34^{+5}_{-5}$
$A_{143}^{dustTT}$	10.82	$10.7^{+4.5}_{-4.8}$	$100\theta_*$	1.04102	$1.0410^{+0.0012}_{-0.0011}$	$f_{2000}^{217}$	107.71	$108.1^{+4.9}_{-4.6}$
$A_{143 \times 217}^{dustTT}$	19.3	$18.3^{+8.3}_{-8.6}$	$D_M(z_*)/\text{Gpc}$	13.879	$13.88^{+0.11}_{-0.11}$	$\chi_{lensing}^2$	9.04	$9.53 (\nu: 0.4)$
$A_{217}^{dustTT}$	94.4	$93^{+20}_{-20}$	$z_{drag}$	1059.51	$1059.5^{+1.2}_{-1.3}$	$\chi_{small}^2$	396.29	$397.2 (\nu: 1.7)$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0017}$	$r_{drag}$	147.21	$147.2^{+1.2}_{-1.2}$	$\chi_{lowl}^2$	23.89	$24.2 (\nu: 1.0)$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0016}$	$k_D$	0.14060	$0.1406^{+0.0013}_{-0.0013}$	$\chi_{plik}^2$	760.0	$772.1 (\nu: 13.3)$
$H_0$	68.71	$68.7^{+1.6}_{-1.6}$	$100\theta_D$	0.16099	$0.16101^{+0.00069}_{-0.00064}$	$\chi_{H073p45}^2$	8.1	$8.5 (\nu: 2.5)$
$\Omega_\Lambda$	0.6933	$0.693^{+0.016}_{-0.017}$	$z_{eq}$	3407	$3406^{+120}_{-120}$	$\chi_{JLA}^2$	695.13	$697.2 (\nu: 1.9)$
$\Omega_m$	0.3033	$0.304^{+0.016}_{-0.015}$	$k_{eq}$	0.010397	$0.01040^{+0.00036}_{-0.00036}$	$\chi_{6DF}^2$	0.023	$0.055 (\nu: 0.0)$
$\Omega_m h^2$	0.14319	$0.1432^{+0.0049}_{-0.0049}$	$100\theta_{eq}$	0.8119	$0.812^{+0.023}_{-0.021}$	$\chi_{MGS}^2$	2.19	$2.21 (\nu: 0.2)$
$\Omega_m h^3$	0.09839	$0.0983^{+0.0046}_{-0.0047}$	$100\theta_{s,eq}$	0.4488	$0.449^{+0.012}_{-0.011}$	$\chi_{DR12BAO}^2$	3.29	$4.0 (\nu: 0.7)$
$\sigma_8$	0.8156	$0.815^{+0.021}_{-0.022}$	$H(0.15)$	73.98	$73.9^{+1.6}_{-1.6}$	$\chi_{prior}^2$	1.3	$7.4 (\nu: 7.1)$
$S_8$	0.8200	$0.820^{+0.033}_{-0.032}$	$D_M(0.15)$	631.4	$632^{+14}_{-14}$	$\chi_{CMB}^2$	1189.2	$1203.0 (\nu: 15.3)$
$\sigma_8 \Omega_m^{0.5}$	0.4491	$0.449^{+0.018}_{-0.018}$	$H(0.38)$	84.07	$84.0^{+1.7}_{-1.6}$	$\chi_{BAO}^2$	5.51	$6.2 (\nu: 1.4)$

Best-fit  $\chi_{eff}^2 = 1899.34$ ;  $\bar{\chi}_{eff}^2 = 1922.24$ ;  $R - 1 = 0.02517$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.02 MGS: 2.19 DR12BAO: 3.29 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p\_teb\_consext8: 9.04 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.29 commander\_dx12\_v3\_2\_29: 23.89 plik\_rd12\_HM\_v22\_TT: 760.03 Hubble - H073p45: 8.14 SN - JLA December\_2013: 695.13



16.35 base\_omegak\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02218^{+0.00057}_{-0.00057}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.024}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1508^{+33}_{-32}$
$\Omega_{\mathrm{c}}h^2$	$0.1200^{+0.0057}_{-0.0053}$	$\sigma_8/h^{0.5}$	$0.981^{+0.031}_{-0.029}$	$H(0.51)$	$90.7^{+1.7}_{-1.8}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}}h$	$101.2^{+2.4}_{-2.4}$	$D_{\mathrm{M}}(0.51)$	$1954^{+41}_{-40}$
$\tau$	$0.054^{+0.019}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.423^{+0.072}_{-0.068}$	$H(0.61)$	$96.3^{+1.8}_{-1.8}$
$\Omega_K$	$0.0031^{+0.0065}_{-0.0063}$	$z_{\mathrm{re}}$	$< 9.46$	$D_{\mathrm{M}}(0.61)$	$2275^{+47}_{-45}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.042}_{-0.031}$	$10^9 A_{\mathrm{s}}$	$2.098^{+0.090}_{-0.065}$	$H(2.33)$	$237.1^{+4.8}_{-4.5}$
$n_{\mathrm{s}}$	$0.964^{+0.015}_{-0.015}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.038}_{-0.036}$	$D_{\mathrm{M}}(2.33)$	$5712^{+97}_{-92}$
$\alpha_{JLA}$	$0.141^{+0.016}_{-0.017}$	$D_{40}$	$1231^{+44}_{-40}$	$f\sigma_8(0.15)$	$0.452^{+0.021}_{-0.020}$
$\beta_{JLA}$	$3.10^{+0.21}_{-0.20}$	$D_{220}$	$5717^{+120}_{-110}$	$\sigma_8(0.15)$	$0.752^{+0.024}_{-0.022}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0067}_{-0.0067}$	$D_{810}$	$2536^{+37}_{-37}$	$f\sigma_8(0.38)$	$0.472^{+0.019}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-14}$	$\sigma_8(0.38)$	$0.668^{+0.021}_{-0.020}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{2000}$	$229.7^{+4.9}_{-4.7}$	$f\sigma_8(0.51)$	$0.472^{+0.017}_{-0.016}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.964^{+0.015}_{-0.015}$	$\sigma_8(0.51)$	$0.625^{+0.019}_{-0.018}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00022}_{-0.00027}$	$f\sigma_8(0.61)$	$0.468^{+0.016}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00023}_{-0.00027}$	$\sigma_8(0.61)$	$0.595^{+0.018}_{-0.017}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.10}$	$f\sigma_8(2.33)$	$0.3005^{+0.0091}_{-0.0084}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.67^{+0.25}_{-0.24}$	$\sigma_8(2.33)$	$0.311^{+0.010}_{-0.0094}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.2^{+1.1}_{-1.0}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.7}$	$r_*$	$144.6^{+1.2}_{-1.3}$	$f_{2000}^{143 \times 217}$	$34^{+5}_{-5}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.8}_{-4.8}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$108.1^{+4.9}_{-4.8}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.7}_{-8.6}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.89^{+0.11}_{-0.12}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.5)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.2}$	$\chi_{\mathrm{lowl}}^2$	$23.9 (\nu: 1.2)$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.3^{+1.2}_{-1.3}$	$\chi_{\mathrm{plik}}^2$	$772.8 (\nu: 14.5)$
$c_{217}$	$0.9983^{+0.0015}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{H073p45}}^2$	$8.3 (\nu: 2.5)$
$H_0$	$68.7^{+1.7}_{-1.6}$	$100\theta_{\mathrm{D}}$	$0.16102^{+0.00070}_{-0.00065}$	$\chi_{\mathrm{JLA}}^2$	$697.1 (\nu: 1.9)$
$\Omega_{\Lambda}$	$0.694^{+0.018}_{-0.018}$	$z_{\mathrm{eq}}$	$3398^{+130}_{-120}$	$\chi_{6\mathrm{DF}}^2$	$0.068 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.302^{+0.017}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01037^{+0.00040}_{-0.00037}$	$\chi_{\mathrm{MGS}}^2$	$2.31 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1428^{+0.0055}_{-0.0051}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.023}_{-0.024}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.1 (\nu: 0.9)$
$\Omega_{\mathrm{m}}h^3$	$0.0982^{+0.0048}_{-0.0046}$	$100\theta_{\mathrm{s,eq}}$	$0.450^{+0.012}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	$7.4 (\nu: 6.9)$
$\sigma_8$	$0.813^{+0.026}_{-0.025}$	$H(0.15)$	$74.0^{+1.6}_{-1.6}$	$\chi_{\mathrm{BAO}}^2$	$6.5 (\nu: 1.9)$
$S_8$	$0.816^{+0.041}_{-0.038}$	$D_{\mathrm{M}}(0.15)$	$631^{+15}_{-14}$	$\chi_{\mathrm{CMB}}^2$	$1193.6 (\nu: 14.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.022}_{-0.021}$	$H(0.38)$	$84.0^{+1.7}_{-1.7}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 1912.92; R - 1 = 0.02011$					



16.36 base\_omegak\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02218^{+0.00057}_{-0.00055}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.019}_{-0.019}$	$D_{\mathrm{M}}(0.38)$	$1508^{+33}_{-31}$
$\Omega_{\mathrm{c}}h^2$	$0.1203^{+0.0052}_{-0.0051}$	$\sigma_8/h^{0.5}$	$0.984^{+0.025}_{-0.025}$	$H(0.51)$	$90.7^{+1.7}_{-1.8}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0012}_{-0.0011}$	$r_{\mathrm{drag}}h$	$101.1^{+2.3}_{-2.4}$	$D_{\mathrm{M}}(0.51)$	$1955^{+41}_{-39}$
$\tau$	$0.056^{+0.019}_{-0.015}$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.058}_{-0.056}$	$H(0.61)$	$96.3^{+1.8}_{-1.8}$
$\Omega_K$	$0.0032^{+0.0063}_{-0.0065}$	$z_{\mathrm{re}}$	$< 9.47$	$D_{\mathrm{M}}(0.61)$	$2276^{+46}_{-45}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.038}_{-0.030}$	$10^9 A_{\mathrm{s}}$	$2.105^{+0.082}_{-0.062}$	$H(2.33)$	$237.3^{+4.4}_{-4.4}$
$n_{\mathrm{s}}$	$0.963^{+0.014}_{-0.015}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.884^{+0.034}_{-0.033}$	$D_{\mathrm{M}}(2.33)$	$5712^{+99}_{-89}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0067}_{-0.0068}$	$D_{40}$	$1234^{+41}_{-37}$	$f\sigma_8(0.15)$	$0.454^{+0.017}_{-0.017}$
$\alpha_{JLA}$	$0.141^{+0.016}_{-0.016}$	$D_{220}$	$5721^{+110}_{-110}$	$\sigma_8(0.15)$	$0.754^{+0.019}_{-0.020}$
$\beta_{JLA}$	$3.10^{+0.22}_{-0.20}$	$D_{810}$	$2538^{+36}_{-38}$	$f\sigma_8(0.38)$	$0.474^{+0.015}_{-0.015}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.669^{+0.018}_{-0.017}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{2000}$	$229.8^{+4.9}_{-4.7}$	$f\sigma_8(0.51)$	$0.474^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.963^{+0.014}_{-0.015}$	$\sigma_8(0.51)$	$0.627^{+0.017}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-80}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00022}_{-0.00026}$	$f\sigma_8(0.61)$	$0.469^{+0.013}_{-0.013}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00022}_{-0.00026}$	$\sigma_8(0.61)$	$0.597^{+0.016}_{-0.015}$
$A_{143\times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.10}$	$f\sigma_8(2.33)$	$0.3011^{+0.0079}_{-0.0077}$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.67^{+0.25}_{-0.23}$	$\sigma_8(2.33)$	$0.3113^{+0.0091}_{-0.0090}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.2^{+1.1}_{-1.0}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{100}^{\mathrm{dust}TT}$	$8.8^{+4.9}_{-4.5}$	$r_*$	$144.5^{+1.2}_{-1.1}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-5}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.8}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0011}$	$f_{2000}^{217}$	$108.1^{+5.0}_{-4.7}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.3^{+8.4}_{-8.6}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.88^{+0.11}_{-0.11}$	$\chi_{\mathrm{lensing}}^2$	$9.48\ (\nu: 0.3)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$397.2\ (\nu: 1.8)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0017}$	$r_{\mathrm{drag}}$	$147.2^{+1.2}_{-1.2}$	$\chi_{\mathrm{lowl}}^2$	$24.1\ (\nu: 1.0)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1406^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{plik}}^2$	$772.0\ (\nu: 13.1)$
$H_0$	$68.7^{+1.6}_{-1.6}$	$100\theta_{\mathrm{D}}$	$0.16101^{+0.00069}_{-0.00064}$	$\chi_{\mathrm{H073p45}}^2$	$8.5\ (\nu: 2.5)$
$\Omega_{\Lambda}$	$0.693^{+0.016}_{-0.017}$	$z_{\mathrm{eq}}$	$3405^{+120}_{-120}$	$\chi_{\mathrm{JLA}}^2$	$697.1\ (\nu: 1.9)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.016}_{-0.015}$	$k_{\mathrm{eq}}$	$0.01039^{+0.00036}_{-0.00035}$	$\chi_{6\mathrm{DF}}^2$	$0.055\ (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1431^{+0.0049}_{-0.0048}$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.022}_{-0.021}$	$\chi_{\mathrm{MGS}}^2$	$2.21\ (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0983^{+0.0045}_{-0.0046}$	$100\theta_{\mathrm{s,eq}}$	$0.449^{+0.011}_{-0.011}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.0\ (\nu: 0.7)$
$\sigma_8$	$0.815^{+0.021}_{-0.021}$	$H(0.15)$	$73.9^{+1.6}_{-1.6}$	$\chi_{\mathrm{prior}}^2$	$7.4\ (\nu: 7.1)$
$S_8$	$0.820^{+0.033}_{-0.032}$	$D_{\mathrm{M}}(0.15)$	$632^{+14}_{-14}$	$\chi_{\mathrm{CMB}}^2$	$1202.8\ (\nu: 14.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.018}_{-0.018}$	$H(0.38)$	$84.0^{+1.7}_{-1.7}$	$\chi_{\mathrm{BAO}}^2$	$6.2\ (\nu: 1.4)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1922.05; R - 1 = 0.02915$$



16.37 base\_omegak\_plikHM\_TTTEE\_lowl\_lowE\_BAO\_Riess18\_JLA

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00039}_{-0.00038} \quad (+1.0\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0982^{+0.0035}_{-0.0034} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$631^{+15}_{-14} \quad (-0.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1198^{+0.0036}_{-0.0034} \quad (-0.1\sigma)$	$\sigma_8$	$0.813^{+0.021}_{-0.021} \quad (+0.1\sigma)$	$H(0.38)$	$84.0^{+1.5}_{-1.5} \quad (-0.0\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00082}_{-0.00080} \quad (+0.2\sigma)$	$S_8$	$0.816^{+0.031}_{-0.031} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1508^{+32}_{-31} \quad (-0.0\sigma)$
$\tau$	$0.056^{+0.022}_{-0.020} \quad (+0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.017}_{-0.017} \quad (+0.0\sigma)$	$H(0.51)$	$90.7^{+1.6}_{-1.5} \quad (-0.0\sigma)$
$\Omega_K$	$0.0025^{+0.0049}_{-0.0049} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.018}_{-0.018} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1954^{+39}_{-38} \quad (+0.0\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.043}_{-0.040} \quad (+0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.981^{+0.026}_{-0.026} \quad (+0.1\sigma)$	$H(0.61)$	$96.3^{+1.6}_{-1.5} \quad (-0.0\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$r_{\mathrm{drag}}h$	$101.1^{+2.4}_{-2.4} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2275^{+44}_{-43} \quad (+0.0\sigma)$
$\alpha_{JLA}$	$0.141^{+0.017}_{-0.017} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.423^{+0.063}_{-0.061} \quad (+0.1\sigma)$	$H(2.33)$	$237.1^{+3.2}_{-2.9} \quad (-0.1\sigma)$
$\beta_{JLA}$	$3.10^{+0.21}_{-0.20} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$7.8^{+2.1}_{-2.1} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5712^{+79}_{-78} \quad (+0.0\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0065} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.093}_{-0.083} \quad (+0.4\sigma)$	$f\sigma_8(0.15)$	$0.452^{+0.016}_{-0.016} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.883^{+0.030}_{-0.030} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.752^{+0.020}_{-0.019} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{40}$	$1230^{+34}_{-33} \quad (-0.1\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.014}_{-0.014} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.5}_{-4.6} \quad (+0.2\sigma)$	$D_{220}$	$5734^{+98}_{-100} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.668^{+0.018}_{-0.017} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{810}$	$2540^{+33}_{-37} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.013}_{-0.013} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{1420}$	$818^{+11}_{-13} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.625^{+0.017}_{-0.016} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$231.1^{+3.9}_{-4.1} \quad (+0.8\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.012}_{-0.012} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.595^{+0.016}_{-0.015} \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24540^{+0.00015}_{-0.00016} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.3005^{+0.0081}_{-0.0076} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.7} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00015}_{-0.00016} \quad (+1.0\sigma)$	$\sigma_8(2.33)$	$0.3106^{+0.0091}_{-0.0085} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.5}_{-4.5} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.581^{+0.072}_{-0.070} \quad (-1.0\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.6}_{-8.5} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.67^{+0.20}_{-0.20} \quad (+0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.86^{+0.72}_{-0.71} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$107.0^{+4.5}_{-4.6} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.098}_{-0.097}$	$r_*$	$144.47^{+0.78}_{-0.80} \quad (-0.2\sigma)$	$\chi_{\mathrm{small}}^2$	$397.3 \quad (\nu: 2.1) \quad (+0.2\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.077}_{-0.078}$	$100\theta_*$	$1.04113^{+0.00080}_{-0.00078} \quad (+0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.5 \quad (\nu: 0.6) \quad (-0.3\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.876^{+0.071}_{-0.073} \quad (-0.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2361.1 \quad (\nu: 17.1) \quad (+292.0\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.99^{+0.78}_{-0.74} \quad (+1.1\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$8.2 \quad (\nu: 2.5) \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.21}$	$r_{\mathrm{drag}}$	$147.12^{+0.77}_{-0.79} \quad (-0.3\sigma)$	$\chi_{\mathrm{JLA}}^2$	$697.1 \quad (\nu: 2.0) \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.68}_{-0.70}$	$k_{\mathrm{D}}$	$0.14086^{+0.00083}_{-0.00082} \quad (+0.7\sigma)$	$\chi_{\mathrm{6DF}}^2$	$0.059 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16073^{+0.00045}_{-0.00046} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$2.22 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3398^{+82}_{-76} \quad (-0.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.1 \quad (\nu: 0.7) \quad (-0.0\sigma)$
$H_0$	$68.7^{+1.6}_{-1.6} \quad (+0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01037^{+0.00025}_{-0.00023} \quad (-0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.695^{+0.014}_{-0.015} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.3 \quad (\nu: 1.5) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.302^{+0.016}_{-0.015} \quad (-0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4499^{+0.0075}_{-0.0079} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2781.9 \quad (\nu: 16.9) \quad (+285.5\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1428^{+0.0034}_{-0.0032} \quad (-0.0\sigma)$	$H(0.15)$	$74.0^{+1.6}_{-1.6} \quad (+0.0\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3505.21; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.96; R - 1 = 0.02028$$



16.38 base\_omegak\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022418	$0.02240^{+0.00039}_{-0.00037}$ (+1.0 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09813	$0.0981^{+0.0035}_{-0.0034}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	631.5	$632^{+15}_{-13}$ (+0.0 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11977	$0.1198^{+0.0036}_{-0.0033}$ (−0.3 $\sigma$ )	$\sigma_8$	0.8146	$0.815^{+0.019}_{-0.018}$ (−0.0 $\sigma$ )	$H(0.38)$	84.01	$84.0^{+1.6}_{-1.5}$ (−0.1 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04097	$1.04095^{+0.00083}_{-0.00081}$ (+0.2 $\sigma$ )	$S_8$	0.8181	$0.819^{+0.026}_{-0.026}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1508.0	$1509^{+32}_{-30}$ (+0.0 $\sigma$ )
$\tau$	0.0574	$0.057^{+0.021}_{-0.018}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4481	$0.448^{+0.014}_{-0.014}$ (−0.1 $\sigma$ )	$H(0.51)$	90.70	$90.7^{+1.6}_{-1.5}$ (−0.1 $\sigma$ )
$\Omega_K$	0.00244	$0.0024^{+0.0048}_{-0.0050}$ (−0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6042	$0.604^{+0.015}_{-0.015}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1954.7	$1956^{+39}_{-38}$ (+0.0 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0505	$3.050^{+0.037}_{-0.036}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9828	$0.983^{+0.021}_{-0.022}$ (−0.1 $\sigma$ )	$H(0.61)$	96.30	$96.3^{+1.6}_{-1.5}$ (−0.1 $\sigma$ )
$n_{\mathrm{s}}$	0.9666	$0.966^{+0.012}_{-0.011}$ (+0.5 $\sigma$ )	$r_{\mathrm{drag}}h$	101.06	$101.0^{+2.3}_{-2.4}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2275.7	$2277^{+44}_{-43}$ (+0.0 $\sigma$ )
$y_{\mathrm{cal}}$	1.0006	$1.0009^{+0.0062}_{-0.0064}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.428	$2.430^{+0.052}_{-0.052}$ (−0.0 $\sigma$ )	$H(2.33)$	237.06	$237.1^{+3.1}_{-2.9}$ (−0.2 $\sigma$ )
$\alpha_{JLA}$	0.1412	$0.141^{+0.017}_{-0.017}$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.99	$7.9^{+1.9}_{-1.9}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5713	$5714^{+79}_{-77}$ (+0.1 $\sigma$ )
$\beta_{JLA}$	3.101	$3.10^{+0.21}_{-0.21}$ (−0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.113	$2.112^{+0.080}_{-0.075}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4532	$0.453^{+0.014}_{-0.013}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	46.9	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8834	$1.884^{+0.028}_{-0.029}$ (−0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7536	$0.754^{+0.018}_{-0.017}$ (−0.0 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.48	—	$D_{40}$	1229.7	$1231^{+33}_{-32}$ (−0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4734	$0.474^{+0.012}_{-0.012}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.19	$5.4^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$D_{220}$	5734	$5738^{+94}_{-97}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6691	$0.669^{+0.016}_{-0.016}$ (−0.0 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	249	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{810}$	2542.2	$2541^{+32}_{-35}$ (+0.2 $\sigma$ )	$f\sigma_8(0.51)$	0.4731	$0.473^{+0.011}_{-0.011}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	48.0	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{1420}$	818.8	$818^{+11}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6266	$0.626^{+0.015}_{-0.015}$ (−0.0 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	48.7	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{2000}$	231.47	$231.2^{+3.8}_{-4.0}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4688	$0.469^{+0.011}_{-0.011}$ (−0.0 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	120.1	$115^{+20}_{-30}$ (+0.0 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9666	$0.966^{+0.012}_{-0.011}$ (+0.5 $\sigma$ )	$\sigma_8(0.61)$	0.5965	$0.596^{+0.014}_{-0.014}$ (−0.0 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$Y_{\mathrm{P}}$	0.245414	$0.24541^{+0.00015}_{-0.00015}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3010	$0.3009^{+0.0074}_{-0.0072}$ (−0.0 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.78	$8.9^{+4.5}_{-4.5}$ (+0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246741	$0.24673^{+0.00015}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3111	$0.3110^{+0.0086}_{-0.0082}$ (−0.0 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	10.89	$10.9^{+4.5}_{-4.4}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.577	$2.580^{+0.070}_{-0.070}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	28.6	$29^{+7}_{-8}$ (−0.6 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	19.8	$18.6^{+8.8}_{-8.8}$ (+0.1 $\sigma$ )	Age/Gyr	13.672	$13.67^{+0.20}_{-0.20}$ (+0.1 $\sigma$ )	$f_{2000}^{143\times 217}$	31.87	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.1	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$z_*$	1089.84	$1089.87^{+0.69}_{-0.72}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	106.49	$107.0^{+4.4}_{-4.5}$ (−0.6 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.115	$0.11^{+0.10}_{-0.10}$	$r_*$	144.45	$144.45^{+0.73}_{-0.77}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	8.87	$9.25$ ( $\nu$ : 0.2) (−0.3 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.076}_{-0.083}$	$100\theta_*$	1.04116	$1.04113^{+0.00081}_{-0.00080}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{small}}^2$	397	$295$ ( $\nu$ : 14648.9) (−54.7 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	0.482	$0.48^{+0.23}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.874	$13.874^{+0.067}_{-0.071}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.44	$23.7$ ( $\nu$ : 0.6) (−0.4 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.225	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	1060.05	$1060.00^{+0.78}_{-0.75}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2345.5	$2360.5$ ( $\nu$ : 16.4) (+308.3 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	0.665	$0.67^{+0.21}_{-0.21}$	$r_{\mathrm{drag}}$	147.10	$147.10^{+0.73}_{-0.76}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	8	$110$ ( $\nu$ : 14639.0) (+45.6 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.08	$2.09^{+0.70}_{-0.67}$	$k_{\mathrm{D}}$	0.14090	$0.14088^{+0.00082}_{-0.00081}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	695.12	$697.2$ ( $\nu$ : 2.0) (−0.0 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.160709	$0.16073^{+0.00043}_{-0.00045}$ (−1.1 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.016	$0.051$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{\mathrm{eq}}$	3398	$3399^{+80}_{-74}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	2.12	$2.14$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$H_0$	68.71	$68.7^{+1.6}_{-1.7}$ (+0.0 $\sigma$ )	$k_{\mathrm{eq}}$	0.010371	$0.01038^{+0.00024}_{-0.00022}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	3.26	$4.0$ ( $\nu$ : 0.6) (−0.0 $\sigma$ )
$\Omega_{\Lambda}$	0.6950	$0.694^{+0.013}_{-0.014}$ (+0.2 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8143	$0.814^{+0.014}_{-0.015}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.7	$11.6$ ( $\nu$ : 10.9) (+1.1 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3026	$0.303^{+0.015}_{-0.014}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4498	$0.4497^{+0.0073}_{-0.0077}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2775	$2689$ ( $\nu$ : 14629.1) (+269.0 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.14283	$0.1429^{+0.0033}_{-0.0031}$ (−0.2 $\sigma$ )	$H(0.15)$	73.95	$73.9^{+1.5}_{-1.6}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	5.39	$6.1$ ( $\nu$ : 1.1) (−0.0 $\sigma$ )

Best-fit  $\chi_{\mathrm{eff}}^2 = 3484.92$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.57$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 3514.30$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.05$ ;  $R - 1 = 0.02289$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.02 ( $\Delta$  -0.01) MGS: 2.12 ( $\Delta$  -0.08) DR12BAO: 3.26 ( $\Delta$  -0.04) CMB - smicadx12\_Dec5.ftl.mv2.ndclpp\_p.teb.consext8: 8.87 ( $\Delta$  -0.17) small.100x143\_offlike5.EE.Aplan  
396.72 ( $\Delta$  0.43) commander\_dx12\_v3.2.29: 23.44 ( $\Delta$  -0.45) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.53 Hubble - H073p45: 8.17 ( $\Delta$  0.03) SN - JLA December.2013: 695.12 ( $\Delta$  -0.01)



16.39 base\_omegak\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00039}_{-0.00038} \quad (+1.0\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0982^{+0.0035}_{-0.0034} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$631^{+14}_{-14} \quad (-0.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1198^{+0.0036}_{-0.0033} \quad (-0.1\sigma)$	$\sigma_8$	$0.814^{+0.021}_{-0.019} \quad (+0.0\sigma)$	$H(0.38)$	$84.0^{+1.5}_{-1.5} \quad (-0.0\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00082}_{-0.00080} \quad (+0.2\sigma)$	$S_8$	$0.817^{+0.031}_{-0.029} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1507^{+31}_{-31} \quad (-0.0\sigma)$
$\tau$	$0.056^{+0.020}_{-0.015} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.017}_{-0.016} \quad (+0.0\sigma)$	$H(0.51)$	$90.7^{+1.6}_{-1.5} \quad (-0.0\sigma)$
$\Omega_K$	$0.0025^{+0.0048}_{-0.0049} \quad (-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.017}_{-0.017} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1954^{+39}_{-38} \quad (-0.0\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.048^{+0.042}_{-0.032} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.981^{+0.025}_{-0.023} \quad (+0.0\sigma)$	$H(0.61)$	$96.3^{+1.6}_{-1.5} \quad (-0.0\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011} \quad (+0.3\sigma)$	$r_{\mathrm{drag}}h$	$101.1^{+2.4}_{-2.4} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2275^{+44}_{-43} \quad (-0.0\sigma)$
$\alpha_{JLA}$	$0.141^{+0.017}_{-0.017} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.062}_{-0.057} \quad (+0.1\sigma)$	$H(2.33)$	$237.1^{+3.2}_{-2.9} \quad (-0.0\sigma)$
$\beta_{JLA}$	$3.10^{+0.21}_{-0.20} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.68 \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5712^{+79}_{-78} \quad (-0.0\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0065} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.107^{+0.090}_{-0.066} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.452^{+0.016}_{-0.015} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.030}_{-0.030} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.753^{+0.019}_{-0.017} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{40}$	$1230^{+34}_{-33} \quad (-0.1\sigma)$	$f\sigma_8(0.38)$	$0.473^{+0.014}_{-0.013} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.5}_{-4.6} \quad (+0.2\sigma)$	$D_{220}$	$5734^{+98}_{-100} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.668^{+0.017}_{-0.016} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{810}$	$2540^{+33}_{-37} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.013}_{-0.012} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{1420}$	$818^{+12}_{-13} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.626^{+0.016}_{-0.015} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$231.1^{+3.9}_{-4.2} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.012}_{-0.011} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.011} \quad (+0.3\sigma)$	$\sigma_8(0.61)$	$0.596^{+0.016}_{-0.014} \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00015}_{-0.00016} \quad (+0.9\sigma)$	$f\sigma_8(2.33)$	$0.3007^{+0.0079}_{-0.0071} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.7} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00015}_{-0.00016} \quad (+0.9\sigma)$	$\sigma_8(2.33)$	$0.3108^{+0.0088}_{-0.0081} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.5}_{-4.5} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.580^{+0.072}_{-0.070} \quad (-1.0\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.7}_{-8.5} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.67^{+0.20}_{-0.20} \quad (+0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.86^{+0.71}_{-0.71} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$107.0^{+4.5}_{-4.5} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.098}_{-0.097}$	$r_*$	$144.47^{+0.78}_{-0.80} \quad (-0.2\sigma)$	$\chi_{\mathrm{small}}^2$	$397.3 \quad (\nu: 2.2) \quad (+0.2\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.077}_{-0.078}$	$100\theta_*$	$1.04113^{+0.00080}_{-0.00078} \quad (+0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.5 \quad (\nu: 0.6) \quad (-0.2\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.876^{+0.071}_{-0.073} \quad (-0.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.9 \quad (\nu: 16.8) \quad (+295.0\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.99^{+0.78}_{-0.74} \quad (+1.1\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$8.2 \quad (\nu: 2.4) \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.20}_{-0.21}$	$r_{\mathrm{drag}}$	$147.12^{+0.77}_{-0.79} \quad (-0.4\sigma)$	$\chi_{\mathrm{JLA}}^2$	$697.1 \quad (\nu: 2.0) \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.68}_{-0.69}$	$k_{\mathrm{D}}$	$0.14086^{+0.00083}_{-0.00082} \quad (+0.7\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.059 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16073^{+0.00045}_{-0.00046} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$2.22 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3397^{+82}_{-76} \quad (-0.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.0 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$H_0$	$68.7^{+1.6}_{-1.6} \quad (+0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01037^{+0.00025}_{-0.00023} \quad (-0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.695^{+0.014}_{-0.015} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.3 \quad (\nu: 1.5) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.302^{+0.016}_{-0.015} \quad (-0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4499^{+0.0075}_{-0.0079} \quad (+0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2781.7 \quad (\nu: 16.5) \quad (+293.9\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1428^{+0.0034}_{-0.0032} \quad (-0.0\sigma)$	$H(0.15)$	$74.0^{+1.6}_{-1.6} \quad (+0.0\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 3505.05$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.13$ ;  $R - 1 = 0.01737$



## 16.40 base\_omegak\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00039}_{-0.00037} \quad (+1.0\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0981^{+0.0035}_{-0.0034} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$632^{+14}_{-13} \quad (-0.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1198^{+0.0035}_{-0.0033} \quad (-0.2\sigma)$	$\sigma_8$	$0.815^{+0.019}_{-0.017} \quad (-0.1\sigma)$	$H(0.38)$	$84.0^{+1.6}_{-1.5} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00083}_{-0.00081} \quad (+0.2\sigma)$	$S_8$	$0.819^{+0.026}_{-0.026} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1509^{+32}_{-30} \quad (+0.0\sigma)$
$\tau$	$0.057^{+0.019}_{-0.015} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.014}_{-0.014} \quad (-0.1\sigma)$	$H(0.51)$	$90.7^{+1.6}_{-1.5} \quad (-0.1\sigma)$
$\Omega_K$	$0.0024^{+0.0048}_{-0.0050} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.015}_{-0.015} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1956^{+39}_{-38} \quad (+0.0\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.051^{+0.037}_{-0.031} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.021}_{-0.021} \quad (-0.1\sigma)$	$H(0.61)$	$96.3^{+1.6}_{-1.5} \quad (-0.1\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.012}_{-0.011} \quad (+0.4\sigma)$	$r_{\mathrm{drag}}h$	$101.0^{+2.3}_{-2.4} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2277^{+44}_{-43} \quad (+0.0\sigma)$
$y_{\mathrm{cal}}$	$1.0008^{+0.0062}_{-0.0064} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.430^{+0.052}_{-0.050} \quad (-0.0\sigma)$	$H(2.33)$	$237.1^{+3.1}_{-2.9} \quad (-0.1\sigma)$
$\alpha_{JLA}$	$0.141^{+0.017}_{-0.017} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.71 \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5714^{+79}_{-77} \quad (+0.1\sigma)$
$\beta_{JLA}$	$3.10^{+0.21}_{-0.21} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.113^{+0.079}_{-0.065} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.454^{+0.014}_{-0.013} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.884^{+0.028}_{-0.028} \quad (-0.0\sigma)$	$\sigma_8(0.15)$	$0.754^{+0.018}_{-0.016} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{40}$	$1231^{+33}_{-32} \quad (-0.2\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.4^{+4.3}_{-4.8} \quad (+0.1\sigma)$	$D_{220}$	$5738^{+94}_{-97} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.669^{+0.016}_{-0.015} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{810}$	$2541^{+32}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.011} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{1420}$	$818^{+11}_{-12} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.627^{+0.015}_{-0.014} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$231.2^{+3.8}_{-4.0} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.010} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.012}_{-0.011} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.597^{+0.014}_{-0.013} \quad (-0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00015}_{-0.00015} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.3010^{+0.0074}_{-0.0070} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.5}_{-4.7} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00015}_{-0.00015} \quad (+1.0\sigma)$	$\sigma_8(2.33)$	$0.3111^{+0.0085}_{-0.0080} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.5}_{-4.4} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.580^{+0.069}_{-0.069} \quad (-1.0\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-8} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.8}_{-8.8} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.67^{+0.20}_{-0.20} \quad (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.87^{+0.69}_{-0.71} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.9^{+4.4}_{-4.5} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.11^{+0.10}_{-0.10}$	$r_*$	$144.45^{+0.73}_{-0.76} \quad (-0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.23 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.077}_{-0.083}$	$100\theta_*$	$1.04113^{+0.00081}_{-0.00080} \quad (+0.2\sigma)$	$\chi_{\mathrm{small}}^2$	$296 \quad (\nu: 14556.4) \quad (-53.2\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.23}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.874^{+0.067}_{-0.070} \quad (-0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.7 \quad (\nu: 0.6) \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1060.00^{+0.77}_{-0.71} \quad (+1.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.4 \quad (\nu: 16.2) \quad (+310.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.21}$	$r_{\mathrm{drag}}$	$147.10^{+0.73}_{-0.77} \quad (-0.3\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$109 \quad (\nu: 14547.2) \quad (+45.3\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.09^{+0.70}_{-0.67}$	$k_{\mathrm{D}}$	$0.14088^{+0.00082}_{-0.00080} \quad (+0.6\sigma)$	$\chi_{\mathrm{JLA}}^2$	$697.2 \quad (\nu: 2.1) \quad (+0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16073^{+0.00043}_{-0.00045} \quad (-1.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.051 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3399^{+79}_{-73} \quad (-0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$2.15 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$H_0$	$68.7^{+1.6}_{-1.6} \quad (+0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01037^{+0.00024}_{-0.00022} \quad (-0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.0 \quad (\nu: 0.6) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.695^{+0.013}_{-0.014} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.014}_{-0.015} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.9) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.303^{+0.015}_{-0.014} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4497^{+0.0072}_{-0.0076} \quad (+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2690 \quad (\nu: 14541.4) \quad (+275.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1429^{+0.0033}_{-0.0031} \quad (-0.1\sigma)$	$H(0.15)$	$73.9^{+1.5}_{-1.6} \quad (-0.0\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.2 \quad (\nu: 1.1) \quad (-0.1\sigma)$

 $\bar{\chi}_{\mathrm{eff}}^2 = 3514.21; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.17; R - 1 = 0.02147$



# 16.41 base\_omegak\_plikHM\_TT\_lowl\_lowE.lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02232	$0.02232^{+0.00064}_{-0.00063}$	$\sigma_8 \Omega_m^{0.25}$	0.6101	$0.610^{+0.019}_{-0.019}$	$D_M(0.15)$	676	$682^{+65}_{-61}$
$\Omega_c h^2$	0.1181	$0.1178^{+0.0057}_{-0.0055}$	$\sigma_8/h^{0.5}$	0.9955	$0.996^{+0.028}_{-0.028}$	$H(0.38)$	79.7	$79.2^{+5.9}_{-5.4}$
$100\theta_{MC}$	1.04107	$1.0411^{+0.0013}_{-0.0013}$	$r_{drag}h$	94.5	$93.6^{+9.1}_{-8.6}$	$D_M(0.38)$	1604	$1618^{+140}_{-130}$
$\tau$	0.0510	$0.049^{+0.021}_{-0.025}$	$\langle d^2 \rangle^{1/2}$	2.469	$2.473^{+0.075}_{-0.077}$	$H(0.51)$	86.5	$86.0^{+5.8}_{-5.2}$
$\Omega_K$	-0.0092	$-0.011^{+0.018}_{-0.022}$	$z_{re}$	7.29	$7.1^{+2.1}_{-2.9}$	$D_M(0.51)$	2073	$2091^{+170}_{-160}$
$\ln(10^{10} A_s)$	3.0316	$3.027^{+0.043}_{-0.050}$	$10^9 A_s$	2.073	$2.065^{+0.090}_{-0.10}$	$H(0.61)$	92.2	$91.8^{+5.7}_{-5.2}$
$n_s$	0.9696	$0.969^{+0.016}_{-0.016}$	$10^9 A_s e^{-2\tau}$	1.8719	$1.870^{+0.036}_{-0.035}$	$D_M(0.61)$	2409	$2428^{+190}_{-180}$
$y_{cal}$	1.0001	$0.99998^{+0.0063}_{-0.0064}$	$D_{40}$	1213.4	$1213^{+44}_{-43}$	$H(2.33)$	233.3	$232.8^{+6.7}_{-6.4}$
$A_{217}^{CIB}$	48.0	$47^{+20}_{-20}$	$D_{220}$	5718	$5723^{+100}_{-110}$	$D_M(2.33)$	5924	$5953^{+300}_{-300}$
$\xi^{tSZ \times CIB}$	0.40	—	$D_{810}$	2533.1	$2531^{+34}_{-36}$	$f\sigma_8(0.15)$	0.4700	$0.471^{+0.026}_{-0.026}$
$A_{143}^{tSZ}$	7.01	$5.2^{+4.4}_{-4.7}$	$D_{1420}$	815.3	$814^{+13}_{-14}$	$\sigma_8(0.15)$	0.7325	$0.729^{+0.035}_{-0.037}$
$A_{100}^{PS}$	252	$261^{+70}_{-70}$	$D_{2000}$	230.62	$230.3^{+4.7}_{-4.8}$	$f\sigma_8(0.38)$	0.4812	$0.481^{+0.016}_{-0.016}$
$A_{143}^{PS}$	48.5	$47^{+20}_{-20}$	$n_{s,0.002}$	0.9696	$0.969^{+0.016}_{-0.016}$	$\sigma_8(0.38)$	0.6457	$0.642^{+0.036}_{-0.038}$
$A_{143 \times 217}^{PS}$	47.1	$42^{+20}_{-20}$	$Y_P$	0.245374	$0.24537^{+0.00026}_{-0.00029}$	$f\sigma_8(0.51)$	0.4762	$0.476^{+0.013}_{-0.013}$
$A_{217}^{PS}$	118.8	$114^{+30}_{-30}$	$Y_P^{BBN}$	0.246701	$0.24670^{+0.00026}_{-0.00029}$	$\sigma_8(0.51)$	0.6028	$0.599^{+0.036}_{-0.038}$
$A^{kSZ}$	0.2	—	$10^5 D/H$	2.595	$2.60^{+0.12}_{-0.12}$	$f\sigma_8(0.61)$	0.4688	$0.468^{+0.012}_{-0.012}$
$A_{100}^{dustTT}$	8.97	$9.0^{+4.7}_{-4.7}$	Age/Gyr	14.20	$14.28^{+0.77}_{-0.75}$	$\sigma_8(0.61)$	0.5726	$0.569^{+0.036}_{-0.037}$
$A_{143}^{dustTT}$	10.93	$10.7^{+4.6}_{-4.6}$	$z_*$	1089.82	$1089.8^{+1.2}_{-1.1}$	$f\sigma_8(2.33)$	0.2878	$0.286^{+0.019}_{-0.020}$
$A_{143 \times 217}^{dustTT}$	19.5	$18.3^{+8.4}_{-8.6}$	$r_*$	144.97	$145.0^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	0.2942	$0.292^{+0.024}_{-0.024}$
$A_{217}^{dustTT}$	94.6	$93^{+20}_{-20}$	$100\theta_*$	1.04126	$1.0413^{+0.0012}_{-0.0013}$	$f_{2000}^{143}$	29.6	$30^{+8}_{-8}$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/Gpc$	13.923	$13.93^{+0.11}_{-0.12}$	$f_{2000}^{143 \times 217}$	32.5	$33^{+5}_{-5}$
$c_{217}$	0.99822	$0.9982^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.67	$1059.7^{+1.3}_{-1.2}$	$f_{2000}^{217}$	107.0	$107.2^{+5.3}_{-5.3}$
$H_0$	64.0	$63.4^{+6.5}_{-6.0}$	$r_{drag}$	147.67	$147.7^{+1.2}_{-1.2}$	$\chi^2_{lensing}$	9.4	$10.4 (\nu: 2.3)$
$\Omega_\Lambda$	0.6645	$0.660^{+0.042}_{-0.050}$	$k_D$	0.14022	$0.1402^{+0.0013}_{-0.0012}$	$\chi^2_{small}$	395.67	$396.7 (\nu: 1.1)$
$\Omega_m$	0.345	$0.352^{+0.069}_{-0.058}$	$100\theta_D$	0.16092	$0.16093^{+0.00070}_{-0.00070}$	$\chi^2_{lowl}$	21.81	$22.0 (\nu: 0.7)$
$\Omega_m h^2$	0.1410	$0.1408^{+0.0053}_{-0.0051}$	$z_{eq}$	3355	$3349^{+130}_{-120}$	$\chi^2_{plik}$	757.9	$770.7 (\nu: 15.1)$
$\Omega_m h^3$	0.0902	$0.089^{+0.011}_{-0.010}$	$k_{eq}$	0.010239	$0.01022^{+0.00039}_{-0.00037}$	$\chi^2_{prior}$	1.4	$7.3 (\nu: 6.8)$
$\sigma_8$	0.7962	$0.792^{+0.033}_{-0.035}$	$100\theta_{eq}$	0.8219	$0.823^{+0.025}_{-0.024}$	$\chi^2_{CMB}$	1184.8	$1199.8 (\nu: 15.9)$
$S_8$	0.853	$0.857^{+0.057}_{-0.055}$	$100\theta_{s,eq}$	0.4539	$0.454^{+0.013}_{-0.012}$			
$\sigma_8 \Omega_m^{0.5}$	0.4675	$0.470^{+0.031}_{-0.030}$	$H(0.15)$	69.4	$68.8^{+6.3}_{-5.7}$			

Best-fit  $\chi^2_{eff} = 1186.22$ ;  $\bar{\chi}^2_{eff} = 1207.14$ ;  $R - 1 = 0.01227$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consect8: 9.44 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.67 commander\_dx12\_v3.2.29: 21.81 plik\_rd12\_HM.v22.TT: 757.86



16.42 base\_omegak\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02233^{+0.00064}_{-0.00061}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.019}_{-0.019}$	$D_{\mathrm{M}}(0.15)$	$679^{+60}_{-58}$
$\Omega_{\mathrm{c}}h^2$	$0.1177^{+0.0057}_{-0.0055}$	$\sigma_8/h^{0.5}$	$0.996^{+0.028}_{-0.028}$	$H(0.38)$	$79.5^{+5.8}_{-5.1}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0013}_{-0.0013}$	$r_{\mathrm{drag}}h$	$94.2^{+8.8}_{-7.9}$	$D_{\mathrm{M}}(0.38)$	$1610^{+130}_{-130}$
$\tau$	$0.053^{+0.017}_{-0.010}$	$\langle d^2 \rangle^{1/2}$	$2.473^{+0.073}_{-0.076}$	$H(0.51)$	$86.3^{+5.6}_{-5.0}$
$\Omega_K$	$-0.010^{+0.017}_{-0.021}$	$z_{\mathrm{re}}$	$< 9.06$	$D_{\mathrm{M}}(0.51)$	$2081^{+160}_{-160}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.033^{+0.039}_{-0.026}$	$10^9 A_{\mathrm{s}}$	$2.077^{+0.081}_{-0.054}$	$H(0.61)$	$92.0^{+5.5}_{-4.9}$
$n_{\mathrm{s}}$	$0.970^{+0.016}_{-0.016}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.870^{+0.035}_{-0.034}$	$D_{\mathrm{M}}(0.61)$	$2417^{+180}_{-180}$
$y_{\mathrm{cal}}$	$0.99997^{+0.0062}_{-0.0065}$	$D_{40}$	$1213^{+44}_{-43}$	$H(2.33)$	$232.9^{+6.7}_{-6.4}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{220}$	$5723^{+100}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5938^{+280}_{-290}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2530^{+33}_{-35}$	$f\sigma_8(0.15)$	$0.470^{+0.025}_{-0.026}$
$A_{143}^{\mathrm{tSZ}}$	$5.2^{+4.4}_{-4.7}$	$D_{1420}$	$814^{+13}_{-14}$	$\sigma_8(0.15)$	$0.731^{+0.033}_{-0.031}$
$A_{100}^{\mathrm{PS}}$	$260^{+70}_{-70}$	$D_{2000}$	$230.3^{+4.7}_{-4.8}$	$f\sigma_8(0.38)$	$0.481^{+0.016}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$47^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.970^{+0.016}_{-0.016}$	$\sigma_8(0.38)$	$0.645^{+0.034}_{-0.032}$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24538^{+0.00026}_{-0.00028}$	$f\sigma_8(0.51)$	$0.476^{+0.013}_{-0.013}$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00026}_{-0.00028}$	$\sigma_8(0.51)$	$0.602^{+0.034}_{-0.032}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.59^{+0.12}_{-0.12}$	$f\sigma_8(0.61)$	$0.468^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.7}_{-4.7}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.24^{+0.73}_{-0.73}$	$\sigma_8(0.61)$	$0.571^{+0.034}_{-0.032}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.6}$	$z_*$	$1089.8^{+1.2}_{-1.1}$	$f\sigma_8(2.33)$	$0.287^{+0.018}_{-0.017}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.6}_{-8.6}$	$r_*$	$145.1^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	$0.294^{+0.023}_{-0.021}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0413^{+0.0012}_{-0.0013}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.93^{+0.11}_{-0.11}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.7^{+1.2}_{-1.2}$	$f_{2000}^{217}$	$107.1^{+5.2}_{-5.3}$
$H_0$	$63.8^{+6.2}_{-5.6}$	$r_{\mathrm{drag}}$	$147.7^{+1.1}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$10.4 (\nu: 2.3)$
$\Omega_{\Lambda}$	$0.663^{+0.040}_{-0.044}$	$k_{\mathrm{D}}$	$0.1402^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.7)$
$\Omega_{\mathrm{m}}$	$0.347^{+0.061}_{-0.055}$	$100\theta_{\mathrm{D}}$	$0.16092^{+0.00068}_{-0.00070}$	$\chi_{\mathrm{lowl}}^2$	$22.1 (\nu: 0.7)$
$\Omega_{\mathrm{m}}h^2$	$0.1407^{+0.0053}_{-0.0051}$	$z_{\mathrm{eq}}$	$3347^{+130}_{-120}$	$\chi_{\mathrm{plik}}^2$	$770.6 (\nu: 15.1)$
$\Omega_{\mathrm{m}}h^3$	$0.0897^{+0.011}_{-0.0099}$	$k_{\mathrm{eq}}$	$0.01022^{+0.00039}_{-0.00037}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.8)$
$\sigma_8$	$0.795^{+0.031}_{-0.030}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.025}_{-0.024}$	$\chi_{\mathrm{CMB}}^2$	$1199.4 (\nu: 15.4)$
$S_8$	$0.855^{+0.054}_{-0.053}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.013}_{-0.012}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.468^{+0.030}_{-0.029}$	$H(0.15)$	$69.2^{+6.0}_{-5.4}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1206.71; R - 1 = 0.01427$$



### 16.43 base\_omegak\_plikHM\_TTTEEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022509	$0.02249^{+0.00040}_{-0.00039}$ (+0.7 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.0906	$0.0900^{+0.0096}_{-0.0093}$ (+0.2 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4528	$0.4527^{+0.0086}_{-0.0084}$ (−0.4 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11839	$0.1185^{+0.0039}_{-0.0038}$ (+0.3 $\sigma$ )	$\sigma_8$	0.7974	$0.795^{+0.028}_{-0.032}$ (+0.2 $\sigma$ )	$H(0.15)$	69.5	$69.0^{+5.7}_{-5.4}$ (+0.1 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04106	$1.04107^{+0.00083}_{-0.00092}$ (−0.1 $\sigma$ )	$S_8$	0.855	$0.860^{+0.053}_{-0.054}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	675	$680^{+62}_{-56}$ (−0.1 $\sigma$ )
$\tau$	0.0515	$0.050^{+0.021}_{-0.025}$ (+0.0 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4685	$0.471^{+0.029}_{-0.029}$ (+0.1 $\sigma$ )	$H(0.38)$	79.8	$79.4^{+5.3}_{-5.1}$ (+0.1 $\sigma$ )
$\Omega_K$	−0.0092	$−0.011^{+0.015}_{-0.019}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6112	$0.612^{+0.017}_{-0.017}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1602	$1614^{+130}_{-120}$ (−0.1 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0336	$3.030^{+0.044}_{-0.052}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9965	$0.998^{+0.025}_{-0.027}$ (+0.2 $\sigma$ )	$H(0.51)$	86.7	$86.3^{+5.1}_{-4.9}$ (+0.1 $\sigma$ )
$n_{\mathrm{s}}$	0.9699	$0.969^{+0.012}_{-0.012}$ (−0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	94.4	$93.7^{+8.6}_{-8.1}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	2071	$2084^{+160}_{-150}$ (−0.1 $\sigma$ )
$y_{\mathrm{cal}}$	1.0000	$0.99998^{+0.0062}_{-0.0065}$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.472	$2.478^{+0.069}_{-0.073}$ (+0.2 $\sigma$ )	$H(0.61)$	92.38	$92.0^{+5.0}_{-4.8}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	46.8	$46^{+20}_{-20}$ (−0.1 $\sigma$ )	$z_{\mathrm{re}}$	7.30	$7.1^{+2.1}_{-3.0}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2406	$2420^{+180}_{-170}$ (−0.1 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.52	—	$10^9 A_{\mathrm{s}}$	2.077	$2.070^{+0.094}_{-0.11}$ (+0.2 $\sigma$ )	$H(2.33)$	233.70	$233.6^{+5.0}_{-4.9}$ (+0.3 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.25	$> 1.03$ (+0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8741	$1.874^{+0.031}_{-0.031}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5915	$5935^{+270}_{-260}$ (−0.2 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	247	$257^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{40}$	1214.6	$1216^{+38}_{-37}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4710	$0.473^{+0.025}_{-0.026}$ (+0.2 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	47.2	$44^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{220}$	5731	$5735^{+97}_{-100}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7335	$0.731^{+0.030}_{-0.034}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	48.3	$41^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2535.3	$2534^{+34}_{-35}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4821	$0.483^{+0.014}_{-0.016}$ (+0.3 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	119.1	$114^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{1420}$	817.2	$816^{+12}_{-12}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6466	$0.644^{+0.032}_{-0.036}$ (+0.2 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{2000}$	231.60	$231.2^{+4.0}_{-3.9}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4770	$0.477^{+0.011}_{-0.011}$ (+0.3 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.94	$9.0^{+4.7}_{-4.5}$ (−0.0 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9699	$0.969^{+0.012}_{-0.012}$ (−0.1 $\sigma$ )	$\sigma_8(0.51)$	0.6035	$0.601^{+0.032}_{-0.036}$ (+0.2 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.10	$10.9^{+4.7}_{-4.4}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.245448	$0.24544^{+0.00016}_{-0.00016}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4696	$0.469^{+0.011}_{-0.011}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.0	$18.6^{+8.5}_{-8.4}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246774	$0.24676^{+0.00016}_{-0.00016}$ (+0.7 $\sigma$ )	$\sigma_8(0.61)$	0.5733	$0.571^{+0.032}_{-0.035}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.1	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$10^5 \mathrm{D}/\mathrm{H}$	2.560	$2.565^{+0.073}_{-0.072}$ (−0.7 $\sigma$ )	$f\sigma_8(2.33)$	0.2881	$0.287^{+0.017}_{-0.019}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.113^{+0.098}_{-0.094}$	Age/Gyr	14.18	$14.23^{+0.71}_{-0.66}$ (−0.2 $\sigma$ )	$\sigma_8(2.33)$	0.2946	$0.293^{+0.022}_{-0.023}$ (+0.1 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.135	$0.134^{+0.077}_{-0.077}$	$z_*$	1089.61	$1089.64^{+0.77}_{-0.74}$ (−0.3 $\sigma$ )	$f_{2000}^{143}$	28.1	$29^{+7}_{-7}$ (−0.4 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.480	$0.48^{+0.22}_{-0.22}$	$r_*$	144.74	$144.73^{+0.84}_{-0.82}$ (−0.6 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.35	$32^{+5}_{-5}$ (−0.5 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.224	$0.22^{+0.13}_{-0.14}$	$100\theta_*$	1.04123	$1.04124^{+0.00082}_{-0.00090}$ (−0.1 $\sigma$ )	$f_{2000}^{217}$	105.88	$106.3^{+4.7}_{-4.6}$ (−0.4 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.660	$0.66^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.901	$13.900^{+0.076}_{-0.076}$ (−0.7 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	9.8	$10.9$ ( $\nu$ : 2.8) (+0.2 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.07	$2.07^{+0.70}_{-0.72}$	$z_{\mathrm{drag}}$	1060.12	$1060.10^{+0.79}_{-0.74}$ (+0.9 $\sigma$ )	$\chi_{\mathrm{small}}^2$	395.65	$396.7$ ( $\nu$ : 1.1) (−0.0 $\sigma$ )
$c_{100}$	0.99970	$0.9997^{+0.0015}_{-0.0015}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}$	147.36	$147.36^{+0.80}_{-0.79}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	21.84	$22.15$ ( $\nu$ : 0.5) (+0.1 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.14069	$0.14067^{+0.00079}_{-0.00084}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2342.4	$2357.5$ ( $\nu$ : 17.3) (+288.4 $\sigma$ )
$H_0$	64.0	$63.6^{+6.0}_{-5.7}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.160641	$0.16067^{+0.00044}_{-0.00044}$ (−0.9 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.8	$11.5$ ( $\nu$ : 9.9) (+1.1 $\sigma$ )
$\Omega_{\Lambda}$	0.6639	$0.659^{+0.042}_{-0.049}$ (−0.0 $\sigma$ )	$z_{\mathrm{eq}}$	3367	$3369^{+86}_{-86}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2769.7	$2787.2$ ( $\nu$ : 17.4) (+281.3 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.345	$0.352^{+0.067}_{-0.057}$ (−0.0 $\sigma$ )	$k_{\mathrm{eq}}$	0.010277	$0.01028^{+0.00026}_{-0.00026}$ (+0.4 $\sigma$ )			
$\Omega_{\mathrm{m}}h^2$	0.14155	$0.1416^{+0.0036}_{-0.0036}$ (+0.4 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8201	$0.820^{+0.017}_{-0.016}$ (−0.3 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2771.41$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.19$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2798.70$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.56$ ;  $R - 1 = 0.02587$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp-p.teb.consext8: 9.79 ( $\Delta$  0.35) simall\_100x143\_offlike5\_EE\_Aplanck.B: 395.65 ( $\Delta$  -0.02) commander\_dx12.v3.2.29: 21.84 ( $\Delta$  0.03) plik\_rd12\_HM.v22b.TTTEEE: 2342.38



# 16.44 base\_omegak\_plikHM\_TTTEE\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02249^{+0.00040}_{-0.00039} \quad (+0.7\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0906^{+0.0095}_{-0.0084} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4527^{+0.0085}_{-0.0084} \quad (-0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1185^{+0.0039}_{-0.0038} \quad (+0.3\sigma)$	$\sigma_8$	$0.798^{+0.026}_{-0.024} \quad (+0.3\sigma)$	$H(0.15)$	$69.4^{+5.5}_{-4.7} \quad (+0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04107^{+0.00083}_{-0.00093} \quad (-0.1\sigma)$	$S_8$	$0.858^{+0.051}_{-0.052} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$676^{+52}_{-53} \quad (-0.1\sigma)$
$\tau$	$0.053^{+0.017}_{-0.010} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.470^{+0.028}_{-0.029} \quad (+0.2\sigma)$	$H(0.38)$	$79.8^{+5.1}_{-4.5} \quad (+0.1\sigma)$
$\Omega_K$	$-0.0096^{+0.015}_{-0.017} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.612^{+0.017}_{-0.017} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1605^{+110}_{-120} \quad (-0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.036^{+0.040}_{-0.025} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.998^{+0.025}_{-0.026} \quad (+0.2\sigma)$	$H(0.51)$	$86.6^{+5.0}_{-4.4} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.969^{+0.012}_{-0.012} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}h$	$94.2^{+8.3}_{-7.2} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$2074^{+140}_{-140} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$0.99997^{+0.0063}_{-0.0065} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.478^{+0.069}_{-0.071} \quad (+0.2\sigma)$	$H(0.61)$	$92.3^{+4.9}_{-4.3} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.08 \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2409^{+150}_{-160} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.083^{+0.085}_{-0.052} \quad (+0.2\sigma)$	$H(2.33)$	$233.7^{+4.9}_{-4.8} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.05 \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.874^{+0.032}_{-0.031} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5919^{+240}_{-250} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.1\sigma)$	$D_{40}$	$1217^{+38}_{-38} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.472^{+0.024}_{-0.025} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$44^{+20}_{-20} \quad (-0.3\sigma)$	$D_{220}$	$5734^{+97}_{-100} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.734^{+0.028}_{-0.026} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$41^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2533^{+35}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.483^{+0.014}_{-0.016} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$114^{+30}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.647^{+0.029}_{-0.027} \quad (+0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.2^{+4.0}_{-3.9} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.478^{+0.011}_{-0.011} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.8}_{-4.6} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.969^{+0.012}_{-0.012} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.604^{+0.030}_{-0.027} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.7}_{-4.4} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24544^{+0.00016}_{-0.00016} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.010}_{-0.0092} \quad (+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.4}_{-8.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24677^{+0.00016}_{-0.00016} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.574^{+0.030}_{-0.027} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.564^{+0.074}_{-0.073} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.288^{+0.016}_{-0.015} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.113^{+0.098}_{-0.094}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.19^{+0.62}_{-0.63} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.295^{+0.020}_{-0.018} \quad (+0.1\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.076}_{-0.076}$	$z_*$	$1089.64^{+0.77}_{-0.75} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.4\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$144.74^{+0.83}_{-0.82} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+5}_{-5} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.13}_{-0.14}$	$100\theta_*$	$1.04124^{+0.00081}_{-0.00091} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.3^{+4.7}_{-4.6} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.901^{+0.076}_{-0.076} \quad (-0.7\sigma)$	$\chi_{\mathrm{lensing}}^2$	$10.8 \quad (\nu: 2.8) \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.07^{+0.68}_{-0.71}$	$z_{\mathrm{drag}}$	$1060.10^{+0.78}_{-0.74} \quad (+0.9\sigma)$	$\chi_{\mathrm{small}}^2$	$396.4 \quad (\nu: 0.7) \quad (+0.0\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0015} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.37^{+0.80}_{-0.79} \quad (-0.8\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.2 \quad (\nu: 0.5) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14067^{+0.00080}_{-0.00083} \quad (+1.1\sigma)$	$\chi_{\mathrm{plik}}^2$	$2357.4 \quad (\nu: 17.5) \quad (+289.0\sigma)$
$H_0$	$64.0^{+5.8}_{-5.0} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16067^{+0.00044}_{-0.00044} \quad (-0.9\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 9.9) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.662^{+0.040}_{-0.042} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3368^{+87}_{-85} \quad (+0.4\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2786.8 \quad (\nu: 17.0) \quad (+285.9\sigma)$
$\Omega_{\mathrm{m}}$	$0.347^{+0.057}_{-0.053} \quad (-0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01028^{+0.00026}_{-0.00026} \quad (+0.4\sigma)$		
$\Omega_{\mathrm{m}}h^2$	$0.1416^{+0.0036}_{-0.0035} \quad (+0.4\sigma)$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.017}_{-0.017} \quad (-0.4\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2798.28; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.57; R - 1 = 0.02761$$



# 16.45 base\_omegak\_CamSpecHM\_TT\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02229	$0.02235^{+0.00065}_{-0.00061}$	$\sigma_8 \Omega_m^{0.5}$	0.4678	$0.470^{+0.031}_{-0.032}$	$H(0.15)$	69.3	$68.7^{+6.2}_{-5.8}$
$\Omega_c h^2$	0.1182	$0.1177^{+0.0057}_{-0.0056}$	$\sigma_8 \Omega_m^{0.25}$	0.6099	$0.610^{+0.019}_{-0.019}$	$D_M(0.15)$	677	$684^{+67}_{-61}$
$100\theta_{MC}$	1.04103	$1.0412^{+0.0013}_{-0.0013}$	$\sigma_8/h^{0.5}$	0.9950	$0.996^{+0.028}_{-0.028}$	$H(0.38)$	79.7	$79.0^{+5.8}_{-5.5}$
$\tau$	0.0498	$0.049^{+0.023}_{-0.026}$	$r_{\text{drag}} h$	94.3	$93.4^{+9.3}_{-8.7}$	$D_M(0.38)$	1606	$1623^{+140}_{-130}$
$\Omega_K$	-0.0093	$-0.012^{+0.017}_{-0.023}$	$\langle d^2 \rangle^{1/2}$	2.469	$2.472^{+0.077}_{-0.077}$	$H(0.51)$	86.5	$85.9^{+5.6}_{-5.4}$
$\ln(10^{10} A_s)$	3.0282	$3.026^{+0.044}_{-0.051}$	$z_{\text{re}}$	7.17	$7.1^{+2.2}_{-3.0}$	$D_M(0.51)$	2076	$2096^{+180}_{-160}$
$n_s$	0.9685	$0.970^{+0.016}_{-0.016}$	$10^9 A_s$	2.066	$2.062^{+0.093}_{-0.10}$	$H(0.61)$	92.2	$91.6^{+5.5}_{-5.3}$
$y_{\text{cal}}$	1.0003	$1.0001^{+0.0062}_{-0.0064}$	$10^9 A_s e^{-2\tau}$	1.8701	$1.868^{+0.035}_{-0.034}$	$D_M(0.61)$	2411	$2434^{+200}_{-180}$
$A_{100}^{\text{PS}}$	242	$240^{+60}_{-70}$	$D_{40}$	1213.8	$1209^{+44}_{-41}$	$H(2.33)$	233.4	$232.6^{+6.4}_{-6.6}$
$A_{143}^{\text{PS}}$	36	$38^{+20}_{-20}$	$D_{220}$	5711	$5715^{+110}_{-110}$	$D_M(2.33)$	5926	$5962^{+310}_{-290}$
$A_{217}^{\text{PS}}$	98.4	$101^{+30}_{-40}$	$D_{810}$	2529.2	$2529^{+34}_{-34}$	$f\sigma_8(0.15)$	0.4702	$0.472^{+0.026}_{-0.028}$
$A_{217}^{\text{CIB}}$	42.9	$40^{+20}_{-20}$	$D_{1420}$	813.6	$814^{+13}_{-13}$	$\sigma_8(0.15)$	0.7315	$0.727^{+0.034}_{-0.038}$
$A_{143}^{\text{tSZ}}$	4.37	$< 8.71$	$D_{2000}$	230.02	$230.3^{+4.7}_{-4.8}$	$f\sigma_8(0.38)$	0.4811	$0.481^{+0.016}_{-0.017}$
$r_{143 \times 217}^{\text{PS}}$	0.565	$0.65^{+0.32}_{-0.34}$	$n_{s,0.002}$	0.9685	$0.970^{+0.016}_{-0.016}$	$\sigma_8(0.38)$	0.6446	$0.640^{+0.035}_{-0.039}$
$r_{143 \times 217}^{\text{CIB}}$	0.65	—	$Y_P$	0.245363	$0.24538^{+0.00027}_{-0.00028}$	$f\sigma_8(0.51)$	0.4759	$0.475^{+0.013}_{-0.013}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.07	—	$Y_P^{\text{BBN}}$	0.246689	$0.24671^{+0.00027}_{-0.00028}$	$\sigma_8(0.51)$	0.6017	$0.598^{+0.035}_{-0.039}$
$A^{\text{kSZ}}$	3.8	—	$10^5 D/H$	2.601	$2.59^{+0.12}_{-0.12}$	$f\sigma_8(0.61)$	0.4684	$0.468^{+0.013}_{-0.013}$
$A_{100}^{\text{dust}}$	1.01	$1.01^{+0.51}_{-0.50}$	Age/Gyr	14.21	$14.30^{+0.80}_{-0.73}$	$\sigma_8(0.61)$	0.5715	$0.567^{+0.035}_{-0.039}$
$A_{143}^{\text{dust}}$	0.989	$0.98^{+0.45}_{-0.46}$	$z_*$	1089.87	$1089.7^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	0.2872	$0.285^{+0.019}_{-0.021}$
$A_{217}^{\text{dust}}$	0.960	$0.97^{+0.28}_{-0.27}$	$r_*$	144.95	$145.1^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	0.2936	$0.291^{+0.024}_{-0.025}$
$A_{143 \times 217}^{\text{dust}}$	1.004	$1.02^{+0.42}_{-0.42}$	$100\theta_*$	1.04123	$1.0414^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	30.3	$30^{+8}_{-8}$
$c_{100}$	0.99735	$0.9975^{+0.0026}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	13.921	$13.93^{+0.11}_{-0.12}$	$f_{2000}^{217}$	107.0	$106.5^{+5.3}_{-5.7}$
$c_{217}$	1.00124	$1.0011^{+0.0041}_{-0.0039}$	$z_{\text{drag}}$	1059.63	$1059.7^{+1.3}_{-1.2}$	$f_{2000}^{143 \times 217}$	32.3	$32^{+6}_{-6}$
$H_0$	63.9	$63.2^{+6.5}_{-6.1}$	$r_{\text{drag}}$	147.65	$147.7^{+1.2}_{-1.2}$	$\chi^2_{\text{lensing}}$	9.2	$10.3 (\nu: 2.3)$
$\Omega_\Lambda$	0.6631	$0.659^{+0.046}_{-0.050}$	$k_D$	0.14022	$0.1402^{+0.0013}_{-0.0012}$	$\chi^2_{\text{small}}$	395.64	$396.8 (\nu: 1.2)$
$\Omega_m$	0.346	$0.353^{+0.071}_{-0.061}$	$100\theta_D$	0.16094	$0.16091^{+0.00069}_{-0.00070}$	$\chi^2_{\text{lowl}}$	21.85	$21.8 (\nu: 0.6)$
$\Omega_m h^2$	0.1412	$0.1407^{+0.0053}_{-0.0052}$	$z_{\text{eq}}$	3358	$3346^{+130}_{-130}$	$\chi^2_{\text{CamSpec}}$	7049.2	$7062.9 (\nu: 15.3)$
$\Omega_m h^3$	0.0902	$0.089^{+0.011}_{-0.011}$	$k_{\text{eq}}$	0.010250	$0.01021^{+0.00038}_{-0.00038}$	$\chi^2_{\text{prior}}$	2.4	$7.5 (\nu: 5.9)$
$\sigma_8$	0.7952	$0.791^{+0.032}_{-0.036}$	$100\theta_{\text{eq}}$	0.8211	$0.824^{+0.025}_{-0.024}$	$\chi^2_{\text{CMB}}$	7475.9	$7491.7 (\nu: 15.9)$
$S_8$	0.854	$0.858^{+0.056}_{-0.058}$	$100\theta_{s,\text{eq}}$	0.4535	$0.455^{+0.013}_{-0.012}$			

Best-fit  $\chi^2_{\text{eff}} = 7478.30$ ;  $\bar{\chi}^2_{\text{eff}} = 7499.29$ ;  $R - 1 = 0.01550$   
 $\chi^2_{\text{eff}}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 9.19 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.64 commander\_dx12\_v3.2\_29: 21.85 CamSpec like\_10.7HM: 7049.24



16.46 base\_omegak\_CamSpecHM\_TT\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02236^{+0.00065}_{-0.00060}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.469^{+0.031}_{-0.031}$	$H(0.15)$	$69.0^{+6.0}_{-5.6}$
$\Omega_{\mathrm{c}} h^2$	$0.1176^{+0.0058}_{-0.0055}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.020}_{-0.019}$	$D_{\mathrm{M}}(0.15)$	$680^{+64}_{-59}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0013}_{-0.0013}$	$\sigma_8/h^{0.5}$	$0.996^{+0.028}_{-0.029}$	$H(0.38)$	$79.4^{+5.7}_{-5.4}$
$\tau$	$0.053^{+0.018}_{-0.011}$	$r_{\mathrm{drag}} h$	$94.0^{+9.0}_{-8.2}$	$D_{\mathrm{M}}(0.38)$	$1614^{+140}_{-130}$
$\Omega_K$	$-0.011^{+0.017}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	$2.472^{+0.080}_{-0.078}$	$H(0.51)$	$86.2^{+5.5}_{-5.3}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.033^{+0.040}_{-0.026}$	$z_{\mathrm{re}}$	$< 9.13$	$D_{\mathrm{M}}(0.51)$	$2085^{+170}_{-160}$
$n_{\mathrm{s}}$	$0.971^{+0.016}_{-0.016}$	$10^9 A_{\mathrm{s}}$	$2.075^{+0.085}_{-0.053}$	$H(0.61)$	$91.9^{+5.4}_{-5.2}$
$y_{\mathrm{cal}}$	$1.0000^{+0.0062}_{-0.0065}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.867^{+0.035}_{-0.034}$	$D_{\mathrm{M}}(0.61)$	$2422^{+190}_{-180}$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-70}$	$D_{40}$	$1209^{+43}_{-42}$	$H(2.33)$	$232.7^{+6.3}_{-6.6}$
$A_{143}^{\mathrm{PS}}$	$38^{+20}_{-20}$	$D_{220}$	$5714^{+110}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5946^{+300}_{-280}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{810}$	$2528^{+34}_{-35}$	$f\sigma_8(0.15)$	$0.471^{+0.026}_{-0.028}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.15)$	$0.730^{+0.032}_{-0.033}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.69$	$D_{2000}$	$230.4^{+4.8}_{-4.9}$	$f\sigma_8(0.38)$	$0.481^{+0.016}_{-0.017}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.971^{+0.016}_{-0.016}$	$\sigma_8(0.38)$	$0.644^{+0.033}_{-0.035}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24539^{+0.00027}_{-0.00027}$	$f\sigma_8(0.51)$	$0.476^{+0.013}_{-0.013}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00027}_{-0.00028}$	$\sigma_8(0.51)$	$0.601^{+0.033}_{-0.034}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.59^{+0.12}_{-0.12}$	$f\sigma_8(0.61)$	$0.468^{+0.013}_{-0.011}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51}$	$\mathrm{Age}/\mathrm{Gyr}$	$14.26^{+0.78}_{-0.71}$	$\sigma_8(0.61)$	$0.570^{+0.033}_{-0.034}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.46}$	$z_*$	$1089.7^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	$0.287^{+0.018}_{-0.018}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$r_*$	$145.1^{+1.2}_{-1.3}$	$\sigma_8(2.33)$	$0.293^{+0.022}_{-0.022}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.42}$	$100\theta_*$	$1.0414^{+0.0012}_{-0.0013}$	$f_{2000}^{143}$	$29^{+8}_{-8}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.93^{+0.11}_{-0.12}$	$f_{2000}^{217}$	$106.5^{+5.3}_{-5.7}$
$c_{217}$	$1.0011^{+0.0041}_{-0.0039}$	$z_{\mathrm{drag}}$	$1059.7^{+1.3}_{-1.2}$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6}$
$H_0$	$63.6^{+6.2}_{-5.8}$	$r_{\mathrm{drag}}$	$147.8^{+1.2}_{-1.3}$	$\chi_{\mathrm{lensing}}^2$	$10.3 (\nu: 2.4)$
$\Omega_{\Lambda}$	$0.662^{+0.043}_{-0.046}$	$k_{\mathrm{D}}$	$0.1402^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.8)$
$\Omega_{\mathrm{m}}$	$0.349^{+0.064}_{-0.058}$	$100\theta_{\mathrm{D}}$	$0.16091^{+0.00068}_{-0.00069}$	$\chi_{\mathrm{lowl}}^2$	$21.8 (\nu: 0.6)$
$\Omega_{\mathrm{m}} h^2$	$0.1406^{+0.0054}_{-0.0052}$	$z_{\mathrm{eq}}$	$3344^{+130}_{-120}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.0 (\nu: 15.3)$
$\Omega_{\mathrm{m}} h^3$	$0.089^{+0.011}_{-0.010}$	$k_{\mathrm{eq}}$	$0.01021^{+0.00039}_{-0.00038}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 5.9)$
$\sigma_8$	$0.794^{+0.030}_{-0.031}$	$100\theta_{\mathrm{eq}}$	$0.824^{+0.025}_{-0.025}$	$\chi_{\mathrm{CMB}}^2$	$7491.5 (\nu: 15.6)$
$S_8$	$0.856^{+0.057}_{-0.057}$	$100\theta_{\mathrm{s,eq}}$	$0.455^{+0.013}_{-0.012}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 7498.95; R - 1 = 0.01796$					



# 16.47 base\_omegak\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022422	$0.02242^{+0.00045}_{-0.00042}$ $(+0.3\sigma)$	$S_8$	0.854	$0.857^{+0.055}_{-0.051}$ $(-0.1\sigma)$	$H(0.15)$	69.4	$69.0^{+5.4}_{-5.3}$ $(+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.11833	$0.1182^{+0.0038}_{-0.0037}$ $(+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4678	$0.469^{+0.030}_{-0.028}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	676	$680^{+60}_{-53}$ $(-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	1.04100	$1.04101^{+0.00081}_{-0.00087}$ $(-0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6101	$0.610^{+0.016}_{-0.017}$ $(+0.0\sigma)$	$H(0.38)$	79.74	$79.4^{+5.1}_{-4.8}$ $(+0.2\sigma)$
$\tau$	0.0500	$0.049^{+0.021}_{-0.023}$ $(-0.1\sigma)$	$\sigma_8/h^{0.5}$	0.9949	$0.995^{+0.024}_{-0.026}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	1604	$1614^{+130}_{-120}$ $(-0.2\sigma)$
$\Omega_K$	-0.0092	$-0.011^{+0.015}_{-0.018}$ $(+0.2\sigma)$	$r_{\mathrm{drag}}h$	94.3	$93.8^{+8.2}_{-8.2}$ $(+0.1\sigma)$	$H(0.51)$	86.59	$86.3^{+4.9}_{-4.6}$ $(+0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0294	$3.027^{+0.044}_{-0.049}$ $(+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	2.468	$2.470^{+0.071}_{-0.070}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	2073	$2085^{+150}_{-140}$ $(-0.2\sigma)$
$n_{\mathrm{s}}$	0.9693	$0.969^{+0.012}_{-0.013}$ $(-0.2\sigma)$	$z_{\mathrm{re}}$	7.16	$7.0^{+2.1}_{-2.7}$ $(-0.1\sigma)$	$H(0.61)$	92.30	$92.0^{+4.7}_{-4.4}$ $(+0.2\sigma)$
$y_{\mathrm{cal}}$	0.9999	$1.0001^{+0.0061}_{-0.0065}$ $(-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	2.069	$2.063^{+0.092}_{-0.10}$ $(+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	2408	$2421^{+170}_{-160}$ $(-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	233	$238^{+60}_{-60}$ $(-0.1\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8717	$1.871^{+0.028}_{-0.029}$ $(+0.2\sigma)$	$H(2.33)$	233.57	$233.3^{+4.7}_{-4.7}$ $(+0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	46.5	$37^{+20}_{-20}$ $(-0.1\sigma)$	$D_{40}$	1213.6	$1212^{+37}_{-36}$ $(+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	5920	$5939^{+250}_{-240}$ $(-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	104.8	$102^{+30}_{-40}$ $(+0.1\sigma)$	$D_{220}$	5721	$5722^{+99}_{-100}$ $(+0.2\sigma)$	$f\sigma_8(0.15)$	0.4702	$0.471^{+0.025}_{-0.025}$ $(-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	39.1	$39^{+20}_{-20}$ $(-0.2\sigma)$	$D_{810}$	2531.9	$2530^{+33}_{-35}$ $(+0.1\sigma)$	$\sigma_8(0.15)$	0.7319	$0.729^{+0.030}_{-0.031}$ $(+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	4.82	$< 8.83$ $(+0.1\sigma)$	$D_{1420}$	815.4	$815^{+12}_{-13}$ $(+0.1\sigma)$	$f\sigma_8(0.38)$	0.4812	$0.481^{+0.014}_{-0.015}$ $(-0.0\sigma)$
$r_{143\times 217}^{\mathrm{PS}}$	0.753	$0.66^{+0.31}_{-0.34}$ $(+0.1\sigma)$	$D_{2000}$	230.86	$230.6^{+4.1}_{-4.2}$ $(+0.2\sigma)$	$\sigma_8(0.38)$	0.6451	$0.642^{+0.031}_{-0.033}$ $(+0.1\sigma)$
$r_{143\times 217}^{\mathrm{CIB}}$	0.68	—	$n_{\mathrm{s},0.002}$	0.9693	$0.969^{+0.012}_{-0.013}$ $(-0.2\sigma)$	$f\sigma_8(0.51)$	0.4761	$0.476^{+0.011}_{-0.011}$ $(+0.0\sigma)$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.94	—	$Y_{\mathrm{P}}$	0.245416	$0.24541^{+0.00017}_{-0.00018}$ $(+0.3\sigma)$	$\sigma_8(0.51)$	0.6021	$0.599^{+0.031}_{-0.033}$ $(+0.1\sigma)$
$A^{\mathrm{kSZ}}$	3.0	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246743	$0.24674^{+0.00018}_{-0.00018}$ $(+0.3\sigma)$	$f\sigma_8(0.61)$	0.4686	$0.468^{+0.010}_{-0.010}$ $(+0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	1.009	$1.01^{+0.50}_{-0.49}$ $(-0.0\sigma)$	$10^5\mathrm{D}/\mathrm{H}$	2.576	$2.578^{+0.080}_{-0.081}$ $(-0.3\sigma)$	$\sigma_8(0.61)$	0.5719	$0.569^{+0.031}_{-0.033}$ $(+0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	0.950	$0.97^{+0.45}_{-0.46}$ $(-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	14.19	$14.24^{+0.65}_{-0.62}$ $(-0.2\sigma)$	$f\sigma_8(2.33)$	0.2874	$0.286^{+0.017}_{-0.018}$ $(+0.1\sigma)$
$A_{217}^{\mathrm{dust}}$	0.981	$0.97^{+0.27}_{-0.25}$ $(+0.1\sigma)$	$z_*$	1089.71	$1089.71^{+0.77}_{-0.77}$ $(-0.1\sigma)$	$\sigma_8(2.33)$	0.2938	$0.292^{+0.021}_{-0.022}$ $(+0.1\sigma)$
$A_{143\times 217}^{\mathrm{dust}}$	1.033	$1.02^{+0.41}_{-0.42}$ $(-0.0\sigma)$	$r_*$	144.82	$144.87^{+0.83}_{-0.85}$ $(-0.4\sigma)$	$f_{2000}^{143}$	28.9	$29^{+8}_{-7}$ $(-0.2\sigma)$
$c_{100}$	0.99785	$0.9975^{+0.0027}_{-0.0027}$ $(+0.0\sigma)$	$100\theta_*$	1.04119	$1.04119^{+0.00080}_{-0.00086}$ $(-0.4\sigma)$	$f_{2000}^{217}$	105.9	$106.1^{+5.1}_{-5.2}$ $(-0.2\sigma)$
$c_{217}$	1.00113	$1.0010^{+0.0041}_{-0.0039}$ $(-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.910	$13.914^{+0.075}_{-0.080}$ $(-0.4\sigma)$	$f_{2000}^{143\times 217}$	31.5	$31^{+6}_{-5}$ $(-0.2\sigma)$
$c_{TE}$	0.9957	$0.996^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	1059.93	$1059.91^{+0.90}_{-0.86}$ $(+0.4\sigma)$	$\chi_{\mathrm{lensing}}^2$	9.39	$10.2$ $(\nu: 1.8)$ $(-0.0\sigma)$
$c_{EE}$	0.9917	$0.991^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	147.48	$147.52^{+0.81}_{-0.85}$ $(-0.5\sigma)$	$\chi_{\mathrm{small}}^2$	395.63	$396.8$ $(\nu: 1.1)$ $(-0.0\sigma)$
$H_0$	64.0	$63.6^{+5.7}_{-5.6}$ $(+0.2\sigma)$	$k_{\mathrm{D}}$	0.14050	$0.14045^{+0.00089}_{-0.00089}$ $(+0.6\sigma)$	$\chi_{\mathrm{lowl}}^2$	21.83	$21.93$ $(\nu: 0.4)$ $(+0.1\sigma)$
$\Omega_{\Lambda}$	0.6635	$0.660^{+0.040}_{-0.049}$ $(+0.1\sigma)$	$100\theta_{\mathrm{D}}$	0.16075	$0.16077^{+0.00051}_{-0.00052}$ $(-0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	11498.3	$11513.1$ $(\nu: 16.0)$ $(+805.0\sigma)$
$\Omega_{\mathrm{m}}$	0.346	$0.351^{+0.067}_{-0.054}$ $(-0.1\sigma)$	$z_{\mathrm{eq}}$	3364	$3360^{+86}_{-83}$ $(+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	2.0	$7.7$ $(\nu: 5.6)$ $(+0.0\sigma)$
$\Omega_{\mathrm{m}}h^2$	0.14140	$0.1413^{+0.0036}_{-0.0035}$ $(+0.3\sigma)$	$k_{\mathrm{eq}}$	0.010266	$0.01026^{+0.00026}_{-0.00025}$ $(+0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	11925.1	$11942.0$ $(\nu: 17.3)$ $(+789.4\sigma)$
$\Omega_{\mathrm{m}}h^3$	0.0904	$0.0898^{+0.0091}_{-0.0086}$ $(+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	0.8205	$0.821^{+0.016}_{-0.016}$ $(-0.3\sigma)$			
$\sigma_8$	0.7956	$0.793^{+0.028}_{-0.029}$ $(+0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4531	$0.4535^{+0.0084}_{-0.0083}$ $(-0.3\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 11927.06$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4448.77$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 11949.70$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.41$ ;  $R - 1 = 0.01965$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12.Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 9.39 ( $\Delta$  0.20) small\_100x143\_offlike5.EE\_Aplanck.B: 395.63 ( $\Delta$  -0.01) commander\_dx12.v3.2.29: 21.83 ( $\Delta$  -0.02) CamSpec like\_10.7HM\_1400\_unified: 11498.26



16.48 base\_omegak\_CamSpecHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02242^{+0.00046}_{-0.00042} \quad (+0.3\sigma)$	$S_8$	$0.854^{+0.051}_{-0.049} \quad (-0.1\sigma)$	$H(0.15)$	$69.5^{+5.2}_{-4.8} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1181^{+0.0038}_{-0.0037} \quad (+0.3\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.468^{+0.028}_{-0.027} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$675^{+53}_{-50} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04102^{+0.00080}_{-0.00083} \quad (-0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.016}_{-0.017} \quad (+0.0\sigma)$	$H(0.38)$	$79.8^{+4.8}_{-4.5} \quad (+0.2\sigma)$
$\tau$	$0.0523^{+0.017}_{-0.0098} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.996^{+0.024}_{-0.026} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1603^{+110}_{-110} \quad (-0.2\sigma)$
$\Omega_K$	$-0.009^{+0.014}_{-0.016} \quad (+0.2\sigma)$	$r_{\mathrm{drag}} h$	$94.5^{+7.8}_{-7.2} \quad (+0.2\sigma)$	$H(0.51)$	$86.7^{+4.7}_{-4.4} \quad (+0.2\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.033^{+0.039}_{-0.026} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.470^{+0.069}_{-0.069} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$2072^{+140}_{-130} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.970^{+0.012}_{-0.013} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.02 \quad (-0.1\sigma)$	$H(0.61)$	$92.4^{+4.6}_{-4.3} \quad (+0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0001^{+0.0062}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.077^{+0.083}_{-0.053} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2407^{+160}_{-150} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-70} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.870^{+0.029}_{-0.030} \quad (+0.2\sigma)$	$H(2.33)$	$233.5^{+4.6}_{-4.6} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$37^{+20}_{-20} \quad (-0.1\sigma)$	$D_{40}$	$1213^{+37}_{-37} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5919^{+240}_{-240} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$D_{220}$	$5721^{+97}_{-110} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.470^{+0.024}_{-0.024} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2530^{+33}_{-35} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.733^{+0.027}_{-0.024} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.80 \quad (+0.1\sigma)$	$D_{1420}$	$815^{+12}_{-12} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.481^{+0.013}_{-0.015} \quad (+0.0\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.35} \quad (+0.1\sigma)$	$D_{2000}$	$230.7^{+4.0}_{-4.2} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.646^{+0.029}_{-0.026} \quad (+0.2\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.970^{+0.012}_{-0.013} \quad (-0.2\sigma)$	$f\sigma_8(0.51)$	$0.476^{+0.010}_{-0.011} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00018}_{-0.00017} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.603^{+0.029}_{-0.027} \quad (+0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00018}_{-0.00018} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.4688^{+0.0097}_{-0.0096} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.48} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.577^{+0.080}_{-0.083} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	$0.573^{+0.028}_{-0.026} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.46}_{-0.46} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$14.19^{+0.61}_{-0.60} \quad (-0.2\sigma)$	$f\sigma_8(2.33)$	$0.288^{+0.015}_{-0.014} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.25} \quad (+0.1\sigma)$	$z_*$	$1089.70^{+0.77}_{-0.78} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.295^{+0.019}_{-0.018} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.42} \quad (+0.0\sigma)$	$r_*$	$144.88^{+0.83}_{-0.86} \quad (-0.4\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-7} \quad (-0.2\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.04120^{+0.00079}_{-0.00082} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$106.1^{+5.1}_{-5.3} \quad (-0.2\sigma)$
$c_{217}$	$1.0010^{+0.0042}_{-0.0039} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.914^{+0.075}_{-0.082} \quad (-0.4\sigma)$	$f_{2000}^{143 \times 217}$	$31^{+6}_{-5} \quad (-0.2\sigma)$
$c_{TE}$	$0.995^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.91^{+0.94}_{-0.86} \quad (+0.4\sigma)$	$\chi_{\mathrm{lensing}}^2$	$10.1 \quad (\nu: 1.7) \quad (-0.1\sigma)$
$c_{EE}$	$0.991^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	$147.53^{+0.80}_{-0.86} \quad (-0.5\sigma)$	$\chi_{\mathrm{small}}^2$	$396.3 \quad (\nu: 0.6) \quad (-0.0\sigma)$
$H_0$	$64.1^{+5.4}_{-5.1} \quad (+0.2\sigma)$	$k_{\mathrm{D}}$	$0.14044^{+0.00091}_{-0.00089} \quad (+0.6\sigma)$	$\chi_{\mathrm{lowl}}^2$	$21.99 \quad (\nu: 0.5) \quad (+0.2\sigma)$
$\Omega_{\Lambda}$	$0.664^{+0.037}_{-0.042} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16077^{+0.00050}_{-0.00052} \quad (-0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.1 \quad (\nu: 16.0) \quad (+804.5\sigma)$
$\Omega_{\mathrm{m}}$	$0.345^{+0.056}_{-0.050} \quad (-0.2\sigma)$	$z_{\mathrm{eq}}$	$3359^{+86}_{-83} \quad (+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.7 \quad (\nu: 5.7) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1412^{+0.0036}_{-0.0035} \quad (+0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01025^{+0.00026}_{-0.00025} \quad (+0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11941.6 \quad (\nu: 16.8) \quad (+796.6\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0905^{+0.0088}_{-0.0082} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.821^{+0.017}_{-0.016} \quad (-0.3\sigma)$		
$\sigma_8$	$0.797^{+0.026}_{-0.023} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4535^{+0.0084}_{-0.0083} \quad (-0.3\sigma)$		

$\bar{\chi}_{\mathrm{eff}}^2 = 11949.31$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.36$ ;  $R - 1 = 0.03090$



16.49 base\_omegak\_CleanedCamSpecHM\_TT\_lowl\_lowE

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02253^{+0.00074}_{-0.00069}$	$\sigma_8/h^{0.5}$	$1.059^{+0.056}_{-0.069}$	$D_{\mathrm{M}}(0.15)$	$820^{+200}_{-200}$
$\Omega_{\mathrm{c}} h^2$	$0.1172^{+0.0058}_{-0.0058}$	$r_{\mathrm{drag}} h$	$77^{+20}_{-20}$	$H(0.38)$	$70^{+10}_{-9}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0012}_{-0.0013}$	$\langle d^2 \rangle^{1/2}$	$2.68^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(0.38)$	$1903^{+400}_{-300}$
$\tau$	$0.048^{+0.021}_{-0.029}$	$z_{\mathrm{re}}$	$6.8^{+2.1}_{-3.6}$	$H(0.51)$	$77^{+10}_{-9}$
$\Omega_K$	$-0.057^{+0.051}_{-0.089}$	$10^9 A_{\mathrm{s}}$	$2.057^{+0.091}_{-0.11}$	$D_{\mathrm{M}}(0.51)$	$2433^{+500}_{-400}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.023^{+0.044}_{-0.057}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.867^{+0.037}_{-0.035}$	$H(0.61)$	$83^{+10}_{-8}$
$n_{\mathrm{s}}$	$0.972^{+0.017}_{-0.017}$	$D_{40}$	$1201^{+48}_{-43}$	$D_{\mathrm{M}}(0.61)$	$2804^{+500}_{-400}$
$y_{\mathrm{cal}}$	$0.9998^{+0.0067}_{-0.0068}$	$D_{220}$	$5734^{+110}_{-110}$	$H(2.33)$	$227.5^{+7.8}_{-7.6}$
$A_{100}^{\mathrm{PS}}$	$240^{+70}_{-70}$	$D_{810}$	$2523^{+37}_{-37}$	$D_{\mathrm{M}}(2.33)$	$6465^{+650}_{-590}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$812^{+13}_{-14}$	$f\sigma_8(0.15)$	$0.536^{+0.059}_{-0.072}$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.6^{+5.2}_{-5.5}$	$\sigma_8(0.15)$	$0.689^{+0.055}_{-0.073}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.49}$	$n_{\mathrm{s},0.002}$	$0.972^{+0.017}_{-0.017}$	$f\sigma_8(0.38)$	$0.511^{+0.022}_{-0.034}$
$A_{143}^{\mathrm{power}}$	$8.0^{+6.2}_{-5.5}$	$Y_{\mathrm{P}}$	$0.24545^{+0.00032}_{-0.00030}$	$\sigma_8(0.38)$	$0.594^{+0.062}_{-0.078}$
$A_{217}^{\mathrm{power}}$	$6.5^{+6.0}_{-3.5}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24678^{+0.00032}_{-0.00030}$	$f\sigma_8(0.51)$	$0.490^{+0.017}_{-0.021}$
$A_{143 \times 217}^{\mathrm{power}}$	$< 7.72$	$10^5 \mathrm{D}/\mathrm{H}$	$2.56^{+0.13}_{-0.13}$	$\sigma_8(0.51)$	$0.549^{+0.063}_{-0.078}$
$\gamma_{143}^{\mathrm{power}}$	—	Age/Gyr	$15.6^{+1.8}_{-1.6}$	$f\sigma_8(0.61)$	$0.473^{+0.017}_{-0.025}$
$\gamma_{217}^{\mathrm{power}}$	—	$z_*$	$1089.5^{+1.3}_{-1.2}$	$\sigma_8(0.61)$	$0.518^{+0.063}_{-0.076}$
$\gamma_{143 \times 217}^{\mathrm{power}}$	—	$r_*$	$145.0^{+1.3}_{-1.3}$	$f\sigma_8(2.33)$	$0.257^{+0.035}_{-0.041}$
$c_{100}$	$0.9979^{+0.0026}_{-0.0029}$	$100\theta_*$	$1.0414^{+0.0012}_{-0.0013}$	$\sigma_8(2.33)$	$0.256^{+0.043}_{-0.046}$
$c_{217}$	$0.9992^{+0.0041}_{-0.0031}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.93^{+0.12}_{-0.12}$	$f_{2000}^{143}$	$19.3^{+8.8}_{-7.9}$
$H_0$	$52^{+10}_{-10}$	$z_{\mathrm{drag}}$	$1060.1^{+1.4}_{-1.4}$	$f_{2000}^{217}$	$13.6^{+5.7}_{-5.9}$
$\Omega_{\Lambda}$	$0.53^{+0.14}_{-0.22}$	$r_{\mathrm{drag}}$	$147.7^{+1.2}_{-1.3}$	$f_{2000}^{143 \times 217}$	$7.5^{+6.2}_{-5.8}$
$\Omega_{\mathrm{m}}$	$0.53^{+0.31}_{-0.19}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.4)$
$\Omega_{\mathrm{m}} h^2$	$0.1404^{+0.0055}_{-0.0054}$	$100\theta_{\mathrm{D}}$	$0.16069^{+0.00078}_{-0.00077}$	$\chi_{\mathrm{lowl}}^2$	$21.39 (\nu: 0.3)$
$\Omega_{\mathrm{m}} h^3$	$0.073^{+0.019}_{-0.017}$	$z_{\mathrm{eq}}$	$3340^{+130}_{-130}$	$\chi_{\mathrm{CamSpec}}^2$	$6712.6 (\nu: 13.9)$
$\sigma_8$	$0.764^{+0.046}_{-0.064}$	$k_{\mathrm{eq}}$	$0.01019^{+0.00040}_{-0.00039}$	$\chi_{\mathrm{prior}}^2$	$5.1 (\nu: 4.0)$
$S_8$	$1.01^{+0.17}_{-0.16}$	$100\theta_{\mathrm{eq}}$	$0.825^{+0.026}_{-0.025}$	$\chi_{\mathrm{CMB}}^2$	$7130.8 (\nu: 15.5)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.551^{+0.093}_{-0.090}$	$100\theta_{\mathrm{s,eq}}$	$0.456^{+0.013}_{-0.013}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.648^{+0.036}_{-0.044}$	$H(0.15)$	$58^{+10}_{-10}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7135.85$ ;  $R - 1 = 0.01609$



# 17 r

## 17.1 base\_r\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02213	$0.02213^{+0.00058}_{-0.00055}$	$\sigma_8/h^{0.5}$	0.9947	$0.990^{+0.041}_{-0.042}$	$D_M(0.38)$	1542.1	$1540^{+41}_{-40}$
$\Omega_c h^2$	0.1206	$0.1203^{+0.0054}_{-0.0052}$	$r_{\text{drag}} h$	98.45	$98.7^{+4.1}_{-4.1}$	$H(0.51)$	89.32	$89.4^{+1.2}_{-1.1}$
$100\theta_{\text{MC}}$	1.04078	$1.0408^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	2.456	$2.446^{+0.099}_{-0.096}$	$D_M(0.51)$	1996.3	$1994^{+48}_{-47}$
$\tau$	0.0535	$0.052^{+0.022}_{-0.021}$	$z_{\text{re}}$	7.66	$7.5^{+2.1}_{-2.4}$	$H(0.61)$	95.01	$95.05^{+0.95}_{-0.87}$
$\ln(10^{10} A_s)$	3.0436	$3.039^{+0.044}_{-0.044}$	$10^9 A_s$	2.098	$2.089^{+0.094}_{-0.090}$	$D_M(0.61)$	2322	$2319^{+51}_{-51}$
$n_s$	0.9637	$0.964^{+0.014}_{-0.014}$	$10^9 A_s e^{-2\tau}$	1.8853	$1.883^{+0.036}_{-0.035}$	$H(2.33)$	236.73	$236.5^{+3.3}_{-3.2}$
$r$	0.000	$< 0.149$	$D_{40}$	1231.7	$1244^{+50}_{-43}$	$D_M(2.33)$	5777.4	$5776^{+41}_{-43}$
$y_{\text{cal}}$	1.0005	$1.0005^{+0.0065}_{-0.0064}$	$D_{220}$	5711	$5711^{+110}_{-100}$	$f\sigma_8(0.15)$	0.4644	$0.462^{+0.031}_{-0.031}$
$A_{217}^{\text{CIB}}$	49.0	$48^{+20}_{-20}$	$D_{810}$	2538.4	$2537^{+36}_{-35}$	$\sigma_8(0.15)$	0.7508	$0.748^{+0.020}_{-0.020}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.28	—	$D_{1420}$	815.6	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4808	$0.478^{+0.024}_{-0.025}$
$A_{143}^{\text{tSZ}}$	7.0	—	$D_{2000}$	230.00	$229.7^{+4.6}_{-4.6}$	$\sigma_8(0.38)$	0.6645	$0.663^{+0.016}_{-0.016}$
$A_{100}^{\text{PS}}$	255	$263^{+70}_{-70}$	$n_{s,0.002}$	0.9637	$0.964^{+0.014}_{-0.014}$	$f\sigma_8(0.51)$	0.4783	$0.476^{+0.021}_{-0.021}$
$A_{143}^{\text{PS}}$	49.3	$49^{+20}_{-20}$	$Y_{\text{P}}$	0.245295	$0.24529^{+0.00023}_{-0.00026}$	$\sigma_8(0.51)$	0.6215	$0.620^{+0.015}_{-0.015}$
$A_{143 \times 217}^{\text{PS}}$	46.2	$44^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246621	$0.24662^{+0.00023}_{-0.00026}$	$f\sigma_8(0.61)$	0.4726	$0.470^{+0.019}_{-0.019}$
$A_{217}^{\text{PS}}$	119.2	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.632	$2.63^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	0.5911	$0.589^{+0.014}_{-0.014}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.829	$13.826^{+0.092}_{-0.094}$	$f\sigma_8(2.33)$	0.2977	$0.2969^{+0.0069}_{-0.0068}$
$A_{100}^{\text{dustTT}}$	8.91	$8.9^{+4.7}_{-4.7}$	$z_*$	1090.29	$1090.3^{+1.0}_{-1.0}$	$\sigma_8(2.33)$	0.3065	$0.3058^{+0.0073}_{-0.0070}$
$A_{143}^{\text{dustTT}}$	10.76	$10.7^{+4.6}_{-4.6}$	$r_*$	144.45	$144.5^{+1.2}_{-1.2}$	$r_{0.002}$	0.000	$< 0.143$
$A_{143 \times 217}^{\text{dustTT}}$	19.3	$18.3^{+8.4}_{-8.6}$	$100\theta_*$	1.04098	$1.0410^{+0.0012}_{-0.0012}$	$r_{0.01}$	0.000	$< 0.146$
$A_{217}^{\text{dustTT}}$	94.4	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.877	$13.88^{+0.11}_{-0.11}$	$\ln(10^{10} A_t)$	-6.27	$-0.7^{+2.2}_{-4.1}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.40	$1059.4^{+1.2}_{-1.1}$	$r_{10}$	0.0000	$< 0.0742$
$c_{217}$	0.99828	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.20	$147.3^{+1.2}_{-1.2}$	$10^9 A_t$	0.000	$< 0.312$
$H_0$	66.88	$67.0^{+2.4}_{-2.4}$	$k_{\text{D}}$	0.14057	$0.1405^{+0.0013}_{-0.0013}$	$10^9 A_t e^{-2\tau}$	0.000	$< 0.280$
$\Omega_{\Lambda}$	0.6794	$0.681^{+0.031}_{-0.035}$	$100\theta_{\text{D}}$	0.16106	$0.16108^{+0.00067}_{-0.00067}$	$f_{2000}^{143}$	30.5	$31^{+7}_{-8}$
$\Omega_{\text{m}}$	0.3206	$0.319^{+0.035}_{-0.031}$	$z_{\text{eq}}$	3412	$3404^{+120}_{-120}$	$f_{2000}^{143 \times 217}$	33.3	$33^{+5}_{-5}$
$\Omega_{\text{m}} h^2$	0.1434	$0.1431^{+0.0051}_{-0.0050}$	$k_{\text{eq}}$	0.010413	$0.01039^{+0.00037}_{-0.00036}$	$f_{2000}^{217}$	107.8	$108.0^{+5.0}_{-5.0}$
$\Omega_{\text{m}} h^3$	0.09592	$0.0959^{+0.0012}_{-0.0011}$	$100\theta_{\text{eq}}$	0.8108	$0.812^{+0.023}_{-0.022}$	$\chi_{\text{simall}}^2$	396.03	$397.1 (\nu: 1.4)$
$\sigma_8$	0.8135	$0.811^{+0.023}_{-0.024}$	$100\theta_{\text{s,eq}}$	0.4483	$0.449^{+0.012}_{-0.011}$	$\chi_{\text{lowl}}^2$	23.61	$25.0 (\nu: 1.6)$
$S_8$	0.841	$0.836^{+0.063}_{-0.060}$	$H(0.15)$	72.26	$72.4^{+2.0}_{-2.0}$	$\chi_{\text{plik}}^2$	758.6	$771.7 (\nu: 14.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4606	$0.458^{+0.034}_{-0.033}$	$D_M(0.15)$	647.5	$647^{+21}_{-20}$	$\chi_{\text{prior}}^2$	1.4	$7.3 (\nu: 6.9)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6121	$0.609^{+0.030}_{-0.030}$	$H(0.38)$	82.52	$82.6^{+1.5}_{-1.4}$	$\chi_{\text{CMB}}^2$	1178.2	$1193.7 (\nu: 16.0)$

Best-fit  $\chi_{\text{eff}}^2 = 1179.62$ ;  $\bar{\chi}_{\text{eff}}^2 = 1201.03$ ;  $R - 1 = 0.00654$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.03 commander\_dx12\_v3.2\_29: 23.61 plik\_rd12\_HM\_v22\_TT: 758.60



## 17.2 base\_r\_plikHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02225	$0.02222^{+0.00051}_{-0.00049}$	$\langle d^2 \rangle^{1/2}$	2.424	$2.423^{+0.071}_{-0.068}$	$D_M(0.61)$	2305.8	$2305^{+31}_{-31}$
$\Omega_c h^2$	0.11896	$0.1188^{+0.0032}_{-0.0031}$	$z_{\text{re}}$	7.58	$7.6^{+2.1}_{-2.4}$	$H(2.33)$	235.76	$235.6^{+2.0}_{-2.0}$
$100\theta_{\text{MC}}$	1.04096	$1.0410^{+0.0010}_{-0.0011}$	$10^9 A_s$	2.087	$2.088^{+0.093}_{-0.091}$	$D_M(2.33)$	5766.0	$5766^{+31}_{-31}$
$\tau$	0.0532	$0.053^{+0.022}_{-0.022}$	$10^9 A_s e^{-2\tau}$	1.8761	$1.877^{+0.031}_{-0.030}$	$f\sigma_8(0.15)$	0.4539	$0.453^{+0.020}_{-0.019}$
$\ln(10^{10} A_s)$	3.0383	$3.038^{+0.044}_{-0.044}$	$D_{40}$	1222.0	$1238^{+49}_{-39}$	$\sigma_8(0.15)$	0.7455	$0.745^{+0.019}_{-0.018}$
$n_s$	0.9675	$0.967^{+0.011}_{-0.011}$	$D_{220}$	5714	$5717^{+110}_{-100}$	$f\sigma_8(0.38)$	0.4725	$0.472^{+0.017}_{-0.016}$
$r$	0.000	$< 0.154$	$D_{810}$	2535.0	$2536^{+37}_{-35}$	$\sigma_8(0.38)$	0.6610	$0.661^{+0.016}_{-0.015}$
$y_{\text{cal}}$	1.0001	$1.0006^{+0.0070}_{-0.0064}$	$D_{1420}$	815.9	$816^{+13}_{-13}$	$f\sigma_8(0.51)$	0.4712	$0.471^{+0.015}_{-0.015}$
$A_{217}^{\text{CIB}}$	48.9	$48^{+20}_{-20}$	$D_{2000}$	230.18	$230.1^{+4.6}_{-4.4}$	$\sigma_8(0.51)$	0.6186	$0.619^{+0.015}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.28	—	$n_{s,0.002}$	0.9675	$0.967^{+0.011}_{-0.011}$	$f\sigma_8(0.61)$	0.4664	$0.466^{+0.014}_{-0.014}$
$A_{143}^{\text{tSZ}}$	7.1	—	$Y_P$	0.245345	$0.24533^{+0.00020}_{-0.00023}$	$\sigma_8(0.61)$	0.5887	$0.589^{+0.014}_{-0.013}$
$A_{100}^{\text{PS}}$	254	$262^{+70}_{-70}$	$Y_P^{\text{BBN}}$	0.246671	$0.24666^{+0.00020}_{-0.00023}$	$f\sigma_8(2.33)$	0.2969	$0.2969^{+0.0069}_{-0.0067}$
$A_{143}^{\text{PS}}$	48.1	$48^{+20}_{-20}$	$10^5 \text{D/H}$	2.609	$2.615^{+0.095}_{-0.093}$	$\sigma_8(2.33)$	0.3061	$0.3062^{+0.0072}_{-0.0068}$
$A_{143 \times 217}^{\text{PS}}$	45.5	$43^{+20}_{-20}$	Age/Gyr	13.804	$13.806^{+0.071}_{-0.070}$	$r_{0.002}$	0.000	$< 0.150$
$A_{217}^{\text{PS}}$	118.4	$115^{+30}_{-30}$	$z_*$	1089.99	$1090.02^{+0.76}_{-0.73}$	$r_{0.01}$	0.000	$< 0.152$
$A^{\text{kSZ}}$	0.0	—	$r_*$	144.79	$144.85^{+0.81}_{-0.82}$	$\ln(10^{10} A_t)$	-5.91	$-0.6^{+2.2}_{-3.9}$
$A_{100}^{\text{dustTT}}$	8.92	$8.9^{+4.7}_{-4.8}$	$100\theta_*$	1.04116	$1.0412^{+0.0010}_{-0.0011}$	$r_{10}$	0.0001	$< 0.0773$
$A_{143}^{\text{dustTT}}$	10.83	$10.7^{+4.4}_{-4.5}$	$D_M(z_*)/\text{Gpc}$	13.907	$13.912^{+0.081}_{-0.079}$	$10^9 A_t$	0.000	$< 0.323$
$A_{143 \times 217}^{\text{dustTT}}$	19.4	$18.3^{+8.5}_{-9.0}$	$z_{\text{drag}}$	1059.59	$1059.5^{+1.1}_{-1.1}$	$10^9 A_t e^{-2\tau}$	0.000	$< 0.289$
$A_{217}^{\text{dustTT}}$	94.5	$94^{+20}_{-20}$	$r_{\text{drag}}$	147.50	$147.57^{+0.89}_{-0.88}$	$f_{2000}^{143}$	30.1	$31^{+7}_{-7}$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$k_D$	0.14034	$0.1402^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+5}_{-5}$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$100\theta_D$	0.16097	$0.16103^{+0.00066}_{-0.00065}$	$f_{2000}^{217}$	107.41	$107.8^{+5.0}_{-4.9}$
$H_0$	67.63	$67.7^{+1.4}_{-1.4}$	$z_{\text{eq}}$	3374	$3371^{+75}_{-73}$	$\chi_{\text{small}}^2$	395.88	$397.2 (\nu: 1.6)$
$\Omega_\Lambda$	0.6899	$0.690^{+0.018}_{-0.019}$	$k_{\text{eq}}$	0.010299	$0.01029^{+0.00023}_{-0.00022}$	$\chi_{\text{lowl}}^2$	22.78	$24.3 (\nu: 1.2)$
$\Omega_m$	0.3101	$0.310^{+0.019}_{-0.018}$	$100\theta_{\text{eq}}$	0.8180	$0.819^{+0.014}_{-0.014}$	$\chi_{\text{plik}}^2$	760.2	$772.4 (\nu: 15.0)$
$\Omega_m h^2$	0.14185	$0.1417^{+0.0031}_{-0.0030}$	$100\theta_{s,\text{eq}}$	0.4519	$0.4523^{+0.0071}_{-0.0070}$	$\chi_{6\text{DF}}^2$	0.022	$0.053 (\nu: 0.0)$
$\Omega_m h^3$	0.09593	$0.0959^{+0.0012}_{-0.0012}$	$H(0.15)$	72.89	$72.9^{+1.2}_{-1.2}$	$\chi_{\text{MGS}}^2$	1.28	$1.41 (\nu: 0.1)$
$\sigma_8$	0.8066	$0.806^{+0.021}_{-0.020}$	$D_M(0.15)$	641.1	$641^{+12}_{-12}$	$\chi_{\text{DR12BAO}}^2$	4.21	$4.6 (\nu: 1.2)$
$S_8$	0.8202	$0.819^{+0.040}_{-0.037}$	$H(0.38)$	82.97	$82.99^{+0.91}_{-0.89}$	$\chi_{\text{prior}}^2$	1.4	$7.4 (\nu: 7.0)$
$\sigma_8 \Omega_m^{0.5}$	0.4492	$0.449^{+0.022}_{-0.020}$	$D_M(0.38)$	1529.4	$1529^{+24}_{-24}$	$\chi_{\text{BAO}}^2$	5.51	$6.1 (\nu: 0.8)$
$\sigma_8 \Omega_m^{0.25}$	0.6020	$0.601^{+0.021}_{-0.020}$	$H(0.51)$	89.67	$89.68^{+0.74}_{-0.73}$	$\chi_{\text{CMB}}^2$	1178.8	$1193.8 (\nu: 16.2)$
$\sigma_8/h^{0.5}$	0.9809	$0.980^{+0.030}_{-0.029}$	$D_M(0.51)$	1981.4	$1981^{+29}_{-28}$			
$r_{\text{drag}} h$	99.76	$99.9^{+2.4}_{-2.4}$	$H(0.61)$	95.28	$95.28^{+0.63}_{-0.62}$			

Best-fit  $\chi_{\text{eff}}^2 = 1185.79$ ;  $\bar{\chi}_{\text{eff}}^2 = 1207.29$ ;  $R - 1 = 0.01115$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.02 MGS: 1.28 DR12BAO: 4.21 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.88 commander\_dx12\_v3\_2\_29: 22.79 plik\_rd12\_HM\_v22\_TT: 760.17



### 17.3 base\_r\_plikHM\_TT\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02239	$0.02237^{+0.00057}_{-0.00053}$	$r_{\text{drag}} h$	101.15	$101.3^{+3.7}_{-3.6}$	$D_M(0.51)$	1965.2	$1964^{+41}_{-46}$
$\Omega_c h^2$	0.11728	$0.1171^{+0.0046}_{-0.0040}$	$\langle d^2 \rangle^{1/2}$	2.400	$2.396^{+0.090}_{-0.083}$	$H(0.61)$	95.60	$95.6^{+1.1}_{-0.82}$
$100\theta_{\text{MC}}$	1.04124	$1.0413^{+0.0011}_{-0.0012}$	$z_{\text{re}}$	7.83	$7.7^{+2.2}_{-2.4}$	$D_M(0.61)$	2288.3	$2287^{+44}_{-50}$
$\tau$	0.0562	$0.055^{+0.024}_{-0.023}$	$10^9 A_s$	2.093	$2.09^{+0.10}_{-0.098}$	$H(2.33)$	234.82	$234.7^{+2.7}_{-2.4}$
$\ln(10^{10} A_s)$	3.0414	$3.038^{+0.047}_{-0.048}$	$10^9 A_s e^{-2\tau}$	1.8706	$1.870^{+0.034}_{-0.035}$	$D_M(2.33)$	5752.1	$5752^{+38}_{-49}$
$n_s$	0.9720	$0.972^{+0.014}_{-0.013}$	$D_{40}$	1214.1	$1231^{+50}_{-42}$	$f\sigma_8(0.15)$	0.4450	$0.444^{+0.027}_{-0.028}$
$r$	0.000	$< 0.176$	$D_{220}$	5726	$5729^{+94}_{-110}$	$\sigma_8(0.15)$	0.7433	$0.742^{+0.020}_{-0.020}$
$y_{\text{cal}}$	1.0004	$1.0007^{+0.0062}_{-0.0061}$	$D_{810}$	2536.6	$2536^{+34}_{-37}$	$f\sigma_8(0.38)$	0.4659	$0.464^{+0.022}_{-0.023}$
$A_{217}^{\text{CIB}}$	47.5	$47^{+20}_{-20}$	$D_{1420}$	818.0	$817^{+12}_{-13}$	$\sigma_8(0.38)$	0.6602	$0.659^{+0.017}_{-0.017}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.48	—	$D_{2000}$	231.05	$230.7^{+4.3}_{-4.4}$	$f\sigma_8(0.51)$	0.4659	$0.465^{+0.020}_{-0.020}$
$A_{143}^{\text{tSZ}}$	7.0	—	$n_{\text{s},0.002}$	0.9720	$0.972^{+0.014}_{-0.013}$	$\sigma_8(0.51)$	0.6184	$0.617^{+0.016}_{-0.016}$
$A_{100}^{\text{PS}}$	251	$260^{+70}_{-70}$	$Y_{\text{P}}$	0.245403	$0.24539^{+0.00023}_{-0.00024}$	$f\sigma_8(0.61)$	0.4619	$0.461^{+0.018}_{-0.018}$
$A_{143}^{\text{PS}}$	49.3	$47^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246730	$0.24672^{+0.00023}_{-0.00024}$	$\sigma_8(0.61)$	0.5888	$0.588^{+0.015}_{-0.015}$
$A_{143 \times 217}^{\text{PS}}$	49.5	$42^{+20}_{-20}$	$10^5 \text{D}/\text{H}$	2.582	$2.59^{+0.10}_{-0.10}$	$f\sigma_8(2.33)$	0.2973	$0.2968^{+0.0075}_{-0.0074}$
$A_{217}^{\text{PS}}$	120.0	$114^{+20}_{-30}$	Age/Gyr	13.774	$13.775^{+0.085}_{-0.11}$	$\sigma_8(2.33)$	0.3071	$0.3066^{+0.0077}_{-0.0070}$
$A^{\text{kSZ}}$	0.0	—	$z_*$	1089.66	$1089.68^{+0.93}_{-1.0}$	$r_{0.002}$	0.000	$< 0.173$
$A_{100}^{\text{dustTT}}$	8.90	$8.9^{+4.7}_{-4.6}$	$r_*$	145.12	$145.18^{+0.88}_{-1.1}$	$r_{0.01}$	0.000	$< 0.175$
$A_{143}^{\text{dustTT}}$	10.84	$10.7^{+4.4}_{-4.4}$	$100\theta_*$	1.04142	$1.0415^{+0.0011}_{-0.0011}$	$\ln(10^{10} A_{\text{t}})$	-7.17	$-0.5^{+2.2}_{-4.1}$
$A_{143 \times 217}^{\text{dustTT}}$	19.6	$18.4^{+8.8}_{-9.6}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.935	$13.940^{+0.088}_{-0.10}$	$r_{10}$	0.0000	$< 0.0887$
$A_{217}^{\text{dustTT}}$	94.9	$94^{+20}_{-20}$	$z_{\text{drag}}$	1059.78	$1059.7^{+1.1}_{-1.1}$	$10^9 A_{\text{t}}$	0.000	$< 0.374$
$c_{100}$	0.99968	$0.9996^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	147.79	$147.9^{+1.0}_{-1.1}$	$10^9 A_{\text{t}} e^{-2\tau}$	0.000	$< 0.331$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0017}$	$k_{\text{D}}$	0.14014	$0.1401^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	29.2	$30^{+7}_{-7}$
$H_0$	68.44	$68.5^{+2.3}_{-2.0}$	$100\theta_{\text{D}}$	0.16087	$0.16091^{+0.00065}_{-0.00061}$	$f_{2000}^{143 \times 217}$	32.40	$33^{+5}_{-5}$
$\Omega_{\Lambda}$	0.7004	$0.701^{+0.026}_{-0.028}$	$z_{\text{eq}}$	3338	$3334^{+100}_{-91}$	$f_{2000}^{217}$	106.87	$107.4^{+4.8}_{-4.9}$
$\Omega_{\text{m}}$	0.2996	$0.299^{+0.028}_{-0.026}$	$k_{\text{eq}}$	0.010187	$0.01017^{+0.00031}_{-0.00028}$	$\chi_{\text{simall}}^2$	396.2	$397.4 (\nu: 2.1)$
$\Omega_{\text{m}} h^2$	0.14032	$0.1401^{+0.0043}_{-0.0038}$	$100\theta_{\text{eq}}$	0.8253	$0.826^{+0.018}_{-0.020}$	$\chi_{\text{lowl}}^2$	22.08	$23.6 (\nu: 1.3)$
$\Omega_{\text{m}} h^3$	0.09603	$0.0960^{+0.0011}_{-0.0011}$	$100\theta_{\text{s,eq}}$	0.4556	$0.4561^{+0.0089}_{-0.010}$	$\chi_{\text{plik}}^2$	762.9	$775.1 (\nu: 19.0)$
$\sigma_8$	0.8031	$0.801^{+0.023}_{-0.023}$	$H(0.15)$	73.59	$73.6^{+2.0}_{-1.8}$	$\chi_{\text{H073p45}}^2$	9.1	$9.1 (\nu: 3.9)$
$S_8$	0.803	$0.800^{+0.054}_{-0.054}$	$D_{\text{M}}(0.15)$	634.3	$634^{+17}_{-19}$	$\chi_{\text{prior}}^2$	1.3	$7.4 (\nu: 6.7)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4396	$0.438^{+0.030}_{-0.030}$	$H(0.38)$	83.49	$83.5^{+1.6}_{-1.3}$	$\chi_{\text{CMB}}^2$	1181.2	$1196.1 (\nu: 19.4)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5942	$0.592^{+0.027}_{-0.027}$	$D_{\text{M}}(0.38)$	1515.6	$1515^{+35}_{-39}$			
$\sigma_8/h^{0.5}$	0.9708	$0.968^{+0.038}_{-0.039}$	$H(0.51)$	90.08	$90.1^{+1.3}_{-1.0}$			

Best-fit  $\chi_{\text{eff}}^2 = 1191.61$ ;  $\bar{\chi}_{\text{eff}}^2 = 1212.59$ ;  $R - 1 = 0.05992$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.24 commander\_dx12\_v3\_2\_29: 22.08 plik\_rd12\_HM\_v22\_TT: 762.86 Hubble - H073p45: 9.11



## 17.4 base\_r\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02213^{+0.00058}_{-0.00055}$	$\sigma_8/h^{0.5}$	$0.991^{+0.041}_{-0.041}$	$D_{\mathrm{M}}(0.38)$	$1539^{+41}_{-40}$
$\Omega_{\mathrm{c}} h^2$	$0.1202^{+0.0054}_{-0.0052}$	$r_{\mathrm{drag}} h$	$98.8^{+4.0}_{-4.1}$	$H(0.51)$	$89.4^{+1.2}_{-1.1}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	$2.449^{+0.097}_{-0.095}$	$D_{\mathrm{M}}(0.51)$	$1993^{+47}_{-47}$
$\tau$	$0.054^{+0.019}_{-0.012}$	$z_{\mathrm{re}}$	$< 9.43$	$H(0.61)$	$95.07^{+0.95}_{-0.86}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.042}_{-0.029}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.089}_{-0.061}$	$D_{\mathrm{M}}(0.61)$	$2318^{+51}_{-50}$
$n_{\mathrm{s}}$	$0.964^{+0.014}_{-0.014}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.036}_{-0.035}$	$H(2.33)$	$236.5^{+3.2}_{-3.1}$
$r$	$< 0.150$	$D_{40}$	$1244^{+50}_{-43}$	$D_{\mathrm{M}}(2.33)$	$5775^{+41}_{-43}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0064}$	$D_{220}$	$5711^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.462^{+0.031}_{-0.030}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2536^{+36}_{-35}$	$\sigma_8(0.15)$	$0.749^{+0.019}_{-0.018}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.479^{+0.024}_{-0.024}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.8^{+4.6}_{-4.6}$	$\sigma_8(0.38)$	$0.664^{+0.015}_{-0.013}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.964^{+0.014}_{-0.014}$	$f\sigma_8(0.51)$	$0.477^{+0.021}_{-0.021}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24529^{+0.00023}_{-0.00026}$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.011}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24662^{+0.00023}_{-0.00026}$	$f\sigma_8(0.61)$	$0.471^{+0.018}_{-0.019}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.010}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.825^{+0.092}_{-0.095}$	$f\sigma_8(2.33)$	$0.2974^{+0.0065}_{-0.0047}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7}$	$z_*$	$1090.2^{+1.0}_{-1.0}$	$\sigma_8(2.33)$	$0.3064^{+0.0069}_{-0.0048}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.6}$	$r_*$	$144.6^{+1.2}_{-1.2}$	$r_{0.002}$	$< 0.144$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.5}_{-8.6}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0012}$	$r_{0.01}$	$< 0.147$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.89^{+0.11}_{-0.11}$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.7^{+2.2}_{-4.1}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.4^{+1.2}_{-1.1}$	$r_{10}$	$< 0.0744$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.3^{+1.2}_{-1.2}$	$10^9 A_{\mathrm{t}}$	$< 0.314$
$H_0$	$67.1^{+2.4}_{-2.3}$	$k_{\mathrm{D}}$	$0.1405^{+0.0013}_{-0.0013}$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.282$
$\Omega_{\Lambda}$	$0.682^{+0.031}_{-0.035}$	$100\theta_{\mathrm{D}}$	$0.16107^{+0.00068}_{-0.00066}$	$f_{2000}^{143}$	$31^{+7}_{-8}$
$\Omega_{\mathrm{m}}$	$0.318^{+0.035}_{-0.031}$	$z_{\mathrm{eq}}$	$3402^{+120}_{-120}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$\Omega_{\mathrm{m}} h^2$	$0.1430^{+0.0051}_{-0.0049}$	$k_{\mathrm{eq}}$	$0.01038^{+0.00037}_{-0.00036}$	$f_{2000}^{217}$	$108.0^{+5.0}_{-5.0}$
$\Omega_{\mathrm{m}} h^3$	$0.0959^{+0.0012}_{-0.0011}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.023}_{-0.022}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.4)$
$\sigma_8$	$0.812^{+0.023}_{-0.022}$	$100\theta_{\mathrm{s,eq}}$	$0.449^{+0.012}_{-0.011}$	$\chi_{\mathrm{lowl}}^2$	$25.0 (\nu: 1.6)$
$S_8$	$0.836^{+0.063}_{-0.060}$	$H(0.15)$	$72.4^{+2.0}_{-2.0}$	$\chi_{\mathrm{plik}}^2$	$771.5 (\nu: 14.4)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.458^{+0.034}_{-0.033}$	$D_{\mathrm{M}}(0.15)$	$646^{+20}_{-20}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.030}_{-0.029}$	$H(0.38)$	$82.6^{+1.5}_{-1.4}$	$\chi_{\mathrm{CMB}}^2$	$1193.4 (\nu: 15.6)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1200.73; R - 1 = 0.00675$$



17.5 base\_r\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02222^{+0.00051}_{-0.00049}$	$\langle d^2 \rangle^{1/2}$	$2.426^{+0.069}_{-0.064}$	$D_M(0.61)$	$2305^{+31}_{-30}$
$\Omega_c h^2$	$0.1188^{+0.0032}_{-0.0031}$	$z_{\text{re}}$	$< 9.50$	$H(2.33)$	$235.6^{+2.1}_{-2.0}$
$100\theta_{\text{MC}}$	$1.0410^{+0.0010}_{-0.0011}$	$10^9 A_s$	$2.093^{+0.089}_{-0.060}$	$D_M(2.33)$	$5766^{+31}_{-31}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$10^9 A_s e^{-2\tau}$	$1.877^{+0.031}_{-0.030}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.019}$
$\ln(10^{10} A_s)$	$3.041^{+0.042}_{-0.029}$	$D_{40}$	$1238^{+49}_{-39}$	$\sigma_8(0.15)$	$0.746^{+0.018}_{-0.014}$
$n_s$	$0.967^{+0.011}_{-0.011}$	$D_{220}$	$5717^{+110}_{-100}$	$f\sigma_8(0.38)$	$0.473^{+0.017}_{-0.016}$
$r$	$< 0.156$	$D_{810}$	$2536^{+37}_{-35}$	$\sigma_8(0.38)$	$0.662^{+0.015}_{-0.011}$
$y_{\text{cal}}$	$1.0006^{+0.0070}_{-0.0063}$	$D_{1420}$	$816^{+13}_{-13}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.014}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{2000}$	$230.1^{+4.5}_{-4.4}$	$\sigma_8(0.51)$	$0.619^{+0.014}_{-0.010}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$n_{\text{s},0.002}$	$0.967^{+0.011}_{-0.011}$	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.013}$
$A_{143}^{\text{tSZ}}$	—	$Y_{\text{P}}$	$0.24533^{+0.00020}_{-0.00023}$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.0098}$
$A_{100}^{\text{PS}}$	$261^{+70}_{-70}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24666^{+0.00020}_{-0.00023}$	$f\sigma_8(2.33)$	$0.2973^{+0.0066}_{-0.0048}$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20}$	$10^5 \text{D}/\text{H}$	$2.615^{+0.095}_{-0.094}$	$\sigma_8(2.33)$	$0.3066^{+0.0068}_{-0.0049}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	Age/Gyr	$13.805^{+0.072}_{-0.070}$	$r_{0.002}$	$< 0.151$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$z_*$	$1090.01^{+0.77}_{-0.74}$	$r_{0.01}$	$< 0.153$
$A^{\text{kSZ}}$	—	$r_*$	$144.86^{+0.82}_{-0.82}$	$\ln(10^{10} A_{\text{t}})$	$-0.6^{+2.1}_{-3.9}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.8}$	$100\theta_*$	$1.0412^{+0.0010}_{-0.0011}$	$r_{10}$	$< 0.0778$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.4}_{-4.5}$	$D_M(z_*)/\text{Gpc}$	$13.912^{+0.081}_{-0.079}$	$10^9 A_{\text{t}}$	$< 0.324$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.4}_{-9.0}$	$z_{\text{drag}}$	$1059.5^{+1.1}_{-1.1}$	$10^9 A_{\text{t}} e^{-2\tau}$	$< 0.290$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$r_{\text{drag}}$	$147.58^{+0.88}_{-0.88}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	$0.1402^{+0.0011}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0017}$	$100\theta_{\text{D}}$	$0.16102^{+0.00066}_{-0.00065}$	$f_{2000}^{217}$	$107.8^{+5.0}_{-4.9}$
$H_0$	$67.7^{+1.4}_{-1.4}$	$z_{\text{eq}}$	$3370^{+75}_{-72}$	$\chi_{\text{simall}}^2$	$397.1 (\nu: 1.6)$
$\Omega_{\Lambda}$	$0.691^{+0.018}_{-0.019}$	$k_{\text{eq}}$	$0.01029^{+0.00023}_{-0.00022}$	$\chi_{\text{lowl}}^2$	$24.3 (\nu: 1.2)$
$\Omega_{\text{m}}$	$0.309^{+0.019}_{-0.018}$	$100\theta_{\text{eq}}$	$0.819^{+0.014}_{-0.014}$	$\chi_{\text{plik}}^2$	$772.2 (\nu: 14.7)$
$\Omega_{\text{m}} h^2$	$0.1417^{+0.0031}_{-0.0030}$	$100\theta_{\text{s,eq}}$	$0.4523^{+0.0071}_{-0.0070}$	$\chi_{6\text{DF}}^2$	$0.053 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.0959^{+0.0012}_{-0.0012}$	$H(0.15)$	$72.9^{+1.2}_{-1.2}$	$\chi_{\text{MGS}}^2$	$1.42 (\nu: 0.1)$
$\sigma_8$	$0.807^{+0.020}_{-0.016}$	$D_M(0.15)$	$641^{+12}_{-12}$	$\chi_{\text{DR12BAO}}^2$	$4.6 (\nu: 1.2)$
$S_8$	$0.820^{+0.039}_{-0.037}$	$H(0.38)$	$83.00^{+0.91}_{-0.89}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 7.0)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.449^{+0.021}_{-0.020}$	$D_M(0.38)$	$1529^{+24}_{-24}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.8)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.602^{+0.021}_{-0.019}$	$H(0.51)$	$89.69^{+0.74}_{-0.73}$	$\chi_{\text{CMB}}^2$	$1193.6 (\nu: 15.8)$
$\sigma_8/h^{0.5}$	$0.982^{+0.030}_{-0.027}$	$D_M(0.51)$	$1981^{+28}_{-28}$		
$r_{\text{drag}} h$	$99.9^{+2.4}_{-2.4}$	$H(0.61)$	$95.28^{+0.63}_{-0.62}$		

$$\bar{\chi}_{\text{eff}}^2 = 1207.00; R - 1 = 0.01158$$



## 17.6 base\_r\_plikHM\_TT\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02237^{+0.00057}_{-0.00053}$	$r_{\text{drag}} h$	$101.3^{+3.7}_{-3.6}$	$D_M(0.51)$	$1964^{+41}_{-46}$
$\Omega_c h^2$	$0.1171^{+0.0046}_{-0.0040}$	$\langle d^2 \rangle^{1/2}$	$2.399^{+0.088}_{-0.085}$	$H(0.61)$	$95.6^{+1.1}_{-0.82}$
$100\theta_{\text{MC}}$	$1.0413^{+0.0011}_{-0.0012}$	$z_{\text{re}}$	$< 9.73$	$D_M(0.61)$	$2287^{+44}_{-50}$
$\tau$	$0.056^{+0.021}_{-0.015}$	$10^9 A_s$	$2.092^{+0.096}_{-0.068}$	$H(2.33)$	$234.7^{+2.7}_{-2.4}$
$\ln(10^{10} A_s)$	$3.041^{+0.045}_{-0.033}$	$10^9 A_s e^{-2\tau}$	$1.870^{+0.033}_{-0.035}$	$D_M(2.33)$	$5752^{+38}_{-49}$
$n_s$	$0.972^{+0.014}_{-0.013}$	$D_{40}$	$1231^{+50}_{-42}$	$f\sigma_8(0.15)$	$0.444^{+0.027}_{-0.028}$
$r$	$< 0.170$	$D_{220}$	$5729^{+94}_{-110}$	$\sigma_8(0.15)$	$0.742^{+0.019}_{-0.018}$
$y_{\text{cal}}$	$1.0007^{+0.0061}_{-0.0061}$	$D_{810}$	$2535^{+34}_{-37}$	$f\sigma_8(0.38)$	$0.465^{+0.022}_{-0.023}$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20}$	$D_{1420}$	$817^{+12}_{-13}$	$\sigma_8(0.38)$	$0.660^{+0.016}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{2000}$	$230.7^{+4.4}_{-4.5}$	$f\sigma_8(0.51)$	$0.465^{+0.019}_{-0.020}$
$A_{143}^{\text{tSZ}}$	—	$n_{\text{s},0.002}$	$0.972^{+0.014}_{-0.013}$	$\sigma_8(0.51)$	$0.618^{+0.015}_{-0.013}$
$A_{100}^{\text{PS}}$	$260^{+70}_{-70}$	$Y_{\text{P}}$	$0.24539^{+0.00023}_{-0.00024}$	$f\sigma_8(0.61)$	$0.461^{+0.017}_{-0.018}$
$A_{143}^{\text{PS}}$	$47^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24672^{+0.00023}_{-0.00024}$	$\sigma_8(0.61)$	$0.588^{+0.014}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20}$	$10^5 \text{D/H}$	$2.59^{+0.10}_{-0.10}$	$f\sigma_8(2.33)$	$0.2971^{+0.0068}_{-0.0056}$
$A_{217}^{\text{PS}}$	$114^{+20}_{-30}$	Age/Gyr	$13.774^{+0.085}_{-0.11}$	$\sigma_8(2.33)$	$0.3069^{+0.0073}_{-0.0051}$
$A^{\text{kSZ}}$	—	$z_*$	$1089.67^{+0.92}_{-1.0}$	$r_{0.002}$	$< 0.166$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.6}_{-4.7}$	$r_*$	$145.19^{+0.87}_{-1.1}$	$r_{0.01}$	$< 0.168$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.4}_{-4.4}$	$100\theta_*$	$1.0415^{+0.0011}_{-0.0011}$	$\ln(10^{10} A_{\text{t}})$	$-0.5^{+2.2}_{-4.1}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.8}_{-9.6}$	$D_M(z_*)/\text{Gpc}$	$13.941^{+0.088}_{-0.10}$	$r_{10}$	$< 0.0852$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$z_{\text{drag}}$	$1059.7^{+1.0}_{-1.1}$	$10^9 A_{\text{t}}$	$< 0.355$
$c_{100}$	$0.9996^{+0.0016}_{-0.0015}$	$r_{\text{drag}}$	$147.9^{+1.0}_{-1.1}$	$10^9 A_{\text{t}} e^{-2\tau}$	$< 0.320$
$c_{217}$	$0.9983^{+0.0015}_{-0.0017}$	$k_{\text{D}}$	$0.1401^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	$30^{+7}_{-7}$
$H_0$	$68.5^{+2.3}_{-2.0}$	$100\theta_{\text{D}}$	$0.16091^{+0.00066}_{-0.00061}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$\Omega_{\Lambda}$	$0.701^{+0.026}_{-0.028}$	$z_{\text{eq}}$	$3333^{+100}_{-91}$	$f_{2000}^{217}$	$107.4^{+4.8}_{-4.8}$
$\Omega_{\text{m}}$	$0.299^{+0.028}_{-0.026}$	$k_{\text{eq}}$	$0.01017^{+0.00031}_{-0.00028}$	$\chi_{\text{simall}}^2$	$397.3 (\nu: 2.2)$
$\Omega_{\text{m}} h^2$	$0.1401^{+0.0043}_{-0.0038}$	$100\theta_{\text{eq}}$	$0.826^{+0.018}_{-0.020}$	$\chi_{\text{lowl}}^2$	$23.6 (\nu: 1.3)$
$\Omega_{\text{m}} h^3$	$0.0960^{+0.0011}_{-0.0011}$	$100\theta_{\text{s,eq}}$	$0.4561^{+0.0088}_{-0.010}$	$\chi_{\text{plik}}^2$	$774.9 (\nu: 18.9)$
$\sigma_8$	$0.802^{+0.022}_{-0.020}$	$H(0.15)$	$73.6^{+2.0}_{-1.7}$	$\chi_{\text{H073p45}}^2$	$9.1 (\nu: 3.9)$
$S_8$	$0.800^{+0.054}_{-0.055}$	$D_M(0.15)$	$634^{+17}_{-19}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.438^{+0.029}_{-0.030}$	$H(0.38)$	$83.5^{+1.6}_{-1.3}$	$\chi_{\text{CMB}}^2$	$1195.9 (\nu: 19.2)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.593^{+0.027}_{-0.028}$	$D_M(0.38)$	$1515^{+35}_{-39}$		
$\sigma_8/h^{0.5}$	$0.969^{+0.037}_{-0.040}$	$H(0.51)$	$90.1^{+1.3}_{-1.0}$		

$$\bar{\chi}_{\text{eff}}^2 = 1212.36; R - 1 = 0.06373$$



## 17.7 base\_r\_plikHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022376	$0.02236^{+0.00038}_{-0.00038}$ (+1.1 $\sigma$ )	$\sigma_8$	0.8119	$0.811^{+0.020}_{-0.019}$ (+0.1 $\sigma$ )	$D_M(0.15)$	643.6	$644^{+14}_{-13}$ (−0.4 $\sigma$ )
$\Omega_c h^2$	0.12007	$0.1200^{+0.0036}_{-0.0035}$ (−0.1 $\sigma$ )	$S_8$	0.8328	$0.832^{+0.042}_{-0.041}$ (−0.2 $\sigma$ )	$H(0.38)$	82.85	$82.85^{+0.99}_{-0.94}$ (+0.5 $\sigma$ )
$100\theta_{MC}$	1.04090	$1.04091^{+0.00080}_{-0.00079}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4562	$0.456^{+0.023}_{-0.023}$ (−0.2 $\sigma$ )	$D_M(0.38)$	1533.9	$1534^{+27}_{-27}$ (−0.4 $\sigma$ )
$\tau$	0.0543	$0.054^{+0.022}_{-0.020}$ (+0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6086	$0.608^{+0.021}_{-0.021}$ (−0.1 $\sigma$ )	$H(0.51)$	89.62	$89.61^{+0.77}_{-0.74}$ (+0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0449	$3.043^{+0.043}_{-0.041}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9895	$0.989^{+0.030}_{-0.030}$ (−0.1 $\sigma$ )	$D_M(0.51)$	1986.4	$1986^{+31}_{-31}$ (−0.4 $\sigma$ )
$n_s$	0.9661	$0.966^{+0.011}_{-0.011}$ (+0.3 $\sigma$ )	$r_{drag} h$	99.02	$99.0^{+2.7}_{-2.7}$ (+0.2 $\sigma$ )	$H(0.61)$	95.27	$95.27^{+0.62}_{-0.60}$ (+0.6 $\sigma$ )
$r$	0.000	< 0.155 (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.445	$2.443^{+0.074}_{-0.072}$ (−0.1 $\sigma$ )	$D_M(0.61)$	2310.9	$2311^{+33}_{-34}$ (−0.4 $\sigma$ )
$y_{cal}$	1.0006	$1.0007^{+0.0062}_{-0.0062}$ (+0.1 $\sigma$ )	$z_{re}$	7.68	$7.6^{+2.1}_{-2.1}$ (+0.2 $\sigma$ )	$H(2.33)$	236.61	$236.6^{+2.1}_{-2.1}$ (+0.0 $\sigma$ )
$A_{217}^{CIB}$	46.5	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.101	$2.098^{+0.092}_{-0.084}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5763.7	$5764^{+28}_{-28}$ (−0.7 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.55	—	$10^9 A_s e^{-2\tau}$	1.8845	$1.883^{+0.031}_{-0.029}$ (+0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4604	$0.460^{+0.021}_{-0.021}$ (−0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.14	$5.5^{+4.5}_{-4.6}$ (+0.2 $\sigma$ )	$D_{40}$	1229.2	$1244^{+50}_{-36}$ (+0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7499	$0.749^{+0.017}_{-0.017}$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	248	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5731	$5730^{+99}_{-96}$ (+0.5 $\sigma$ )	$f\sigma_8(0.38)$	0.4779	$0.477^{+0.017}_{-0.017}$ (−0.1 $\sigma$ )
$A_{143}^{PS}$	49.3	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2541.7	$2540^{+34}_{-33}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6643	$0.664^{+0.015}_{-0.014}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	50.7	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	818.5	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4760	$0.475^{+0.015}_{-0.015}$ (−0.1 $\sigma$ )
$A_{217}^{PS}$	121.1	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.34	$231.1^{+4.0}_{-3.9}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6215	$0.621^{+0.014}_{-0.013}$ (+0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9661	$0.966^{+0.011}_{-0.011}$ (+0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4707	$0.470^{+0.014}_{-0.014}$ (−0.0 $\sigma$ )
$A_{100}^{dustTT}$	8.86	$8.9^{+4.8}_{-4.7}$ (−0.0 $\sigma$ )	$Y_P$	0.245398	$0.24539^{+0.00014}_{-0.00016}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5912	$0.591^{+0.013}_{-0.012}$ (+0.2 $\sigma$ )
$A_{143}^{dustTT}$	10.99	$10.9^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246725	$0.24672^{+0.00014}_{-0.00016}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.2979	$0.2977^{+0.0067}_{-0.0062}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.0	$18.6^{+8.3}_{-8.7}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.584	$2.588^{+0.073}_{-0.068}$ (−1.1 $\sigma$ )	$\sigma_8(2.33)$	0.3070	$0.3067^{+0.0071}_{-0.0066}$ (+0.3 $\sigma$ )
$A_{217}^{dustTT}$	95.3	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.797	$13.799^{+0.063}_{-0.062}$ (−0.8 $\sigma$ )	$r_{0.002}$	0.000	< 0.149 (+0.1 $\sigma$ )
$A_{100}^{dustTE}$	0.115	$0.115^{+0.098}_{-0.096}$	$z_*$	1089.92	$1089.93^{+0.72}_{-0.69}$ (−0.8 $\sigma$ )	$r_{0.01}$	0.000	< 0.152 (+0.1 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.076}_{-0.076}$	$r_*$	144.41	$144.43^{+0.80}_{-0.78}$ (−0.2 $\sigma$ )	$\ln(10^{10} A_t)$	−6.12	$-0.6^{+2.1}_{-4.0}$ (+0.1 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.484	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	1.04109	$1.04109^{+0.00079}_{-0.00078}$ (+0.1 $\sigma$ )	$r_{10}$	0.0000	< 0.0770 (+0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.23^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.871	$13.873^{+0.074}_{-0.072}$ (−0.2 $\sigma$ )	$10^9 A_t$	0.000	< 0.324 (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.667	$0.67^{+0.21}_{-0.20}$	$z_{drag}$	1059.97	$1059.92^{+0.74}_{-0.78}$ (+1.2 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.000	< 0.291 (+0.1 $\sigma$ )
$A_{217}^{dustTE}$	2.09	$2.08^{+0.69}_{-0.69}$	$r_{drag}$	147.07	$147.10^{+0.78}_{-0.77}$ (−0.4 $\sigma$ )	$f_{2000}^{143}$	28.7	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14090	$0.14086^{+0.00083}_{-0.00083}$ (+0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.98	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160745	$0.16077^{+0.00045}_{-0.00043}$ (−1.2 $\sigma$ )	$f_{2000}^{217}$	106.60	$106.9^{+4.6}_{-4.6}$ (−0.6 $\sigma$ )
$H_0$	67.33	$67.3^{+1.6}_{-1.6}$ (+0.4 $\sigma$ )	$z_{eq}$	3404	$3403^{+81}_{-80}$ (−0.0 $\sigma$ )	$\chi_{small}^2$	396.05	$397.2 (\nu: 1.7)$ (+0.1 $\sigma$ )
$\Omega_\Lambda$	0.6844	$0.684^{+0.021}_{-0.023}$ (+0.3 $\sigma$ )	$k_{eq}$	0.010389	$0.01039^{+0.00025}_{-0.00024}$ (−0.0 $\sigma$ )	$\chi_{lowl}^2$	23.24	$24.8 (\nu: 1.3)$ (−0.1 $\sigma$ )
$\Omega_m$	0.3156	$0.316^{+0.023}_{-0.021}$ (−0.3 $\sigma$ )	$100\theta_{eq}$	0.8130	$0.813^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )	$\chi_{plik}^2$	2344.9	$2359.6 (\nu: 16.8)$ (+294.2 $\sigma$ )
$\Omega_m h^2$	0.14309	$0.1430^{+0.0034}_{-0.0033}$ (−0.0 $\sigma$ )	$100\theta_{s,eq}$	0.4492	$0.4494^{+0.0078}_{-0.0077}$ (+0.1 $\sigma$ )	$\chi_{prior}^2$	1.6	$11.6 (\nu: 10.2)$ (+1.1 $\sigma$ )
$\Omega_m h^3$	0.09634	$0.09631^{+0.00076}_{-0.00075}$ (+1.0 $\sigma$ )	$H(0.15)$	72.66	$72.7^{+1.3}_{-1.3}$ (+0.4 $\sigma$ )	$\chi_{CMB}^2$	2764.1	$2781.6 (\nu: 18.0)$ (+280.9 $\sigma$ )

Best-fit  $\chi_{eff}^2 = 2765.76$ ;  $\Delta\chi_{eff}^2 = 1586.15$ ;  $\bar{\chi}_{eff}^2 = 2793.18$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.15$ ;  $R - 1 = 0.00988$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.05 ( $\Delta$  0.02) commander\_dx12\_v3.2.29: 23.24 ( $\Delta$  -0.37) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.85



## 17.8 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022440	$0.02241^{+0.00035}_{-0.00035}$ (+1.0 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4518	$0.451^{+0.018}_{-0.018}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1979.1	$1979^{+23}_{-23}$ (−0.1 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11926	$0.1192^{+0.0026}_{-0.0026}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6051	$0.604^{+0.018}_{-0.017}$ (+0.3 $\sigma$ )	$H(0.61)$	95.406	$95.39^{+0.49}_{-0.48}$ (+0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04099	$1.04100^{+0.00075}_{-0.00075}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9852	$0.983^{+0.027}_{-0.025}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2303.0	$2303^{+25}_{-25}$ (−0.2 $\sigma$ )
$\tau$	0.0565	$0.055^{+0.022}_{-0.020}$ (+0.2 $\sigma$ )	$r_{\mathrm{drag}}h$	99.66	$99.7^{+2.0}_{-2.0}$ (−0.2 $\sigma$ )	$H(2.33)$	236.15	$236.1^{+1.6}_{-1.6}$ (+0.6 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0472	$3.044^{+0.044}_{-0.041}$ (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.435	$2.431^{+0.064}_{-0.062}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5757.9	$5759^{+23}_{-23}$ (−0.6 $\sigma$ )
$n_{\mathrm{s}}$	0.9680	$0.9677^{+0.0094}_{-0.0098}$ (+0.1 $\sigma$ )	$z_{\mathrm{re}}$	7.88	$7.7^{+2.1}_{-2.1}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4564	$0.456^{+0.017}_{-0.017}$ (+0.3 $\sigma$ )
$r$	0.000	< 0.156 (+0.1 $\sigma$ )	$10^9A_{\mathrm{s}}$	2.106	$2.099^{+0.094}_{-0.084}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7491	$0.748^{+0.017}_{-0.016}$ (+0.4 $\sigma$ )
$y_{\mathrm{cal}}$	1.0005	$1.0008^{+0.0062}_{-0.0062}$ (+0.1 $\sigma$ )	$10^9A_{\mathrm{s}}e^{-2\tau}$	1.8806	$1.880^{+0.028}_{-0.029}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4750	$0.474^{+0.015}_{-0.014}$ (+0.3 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	46.1	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{40}$	1225.2	$1241^{+49}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6642	$0.663^{+0.015}_{-0.014}$ (+0.4 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.63	—	$D_{220}$	5734	$5733^{+100}_{-93}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4737	$0.473^{+0.013}_{-0.013}$ (+0.3 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.12	$5.5^{+4.5}_{-4.6}$ (+0.2 $\sigma$ )	$D_{810}$	2540.4	$2540^{+33}_{-33}$ (+0.3 $\sigma$ )	$\sigma_8(0.51)$	0.6216	$0.620^{+0.014}_{-0.013}$ (+0.3 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	249	$258^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{1420}$	818.8	$818^{+12}_{-11}$ (+0.5 $\sigma$ )	$f\sigma_8(0.61)$	0.4688	$0.468^{+0.013}_{-0.012}$ (+0.3 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	49.9	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{2000}$	231.53	$231.3^{+3.9}_{-3.9}$ (+0.7 $\sigma$ )	$\sigma_8(0.61)$	0.5915	$0.590^{+0.013}_{-0.012}$ (+0.3 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	52.3	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9680	$0.9677^{+0.0094}_{-0.0098}$ (+0.1 $\sigma$ )	$f\sigma_8(2.33)$	0.2983	$0.2977^{+0.0069}_{-0.0060}$ (+0.3 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	121.3	$115^{+20}_{-30}$ (+0.0 $\sigma$ )	$Y_{\mathrm{P}}$	0.245422	$0.24541^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3075	$0.3070^{+0.0073}_{-0.0063}$ (+0.3 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246749	$0.24674^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$r_{0.002}$	0.000	< 0.150 (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.83	$8.9^{+4.8}_{-4.7}$ (−0.0 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.573	$2.578^{+0.067}_{-0.063}$ (−1.0 $\sigma$ )	$r_{0.01}$	0.000	< 0.154 (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.02	$10.9^{+4.4}_{-4.7}$ (+0.1 $\sigma$ )	Age/Gyr	13.785	$13.787^{+0.052}_{-0.051}$ (−0.7 $\sigma$ )	$\ln(10^{10}A_{\mathrm{t}})$	−6.22	$−0.5^{+2.0}_{-4.1}$ (+0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	20.1	$18.6^{+8.3}_{-9.0}$ (+0.1 $\sigma$ )	$z_*$	1089.77	$1089.80^{+0.57}_{-0.57}$ (−0.7 $\sigma$ )	$r_{10}$	0.0000	< 0.0778 (+0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.4	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$r_*$	144.57	$144.60^{+0.61}_{-0.61}$ (−0.8 $\sigma$ )	$10^9A_{\mathrm{t}}$	0.000	< 0.328 (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.115	$0.115^{+0.096}_{-0.097}$	$100\theta_*$	1.04118	$1.04118^{+0.00074}_{-0.00075}$ (−0.1 $\sigma$ )	$10^9A_{\mathrm{t}}e^{-2\tau}$	0.000	< 0.293 (+0.1 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	0.135	$0.136^{+0.075}_{-0.077}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.885	$13.888^{+0.059}_{-0.058}$ (−0.8 $\sigma$ )	$f_{2000}^{143}$	28.5	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	0.480	$0.48^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	1060.05	$1059.98^{+0.75}_{-0.74}$ (+1.1 $\sigma$ )	$f_{2000}^{143\times 217}$	31.78	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.224	$0.23^{+0.14}_{-0.13}$	$r_{\mathrm{drag}}$	147.21	$147.25^{+0.64}_{-0.63}$ (−0.9 $\sigma$ )	$f_{2000}^{217}$	106.28	$106.8^{+4.5}_{-4.4}$ (−0.5 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	0.662	$0.66^{+0.21}_{-0.21}$	$k_{\mathrm{D}}$	0.14079	$0.14073^{+0.00075}_{-0.00075}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396	$1323 (\nu: 479840.6)$ (+523.9 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.08	$2.08^{+0.69}_{-0.68}$	$100\theta_{\mathrm{D}}$	0.160698	$0.16074^{+0.00045}_{-0.00042}$ (−1.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	22.92	$24.5 (\nu: 1.2)$ (+0.1 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\mathrm{eq}}$	3386	$3385^{+59}_{-59}$ (+0.5 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2345	$1435 (\nu: 479779.1)$ (+121.1 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0015}$ (−0.1 $\sigma$ )	$k_{\mathrm{eq}}$	0.010335	$0.01033^{+0.00018}_{-0.00018}$ (+0.5 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.029	$0.052 (\nu: 0.0)$ (−0.0 $\sigma$ )
$H_0$	67.70	$67.7^{+1.1}_{-1.1}$ (+0.0 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8164	$0.817^{+0.011}_{-0.011}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	1.22	$1.29 (\nu: 0.1)$ (−0.2 $\sigma$ )
$\Omega_{\Lambda}$	0.6894	$0.689^{+0.015}_{-0.016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4510	$0.4511^{+0.0058}_{-0.0056}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	4.42	$4.8 (\nu: 0.9)$ (+0.1 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3106	$0.311^{+0.016}_{-0.015}$ (+0.1 $\sigma$ )	$H(0.15)$	72.97	$72.97^{+0.99}_{-0.98}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.6	$11.5 (\nu: 10.2)$ (+1.1 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.14234	$0.1423^{+0.0025}_{-0.0025}$ (+0.5 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	640.5	$640.5^{+9.9}_{-9.7}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	5.67	$6.1 (\nu: 0.6)$ (+0.0 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	0.09636	$0.09631^{+0.00077}_{-0.00075}$ (+1.0 $\sigma$ )	$H(0.38)$	83.08	$83.07^{+0.74}_{-0.72}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2764.7	$2781.6 (\nu: 17.4)$ (+278.6 $\sigma$ )
$\sigma_8$	0.8106	$0.809^{+0.019}_{-0.017}$ (+0.4 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1527.7	$1528^{+20}_{-20}$ (−0.1 $\sigma$ )			
$S_8$	0.8248	$0.823^{+0.033}_{-0.032}$ (+0.3 $\sigma$ )	$H(0.51)$	89.79	$89.78^{+0.61}_{-0.58}$ (+0.3 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2771.96$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1586.17$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2799.17$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.88$ ;  $R - 1 = 0.01744$

$\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.03 ( $\Delta$  0.01) MGS: 1.22 ( $\Delta$  -0.06) DR12BAO: 4.42 ( $\Delta$  0.21) CMB - small\_100x143\_offlike5\_EE\_Aplanck.B: 396.48 ( $\Delta$  0.60) commander\_dx12\_v3\_2\_29: 22.92 ( $\Delta$  0.13) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.31



# 17.9 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022506	$0.02248^{+0.00035}_{-0.00037}$ (+0.6 $\sigma$ )	$\sigma_8$	0.8085	$0.807^{+0.019}_{-0.020}$ (+0.7 $\sigma$ )	$D_M(0.15)$	637.7	$638^{+12}_{-12}$ (+0.6 $\sigma$ )
$\Omega_c h^2$	0.11860	$0.1185^{+0.0033}_{-0.0032}$ (+0.8 $\sigma$ )	$S_8$	0.8170	$0.815^{+0.039}_{-0.043}$ (+0.8 $\sigma$ )	$H(0.38)$	83.29	$83.29^{+0.91}_{-0.91}$ (−0.4 $\sigma$ )
$100\theta_{MC}$	1.04111	$1.04110^{+0.00073}_{-0.00076}$ (−0.4 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4475	$0.446^{+0.022}_{-0.023}$ (+0.8 $\sigma$ )	$D_M(0.38)$	1522.1	$1522^{+25}_{-24}$ (+0.5 $\sigma$ )
$\tau$	0.0570	$0.056^{+0.022}_{-0.019}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6015	$0.600^{+0.021}_{-0.024}$ (+0.8 $\sigma$ )	$H(0.51)$	89.96	$89.96^{+0.73}_{-0.72}$ (−0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0466	$3.045^{+0.044}_{-0.040}$ (+0.4 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9803	$0.979^{+0.030}_{-0.033}$ (+0.7 $\sigma$ )	$D_M(0.51)$	1972.5	$1972^{+29}_{-28}$ (+0.5 $\sigma$ )
$n_s$	0.9699	$0.970^{+0.010}_{-0.011}$ (−0.4 $\sigma$ )	$r_{drag} h$	100.21	$100.3^{+2.6}_{-2.6}$ (−0.7 $\sigma$ )	$H(0.61)$	95.54	$95.53^{+0.60}_{-0.58}$ (−0.2 $\sigma$ )
$r$	0.001	< 0.161 (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.423	$2.420^{+0.071}_{-0.080}$ (+0.7 $\sigma$ )	$D_M(0.61)$	2295.9	$2296^{+31}_{-31}$ (+0.5 $\sigma$ )
$y_{cal}$	1.0005	$1.0008^{+0.0061}_{-0.0062}$ (+0.0 $\sigma$ )	$z_{re}$	7.90	$7.8^{+2.1}_{-2.0}$ (+0.1 $\sigma$ )	$H(2.33)$	235.79	$235.7^{+2.0}_{-2.0}$ (+0.9 $\sigma$ )
$A_{217}^{CIB}$	46.1	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.104	$2.100^{+0.094}_{-0.082}$ (+0.4 $\sigma$ )	$D_M(2.33)$	5752.1	$5753^{+26}_{-26}$ (+0.0 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.59	—	$10^9 A_s e^{-2\tau}$	1.8777	$1.877^{+0.030}_{-0.030}$ (+0.6 $\sigma$ )	$f\sigma_8(0.15)$	0.4525	$0.451^{+0.020}_{-0.022}$ (+0.8 $\sigma$ )
$A_{143}^{tSZ}$	7.16	> 1.04 (+0.2 $\sigma$ )	$D_{40}$	1221.4	$1238^{+51}_{-40}$ (+0.4 $\sigma$ )	$\sigma_8(0.15)$	0.7476	$0.746^{+0.017}_{-0.017}$ (+0.6 $\sigma$ )
$A_{100}^{PS}$	247	$257^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{220}$	5737	$5738^{+98}_{-92}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4719	$0.471^{+0.017}_{-0.020}$ (+0.8 $\sigma$ )
$A_{143}^{PS}$	48.3	$45^{+20}_{-20}$ (−0.3 $\sigma$ )	$D_{810}$	2540.3	$2539^{+33}_{-33}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6633	$0.662^{+0.015}_{-0.014}$ (+0.5 $\sigma$ )
$A_{143 \times 217}^{PS}$	50.5	$42^{+20}_{-20}$ (−0.0 $\sigma$ )	$D_{1420}$	819.5	$819^{+12}_{-11}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4711	$0.470^{+0.015}_{-0.017}$ (+0.7 $\sigma$ )
$A_{217}^{PS}$	120.6	$115^{+30}_{-20}$ (+0.1 $\sigma$ )	$D_{2000}$	231.83	$231.6^{+3.7}_{-3.9}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6210	$0.620^{+0.014}_{-0.013}$ (+0.5 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9699	$0.970^{+0.010}_{-0.011}$ (−0.4 $\sigma$ )	$f\sigma_8(0.61)$	0.4666	$0.466^{+0.014}_{-0.015}$ (+0.7 $\sigma$ )
$A_{100}^{dustTT}$	8.87	$8.8^{+4.9}_{-4.8}$ (−0.1 $\sigma$ )	$Y_P$	0.245447	$0.24544^{+0.00013}_{-0.00015}$ (+0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5910	$0.590^{+0.014}_{-0.012}$ (+0.5 $\sigma$ )
$A_{143}^{dustTT}$	10.99	$10.9^{+4.4}_{-4.8}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246773	$0.24676^{+0.00013}_{-0.00015}$ (+0.6 $\sigma$ )	$f\sigma_8(2.33)$	0.2982	$0.2978^{+0.0071}_{-0.0059}$ (+0.4 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.0	$18.6^{+8.2}_{-8.9}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.561	$2.565^{+0.068}_{-0.062}$ (−0.6 $\sigma$ )	$\sigma_8(2.33)$	0.3077	$0.3073^{+0.0074}_{-0.0061}$ (+0.3 $\sigma$ )
$A_{217}^{dustTT}$	95.3	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.772	$13.774^{+0.059}_{-0.057}$ (−0.0 $\sigma$ )	$r_{0.002}$	0.000	< 0.155 (+0.0 $\sigma$ )
$A_{100}^{dustTE}$	0.112	$0.115^{+0.093}_{-0.098}$	$z_*$	1089.63	$1089.64^{+0.67}_{-0.65}$ (−0.1 $\sigma$ )	$r_{0.01}$	0.000	< 0.158 (+0.0 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.074}_{-0.079}$	$r_*$	144.69	$144.74^{+0.71}_{-0.75}$ (−1.1 $\sigma$ )	$\ln(10^{10} A_t)$	−4.52	$-0.5^{+2.1}_{-4.1}$ (+0.0 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.479	$0.48^{+0.21}_{-0.21}$	$100\theta_*$	1.04128	$1.04127^{+0.00073}_{-0.00075}$ (−0.4 $\sigma$ )	$r_{10}$	0.0002	< 0.0802 (+0.0 $\sigma$ )
$A_{143}^{dustTE}$	0.224	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.895	$13.900^{+0.068}_{-0.070}$ (−1.0 $\sigma$ )	$10^9 A_t$	0.001	< 0.337 (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.663	$0.66^{+0.21}_{-0.21}$	$z_{drag}$	1060.16	$1060.09^{+0.80}_{-0.77}$ (+0.8 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.001	< 0.303 (+0.0 $\sigma$ )
$A_{217}^{dustTE}$	2.06	$2.06^{+0.68}_{-0.66}$	$r_{drag}$	147.31	$147.37^{+0.70}_{-0.74}$ (−1.2 $\sigma$ )	$\chi_{simall}^2$	396	1327 ( $\nu$ : 480602.9) (+448.8 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14074	$0.14066^{+0.00081}_{-0.00078}$ (+1.3 $\sigma$ )	$\chi_{lowl}^2$	22.59	24.2 ( $\nu$ : 1.2) (+0.4 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0015}$ (−0.2 $\sigma$ )	$100\theta_D$	0.160647	$0.16068^{+0.00044}_{-0.00042}$ (−0.9 $\sigma$ )	$\chi_{plik}^2$	2346	1431 ( $\nu$ : 480721.2) (+106.5 $\sigma$ )
$H_0$	68.02	$68.0^{+1.5}_{-1.5}$ (−0.6 $\sigma$ )	$z_{eq}$	3372	$3368^{+75}_{-73}$ (+0.9 $\sigma$ )	$\chi_{H073p45}^2$	10.7	10.7 ( $\nu$ : 2.5) (+0.6 $\sigma$ )
$\Omega_\Lambda$	0.6937	$0.694^{+0.019}_{-0.020}$ (−0.7 $\sigma$ )	$k_{eq}$	0.010291	$0.01028^{+0.00023}_{-0.00022}$ (+0.9 $\sigma$ )	$\chi_{prior}^2$	1.7	11.5 ( $\nu$ : 10.3) (+1.1 $\sigma$ )
$\Omega_m$	0.3063	$0.306^{+0.020}_{-0.019}$ (+0.7 $\sigma$ )	$100\theta_{eq}$	0.8193	$0.820^{+0.014}_{-0.014}$ (−0.8 $\sigma$ )	$\chi_{CMB}^2$	2765.6	2782.9 ( $\nu$ : 19.8) (+254.4 $\sigma$ )
$\Omega_m h^2$	0.14175	$0.1416^{+0.0031}_{-0.0031}$ (+0.9 $\sigma$ )	$100\theta_{s,eq}$	0.4524	$0.4527^{+0.0073}_{-0.0072}$ (−0.9 $\sigma$ )			
$\Omega_m h^3$	0.09642	$0.09635^{+0.00079}_{-0.00074}$ (+0.8 $\sigma$ )	$H(0.15)$	73.26	$73.3^{+1.3}_{-1.2}$ (−0.5 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 2777.94$ ;  $\Delta\chi_{eff}^2 = 1586.34$ ;  $\bar{\chi}_{eff}^2 = 2805.11$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.51$ ;  $R - 1 = 0.02628$   
 $\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.48 ( $\Delta$  0.24) commander\_dx12\_v3.2.29: 22.59 ( $\Delta$  0.51) plik\_rd12\_HM\_v22b\_TTTEEE: 2346.48 Hubble - H073p45: 10.68 ( $\Delta$  1.57)



17.10 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02236^{+0.00038}_{-0.00039} \quad (+1.1\sigma)$	$\sigma_8$	$0.812^{+0.019}_{-0.017} \quad (+0.0\sigma)$	$D_M(0.15)$	$643^{+13}_{-13} \quad (-0.3\sigma)$
$\Omega_c h^2$	$0.1200^{+0.0035}_{-0.0035} \quad (-0.1\sigma)$	$S_8$	$0.832^{+0.042}_{-0.041} \quad (-0.2\sigma)$	$H(0.38)$	$82.86^{+0.98}_{-0.94} \quad (+0.4\sigma)$
$100\theta_{MC}$	$1.04091^{+0.00080}_{-0.00078} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.456^{+0.023}_{-0.023} \quad (-0.2\sigma)$	$D_M(0.38)$	$1534^{+26}_{-26} \quad (-0.4\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.608^{+0.021}_{-0.021} \quad (-0.1\sigma)$	$H(0.51)$	$89.62^{+0.77}_{-0.74} \quad (+0.5\sigma)$
$\ln(10^{10} A_s)$	$3.046^{+0.042}_{-0.029} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.030}_{-0.030} \quad (-0.1\sigma)$	$D_M(0.51)$	$1986^{+31}_{-31} \quad (-0.4\sigma)$
$n_s$	$0.966^{+0.011}_{-0.011} \quad (+0.3\sigma)$	$r_{drag} h$	$99.1^{+2.7}_{-2.7} \quad (+0.2\sigma)$	$H(0.61)$	$95.27^{+0.61}_{-0.59} \quad (+0.6\sigma)$
$r$	$< 0.155 \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.445^{+0.073}_{-0.068} \quad (-0.1\sigma)$	$D_M(0.61)$	$2311^{+33}_{-33} \quad (-0.4\sigma)$
$y_{cal}$	$1.0007^{+0.0062}_{-0.0061} \quad (+0.1\sigma)$	$z_{re}$	$< 9.53 \quad (+0.1\sigma)$	$H(2.33)$	$236.5^{+2.1}_{-2.1} \quad (+0.1\sigma)$
$A_{217}^{CIB}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s$	$2.102^{+0.089}_{-0.061} \quad (+0.2\sigma)$	$D_M(2.33)$	$5764^{+28}_{-28} \quad (-0.7\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s e^{-2\tau}$	$1.883^{+0.031}_{-0.030} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.021}_{-0.021} \quad (-0.1\sigma)$
$A_{143}^{tSZ}$	$5.5^{+4.5}_{-4.6} \quad (+0.2\sigma)$	$D_{40}$	$1244^{+50}_{-36} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.750^{+0.017}_{-0.014} \quad (+0.1\sigma)$
$A_{100}^{PS}$	$258^{+70}_{-70} \quad (-0.1\sigma)$	$D_{220}$	$5730^{+99}_{-96} \quad (+0.5\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.017}_{-0.017} \quad (-0.1\sigma)$
$A_{143}^{PS}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2540^{+35}_{-33} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.015}_{-0.011} \quad (+0.1\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.476^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$A_{217}^{PS}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.1^{+4.0}_{-3.9} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.013}_{-0.010} \quad (+0.2\sigma)$
$A^{kSZ}$	—	$n_{s,0.002}$	$0.966^{+0.011}_{-0.011} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.471^{+0.014}_{-0.014} \quad (-0.1\sigma)$
$A_{100}^{dustTT}$	$8.9^{+4.8}_{-4.7} \quad (-0.0\sigma)$	$Y_P$	$0.24539^{+0.00014}_{-0.00016} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.013}_{-0.0094} \quad (+0.2\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.5}_{-4.5} \quad (+0.1\sigma)$	$Y_P^{BBN}$	$0.24672^{+0.00014}_{-0.00016} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0065}_{-0.0046} \quad (+0.2\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.6^{+8.3}_{-8.7} \quad (+0.1\sigma)$	$10^5 D/H$	$2.587^{+0.073}_{-0.068} \quad (-1.1\sigma)$	$\sigma_8(2.33)$	$0.3070^{+0.0069}_{-0.0046} \quad (+0.3\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	Age/Gyr	$13.798^{+0.062}_{-0.061} \quad (-0.7\sigma)$	$r_{0.002}$	$< 0.149 \quad (+0.1\sigma)$
$A_{100}^{dustTE}$	$0.115^{+0.098}_{-0.095}$	$z_*$	$1089.93^{+0.72}_{-0.69} \quad (-0.8\sigma)$	$r_{0.01}$	$< 0.152 \quad (+0.1\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.076}_{-0.076}$	$r_*$	$144.44^{+0.80}_{-0.76} \quad (-0.2\sigma)$	$\ln(10^{10} A_t)$	$-0.6^{+2.1}_{-4.0} \quad (+0.1\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	$1.04110^{+0.00079}_{-0.00077} \quad (+0.1\sigma)$	$r_{10}$	$< 0.0770 \quad (+0.1\sigma)$
$A_{143}^{dustTE}$	$0.23^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	$13.874^{+0.074}_{-0.071} \quad (-0.3\sigma)$	$10^9 A_t$	$< 0.326 \quad (+0.1\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.67^{+0.21}_{-0.20}$	$z_{drag}$	$1059.92^{+0.77}_{-0.79} \quad (+1.2\sigma)$	$10^9 A_t e^{-2\tau}$	$< 0.291 \quad (+0.1\sigma)$
$A_{217}^{dustTE}$	$2.08^{+0.70}_{-0.69}$	$r_{drag}$	$147.10^{+0.78}_{-0.76} \quad (-0.4\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_D$	$0.14085^{+0.00083}_{-0.00083} \quad (+0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_D$	$0.16077^{+0.00045}_{-0.00043} \quad (-1.2\sigma)$	$f_{2000}^{217}$	$106.9^{+4.6}_{-4.6} \quad (-0.6\sigma)$
$H_0$	$67.4^{+1.5}_{-1.5} \quad (+0.3\sigma)$	$z_{eq}$	$3402^{+80}_{-80} \quad (-0.0\sigma)$	$\chi_{small}^2$	$397.2 \quad (\nu: 1.8) \quad (+0.1\sigma)$
$\Omega_\Lambda$	$0.685^{+0.021}_{-0.022} \quad (+0.2\sigma)$	$k_{eq}$	$0.01038^{+0.00024}_{-0.00024} \quad (-0.0\sigma)$	$\chi_{lowl}^2$	$24.8 \quad (\nu: 1.3) \quad (-0.1\sigma)$
$\Omega_m$	$0.315^{+0.022}_{-0.021} \quad (-0.2\sigma)$	$100\theta_{eq}$	$0.813^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$\chi_{plik}^2$	$2359.4 \quad (\nu: 16.6) \quad (+295.5\sigma)$
$\Omega_m h^2$	$0.1430^{+0.0033}_{-0.0033} \quad (-0.0\sigma)$	$100\theta_{s,eq}$	$0.4494^{+0.0078}_{-0.0075} \quad (+0.0\sigma)$	$\chi_{prior}^2$	$11.5 \quad (\nu: 10.2) \quad (+1.1\sigma)$
$\Omega_m h^3$	$0.09631^{+0.00076}_{-0.00074} \quad (+1.0\sigma)$	$H(0.15)$	$72.7^{+1.3}_{-1.3} \quad (+0.4\sigma)$	$\chi_{CMB}^2$	$2781.4 \quad (\nu: 17.7) \quad (+284.4\sigma)$

$$\bar{\chi}_{eff}^2 = 2792.94; \Delta \bar{\chi}_{eff}^2 = 1592.20; R - 1 = 0.01114$$



17.11 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02242^{+0.00035}_{-0.00035} \quad (+1.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.018}_{-0.017} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.51)$	$1979^{+23}_{-23} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1192^{+0.0026}_{-0.0026} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.018}_{-0.017} \quad (+0.3\sigma)$	$H(0.61)$	$95.40^{+0.48}_{-0.48} \quad (+0.5\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04101^{+0.00076}_{-0.00076} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.026}_{-0.024} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2303^{+25}_{-25} \quad (-0.2\sigma)$
$\tau$	$0.056^{+0.020}_{-0.014} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$99.7^{+2.0}_{-2.0} \quad (-0.2\sigma)$	$H(2.33)$	$236.1^{+1.6}_{-1.6} \quad (+0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.043}_{-0.030} \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.063}_{-0.058} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5759^{+23}_{-23} \quad (-0.6\sigma)$
$n_{\mathrm{s}}$	$0.9678^{+0.0092}_{-0.0098} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.59 \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.017}_{-0.016} \quad (+0.3\sigma)$
$r$	$< 0.157 \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.092}_{-0.062} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.016}_{-0.013} \quad (+0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0008^{+0.0062}_{-0.0060} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.880^{+0.029}_{-0.028} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.014}_{-0.014} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$D_{40}$	$1241^{+49}_{-34} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.014}_{-0.011} \quad (+0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{220}$	$5733^{+99}_{-92} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.013}_{-0.012} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.5}_{-4.6} \quad (+0.2\sigma)$	$D_{810}$	$2540^{+34}_{-33} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.013}_{-0.010} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-11} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.012}_{-0.011} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.3\sigma)$	$D_{2000}$	$231.3^{+3.9}_{-3.8} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.013}_{-0.0096} \quad (+0.3\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.9678^{+0.0092}_{-0.0098} \quad (+0.1\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0066}_{-0.0047} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00014} \quad (+1.0\sigma)$	$\sigma_8(2.33)$	$0.3073^{+0.0064}_{-0.0051} \quad (+0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00013}_{-0.00014} \quad (+1.0\sigma)$	$r_{0.002}$	$< 0.152 \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.7} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.577^{+0.066}_{-0.062} \quad (-1.0\sigma)$	$r_{0.01}$	$< 0.154 \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.4}_{-4.7} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.787^{+0.052}_{-0.052} \quad (-0.7\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.5^{+2.1}_{-4.1} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.3}_{-9.0} \quad (+0.1\sigma)$	$z_*$	$1089.79^{+0.57}_{-0.57} \quad (-0.7\sigma)$	$r_{10}$	$< 0.0780 \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$r_*$	$144.60^{+0.61}_{-0.61} \quad (-0.8\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.328 \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.116^{+0.096}_{-0.095}$	$100\theta_*$	$1.04119^{+0.00074}_{-0.00075} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.297 \quad (+0.1\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.136^{+0.074}_{-0.077}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.888^{+0.059}_{-0.058} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.99^{+0.75}_{-0.74} \quad (+1.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.23^{+0.14}_{-0.14}$	$r_{\mathrm{drag}}$	$147.25^{+0.64}_{-0.63} \quad (-0.9\sigma)$	$f_{2000}^{217}$	$106.8^{+4.5}_{-4.4} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.20}$	$k_{\mathrm{D}}$	$0.14073^{+0.00075}_{-0.00075} \quad (+1.1\sigma)$	$\chi_{\mathrm{small}}^2$	$1323 \quad (\nu: 479776.2) \quad (+517.3\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.69}_{-0.68}$	$100\theta_{\mathrm{D}}$	$0.16073^{+0.00044}_{-0.00042} \quad (-1.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.5 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3384^{+59}_{-60} \quad (+0.5\sigma)$	$\chi_{\mathrm{plik}}^2$	$1434 \quad (\nu: 479709.9) \quad (+122.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01033^{+0.00018}_{-0.00018} \quad (+0.5\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.051 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$H_0$	$67.7^{+1.1}_{-1.1} \quad (+0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.011}_{-0.011} \quad (-0.4\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.30 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.015}_{-0.016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4512^{+0.0058}_{-0.0057} \quad (-0.4\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.015} \quad (+0.1\sigma)$	$H(0.15)$	$72.98^{+0.99}_{-0.98} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.2) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1423^{+0.0025}_{-0.0025} \quad (+0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	$640.4^{+9.9}_{-9.6} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.1 \quad (\nu: 0.6) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09631^{+0.00076}_{-0.00074} \quad (+1.0\sigma)$	$H(0.38)$	$83.07^{+0.74}_{-0.72} \quad (+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2781.4 \quad (\nu: 17.2) \quad (+282.0\sigma)$
$\sigma_8$	$0.810^{+0.018}_{-0.015} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1528^{+20}_{-19} \quad (-0.1\sigma)$		
$S_8$	$0.824^{+0.033}_{-0.031} \quad (+0.3\sigma)$	$H(0.51)$	$89.78^{+0.60}_{-0.58} \quad (+0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2798.95; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.95; R - 1 = 0.02065$$



17.12 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02249^{+0.00035}_{-0.00036} \quad (+0.5\sigma)$	$S_8$	$0.815^{+0.039}_{-0.042} \quad (+0.8\sigma)$	$D_{\mathrm{M}}(0.38)$	$1522^{+25}_{-24} \quad (+0.5\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1185^{+0.0033}_{-0.0032} \quad (+0.8\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.022}_{-0.023} \quad (+0.8\sigma)$	$H(0.51)$	$89.96^{+0.73}_{-0.72} \quad (-0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04110^{+0.00073}_{-0.00076} \quad (-0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.021}_{-0.023} \quad (+0.7\sigma)$	$D_{\mathrm{M}}(0.51)$	$1972^{+29}_{-28} \quad (+0.5\sigma)$
$\tau$	$0.057^{+0.020}_{-0.015} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.979^{+0.029}_{-0.034} \quad (+0.7\sigma)$	$H(0.61)$	$95.54^{+0.59}_{-0.57} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.043}_{-0.032} \quad (+0.3\sigma)$	$r_{\mathrm{drag}}h$	$100.3^{+2.6}_{-2.6} \quad (-0.7\sigma)$	$D_{\mathrm{M}}(0.61)$	$2295^{+31}_{-30} \quad (+0.5\sigma)$
$n_{\mathrm{s}}$	$0.970^{+0.010}_{-0.011} \quad (-0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.422^{+0.070}_{-0.082} \quad (+0.7\sigma)$	$H(2.33)$	$235.7^{+2.0}_{-1.9} \quad (+1.0\sigma)$
$r$	$< 0.161 \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.65 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5753^{+26}_{-26} \quad (+0.0\sigma)$
$y_{\mathrm{cal}}$	$1.0008^{+0.0061}_{-0.0062} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.092}_{-0.066} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.452^{+0.020}_{-0.022} \quad (+0.8\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.877^{+0.030}_{-0.029} \quad (+0.6\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.017}_{-0.016} \quad (+0.6\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{40}$	$1238^{+50}_{-40} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.471^{+0.017}_{-0.019} \quad (+0.8\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.04 \quad (+0.2\sigma)$	$D_{220}$	$5738^{+97}_{-92} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.015}_{-0.013} \quad (+0.5\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.1\sigma)$	$D_{810}$	$2539^{+33}_{-33} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.470^{+0.015}_{-0.017} \quad (+0.7\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.3\sigma)$	$D_{1420}$	$819^{+12}_{-11} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.014}_{-0.011} \quad (+0.5\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.0\sigma)$	$D_{2000}$	$231.6^{+3.7}_{-3.8} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.016} \quad (+0.7\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-20} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.970^{+0.010}_{-0.011} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.013}_{-0.010} \quad (+0.5\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24544^{+0.00013}_{-0.00014} \quad (+0.5\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0069}_{-0.0049} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.8^{+4.9}_{-4.8} \quad (-0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24676^{+0.00013}_{-0.00015} \quad (+0.5\sigma)$	$\sigma_8(2.33)$	$0.3075^{+0.0071}_{-0.0050} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.3}_{-4.8} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.565^{+0.068}_{-0.062} \quad (-0.6\sigma)$	$r_{0.002}$	$< 0.156 \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.1}_{-8.9} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.774^{+0.059}_{-0.057} \quad (-0.0\sigma)$	$r_{0.01}$	$< 0.158 \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$z_*$	$1089.64^{+0.66}_{-0.65} \quad (-0.1\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.5^{+2.1}_{-4.1} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.093}_{-0.097}$	$r_*$	$144.75^{+0.71}_{-0.75} \quad (-1.1\sigma)$	$r_{10}$	$< 0.0802 \quad (+0.0\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.074}_{-0.079}$	$100\theta_*$	$1.04127^{+0.00073}_{-0.00075} \quad (-0.4\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.340 \quad (+0.0\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.901^{+0.068}_{-0.070} \quad (-1.1\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.303 \quad (+0.0\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1060.09^{+0.80}_{-0.73} \quad (+0.8\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$r_{\mathrm{drag}}$	$147.37^{+0.69}_{-0.75} \quad (-1.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-4} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.06^{+0.68}_{-0.66}$	$k_{\mathrm{D}}$	$0.14065^{+0.00082}_{-0.00078} \quad (+1.3\sigma)$	$f_{2000}^{217}$	$106.5^{+4.5}_{-4.2} \quad (-0.4\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16068^{+0.00044}_{-0.00043} \quad (-0.9\sigma)$	$\chi_{\mathrm{small}}^2$	$1329 \quad (\nu: 480628.4) \quad (+442.6\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015} \quad (-0.2\sigma)$	$z_{\mathrm{eq}}$	$3368^{+75}_{-73} \quad (+0.9\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.2 \quad (\nu: 1.2) \quad (+0.4\sigma)$
$H_0$	$68.1^{+1.5}_{-1.5} \quad (-0.6\sigma)$	$k_{\mathrm{eq}}$	$0.01028^{+0.00023}_{-0.00022} \quad (+0.9\sigma)$	$\chi_{\mathrm{plik}}^2$	$1430 \quad (\nu: 480704.3) \quad (+106.5\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.019}_{-0.020} \quad (-0.7\sigma)$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.014}_{-0.014} \quad (-0.8\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$10.7 \quad (\nu: 2.5) \quad (+0.6\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.020}_{-0.019} \quad (+0.7\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4528^{+0.0073}_{-0.0073} \quad (-0.9\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.3) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1416^{+0.0031}_{-0.0030} \quad (+0.9\sigma)$	$H(0.15)$	$73.3^{+1.2}_{-1.2} \quad (-0.5\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2782.7 \quad (\nu: 19.4) \quad (+256.3\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09635^{+0.00079}_{-0.00074} \quad (+0.8\sigma)$	$D_{\mathrm{M}}(0.15)$	$637^{+12}_{-12} \quad (+0.6\sigma)$		
$\sigma_8$	$0.808^{+0.019}_{-0.019} \quad (+0.7\sigma)$	$H(0.38)$	$83.30^{+0.90}_{-0.91} \quad (-0.5\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2804.92; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.56; R - 1 = 0.02655$$



### 17.13 base\_r\_CamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02215	$0.02214^{+0.00059}_{-0.00056}$	$\sigma_8/h^{0.5}$	0.9893	$0.989^{+0.042}_{-0.042}$	$H(0.51)$	89.44	$89.4^{+1.3}_{-1.1}$
$\Omega_c h^2$	0.1201	$0.1201^{+0.0056}_{-0.0055}$	$r_{\text{drag}} h$	98.89	$98.9^{+4.4}_{-4.2}$	$D_M(0.51)$	1991.4	$1992^{+49}_{-50}$
$100\theta_{\text{MC}}$	1.04090	$1.0409^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	2.443	$2.44^{+0.10}_{-0.099}$	$H(0.61)$	95.09	$95.1^{+1.0}_{-0.88}$
$\tau$	0.0527	$0.052^{+0.022}_{-0.022}$	$z_{\text{re}}$	7.56	$7.5^{+2.1}_{-2.4}$	$D_M(0.61)$	2317	$2317^{+52}_{-54}$
$\ln(10^{10} A_s)$	3.0397	$3.038^{+0.043}_{-0.045}$	$10^9 A_s$	2.090	$2.086^{+0.092}_{-0.092}$	$H(2.33)$	236.40	$236.4^{+3.4}_{-3.3}$
$n_s$	0.9648	$0.965^{+0.015}_{-0.015}$	$10^9 A_s e^{-2\tau}$	1.8810	$1.880^{+0.037}_{-0.035}$	$D_M(2.33)$	5773.7	$5774^{+42}_{-45}$
$r$	0.000	$< 0.156$	$D_{40}$	1227.6	$1240^{+52}_{-44}$	$f\sigma_8(0.15)$	0.4606	$0.460^{+0.032}_{-0.031}$
$y_{\text{cal}}$	1.0007	$1.0005^{+0.0065}_{-0.0064}$	$D_{220}$	5706	$5700^{+110}_{-110}$	$\sigma_8(0.15)$	0.7484	$0.748^{+0.019}_{-0.020}$
$A_{100}^{\text{PS}}$	240	$242^{+60}_{-60}$	$D_{810}$	2535.5	$2534^{+36}_{-35}$	$f\sigma_8(0.38)$	0.4776	$0.477^{+0.025}_{-0.025}$
$A_{143}^{\text{PS}}$	44.7	$41^{+20}_{-20}$	$D_{1420}$	815.0	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6628	$0.662^{+0.016}_{-0.016}$
$A_{217}^{\text{PS}}$	101.0	$102^{+30}_{-30}$	$D_{2000}$	229.80	$229.7^{+4.8}_{-4.6}$	$f\sigma_8(0.51)$	0.4756	$0.475^{+0.021}_{-0.022}$
$A_{217}^{\text{CIB}}$	43.6	$41^{+20}_{-20}$	$n_{\text{s},0.002}$	0.9648	$0.965^{+0.015}_{-0.015}$	$\sigma_8(0.51)$	0.6200	$0.619^{+0.014}_{-0.015}$
$A_{143}^{\text{tSZ}}$	5.20	$< 8.79$	$Y_{\text{P}}$	0.245304	$0.24530^{+0.00023}_{-0.00026}$	$f\sigma_8(0.61)$	0.4702	$0.470^{+0.019}_{-0.019}$
$r_{143 \times 217}^{\text{PS}}$	0.633	$0.65^{+0.31}_{-0.33}$	$Y_{\text{P}}^{\text{BBN}}$	0.246630	$0.24662^{+0.00023}_{-0.00027}$	$\sigma_8(0.61)$	0.5898	$0.589^{+0.013}_{-0.014}$
$r_{143 \times 217}^{\text{CIB}}$	0.79	—	$10^5 \text{D}/\text{H}$	2.628	$2.63^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	0.2972	$0.2968^{+0.0068}_{-0.0067}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.41	—	Age/Gyr	13.821	$13.822^{+0.094}_{-0.098}$	$\sigma_8(2.33)$	0.3061	$0.3058^{+0.0073}_{-0.0070}$
$A^{\text{kSZ}}$	2.2	—	$z_*$	1090.21	$1090.2^{+1.1}_{-1.1}$	$r_{0.002}$	0.000	$< 0.150$
$A_{100}^{\text{dust}}$	1.01	$1.01^{+0.51}_{-0.50}$	$r_*$	144.57	$144.6^{+1.2}_{-1.3}$	$r_{0.01}$	0.000	$< 0.153$
$A_{143}^{\text{dust}}$	0.987	$0.98^{+0.45}_{-0.45}$	$100\theta_*$	1.04110	$1.0411^{+0.0012}_{-0.0012}$	$\ln(10^{10} A_{\text{t}})$	-7.90	$-0.7^{+2.2}_{-4.0}$
$A_{217}^{\text{dust}}$	0.969	$0.97^{+0.26}_{-0.27}$	$D_M(z_*)/\text{Gpc}$	13.887	$13.89^{+0.11}_{-0.12}$	$r_{10}$	0.0000	$< 0.0777$
$A_{143 \times 217}^{\text{dust}}$	0.998	$1.03^{+0.42}_{-0.41}$	$z_{\text{drag}}$	1059.44	$1059.4^{+1.2}_{-1.2}$	$10^9 A_{\text{t}}$	0.000	$< 0.323$
$c_{100}$	0.99756	$0.9974^{+0.0027}_{-0.0027}$	$r_{\text{drag}}$	147.31	$147.3^{+1.2}_{-1.3}$	$10^9 A_{\text{t}} e^{-2\tau}$	0.000	$< 0.291$
$c_{217}$	1.00143	$1.0012^{+0.0041}_{-0.0040}$	$k_{\text{D}}$	0.14046	$0.1405^{+0.0014}_{-0.0014}$	$f_{2000}^{143}$	31.1	$31^{+8}_{-8}$
$H_0$	67.13	$67.1^{+2.5}_{-2.4}$	$100\theta_{\text{D}}$	0.16106	$0.16107^{+0.00068}_{-0.00067}$	$f_{2000}^{217}$	107.6	$107.5^{+5.2}_{-5.2}$
$\Omega_{\Lambda}$	0.6829	$0.682^{+0.033}_{-0.036}$	$z_{\text{eq}}$	3399	$3400^{+130}_{-120}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+6}_{-5}$
$\Omega_{\text{m}}$	0.3171	$0.318^{+0.036}_{-0.033}$	$k_{\text{eq}}$	0.010375	$0.01038^{+0.00039}_{-0.00038}$	$\chi_{\text{simall}}^2$	395.88	$397.1 (\nu: 1.3)$
$\Omega_{\text{m}} h^2$	0.1429	$0.1429^{+0.0053}_{-0.0052}$	$100\theta_{\text{eq}}$	0.8132	$0.813^{+0.024}_{-0.023}$	$\chi_{\text{lowl}}^2$	23.22	$24.7 (\nu: 1.6)$
$\Omega_{\text{m}} h^3$	0.09592	$0.0959^{+0.0012}_{-0.0012}$	$100\theta_{\text{s,eq}}$	0.4495	$0.449^{+0.012}_{-0.012}$	$\chi_{\text{CamSpec}}^2$	7050.5	$7063.7 (\nu: 15.1)$
$\sigma_8$	0.8105	$0.810^{+0.023}_{-0.024}$	$H(0.15)$	72.46	$72.5^{+2.2}_{-2.0}$	$\chi_{\text{prior}}^2$	2.2	$7.6 (\nu: 6.0)$
$S_8$	0.833	$0.833^{+0.065}_{-0.062}$	$D_M(0.15)$	645.4	$646^{+21}_{-21}$	$\chi_{\text{CMB}}^2$	7469.6	$7485.5 (\nu: 16.4)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4564	$0.456^{+0.035}_{-0.034}$	$H(0.38)$	82.67	$82.7^{+1.6}_{-1.4}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6082	$0.608^{+0.031}_{-0.030}$	$D_M(0.38)$	1538.0	$1538^{+42}_{-43}$			

Best-fit  $\chi_{\text{eff}}^2 = 7471.85$ ;  $\bar{\chi}_{\text{eff}}^2 = 7493.09$ ;  $R - 1 = 0.00732$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.88 commander\_dx12.v3.2\_29: 23.22 CamSpec like\_10.7HM: 7050.52



# 17.14 base\_r\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02222^{+0.00051}_{-0.00050}$	$r_{\mathrm{drag}} h$	$99.9^{+2.5}_{-2.4}$	$H(0.61)$	$95.30^{+0.65}_{-0.62}$
$\Omega_{\mathrm{c}} h^2$	$0.1188^{+0.0032}_{-0.0032}$	$\langle d^2 \rangle^{1/2}$	$2.419^{+0.072}_{-0.074}$	$D_{\mathrm{M}}(0.61)$	$2304^{+31}_{-31}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$z_{\mathrm{re}}$	$7.6^{+2.1}_{-2.4}$	$H(2.33)$	$235.6^{+2.0}_{-2.0}$
$\tau$	$0.053^{+0.021}_{-0.022}$	$10^9 A_{\mathrm{s}}$	$2.085^{+0.095}_{-0.092}$	$D_{\mathrm{M}}(2.33)$	$5766^{+31}_{-32}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.037^{+0.045}_{-0.045}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.874^{+0.031}_{-0.029}$	$f\sigma_8(0.15)$	$0.453^{+0.020}_{-0.020}$
$n_{\mathrm{s}}$	$0.968^{+0.011}_{-0.011}$	$D_{40}$	$1235^{+51}_{-39}$	$\sigma_8(0.15)$	$0.745^{+0.019}_{-0.018}$
$r$	$< 0.165$	$D_{220}$	$5704^{+110}_{-100}$	$f\sigma_8(0.38)$	$0.472^{+0.017}_{-0.017}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0066}_{-0.0064}$	$D_{810}$	$2533^{+36}_{-34}$	$\sigma_8(0.38)$	$0.661^{+0.016}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-60}$	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{2000}$	$229.9^{+4.7}_{-4.7}$	$\sigma_8(0.51)$	$0.618^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.011}_{-0.011}$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24533^{+0.00020}_{-0.00024}$	$\sigma_8(0.61)$	$0.588^{+0.014}_{-0.014}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.80$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00020}_{-0.00024}$	$f\sigma_8(2.33)$	$0.2968^{+0.0071}_{-0.0069}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.33}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.615^{+0.096}_{-0.094}$	$\sigma_8(2.33)$	$0.3061^{+0.0074}_{-0.0071}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	Age/Gyr	$13.804^{+0.072}_{-0.072}$	$r_{0.002}$	$< 0.161$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_*$	$1090.01^{+0.76}_{-0.75}$	$r_{0.01}$	$< 0.162$
$A^{\mathrm{kSZ}}$	—	$r_*$	$144.86^{+0.83}_{-0.82}$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.6^{+2.2}_{-4.1}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.49}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0011}$	$r_{10}$	$< 0.0833$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.44}_{-0.45}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.912^{+0.080}_{-0.080}$	$10^9 A_{\mathrm{t}}$	$< 0.343$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.309$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42}$	$r_{\mathrm{drag}}$	$147.58^{+0.89}_{-0.89}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$k_{\mathrm{D}}$	$0.1402^{+0.0012}_{-0.0012}$	$f_{2000}^{217}$	$107.3^{+5.2}_{-5.1}$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00066}_{-0.00064}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$H_0$	$67.7^{+1.4}_{-1.4}$	$z_{\mathrm{eq}}$	$3370^{+74}_{-74}$	$\chi_{\mathrm{simall}}^2$	$397.2 \ (\nu: 1.5)$
$\Omega_{\Lambda}$	$0.691^{+0.018}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00023}_{-0.00022}$	$\chi_{\mathrm{lowl}}^2$	$24.1 \ (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.019}_{-0.018}$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.014}_{-0.014}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.2 \ (\nu: 14.8)$
$\Omega_{\mathrm{m}} h^2$	$0.1417^{+0.0031}_{-0.0031}$	$100\theta_{\mathrm{s,eq}}$	$0.4524^{+0.0072}_{-0.0070}$	$\chi_{6\mathrm{DF}}^2$	$0.051 \ (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^3$	$0.0959^{+0.0012}_{-0.0012}$	$H(0.15)$	$73.0^{+1.2}_{-1.2}$	$\chi_{\mathrm{MGS}}^2$	$1.44 \ (\nu: 0.1)$
$\sigma_8$	$0.806^{+0.021}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$641^{+12}_{-12}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \ (\nu: 1.1)$
$S_8$	$0.818^{+0.038}_{-0.038}$	$H(0.38)$	$83.01^{+0.92}_{-0.89}$	$\chi_{\mathrm{prior}}^2$	$7.6 \ (\nu: 6.0)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.021}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1528^{+24}_{-24}$	$\chi_{\mathrm{BAO}}^2$	$6.1 \ (\nu: 0.7)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.021}_{-0.021}$	$H(0.51)$	$89.70^{+0.77}_{-0.73}$	$\chi_{\mathrm{CMB}}^2$	$7485.4 \ (\nu: 15.8)$
$\sigma_8/h^{0.5}$	$0.980^{+0.030}_{-0.030}$	$D_{\mathrm{M}}(0.51)$	$1980^{+28}_{-28}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 7499.09; R - 1 = 0.01122$					



## 17.15 base\_r\_CamSpecHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02215^{+0.00059}_{-0.00055}$	$\sigma_8/h^{0.5}$	$0.989^{+0.041}_{-0.041}$	$H(0.51)$	$89.5^{+1.3}_{-1.1}$
$\Omega_{\mathrm{c}}h^2$	$0.1200^{+0.0056}_{-0.0055}$	$r_{\mathrm{drag}}h$	$98.9^{+4.4}_{-4.2}$	$D_{\mathrm{M}}(0.51)$	$1991^{+48}_{-50}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	$2.442^{+0.099}_{-0.097}$	$H(0.61)$	$95.1^{+1.0}_{-0.87}$
$\tau$	$0.054^{+0.019}_{-0.012}$	$z_{\mathrm{re}}$	$< 9.39$	$D_{\mathrm{M}}(0.61)$	$2316^{+52}_{-53}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.041}_{-0.030}$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.087}_{-0.062}$	$H(2.33)$	$236.4^{+3.4}_{-3.2}$
$n_{\mathrm{s}}$	$0.965^{+0.015}_{-0.015}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.036}_{-0.035}$	$D_{\mathrm{M}}(2.33)$	$5773^{+41}_{-45}$
$r$	$< 0.154$	$D_{40}$	$1240^{+52}_{-44}$	$f\sigma_8(0.15)$	$0.461^{+0.032}_{-0.032}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0066}_{-0.0064}$	$D_{220}$	$5700^{+110}_{-100}$	$\sigma_8(0.15)$	$0.749^{+0.019}_{-0.018}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{810}$	$2533^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.478^{+0.025}_{-0.025}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.663^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{2000}$	$229.7^{+4.8}_{-4.7}$	$f\sigma_8(0.51)$	$0.476^{+0.021}_{-0.022}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.015}_{-0.015}$	$\sigma_8(0.51)$	$0.620^{+0.014}_{-0.012}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.79$	$Y_{\mathrm{P}}$	$0.24530^{+0.00023}_{-0.00026}$	$f\sigma_8(0.61)$	$0.470^{+0.019}_{-0.019}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00023}_{-0.00026}$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.011}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	$0.2973^{+0.0065}_{-0.0048}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.821^{+0.093}_{-0.099}$	$\sigma_8(2.33)$	$0.3063^{+0.0069}_{-0.0048}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.2^{+1.1}_{-1.1}$	$r_{0.002}$	$< 0.149$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.50}_{-0.49}$	$r_*$	$144.6^{+1.2}_{-1.3}$	$r_{0.01}$	$< 0.151$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.45}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.7^{+2.2}_{-4.0}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.89^{+0.11}_{-0.11}$	$r_{10}$	$< 0.0768$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$z_{\mathrm{drag}}$	$1059.4^{+1.2}_{-1.1}$	$10^9 A_{\mathrm{t}}$	$< 0.321$
$c_{100}$	$0.9974^{+0.0028}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.3^{+1.2}_{-1.3}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.288$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0014}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$H_0$	$67.2^{+2.5}_{-2.4}$	$100\theta_{\mathrm{D}}$	$0.16106^{+0.00067}_{-0.00067}$	$f_{2000}^{217}$	$107.4^{+5.2}_{-5.2}$
$\Omega_{\Lambda}$	$0.683^{+0.033}_{-0.036}$	$z_{\mathrm{eq}}$	$3398^{+130}_{-120}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$\Omega_{\mathrm{m}}$	$0.317^{+0.036}_{-0.033}$	$k_{\mathrm{eq}}$	$0.01037^{+0.00039}_{-0.00038}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.3)$
$\Omega_{\mathrm{m}}h^2$	$0.1428^{+0.0053}_{-0.0051}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.024}_{-0.023}$	$\chi_{\mathrm{lowl}}^2$	$24.6 (\nu: 1.6)$
$\Omega_{\mathrm{m}}h^3$	$0.0959^{+0.0012}_{-0.0012}$	$100\theta_{\mathrm{s,eq}}$	$0.450^{+0.012}_{-0.012}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.6 (\nu: 15.0)$
$\sigma_8$	$0.811^{+0.023}_{-0.022}$	$H(0.15)$	$72.5^{+2.2}_{-2.0}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.9)$
$S_8$	$0.833^{+0.064}_{-0.062}$	$D_{\mathrm{M}}(0.15)$	$645^{+21}_{-21}$	$\chi_{\mathrm{CMB}}^2$	$7485.2 (\nu: 15.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.035}_{-0.034}$	$H(0.38)$	$82.7^{+1.6}_{-1.4}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.031}_{-0.030}$	$D_{\mathrm{M}}(0.38)$	$1538^{+41}_{-42}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7492.76; R - 1 = 0.00713$$



17.16 base\_r\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02222^{+0.00051}_{-0.00050}$	$r_{\mathrm{drag}} h$	$99.9^{+2.5}_{-2.4}$	$H(0.61)$	$95.30^{+0.65}_{-0.62}$
$\Omega_{\mathrm{c}} h^2$	$0.1188^{+0.0032}_{-0.0032}$	$\langle d^2 \rangle^{1/2}$	$2.422^{+0.070}_{-0.068}$	$D_{\mathrm{M}}(0.61)$	$2304^{+31}_{-31}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0011}_{-0.0011}$	$z_{\mathrm{re}}$	$< 9.47$	$H(2.33)$	$235.6^{+2.0}_{-2.0}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$10^9 A_{\mathrm{s}}$	$2.090^{+0.091}_{-0.062}$	$D_{\mathrm{M}}(2.33)$	$5765^{+31}_{-32}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.040^{+0.043}_{-0.030}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.873^{+0.030}_{-0.029}$	$f\sigma_8(0.15)$	$0.453^{+0.020}_{-0.019}$
$n_{\mathrm{s}}$	$0.968^{+0.011}_{-0.011}$	$D_{40}$	$1234^{+51}_{-39}$	$\sigma_8(0.15)$	$0.746^{+0.018}_{-0.015}$
$r$	$< 0.165$	$D_{220}$	$5704^{+110}_{-100}$	$f\sigma_8(0.38)$	$0.472^{+0.016}_{-0.016}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0066}_{-0.0064}$	$D_{810}$	$2533^{+35}_{-34}$	$\sigma_8(0.38)$	$0.661^{+0.016}_{-0.012}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-70}$	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.51)$	$0.471^{+0.015}_{-0.014}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{2000}$	$230.0^{+4.8}_{-4.7}$	$\sigma_8(0.51)$	$0.619^{+0.014}_{-0.011}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.011}_{-0.011}$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.013}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24533^{+0.00020}_{-0.00023}$	$\sigma_8(0.61)$	$0.589^{+0.014}_{-0.0099}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.80$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00020}_{-0.00024}$	$f\sigma_8(2.33)$	$0.2972^{+0.0068}_{-0.0048}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.33}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.614^{+0.096}_{-0.093}$	$\sigma_8(2.33)$	$0.3065^{+0.0070}_{-0.0050}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	Age/Gyr	$13.803^{+0.072}_{-0.072}$	$r_{0.002}$	$< 0.159$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_*$	$1090.00^{+0.75}_{-0.75}$	$r_{0.01}$	$< 0.162$
$A^{\mathrm{kSZ}}$	—	$r_*$	$144.86^{+0.83}_{-0.82}$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.6^{+2.2}_{-4.1}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.48}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0011}$	$r_{10}$	$< 0.0828$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.44}_{-0.46}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.912^{+0.080}_{-0.080}$	$10^9 A_{\mathrm{t}}$	$< 0.343$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.309$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$r_{\mathrm{drag}}$	$147.58^{+0.89}_{-0.89}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$k_{\mathrm{D}}$	$0.1402^{+0.0012}_{-0.0012}$	$f_{2000}^{217}$	$107.2^{+5.2}_{-5.1}$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00065}_{-0.00064}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$H_0$	$67.7^{+1.4}_{-1.4}$	$z_{\mathrm{eq}}$	$3369^{+74}_{-74}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.5)$
$\Omega_{\Lambda}$	$0.691^{+0.018}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01028^{+0.00023}_{-0.00022}$	$\chi_{\mathrm{lowl}}^2$	$24.1 (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.019}_{-0.018}$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.014}_{-0.014}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.0 (\nu: 14.7)$
$\Omega_{\mathrm{m}} h^2$	$0.1416^{+0.0031}_{-0.0031}$	$100\theta_{\mathrm{s,eq}}$	$0.4524^{+0.0072}_{-0.0070}$	$\chi_{6\mathrm{DF}}^2$	$0.050 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^3$	$0.0959^{+0.0012}_{-0.0012}$	$H(0.15)$	$73.0^{+1.2}_{-1.2}$	$\chi_{\mathrm{MGS}}^2$	$1.44 (\nu: 0.1)$
$\sigma_8$	$0.807^{+0.020}_{-0.017}$	$D_{\mathrm{M}}(0.15)$	$640^{+12}_{-12}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 (\nu: 1.1)$
$S_8$	$0.819^{+0.038}_{-0.037}$	$H(0.38)$	$83.02^{+0.93}_{-0.89}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.9)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.021}_{-0.020}$	$D_{\mathrm{M}}(0.38)$	$1528^{+24}_{-24}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.7)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.020}_{-0.020}$	$H(0.51)$	$89.71^{+0.77}_{-0.73}$	$\chi_{\mathrm{CMB}}^2$	$7485.2 (\nu: 15.5)$
$\sigma_8/h^{0.5}$	$0.981^{+0.029}_{-0.028}$	$D_{\mathrm{M}}(0.51)$	$1980^{+28}_{-28}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7498.81; R - 1 = 0.01239$$



# 17.17 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022286	$0.02230^{+0.00043}_{-0.00042}$ (+0.7 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4524	$0.451^{+0.024}_{-0.023}$ (−0.4 $\sigma$ )	$H(0.38)$	82.86	$82.9^{+1.0}_{-1.0}$ (+0.5 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11958	$0.1193^{+0.0036}_{-0.0037}$ (−0.4 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6046	$0.603^{+0.022}_{-0.022}$ (−0.4 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1532.8	$1531^{+28}_{-27}$ (−0.4 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04088	$1.04090^{+0.00081}_{-0.00086}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9839	$0.982^{+0.031}_{-0.031}$ (−0.4 $\sigma$ )	$H(0.51)$	89.60	$89.65^{+0.82}_{-0.79}$ (+0.5 $\sigma$ )
$\tau$	0.0524	$0.052^{+0.021}_{-0.021}$ (+0.0 $\sigma$ )	$r_{\mathrm{drag}}h$	99.30	$99.5^{+2.9}_{-2.8}$ (+0.4 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1985.3	$1983^{+33}_{-32}$ (−0.5 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0375	$3.037^{+0.042}_{-0.042}$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.431	$2.426^{+0.074}_{-0.074}$ (−0.4 $\sigma$ )	$H(0.61)$	95.23	$95.28^{+0.67}_{-0.63}$ (+0.5 $\sigma$ )
$n_{\mathrm{s}}$	0.9666	$0.967^{+0.013}_{-0.012}$ (+0.4 $\sigma$ )	$z_{\mathrm{re}}$	7.49	$7.5^{+2.0}_{-2.3}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2309.9	$2308^{+35}_{-35}$ (−0.5 $\sigma$ )
$r$	0.010	< 0.187 (+0.5 $\sigma$ )	$10^9A_{\mathrm{s}}$	2.085	$2.084^{+0.089}_{-0.087}$ (−0.0 $\sigma$ )	$H(2.33)$	236.20	$236.1^{+2.2}_{-2.2}$ (−0.3 $\sigma$ )
$y_{\mathrm{cal}}$	1.0004	$1.0005^{+0.0062}_{-0.0065}$ (+0.0 $\sigma$ )	$10^9A_{\mathrm{s}}e^{-2\tau}$	1.8780	$1.877^{+0.030}_{-0.031}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5766.9	$5765^{+29}_{-30}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	234	$239^{+60}_{-70}$ (−0.1 $\sigma$ )	$D_{40}$	1227.1	$1243^{+55}_{-42}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4568	$0.455^{+0.022}_{-0.022}$ (−0.4 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	39.9	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5712	$5713^{+100}_{-100}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7463	$0.746^{+0.017}_{-0.017}$ (−0.3 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	102.1	$103^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{810}$	2534.9	$2535^{+35}_{-36}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4746	$0.473^{+0.018}_{-0.018}$ (−0.4 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	44.4	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	816.0	$816^{+13}_{-13}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6613	$0.661^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	6.41	< 8.86 (+0.1 $\sigma$ )	$D_{2000}$	230.33	$230.4^{+4.4}_{-4.2}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4730	$0.472^{+0.016}_{-0.016}$ (−0.4 $\sigma$ )
$r_{143\times 217}^{\mathrm{PS}}$	0.599	$0.66^{+0.31}_{-0.33}$ (+0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9666	$0.967^{+0.013}_{-0.012}$ (+0.4 $\sigma$ )	$\sigma_8(0.51)$	0.6188	$0.618^{+0.013}_{-0.013}$ (−0.2 $\sigma$ )
$r_{143\times 217}^{\mathrm{CIB}}$	0.77	—	$Y_{\mathrm{P}}$	0.245362	$0.24536^{+0.00016}_{-0.00019}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4679	$0.467^{+0.014}_{-0.014}$ (−0.4 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.11	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246688	$0.24669^{+0.00016}_{-0.00019}$ (+0.7 $\sigma$ )	$\sigma_8(0.61)$	0.5887	$0.588^{+0.013}_{-0.013}$ (−0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.1	—	$10^5\mathrm{D}/\mathrm{H}$	2.601	$2.599^{+0.081}_{-0.077}$ (−0.7 $\sigma$ )	$f\sigma_8(2.33)$	0.2968	$0.2967^{+0.0065}_{-0.0064}$ (−0.1 $\sigma$ )
$A_{100}^{\mathrm{dust}}$	1.01	$1.00^{+0.50}_{-0.50}$ (−0.0 $\sigma$ )	Age/Gyr	13.806	$13.802^{+0.065}_{-0.067}$ (−0.5 $\sigma$ )	$\sigma_8(2.33)$	0.3059	$0.3058^{+0.0068}_{-0.0067}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{dust}}$	0.973	$0.96^{+0.45}_{-0.45}$ (−0.1 $\sigma$ )	$z_*$	1089.99	$1089.95^{+0.76}_{-0.74}$ (−0.6 $\sigma$ )	$r_{0.002}$	0.009	< 0.184 (+0.5 $\sigma$ )
$A_{217}^{\mathrm{dust}}$	0.971	$0.97^{+0.27}_{-0.27}$ (+0.1 $\sigma$ )	$r_*$	144.60	$144.66^{+0.84}_{-0.81}$ (+0.2 $\sigma$ )	$r_{0.01}$	0.0098	< 0.186 (+0.5 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}}$	1.008	$1.03^{+0.43}_{-0.42}$ (+0.0 $\sigma$ )	$100\theta_*$	1.04106	$1.04109^{+0.00080}_{-0.00085}$ (+0.0 $\sigma$ )	$\ln(10^{10}A_{\mathrm{t}})$	−1.54	$−0.2^{+1.8}_{-4.0}$ (+0.4 $\sigma$ )
$c_{100}$	0.99764	$0.9975^{+0.0027}_{-0.0027}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.890	$13.895^{+0.078}_{-0.076}$ (+0.2 $\sigma$ )	$r_{10}$	0.0048	< 0.0957 (+0.5 $\sigma$ )
$c_{217}$	1.00129	$1.0011^{+0.0041}_{-0.0040}$ (−0.1 $\sigma$ )	$z_{\mathrm{drag}}$	1059.70	$1059.72^{+0.86}_{-0.90}$ (+0.7 $\sigma$ )	$10^9A_{\mathrm{t}}$	0.022	< 0.391 (+0.5 $\sigma$ )
$c_{TE}$	0.9966	$0.997^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	147.30	$147.34^{+0.85}_{-0.81}$ (+0.1 $\sigma$ )	$10^9A_{\mathrm{t}}e^{-2\tau}$	0.019	< 0.352 (+0.5 $\sigma$ )
$c_{EE}$	0.9921	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	0.14059	$0.14055^{+0.00089}_{-0.00092}$ (+0.2 $\sigma$ )	$f_{2000}^{143}$	29.9	$29^{+8}_{-7}$ (−0.4 $\sigma$ )
$H_0$	67.41	$67.5^{+1.6}_{-1.6}$ (+0.4 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16088	$0.16088^{+0.00053}_{-0.00050}$ (−0.7 $\sigma$ )	$f_{2000}^{217}$	106.83	$106.7^{+5.0}_{-5.0}$ (−0.4 $\sigma$ )
$\Omega_{\Lambda}$	0.6864	$0.688^{+0.022}_{-0.023}$ (+0.4 $\sigma$ )	$z_{\mathrm{eq}}$	3390	$3385^{+82}_{-84}$ (−0.3 $\sigma$ )	$f_{2000}^{143\times 217}$	32.1	$32^{+5}_{-5}$ (−0.4 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3136	$0.312^{+0.023}_{-0.022}$ (−0.4 $\sigma$ )	$k_{\mathrm{eq}}$	0.010347	$0.01033^{+0.00025}_{-0.00026}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{simall}}^2$	395.84	$397.1$ ( $\nu$ : 1.2) (+0.0 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.14252	$0.1423^{+0.0034}_{-0.0035}$ (−0.3 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8152	$0.816^{+0.016}_{-0.015}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.2	$24.9$ ( $\nu$ : 1.8) (+0.2 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	0.09608	$0.09607^{+0.00082}_{-0.00082}$ (+0.4 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4504	$0.4510^{+0.0082}_{-0.0078}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{CamSpec}}^2$	11499.5	$11513.6$ ( $\nu$ : 16.6) (+810.4 $\sigma$ )
$\sigma_8$	0.8079	$0.807^{+0.020}_{-0.020}$ (−0.3 $\sigma$ )	$H(0.15)$	72.72	$72.8^{+1.4}_{-1.4}$ (+0.4 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	2.2	$7.8$ ( $\nu$ : 5.8) (+0.1 $\sigma$ )
$S_8$	0.8260	$0.823^{+0.043}_{-0.043}$ (−0.4 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	642.9	$642^{+14}_{-14}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	11918.6	$11935.7$ ( $\nu$ : 17.7) (+777.4 $\sigma$ )

Best-fit  $\chi_{\mathrm{eff}}^2 = 11920.72$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4448.87$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 11943.49$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.40$ ;  $R - 1 = 0.01020$

$\chi_{\mathrm{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.84 ( $\Delta$  -0.04) commander\_dx12.v3.2.29: 23.20 ( $\Delta$  -0.02) CamSpec like\_10.7HM\_1400\_unified: 11499.52



## 17.18 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02234^{+0.00039}_{-0.00038} \quad (+0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.978^{+0.027}_{-0.027} \quad (-0.1\sigma)$	$H(0.61)$	$95.37^{+0.52}_{-0.51} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1188^{+0.0027}_{-0.0027} \quad (-0.0\sigma)$	$r_{\mathrm{drag}} h$	$99.9^{+2.1}_{-2.0} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2302^{+26}_{-26} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04097^{+0.00074}_{-0.00079} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.418^{+0.066}_{-0.064} \quad (-0.1\sigma)$	$H(2.33)$	$235.7^{+1.7}_{-1.7} \quad (+0.1\sigma)$
$\tau$	$0.053^{+0.020}_{-0.021} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$7.5^{+2.0}_{-2.3} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5761^{+24}_{-24} \quad (-0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.037^{+0.042}_{-0.042} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.085^{+0.089}_{-0.087} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.452^{+0.018}_{-0.017} \quad (-0.1\sigma)$
$n_{\mathrm{s}}$	$0.969^{+0.011}_{-0.011} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.875^{+0.028}_{-0.029} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.745^{+0.017}_{-0.016} \quad (-0.1\sigma)$
$r$	$< 0.190 \quad (+0.5\sigma)$	$D_{40}$	$1241^{+55}_{-41} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.471^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0066} \quad (+0.0\sigma)$	$D_{220}$	$5716^{+99}_{-98} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.660^{+0.015}_{-0.014} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-60} \quad (-0.1\sigma)$	$D_{810}$	$2534^{+34}_{-36} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.470^{+0.014}_{-0.013} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$817^{+13}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.618^{+0.014}_{-0.013} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{2000}$	$230.5^{+4.3}_{-4.1} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.465^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$n_{\mathrm{s},0.002}$	$0.969^{+0.011}_{-0.011} \quad (+0.1\sigma)$	$\sigma_8(0.61)$	$0.588^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87 \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(2.33)$	$0.2967^{+0.0065}_{-0.0064} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(2.33)$	$0.3060^{+0.0069}_{-0.0067} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.592^{+0.073}_{-0.071} \quad (-0.6\sigma)$	$r_{0.002}$	$< 0.188 \quad (+0.5\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.794^{+0.056}_{-0.055} \quad (-0.3\sigma)$	$r_{0.01}$	$< 0.188 \quad (+0.5\sigma)$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1089.86^{+0.62}_{-0.61} \quad (-0.5\sigma)$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.1^{+1.8}_{-4.3} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.50} \quad (-0.0\sigma)$	$r_*$	$144.77^{+0.66}_{-0.65} \quad (-0.3\sigma)$	$r_{10}$	$< 0.0973 \quad (+0.5\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.44} \quad (-0.1\sigma)$	$100\theta_*$	$1.04116^{+0.00074}_{-0.00078} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.395 \quad (+0.5\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.905^{+0.063}_{-0.062} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.355 \quad (+0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42} \quad (+0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.77^{+0.85}_{-0.83} \quad (+0.6\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-7} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.45^{+0.69}_{-0.68} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$106.6^{+4.9}_{-4.9} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041} \quad (-0.0\sigma)$	$k_{\mathrm{D}}$	$0.14046^{+0.00084}_{-0.00081} \quad (+0.5\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{\mathrm{TE}}$	$0.997^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00050}_{-0.00050} \quad (-0.7\sigma)$	$\chi_{\mathrm{small}}^2$	$397.2 \quad (\nu: 1.3) \quad (+0.0\sigma)$
$c_{\mathrm{EE}}$	$0.992^{+0.013}_{-0.013}$	$z_{\mathrm{eq}}$	$3372^{+62}_{-62} \quad (+0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.7 \quad (\nu: 1.7) \quad (+0.4\sigma)$
$H_0$	$67.8^{+1.2}_{-1.2} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01029^{+0.00019}_{-0.00019} \quad (+0.1\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.5 \quad (\nu: 16.1) \quad (+817.7\sigma)$
$\Omega_{\Lambda}$	$0.691^{+0.016}_{-0.016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.012}_{-0.011} \quad (-0.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.040 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4522^{+0.0061}_{-0.0059} \quad (-0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.44 \quad (\nu: 0.1) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1418^{+0.0026}_{-0.0026} \quad (+0.1\sigma)$	$H(0.15)$	$73.0^{+1.0}_{-1.0} \quad (+0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09608^{+0.00080}_{-0.00080} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+10}_{-10} \quad (-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.7) \quad (+0.0\sigma)$
$\sigma_8$	$0.805^{+0.019}_{-0.018} \quad (-0.1\sigma)$	$H(0.38)$	$83.09^{+0.78}_{-0.76} \quad (+0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.89 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$S_8$	$0.817^{+0.034}_{-0.033} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1527^{+21}_{-21} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11935.4 \quad (\nu: 16.9) \quad (+790.4\sigma)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.447^{+0.019}_{-0.018} \quad (-0.1\sigma)$	$H(0.51)$	$89.77^{+0.63}_{-0.61} \quad (+0.2\sigma)$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.600^{+0.019}_{-0.018} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1978^{+24}_{-24} \quad (-0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11949.07; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4449.98; R - 1 = 0.01061$$



# 17.19 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02230^{+0.00043}_{-0.00043} \quad (+0.7\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.024}_{-0.023} \quad (-0.4\sigma)$	$H(0.38)$	$82.9^{+1.0}_{-1.0} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1193^{+0.0036}_{-0.0036} \quad (-0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.022}_{-0.021} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1531^{+28}_{-27} \quad (-0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00081}_{-0.00087} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.030}_{-0.030} \quad (-0.4\sigma)$	$H(0.51)$	$89.66^{+0.82}_{-0.79} \quad (+0.5\sigma)$
$\tau$	$0.054^{+0.018}_{-0.012} \quad (+0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.5^{+2.8}_{-2.8} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1983^{+33}_{-32} \quad (-0.4\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.040^{+0.039}_{-0.028} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.073}_{-0.072} \quad (-0.4\sigma)$	$H(0.61)$	$95.28^{+0.67}_{-0.63} \quad (+0.5\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.012}_{-0.012} \quad (+0.4\sigma)$	$z_{\mathrm{re}}$	$< 9.30 \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2307^{+35}_{-35} \quad (-0.4\sigma)$
$r$	$< 0.188 \quad (+0.5\sigma)$	$10^9 A_{\mathrm{s}}$	$2.091^{+0.084}_{-0.058} \quad (-0.0\sigma)$	$H(2.33)$	$236.0^{+2.2}_{-2.2} \quad (-0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0066} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.030}_{-0.031} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5765^{+29}_{-30} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-70} \quad (-0.1\sigma)$	$D_{40}$	$1243^{+55}_{-42} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.022}_{-0.022} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5713^{+100}_{-100} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.016}_{-0.014} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2534^{+35}_{-36} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.018}_{-0.018} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.014}_{-0.011} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87 \quad (+0.1\sigma)$	$D_{2000}$	$230.4^{+4.4}_{-4.1} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.015}_{-0.015} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.967^{+0.012}_{-0.012} \quad (+0.4\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.013}_{-0.010} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24537^{+0.00016}_{-0.00019} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.014}_{-0.014} \quad (-0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00016}_{-0.00019} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.012}_{-0.0094} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.598^{+0.082}_{-0.077} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.2971^{+0.0062}_{-0.0044} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.801^{+0.066}_{-0.066} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.3063^{+0.0064}_{-0.0045} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.45} \quad (-0.1\sigma)$	$z_*$	$1089.94^{+0.76}_{-0.74} \quad (-0.6\sigma)$	$r_{0.002}$	$< 0.185 \quad (+0.6\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$r_*$	$144.66^{+0.83}_{-0.81} \quad (+0.2\sigma)$	$r_{0.01}$	$< 0.186 \quad (+0.6\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42} \quad (+0.0\sigma)$	$100\theta_*$	$1.04110^{+0.00080}_{-0.00085} \quad (+0.0\sigma)$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.2^{+1.8}_{-3.9} \quad (+0.4\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.895^{+0.078}_{-0.076} \quad (+0.2\sigma)$	$r_{10}$	$< 0.0958 \quad (+0.6\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040} \quad (-0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.73^{+0.89}_{-0.87} \quad (+0.7\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.392 \quad (+0.5\sigma)$
$c_{\mathrm{TE}}$	$0.997^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	$147.35^{+0.84}_{-0.81} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.352 \quad (+0.5\sigma)$
$c_{\mathrm{EE}}$	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.14054^{+0.00089}_{-0.00091} \quad (+0.2\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.4\sigma)$
$H_0$	$67.5^{+1.6}_{-1.6} \quad (+0.4\sigma)$	$100\theta_{\mathrm{D}}$	$0.16087^{+0.00053}_{-0.00050} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$106.7^{+4.9}_{-5.0} \quad (-0.4\sigma)$
$\Omega_{\Lambda}$	$0.688^{+0.021}_{-0.023} \quad (+0.4\sigma)$	$z_{\mathrm{eq}}$	$3384^{+82}_{-83} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.023}_{-0.021} \quad (-0.4\sigma)$	$k_{\mathrm{eq}}$	$0.01033^{+0.00025}_{-0.00025} \quad (-0.3\sigma)$	$\chi_{\mathrm{small}}^2$	$397.0 \quad (\nu: 1.2) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1422^{+0.0034}_{-0.0035} \quad (-0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.016}_{-0.015} \quad (+0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.9 \quad (\nu: 1.8) \quad (+0.2\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09607^{+0.00082}_{-0.00082} \quad (+0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4511^{+0.0082}_{-0.0078} \quad (+0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.5 \quad (\nu: 16.6) \quad (+813.6\sigma)$
$\sigma_8$	$0.808^{+0.019}_{-0.017} \quad (-0.3\sigma)$	$H(0.15)$	$72.8^{+1.4}_{-1.4} \quad (+0.4\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$S_8$	$0.824^{+0.043}_{-0.042} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$642^{+14}_{-14} \quad (-0.4\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11935.4 \quad (\nu: 17.4) \quad (+790.6\sigma)$

$\bar{\chi}_{\mathrm{eff}}^2 = 11943.24$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.48$ ;  $R - 1 = 0.00947$



17.20 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02234^{+0.00039}_{-0.00039} \quad (+0.6\sigma)$	$\sigma_8/h^{0.5}$	$0.980^{+0.026}_{-0.025} \quad (-0.1\sigma)$	$H(0.61)$	$95.37^{+0.52}_{-0.51} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1187^{+0.0027}_{-0.0027} \quad (-0.0\sigma)$	$r_{\mathrm{drag}} h$	$99.96^{+2.1}_{-2.0} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2302^{+26}_{-26} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04098^{+0.00075}_{-0.00080} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.420^{+0.065}_{-0.061} \quad (-0.1\sigma)$	$H(2.33)$	$235.7^{+1.7}_{-1.7} \quad (+0.1\sigma)$
$\tau$	$0.055^{+0.018}_{-0.013} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.31 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5761^{+24}_{-24} \quad (-0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.040^{+0.040}_{-0.029} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.091^{+0.085}_{-0.059} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.453^{+0.017}_{-0.017} \quad (-0.1\sigma)$
$n_{\mathrm{s}}$	$0.969^{+0.011}_{-0.011} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.874^{+0.028}_{-0.030} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.746^{+0.016}_{-0.013} \quad (-0.1\sigma)$
$r$	$< 0.190 \quad (+0.5\sigma)$	$D_{40}$	$1241^{+54}_{-41} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.014} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0066} \quad (+0.0\sigma)$	$D_{220}$	$5715^{+99}_{-98} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.661^{+0.014}_{-0.011} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-60} \quad (-0.1\sigma)$	$D_{810}$	$2534^{+34}_{-36} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.013}_{-0.0098} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{2000}$	$230.6^{+4.3}_{-4.1} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$n_{\mathrm{s},0.002}$	$0.969^{+0.011}_{-0.011} \quad (+0.1\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.012}_{-0.0091} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.92 \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(2.33)$	$0.2971^{+0.0062}_{-0.0044} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(2.33)$	$0.3065^{+0.0065}_{-0.0046} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.592^{+0.073}_{-0.071} \quad (-0.6\sigma)$	$r_{0.002}$	$< 0.188 \quad (+0.5\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.794^{+0.056}_{-0.055} \quad (-0.3\sigma)$	$r_{0.01}$	$< 0.189 \quad (+0.5\sigma)$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1089.85^{+0.62}_{-0.60} \quad (-0.5\sigma)$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.1^{+1.8}_{-4.3} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50} \quad (-0.0\sigma)$	$r_*$	$144.78^{+0.66}_{-0.65} \quad (-0.3\sigma)$	$r_{10}$	$< 0.0973 \quad (+0.5\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.44} \quad (-0.1\sigma)$	$100\theta_*$	$1.04116^{+0.00074}_{-0.00078} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.395 \quad (+0.5\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.905^{+0.063}_{-0.062} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.356 \quad (+0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42} \quad (+0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.78^{+0.84}_{-0.83} \quad (+0.6\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.46^{+0.69}_{-0.68} \quad (-0.4\sigma)$	$f_{2000}^{217}$	$106.6^{+4.9}_{-4.9} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041} \quad (-0.0\sigma)$	$k_{\mathrm{D}}$	$0.14046^{+0.00084}_{-0.00081} \quad (+0.5\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{\mathrm{TE}}$	$0.997^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00050}_{-0.00050} \quad (-0.7\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.3) \quad (+0.0\sigma)$
$c_{\mathrm{EE}}$	$0.992^{+0.013}_{-0.013}$	$z_{\mathrm{eq}}$	$3372^{+62}_{-61} \quad (+0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.7 \quad (\nu: 1.7) \quad (+0.4\sigma)$
$H_0$	$67.8^{+1.2}_{-1.2} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01029^{+0.00019}_{-0.00019} \quad (+0.1\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.4 \quad (\nu: 16.1) \quad (+820.5\sigma)$
$\Omega_{\Lambda}$	$0.692^{+0.016}_{-0.016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.819^{+0.012}_{-0.011} \quad (-0.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.039 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.308^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4523^{+0.0060}_{-0.0059} \quad (-0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.45 \quad (\nu: 0.1) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1417^{+0.0026}_{-0.0026} \quad (+0.1\sigma)$	$H(0.15)$	$73.0^{+1.0}_{-1.0} \quad (+0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09608^{+0.00080}_{-0.00079} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+10}_{-10} \quad (-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.7) \quad (+0.1\sigma)$
$\sigma_8$	$0.807^{+0.018}_{-0.016} \quad (-0.1\sigma)$	$H(0.38)$	$83.09^{+0.78}_{-0.76} \quad (+0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$5.88 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$S_8$	$0.818^{+0.033}_{-0.033} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1527^{+21}_{-21} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11935.2 \quad (\nu: 16.7) \quad (+799.8\sigma)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.018}_{-0.018} \quad (-0.1\sigma)$	$H(0.51)$	$89.78^{+0.63}_{-0.61} \quad (+0.2\sigma)$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1978^{+24}_{-24} \quad (-0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11948.86; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.05; R - 1 = 0.01058$$



## 17.21 base\_r\_plikHM\_TE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02249	$0.02248^{+0.00068}_{-0.00064}$	$z_{\text{re}}$	7.13	$7.1^{+2.1}_{-3.2}$	$D_{\text{M}}(0.38)$	1516.0	$1515^{+38}_{-41}$
$\Omega_c h^2$	0.1178	$0.1177^{+0.0050}_{-0.0053}$	$10^9 A_{\text{s}}$	2.046	$2.04^{+0.10}_{-0.12}$	$H(0.51)$	90.12	$90.1^{+1.3}_{-1.1}$
$100\theta_{\text{MC}}$	1.04137	$1.0414^{+0.0013}_{-0.0013}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8530	$1.851^{+0.047}_{-0.047}$	$D_{\text{M}}(0.51)$	1965.4	$1965^{+45}_{-48}$
$\tau$	0.0495	$0.049^{+0.021}_{-0.027}$	$D_{40}$	1215	$1253^{+130}_{-89}$	$H(0.61)$	95.66	$95.7^{+1.1}_{-0.91}$
$\ln(10^{10} A_{\text{s}})$	3.018	$3.017^{+0.050}_{-0.060}$	$D_{220}$	5699	$5686^{+150}_{-140}$	$D_{\text{M}}(0.61)$	2288	$2288^{+48}_{-52}$
$n_{\text{s}}$	0.9663	$0.968^{+0.029}_{-0.028}$	$D_{810}$	2508	$2507^{+63}_{-64}$	$H(2.33)$	235.26	$235.2^{+3.1}_{-3.2}$
$r$	0.000	$< 0.385$	$D_{1420}$	807.3	$808^{+30}_{-29}$	$D_{\text{M}}(2.33)$	5747.3	$5747^{+42}_{-47}$
$A_{100}^{\text{dustTE}}$	0.113	$0.116^{+0.099}_{-0.097}$	$D_{2000}$	227.7	$228^{+11}_{-11}$	$f\sigma_8(0.15)$	0.4409	$0.440^{+0.031}_{-0.032}$
$A_{100 \times 143}^{\text{dustTE}}$	0.136	$0.138^{+0.075}_{-0.075}$	$n_{\text{s},0.002}$	0.9663	$0.968^{+0.029}_{-0.028}$	$\sigma_8(0.15)$	0.7344	$0.734^{+0.024}_{-0.026}$
$A_{100 \times 217}^{\text{dustTE}}$	0.478	$0.48^{+0.22}_{-0.22}$	$Y_{\text{P}}$	0.245441	$0.24543^{+0.00029}_{-0.00028}$	$f\sigma_8(0.38)$	0.4611	$0.461^{+0.026}_{-0.027}$
$A_{143}^{\text{dustTE}}$	0.221	$0.22^{+0.14}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	0.246768	$0.24676^{+0.00029}_{-0.00028}$	$\sigma_8(0.38)$	0.6521	$0.652^{+0.020}_{-0.022}$
$A_{143 \times 217}^{\text{dustTE}}$	0.659	$0.66^{+0.20}_{-0.20}$	$10^5 \text{D}/\text{H}$	2.563	$2.57^{+0.12}_{-0.12}$	$f\sigma_8(0.51)$	0.4609	$0.460^{+0.022}_{-0.024}$
$A_{217}^{\text{dustTE}}$	2.04	$2.03^{+0.71}_{-0.70}$	Age/Gyr	13.762	$13.762^{+0.095}_{-0.10}$	$\sigma_8(0.51)$	0.6107	$0.610^{+0.019}_{-0.021}$
$c_{100}$	1.00017	$1.0002^{+0.0018}_{-0.0018}$	$z_*$	1089.57	$1089.6^{+1.1}_{-1.1}$	$f\sigma_8(0.61)$	0.4569	$0.456^{+0.020}_{-0.022}$
$c_{217}$	0.99799	$0.9980^{+0.0017}_{-0.0017}$	$r_*$	144.91	$145.0^{+1.3}_{-1.2}$	$\sigma_8(0.61)$	0.5814	$0.581^{+0.018}_{-0.019}$
$y_{\text{cal}}$	1.0001	$1.0000^{+0.0065}_{-0.0064}$	$100\theta_*$	1.04155	$1.0416^{+0.0013}_{-0.0013}$	$f\sigma_8(2.33)$	0.2935	$0.2934^{+0.0086}_{-0.0098}$
$H_0$	68.39	$68.4^{+2.5}_{-2.2}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.913	$13.92^{+0.12}_{-0.11}$	$\sigma_8(2.33)$	0.3031	$0.3030^{+0.0091}_{-0.010}$
$\Omega_{\Lambda}$	0.6987	$0.699^{+0.030}_{-0.031}$	$z_{\text{drag}}$	1060.05	$1060.0^{+1.4}_{-1.4}$	$r_{0.002}$	0.000	$< 0.413$
$\Omega_{\text{m}}$	0.3013	$0.301^{+0.031}_{-0.030}$	$r_{\text{drag}}$	147.55	$147.6^{+1.3}_{-1.2}$	$r_{0.01}$	0.000	$< 0.397$
$\Omega_{\text{m}} h^2$	0.14092	$0.1408^{+0.0048}_{-0.0050}$	$k_{\text{D}}$	0.14048	$0.1404^{+0.0014}_{-0.0015}$	$\ln(10^{10} A_{\text{t}})$	-11.51	$0.5^{+1.9}_{-3.7}$
$\Omega_{\text{m}} h^3$	0.09638	$0.0963^{+0.0013}_{-0.0013}$	$100\theta_{\text{D}}$	0.16073	$0.16076^{+0.00082}_{-0.00079}$	$r_{10}$	0.000	$< 0.219$
$\sigma_8$	0.7937	$0.793^{+0.028}_{-0.030}$	$z_{\text{eq}}$	3352	$3349^{+110}_{-120}$	$10^9 A_{\text{t}}$	0.000	$< 0.784$
$S_8$	0.795	$0.794^{+0.061}_{-0.061}$	$k_{\text{eq}}$	0.010231	$0.01022^{+0.00035}_{-0.00037}$	$10^9 A_{\text{t}} e^{-2\tau}$	0.000	$< 0.711$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4356	$0.435^{+0.033}_{-0.033}$	$100\theta_{\text{eq}}$	0.8230	$0.824^{+0.024}_{-0.021}$	$\chi_{\text{simall}}^2$	395.70	$397.4 (\nu: 1.4)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5880	$0.587^{+0.031}_{-0.032}$	$100\theta_{\text{s,eq}}$	0.4544	$0.455^{+0.012}_{-0.011}$	$\chi_{\text{plikTE}}^2$	852.9	$860.3 (\nu: 7.1)$
$\sigma_8/h^{0.5}$	0.9597	$0.959^{+0.044}_{-0.046}$	$H(0.15)$	73.57	$73.6^{+2.1}_{-1.9}$	$\chi_{\text{prior}}^2$	0.4	$7.4 (\nu: 6.9)$
$r_{\text{drag}} h$	100.91	$101.0^{+4.3}_{-3.9}$	$D_{\text{M}}(0.15)$	634.6	$634^{+19}_{-20}$	$\chi_{\text{CMB}}^2$	1248.6	$1257.8 (\nu: 8.9)$
$\langle d^2 \rangle^{1/2}$	2.388	$2.38^{+0.11}_{-0.11}$	$H(0.38)$	83.50	$83.5^{+1.6}_{-1.4}$			

Best-fit  $\chi_{\text{eff}}^2 = 1249.01$ ;  $\bar{\chi}_{\text{eff}}^2 = 1265.18$ ;  $R - 1 = 0.00716$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.70 plik\_rd12\_HM\_v22\_TE: 852.88



## 17.22 base\_r\_plikHM\_TE\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02245	$0.02244^{+0.00059}_{-0.00058}$	$10^9 A_s$	2.046	$2.04^{+0.10}_{-0.12}$	$D_M(0.51)$	1969.5	$1969^{+29}_{-28}$
$\Omega_c h^2$	0.11823	$0.1181^{+0.0032}_{-0.0031}$	$10^9 A_s e^{-2\tau}$	1.8552	$1.853^{+0.043}_{-0.042}$	$H(0.61)$	95.58	$95.59^{+0.68}_{-0.66}$
$100\theta_{MC}$	1.04134	$1.0413^{+0.0012}_{-0.0012}$	$D_{40}$	1218	$1255^{+120}_{-82}$	$D_M(0.61)$	2292.7	$2292^{+31}_{-31}$
$\tau$	0.0489	$0.049^{+0.021}_{-0.027}$	$D_{220}$	5698	$5685^{+150}_{-140}$	$H(2.33)$	235.51	$235.4^{+2.1}_{-2.1}$
$\ln(10^{10} A_s)$	3.018	$3.017^{+0.049}_{-0.060}$	$D_{810}$	2508	$2507^{+64}_{-62}$	$D_M(2.33)$	5750.7	$5750^{+34}_{-34}$
$n_s$	0.9651	$0.967^{+0.025}_{-0.026}$	$D_{1420}$	806.9	$807^{+30}_{-28}$	$f\sigma_8(0.15)$	0.4433	$0.443^{+0.021}_{-0.021}$
$r$	0.001	$< 0.382$	$D_{2000}$	227.5	$228^{+11}_{-10}$	$\sigma_8(0.15)$	0.7353	$0.735^{+0.023}_{-0.025}$
$y_{cal}$	1.0001	$0.99998^{+0.0065}_{-0.0063}$	$n_{s,0.002}$	0.9651	$0.967^{+0.025}_{-0.026}$	$f\sigma_8(0.38)$	0.4630	$0.463^{+0.019}_{-0.020}$
$A_{100}^{dustTE}$	0.113	$0.116^{+0.098}_{-0.097}$	$Y_P$	0.245425	$0.24542^{+0.00024}_{-0.00025}$	$\sigma_8(0.38)$	0.6526	$0.652^{+0.020}_{-0.022}$
$A_{100 \times 143}^{dustTE}$	0.135	$0.138^{+0.076}_{-0.074}$	$Y_P^{BBN}$	0.246752	$0.24675^{+0.00025}_{-0.00025}$	$f\sigma_8(0.51)$	0.4625	$0.462^{+0.017}_{-0.018}$
$A_{100 \times 217}^{dustTE}$	0.476	$0.48^{+0.21}_{-0.22}$	$10^5 D/H$	2.571	$2.57^{+0.11}_{-0.11}$	$\sigma_8(0.51)$	0.6110	$0.611^{+0.018}_{-0.020}$
$A_{143}^{dustTE}$	0.220	$0.22^{+0.14}_{-0.14}$	Age/Gyr	13.769	$13.769^{+0.077}_{-0.078}$	$f\sigma_8(0.61)$	0.4582	$0.458^{+0.016}_{-0.018}$
$A_{143 \times 217}^{dustTE}$	0.658	$0.66^{+0.21}_{-0.21}$	$z_*$	1089.67	$1089.67^{+0.82}_{-0.83}$	$\sigma_8(0.61)$	0.5816	$0.582^{+0.017}_{-0.019}$
$A_{217}^{dustTE}$	2.06	$2.04^{+0.73}_{-0.71}$	$r_*$	144.83	$144.86^{+0.88}_{-0.87}$	$f\sigma_8(2.33)$	0.2936	$0.2935^{+0.0087}_{-0.0097}$
$c_{100}$	1.00016	$1.0002^{+0.0019}_{-0.0018}$	$100\theta_*$	1.04152	$1.0415^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.3030	$0.3030^{+0.0092}_{-0.010}$
$c_{217}$	0.99801	$0.9980^{+0.0016}_{-0.0017}$	$D_M(z_*)/\text{Gpc}$	13.906	$13.908^{+0.087}_{-0.085}$	$r_{0.002}$	0.001	$< 0.403$
$H_0$	68.19	$68.2^{+1.4}_{-1.4}$	$z_{drag}$	1059.97	$1060.0^{+1.3}_{-1.3}$	$r_{0.01}$	0.001	$< 0.391$
$\Omega_\Lambda$	0.6960	$0.696^{+0.018}_{-0.019}$	$r_{drag}$	147.48	$147.50^{+0.99}_{-0.95}$	$\ln(10^{10} A_t)$	-3.90	$0.5^{+1.9}_{-3.7}$
$\Omega_m$	0.3040	$0.304^{+0.019}_{-0.018}$	$k_D$	0.14052	$0.1405^{+0.0013}_{-0.0014}$	$r_{10}$	0.000	$< 0.214$
$\Omega_m h^2$	0.14132	$0.1412^{+0.0032}_{-0.0031}$	$100\theta_D$	0.16077	$0.16079^{+0.00081}_{-0.00077}$	$10^9 A_t$	0.002	$< 0.772$
$\Omega_m h^3$	0.09636	$0.0963^{+0.0013}_{-0.0014}$	$z_{eq}$	3362	$3360^{+76}_{-73}$	$10^9 A_t e^{-2\tau}$	0.002	$< 0.705$
$\sigma_8$	0.7949	$0.795^{+0.025}_{-0.028}$	$k_{eq}$	0.010260	$0.01025^{+0.00023}_{-0.00022}$	$\chi_{small}^2$	395.69	$397.4 (\nu: 1.4)$
$S_8$	0.8001	$0.799^{+0.041}_{-0.041}$	$100\theta_{eq}$	0.8212	$0.822^{+0.014}_{-0.014}$	$\chi_{plikTE}^2$	853.0	$859.7 (\nu: 6.4)$
$\sigma_8 \Omega_m^{0.5}$	0.4382	$0.438^{+0.022}_{-0.022}$	$100\theta_{s,eq}$	0.4534	$0.4537^{+0.0071}_{-0.0072}$	$\chi_{6DF}^2$	0.000	$0.037 (\nu: 0.0)$
$\sigma_8 \Omega_m^{0.25}$	0.5902	$0.590^{+0.023}_{-0.024}$	$H(0.15)$	73.39	$73.4^{+1.2}_{-1.2}$	$\chi_{MGS}^2$	1.75	$1.85 (\nu: 0.2)$
$\sigma_8/h^{0.5}$	0.9626	$0.962^{+0.034}_{-0.037}$	$D_M(0.15)$	636.3	$636^{+12}_{-12}$	$\chi_{DR12BAO}^2$	3.43	$3.97 (\nu: 0.4)$
$r_{drag} h$	100.56	$100.6^{+2.4}_{-2.4}$	$H(0.38)$	83.38	$83.39^{+0.94}_{-0.92}$	$\chi_{prior}^2$	0.4	$7.4 (\nu: 6.6)$
$\langle d^2 \rangle^{1/2}$	2.395	$2.389^{+0.083}_{-0.086}$	$D_M(0.38)$	1519.4	$1519^{+24}_{-24}$	$\chi_{BAO}^2$	5.18	$5.86 (\nu: 0.5)$
$z_{re}$	7.08	$7.1^{+2.1}_{-3.2}$	$H(0.51)$	90.02	$90.03^{+0.79}_{-0.77}$	$\chi_{CMB}^2$	1248.6	$1257.2 (\nu: 8.1)$

Best-fit  $\chi_{eff}^2 = 1254.24$ ;  $\bar{\chi}_{eff}^2 = 1270.41$ ;  $R - 1 = 0.01140$

$\chi_{eff}^2$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.44 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.69 plik\_rd12\_HM\_v22\_TE: 852.95



### 17.23 base\_r\_plikHM\_TE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02249^{+0.00067}_{-0.00064}$	$z_{\text{re}}$	$< 9.01$	$D_{\text{M}}(0.38)$	$1515^{+39}_{-41}$
$\Omega_c h^2$	$0.1176^{+0.0051}_{-0.0053}$	$10^9 A_{\text{s}}$	$2.057^{+0.093}_{-0.071}$	$H(0.51)$	$90.2^{+1.3}_{-1.1}$
$100\theta_{\text{MC}}$	$1.0414^{+0.0013}_{-0.0013}$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.851^{+0.047}_{-0.047}$	$D_{\text{M}}(0.51)$	$1964^{+45}_{-48}$
$\tau$	$0.053^{+0.017}_{-0.010}$	$D_{40}$	$1252^{+130}_{-89}$	$H(0.61)$	$95.7^{+1.1}_{-0.92}$
$\ln(10^{10} A_{\text{s}})$	$3.024^{+0.044}_{-0.035}$	$D_{220}$	$5686^{+150}_{-140}$	$D_{\text{M}}(0.61)$	$2287^{+49}_{-53}$
$n_{\text{s}}$	$0.969^{+0.028}_{-0.028}$	$D_{810}$	$2508^{+63}_{-65}$	$H(2.33)$	$235.2^{+3.1}_{-3.2}$
$r$	$< 0.382$	$D_{1420}$	$808^{+29}_{-29}$	$D_{\text{M}}(2.33)$	$5746^{+43}_{-47}$
$A_{100}^{\text{dustTE}}$	$0.116^{+0.099}_{-0.098}$	$D_{2000}$	$228^{+11}_{-11}$	$f\sigma_8(0.15)$	$0.442^{+0.031}_{-0.031}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.138^{+0.075}_{-0.074}$	$n_{\text{s},0.002}$	$0.969^{+0.028}_{-0.028}$	$\sigma_8(0.15)$	$0.737^{+0.022}_{-0.021}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$Y_{\text{P}}$	$0.24544^{+0.00029}_{-0.00027}$	$f\sigma_8(0.38)$	$0.462^{+0.025}_{-0.026}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24677^{+0.00029}_{-0.00027}$	$\sigma_8(0.38)$	$0.654^{+0.019}_{-0.017}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.20}$	$10^5 \text{D/H}$	$2.56^{+0.12}_{-0.12}$	$f\sigma_8(0.51)$	$0.462^{+0.022}_{-0.023}$
$A_{217}^{\text{dustTE}}$	$2.03^{+0.71}_{-0.70}$	Age/Gyr	$13.760^{+0.097}_{-0.10}$	$\sigma_8(0.51)$	$0.613^{+0.017}_{-0.015}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0018}$	$z_*$	$1089.6^{+1.1}_{-1.1}$	$f\sigma_8(0.61)$	$0.458^{+0.019}_{-0.020}$
$c_{217}$	$0.9980^{+0.0017}_{-0.0017}$	$r_*$	$145.0^{+1.3}_{-1.2}$	$\sigma_8(0.61)$	$0.583^{+0.016}_{-0.014}$
$y_{\text{cal}}$	$1.0000^{+0.0065}_{-0.0064}$	$100\theta_*$	$1.0416^{+0.0013}_{-0.0013}$	$f\sigma_8(2.33)$	$0.2945^{+0.0079}_{-0.0067}$
$H_0$	$68.5^{+2.5}_{-2.3}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.92^{+0.12}_{-0.11}$	$\sigma_8(2.33)$	$0.3042^{+0.0083}_{-0.0067}$
$\Omega_{\Lambda}$	$0.700^{+0.030}_{-0.031}$	$z_{\text{drag}}$	$1060.0^{+1.4}_{-1.4}$	$r_{0.002}$	$< 0.411$
$\Omega_{\text{m}}$	$0.300^{+0.031}_{-0.030}$	$r_{\text{drag}}$	$147.6^{+1.3}_{-1.2}$	$r_{0.01}$	$< 0.395$
$\Omega_{\text{m}} h^2$	$0.1408^{+0.0049}_{-0.0050}$	$k_{\text{D}}$	$0.1404^{+0.0014}_{-0.0015}$	$\ln(10^{10} A_{\text{t}})$	$0.5^{+1.9}_{-3.8}$
$\Omega_{\text{m}} h^3$	$0.0964^{+0.0013}_{-0.0014}$	$100\theta_{\text{D}}$	$0.16075^{+0.00081}_{-0.00078}$	$r_{10}$	$< 0.217$
$\sigma_8$	$0.796^{+0.026}_{-0.025}$	$z_{\text{eq}}$	$3348^{+120}_{-120}$	$10^9 A_{\text{t}}$	$< 0.782$
$S_8$	$0.796^{+0.060}_{-0.060}$	$k_{\text{eq}}$	$0.01022^{+0.00035}_{-0.00036}$	$10^9 A_{\text{t}} e^{-2\tau}$	$< 0.706$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.436^{+0.033}_{-0.033}$	$100\theta_{\text{eq}}$	$0.824^{+0.024}_{-0.022}$	$\chi_{\text{simall}}^2$	$397.0 (\nu: 0.8)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.589^{+0.030}_{-0.031}$	$100\theta_{\text{s,eq}}$	$0.455^{+0.012}_{-0.011}$	$\chi_{\text{plikTE}}^2$	$860.4 (\nu: 7.1)$
$\sigma_8/h^{0.5}$	$0.962^{+0.042}_{-0.043}$	$H(0.15)$	$73.6^{+2.1}_{-2.0}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.9)$
$r_{\text{drag}} h$	$101.1^{+4.3}_{-4.0}$	$D_{\text{M}}(0.15)$	$634^{+19}_{-20}$	$\chi_{\text{CMB}}^2$	$1257.4 (\nu: 8.5)$
$\langle d^2 \rangle^{1/2}$	$2.39^{+0.11}_{-0.11}$	$H(0.38)$	$83.6^{+1.6}_{-1.4}$		

$\bar{\chi}_{\text{eff}}^2 = 1264.77$ ;  $R - 1 = 0.00680$



# 17.24 base\_r\_plikHM\_TE\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02246^{+0.00057}_{-0.00058}$	$10^9 A_{\mathrm{s}}$	$2.058^{+0.093}_{-0.069}$	$D_{\mathrm{M}}(0.51)$	$1968^{+29}_{-28}$
$\Omega_{\mathrm{c}} h^2$	$0.1181^{+0.0032}_{-0.0031}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.853^{+0.043}_{-0.042}$	$H(0.61)$	$95.61^{+0.68}_{-0.67}$
$100\theta_{\mathrm{MC}}$	$1.0414^{+0.0012}_{-0.0012}$	$D_{40}$	$1255^{+120}_{-82}$	$D_{\mathrm{M}}(0.61)$	$2292^{+31}_{-31}$
$\tau$	$0.052^{+0.017}_{-0.010}$	$D_{220}$	$5684^{+150}_{-140}$	$H(2.33)$	$235.4^{+2.1}_{-2.0}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.024^{+0.044}_{-0.034}$	$D_{810}$	$2508^{+64}_{-63}$	$D_{\mathrm{M}}(2.33)$	$5750^{+33}_{-33}$
$n_{\mathrm{s}}$	$0.967^{+0.025}_{-0.026}$	$D_{1420}$	$808^{+30}_{-29}$	$f\sigma_8(0.15)$	$0.444^{+0.021}_{-0.020}$
$r$	$< 0.376$	$D_{2000}$	$228^{+11}_{-11}$	$\sigma_8(0.15)$	$0.738^{+0.021}_{-0.018}$
$y_{\mathrm{cal}}$	$0.99998^{+0.0065}_{-0.0063}$	$n_{\mathrm{s},0.002}$	$0.967^{+0.025}_{-0.026}$	$f\sigma_8(0.38)$	$0.464^{+0.018}_{-0.017}$
$A_{100}^{\mathrm{dustTE}}$	$0.116^{+0.097}_{-0.097}$	$Y_{\mathrm{P}}$	$0.24543^{+0.00024}_{-0.00025}$	$\sigma_8(0.38)$	$0.655^{+0.018}_{-0.015}$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.138^{+0.076}_{-0.074}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24675^{+0.00024}_{-0.00025}$	$f\sigma_8(0.51)$	$0.464^{+0.016}_{-0.016}$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.57^{+0.11}_{-0.10}$	$\sigma_8(0.51)$	$0.613^{+0.017}_{-0.014}$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.768^{+0.075}_{-0.077}$	$f\sigma_8(0.61)$	$0.460^{+0.015}_{-0.015}$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.20}_{-0.20}$	$z_{*}$	$1089.65^{+0.83}_{-0.82}$	$\sigma_8(0.61)$	$0.584^{+0.016}_{-0.013}$
$A_{217}^{\mathrm{dustTE}}$	$2.04^{+0.73}_{-0.72}$	$r_{*}$	$144.85^{+0.88}_{-0.87}$	$f\sigma_8(2.33)$	$0.2947^{+0.0079}_{-0.0065}$
$c_{100}$	$1.0002^{+0.0019}_{-0.0018}$	$100\theta_{*}$	$1.0415^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	$0.3042^{+0.0082}_{-0.0066}$
$c_{217}$	$0.9980^{+0.0016}_{-0.0017}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.908^{+0.087}_{-0.085}$	$r_{0.002}$	$< 0.403$
$H_0$	$68.2^{+1.4}_{-1.4}$	$z_{\mathrm{drag}}$	$1060.0^{+1.3}_{-1.3}$	$r_{0.01}$	$< 0.388$
$\Omega_{\Lambda}$	$0.697^{+0.018}_{-0.019}$	$r_{\mathrm{drag}}$	$147.50^{+0.99}_{-0.96}$	$\ln(10^{10} A_{\mathrm{t}})$	$0.5^{+1.9}_{-3.7}$
$\Omega_{\mathrm{m}}$	$0.303^{+0.019}_{-0.018}$	$k_{\mathrm{D}}$	$0.1405^{+0.0013}_{-0.0014}$	$r_{10}$	$< 0.213$
$\Omega_{\mathrm{m}} h^2$	$0.1412^{+0.0032}_{-0.0031}$	$100\theta_{\mathrm{D}}$	$0.16077^{+0.00078}_{-0.00076}$	$10^9 A_{\mathrm{t}}$	$< 0.772$
$\Omega_{\mathrm{m}} h^3$	$0.0964^{+0.0013}_{-0.0014}$	$z_{\mathrm{eq}}$	$3359^{+76}_{-73}$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.694$
$\sigma_8$	$0.798^{+0.023}_{-0.020}$	$k_{\mathrm{eq}}$	$0.01025^{+0.00023}_{-0.00022}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 0.8)$
$S_8$	$0.802^{+0.040}_{-0.038}$	$100\theta_{\mathrm{eq}}$	$0.822^{+0.014}_{-0.014}$	$\chi_{\mathrm{plikTE}}^2$	$859.8 (\nu: 6.2)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.439^{+0.022}_{-0.021}$	$100\theta_{\mathrm{s,eq}}$	$0.4537^{+0.0071}_{-0.0071}$	$\chi_{6\mathrm{DF}}^2$	$0.037 (\nu: 0.0)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.592^{+0.022}_{-0.021}$	$H(0.15)$	$73.4^{+1.2}_{-1.2}$	$\chi_{\mathrm{MGS}}^2$	$1.87 (\nu: 0.2)$
$\sigma_8/h^{0.5}$	$0.966^{+0.032}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$636^{+12}_{-12}$	$\chi_{\mathrm{DR12BAO}}^2$	$3.96 (\nu: 0.4)$
$r_{\mathrm{drag}} h$	$100.6^{+2.4}_{-2.4}$	$H(0.38)$	$83.41^{+0.93}_{-0.92}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.6)$
$\langle d^2 \rangle^{1/2}$	$2.396^{+0.078}_{-0.076}$	$D_{\mathrm{M}}(0.38)$	$1519^{+24}_{-24}$	$\chi_{\mathrm{BAO}}^2$	$5.87 (\nu: 0.5)$
$z_{\mathrm{re}}$	$< 9.04$	$H(0.51)$	$90.05^{+0.78}_{-0.76}$	$\chi_{\mathrm{CMB}}^2$	$1256.8 (\nu: 7.6)$

$\bar{\chi}_{\mathrm{eff}}^2 = 1269.96$ ;  $R - 1 = 0.01240$



## 17.25 base\_r\_plikHM\_EE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02387	$0.0239^{+0.0034}_{-0.0030}$	$D_{810}$	2586	$2583^{+95}_{-100}$	$D_M(0.51)$	1924	$1920^{+150}_{-140}$
$\Omega_c h^2$	0.1144	$0.114^{+0.013}_{-0.012}$	$D_{1420}$	845.3	$846^{+47}_{-49}$	$H(0.61)$	96.75	$96.9^{+4.3}_{-3.4}$
$100\theta_{MC}$	1.04018	$1.0402^{+0.0023}_{-0.0022}$	$D_{2000}$	241.8	$242^{+18}_{-19}$	$D_M(0.61)$	2243	$2238^{+160}_{-160}$
$\tau$	0.0537	$0.053^{+0.024}_{-0.027}$	$n_{s,0.002}$	0.9879	$0.993^{+0.048}_{-0.040}$	$H(2.33)$	234.3	$233.9^{+6.1}_{-5.4}$
$\ln(10^{10} A_s)$	3.048	$3.043^{+0.061}_{-0.065}$	$Y_P$	0.24600	$0.2460^{+0.0013}_{-0.0013}$	$D_M(2.33)$	5695	$5691^{+170}_{-190}$
$n_s$	0.9879	$0.993^{+0.048}_{-0.040}$	$Y_P^{BBN}$	0.24733	$0.2473^{+0.0013}_{-0.0013}$	$f\sigma_8(0.15)$	0.427	$0.423^{+0.079}_{-0.074}$
$r$	0.187	$< 0.721$	$10^5 D/H$	2.33	$2.34^{+0.55}_{-0.47}$	$\sigma_8(0.15)$	0.7355	$0.732^{+0.036}_{-0.043}$
$y_{cal}$	1.0002	$1.0001^{+0.0067}_{-0.0062}$	Age/Gyr	13.644	$13.64^{+0.38}_{-0.42}$	$f\sigma_8(0.38)$	0.451	$0.448^{+0.061}_{-0.063}$
$H_0$	70.4	$70.7^{+7.6}_{-7.1}$	$z_*$	1087.68	$1087.7^{+4.6}_{-4.1}$	$\sigma_8(0.38)$	0.6554	$0.653^{+0.026}_{-0.032}$
$\Omega_\Lambda$	0.719	$0.721^{+0.067}_{-0.088}$	$r_*$	144.74	$144.9^{+2.1}_{-1.9}$	$f\sigma_8(0.51)$	0.454	$0.450^{+0.051}_{-0.056}$
$\Omega_m$	0.281	$0.279^{+0.088}_{-0.067}$	$100\theta_*$	1.04020	$1.0402^{+0.0022}_{-0.0022}$	$\sigma_8(0.51)$	0.6148	$0.613^{+0.022}_{-0.027}$
$\Omega_m h^2$	0.1389	$0.138^{+0.010}_{-0.0097}$	$D_M(z_*)/\text{Gpc}$	13.915	$13.93^{+0.20}_{-0.18}$	$f\sigma_8(0.61)$	0.4512	$0.448^{+0.044}_{-0.050}$
$\Omega_m h^3$	0.09774	$0.0977^{+0.0049}_{-0.0044}$	$z_{drag}$	1062.9	$1062.9^{+6.6}_{-6.3}$	$\sigma_8(0.61)$	0.5860	$0.584^{+0.020}_{-0.024}$
$\sigma_8$	0.793	$0.789^{+0.047}_{-0.053}$	$r_{drag}$	146.93	$147.1^{+2.3}_{-2.1}$	$f\sigma_8(2.33)$	0.2967	$0.2958^{+0.0093}_{-0.010}$
$S_8$	0.767	$0.76^{+0.16}_{-0.14}$	$k_D$	0.14207	$0.1418^{+0.0034}_{-0.0037}$	$\sigma_8(2.33)$	0.3074	$0.3068^{+0.0098}_{-0.0098}$
$\sigma_8 \Omega_m^{0.5}$	0.420	$0.416^{+0.086}_{-0.077}$	$100\theta_D$	0.15892	$0.1590^{+0.0037}_{-0.0030}$	$r_{0.002}$	0.19	$< 1.04$
$\sigma_8 \Omega_m^{0.25}$	0.577	$0.573^{+0.074}_{-0.073}$	$z_{eq}$	3304	$3289^{+250}_{-230}$	$r_{0.01}$	0.191	$< 0.855$
$\sigma_8/h^{0.5}$	0.945	$0.94^{+0.10}_{-0.10}$	$k_{eq}$	0.01008	$0.01004^{+0.00075}_{-0.00071}$	$\ln(10^{10} A_t)$	1.37	$1.4^{+1.5}_{-3.5}$
$r_{drag} h$	103.4	$104^{+11}_{-11}$	$100\theta_{eq}$	0.835	$0.838^{+0.055}_{-0.052}$	$r_{10}$	0.100	$< 0.574$
$\langle d^2 \rangle^{1/2}$	2.341	$2.32^{+0.21}_{-0.21}$	$100\theta_{s,eq}$	0.4595	$0.461^{+0.026}_{-0.025}$	$10^9 A_t$	0.39	$< 1.49$
$z_{re}$	7.22	$7.1^{+2.2}_{-2.8}$	$H(0.15)$	75.3	$75.6^{+6.8}_{-6.2}$	$10^9 A_t e^{-2\tau}$	0.35	$< 1.34$
$10^9 A_s$	2.106	$2.10^{+0.13}_{-0.13}$	$D_M(0.15)$	618	$616^{+61}_{-56}$	$\chi_{small}^2$	396.5	$398.4 (\nu: 2.2)$
$10^9 A_s e^{-2\tau}$	1.892	$1.886^{+0.067}_{-0.070}$	$H(0.38)$	84.9	$85.2^{+5.6}_{-4.8}$	$\chi_{plikEE}^2$	737.6	$742.5 (\nu: 5.1)$
$D_{40}$	1275	$1297^{+200}_{-100}$	$D_M(0.38)$	1482	$1478^{+120}_{-120}$	$\chi_{prior}^2$	0.00	$0.99 (\nu: 1.0)$
$D_{220}$	5905	$5880^{+520}_{-520}$	$H(0.51)$	91.36	$91.6^{+4.9}_{-4.0}$	$\chi_{CMB}^2$	1134.1	$1140.9 (\nu: 6.9)$

Best-fit  $\chi_{eff}^2 = 1134.13$ ;  $\bar{\chi}_{eff}^2 = 1141.89$ ;  $R - 1 = 0.00830$

$\chi_{eff}^2$ : CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.53 plik\_rd12\_HM\_v22\_EE: 737.59



## 17.26 base\_r\_plikHM\_EE\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02330	$0.0230^{+0.0019}_{-0.0020}$	$D_{2000}$	238.3	$238^{+14}_{-14}$	$D_M(2.33)$	5731	$5741^{+82}_{-81}$
$\Omega_c h^2$	0.11753	$0.1174^{+0.0038}_{-0.0038}$	$n_{s,0.002}$	0.9767	$0.983^{+0.032}_{-0.027}$	$f\sigma_8(0.15)$	0.4457	$0.445^{+0.025}_{-0.026}$
$100\theta_{MC}$	1.03986	$1.0399^{+0.0020}_{-0.0019}$	$Y_P$	0.24579	$0.24567^{+0.00073}_{-0.00083}$	$\sigma_8(0.15)$	0.7436	$0.743^{+0.023}_{-0.024}$
$\tau$	0.0532	$0.051^{+0.022}_{-0.026}$	$Y_P^{BBN}$	0.24712	$0.24699^{+0.00073}_{-0.00084}$	$f\sigma_8(0.38)$	0.4663	$0.466^{+0.022}_{-0.022}$
$\ln(10^{10} A_s)$	3.049	$3.040^{+0.052}_{-0.060}$	$10^5 D/H$	2.422	$2.47^{+0.37}_{-0.30}$	$\sigma_8(0.38)$	0.6603	$0.659^{+0.019}_{-0.020}$
$n_s$	0.9767	$0.983^{+0.032}_{-0.027}$	Age/Gyr	13.725	$13.75^{+0.19}_{-0.19}$	$f\sigma_8(0.51)$	0.4663	$0.466^{+0.020}_{-0.020}$
$r$	0.065	$< 0.675$	$z_*$	1088.59	$1088.9^{+2.5}_{-2.1}$	$\sigma_8(0.51)$	0.6185	$0.618^{+0.018}_{-0.018}$
$y_{cal}$	1.0002	$1.0001^{+0.0064}_{-0.0060}$	$r_*$	144.36	$144.6^{+1.6}_{-1.5}$	$f\sigma_8(0.61)$	0.4623	$0.462^{+0.018}_{-0.018}$
$H_0$	68.65	$68.5^{+2.2}_{-2.1}$	$100\theta_*$	1.03995	$1.0400^{+0.0020}_{-0.0019}$	$\sigma_8(0.61)$	0.5888	$0.588^{+0.017}_{-0.017}$
$\Omega_\Lambda$	0.6998	$0.699^{+0.023}_{-0.024}$	$D_M(z_*)/\text{Gpc}$	13.881	$13.90^{+0.15}_{-0.15}$	$f\sigma_8(2.33)$	0.2973	$0.2969^{+0.0084}_{-0.0087}$
$\Omega_m$	0.3002	$0.301^{+0.024}_{-0.023}$	$z_{drag}$	1061.88	$1061.3^{+4.1}_{-4.6}$	$\sigma_8(2.33)$	0.3071	$0.3066^{+0.0088}_{-0.0092}$
$\Omega_m h^2$	0.14147	$0.1411^{+0.0039}_{-0.0038}$	$r_{drag}$	146.72	$147.0^{+2.1}_{-2.0}$	$r_{0.002}$	0.062	$< 0.893$
$\Omega_m h^3$	0.09711	$0.0967^{+0.0035}_{-0.0034}$	$k_D$	0.14194	$0.1414^{+0.0032}_{-0.0036}$	$r_{0.01}$	0.064	$< 0.770$
$\sigma_8$	0.8034	$0.802^{+0.026}_{-0.026}$	$100\theta_D$	0.15945	$0.1598^{+0.0028}_{-0.0022}$	$\ln(10^{10} A_t)$	0.32	$1.3^{+1.6}_{-3.3}$
$S_8$	0.8038	$0.803^{+0.049}_{-0.049}$	$z_{eq}$	3365	$3355^{+93}_{-91}$	$r_{10}$	0.032	$< 0.501$
$\sigma_8 \Omega_m^{0.5}$	0.4402	$0.440^{+0.027}_{-0.027}$	$k_{eq}$	0.010271	$0.01024^{+0.00028}_{-0.00028}$	$10^9 A_t$	0.14	$< 1.38$
$\sigma_8 \Omega_m^{0.25}$	0.5947	$0.594^{+0.027}_{-0.027}$	$100\theta_{eq}$	0.8217	$0.823^{+0.016}_{-0.016}$	$10^9 A_t e^{-2\tau}$	0.12	$< 1.25$
$\sigma_8/h^{0.5}$	0.9697	$0.969^{+0.040}_{-0.040}$	$100\theta_{s,eq}$	0.4530	$0.4539^{+0.0084}_{-0.0084}$	$\chi_{simall}^2$	396.0	$398.3 (\nu: 2.2)$
$r_{drag} h$	100.71	$100.8^{+3.0}_{-2.9}$	$H(0.15)$	73.82	$73.7^{+2.0}_{-1.9}$	$\chi_{plikEE}^2$	738.6	$742.1 (\nu: 4.1)$
$\langle d^2 \rangle^{1/2}$	2.400	$2.38^{+0.10}_{-0.11}$	$D_M(0.15)$	632.3	$633^{+19}_{-19}$	$\chi_{6DF}^2$	0.002	$0.057 (\nu: 0.0)$
$z_{re}$	7.33	$7.2^{+2.3}_{-2.9}$	$H(0.38)$	83.77	$83.6^{+1.8}_{-1.6}$	$\chi_{MGS}^2$	1.82	$1.94 (\nu: 0.3)$
$10^9 A_s$	2.110	$2.09^{+0.11}_{-0.12}$	$D_M(0.38)$	1510.8	$1513^{+39}_{-40}$	$\chi_{DR12BAO}^2$	3.61	$4.4 (\nu: 0.7)$
$10^9 A_s e^{-2\tau}$	1.897	$1.888^{+0.067}_{-0.067}$	$H(0.51)$	90.39	$90.2^{+1.6}_{-1.5}$	$\chi_{prior}^2$	0.00	$0.98 (\nu: 0.9)$
$D_{40}$	1247	$1295^{+200}_{-100}$	$D_M(0.51)$	1958.9	$1962^{+47}_{-48}$	$\chi_{BAO}^2$	5.43	$6.4 (\nu: 0.9)$
$D_{220}$	5855	$5773^{+380}_{-400}$	$H(0.61)$	95.94	$95.8^{+1.5}_{-1.4}$	$\chi_{CMB}^2$	1134.5	$1140.4 (\nu: 6.1)$
$D_{810}$	2575	$2567^{+90}_{-94}$	$D_M(0.61)$	2281	$2285^{+52}_{-53}$			
$D_{1420}$	836.4	$836^{+37}_{-36}$	$H(2.33)$	235.76	$235.4^{+2.7}_{-2.8}$			

Best-fit  $\chi_{eff}^2 = 1139.97$ ;  $\bar{\chi}_{eff}^2 = 1147.71$ ;  $R - 1 = 0.01154$

$\chi_{eff}^2$ : BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 3.61 CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 395.97 plik\_rd12\_HM\_v22\_EE: 738.57



# 17.27 base\_r\_plikHM\_EE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0239^{+0.0034}_{-0.0030}$	$D_{810}$	$2582^{+95}_{-100}$	$D_{\mathrm{M}}(0.51)$	$1921^{+150}_{-140}$
$\Omega_{\mathrm{c}}h^2$	$0.114^{+0.013}_{-0.012}$	$D_{1420}$	$846^{+47}_{-49}$	$H(0.61)$	$96.9^{+4.3}_{-3.4}$
$100\theta_{\mathrm{MC}}$	$1.0402^{+0.0023}_{-0.0022}$	$D_{2000}$	$242^{+18}_{-19}$	$D_{\mathrm{M}}(0.61)$	$2239^{+160}_{-160}$
$\tau$	$0.056^{+0.020}_{-0.014}$	$n_{\mathrm{s},0.002}$	$0.993^{+0.048}_{-0.040}$	$H(2.33)$	$233.9^{+6.2}_{-5.4}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.049^{+0.057}_{-0.049}$	$Y_{\mathrm{P}}$	$0.2460^{+0.0013}_{-0.0013}$	$D_{\mathrm{M}}(2.33)$	$5692^{+170}_{-190}$
$n_{\mathrm{s}}$	$0.993^{+0.048}_{-0.040}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2473^{+0.0013}_{-0.0013}$	$f\sigma_8(0.15)$	$0.425^{+0.080}_{-0.074}$
$r$	$< 0.718$	$10^5\mathrm{D}/\mathrm{H}$	$2.34^{+0.55}_{-0.47}$	$\sigma_8(0.15)$	$0.735^{+0.035}_{-0.040}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0067}_{-0.0063}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.64^{+0.38}_{-0.41}$	$f\sigma_8(0.38)$	$0.449^{+0.061}_{-0.062}$
$H_0$	$70.6^{+7.6}_{-7.1}$	$z_*$	$1087.7^{+4.7}_{-4.1}$	$\sigma_8(0.38)$	$0.655^{+0.025}_{-0.028}$
$\Omega_{\Lambda}$	$0.721^{+0.068}_{-0.090}$	$r_*$	$144.9^{+2.1}_{-2.0}$	$f\sigma_8(0.51)$	$0.452^{+0.051}_{-0.055}$
$\Omega_{\mathrm{m}}$	$0.279^{+0.090}_{-0.068}$	$100\theta_*$	$1.0402^{+0.0022}_{-0.0021}$	$\sigma_8(0.51)$	$0.615^{+0.021}_{-0.023}$
$\Omega_{\mathrm{m}}h^2$	$0.138^{+0.011}_{-0.0098}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.93^{+0.20}_{-0.18}$	$f\sigma_8(0.61)$	$0.450^{+0.044}_{-0.049}$
$\Omega_{\mathrm{m}}h^3$	$0.0976^{+0.0049}_{-0.0043}$	$z_{\mathrm{drag}}$	$1062.8^{+6.5}_{-6.2}$	$\sigma_8(0.61)$	$0.586^{+0.019}_{-0.021}$
$\sigma_8$	$0.792^{+0.046}_{-0.050}$	$r_{\mathrm{drag}}$	$147.1^{+2.3}_{-2.1}$	$f\sigma_8(2.33)$	$0.2969^{+0.0086}_{-0.0081}$
$S_8$	$0.76^{+0.16}_{-0.14}$	$k_{\mathrm{D}}$	$0.1418^{+0.0034}_{-0.0036}$	$\sigma_8(2.33)$	$0.3078^{+0.0090}_{-0.0077}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.418^{+0.087}_{-0.077}$	$100\theta_{\mathrm{D}}$	$0.1590^{+0.0036}_{-0.0030}$	$r_{0.002}$	$< 1.04$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.575^{+0.074}_{-0.071}$	$z_{\mathrm{eq}}$	$3290^{+250}_{-230}$	$r_{0.01}$	$< 0.853$
$\sigma_8/h^{0.5}$	$0.94^{+0.10}_{-0.10}$	$k_{\mathrm{eq}}$	$0.01004^{+0.00077}_{-0.00071}$	$\ln(10^{10}A_{\mathrm{t}})$	$1.4^{+1.5}_{-3.5}$
$r_{\mathrm{drag}}h$	$104^{+11}_{-11}$	$100\theta_{\mathrm{eq}}$	$0.838^{+0.056}_{-0.053}$	$r_{10}$	$< 0.567$
$\langle d^2 \rangle^{1/2}$	$2.33^{+0.21}_{-0.21}$	$100\theta_{\mathrm{s,eq}}$	$0.461^{+0.027}_{-0.026}$	$10^9A_{\mathrm{t}}$	$< 1.49$
$z_{\mathrm{re}}$	$< 9.12$	$H(0.15)$	$75.6^{+6.9}_{-6.3}$	$10^9A_{\mathrm{t}}e^{-2\tau}$	$< 1.33$
$10^9A_{\mathrm{s}}$	$2.11^{+0.12}_{-0.10}$	$D_{\mathrm{M}}(0.15)$	$617^{+61}_{-56}$	$\chi_{\mathrm{small}}^2$	$398.1 (\nu: 1.9)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.886^{+0.067}_{-0.070}$	$H(0.38)$	$85.1^{+5.6}_{-4.8}$	$\chi_{\mathrm{plikEE}}^2$	$742.4 (\nu: 5.0)$
$D_{40}$	$1296^{+200}_{-100}$	$D_{\mathrm{M}}(0.38)$	$1479^{+130}_{-120}$	$\chi_{\mathrm{prior}}^2$	$0.99 (\nu: 1.0)$
$D_{220}$	$5872^{+510}_{-510}$	$H(0.51)$	$91.5^{+4.8}_{-4.0}$	$\chi_{\mathrm{CMB}}^2$	$1140.5 (\nu: 6.3)$

$\bar{\chi}_{\mathrm{eff}}^2 = 1141.46$ ;  $R - 1 = 0.01059$



# 17.28 base\_r\_plikHM\_EE\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.0230^{+0.0019}_{-0.0019}$	$D_{2000}$	$238^{+14}_{-14}$	$D_{\mathrm{M}}(2.33)$	$5742^{+81}_{-84}$
$\Omega_{\mathrm{c}}h^2$	$0.1174^{+0.0038}_{-0.0037}$	$n_{\mathrm{s},0.002}$	$0.984^{+0.031}_{-0.027}$	$f\sigma_8(0.15)$	$0.447^{+0.024}_{-0.024}$
$100\theta_{\mathrm{MC}}$	$1.0399^{+0.0020}_{-0.0019}$	$Y_{\mathrm{P}}$	$0.24566^{+0.00074}_{-0.00082}$	$\sigma_8(0.15)$	$0.745^{+0.021}_{-0.019}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24698^{+0.00074}_{-0.00083}$	$f\sigma_8(0.38)$	$0.467^{+0.021}_{-0.020}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.048}_{-0.045}$	$10^5\mathrm{D}/\mathrm{H}$	$2.47^{+0.37}_{-0.30}$	$\sigma_8(0.38)$	$0.661^{+0.018}_{-0.016}$
$n_{\mathrm{s}}$	$0.984^{+0.031}_{-0.027}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.75^{+0.19}_{-0.19}$	$f\sigma_8(0.51)$	$0.467^{+0.019}_{-0.018}$
$r$	$< 0.675$	$z_*$	$1088.9^{+2.6}_{-2.1}$	$\sigma_8(0.51)$	$0.619^{+0.017}_{-0.015}$
$y_{\mathrm{cal}}$	$1.0001^{+0.0065}_{-0.0061}$	$r_*$	$144.6^{+1.6}_{-1.5}$	$f\sigma_8(0.61)$	$0.463^{+0.018}_{-0.016}$
$H_0$	$68.5^{+2.2}_{-2.1}$	$100\theta_*$	$1.0400^{+0.0020}_{-0.0019}$	$\sigma_8(0.61)$	$0.590^{+0.016}_{-0.014}$
$\Omega_{\Lambda}$	$0.699^{+0.023}_{-0.024}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.90^{+0.15}_{-0.15}$	$f\sigma_8(2.33)$	$0.2978^{+0.0079}_{-0.0070}$
$\Omega_{\mathrm{m}}$	$0.301^{+0.024}_{-0.023}$	$z_{\mathrm{drag}}$	$1061.2^{+4.1}_{-4.5}$	$\sigma_8(2.33)$	$0.3075^{+0.0082}_{-0.0072}$
$\Omega_{\mathrm{m}}h^2$	$0.1410^{+0.0039}_{-0.0038}$	$r_{\mathrm{drag}}$	$147.1^{+2.0}_{-2.0}$	$r_{0.002}$	$< 0.893$
$\Omega_{\mathrm{m}}h^3$	$0.0966^{+0.0035}_{-0.0030}$	$k_{\mathrm{D}}$	$0.1414^{+0.0032}_{-0.0034}$	$r_{0.01}$	$< 0.767$
$\sigma_8$	$0.805^{+0.024}_{-0.022}$	$100\theta_{\mathrm{D}}$	$0.1599^{+0.0027}_{-0.0023}$	$\ln(10^{10}A_{\mathrm{t}})$	$1.3^{+1.6}_{-3.3}$
$S_8$	$0.806^{+0.048}_{-0.046}$	$z_{\mathrm{eq}}$	$3355^{+94}_{-90}$	$r_{10}$	$< 0.501$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.441^{+0.026}_{-0.025}$	$k_{\mathrm{eq}}$	$0.01024^{+0.00029}_{-0.00027}$	$10^9A_{\mathrm{t}}$	$< 1.38$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.596^{+0.026}_{-0.024}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.016}_{-0.016}$	$10^9A_{\mathrm{t}}e^{-2\tau}$	$< 1.24$
$\sigma_8/h^{0.5}$	$0.972^{+0.037}_{-0.035}$	$100\theta_{\mathrm{s,eq}}$	$0.4539^{+0.0084}_{-0.0083}$	$\chi_{\mathrm{simall}}^2$	$398.0 (\nu: 1.9)$
$r_{\mathrm{drag}}h$	$100.8^{+3.0}_{-2.9}$	$H(0.15)$	$73.7^{+2.1}_{-1.9}$	$\chi_{\mathrm{plikEE}}^2$	$741.9 (\nu: 3.9)$
$\langle d^2 \rangle^{1/2}$	$2.382^{+0.097}_{-0.10}$	$D_{\mathrm{M}}(0.15)$	$634^{+19}_{-19}$	$\chi_{6\mathrm{DF}}^2$	$0.057 (\nu: 0.0)$
$z_{\mathrm{re}}$	$< 9.24$	$H(0.38)$	$83.6^{+1.8}_{-1.6}$	$\chi_{\mathrm{MGS}}^2$	$1.93 (\nu: 0.3)$
$10^9A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.094}$	$D_{\mathrm{M}}(0.38)$	$1514^{+39}_{-40}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.4 (\nu: 0.7)$
$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.887^{+0.067}_{-0.068}$	$H(0.51)$	$90.2^{+1.6}_{-1.5}$	$\chi_{\mathrm{prior}}^2$	$0.95 (\nu: 0.9)$
$D_{40}$	$1295^{+200}_{-100}$	$D_{\mathrm{M}}(0.51)$	$1963^{+47}_{-48}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 0.9)$
$D_{220}$	$5766^{+390}_{-380}$	$H(0.61)$	$95.8^{+1.6}_{-1.4}$	$\chi_{\mathrm{CMB}}^2$	$1140.0 (\nu: 5.5)$
$D_{810}$	$2566^{+89}_{-93}$	$D_{\mathrm{M}}(0.61)$	$2285^{+52}_{-54}$		
$D_{1420}$	$835^{+37}_{-36}$	$H(2.33)$	$235.4^{+2.9}_{-2.7}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1147.29$ ;  $R - 1 = 0.01573$



## 17.29 base\_r\_plikHM\_TT\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02214^{+0.00057}_{-0.00053}$	$r_{\text{drag}} h$	98.82	$98.9^{+3.3}_{-3.0}$	$D_M(0.51)$	1991.6	$1992^{+36}_{-39}$
$\Omega_c h^2$	0.12018	$0.1200^{+0.0039}_{-0.0041}$	$\langle d^2 \rangle^{1/2}$	2.445	$2.444^{+0.061}_{-0.064}$	$H(0.61)$	95.10	$95.08^{+0.83}_{-0.72}$
$100\theta_{\text{MC}}$	1.04085	$1.0408^{+0.0012}_{-0.0012}$	$z_{\text{re}}$	7.55	$7.5^{+2.0}_{-2.2}$	$D_M(0.61)$	2316.8	$2317^{+38}_{-42}$
$\tau$	0.0526	$0.053^{+0.021}_{-0.021}$	$10^9 A_s$	2.092	$2.091^{+0.084}_{-0.079}$	$H(2.33)$	236.48	$236.4^{+2.4}_{-2.5}$
$\ln(10^{10} A_s)$	3.0408	$3.040^{+0.040}_{-0.039}$	$10^9 A_s e^{-2\tau}$	1.8834	$1.882^{+0.030}_{-0.030}$	$D_M(2.33)$	5773.2	$5775^{+35}_{-39}$
$n_s$	0.9647	$0.964^{+0.013}_{-0.012}$	$D_{40}$	1229.4	$1244^{+48}_{-37}$	$f\sigma_8(0.15)$	0.4611	$0.460^{+0.020}_{-0.021}$
$r$	0.000	$< 0.151$	$D_{220}$	5715	$5714^{+110}_{-110}$	$\sigma_8(0.15)$	0.7488	$0.748^{+0.014}_{-0.014}$
$y_{\text{cal}}$	1.0005	$1.0006^{+0.0065}_{-0.0064}$	$D_{810}$	2538.4	$2537^{+36}_{-35}$	$f\sigma_8(0.38)$	0.4781	$0.477^{+0.015}_{-0.017}$
$A_{217}^{\text{CIB}}$	48.7	$48^{+20}_{-20}$	$D_{1420}$	816.1	$815^{+14}_{-13}$	$\sigma_8(0.38)$	0.6631	$0.663^{+0.013}_{-0.012}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.34	—	$D_{2000}$	230.18	$229.8^{+4.9}_{-4.6}$	$f\sigma_8(0.51)$	0.4760	$0.475^{+0.013}_{-0.014}$
$A_{143}^{\text{tSZ}}$	7.0	—	$n_{\text{s},0.002}$	0.9647	$0.964^{+0.013}_{-0.012}$	$\sigma_8(0.51)$	0.6203	$0.620^{+0.012}_{-0.012}$
$A_{100}^{\text{PS}}$	254	$263^{+70}_{-70}$	$Y_{\text{P}}$	0.245316	$0.24530^{+0.00022}_{-0.00025}$	$f\sigma_8(0.61)$	0.4705	$0.470^{+0.012}_{-0.013}$
$A_{143}^{\text{PS}}$	49.5	$49^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246643	$0.24662^{+0.00023}_{-0.00026}$	$\sigma_8(0.61)$	0.5901	$0.590^{+0.011}_{-0.011}$
$A_{143 \times 217}^{\text{PS}}$	47.3	$44^{+20}_{-20}$	$10^5 \text{D}/\text{H}$	2.622	$2.63^{+0.10}_{-0.11}$	$f\sigma_8(2.33)$	0.2973	$0.2970^{+0.0062}_{-0.0059}$
$A_{217}^{\text{PS}}$	119.3	$115^{+30}_{-30}$	Age/Gyr	13.820	$13.824^{+0.080}_{-0.088}$	$\sigma_8(2.33)$	0.3062	$0.3060^{+0.0069}_{-0.0065}$
$A^{\text{kSZ}}$	0.0	—	$z_*$	1090.18	$1090.22^{+0.90}_{-0.94}$	$r_{0.002}$	0.000	$< 0.144$
$A_{100}^{\text{dustTT}}$	8.88	$8.9^{+4.7}_{-4.7}$	$r_*$	144.53	$144.60^{+0.97}_{-0.94}$	$r_{0.01}$	0.000	$< 0.147$
$A_{143}^{\text{dustTT}}$	10.79	$10.7^{+4.5}_{-4.5}$	$100\theta_*$	1.04106	$1.0410^{+0.0012}_{-0.0011}$	$\ln(10^{10} A_{\text{t}})$	-5.72	$-0.7^{+2.2}_{-4.0}$
$A_{143 \times 217}^{\text{dustTT}}$	19.5	$18.3^{+8.3}_{-8.5}$	$D_M(z_*)/\text{Gpc}$	13.883	$13.890^{+0.090}_{-0.088}$	$r_{10}$	0.0001	$< 0.0743$
$A_{217}^{\text{dustTT}}$	94.7	$93^{+20}_{-20}$	$z_{\text{drag}}$	1059.51	$1059.4^{+1.2}_{-1.2}$	$10^9 A_{\text{t}}$	0.000	$< 0.316$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.26	$147.34^{+0.99}_{-0.98}$	$10^9 A_{\text{t}} e^{-2\tau}$	0.000	$< 0.283$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	0.14054	$0.1404^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	30.2	$31^{+7}_{-8}$
$H_0$	67.11	$67.1^{+1.9}_{-1.8}$	$100\theta_{\text{D}}$	0.16101	$0.16106^{+0.00068}_{-0.00070}$	$f_{2000}^{143 \times 217}$	33.2	$33^{+5}_{-5}$
$\Omega_{\Lambda}$	0.6825	$0.683^{+0.026}_{-0.025}$	$z_{\text{eq}}$	3402	$3398^{+90}_{-94}$	$f_{2000}^{217}$	107.60	$108.1^{+4.8}_{-5.0}$
$\Omega_{\text{m}}$	0.3175	$0.317^{+0.025}_{-0.026}$	$k_{\text{eq}}$	0.010383	$0.01037^{+0.00027}_{-0.00029}$	$\chi_{\text{lensing}}^2$	8.90	$9.46 (\nu: 0.4)$
$\Omega_{\text{m}} h^2$	0.14300	$0.1428^{+0.0038}_{-0.0039}$	$100\theta_{\text{eq}}$	0.8128	$0.813^{+0.018}_{-0.016}$	$\chi_{\text{small}}^2$	395.87	$397.1 (\nu: 1.2)$
$\Omega_{\text{m}} h^3$	0.09597	$0.0959^{+0.0012}_{-0.0011}$	$100\theta_{\text{s,eq}}$	0.4492	$0.4496^{+0.0093}_{-0.0084}$	$\chi_{\text{lowl}}^2$	23.37	$24.9 (\nu: 1.3)$
$\sigma_8$	0.8110	$0.810^{+0.016}_{-0.016}$	$H(0.15)$	72.45	$72.5^{+1.7}_{-1.5}$	$\chi_{\text{plik}}^2$	759.0	$771.2 (\nu: 13.6)$
$S_8$	0.8344	$0.833^{+0.040}_{-0.042}$	$D_M(0.15)$	645.6	$646^{+15}_{-16}$	$\chi_{\text{prior}}^2$	1.4	$7.3 (\nu: 6.7)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4570	$0.456^{+0.022}_{-0.023}$	$H(0.38)$	82.66	$82.7^{+1.2}_{-1.1}$	$\chi_{\text{CMB}}^2$	1187.2	$1202.6 (\nu: 16.1)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6088	$0.608^{+0.019}_{-0.020}$	$D_M(0.38)$	1538.2	$1538^{+31}_{-33}$			
$\sigma_8/h^{0.5}$	0.9900	$0.989^{+0.026}_{-0.027}$	$H(0.51)$	89.44	$89.4^{+1.0}_{-0.87}$			

Best-fit  $\chi_{\text{eff}}^2 = 1188.55$ ;  $\bar{\chi}_{\text{eff}}^2 = 1209.87$ ;  $R - 1 = 0.00994$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.90 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2.29: 23.37 plik\_rd12\_HM\_v22\_TT: 759.04



### 17.30 base\_r\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02225	$0.02221^{+0.00053}_{-0.00049}$	$\langle d^2 \rangle^{1/2}$	2.434	$2.433^{+0.055}_{-0.055}$	$D_M(0.61)$	2306.8	$2307^{+28}_{-29}$
$\Omega_c h^2$	0.11914	$0.1190^{+0.0028}_{-0.0028}$	$z_{\text{re}}$	7.75	$7.8^{+1.8}_{-2.0}$	$H(2.33)$	235.88	$235.8^{+1.8}_{-1.8}$
$100\theta_{\text{MC}}$	1.04096	$1.0410^{+0.0011}_{-0.0011}$	$10^9 A_s$	2.099	$2.097^{+0.082}_{-0.077}$	$D_M(2.33)$	5766.1	$5768^{+30}_{-32}$
$\tau$	0.0549	$0.055^{+0.019}_{-0.019}$	$10^9 A_s e^{-2\tau}$	1.8808	$1.879^{+0.029}_{-0.028}$	$f\sigma_8(0.15)$	0.4560	$0.456^{+0.016}_{-0.016}$
$\ln(10^{10} A_s)$	3.0440	$3.043^{+0.038}_{-0.037}$	$D_{40}$	1226.7	$1241^{+48}_{-37}$	$\sigma_8(0.15)$	0.7479	$0.747^{+0.015}_{-0.014}$
$n_s$	0.9669	$0.967^{+0.011}_{-0.010}$	$D_{220}$	5728	$5722^{+100}_{-110}$	$f\sigma_8(0.38)$	0.4744	$0.474^{+0.013}_{-0.013}$
$r$	0.000	$< 0.159$	$D_{810}$	2540.0	$2537^{+36}_{-35}$	$\sigma_8(0.38)$	0.6630	$0.663^{+0.013}_{-0.012}$
$y_{\text{cal}}$	1.0009	$1.0008^{+0.0064}_{-0.0064}$	$D_{1420}$	817.3	$816^{+13}_{-13}$	$f\sigma_8(0.51)$	0.4731	$0.473^{+0.012}_{-0.012}$
$A_{217}^{\text{CIB}}$	48.1	$48^{+20}_{-20}$	$D_{2000}$	230.62	$230.2^{+4.7}_{-4.5}$	$\sigma_8(0.51)$	0.6205	$0.620^{+0.012}_{-0.012}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.42	—	$n_{\text{s},0.002}$	0.9669	$0.967^{+0.011}_{-0.010}$	$f\sigma_8(0.61)$	0.4681	$0.468^{+0.011}_{-0.011}$
$A_{143}^{\text{tSZ}}$	7.0	—	$Y_{\text{P}}$	0.245348	$0.24533^{+0.00021}_{-0.00023}$	$\sigma_8(0.61)$	0.5904	$0.590^{+0.012}_{-0.011}$
$A_{100}^{\text{PS}}$	254	$262^{+70}_{-70}$	$Y_{\text{P}}^{\text{BBN}}$	0.246674	$0.24665^{+0.00021}_{-0.00023}$	$f\sigma_8(2.33)$	0.2977	$0.2976^{+0.0060}_{-0.0058}$
$A_{143}^{\text{PS}}$	50.6	$48^{+20}_{-20}$	$10^5 \text{D/H}$	2.608	$2.617^{+0.095}_{-0.097}$	$\sigma_8(2.33)$	0.3069	$0.3068^{+0.0064}_{-0.0063}$
$A_{143 \times 217}^{\text{PS}}$	49.2	$43^{+20}_{-20}$	Age/Gyr	13.805	$13.808^{+0.069}_{-0.074}$	$r_{0.002}$	0.000	$< 0.154$
$A_{217}^{\text{PS}}$	120.3	$115^{+20}_{-30}$	$z_*$	1089.99	$1090.04^{+0.74}_{-0.77}$	$r_{0.01}$	0.000	$< 0.156$
$A^{\text{kSZ}}$	0.0	—	$r_*$	144.74	$144.80^{+0.74}_{-0.73}$	$\ln(10^{10} A_{\text{t}})$	-6.92	$-0.6^{+2.2}_{-4.0}$
$A_{100}^{\text{dustTT}}$	8.89	$8.9^{+4.9}_{-4.6}$	$100\theta_*$	1.04116	$1.0412^{+0.0011}_{-0.0011}$	$r_{10}$	0.0000	$< 0.0796$
$A_{143}^{\text{dustTT}}$	10.83	$10.7^{+4.6}_{-4.5}$	$D_M(z_*)/\text{Gpc}$	13.902	$13.908^{+0.072}_{-0.073}$	$10^9 A_{\text{t}}$	0.000	$< 0.333$
$A_{143 \times 217}^{\text{dustTT}}$	19.6	$18.3^{+8.3}_{-8.3}$	$z_{\text{drag}}$	1059.59	$1059.5^{+1.2}_{-1.2}$	$10^9 A_{\text{t}} e^{-2\tau}$	0.000	$< 0.297$
$A_{217}^{\text{dustTT}}$	94.9	$94^{+20}_{-20}$	$r_{\text{drag}}$	147.45	$147.53^{+0.82}_{-0.82}$	$f_{2000}^{143}$	30.1	$31^{+7}_{-8}$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	0.14040	$0.1403^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+5}_{-5}$
$c_{217}$	0.99823	$0.9983^{+0.0017}_{-0.0016}$	$100\theta_{\text{D}}$	0.16095	$0.16103^{+0.00067}_{-0.00068}$	$f_{2000}^{217}$	107.50	$107.9^{+4.9}_{-4.9}$
$H_0$	67.57	$67.6^{+1.3}_{-1.3}$	$z_{\text{eq}}$	3379	$3376^{+65}_{-64}$	$\chi_{\text{lensing}}^2$	8.81	$9.32 (\nu: 0.3)$
$\Omega_{\Lambda}$	0.6889	$0.689^{+0.017}_{-0.017}$	$k_{\text{eq}}$	0.010312	$0.01030^{+0.00020}_{-0.00020}$	$\chi_{\text{small}}^2$	396.18	$397.3 (\nu: 1.5)$
$\Omega_{\text{m}}$	0.3111	$0.311^{+0.017}_{-0.017}$	$100\theta_{\text{eq}}$	0.8172	$0.818^{+0.012}_{-0.012}$	$\chi_{\text{lowl}}^2$	23.01	$24.5 (\nu: 1.1)$
$\Omega_{\text{m}} h^2$	0.14203	$0.1419^{+0.0027}_{-0.0027}$	$100\theta_{\text{s,eq}}$	0.4515	$0.4518^{+0.0063}_{-0.0061}$	$\chi_{\text{plik}}^2$	759.7	$771.5 (\nu: 13.5)$
$\Omega_{\text{m}} h^3$	0.09598	$0.0959^{+0.0012}_{-0.0012}$	$H(0.15)$	72.85	$72.8^{+1.1}_{-1.1}$	$\chi_{6\text{DF}}^2$	0.030	$0.055 (\nu: 0.0)$
$\sigma_8$	0.8093	$0.809^{+0.016}_{-0.016}$	$D_M(0.15)$	641.6	$642^{+11}_{-11}$	$\chi_{\text{MGS}}^2$	1.22	$1.30 (\nu: 0.1)$
$S_8$	0.8241	$0.823^{+0.031}_{-0.031}$	$H(0.38)$	82.95	$82.94^{+0.87}_{-0.82}$	$\chi_{\text{DR12BAO}}^2$	4.40	$4.8 (\nu: 1.1)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4514	$0.451^{+0.017}_{-0.017}$	$D_M(0.38)$	1530.3	$1530^{+22}_{-23}$	$\chi_{\text{prior}}^2$	1.3	$7.3 (\nu: 6.6)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6044	$0.604^{+0.016}_{-0.016}$	$H(0.51)$	89.65	$89.64^{+0.72}_{-0.69}$	$\chi_{\text{CMB}}^2$	1187.7	$1202.6 (\nu: 15.7)$
$\sigma_8/h^{0.5}$	0.9845	$0.984^{+0.023}_{-0.023}$	$D_M(0.51)$	1982.4	$1983^{+26}_{-27}$	$\chi_{\text{BAO}}^2$	5.64	$6.1 (\nu: 0.7)$
$r_{\text{drag}} h$	99.64	$99.7^{+2.2}_{-2.1}$	$H(0.61)$	95.27	$95.25^{+0.62}_{-0.59}$			

Best-fit  $\chi_{\text{eff}}^2 = 1194.73$ ;  $\bar{\chi}_{\text{eff}}^2 = 1215.99$ ;  $R - 1 = 0.01776$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.40 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.81 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.18 commander\_dx12.v3.2.29: 23.01 plik\_rd12\_HM\_v22\_TT: 759.74



17.31 base\_r\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02215^{+0.00057}_{-0.00053}$	$r_{\mathrm{drag}}h$	$99.0^{+3.3}_{-2.8}$	$D_{\mathrm{M}}(0.51)$	$1991^{+34}_{-39}$
$\Omega_{\mathrm{c}}h^2$	$0.1199^{+0.0037}_{-0.0041}$	$\langle d^2 \rangle^{1/2}$	$2.445^{+0.061}_{-0.064}$	$H(0.61)$	$95.10^{+0.83}_{-0.70}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0012}_{-0.0011}$	$z_{\mathrm{re}}$	$< 9.33$	$D_{\mathrm{M}}(0.61)$	$2316^{+36}_{-41}$
$\tau$	$0.054^{+0.018}_{-0.013}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.080}_{-0.056}$	$H(2.33)$	$236.3^{+2.3}_{-2.5}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.038}_{-0.027}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.881^{+0.030}_{-0.029}$	$D_{\mathrm{M}}(2.33)$	$5774^{+35}_{-39}$
$n_{\mathrm{s}}$	$0.965^{+0.013}_{-0.012}$	$D_{40}$	$1243^{+49}_{-37}$	$f\sigma_8(0.15)$	$0.460^{+0.020}_{-0.021}$
$r$	$< 0.152$	$D_{220}$	$5714^{+110}_{-110}$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.012}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0065}_{-0.0064}$	$D_{810}$	$2536^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.477^{+0.015}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.010}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{2000}$	$229.8^{+4.9}_{-4.6}$	$f\sigma_8(0.51)$	$0.476^{+0.013}_{-0.014}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.013}_{-0.012}$	$\sigma_8(0.51)$	$0.620^{+0.011}_{-0.0092}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00022}_{-0.00025}$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.012}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00022}_{-0.00025}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0086}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.10}_{-0.10}$	$f\sigma_8(2.33)$	$0.2974^{+0.0058}_{-0.0044}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.822^{+0.080}_{-0.088}$	$\sigma_8(2.33)$	$0.3064^{+0.0065}_{-0.0048}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.19^{+0.86}_{-0.92}$	$r_{0.002}$	$< 0.145$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7}$	$r_*$	$144.62^{+0.96}_{-0.89}$	$r_{0.01}$	$< 0.148$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.5}_{-4.5}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0011}$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.7^{+2.2}_{-4.0}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.3}_{-8.5}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.892^{+0.088}_{-0.085}$	$r_{10}$	$< 0.0749$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.4^{+1.2}_{-1.2}$	$10^9 A_{\mathrm{t}}$	$< 0.319$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.36^{+0.99}_{-0.95}$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.285$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$H_0$	$67.2^{+1.9}_{-1.6}$	$100\theta_{\mathrm{D}}$	$0.16106^{+0.00068}_{-0.00069}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$\Omega_{\Lambda}$	$0.684^{+0.025}_{-0.023}$	$z_{\mathrm{eq}}$	$3395^{+86}_{-92}$	$f_{2000}^{217}$	$108.0^{+4.8}_{-5.0}$
$\Omega_{\mathrm{m}}$	$0.316^{+0.023}_{-0.025}$	$k_{\mathrm{eq}}$	$0.01036^{+0.00026}_{-0.00028}$	$\chi_{\mathrm{lensing}}^2$	$9.43 (\nu: 0.4)$
$\Omega_{\mathrm{m}} h^2$	$0.1427^{+0.0036}_{-0.0039}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.018}_{-0.016}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0959^{+0.0012}_{-0.0011}$	$100\theta_{\mathrm{s,eq}}$	$0.4499^{+0.0091}_{-0.0081}$	$\chi_{\mathrm{lowl}}^2$	$24.9 (\nu: 1.3)$
$\sigma_8$	$0.811^{+0.015}_{-0.015}$	$H(0.15)$	$72.5^{+1.7}_{-1.4}$	$\chi_{\mathrm{plik}}^2$	$771.1 (\nu: 13.6)$
$S_8$	$0.833^{+0.040}_{-0.042}$	$D_{\mathrm{M}}(0.15)$	$645^{+14}_{-16}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.7)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.022}_{-0.023}$	$H(0.38)$	$82.7^{+1.2}_{-1.0}$	$\chi_{\mathrm{CMB}}^2$	$1202.4 (\nu: 15.8)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.019}_{-0.020}$	$D_{\mathrm{M}}(0.38)$	$1537^{+29}_{-33}$		
$\sigma_8/h^{0.5}$	$0.989^{+0.025}_{-0.027}$	$H(0.51)$	$89.5^{+1.0}_{-0.84}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1209.64$ ;  $R - 1 = 0.01135$



17.32 base\_r\_plikHM\_TT\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02221^{+0.00053}_{-0.00049}$	$\langle d^2 \rangle^{1/2}$	$2.434^{+0.055}_{-0.054}$	$D_M(0.61)$	$2307^{+28}_{-29}$
$\Omega_c h^2$	$0.1190^{+0.0028}_{-0.0028}$	$z_{\text{re}}$	$< 9.42$	$H(2.33)$	$235.8^{+1.8}_{-1.8}$
$100\theta_{\text{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$10^9 A_s$	$2.100^{+0.079}_{-0.059}$	$D_M(2.33)$	$5767^{+30}_{-32}$
$\tau$	$0.056^{+0.017}_{-0.014}$	$10^9 A_s e^{-2\tau}$	$1.879^{+0.029}_{-0.028}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.016}$
$\ln(10^{10} A_s)$	$3.045^{+0.037}_{-0.029}$	$D_{40}$	$1241^{+48}_{-37}$	$\sigma_8(0.15)$	$0.748^{+0.014}_{-0.012}$
$n_s$	$0.967^{+0.011}_{-0.010}$	$D_{220}$	$5722^{+110}_{-110}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$r$	$< 0.159$	$D_{810}$	$2537^{+36}_{-36}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.010}$
$y_{\text{cal}}$	$1.0008^{+0.0064}_{-0.0064}$	$D_{1420}$	$816^{+13}_{-13}$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.011}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{2000}$	$230.2^{+4.7}_{-4.5}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0096}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$n_{\text{s},0.002}$	$0.967^{+0.011}_{-0.010}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.010}$
$A_{143}^{\text{tSZ}}$	—	$Y_{\text{P}}$	$0.24533^{+0.00021}_{-0.00023}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0091}$
$A_{100}^{\text{PS}}$	$262^{+70}_{-70}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24665^{+0.00021}_{-0.00023}$	$f\sigma_8(2.33)$	$0.2978^{+0.0059}_{-0.0046}$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20}$	$10^5 \text{D}/\text{H}$	$2.616^{+0.096}_{-0.097}$	$\sigma_8(2.33)$	$0.3070^{+0.0063}_{-0.0049}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	Age/Gyr	$13.807^{+0.069}_{-0.073}$	$r_{0.002}$	$< 0.154$
$A_{217}^{\text{PS}}$	$115^{+20}_{-30}$	$z_*$	$1090.04^{+0.74}_{-0.76}$	$r_{0.01}$	$< 0.156$
$A^{\text{kSZ}}$	—	$r_*$	$144.81^{+0.74}_{-0.73}$	$\ln(10^{10} A_{\text{t}})$	$-0.6^{+2.2}_{-4.0}$
$A_{100}^{\text{dustTT}}$	$8.9^{+5.0}_{-4.6}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$r_{10}$	$< 0.0797$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.5}_{-4.5}$	$D_M(z_*)/\text{Gpc}$	$13.908^{+0.072}_{-0.073}$	$10^9 A_{\text{t}}$	$< 0.333$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.3}_{-8.5}$	$z_{\text{drag}}$	$1059.5^{+1.2}_{-1.1}$	$10^9 A_{\text{t}} e^{-2\tau}$	$< 0.297$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20}$	$r_{\text{drag}}$	$147.53^{+0.82}_{-0.82}$	$f_{2000}^{143}$	$31^{+7}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	$0.1403^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$c_{217}$	$0.9983^{+0.0017}_{-0.0016}$	$100\theta_{\text{D}}$	$0.16102^{+0.00067}_{-0.00068}$	$f_{2000}^{217}$	$107.9^{+4.8}_{-4.9}$
$H_0$	$67.6^{+1.3}_{-1.2}$	$z_{\text{eq}}$	$3375^{+64}_{-64}$	$\chi_{\text{lensing}}^2$	$9.28 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.017}$	$k_{\text{eq}}$	$0.01030^{+0.00020}_{-0.00020}$	$\chi_{\text{simall}}^2$	$397.2 (\nu: 1.5)$
$\Omega_{\text{m}}$	$0.311^{+0.017}_{-0.016}$	$100\theta_{\text{eq}}$	$0.818^{+0.012}_{-0.012}$	$\chi_{\text{lowl}}^2$	$24.5 (\nu: 1.1)$
$\Omega_{\text{m}} h^2$	$0.1419^{+0.0027}_{-0.0027}$	$100\theta_{\text{s,eq}}$	$0.4519^{+0.0063}_{-0.0061}$	$\chi_{\text{plik}}^2$	$771.4 (\nu: 13.6)$
$\Omega_{\text{m}} h^3$	$0.0959^{+0.0012}_{-0.0012}$	$H(0.15)$	$72.9^{+1.1}_{-1.1}$	$\chi_{6\text{DF}}^2$	$0.053 (\nu: 0.0)$
$\sigma_8$	$0.809^{+0.016}_{-0.014}$	$D_M(0.15)$	$641^{+11}_{-11}$	$\chi_{\text{MGS}}^2$	$1.32 (\nu: 0.1)$
$S_8$	$0.823^{+0.031}_{-0.030}$	$H(0.38)$	$82.95^{+0.87}_{-0.81}$	$\chi_{\text{DR12BAO}}^2$	$4.7 (\nu: 1.0)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.451^{+0.017}_{-0.017}$	$D_M(0.38)$	$1530^{+22}_{-22}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.6)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.604^{+0.016}_{-0.016}$	$H(0.51)$	$89.65^{+0.72}_{-0.68}$	$\chi_{\text{CMB}}^2$	$1202.5 (\nu: 15.6)$
$\sigma_8/h^{0.5}$	$0.984^{+0.023}_{-0.022}$	$D_M(0.51)$	$1982^{+26}_{-26}$	$\chi_{\text{BAO}}^2$	$6.1 (\nu: 0.7)$
$r_{\text{drag}} h$	$99.7^{+2.2}_{-2.1}$	$H(0.61)$	$95.25^{+0.62}_{-0.59}$		

$$\bar{\chi}_{\text{eff}}^2 = 1215.85; R - 1 = 0.01875$$



### 17.33 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022391	$0.02237^{+0.00037}_{-0.00037}$ (+1.1 $\sigma$ )	$S_8$	0.8320	$0.830^{+0.033}_{-0.033}$ (−0.2 $\sigma$ )	$D_M(0.38)$	1533.2	$1533^{+24}_{-24}$ (−0.4 $\sigma$ )
$\Omega_c h^2$	0.12002	$0.1199^{+0.0031}_{-0.0031}$ (−0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4557	$0.455^{+0.018}_{-0.018}$ (−0.2 $\sigma$ )	$H(0.51)$	89.64	$89.64^{+0.71}_{-0.68}$ (+0.6 $\sigma$ )
$100\theta_{MC}$	1.04093	$1.04092^{+0.00078}_{-0.00078}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6082	$0.607^{+0.016}_{-0.017}$ (−0.1 $\sigma$ )	$D_M(0.51)$	1985.6	$1985^{+28}_{-28}$ (−0.5 $\sigma$ )
$\tau$	0.0543	$0.054^{+0.020}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9889	$0.988^{+0.023}_{-0.023}$ (−0.1 $\sigma$ )	$H(0.61)$	95.29	$95.29^{+0.57}_{-0.55}$ (+0.7 $\sigma$ )
$\ln(10^{10} A_s)$	3.0445	$3.044^{+0.040}_{-0.039}$ (+0.3 $\sigma$ )	$r_{drag} h$	99.08	$99.2^{+2.4}_{-2.4}$ (+0.2 $\sigma$ )	$D_M(0.61)$	2310.0	$2310^{+30}_{-30}$ (−0.5 $\sigma$ )
$n_s$	0.9663	$0.966^{+0.011}_{-0.010}$ (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.443	$2.442^{+0.055}_{-0.056}$ (−0.1 $\sigma$ )	$H(2.33)$	236.59	$236.5^{+1.9}_{-1.9}$ (+0.1 $\sigma$ )
$r$	0.000	< 0.153 (+0.1 $\sigma$ )	$z_{re}$	7.68	$7.7^{+1.9}_{-2.1}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5762.7	$5763^{+26}_{-26}$ (−0.8 $\sigma$ )
$y_{cal}$	1.0004	$1.0006^{+0.0064}_{-0.0061}$ (+0.0 $\sigma$ )	$10^9 A_s$	2.100	$2.099^{+0.084}_{-0.080}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4600	$0.459^{+0.017}_{-0.017}$ (−0.1 $\sigma$ )
$A_{217}^{CIB}$	45.8	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8836	$1.883^{+0.030}_{-0.027}$ (+0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7496	$0.749^{+0.014}_{-0.014}$ (+0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.65	—	$D_{40}$	1228.3	$1243^{+47}_{-35}$ (−0.0 $\sigma$ )	$f\sigma_8(0.38)$	0.4775	$0.477^{+0.013}_{-0.014}$ (−0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.08	$5.5^{+4.4}_{-4.6}$ (+0.2 $\sigma$ )	$D_{220}$	5729	$5730^{+100}_{-98}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6641	$0.664^{+0.013}_{-0.012}$ (+0.2 $\sigma$ )
$A_{100}^{PS}$	248	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{810}$	2540.9	$2539^{+35}_{-33}$ (+0.2 $\sigma$ )	$f\sigma_8(0.51)$	0.4757	$0.475^{+0.012}_{-0.012}$ (−0.1 $\sigma$ )
$A_{143}^{PS}$	50.6	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{1420}$	818.4	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6213	$0.621^{+0.012}_{-0.012}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	53.1	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{2000}$	231.35	$231.0^{+4.0}_{-4.0}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4704	$0.470^{+0.011}_{-0.011}$ (−0.0 $\sigma$ )
$A_{217}^{PS}$	122.1	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$n_{s,0.002}$	0.9663	$0.966^{+0.011}_{-0.010}$ (+0.3 $\sigma$ )	$\sigma_8(0.61)$	0.5911	$0.591^{+0.012}_{-0.011}$ (+0.3 $\sigma$ )
$A^{kSZ}$	0.0	—	$Y_P$	0.245404	$0.24539^{+0.00014}_{-0.00015}$ (+1.1 $\sigma$ )	$f\sigma_8(2.33)$	0.2979	$0.2977^{+0.0060}_{-0.0058}$ (+0.3 $\sigma$ )
$A_{100}^{dustTT}$	8.81	$8.9^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	$Y_P^{BBN}$	0.246730	$0.24672^{+0.00014}_{-0.00015}$ (+1.1 $\sigma$ )	$\sigma_8(2.33)$	0.3069	$0.3068^{+0.0065}_{-0.0063}$ (+0.3 $\sigma$ )
$A_{143}^{dustTT}$	11.02	$10.8^{+4.7}_{-4.6}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.582	$2.586^{+0.069}_{-0.067}$ (−1.1 $\sigma$ )	$r_{0.002}$	0.000	< 0.146 (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.2	$18.6^{+8.4}_{-8.5}$ (+0.1 $\sigma$ )	Age/Gyr	13.795	$13.797^{+0.058}_{-0.059}$ (−0.8 $\sigma$ )	$r_{0.01}$	0.000	< 0.149 (+0.1 $\sigma$ )
$A_{217}^{dustTT}$	95.6	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_*$	1089.89	$1089.91^{+0.66}_{-0.64}$ (−0.9 $\sigma$ )	$\ln(10^{10} A_t)$	−4.62	$-0.6^{+2.2}_{-4.2}$ (+0.0 $\sigma$ )
$A_{100}^{dustTE}$	0.115	$0.115^{+0.098}_{-0.097}$	$r_*$	144.41	$144.46^{+0.69}_{-0.69}$ (−0.4 $\sigma$ )	$r_{10}$	0.0002	< 0.0756 (+0.1 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.076}_{-0.077}$	$100\theta_*$	1.04111	$1.04110^{+0.00077}_{-0.00076}$ (+0.2 $\sigma$ )	$10^9 A_t$	0.001	< 0.321 (+0.1 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	13.871	$13.876^{+0.065}_{-0.065}$ (−0.4 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.001	< 0.286 (+0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.226	$0.23^{+0.14}_{-0.14}$	$z_{drag}$	1059.97	$1059.93^{+0.77}_{-0.76}$ (+1.2 $\sigma$ )	$f_{2000}^{143}$	28.6	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.667	$0.67^{+0.21}_{-0.21}$	$r_{drag}$	147.07	$147.12^{+0.69}_{-0.69}$ (−0.6 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.92	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{217}^{dustTE}$	2.09	$2.09^{+0.69}_{-0.71}$	$k_D$	0.14091	$0.14084^{+0.00076}_{-0.00078}$ (+0.9 $\sigma$ )	$f_{2000}^{217}$	106.44	$106.9^{+4.6}_{-4.5}$ (−0.6 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0015}$ (+0.1 $\sigma$ )	$100\theta_D$	0.160730	$0.16076^{+0.00044}_{-0.00043}$ (−1.1 $\sigma$ )	$\chi^2_{lensing}$	8.84	$9.25 (\nu: 0.2)$ (−0.3 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{eq}$	3403	$3400^{+70}_{-70}$ (+0.1 $\sigma$ )	$\chi^2_{small}$	396.05	$397.2 (\nu: 1.6)$ (+0.1 $\sigma$ )
$H_0$	67.37	$67.4^{+1.4}_{-1.4}$ (+0.4 $\sigma$ )	$k_{eq}$	0.010387	$0.01038^{+0.00021}_{-0.00021}$ (+0.1 $\sigma$ )	$\chi^2_{lowl}$	23.21	$24.7 (\nu: 1.2)$ (−0.1 $\sigma$ )
$\Omega_\Lambda$	0.6848	$0.685^{+0.019}_{-0.020}$ (+0.3 $\sigma$ )	$100\theta_{eq}$	0.8132	$0.814^{+0.013}_{-0.013}$ (+0.1 $\sigma$ )	$\chi^2_{plik}$	2345.0	$2359.2 (\nu: 16.0)$ (+304.4 $\sigma$ )
$\Omega_m$	0.3152	$0.315^{+0.020}_{-0.019}$ (−0.3 $\sigma$ )	$100\theta_{s,eq}$	0.4493	$0.4496^{+0.0069}_{-0.0066}$ (+0.0 $\sigma$ )	$\chi^2_{prior}$	1.5	$11.6 (\nu: 10.3)$ (+1.2 $\sigma$ )
$\Omega_m h^2$	0.14305	$0.1429^{+0.0029}_{-0.0029}$ (+0.1 $\sigma$ )	$H(0.15)$	72.69	$72.7^{+1.2}_{-1.2}$ (+0.4 $\sigma$ )	$\chi^2_{CMB}$	2773.1	$2790.4 (\nu: 18.1)$ (+279.5 $\sigma$ )
$\Omega_m h^3$	0.09637	$0.09631^{+0.00074}_{-0.00073}$ (+1.0 $\sigma$ )	$D_M(0.15)$	643.3	$643^{+12}_{-12}$ (−0.4 $\sigma$ )			
$\sigma_8$	0.8117	$0.811^{+0.016}_{-0.016}$ (+0.1 $\sigma$ )	$H(0.38)$	82.88	$82.89^{+0.89}_{-0.86}$ (+0.5 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 2774.63$ ;  $\Delta\chi^2_{eff} = 1586.09$ ;  $\bar{\chi}^2_{eff} = 2801.95$ ;  $\Delta\bar{\chi}^2_{eff} = 1592.09$ ;  $R - 1 = 0.00682$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.84 ( $\Delta$  -0.06) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.05 ( $\Delta$  0.18) commander\_dx12\_v3\_2\_29: 23.20 ( $\Delta$  -0.17) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.99



### 17.34 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022447	$0.02242^{+0.00035}_{-0.00034}$ (+1.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4521	$0.451^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1979.0	$1979^{+22}_{-22}$ (−0.3 $\sigma$ )
$\Omega_c h^2$	0.11929	$0.1192^{+0.0024}_{-0.0024}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6056	$0.605^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )	$H(0.61)$	95.413	$95.40^{+0.48}_{-0.46}$ (+0.6 $\sigma$ )
$100\theta_{MC}$	1.04101	$1.04101^{+0.00074}_{-0.00072}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9859	$0.985^{+0.021}_{-0.022}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2303.0	$2303^{+24}_{-24}$ (−0.3 $\sigma$ )
$\tau$	0.0566	$0.056^{+0.020}_{-0.019}$ (+0.2 $\sigma$ )	$r_{drag}h$	99.65	$99.7^{+1.9}_{-1.9}$ (−0.0 $\sigma$ )	$H(2.33)$	236.18	$236.1^{+1.5}_{-1.5}$ (+0.5 $\sigma$ )
$\ln(10^{10} A_s)$	3.0484	$3.046^{+0.039}_{-0.037}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.437	$2.435^{+0.053}_{-0.053}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5757.5	$5759^{+22}_{-23}$ (−0.7 $\sigma$ )
$n_s$	0.9680	$0.9675^{+0.0096}_{-0.0097}$ (+0.2 $\sigma$ )	$z_{re}$	7.89	$7.8^{+1.9}_{-2.0}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4568	$0.456^{+0.014}_{-0.014}$ (+0.1 $\sigma$ )
$r$	0.000	< 0.161 (+0.0 $\sigma$ )	$10^9 A_s$	2.108	$2.104^{+0.082}_{-0.077}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7496	$0.749^{+0.015}_{-0.014}$ (+0.2 $\sigma$ )
$y_{cal}$	1.0008	$1.0008^{+0.0065}_{-0.0063}$ (−0.0 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8825	$1.880^{+0.028}_{-0.026}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4753	$0.475^{+0.012}_{-0.012}$ (+0.1 $\sigma$ )
$A_{217}^{CIB}$	45.7	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{40}$	1226.5	$1241^{+50}_{-35}$ (+0.0 $\sigma$ )	$\sigma_8(0.38)$	0.6646	$0.664^{+0.013}_{-0.012}$ (+0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.67	—	$D_{220}$	5739	$5735^{+100}_{-94}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4740	$0.473^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )
$A_{143}^{tSZ}$	7.06	> 1.08 (+0.2 $\sigma$ )	$D_{810}$	2542.8	$2540^{+35}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6220	$0.621^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )
$A_{100}^{PS}$	248	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{1420}$	819.6	$818^{+12}_{-12}$ (+0.4 $\sigma$ )	$f\sigma_8(0.61)$	0.4691	$0.468^{+0.010}_{-0.010}$ (+0.2 $\sigma$ )
$A_{143}^{PS}$	50.2	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{2000}$	231.78	$231.3^{+3.9}_{-4.0}$ (+0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5919	$0.591^{+0.012}_{-0.011}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	52.9	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$n_{s,0.002}$	0.9680	$0.9675^{+0.0096}_{-0.0097}$ (+0.2 $\sigma$ )	$f\sigma_8(2.33)$	0.2985	$0.2981^{+0.0060}_{-0.0057}$ (+0.2 $\sigma$ )
$A_{217}^{PS}$	122.0	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$Y_P$	0.245425	$0.24541^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3077	$0.3073^{+0.0063}_{-0.0059}$ (+0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246752	$0.24674^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$r_{0.002}$	0.000	< 0.156 (+0.1 $\sigma$ )
$A_{100}^{dustTT}$	8.82	$8.9^{+4.6}_{-4.8}$ (−0.0 $\sigma$ )	$10^5 D/H$	2.571	$2.577^{+0.065}_{-0.062}$ (−1.1 $\sigma$ )	$r_{0.01}$	0.000	< 0.160 (+0.0 $\sigma$ )
$A_{143}^{dustTT}$	11.04	$10.8^{+4.8}_{-4.5}$ (+0.1 $\sigma$ )	Age/Gyr	13.784	$13.787^{+0.051}_{-0.051}$ (−0.8 $\sigma$ )	$\ln(10^{10} A_t)$	−7.83	$−0.6^{+2.1}_{-4.1}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.2	$18.6^{+8.3}_{-8.5}$ (+0.1 $\sigma$ )	$z_*$	1089.76	$1089.79^{+0.55}_{-0.53}$ (−0.9 $\sigma$ )	$r_{10}$	0.0000	< 0.0809 (+0.0 $\sigma$ )
$A_{217}^{dustTT}$	95.8	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$r_*$	144.56	$144.59^{+0.57}_{-0.57}$ (−0.7 $\sigma$ )	$10^9 A_t$	0.000	< 0.338 (+0.1 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.096}_{-0.10}$	$100\theta_*$	1.04119	$1.04119^{+0.00074}_{-0.00071}$ (+0.0 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.000	< 0.301 (+0.0 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.075}_{-0.077}$	$D_M(z_*)/\text{Gpc}$	13.884	$13.887^{+0.055}_{-0.055}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	28.3	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.478	$0.48^{+0.23}_{-0.22}$	$z_{drag}$	1060.05	$1059.99^{+0.74}_{-0.74}$ (+1.1 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.68	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{143}^{dustTE}$	0.223	$0.23^{+0.14}_{-0.14}$	$r_{drag}$	147.20	$147.24^{+0.60}_{-0.59}$ (−0.9 $\sigma$ )	$f_{2000}^{217}$	106.33	$106.8^{+4.5}_{-4.4}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.665	$0.67^{+0.22}_{-0.21}$	$k_D$	0.14082	$0.14075^{+0.00071}_{-0.00071}$ (+1.1 $\sigma$ )	$\chi^2_{lensing}$	8.72	9.14 ( $\nu$ : 0.2) (−0.2 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.70}_{-0.70}$	$100\theta_D$	0.160689	$0.16073^{+0.00044}_{-0.00044}$ (−1.1 $\sigma$ )	$\chi^2_{small}$	396	1296 ( $\nu$ : 477802.7) (+521.0 $\sigma$ )
$c_{100}$	0.99975	$0.9997^{+0.0017}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{eq}$	3387	$3385^{+55}_{-55}$ (+0.4 $\sigma$ )	$\chi^2_{lowl}$	22.95	24.5 ( $\nu$ : 1.1) (−0.0 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0015}$ (−0.1 $\sigma$ )	$k_{eq}$	0.010337	$0.01033^{+0.00017}_{-0.00017}$ (+0.4 $\sigma$ )	$\chi^2_{plik}$	2345	1461 ( $\nu$ : 477551.6) (+132.5 $\sigma$ )
$H_0$	67.70	$67.7^{+1.1}_{-1.1}$ (+0.2 $\sigma$ )	$100\theta_{eq}$	0.8163	$0.817^{+0.011}_{-0.010}$ (−0.2 $\sigma$ )	$\chi^2_{6DF}$	0.029	0.050 ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$\Omega_\Lambda$	0.6893	$0.689^{+0.015}_{-0.015}$ (+0.0 $\sigma$ )	$100\theta_{s,eq}$	0.4509	$0.4511^{+0.0054}_{-0.0052}$ (−0.3 $\sigma$ )	$\chi^2_{MGS}$	1.22	1.28 ( $\nu$ : 0.1) (−0.1 $\sigma$ )
$\Omega_m$	0.3107	$0.311^{+0.015}_{-0.015}$ (−0.0 $\sigma$ )	$H(0.15)$	72.97	$72.97^{+0.95}_{-0.93}$ (+0.3 $\sigma$ )	$\chi^2_{DR12BAO}$	4.43	4.8 ( $\nu$ : 0.8) (−0.0 $\sigma$ )
$\Omega_m h^2$	0.14238	$0.1423^{+0.0023}_{-0.0023}$ (+0.4 $\sigma$ )	$D_M(0.15)$	640.4	$640.5^{+9.3}_{-9.2}$ (−0.3 $\sigma$ )	$\chi^2_{prior}$	1.6	11.6 ( $\nu$ : 10.6) (+1.2 $\sigma$ )
$\Omega_m h^3$	0.09639	$0.09632^{+0.00074}_{-0.00075}$ (+1.0 $\sigma$ )	$H(0.38)$	83.08	$83.07^{+0.70}_{-0.68}$ (+0.4 $\sigma$ )	$\chi^2_{CMB}$	2773.4	2790.4 ( $\nu$ : 17.4) (+283.4 $\sigma$ )
$\sigma_8$	0.8112	$0.810^{+0.016}_{-0.015}$ (+0.2 $\sigma$ )	$D_M(0.38)$	1527.6	$1528^{+19}_{-19}$ (−0.3 $\sigma$ )	$\chi^2_{BAO}$	5.68	6.1 ( $\nu$ : 0.5) (−0.0 $\sigma$ )
$S_8$	0.8255	$0.824^{+0.027}_{-0.028}$ (+0.1 $\sigma$ )	$H(0.51)$	89.80	$89.78^{+0.57}_{-0.55}$ (+0.5 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 2780.69$ ;  $\Delta\chi^2_{eff} = 1585.97$ ;  $\bar{\chi}^2_{eff} = 2808.06$ ;  $\Delta\bar{\chi}^2_{eff} = 1592.07$ ;  $R - 1 = 0.01525$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.03 ( $\Delta$  -0.00) MGS: 1.22 ( $\Delta$  0.00) DR12BAO: 4.43 ( $\Delta$  0.04) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.72 ( $\Delta$  -0.09) small\_100x143\_offlike5\_EE\_Aplanck  
396.49 ( $\Delta$  0.31) commander\_dx12\_v3\_2.29: 22.95 ( $\Delta$  -0.07) plik\_rd12\_HM\_v22b\_TTTEEE: 2345.28



17.35 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02238^{+0.00037}_{-0.00037} \quad (+1.1\sigma)$	$S_8$	$0.831^{+0.033}_{-0.033} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1532^{+23}_{-23} \quad (-0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1198^{+0.0030}_{-0.0031} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.018}_{-0.018} \quad (-0.1\sigma)$	$H(0.51)$	$89.65^{+0.70}_{-0.66} \quad (+0.6\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04093^{+0.00077}_{-0.00076} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1985^{+27}_{-28} \quad (-0.4\sigma)$
$\tau$	$0.055^{+0.018}_{-0.013} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.988^{+0.023}_{-0.023} \quad (-0.1\sigma)$	$H(0.61)$	$95.30^{+0.57}_{-0.54} \quad (+0.7\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.038}_{-0.028} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$99.2^{+2.4}_{-2.3} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2309^{+29}_{-30} \quad (-0.4\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.010} \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.443^{+0.054}_{-0.054} \quad (-0.1\sigma)$	$H(2.33)$	$236.5^{+1.8}_{-1.8} \quad (+0.2\sigma)$
$r$	$< 0.153 \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.43 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5763^{+25}_{-26} \quad (-0.8\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0063}_{-0.0060} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.102^{+0.082}_{-0.058} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.017}_{-0.017} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.029}_{-0.026} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.012} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{40}$	$1243^{+48}_{-35} \quad (-0.0\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.4}_{-4.5} \quad (+0.2\sigma)$	$D_{220}$	$5730^{+100}_{-97} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.012}_{-0.010} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{810}$	$2539^{+35}_{-33} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0091} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$231.0^{+4.0}_{-4.0} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.011} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.010} \quad (+0.3\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0086} \quad (+0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24540^{+0.00014}_{-0.00015} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.2979^{+0.0058}_{-0.0043} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00014}_{-0.00015} \quad (+1.0\sigma)$	$\sigma_8(2.33)$	$0.3071^{+0.0063}_{-0.0046} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.7}_{-4.6} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.585^{+0.069}_{-0.067} \quad (-1.1\sigma)$	$r_{0.002}$	$< 0.147 \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.4}_{-8.5} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.796^{+0.057}_{-0.058} \quad (-0.8\sigma)$	$r_{0.01}$	$< 0.150 \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$z_*$	$1089.90^{+0.64}_{-0.63} \quad (-0.9\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.6^{+2.2}_{-4.2} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.098}_{-0.097}$	$r_*$	$144.47^{+0.69}_{-0.67} \quad (-0.4\sigma)$	$r_{10}$	$< 0.0759 \quad (+0.0\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.076}_{-0.077}$	$100\theta_*$	$1.04111^{+0.00076}_{-0.00075} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.322 \quad (+0.0\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.877^{+0.064}_{-0.062} \quad (-0.5\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.288 \quad (+0.0\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.23^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.94^{+0.76}_{-0.77} \quad (+1.1\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.21}$	$r_{\mathrm{drag}}$	$147.13^{+0.69}_{-0.67} \quad (-0.6\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.09^{+0.68}_{-0.72}$	$k_{\mathrm{D}}$	$0.14083^{+0.00076}_{-0.00077} \quad (+0.9\sigma)$	$f_{2000}^{217}$	$106.9^{+4.6}_{-4.5} \quad (-0.6\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16076^{+0.00044}_{-0.00043} \quad (-1.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.22 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3398^{+68}_{-69} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$397.2 \quad (\nu: 1.6) \quad (+0.1\sigma)$
$H_0$	$67.4^{+1.4}_{-1.4} \quad (+0.4\sigma)$	$k_{\mathrm{eq}}$	$0.01037^{+0.00021}_{-0.00021} \quad (+0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.7 \quad (\nu: 1.2) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.686^{+0.019}_{-0.019} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.013}_{-0.013} \quad (+0.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.1 \quad (\nu: 15.8) \quad (+304.5\sigma)$
$\Omega_{\mathrm{m}}$	$0.314^{+0.019}_{-0.019} \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4498^{+0.0069}_{-0.0065} \quad (-0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.2) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1428^{+0.0028}_{-0.0029} \quad (+0.1\sigma)$	$H(0.15)$	$72.7^{+1.2}_{-1.2} \quad (+0.4\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2790.2 \quad (\nu: 17.6) \quad (+282.1\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09631^{+0.00073}_{-0.00073} \quad (+1.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+12}_{-12} \quad (-0.4\sigma)$		
$\sigma_8$	$0.811^{+0.015}_{-0.014} \quad (+0.1\sigma)$	$H(0.38)$	$82.90^{+0.88}_{-0.84} \quad (+0.5\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2801.72; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.08; R - 1 = 0.00705$$



17.36 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02242^{+0.00035}_{-0.00034} \quad (+1.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1979^{+22}_{-22} \quad (-0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1192^{+0.0024}_{-0.0024} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.014}_{-0.014} \quad (+0.1\sigma)$	$H(0.61)$	$95.40^{+0.47}_{-0.45} \quad (+0.6\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04101^{+0.00074}_{-0.00072} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.021}_{-0.021} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2303^{+23}_{-23} \quad (-0.3\sigma)$
$\tau$	$0.057^{+0.019}_{-0.015} \quad (+0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.7^{+1.9}_{-1.8} \quad (-0.0\sigma)$	$H(2.33)$	$236.1^{+1.5}_{-1.5} \quad (+0.5\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.047^{+0.038}_{-0.029} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.436^{+0.052}_{-0.048} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5759^{+22}_{-23} \quad (-0.7\sigma)$
$n_{\mathrm{s}}$	$0.9676^{+0.0095}_{-0.0096} \quad (+0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.56 \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.014}_{-0.014} \quad (+0.1\sigma)$
$r$	$< 0.162 \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.106^{+0.081}_{-0.061} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.012} \quad (+0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0008^{+0.0064}_{-0.0061} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.028}_{-0.025} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.012}_{-0.012} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1241^{+50}_{-34} \quad (+0.0\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.010} \quad (+0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{220}$	$5734^{+110}_{-93} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.011}_{-0.011} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.08 \quad (+0.2\sigma)$	$D_{810}$	$2540^{+35}_{-33} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0094} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.4686^{+0.0098}_{-0.0096} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.3\sigma)$	$D_{2000}$	$231.3^{+3.8}_{-4.0} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0089} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.9676^{+0.0095}_{-0.0096} \quad (+0.2\sigma)$	$f\sigma_8(2.33)$	$0.2982^{+0.0058}_{-0.0045} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00014} \quad (+1.0\sigma)$	$\sigma_8(2.33)$	$0.3075^{+0.0061}_{-0.0049} \quad (+0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00013}_{-0.00014} \quad (+1.0\sigma)$	$r_{0.002}$	$< 0.158 \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.6}_{-4.8} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.577^{+0.065}_{-0.062} \quad (-1.0\sigma)$	$r_{0.01}$	$< 0.161 \quad (+0.0\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.7}_{-4.6} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.787^{+0.051}_{-0.051} \quad (-0.8\sigma)$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.6^{+2.1}_{-4.1} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.3}_{-8.5} \quad (+0.1\sigma)$	$z_*$	$1089.79^{+0.55}_{-0.53} \quad (-0.9\sigma)$	$r_{10}$	$< 0.0815 \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$r_*$	$144.60^{+0.57}_{-0.56} \quad (-0.8\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.342 \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.096}_{-0.10}$	$100\theta_*$	$1.04119^{+0.00073}_{-0.00071} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.306 \quad (+0.0\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.078}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.888^{+0.055}_{-0.054} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.23}_{-0.22}$	$z_{\mathrm{drag}}$	$1059.99^{+0.74}_{-0.75} \quad (+1.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.13}$	$r_{\mathrm{drag}}$	$147.25^{+0.60}_{-0.59} \quad (-0.9\sigma)$	$f_{2000}^{217}$	$106.8^{+4.6}_{-4.4} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.22}_{-0.20}$	$k_{\mathrm{D}}$	$0.14074^{+0.00070}_{-0.00072} \quad (+1.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.12 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.69}_{-0.70}$	$100\theta_{\mathrm{D}}$	$0.16073^{+0.00044}_{-0.00044} \quad (-1.1\sigma)$	$\chi_{\mathrm{small}}^2$	$1291 \quad (\nu: 477329.0) \quad (+510.7\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3385^{+54}_{-55} \quad (+0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.5 \quad (\nu: 1.1) \quad (-0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0015} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01033^{+0.00017}_{-0.00017} \quad (+0.4\sigma)$	$\chi_{\mathrm{plik}}^2$	$1466 \quad (\nu: 477098.3) \quad (+133.3\sigma)$
$H_0$	$67.7^{+1.1}_{-1.1} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.010}_{-0.010} \quad (-0.3\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.049 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.014}_{-0.015} \quad (+0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4511^{+0.0054}_{-0.0052} \quad (-0.3\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.29 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.015}_{-0.014} \quad (-0.0\sigma)$	$H(0.15)$	$72.97^{+0.94}_{-0.92} \quad (+0.3\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 \quad (\nu: 0.8) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1423^{+0.0023}_{-0.0023} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$640.5^{+9.2}_{-9.2} \quad (-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.5) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.09632^{+0.00073}_{-0.00075} \quad (+1.0\sigma)$	$H(0.38)$	$83.07^{+0.70}_{-0.68} \quad (+0.4\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2790.2 \quad (\nu: 17.2) \quad (+284.0\sigma)$
$\sigma_8$	$0.810^{+0.016}_{-0.013} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1528^{+18}_{-19} \quad (-0.3\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.05 \quad (\nu: 0.5) \quad (-0.0\sigma)$
$S_8$	$0.824^{+0.027}_{-0.027} \quad (+0.1\sigma)$	$H(0.51)$	$89.78^{+0.57}_{-0.55} \quad (+0.5\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2807.89; \Delta \bar{\chi}_{\mathrm{eff}}^2 = 1592.04; R - 1 = 0.01530$$



17.37 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.022281	$0.02230^{+0.00041}_{-0.00040}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.6059	$0.605^{+0.017}_{-0.017}$	$H(0.51)$	89.57	$89.62^{+0.73}_{-0.70}$
$\Omega_{\text{c}}h^2$	0.11978	$0.1195^{+0.0031}_{-0.0032}$	$\sigma_8/h^{0.5}$	0.9858	$0.985^{+0.024}_{-0.024}$	$D_{\text{M}}(0.51)$	1986.9	$1985^{+28}_{-28}$
$100\theta_{\text{MC}}$	1.04085	$1.04088^{+0.00078}_{-0.00079}$	$r_{\text{drag}}h$	99.15	$99.4^{+2.5}_{-2.4}$	$H(0.61)$	95.21	$95.25^{+0.60}_{-0.56}$
$\tau$	0.0528	$0.054^{+0.019}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	2.437	$2.433^{+0.055}_{-0.057}$	$D_{\text{M}}(0.61)$	2311.6	$2309^{+30}_{-31}$
$\ln(10^{10}A_{\text{s}})$	3.0394	$3.041^{+0.037}_{-0.038}$	$z_{\text{re}}$	7.54	$7.6^{+1.8}_{-2.2}$	$H(2.33)$	236.32	$236.2^{+1.8}_{-1.9}$
$n_{\text{s}}$	0.9654	$0.967^{+0.011}_{-0.011}$	$10^9A_{\text{s}}$	2.089	$2.092^{+0.078}_{-0.078}$	$D_{\text{M}}(2.33)$	5767.8	$5766^{+27}_{-27}$
$r$	0.002	$< 0.184$	$10^9A_{\text{s}}e^{-2\tau}$	1.8800	$1.878^{+0.028}_{-0.028}$	$f\sigma_8(0.15)$	0.4581	$0.457^{+0.017}_{-0.017}$
$y_{\text{cal}}$	1.0005	$1.0006^{+0.0062}_{-0.0063}$	$D_{40}$	1228.2	$1244^{+54}_{-41}$	$\sigma_8(0.15)$	0.7472	$0.747^{+0.014}_{-0.014}$
$A_{100}^{\text{PS}}$	234	$238^{+60}_{-60}$	$D_{220}$	5720	$5715^{+100}_{-100}$	$f\sigma_8(0.38)$	0.4757	$0.475^{+0.014}_{-0.014}$
$A_{143}^{\text{PS}}$	39.8	$39^{+20}_{-20}$	$D_{810}$	2535.9	$2535^{+34}_{-34}$	$\sigma_8(0.38)$	0.6620	$0.662^{+0.012}_{-0.012}$
$A_{217}^{\text{PS}}$	101.8	$103^{+30}_{-30}$	$D_{1420}$	815.8	$816^{+13}_{-12}$	$f\sigma_8(0.51)$	0.4739	$0.473^{+0.012}_{-0.012}$
$A_{217}^{\text{CIB}}$	44.7	$39^{+20}_{-20}$	$D_{2000}$	230.25	$230.5^{+4.3}_{-4.1}$	$\sigma_8(0.51)$	0.6193	$0.620^{+0.011}_{-0.012}$
$A_{143}^{\text{tSZ}}$	6.62	$< 8.90$	$n_{\text{s},0.002}$	0.9654	$0.967^{+0.011}_{-0.011}$	$f\sigma_8(0.61)$	0.4687	$0.468^{+0.011}_{-0.011}$
$r_{143\times 217}^{\text{PS}}$	0.597	$0.66^{+0.31}_{-0.34}$	$Y_{\text{P}}$	0.245359	$0.24537^{+0.00015}_{-0.00018}$	$\sigma_8(0.61)$	0.5892	$0.590^{+0.011}_{-0.011}$
$r_{143\times 217}^{\text{CIB}}$	0.78	—	$Y_{\text{P}}^{\text{BBN}}$	0.246686	$0.24669^{+0.00015}_{-0.00018}$	$f\sigma_8(2.33)$	0.2970	$0.2972^{+0.0056}_{-0.0058}$
$\xi^{\text{tSZ}\times\text{CIB}}$	0.09	—	$10^5\text{D}/\text{H}$	2.602	$2.599^{+0.076}_{-0.074}$	$\sigma_8(2.33)$	0.3060	$0.3063^{+0.0061}_{-0.0063}$
$A^{\text{kSZ}}$	0.0	—	$\text{Age}/\text{Gyr}$	13.807	$13.804^{+0.060}_{-0.060}$	$r_{0.002}$	0.002	$< 0.181$
$A_{100}^{\text{dust}}$	1.01	$1.01^{+0.49}_{-0.51}$	$z_*$	1090.02	$1089.97^{+0.67}_{-0.68}$	$r_{0.01}$	0.002	$< 0.183$
$A_{143}^{\text{dust}}$	0.973	$0.96^{+0.45}_{-0.45}$	$r_*$	144.56	$144.61^{+0.74}_{-0.70}$	$\ln(10^{10}A_{\text{t}})$	−3.19	$-0.2^{+1.9}_{-3.9}$
$A_{217}^{\text{dust}}$	0.969	$0.98^{+0.27}_{-0.27}$	$100\theta_*$	1.04105	$1.04107^{+0.00077}_{-0.00077}$	$r_{10}$	0.0009	$< 0.0937$
$A_{143\times 217}^{\text{dust}}$	1.007	$1.03^{+0.42}_{-0.42}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.886	$13.891^{+0.069}_{-0.065}$	$10^9A_{\text{t}}$	0.004	$< 0.386$
$c_{100}$	0.99766	$0.9975^{+0.0027}_{-0.0027}$	$z_{\text{drag}}$	1059.70	$1059.74^{+0.84}_{-0.83}$	$10^9A_{\text{t}}e^{-2\tau}$	0.004	$< 0.346$
$c_{217}$	1.00131	$1.0011^{+0.0042}_{-0.0040}$	$r_{\text{drag}}$	147.25	$147.30^{+0.74}_{-0.72}$	$f_{2000}^{143}$	30.2	$29^{+7}_{-7}$
$c_{\text{TE}}$	0.9965	$0.997^{+0.013}_{-0.012}$	$k_{\text{D}}$	0.14063	$0.14059^{+0.00083}_{-0.00084}$	$f_{2000}^{217}$	106.93	$106.7^{+4.9}_{-4.9}$
$c_{\text{EE}}$	0.9923	$0.992^{+0.013}_{-0.013}$	$100\theta_{\text{D}}$	0.16088	$0.16087^{+0.00050}_{-0.00050}$	$f_{2000}^{143\times 217}$	32.3	$32^{+5}_{-5}$
$H_0$	67.34	$67.5^{+1.4}_{-1.4}$	$z_{\text{eq}}$	3395	$3389^{+69}_{-73}$	$\chi_{\text{lensing}}^2$	8.86	$9.38 (\nu: 0.3)$
$\Omega_{\Lambda}$	0.6853	$0.687^{+0.019}_{-0.019}$	$k_{\text{eq}}$	0.010361	$0.01034^{+0.00021}_{-0.00022}$	$\chi_{\text{small}}^2$	395.87	$397.2 (\nu: 1.3)$
$\Omega_{\text{m}}$	0.3147	$0.313^{+0.019}_{-0.019}$	$100\theta_{\text{eq}}$	0.8143	$0.815^{+0.014}_{-0.013}$	$\chi_{\text{lowl}}^2$	23.23	$25.0 (\nu: 1.7)$
$\Omega_{\text{m}}h^2$	0.14271	$0.1425^{+0.0029}_{-0.0030}$	$100\theta_{\text{s,eq}}$	0.4500	$0.4506^{+0.0071}_{-0.0066}$	$\chi_{\text{CamSpec}}^2$	11499.4	$11512.9 (\nu: 15.1)$
$\Omega_{\text{m}}h^3$	0.09609	$0.09609^{+0.00081}_{-0.00079}$	$H(0.15)$	72.65	$72.8^{+1.2}_{-1.2}$	$\chi_{\text{prior}}^2$	2.2	$7.8 (\nu: 5.8)$
$\sigma_8$	0.8089	$0.809^{+0.015}_{-0.016}$	$D_{\text{M}}(0.15)$	643.6	$643^{+12}_{-12}$	$\chi_{\text{CMB}}^2$	11927.4	$11944.5 (\nu: 17.2)$
$S_8$	0.8286	$0.826^{+0.033}_{-0.033}$	$H(0.38)$	82.82	$82.89^{+0.90}_{-0.87}$			
$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4538	$0.453^{+0.018}_{-0.018}$	$D_{\text{M}}(0.38)$	1534.2	$1532^{+24}_{-24}$			

Best-fit  $\chi_{\text{eff}}^2 = 11929.59$ ;  $\bar{\chi}_{\text{eff}}^2 = 11952.27$ ;  $R - 1 = 0.00977$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.86 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2\_29: 23.23 CamSpec like\_10.7HM\_1400\_unified: 11499.43



17.38 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_lensing\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02234^{+0.00039}_{-0.00037}$	$\sigma_8/h^{0.5}$	$0.982^{+0.021}_{-0.021}$	$H(0.61)$	$95.34^{+0.49}_{-0.47}$
$\Omega_c h^2$	$0.1190^{+0.0024}_{-0.0025}$	$r_{\text{drag}} h$	$99.8^{+1.9}_{-1.9}$	$D_M(0.61)$	$2304^{+24}_{-24}$
$100\theta_{\text{MC}}$	$1.04094^{+0.00073}_{-0.00075}$	$\langle d^2 \rangle^{1/2}$	$2.427^{+0.053}_{-0.054}$	$H(2.33)$	$235.9^{+1.5}_{-1.5}$
$\tau$	$0.055^{+0.019}_{-0.019}$	$z_{\text{re}}$	$7.7^{+1.8}_{-2.0}$	$D_M(2.33)$	$5762^{+23}_{-23}$
$\ln(10^{10} A_s)$	$3.042^{+0.037}_{-0.037}$	$10^9 A_s$	$2.096^{+0.078}_{-0.077}$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.014}$
$n_s$	$0.968^{+0.010}_{-0.0099}$	$10^9 A_s e^{-2\tau}$	$1.877^{+0.027}_{-0.028}$	$\sigma_8(0.15)$	$0.747^{+0.014}_{-0.014}$
$r$	$< 0.191$	$D_{40}$	$1243^{+55}_{-41}$	$f\sigma_8(0.38)$	$0.473^{+0.012}_{-0.012}$
$y_{\text{cal}}$	$1.0007^{+0.0062}_{-0.0061}$	$D_{220}$	$5719^{+98}_{-99}$	$\sigma_8(0.38)$	$0.662^{+0.012}_{-0.012}$
$A_{100}^{\text{PS}}$	$238^{+60}_{-60}$	$D_{810}$	$2536^{+34}_{-34}$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.011}$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-12}$	$\sigma_8(0.51)$	$0.620^{+0.011}_{-0.012}$
$A_{217}^{\text{PS}}$	$103^{+30}_{-30}$	$D_{2000}$	$230.7^{+4.1}_{-4.1}$	$f\sigma_8(0.61)$	$0.467^{+0.010}_{-0.010}$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20}$	$n_{\text{s},0.002}$	$0.968^{+0.010}_{-0.0099}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.011}$
$A_{143}^{\text{tSZ}}$	$< 8.88$	$Y_{\text{P}}$	$0.24538^{+0.00015}_{-0.00016}$	$f\sigma_8(2.33)$	$0.2975^{+0.0056}_{-0.0057}$
$r_{143 \times 217}^{\text{PS}}$	$0.67^{+0.31}_{-0.34}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24671^{+0.00015}_{-0.00016}$	$\sigma_8(2.33)$	$0.3068^{+0.0060}_{-0.0062}$
$r_{143 \times 217}^{\text{CIB}}$	—	$10^5 \text{D}/\text{H}$	$2.592^{+0.071}_{-0.070}$	$r_{0.002}$	$< 0.187$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$\text{Age}/\text{Gyr}$	$13.796^{+0.053}_{-0.053}$	$r_{0.01}$	$< 0.188$
$A^{\text{kSZ}}$	—	$z_*$	$1089.88^{+0.59}_{-0.59}$	$\ln(10^{10} A_{\text{t}})$	$-0.2^{+1.9}_{-3.9}$
$A_{100}^{\text{dust}}$	$1.01^{+0.49}_{-0.51}$	$r_*$	$144.72^{+0.61}_{-0.58}$	$r_{10}$	$< 0.0967$
$A_{143}^{\text{dust}}$	$0.96^{+0.44}_{-0.44}$	$100\theta_*$	$1.04113^{+0.00073}_{-0.00075}$	$10^9 A_{\text{t}}$	$< 0.399$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.28}$	$D_M(z_*)/\text{Gpc}$	$13.900^{+0.059}_{-0.056}$	$10^9 A_{\text{t}} e^{-2\tau}$	$< 0.358$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.41}_{-0.41}$	$z_{\text{drag}}$	$1059.78^{+0.84}_{-0.80}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$r_{\text{drag}}$	$147.40^{+0.64}_{-0.62}$	$f_{2000}^{217}$	$106.6^{+4.8}_{-4.8}$
$c_{217}$	$1.0011^{+0.0043}_{-0.0040}$	$k_{\text{D}}$	$0.14052^{+0.00079}_{-0.00079}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$100\theta_{\text{D}}$	$0.16084^{+0.00048}_{-0.00049}$	$\chi_{\text{lensing}}^2$	$9.40 (\nu: 0.3)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$z_{\text{eq}}$	$3377^{+55}_{-56}$	$\chi_{\text{simall}}^2$	$397.3 (\nu: 1.5)$
$H_0$	$67.7^{+1.1}_{-1.1}$	$k_{\text{eq}}$	$0.01031^{+0.00017}_{-0.00017}$	$\chi_{\text{lowl}}^2$	$24.8 (\nu: 1.7)$
$\Omega_{\Lambda}$	$0.690^{+0.015}_{-0.015}$	$100\theta_{\text{eq}}$	$0.818^{+0.011}_{-0.010}$	$\chi_{\text{CamSpec}}^2$	$11512.9 (\nu: 15.0)$
$\Omega_{\text{m}}$	$0.310^{+0.015}_{-0.015}$	$100\theta_{\text{s,eq}}$	$0.4517^{+0.0056}_{-0.0053}$	$\chi_{6\text{DF}}^2$	$0.043 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	$0.1420^{+0.0023}_{-0.0024}$	$H(0.15)$	$72.95^{+0.98}_{-0.93}$	$\chi_{\text{MGS}}^2$	$1.34 (\nu: 0.1)$
$\Omega_{\text{m}} h^3$	$0.09610^{+0.00082}_{-0.00080}$	$D_M(0.15)$	$640.6^{+9.3}_{-9.5}$	$\chi_{\text{DR12BAO}}^2$	$4.6 (\nu: 0.7)$
$\sigma_8$	$0.808^{+0.015}_{-0.015}$	$H(0.38)$	$83.04^{+0.73}_{-0.69}$	$\chi_{\text{prior}}^2$	$7.7 (\nu: 5.9)$
$S_8$	$0.821^{+0.027}_{-0.027}$	$D_M(0.38)$	$1528^{+19}_{-19}$	$\chi_{\text{CMB}}^2$	$11944.4 (\nu: 16.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.450^{+0.015}_{-0.015}$	$H(0.51)$	$89.74^{+0.59}_{-0.56}$	$\chi_{\text{BAO}}^2$	$5.95 (\nu: 0.4)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.603^{+0.015}_{-0.015}$	$D_M(0.51)$	$1980^{+22}_{-23}$		

$$\bar{\chi}_{\text{eff}}^2 = 11958.11; R - 1 = 0.01271$$



**17.39 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_lensing\_post\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02230^{+0.00040}_{-0.00040}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.016}_{-0.017}$	$H(0.51)$	$89.64^{+0.72}_{-0.67}$
$\Omega_{\mathrm{c}} h^2$	$0.1195^{+0.0030}_{-0.0032}$	$\sigma_8/h^{0.5}$	$0.985^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.51)$	$1984^{+27}_{-28}$
$100\theta_{\mathrm{MC}}$	$1.04088^{+0.00078}_{-0.00079}$	$r_{\mathrm{drag}} h$	$99.4^{+2.5}_{-2.3}$	$H(0.61)$	$95.26^{+0.59}_{-0.55}$
$\tau$	$0.055^{+0.017}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.434^{+0.054}_{-0.057}$	$D_{\mathrm{M}}(0.61)$	$2309^{+29}_{-30}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.035}_{-0.028}$	$z_{\mathrm{re}}$	$< 9.31$	$H(2.33)$	$236.1^{+1.8}_{-1.9}$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.011}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.075}_{-0.057}$	$D_{\mathrm{M}}(2.33)$	$5766^{+27}_{-27}$
$r$	$< 0.184$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.028}_{-0.028}$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0062}_{-0.0063}$	$D_{40}$	$1244^{+54}_{-41}$	$\sigma_8(0.15)$	$0.748^{+0.013}_{-0.012}$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-60}$	$D_{220}$	$5715^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.475^{+0.013}_{-0.014}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{810}$	$2535^{+34}_{-34}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.0098}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30}$	$D_{1420}$	$816^{+13}_{-12}$	$f\sigma_8(0.51)$	$0.474^{+0.012}_{-0.012}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{2000}$	$230.5^{+4.2}_{-4.1}$	$\sigma_8(0.51)$	$0.620^{+0.011}_{-0.0090}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.91$	$n_{\mathrm{s},0.002}$	$0.967^{+0.011}_{-0.011}$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.011}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.30}_{-0.34}$	$Y_{\mathrm{P}}$	$0.24537^{+0.00015}_{-0.00018}$	$\sigma_8(0.61)$	$0.590^{+0.010}_{-0.0085}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00015}_{-0.00018}$	$f\sigma_8(2.33)$	$0.2975^{+0.0054}_{-0.0043}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.599^{+0.076}_{-0.073}$	$\sigma_8(2.33)$	$0.3066^{+0.0059}_{-0.0046}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.803^{+0.060}_{-0.060}$	$r_{0.002}$	$< 0.181$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.51}$	$z_{*}$	$1089.96^{+0.67}_{-0.67}$	$r_{0.01}$	$< 0.183$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.45}$	$r_{*}$	$144.62^{+0.73}_{-0.69}$	$\ln(10^{10} A_{\mathrm{t}})$	$-0.2^{+1.9}_{-3.9}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27}$	$100\theta_{*}$	$1.04107^{+0.00076}_{-0.00078}$	$r_{10}$	$< 0.0936$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.892^{+0.069}_{-0.065}$	$10^9 A_{\mathrm{t}}$	$< 0.386$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.74^{+0.84}_{-0.84}$	$10^9 A_{\mathrm{t}} e^{-2\tau}$	$< 0.346$
$c_{217}$	$1.0011^{+0.0042}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.31^{+0.74}_{-0.71}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$c_{TE}$	$0.996^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14058^{+0.00082}_{-0.00084}$	$f_{2000}^{217}$	$106.7^{+4.8}_{-4.9}$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16086^{+0.00049}_{-0.00050}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$H_0$	$67.5^{+1.4}_{-1.3}$	$z_{\mathrm{eq}}$	$3388^{+69}_{-72}$	$\chi_{\mathrm{lensing}}^2$	$9.32 (\nu: 0.3)$
$\Omega_{\Lambda}$	$0.687^{+0.019}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00021}_{-0.00022}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.313^{+0.019}_{-0.019}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.014}_{-0.013}$	$\chi_{\mathrm{lowl}}^2$	$25.0 (\nu: 1.7)$
$\Omega_{\mathrm{m}} h^2$	$0.1424^{+0.0029}_{-0.0030}$	$100\theta_{\mathrm{s,eq}}$	$0.4507^{+0.0071}_{-0.0065}$	$\chi_{\mathrm{CamSpec}}^2$	$11512.8 (\nu: 15.0)$
$\Omega_{\mathrm{m}} h^3$	$0.09609^{+0.00081}_{-0.00080}$	$H(0.15)$	$72.8^{+1.2}_{-1.2}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 5.7)$
$\sigma_8$	$0.809^{+0.015}_{-0.014}$	$D_{\mathrm{M}}(0.15)$	$642^{+12}_{-12}$	$\chi_{\mathrm{CMB}}^2$	$11944.3 (\nu: 16.8)$
$S_8$	$0.827^{+0.033}_{-0.033}$	$H(0.38)$	$82.91^{+0.90}_{-0.84}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.018}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1532^{+23}_{-24}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11952.03; R - 1 = 0.00998$$



17.40    base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02234^{+0.00039}_{-0.00038}$	$\sigma_8/h^{0.5}$	$0.983^{+0.021}_{-0.021}$	$H(0.61)$	$95.34^{+0.49}_{-0.47}$
$\Omega_{\text{c}}h^2$	$0.1190^{+0.0024}_{-0.0025}$	$r_{\text{drag}}h$	$99.8^{+1.9}_{-1.8}$	$D_{\text{M}}(0.61)$	$2304^{+23}_{-24}$
$100\theta_{\text{MC}}$	$1.04095^{+0.00073}_{-0.00076}$	$\langle d^2 \rangle^{1/2}$	$2.428^{+0.053}_{-0.051}$	$H(2.33)$	$235.8^{+1.5}_{-1.6}$
$\tau$	$0.056^{+0.017}_{-0.014}$	$z_{\text{re}}$	$< 9.38$	$D_{\text{M}}(2.33)$	$5762^{+23}_{-23}$
$\ln(10^{10}A_{\text{s}})$	$3.044^{+0.036}_{-0.029}$	$10^9 A_{\text{s}}$	$2.099^{+0.076}_{-0.059}$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.014}$
$n_{\text{s}}$	$0.9683^{+0.0099}_{-0.0099}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.876^{+0.027}_{-0.027}$	$\sigma_8(0.15)$	$0.747^{+0.013}_{-0.012}$
$r$	$< 0.192$	$D_{40}$	$1243^{+54}_{-41}$	$f\sigma_8(0.38)$	$0.473^{+0.012}_{-0.012}$
$y_{\text{cal}}$	$1.0007^{+0.0061}_{-0.0061}$	$D_{220}$	$5719^{+98}_{-100}$	$\sigma_8(0.38)$	$0.663^{+0.012}_{-0.010}$
$A_{100}^{\text{PS}}$	$238^{+60}_{-60}$	$D_{810}$	$2536^{+33}_{-34}$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.011}$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20}$	$D_{1420}$	$817^{+13}_{-12}$	$\sigma_8(0.51)$	$0.620^{+0.011}_{-0.0093}$
$A_{217}^{\text{PS}}$	$103^{+30}_{-30}$	$D_{2000}$	$230.7^{+4.1}_{-4.1}$	$f\sigma_8(0.61)$	$0.4674^{+0.0098}_{-0.0097}$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20}$	$n_{\text{s},0.002}$	$0.9683^{+0.0099}_{-0.0099}$	$\sigma_8(0.61)$	$0.590^{+0.010}_{-0.0088}$
$A_{143}^{\text{tSZ}}$	$< 8.88$	$Y_{\text{P}}$	$0.24538^{+0.00014}_{-0.00016}$	$f\sigma_8(2.33)$	$0.2977^{+0.0054}_{-0.0045}$
$r_{143 \times 217}^{\text{PS}}$	$0.67^{+0.30}_{-0.34}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24671^{+0.00014}_{-0.00016}$	$\sigma_8(2.33)$	$0.3070^{+0.0058}_{-0.0047}$
$r_{143 \times 217}^{\text{CIB}}$	—	$10^5 \text{D}/\text{H}$	$2.592^{+0.072}_{-0.069}$	$r_{0.002}$	$< 0.188$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$\text{Age}/\text{Gyr}$	$13.795^{+0.053}_{-0.053}$	$r_{0.01}$	$< 0.190$
$A^{\text{kSZ}}$	—	$z_*$	$1089.87^{+0.59}_{-0.58}$	$\ln(10^{10}A_{\text{t}})$	$-0.2^{+1.9}_{-3.9}$
$A_{100}^{\text{dust}}$	$1.01^{+0.49}_{-0.51}$	$r_*$	$144.73^{+0.61}_{-0.57}$	$r_{10}$	$< 0.0967$
$A_{143}^{\text{dust}}$	$0.96^{+0.44}_{-0.44}$	$100\theta_*$	$1.04114^{+0.00073}_{-0.00075}$	$10^9 A_{\text{t}}$	$< 0.399$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.28}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.901^{+0.059}_{-0.056}$	$10^9 A_{\text{t}}e^{-2\tau}$	$< 0.359$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.41}_{-0.40}$	$z_{\text{drag}}$	$1059.79^{+0.83}_{-0.81}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0028}$	$r_{\text{drag}}$	$147.40^{+0.64}_{-0.61}$	$f_{2000}^{217}$	$106.5^{+4.8}_{-4.8}$
$c_{217}$	$1.0011^{+0.0043}_{-0.0040}$	$k_{\text{D}}$	$0.14051^{+0.00079}_{-0.00078}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$100\theta_{\text{D}}$	$0.16084^{+0.00047}_{-0.00048}$	$\chi_{\text{lensing}}^2$	$9.34 (\nu: 0.3)$
$c_{EE}$	$0.992^{+0.012}_{-0.013}$	$z_{\text{eq}}$	$3377^{+55}_{-58}$	$\chi_{\text{simall}}^2$	$397.3 (\nu: 1.5)$
$H_0$	$67.7^{+1.1}_{-1.1}$	$k_{\text{eq}}$	$0.01031^{+0.00017}_{-0.00018}$	$\chi_{\text{lowl}}^2$	$24.8 (\nu: 1.7)$
$\Omega_{\Lambda}$	$0.690^{+0.015}_{-0.015}$	$100\theta_{\text{eq}}$	$0.818^{+0.011}_{-0.010}$	$\chi_{\text{CamSpec}}^2$	$11512.8 (\nu: 14.9)$
$\Omega_{\text{m}}$	$0.310^{+0.015}_{-0.015}$	$100\theta_{\text{s,eq}}$	$0.4518^{+0.0056}_{-0.0053}$	$\chi_{6\text{DF}}^2$	$0.042 (\nu: 0.0)$
$\Omega_{\text{m}}h^2$	$0.1419^{+0.0023}_{-0.0024}$	$H(0.15)$	$72.97^{+0.97}_{-0.92}$	$\chi_{\text{MGS}}^2$	$1.35 (\nu: 0.1)$
$\Omega_{\text{m}}h^3$	$0.09610^{+0.00081}_{-0.00080}$	$D_{\text{M}}(0.15)$	$640.5^{+9.2}_{-9.4}$	$\chi_{\text{DR12BAO}}^2$	$4.5 (\nu: 0.7)$
$\sigma_8$	$0.809^{+0.015}_{-0.014}$	$H(0.38)$	$83.04^{+0.73}_{-0.68}$	$\chi_{\text{prior}}^2$	$7.7 (\nu: 5.9)$
$S_8$	$0.822^{+0.027}_{-0.028}$	$D_{\text{M}}(0.38)$	$1528^{+18}_{-19}$	$\chi_{\text{CMB}}^2$	$11944.3 (\nu: 16.5)$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.450^{+0.015}_{-0.015}$	$H(0.51)$	$89.74^{+0.59}_{-0.55}$	$\chi_{\text{BAO}}^2$	$5.92 (\nu: 0.4)$
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.603^{+0.014}_{-0.015}$	$D_{\text{M}}(0.51)$	$1980^{+22}_{-22}$		

$\bar{\chi}_{\text{eff}}^2 = 11957.91; R - 1 = 0.01331$



17.41 base\_r\_CleanedCamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02209	$0.02212^{+0.00057}_{-0.00055}$	$\langle d^2 \rangle^{1/2}$	2.447	$2.44^{+0.10}_{-0.099}$	$D_M(0.51)$	1994.3	$1992^{+48}_{-48}$
$\Omega_c h^2$	0.1203	$0.1201^{+0.0055}_{-0.0054}$	$z_{\text{re}}$	7.55	$7.5^{+2.1}_{-2.4}$	$H(0.61)$	95.02	$95.07^{+0.97}_{-0.88}$
$100\theta_{\text{MC}}$	1.04082	$1.0408^{+0.0012}_{-0.0013}$	$10^9 A_s$	2.087	$2.083^{+0.094}_{-0.091}$	$D_M(0.61)$	2320	$2317^{+51}_{-52}$
$\tau$	0.0524	$0.052^{+0.022}_{-0.021}$	$10^9 A_s e^{-2\tau}$	1.8796	$1.878^{+0.035}_{-0.035}$	$H(2.33)$	236.44	$236.3^{+3.4}_{-3.3}$
$\ln(10^{10} A_s)$	3.0384	$3.036^{+0.044}_{-0.045}$	$D_{40}$	1230.7	$1243^{+53}_{-44}$	$D_M(2.33)$	5777.7	$5776^{+42}_{-43}$
$n_s$	0.9629	$0.964^{+0.015}_{-0.015}$	$D_{220}$	5704	$5704^{+110}_{-110}$	$f\sigma_8(0.15)$	0.4612	$0.460^{+0.032}_{-0.032}$
$r$	0.000	$< 0.154$	$D_{810}$	2531.5	$2531^{+37}_{-36}$	$\sigma_8(0.15)$	0.7479	$0.747^{+0.019}_{-0.020}$
$y_{\text{cal}}$	1.0003	$1.0004^{+0.0064}_{-0.0066}$	$D_{1420}$	812.7	$813^{+14}_{-14}$	$f\sigma_8(0.38)$	0.4780	$0.477^{+0.025}_{-0.026}$
$A_{100}^{\text{PS}}$	254	$255^{+70}_{-70}$	$D_{2000}$	228.92	$229.0^{+4.9}_{-4.9}$	$\sigma_8(0.38)$	0.6622	$0.661^{+0.016}_{-0.016}$
$A_{143}^{\text{tSZ}}$	5.77	$< 8.83$	$n_{s,0.002}$	0.9629	$0.964^{+0.015}_{-0.015}$	$f\sigma_8(0.51)$	0.4757	$0.474^{+0.021}_{-0.022}$
$A^{\text{kSZ}}$	1.0	—	$Y_P$	0.245278	$0.24529^{+0.00023}_{-0.00026}$	$\sigma_8(0.51)$	0.6194	$0.619^{+0.015}_{-0.015}$
$A_{100}^{\text{dust}}$	1.00	$1.00^{+0.51}_{-0.51}$	$Y_P^{\text{BBN}}$	0.246604	$0.24661^{+0.00023}_{-0.00026}$	$f\sigma_8(0.61)$	0.4702	$0.469^{+0.019}_{-0.019}$
$A_{143}^{\text{power}}$	12.2	$10.3^{+6.7}_{-5.6}$	$10^5 \text{D/H}$	2.640	$2.63^{+0.11}_{-0.11}$	$\sigma_8(0.61)$	0.5891	$0.588^{+0.014}_{-0.014}$
$A_{217}^{\text{power}}$	11.3	$8.1^{+7.8}_{-4.6}$	Age/Gyr	13.830	$13.826^{+0.094}_{-0.095}$	$f\sigma_8(2.33)$	0.2968	$0.2964^{+0.0069}_{-0.0068}$
$A_{143 \times 217}^{\text{power}}$	7.5	$< 10.6$	$z_*$	1090.31	$1090.3^{+1.1}_{-1.0}$	$\sigma_8(2.33)$	0.3057	$0.3054^{+0.0072}_{-0.0070}$
$\gamma_{143}^{\text{power}}$	1.31	$> 0.365$	$r_*$	144.58	$144.6^{+1.3}_{-1.2}$	$r_{0.002}$	0.000	$< 0.147$
$\gamma_{217}^{\text{power}}$	1.26	—	$100\theta_*$	1.04103	$1.0410^{+0.0012}_{-0.0013}$	$r_{0.01}$	0.000	$< 0.151$
$\gamma_{143 \times 217}^{\text{power}}$	1.20	—	$D_M(z_*)/\text{Gpc}$	13.888	$13.89^{+0.12}_{-0.12}$	$\ln(10^{10} A_t)$	-7.95	$-0.7^{+2.2}_{-4.1}$
$c_{100}$	0.99802	$0.9978^{+0.0027}_{-0.0029}$	$z_{\text{drag}}$	1059.28	$1059.3^{+1.2}_{-1.2}$	$r_{10}$	0.0000	$< 0.0762$
$c_{217}$	0.99913	$0.9994^{+0.0045}_{-0.0034}$	$r_{\text{drag}}$	147.34	$147.4^{+1.3}_{-1.3}$	$10^9 A_t$	0.000	$< 0.321$
$H_0$	66.99	$67.1^{+2.4}_{-2.3}$	$k_D$	0.14039	$0.1404^{+0.0014}_{-0.0014}$	$10^9 A_t e^{-2\tau}$	0.000	$< 0.289$
$\Omega_\Lambda$	0.6814	$0.683^{+0.033}_{-0.035}$	$100\theta_D$	0.16113	$0.16110^{+0.00068}_{-0.00068}$	$f_{2000}^{143}$	23.7	$23^{+8}_{-8}$
$\Omega_m$	0.3186	$0.317^{+0.035}_{-0.033}$	$z_{\text{eq}}$	3402	$3397^{+130}_{-120}$	$f_{2000}^{217}$	17.1	$16.8^{+5.1}_{-5.1}$
$\Omega_m h^2$	0.1430	$0.1428^{+0.0052}_{-0.0052}$	$k_{\text{eq}}$	0.010382	$0.01037^{+0.00038}_{-0.00038}$	$f_{2000}^{143 \times 217}$	11.6	$11.0^{+5.8}_{-5.4}$
$\Omega_m h^3$	0.09579	$0.0958^{+0.0012}_{-0.0011}$	$100\theta_{\text{eq}}$	0.8125	$0.813^{+0.024}_{-0.023}$	$\chi_{\text{simall}}^2$	395.87	$397.0 (\nu: 1.3)$
$\sigma_8$	0.8101	$0.809^{+0.023}_{-0.024}$	$100\theta_{s,\text{eq}}$	0.4492	$0.450^{+0.012}_{-0.012}$	$\chi_{\text{lowl}}^2$	23.60	$25.0 (\nu: 1.7)$
$S_8$	0.835	$0.832^{+0.064}_{-0.062}$	$H(0.15)$	72.34	$72.4^{+2.1}_{-2.0}$	$\chi_{\text{CamSpec}}^2$	6704.4	$6716.7 (\nu: 13.8)$
$\sigma_8 \Omega_m^{0.5}$	0.4572	$0.456^{+0.035}_{-0.034}$	$D_M(0.15)$	646.6	$646^{+21}_{-20}$	$\chi_{\text{prior}}^2$	1.2	$5.3 (\nu: 4.4)$
$\sigma_8 \Omega_m^{0.25}$	0.6086	$0.607^{+0.031}_{-0.031}$	$H(0.38)$	82.57	$82.6^{+1.5}_{-1.4}$	$\chi_{\text{CMB}}^2$	7123.9	$7138.7 (\nu: 14.9)$
$\sigma_8/h^{0.5}$	0.9897	$0.987^{+0.042}_{-0.042}$	$D_M(0.38)$	1540.4	$1539^{+41}_{-41}$			
$r_{\text{drag}} h$	98.71	$98.9^{+4.3}_{-4.1}$	$H(0.51)$	89.35	$89.4^{+1.2}_{-1.1}$			

Best-fit  $\chi_{\text{eff}}^2 = 7125.09$ ;  $\bar{\chi}_{\text{eff}}^2 = 7144.04$ ;  $R - 1 = 0.00760$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2\_29: 23.60 CamSpec like\_10.7cleaned: 6704.38



17.42 base\_r\_plikHM\_TT\_lowl\_lowE\_BK15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02209	$0.02208^{+0.00057}_{-0.00055}$	$\sigma_8$	0.8156	$0.814^{+0.022}_{-0.023}$	$H(0.38)$	82.34	$82.4^{+1.4}_{-1.3}$
$\Omega_c h^2$	0.1213	$0.1212^{+0.0052}_{-0.0052}$	$S_8$	0.849	$0.846^{+0.061}_{-0.060}$	$D_M(0.38)$	1547.3	$1546^{+39}_{-40}$
$100\theta_{MC}$	1.04069	$1.0407^{+0.0012}_{-0.0012}$	$\sigma_8 \Omega_m^{0.5}$	0.4650	$0.463^{+0.033}_{-0.033}$	$H(0.51)$	89.19	$89.2^{+1.2}_{-1.0}$
$\tau$	0.0527	$0.052^{+0.021}_{-0.021}$	$\sigma_8 \Omega_m^{0.25}$	0.6158	$0.614^{+0.029}_{-0.029}$	$D_M(0.51)$	2002.3	$2001^{+46}_{-47}$
$\ln(10^{10} A_s)$	3.0439	$3.042^{+0.043}_{-0.042}$	$\sigma_8/h^{0.5}$	0.9996	$0.997^{+0.039}_{-0.040}$	$H(0.61)$	94.91	$94.93^{+0.92}_{-0.82}$
$n_s$	0.9624	$0.962^{+0.015}_{-0.014}$	$r_{drag} h$	97.90	$98.1^{+4.1}_{-3.9}$	$D_M(0.61)$	2328.2	$2327^{+49}_{-50}$
$r$	0.0117	$< 0.0759$	$\langle d^2 \rangle^{1/2}$	2.466	$2.463^{+0.096}_{-0.094}$	$H(2.33)$	237.15	$237.0^{+3.2}_{-3.2}$
$y_{cal}$	1.0006	$1.0007^{+0.0065}_{-0.0065}$	$z_{re}$	7.60	$7.5^{+2.1}_{-2.3}$	$D_M(2.33)$	5781.5	$5781^{+39}_{-42}$
$A_{B,dust}$	4.63	$4.9^{+3.2}_{-2.2}$	$10^9 A_s$	2.099	$2.096^{+0.092}_{-0.087}$	$f\sigma_8(0.15)$	0.4685	$0.467^{+0.030}_{-0.030}$
$A_{B,sync}$	1.48	$< 4.94$	$10^9 A_s e^{-2\tau}$	1.8887	$1.887^{+0.034}_{-0.034}$	$\sigma_8(0.15)$	0.7523	$0.751^{+0.019}_{-0.019}$
$\alpha_{B,dust}$	-0.54	—	$D_{40}$	1238.6	$1245^{+41}_{-39}$	$f\sigma_8(0.38)$	0.4838	$0.483^{+0.023}_{-0.024}$
$\beta_{B,dust}$	1.574	$1.60^{+0.25}_{-0.25}$	$D_{220}$	5708	$5711^{+100}_{-110}$	$\sigma_8(0.38)$	0.6654	$0.664^{+0.015}_{-0.015}$
$\alpha_{B,sync}$	-0.33	—	$D_{810}$	2539.7	$2538^{+35}_{-35}$	$f\sigma_8(0.51)$	0.4808	$0.480^{+0.020}_{-0.021}$
$\beta_{B,sync}$	-3.03	$-3.10^{+0.68}_{-0.73}$	$D_{1420}$	815.7	$815^{+13}_{-13}$	$\sigma_8(0.51)$	0.6221	$0.621^{+0.014}_{-0.014}$
$\epsilon_{dust,sync}$	-0.33	$< 0.358$	$D_{2000}$	230.03	$229.6^{+4.6}_{-4.6}$	$f\sigma_8(0.61)$	0.4748	$0.474^{+0.018}_{-0.018}$
$A_{217}^{CIB}$	48.7	$48^{+20}_{-20}$	$n_{s,0.002}$	0.9624	$0.962^{+0.015}_{-0.014}$	$\sigma_8(0.61)$	0.5916	$0.591^{+0.013}_{-0.013}$
$\xi^{tSZ \times CIB}$	0.31	—	$Y_P$	0.245281	$0.24527^{+0.00023}_{-0.00026}$	$f\sigma_8(2.33)$	0.2978	$0.2974^{+0.0067}_{-0.0064}$
$A_{143}^{tSZ}$	7.0	—	$Y_P^{BBN}$	0.246607	$0.24659^{+0.00023}_{-0.00026}$	$\sigma_8(2.33)$	0.3064	$0.3061^{+0.0071}_{-0.0067}$
$A_{100}^{PS}$	255	$264^{+70}_{-70}$	$10^5 D/H$	2.638	$2.64^{+0.11}_{-0.10}$	$r_{0.002}$	0.0104	$< 0.0696$
$A_{143}^{PS}$	49.4	$49^{+20}_{-20}$	Age/Gyr	13.838	$13.838^{+0.089}_{-0.094}$	$r_{0.01}$	0.0110	$< 0.0726$
$A_{143 \times 217}^{PS}$	46.8	$44^{+20}_{-20}$	$z_*$	1090.39	$1090.4^{+1.0}_{-1.0}$	$\ln(10^{10} A_t)$	-1.40	$-1.0^{+1.8}_{-3.6}$
$A_{217}^{PS}$	119.5	$116^{+30}_{-30}$	$r_*$	144.30	$144.4^{+1.2}_{-1.2}$	$r_{10}$	0.0053	$< 0.0358$
$A^{kSZ}$	0.0	—	$100\theta_*$	1.04090	$1.0409^{+0.0012}_{-0.0012}$	$10^9 A_t$	0.025	$< 0.159$
$A_{100}^{dustTT}$	8.79	$8.9^{+4.7}_{-4.8}$	$D_M(z_*)/\text{Gpc}$	13.863	$13.87^{+0.11}_{-0.11}$	$10^9 A_t e^{-2\tau}$	0.022	$< 0.143$
$A_{143}^{dustTT}$	10.79	$10.7^{+4.6}_{-4.7}$	$z_{drag}$	1059.40	$1059.3^{+1.2}_{-1.2}$	$f_{2000}^{143}$	30.4	$31^{+8}_{-8}$
$A_{143 \times 217}^{dustTT}$	19.3	$18.2^{+8.5}_{-8.6}$	$r_{drag}$	147.04	$147.1^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	33.3	$34^{+5}_{-5}$
$A_{217}^{dustTT}$	94.6	$93^{+20}_{-20}$	$k_D$	0.14070	$0.1406^{+0.0013}_{-0.0013}$	$f_{2000}^{217}$	107.76	$108.2^{+4.9}_{-4.9}$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_D$	0.16107	$0.16111^{+0.00069}_{-0.00067}$	$\chi_{BKPLANCK}^2$	734.9	$739.1 (\nu: 3.7)$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0016}$	$z_{eq}$	3428	$3423^{+120}_{-120}$	$\chi_{small}^2$	396.01	$397.1 (\nu: 1.4)$
$H_0$	66.58	$66.7^{+2.3}_{-2.2}$	$k_{eq}$	0.010462	$0.01045^{+0.00036}_{-0.00037}$	$\chi_{lowl}^2$	24.26	$25.0 (\nu: 1.1)$
$\Omega_\Lambda$	0.6750	$0.676^{+0.032}_{-0.034}$	$100\theta_{eq}$	0.8078	$0.809^{+0.023}_{-0.021}$	$\chi_{plik}^2$	758.5	$771.1 (\nu: 14.1)$
$\Omega_m$	0.3250	$0.324^{+0.034}_{-0.032}$	$100\theta_{s,eq}$	0.4467	$0.447^{+0.012}_{-0.011}$	$\chi_{prior}^2$	1.5	$8.9 (\nu: 8.1)$
$\Omega_m h^2$	0.1441	$0.1439^{+0.0050}_{-0.0050}$	$H(0.15)$	72.00	$72.1^{+2.0}_{-1.9}$	$\chi_{CMB}^2$	1913.6	$1932.3 (\nu: 19.0)$
$\Omega_m h^3$	0.09593	$0.0959^{+0.0012}_{-0.0011}$	$D_M(0.15)$	650.2	$650^{+20}_{-20}$			

Best-fit  $\chi_{\text{eff}}^2 = 1915.08$ ;  $\bar{\chi}_{\text{eff}}^2 = 1941.21$ ;  $R - 1 = 0.00244$

$\chi_{\text{eff}}^2$ : CMB - BK15\_dust: 734.86 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.01 commander\_dx12\_v3\_2\_29: 24.26 plik\_rd12\_HM\_v22\_TT: 758.48



17.43 base\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02222	$0.02219^{+0.00052}_{-0.00049}$	$S_8$	0.8252	$0.824^{+0.038}_{-0.038}$	$H(0.51)$	89.61	$89.61^{+0.75}_{-0.72}$
$\Omega_c h^2$	0.11926	$0.1191^{+0.0032}_{-0.0032}$	$\sigma_8 \Omega_m^{0.5}$	0.4520	$0.451^{+0.021}_{-0.021}$	$D_M(0.51)$	1983.9	$1984^{+28}_{-28}$
$100\theta_{MC}$	1.04096	$1.0410^{+0.0011}_{-0.0011}$	$\sigma_8 \Omega_m^{0.25}$	0.6048	$0.604^{+0.020}_{-0.021}$	$H(0.61)$	95.23	$95.23^{+0.63}_{-0.61}$
$\tau$	0.0547	$0.055^{+0.021}_{-0.020}$	$\sigma_8/h^{0.5}$	0.9850	$0.984^{+0.029}_{-0.029}$	$D_M(0.61)$	2308.5	$2308^{+30}_{-30}$
$\ln(10^{10} A_s)$	3.0426	$3.043^{+0.044}_{-0.041}$	$r_{\text{drag}} h$	99.54	$99.6^{+2.4}_{-2.4}$	$H(2.33)$	235.93	$235.8^{+2.1}_{-2.0}$
$n_s$	0.9669	$0.966^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	2.433	$2.433^{+0.070}_{-0.069}$	$D_M(2.33)$	5767.9	$5769^{+31}_{-31}$
$r$	0.0175	$< 0.0792$	$z_{\text{re}}$	7.74	$7.7^{+2.0}_{-2.2}$	$f\sigma_8(0.15)$	0.4565	$0.456^{+0.020}_{-0.020}$
$y_{\text{cal}}$	1.0004	$1.0009^{+0.0065}_{-0.0065}$	$10^9 A_s$	2.096	$2.096^{+0.094}_{-0.084}$	$\sigma_8(0.15)$	0.7478	$0.747^{+0.018}_{-0.017}$
$A_{B,\text{dust}}$	4.59	$4.9^{+3.3}_{-2.1}$	$10^9 A_s e^{-2\tau}$	1.8787	$1.879^{+0.030}_{-0.029}$	$f\sigma_8(0.38)$	0.4748	$0.474^{+0.016}_{-0.017}$
$A_{B,\text{sync}}$	1.43	$< 4.93$	$D_{40}$	1230.7	$1236^{+36}_{-35}$	$\sigma_8(0.38)$	0.6628	$0.663^{+0.016}_{-0.014}$
$\alpha_{B,\text{dust}}$	-0.50	—	$D_{220}$	5715	$5720^{+100}_{-100}$	$f\sigma_8(0.51)$	0.4733	$0.473^{+0.015}_{-0.015}$
$\beta_{B,\text{dust}}$	1.575	$1.60^{+0.25}_{-0.25}$	$D_{810}$	2536.8	$2537^{+36}_{-36}$	$\sigma_8(0.51)$	0.6203	$0.620^{+0.014}_{-0.013}$
$\alpha_{B,\text{sync}}$	-0.32	—	$D_{1420}$	816.2	$816^{+13}_{-13}$	$f\sigma_8(0.61)$	0.4683	$0.468^{+0.014}_{-0.014}$
$\beta_{B,\text{sync}}$	-3.04	$-3.10^{+0.69}_{-0.73}$	$D_{2000}$	230.26	$230.1^{+4.5}_{-4.6}$	$\sigma_8(0.61)$	0.5902	$0.590^{+0.014}_{-0.013}$
$\epsilon_{\text{dust,sync}}$	-0.34	$< 0.347$	$n_{s,0.002}$	0.9669	$0.966^{+0.011}_{-0.011}$	$f\sigma_8(2.33)$	0.2976	$0.2975^{+0.0068}_{-0.0063}$
$A_{217}^{\text{CIB}}$	48.7	$48^{+20}_{-20}$	$Y_P$	0.245334	$0.24532^{+0.00020}_{-0.00024}$	$\sigma_8(2.33)$	0.3068	$0.3067^{+0.0071}_{-0.0065}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.32	—	$Y_P^{\text{BBN}}$	0.246660	$0.24664^{+0.00020}_{-0.00024}$	$r_{0.002}$	0.0159	$< 0.0732$
$A_{143}^{\text{tSZ}}$	7.0	—	$10^5 D/H$	2.614	$2.620^{+0.096}_{-0.094}$	$r_{0.01}$	0.0167	$< 0.0762$
$A_{100}^{\text{PS}}$	253	$263^{+70}_{-70}$	Age/Gyr	13.808	$13.810^{+0.071}_{-0.071}$	$\ln(10^{10} A_t)$	-1.00	$-0.9^{+1.7}_{-3.7}$
$A_{143}^{\text{PS}}$	49.0	$49^{+20}_{-20}$	$z_*$	1090.05	$1090.08^{+0.75}_{-0.77}$	$r_{10}$	0.0081	$< 0.0377$
$A_{143 \times 217}^{\text{PS}}$	46.5	$43^{+20}_{-20}$	$r_*$	144.74	$144.79^{+0.82}_{-0.82}$	$10^9 A_t$	0.037	$< 0.165$
$A_{217}^{\text{PS}}$	119.0	$115^{+30}_{-30}$	$100\theta_*$	1.04116	$1.0412^{+0.0011}_{-0.0011}$	$10^9 A_t e^{-2\tau}$	0.033	$< 0.149$
$A^{\text{kSZ}}$	0.0	—	$D_M(z_*)/\text{Gpc}$	13.902	$13.907^{+0.079}_{-0.081}$	$f_{2000}^{143}$	30.1	$31^{+8}_{-7}$
$A_{100}^{\text{dustTT}}$	8.86	$8.9^{+4.7}_{-4.8}$	$z_{\text{drag}}$	1059.51	$1059.5^{+1.1}_{-1.1}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+5}_{-5}$
$A_{143}^{\text{dustTT}}$	10.76	$10.7^{+4.7}_{-4.6}$	$r_{\text{drag}}$	147.46	$147.52^{+0.90}_{-0.89}$	$f_{2000}^{217}$	107.48	$107.9^{+4.8}_{-4.7}$
$A_{143 \times 217}^{\text{dustTT}}$	19.4	$18.2^{+8.6}_{-8.6}$	$k_D$	0.14037	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\text{BKPLANCK}}^2$	735.6	$739.9 (\nu: 3.6)$
$A_{217}^{\text{dustTT}}$	94.7	$93^{+20}_{-20}$	$100\theta_D$	0.16100	$0.16105^{+0.00066}_{-0.00065}$	$\chi_{\text{simall}}^2$	396.19	$397.2 (\nu: 1.8)$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{eq}}$	3381	$3377^{+75}_{-74}$	$\chi_{\text{lowl}}^2$	23.52	$24.0 (\nu: 0.6)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$k_{\text{eq}}$	0.010319	$0.01031^{+0.00023}_{-0.00022}$	$\chi_{\text{plik}}^2$	759.5	$771.7 (\nu: 14.7)$
$H_0$	67.50	$67.5^{+1.4}_{-1.4}$	$100\theta_{\text{eq}}$	0.8167	$0.817^{+0.014}_{-0.013}$	$\chi_{6\text{DF}}^2$	0.037	$0.067 (\nu: 0.0)$
$\Omega_\Lambda$	0.6881	$0.689^{+0.018}_{-0.019}$	$100\theta_{s,\text{eq}}$	0.4513	$0.4516^{+0.0071}_{-0.0070}$	$\chi_{\text{MGS}}^2$	1.16	$1.27 (\nu: 0.1)$
$\Omega_m$	0.3119	$0.311^{+0.019}_{-0.018}$	$H(0.15)$	72.78	$72.8^{+1.2}_{-1.2}$	$\chi_{\text{DR12BAO}}^2$	4.56	$5.0 (\nu: 1.6)$
$\Omega_m h^2$	0.14213	$0.1420^{+0.0031}_{-0.0031}$	$D_M(0.15)$	642.2	$642^{+12}_{-12}$	$\chi_{\text{prior}}^2$	1.4	$9.0 (\nu: 8.2)$
$\Omega_m h^3$	0.09594	$0.0959^{+0.0012}_{-0.0011}$	$H(0.38)$	82.90	$82.90^{+0.90}_{-0.87}$	$\chi_{\text{BAO}}^2$	5.75	$6.3 (\nu: 1.1)$
$\sigma_8$	0.8093	$0.809^{+0.020}_{-0.019}$	$D_M(0.38)$	1531.5	$1531^{+24}_{-24}$	$\chi_{\text{CMB}}^2$	1914.8	$1932.8 (\nu: 18.8)$

Best-fit  $\chi_{\text{eff}}^2 = 1921.94$ ;  $\bar{\chi}_{\text{eff}}^2 = 1948.08$ ;  $R - 1 = 0.00580$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.04 MGS: 1.16 DR12BAO: 4.56 CMB - BK15\_dust: 735.55 simall\_100x143.offlike5\_EE\_Aplanck\_B: 396.19 commander\_dx12\_v3\_2\_29: 23.52 plik\_rd12\_HM\_v22\_TT: 759.51



17.44 base\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02212	$0.02211^{+0.00054}_{-0.00053}$	$\sigma_8$	0.8122	$0.812^{+0.016}_{-0.016}$	$H(0.38)$	82.54	$82.5^{+1.2}_{-1.1}$
$\Omega_c h^2$	0.12047	$0.1204^{+0.0041}_{-0.0040}$	$S_8$	0.8385	$0.838^{+0.042}_{-0.041}$	$D_M(0.38)$	1541.3	$1541^{+31}_{-31}$
$100\theta_{MC}$	1.04076	$1.0408^{+0.0011}_{-0.0011}$	$\sigma_8 \Omega_m^{0.5}$	0.4593	$0.459^{+0.023}_{-0.022}$	$H(0.51)$	89.34	$89.34^{+0.93}_{-0.87}$
$\tau$	0.0529	$0.052^{+0.021}_{-0.021}$	$\sigma_8 \Omega_m^{0.25}$	0.6107	$0.610^{+0.019}_{-0.019}$	$D_M(0.51)$	1995.4	$1995^{+36}_{-37}$
$\ln(10^{10} A_s)$	3.0420	$3.041^{+0.040}_{-0.039}$	$\sigma_8/h^{0.5}$	0.9928	$0.992^{+0.026}_{-0.027}$	$H(0.61)$	95.01	$95.02^{+0.78}_{-0.72}$
$n_s$	0.9633	$0.963^{+0.013}_{-0.012}$	$r_{drag} h$	98.55	$98.6^{+3.1}_{-3.1}$	$D_M(0.61)$	2320.8	$2321^{+39}_{-40}$
$r$	0.0128	$< 0.0758$	$\langle d^2 \rangle^{1/2}$	2.453	$2.451^{+0.063}_{-0.063}$	$H(2.33)$	236.61	$236.6^{+2.5}_{-2.4}$
$y_{cal}$	1.0006	$1.0007^{+0.0065}_{-0.0065}$	$z_{re}$	7.60	$7.5^{+2.0}_{-2.3}$	$D_M(2.33)$	5777.3	$5777^{+35}_{-37}$
$A_{B,dust}$	4.63	$4.9^{+3.3}_{-2.1}$	$10^9 A_s$	2.095	$2.092^{+0.085}_{-0.080}$	$f\sigma_8(0.15)$	0.4632	$0.463^{+0.021}_{-0.021}$
$A_{B,sync}$	1.42	$< 4.94$	$10^9 A_s e^{-2\tau}$	1.8843	$1.884^{+0.029}_{-0.029}$	$\sigma_8(0.15)$	0.7497	$0.749^{+0.014}_{-0.014}$
$\alpha_{B,dust}$	-0.52	—	$D_{40}$	1236.8	$1242^{+36}_{-34}$	$f\sigma_8(0.38)$	0.4797	$0.479^{+0.016}_{-0.016}$
$\beta_{B,dust}$	1.573	$1.60^{+0.24}_{-0.25}$	$D_{220}$	5714	$5714^{+100}_{-100}$	$\sigma_8(0.38)$	0.6637	$0.663^{+0.013}_{-0.013}$
$\alpha_{B,sync}$	-0.54	—	$D_{810}$	2537.5	$2537^{+35}_{-35}$	$f\sigma_8(0.51)$	0.4773	$0.477^{+0.013}_{-0.014}$
$\beta_{B,sync}$	-3.04	$-3.10^{+0.68}_{-0.72}$	$D_{1420}$	815.0	$815^{+13}_{-13}$	$\sigma_8(0.51)$	0.6207	$0.620^{+0.012}_{-0.012}$
$\epsilon_{dust,sync}$	-0.34	$< 0.362$	$D_{2000}$	229.76	$229.7^{+4.6}_{-4.6}$	$f\sigma_8(0.61)$	0.4717	$0.471^{+0.012}_{-0.012}$
$A_{217}^{CIB}$	50.8	$48^{+20}_{-20}$	$n_{s,0.002}$	0.9633	$0.963^{+0.013}_{-0.012}$	$\sigma_8(0.61)$	0.5904	$0.590^{+0.012}_{-0.011}$
$\xi^{tSZ \times CIB}$	0.05	—	$Y_P$	0.245294	$0.24528^{+0.00022}_{-0.00025}$	$f\sigma_8(2.33)$	0.2974	$0.2971^{+0.0062}_{-0.0060}$
$A_{143}^{tSZ}$	7.2	—	$Y_P^{BBN}$	0.246620	$0.24661^{+0.00022}_{-0.00025}$	$\sigma_8(2.33)$	0.3062	$0.3060^{+0.0069}_{-0.0066}$
$A_{100}^{PS}$	257	$264^{+70}_{-70}$	$10^5 D/H$	2.633	$2.63^{+0.10}_{-0.10}$	$r_{0.002}$	0.0114	$< 0.0697$
$A_{143}^{PS}$	45.8	$49^{+20}_{-20}$	Age/Gyr	13.829	$13.829^{+0.081}_{-0.084}$	$r_{0.01}$	0.0121	$< 0.0727$
$A_{143 \times 217}^{PS}$	40	$44^{+20}_{-20}$	$z_*$	1090.28	$1090.29^{+0.89}_{-0.89}$	$\ln(10^{10} A_t)$	-1.32	$-0.97^{+1.7}_{-3.6}$
$A_{217}^{PS}$	116.0	$115^{+30}_{-30}$	$r_*$	144.50	$144.51^{+0.95}_{-0.95}$	$r_{10}$	0.0059	$< 0.0359$
$A^{kSZ}$	0.0	—	$100\theta_*$	1.04097	$1.0410^{+0.0011}_{-0.0011}$	$10^9 A_t$	0.027	$< 0.159$
$A_{100}^{dustTT}$	8.89	$8.9^{+4.7}_{-4.8}$	$D_M(z_*)/\text{Gpc}$	13.881	$13.882^{+0.091}_{-0.090}$	$10^9 A_t e^{-2\tau}$	0.024	$< 0.143$
$A_{143}^{dustTT}$	10.76	$10.7^{+4.7}_{-4.6}$	$z_{drag}$	1059.40	$1059.4^{+1.2}_{-1.2}$	$f_{2000}^{143}$	30.8	$31^{+7}_{-8}$
$A_{143 \times 217}^{dustTT}$	19.0	$18.3^{+8.5}_{-8.6}$	$r_{drag}$	147.24	$147.26^{+0.99}_{-0.99}$	$f_{2000}^{143 \times 217}$	33.5	$34^{+5}_{-5}$
$A_{217}^{dustTT}$	94.0	$93^{+20}_{-20}$	$k_D$	0.14052	$0.1405^{+0.0012}_{-0.0012}$	$f_{2000}^{217}$	108.00	$108.2^{+4.9}_{-4.8}$
$c_{100}$	0.99961	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_D$	0.16106	$0.16109^{+0.00068}_{-0.00066}$	$\chi_{lensing}^2$	8.98	$9.53 (\nu: 0.5)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$z_{eq}$	3408	$3407^{+92}_{-91}$	$\chi_{BKPLANCK}^2$	735.2	$739.4 (\nu: 3.4)$
$H_0$	66.93	$66.9^{+1.8}_{-1.8}$	$k_{eq}$	0.010400	$0.01040^{+0.00028}_{-0.00028}$	$\chi_{small}^2$	396.00	$397.0 (\nu: 1.3)$
$\Omega_\Lambda$	0.6803	$0.680^{+0.024}_{-0.026}$	$100\theta_{eq}$	0.8115	$0.812^{+0.017}_{-0.017}$	$\chi_{lowl}^2$	24.07	$24.6 (\nu: 0.8)$
$\Omega_m$	0.3197	$0.320^{+0.026}_{-0.024}$	$100\theta_{s,eq}$	0.4486	$0.4487^{+0.0090}_{-0.0087}$	$\chi_{plik}^2$	758.4	$770.9 (\nu: 13.7)$
$\Omega_m h^2$	0.14324	$0.1432^{+0.0039}_{-0.0038}$	$H(0.15)$	72.30	$72.3^{+1.6}_{-1.5}$	$\chi_{prior}^2$	1.7	$8.9 (\nu: 8.2)$
$\Omega_m h^3$	0.09587	$0.0959^{+0.0012}_{-0.0011}$	$D_M(0.15)$	647.1	$647^{+16}_{-15}$	$\chi_{CMB}^2$	1922.6	$1941.5 (\nu: 18.9)$

Best-fit  $\chi_{eff}^2 = 1924.32$ ;  $\bar{\chi}_{eff}^2 = 1950.36$ ;  $R - 1 = 0.00332$   
 $\chi_{eff}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.98 BK15\_dust: 735.21 small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.00 commander\_dx12\_v3\_2\_29: 24.07  
plik\_rd12\_HM\_v22.TT: 758.35



17.45 base\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.02219^{+0.00051}_{-0.00049}$	$\sigma_8 \Omega_m^{0.5}$	0.4531	$0.452^{+0.017}_{-0.017}$	$H(0.61)$	95.21	$95.22^{+0.61}_{-0.59}$
$\Omega_c h^2$	0.11941	$0.1192^{+0.0028}_{-0.0028}$	$\sigma_8 \Omega_m^{0.25}$	0.6059	$0.605^{+0.016}_{-0.016}$	$D_M(0.61)$	2309.8	$2309^{+28}_{-28}$
$100\theta_{MC}$	1.04096	$1.0410^{+0.0011}_{-0.0011}$	$\sigma_8/h^{0.5}$	0.9866	$0.986^{+0.023}_{-0.023}$	$H(2.33)$	236.02	$235.9^{+1.8}_{-1.8}$
$\tau$	0.0546	$0.055^{+0.020}_{-0.019}$	$r_{drag} h$	99.42	$99.6^{+2.1}_{-2.1}$	$D_M(2.33)$	5768.7	$5769^{+30}_{-31}$
$\ln(10^{10} A_s)$	3.0439	$3.045^{+0.039}_{-0.037}$	$\langle d^2 \rangle^{1/2}$	2.438	$2.438^{+0.055}_{-0.055}$	$f\sigma_8(0.15)$	0.4576	$0.457^{+0.016}_{-0.016}$
$n_s$	0.9662	$0.966^{+0.011}_{-0.010}$	$z_{re}$	7.74	$7.8^{+1.9}_{-2.0}$	$\sigma_8(0.15)$	0.7485	$0.748^{+0.015}_{-0.014}$
$r$	0.0155	$< 0.0772$	$10^9 A_s$	2.099	$2.101^{+0.084}_{-0.077}$	$f\sigma_8(0.38)$	0.4757	$0.475^{+0.013}_{-0.013}$
$y_{cal}$	1.0009	$1.0010^{+0.0064}_{-0.0064}$	$10^9 A_s e^{-2\tau}$	1.8815	$1.880^{+0.028}_{-0.027}$	$\sigma_8(0.38)$	0.6634	$0.663^{+0.013}_{-0.012}$
$A_{B,dust}$	4.60	$4.9^{+3.3}_{-2.1}$	$D_{40}$	1232.9	$1237^{+34}_{-32}$	$f\sigma_8(0.51)$	0.4741	$0.474^{+0.011}_{-0.011}$
$A_{B,sync}$	1.43	$< 4.94$	$D_{220}$	5723	$5723^{+100}_{-100}$	$\sigma_8(0.51)$	0.6207	$0.621^{+0.012}_{-0.012}$
$\alpha_{B,dust}$	-0.50	—	$D_{810}$	2539.5	$2538^{+36}_{-34}$	$f\sigma_8(0.61)$	0.4690	$0.469^{+0.011}_{-0.011}$
$\beta_{B,dust}$	1.574	$1.60^{+0.24}_{-0.25}$	$D_{1420}$	816.8	$816^{+13}_{-13}$	$\sigma_8(0.61)$	0.5906	$0.591^{+0.012}_{-0.011}$
$\alpha_{B,sync}$	-0.35	—	$D_{2000}$	230.41	$230.2^{+4.5}_{-4.5}$	$f\sigma_8(2.33)$	0.2977	$0.2978^{+0.0061}_{-0.0058}$
$\beta_{B,sync}$	-3.04	$-3.10^{+0.69}_{-0.72}$	$n_{s,0.002}$	0.9662	$0.966^{+0.011}_{-0.010}$	$\sigma_8(2.33)$	0.3069	$0.3070^{+0.0065}_{-0.0062}$
$\epsilon_{dust,sync}$	-0.35	$< 0.352$	$Y_P$	0.245329	$0.24532^{+0.00020}_{-0.00023}$	$r_{0.002}$	0.0140	$< 0.0719$
$A_{217}^{CIB}$	48.9	$48^{+20}_{-20}$	$Y_P^{BBN}$	0.246656	$0.24665^{+0.00020}_{-0.00023}$	$r_{0.01}$	0.0147	$< 0.0747$
$\xi^{tSZ \times CIB}$	0.28	—	$10^5 D/H$	2.616	$2.619^{+0.095}_{-0.093}$	$\ln(10^{10} A_t)$	-1.12	$-0.9^{+1.7}_{-3.7}$
$A_{143}^{tSZ}$	7.1	—	Age/Gyr	13.810	$13.811^{+0.069}_{-0.070}$	$r_{10}$	0.0071	$< 0.0368$
$A_{100}^{PS}$	255	$263^{+70}_{-70}$	$z_*$	1090.07	$1090.08^{+0.73}_{-0.74}$	$10^9 A_t$	0.033	$< 0.163$
$A_{143}^{PS}$	48.6	$49^{+20}_{-20}$	$r_*$	144.71	$144.77^{+0.75}_{-0.74}$	$10^9 A_t e^{-2\tau}$	0.029	$< 0.146$
$A_{143 \times 217}^{PS}$	45.8	$43^{+20}_{-20}$	$100\theta_*$	1.04116	$1.0412^{+0.0010}_{-0.0011}$	$f_{2000}^{143}$	30.3	$31^{+8}_{-7}$
$A_{217}^{PS}$	119.0	$115^{+30}_{-30}$	$D_M(z_*)/\text{Gpc}$	13.899	$13.905^{+0.073}_{-0.073}$	$f_{2000}^{143 \times 217}$	33.2	$33^{+5}_{-5}$
$A^{kSZ}$	0.0	—	$z_{drag}$	1059.51	$1059.5^{+1.2}_{-1.1}$	$f_{2000}^{217}$	107.72	$107.9^{+4.7}_{-4.7}$
$A_{100}^{dustTT}$	8.87	$8.9^{+4.7}_{-4.8}$	$r_{drag}$	147.43	$147.50^{+0.84}_{-0.82}$	$\chi^2_{lensing}$	8.81	$9.23 (\nu: 0.2)$
$A_{143}^{dustTT}$	10.78	$10.7^{+4.7}_{-4.5}$	$k_D$	0.14039	$0.1403^{+0.0011}_{-0.0011}$	$\chi^2_{BKPLANCK}$	735.5	$739.8 (\nu: 3.5)$
$A_{143 \times 217}^{dustTT}$	19.3	$18.2^{+8.6}_{-8.5}$	$100\theta_D$	0.16101	$0.16104^{+0.00065}_{-0.00065}$	$\chi^2_{simall}$	396.21	$397.3 (\nu: 1.7)$
$A_{217}^{dustTT}$	94.6	$93^{+20}_{-20}$	$z_{eq}$	3384	$3379^{+66}_{-65}$	$\chi^2_{lowl}$	23.60	$24.1 (\nu: 0.6)$
$c_{100}$	0.99966	$0.9996^{+0.0015}_{-0.0016}$	$k_{eq}$	0.010329	$0.01031^{+0.00020}_{-0.00020}$	$\chi^2_{plik}$	759.2	$771.3 (\nu: 14.1)$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0016}$	$100\theta_{eq}$	0.8161	$0.817^{+0.012}_{-0.012}$	$\chi^2_{6DF}$	0.047	$0.065 (\nu: 0.0)$
$H_0$	67.44	$67.5^{+1.3}_{-1.3}$	$100\theta_{s,eq}$	0.4510	$0.4514^{+0.0063}_{-0.0062}$	$\chi^2_{MGS}$	1.10	$1.23 (\nu: 0.1)$
$\Omega_\Lambda$	0.6872	$0.688^{+0.016}_{-0.017}$	$H(0.15)$	72.73	$72.8^{+1.1}_{-1.1}$	$\chi^2_{DR12BAO}$	4.77	$5.0 (\nu: 1.3)$
$\Omega_m$	0.3128	$0.312^{+0.017}_{-0.016}$	$D_M(0.15)$	642.8	$642^{+11}_{-11}$	$\chi^2_{prior}$	1.5	$8.9 (\nu: 8.2)$
$\Omega_m h^2$	0.14227	$0.1421^{+0.0028}_{-0.0027}$	$H(0.38)$	82.86	$82.89^{+0.84}_{-0.82}$	$\chi^2_{CMB}$	1923.3	$1941.7 (\nu: 18.9)$
$\Omega_m h^3$	0.09594	$0.0959^{+0.0012}_{-0.0011}$	$D_M(0.38)$	1532.6	$1532^{+22}_{-22}$	$\chi^2_{BAO}$	5.92	$6.3 (\nu: 0.9)$
$\sigma_8$	0.8102	$0.810^{+0.016}_{-0.016}$	$H(0.51)$	89.58	$89.60^{+0.71}_{-0.68}$			
$S_8$	0.8273	$0.826^{+0.030}_{-0.030}$	$D_M(0.51)$	1985.2	$1984^{+26}_{-26}$			

Best-fit  $\chi^2_{eff} = 1930.77$ ;  $\bar{\chi}^2_{eff} = 1956.87$ ;  $R - 1 = 0.00562$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.05 MGS: 1.10 DR12BAO: 4.78 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.81 BK15\_dust: 735.47 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.21 commander\_dx12\_v3.2.29: 23.60 plik\_rd12\_HM\_v22.TT: 759.22



17.46 base\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02208^{+0.00056}_{-0.00055}$	$\sigma_8$	$0.815^{+0.022}_{-0.021}$	$H(0.38)$	$82.4^{+1.4}_{-1.3}$
$\Omega_{\mathrm{c}}h^2$	$0.1211^{+0.0052}_{-0.0052}$	$S_8$	$0.847^{+0.061}_{-0.060}$	$D_{\mathrm{M}}(0.38)$	$1546^{+39}_{-40}$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0012}_{-0.0012}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.464^{+0.033}_{-0.033}$	$H(0.51)$	$89.2^{+1.1}_{-1.0}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.615^{+0.029}_{-0.029}$	$D_{\mathrm{M}}(0.51)$	$2000^{+45}_{-46}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.041}_{-0.030}$	$\sigma_8/h^{0.5}$	$0.998^{+0.039}_{-0.040}$	$H(0.61)$	$94.94^{+0.92}_{-0.82}$
$n_{\mathrm{s}}$	$0.962^{+0.015}_{-0.014}$	$r_{\mathrm{drag}}h$	$98.1^{+4.1}_{-3.9}$	$D_{\mathrm{M}}(0.61)$	$2326^{+49}_{-50}$
$r$	$< 0.0757$	$\langle d^2 \rangle^{1/2}$	$2.466^{+0.095}_{-0.093}$	$H(2.33)$	$237.0^{+3.2}_{-3.2}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0065}$	$z_{\mathrm{re}}$	$< 9.41$	$D_{\mathrm{M}}(2.33)$	$5781^{+39}_{-42}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.3}_{-2.1}$	$10^9 A_{\mathrm{s}}$	$2.102^{+0.087}_{-0.062}$	$f\sigma_8(0.15)$	$0.467^{+0.030}_{-0.030}$
$A_{B,\mathrm{sync}}$	$< 4.93$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.887^{+0.034}_{-0.034}$	$\sigma_8(0.15)$	$0.752^{+0.018}_{-0.017}$
$\alpha_{B,\mathrm{dust}}$	—	$D_{40}$	$1244^{+41}_{-39}$	$f\sigma_8(0.38)$	$0.483^{+0.023}_{-0.024}$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25}$	$D_{220}$	$5711^{+100}_{-110}$	$\sigma_8(0.38)$	$0.665^{+0.015}_{-0.013}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{810}$	$2538^{+35}_{-35}$	$f\sigma_8(0.51)$	$0.480^{+0.020}_{-0.021}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.68}_{-0.73}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.51)$	$0.622^{+0.014}_{-0.011}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.358$	$D_{2000}$	$229.7^{+4.6}_{-4.6}$	$f\sigma_8(0.61)$	$0.474^{+0.017}_{-0.018}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.962^{+0.015}_{-0.014}$	$\sigma_8(0.61)$	$0.592^{+0.013}_{-0.010}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24527^{+0.00023}_{-0.00026}$	$f\sigma_8(2.33)$	$0.2978^{+0.0064}_{-0.0047}$
$A_{143}^{\mathrm{tSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24660^{+0.00023}_{-0.00026}$	$\sigma_8(2.33)$	$0.3065^{+0.0068}_{-0.0048}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$10^5\mathrm{D}/\mathrm{H}$	$2.64^{+0.11}_{-0.10}$	$r_{0.002}$	$< 0.0694$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.836^{+0.089}_{-0.093}$	$r_{0.01}$	$< 0.0724$
$A_{143\times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$z_*$	$1090.4^{+1.0}_{-1.0}$	$\ln(10^{10}A_{\mathrm{t}})$	$-1.0^{+1.8}_{-3.6}$
$A_{217}^{\mathrm{PS}}$	$116^{+30}_{-30}$	$r_*$	$144.4^{+1.2}_{-1.2}$	$r_{10}$	$< 0.0357$
$A^{\mathrm{kSZ}}$	—	$100\theta_*$	$1.0409^{+0.0012}_{-0.0012}$	$10^9 A_{\mathrm{t}}$	$< 0.158$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.8}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.87^{+0.11}_{-0.11}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.142$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.6}_{-4.7}$	$z_{\mathrm{drag}}$	$1059.3^{+1.2}_{-1.2}$	$f_{2000}^{143}$	$31^{+7}_{-8}$
$A_{143\times 217}^{\mathrm{dustTT}}$	$18.2^{+8.5}_{-8.6}$	$r_{\mathrm{drag}}$	$147.1^{+1.2}_{-1.2}$	$f_{2000}^{143\times 217}$	$34^{+5}_{-5}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$k_{\mathrm{D}}$	$0.1406^{+0.0013}_{-0.0013}$	$f_{2000}^{217}$	$108.2^{+4.9}_{-4.9}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_{\mathrm{D}}$	$0.16110^{+0.00069}_{-0.00067}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.1 (\nu: 3.6)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{eq}}$	$3421^{+120}_{-120}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.4)$
$H_0$	$66.7^{+2.3}_{-2.2}$	$k_{\mathrm{eq}}$	$0.01044^{+0.00036}_{-0.00036}$	$\chi_{\mathrm{lowl}}^2$	$25.0 (\nu: 1.1)$
$\Omega_{\Lambda}$	$0.676^{+0.032}_{-0.034}$	$100\theta_{\mathrm{eq}}$	$0.809^{+0.023}_{-0.021}$	$\chi_{\mathrm{plik}}^2$	$771.0 (\nu: 14.0)$
$\Omega_{\mathrm{m}}$	$0.324^{+0.034}_{-0.032}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.447^{+0.012}_{-0.011}$	$\chi_{\mathrm{prior}}^2$	$8.9 (\nu: 8.1)$
$\Omega_{\mathrm{m}}h^2$	$0.1438^{+0.0050}_{-0.0050}$	$H(0.15)$	$72.1^{+2.0}_{-1.9}$	$\chi_{\mathrm{CMB}}^2$	$1932.0 (\nu: 18.6)$
$\Omega_{\mathrm{m}}h^3$	$0.0959^{+0.0012}_{-0.0012}$	$D_{\mathrm{M}}(0.15)$	$649^{+20}_{-20}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1940.93; R - 1 = 0.00225$$



## 17.47 base\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02219^{+0.00052}_{-0.00049}$	$S_8$	$0.825^{+0.038}_{-0.037}$	$H(0.51)$	$89.62^{+0.75}_{-0.72}$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0032}_{-0.0032}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.021}_{-0.020}$	$D_{\mathrm{M}}(0.51)$	$1983^{+28}_{-27}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.020}_{-0.019}$	$H(0.61)$	$95.23^{+0.63}_{-0.61}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$\sigma_8/h^{0.5}$	$0.985^{+0.028}_{-0.027}$	$D_{\mathrm{M}}(0.61)$	$2308^{+30}_{-30}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.042}_{-0.031}$	$r_{\mathrm{drag}}h$	$99.6^{+2.4}_{-2.4}$	$H(2.33)$	$235.8^{+2.1}_{-2.0}$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.069}_{-0.066}$	$D_{\mathrm{M}}(2.33)$	$5768^{+31}_{-31}$
$r$	$< 0.0786$	$z_{\mathrm{re}}$	$< 9.53$	$f\sigma_8(0.15)$	$0.456^{+0.019}_{-0.019}$
$y_{\mathrm{cal}}$	$1.0009^{+0.0065}_{-0.0065}$	$10^9 A_{\mathrm{s}}$	$2.100^{+0.091}_{-0.064}$	$\sigma_8(0.15)$	$0.748^{+0.017}_{-0.014}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.3}_{-2.1}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.030}_{-0.029}$	$f\sigma_8(0.38)$	$0.475^{+0.016}_{-0.016}$
$A_{B,\mathrm{sync}}$	$< 4.89$	$D_{40}$	$1236^{+36}_{-35}$	$\sigma_8(0.38)$	$0.663^{+0.015}_{-0.012}$
$\alpha_{B,\mathrm{dust}}$	—	$D_{220}$	$5720^{+99}_{-100}$	$f\sigma_8(0.51)$	$0.473^{+0.014}_{-0.014}$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.24}_{-0.25}$	$D_{810}$	$2537^{+36}_{-36}$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.011}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{1420}$	$816^{+13}_{-13}$	$f\sigma_8(0.61)$	$0.468^{+0.013}_{-0.013}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.69}_{-0.72}$	$D_{2000}$	$230.1^{+4.5}_{-4.5}$	$\sigma_8(0.61)$	$0.591^{+0.013}_{-0.010}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.351$	$n_{\mathrm{s},0.002}$	$0.967^{+0.011}_{-0.011}$	$f\sigma_8(2.33)$	$0.2978^{+0.0066}_{-0.0050}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00020}_{-0.00023}$	$\sigma_8(2.33)$	$0.3070^{+0.0068}_{-0.0051}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00020}_{-0.00024}$	$r_{0.002}$	$< 0.0725$
$A_{143}^{\mathrm{tSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.620^{+0.095}_{-0.094}$	$r_{0.01}$	$< 0.0755$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.810^{+0.071}_{-0.071}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.9^{+1.7}_{-3.6}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$z_*$	$1090.07^{+0.75}_{-0.77}$	$r_{10}$	$< 0.0372$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$r_*$	$144.80^{+0.81}_{-0.83}$	$10^9 A_{\mathrm{t}}$	$< 0.164$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.147$
$A^{\mathrm{kSZ}}$	—	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.907^{+0.080}_{-0.081}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.8}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.1}$	$f_{2000}^{143\times 217}$	$33^{+5}_{-5}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.6}$	$r_{\mathrm{drag}}$	$147.52^{+0.90}_{-0.89}$	$f_{2000}^{217}$	$107.9^{+4.8}_{-4.7}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.2^{+8.6}_{-8.6}$	$k_{\mathrm{D}}$	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.8 (\nu: 3.6)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$100\theta_{\mathrm{D}}$	$0.16105^{+0.00065}_{-0.00065}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 1.8)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{eq}}$	$3377^{+74}_{-73}$	$\chi_{\mathrm{lowl}}^2$	$24.0 (\nu: 0.6)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00023}_{-0.00022}$	$\chi_{\mathrm{plik}}^2$	$771.6 (\nu: 14.6)$
$H_0$	$67.5^{+1.4}_{-1.4}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.014}_{-0.013}$	$\chi_{6\mathrm{DF}}^2$	$0.066 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.689^{+0.018}_{-0.019}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4517^{+0.0071}_{-0.0070}$	$\chi_{\mathrm{MGS}}^2$	$1.28 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.019}_{-0.018}$	$H(0.15)$	$72.8^{+1.2}_{-1.2}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 (\nu: 1.5)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0031}_{-0.0031}$	$D_{\mathrm{M}}(0.15)$	$642^{+12}_{-11}$	$\chi_{\mathrm{prior}}^2$	$8.9 (\nu: 8.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0959^{+0.0012}_{-0.0012}$	$H(0.38)$	$82.91^{+0.89}_{-0.87}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 1.1)$
$\sigma_8$	$0.810^{+0.019}_{-0.017}$	$D_{\mathrm{M}}(0.38)$	$1531^{+24}_{-23}$	$\chi_{\mathrm{CMB}}^2$	$1932.6 (\nu: 18.6)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1947.86; R - 1 = 0.00560$$



## 17.48 base\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02212^{+0.00054}_{-0.00052}$	$\sigma_8$	$0.812^{+0.015}_{-0.015}$	$H(0.38)$	$82.6^{+1.1}_{-1.1}$
$\Omega_{\mathrm{c}}h^2$	$0.1203^{+0.0039}_{-0.0039}$	$S_8$	$0.837^{+0.042}_{-0.041}$	$D_{\mathrm{M}}(0.38)$	$1540^{+30}_{-30}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0011}_{-0.0011}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.459^{+0.023}_{-0.023}$	$H(0.51)$	$89.37^{+0.92}_{-0.85}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.019}_{-0.020}$	$D_{\mathrm{M}}(0.51)$	$1994^{+35}_{-36}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.038}_{-0.027}$	$\sigma_8/h^{0.5}$	$0.992^{+0.026}_{-0.027}$	$H(0.61)$	$95.04^{+0.76}_{-0.70}$
$n_{\mathrm{s}}$	$0.964^{+0.012}_{-0.012}$	$r_{\mathrm{drag}}h$	$98.7^{+3.1}_{-2.9}$	$D_{\mathrm{M}}(0.61)$	$2319^{+38}_{-39}$
$r$	$< 0.0757$	$\langle d^2 \rangle^{1/2}$	$2.452^{+0.063}_{-0.064}$	$H(2.33)$	$236.5^{+2.4}_{-2.4}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0064}_{-0.0065}$	$z_{\mathrm{re}}$	$< 9.36$	$D_{\mathrm{M}}(2.33)$	$5776^{+35}_{-37}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.3}_{-2.1}$	$10^9 A_{\mathrm{s}}$	$2.098^{+0.081}_{-0.055}$	$f\sigma_8(0.15)$	$0.463^{+0.021}_{-0.021}$
$A_{B,\mathrm{sync}}$	$< 4.93$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.884^{+0.029}_{-0.029}$	$\sigma_8(0.15)$	$0.750^{+0.014}_{-0.013}$
$\alpha_{B,\mathrm{dust}}$	—	$D_{40}$	$1241^{+36}_{-34}$	$f\sigma_8(0.38)$	$0.479^{+0.016}_{-0.016}$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.24}_{-0.25}$	$D_{220}$	$5714^{+100}_{-100}$	$\sigma_8(0.38)$	$0.664^{+0.012}_{-0.010}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{810}$	$2537^{+35}_{-35}$	$f\sigma_8(0.51)$	$0.477^{+0.013}_{-0.014}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.68}_{-0.73}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.51)$	$0.621^{+0.011}_{-0.0092}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.369$	$D_{2000}$	$229.7^{+4.5}_{-4.6}$	$f\sigma_8(0.61)$	$0.471^{+0.012}_{-0.012}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.964^{+0.012}_{-0.012}$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0087}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24529^{+0.00021}_{-0.00025}$	$f\sigma_8(2.33)$	$0.2975^{+0.0059}_{-0.0043}$
$A_{143}^{\mathrm{tSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24661^{+0.00021}_{-0.00025}$	$\sigma_8(2.33)$	$0.3064^{+0.0065}_{-0.0047}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-70}$	$10^5\mathrm{D}/\mathrm{H}$	$2.63^{+0.10}_{-0.099}$	$r_{0.002}$	$< 0.0696$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.827^{+0.079}_{-0.082}$	$r_{0.01}$	$< 0.0727$
$A_{143\times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$z_*$	$1090.26^{+0.87}_{-0.87}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.96^{+1.7}_{-3.5}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$r_*$	$144.54^{+0.94}_{-0.93}$	$r_{10}$	$< 0.0358$
$A^{\mathrm{kSZ}}$	—	$100\theta_*$	$1.0410^{+0.0011}_{-0.0011}$	$10^9 A_{\mathrm{t}}$	$< 0.159$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.8}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.885^{+0.089}_{-0.088}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.142$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.7}_{-4.6}$	$z_{\mathrm{drag}}$	$1059.4^{+1.2}_{-1.2}$	$f_{2000}^{143}$	$31^{+7}_{-8}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.3^{+8.6}_{-8.6}$	$r_{\mathrm{drag}}$	$147.29^{+0.98}_{-0.98}$	$f_{2000}^{143\times 217}$	$34^{+5}_{-5}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0012}$	$f_{2000}^{217}$	$108.1^{+4.9}_{-4.7}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_{\mathrm{D}}$	$0.16108^{+0.00068}_{-0.00066}$	$\chi_{\mathrm{lensing}}^2$	$9.52 (\nu: 0.5)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{eq}}$	$3404^{+89}_{-90}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.4 (\nu: 3.5)$
$H_0$	$67.0^{+1.8}_{-1.7}$	$k_{\mathrm{eq}}$	$0.01039^{+0.00027}_{-0.00027}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.3)$
$\Omega_{\Lambda}$	$0.681^{+0.024}_{-0.025}$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.017}_{-0.016}$	$\chi_{\mathrm{lowl}}^2$	$24.6 (\nu: 0.8)$
$\Omega_{\mathrm{m}}$	$0.319^{+0.025}_{-0.024}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4490^{+0.0089}_{-0.0084}$	$\chi_{\mathrm{plik}}^2$	$770.8 (\nu: 13.7)$
$\Omega_{\mathrm{m}}h^2$	$0.1431^{+0.0037}_{-0.0038}$	$H(0.15)$	$72.4^{+1.5}_{-1.5}$	$\chi_{\mathrm{prior}}^2$	$8.9 (\nu: 8.1)$
$\Omega_{\mathrm{m}}h^3$	$0.0959^{+0.0012}_{-0.0011}$	$D_{\mathrm{M}}(0.15)$	$647^{+15}_{-15}$	$\chi_{\mathrm{CMB}}^2$	$1941.2 (\nu: 18.6)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1950.10; R - 1 = 0.00351$$



17.49 base\_r\_plikHM\_TT\_lowl\_lowE\_BK15\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02220^{+0.00051}_{-0.00049}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.017}_{-0.017}$	$H(0.61)$	$95.22^{+0.61}_{-0.59}$
$\Omega_{\mathrm{c}}h^2$	$0.1192^{+0.0028}_{-0.0027}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.016}_{-0.016}$	$D_{\mathrm{M}}(0.61)$	$2308^{+28}_{-28}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\sigma_8/h^{0.5}$	$0.986^{+0.022}_{-0.022}$	$H(2.33)$	$235.9^{+1.8}_{-1.8}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$r_{\mathrm{drag}}h$	$99.6^{+2.1}_{-2.1}$	$D_{\mathrm{M}}(2.33)$	$5769^{+30}_{-31}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.038}_{-0.029}$	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.054}_{-0.054}$	$f\sigma_8(0.15)$	$0.457^{+0.015}_{-0.015}$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010}$	$z_{\mathrm{re}}$	$< 9.50$	$\sigma_8(0.15)$	$0.749^{+0.015}_{-0.013}$
$r$	$< 0.0770$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.082}_{-0.061}$	$f\sigma_8(0.38)$	$0.475^{+0.013}_{-0.013}$
$y_{\mathrm{cal}}$	$1.0010^{+0.0064}_{-0.0064}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.880^{+0.028}_{-0.027}$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.011}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.3}_{-2.1}$	$D_{40}$	$1237^{+34}_{-32}$	$f\sigma_8(0.51)$	$0.474^{+0.011}_{-0.011}$
$A_{B,\mathrm{sync}}$	$< 4.91$	$D_{220}$	$5723^{+98}_{-100}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0098}$
$\alpha_{B,\mathrm{dust}}$	—	$D_{810}$	$2538^{+35}_{-34}$	$f\sigma_8(0.61)$	$0.469^{+0.010}_{-0.010}$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.24}_{-0.25}$	$D_{1420}$	$816^{+13}_{-13}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0093}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{2000}$	$230.2^{+4.5}_{-4.5}$	$f\sigma_8(2.33)$	$0.2980^{+0.0060}_{-0.0047}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.69}_{-0.72}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.010}$	$\sigma_8(2.33)$	$0.3072^{+0.0064}_{-0.0050}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.359$	$Y_{\mathrm{P}}$	$0.24532^{+0.00020}_{-0.00023}$	$r_{0.002}$	$< 0.0717$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00020}_{-0.00023}$	$r_{0.01}$	$< 0.0739$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.619^{+0.094}_{-0.094}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.9^{+1.7}_{-3.6}$
$A_{143}^{\mathrm{tSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.810^{+0.069}_{-0.070}$	$r_{10}$	$< 0.0368$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$z_*$	$1090.07^{+0.72}_{-0.74}$	$10^9 A_{\mathrm{t}}$	$< 0.162$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$r_*$	$144.78^{+0.75}_{-0.74}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.145$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$100\theta_*$	$1.0412^{+0.0010}_{-0.0011}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.905^{+0.073}_{-0.072}$	$f_{2000}^{143\times 217}$	$33^{+5}_{-5}$
$A^{\mathrm{kSZ}}$	—	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$f_{2000}^{217}$	$107.9^{+4.7}_{-4.7}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.8}$	$r_{\mathrm{drag}}$	$147.50^{+0.83}_{-0.82}$	$\chi_{\mathrm{lensing}}^2$	$9.20 (\nu: 0.2)$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.7}_{-4.5}$	$k_{\mathrm{D}}$	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.8 (\nu: 3.5)$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.2^{+8.6}_{-8.5}$	$100\theta_{\mathrm{D}}$	$0.16104^{+0.00065}_{-0.00065}$	$\chi_{\mathrm{simall}}^2$	$397.3 (\nu: 1.8)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{eq}}$	$3379^{+66}_{-65}$	$\chi_{\mathrm{lowl}}^2$	$24.1 (\nu: 0.6)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00020}_{-0.00020}$	$\chi_{\mathrm{plik}}^2$	$771.2 (\nu: 14.1)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{6\mathrm{DF}}^2$	$0.062 (\nu: 0.0)$
$H_0$	$67.5^{+1.3}_{-1.2}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4515^{+0.0063}_{-0.0062}$	$\chi_{\mathrm{MGS}}^2$	$1.24 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.688^{+0.016}_{-0.017}$	$H(0.15)$	$72.8^{+1.1}_{-1.1}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 (\nu: 1.2)$
$\Omega_{\mathrm{m}}$	$0.312^{+0.017}_{-0.016}$	$D_{\mathrm{M}}(0.15)$	$642^{+11}_{-11}$	$\chi_{\mathrm{prior}}^2$	$8.9 (\nu: 8.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0028}_{-0.0027}$	$H(0.38)$	$82.90^{+0.84}_{-0.81}$	$\chi_{\mathrm{CMB}}^2$	$1941.6 (\nu: 18.7)$
$\Omega_{\mathrm{m}}h^3$	$0.0959^{+0.0012}_{-0.0011}$	$D_{\mathrm{M}}(0.38)$	$1531^{+22}_{-22}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.8)$
$\sigma_8$	$0.810^{+0.016}_{-0.014}$	$H(0.51)$	$89.61^{+0.70}_{-0.68}$		
$S_8$	$0.826^{+0.030}_{-0.030}$	$D_{\mathrm{M}}(0.51)$	$1984^{+26}_{-26}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1956.72; R - 1 = 0.00561$$



17.50 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_BK15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022344	$0.02234^{+0.00040}_{-0.00037}$ (+1.2 $\sigma$ )	$\Omega_{\Lambda}$	0.6818	$0.682^{+0.021}_{-0.023}$ (+0.5 $\sigma$ )	$H(0.15)$	72.51	$72.5^{+1.4}_{-1.3}$ (+0.6 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.12048	$0.1204^{+0.0036}_{-0.0035}$ (−0.4 $\sigma$ )	$\Omega_{\mathrm{m}}$	0.3182	$0.318^{+0.023}_{-0.021}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	645.1	$645^{+14}_{-13}$ (−0.6 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04088	$1.04088^{+0.00082}_{-0.00081}$ (+0.4 $\sigma$ )	$\Omega_{\mathrm{m}}h^2$	0.14347	$0.1434^{+0.0034}_{-0.0033}$ (−0.2 $\sigma$ )	$H(0.38)$	82.74	$82.76^{+0.99}_{-0.95}$ (+0.7 $\sigma$ )
$\tau$	0.0545	$0.055^{+0.021}_{-0.020}$ (+0.4 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09634	$0.09632^{+0.00076}_{-0.00074}$ (+1.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1537.0	$1537^{+27}_{-27}$ (−0.6 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0467	$3.047^{+0.043}_{-0.041}$ (+0.3 $\sigma$ )	$\sigma_8$	0.8138	$0.814^{+0.019}_{-0.019}$ (−0.1 $\sigma$ )	$H(0.51)$	89.53	$89.55^{+0.79}_{-0.74}$ (+0.8 $\sigma$ )
$n_{\mathrm{s}}$	0.9648	$0.965^{+0.011}_{-0.011}$ (+0.5 $\sigma$ )	$S_8$	0.8381	$0.837^{+0.041}_{-0.040}$ (−0.4 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1990.0	$1989^{+31}_{-31}$ (−0.6 $\sigma$ )
$r$	0.0147	< 0.0770 (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4590	$0.459^{+0.023}_{-0.022}$ (−0.4 $\sigma$ )	$H(0.61)$	95.21	$95.22^{+0.64}_{-0.59}$ (+0.9 $\sigma$ )
$y_{\mathrm{cal}}$	1.0010	$1.0009^{+0.0064}_{-0.0064}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6112	$0.611^{+0.021}_{-0.021}$ (−0.3 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2314.7	$2314^{+34}_{-34}$ (−0.7 $\sigma$ )
$A_{B,\mathrm{dust}}$	4.62	$4.9^{+3.2}_{-2.1}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9931	$0.993^{+0.030}_{-0.029}$ (−0.3 $\sigma$ )	$H(2.33)$	236.85	$236.8^{+2.1}_{-2.1}$ (−0.2 $\sigma$ )
$A_{B,\mathrm{sync}}$	1.44	< 4.92 (−0.0 $\sigma$ )	$r_{\mathrm{drag}}h$	98.71	$98.8^{+2.8}_{-2.7}$ (+0.5 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5766.4	$5766^{+27}_{-29}$ (−1.0 $\sigma$ )
$\alpha_{B,\mathrm{dust}}$	−0.51	—	$\langle d^2 \rangle^{1/2}$	2.454	$2.454^{+0.072}_{-0.071}$ (−0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4631	$0.463^{+0.021}_{-0.021}$ (−0.4 $\sigma$ )
$\beta_{B,\mathrm{dust}}$	1.575	$1.60^{+0.25}_{-0.25}$ (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.71	$7.8^{+2.0}_{-2.2}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7513	$0.751^{+0.017}_{-0.016}$ (+0.0 $\sigma$ )
$\alpha_{B,\mathrm{sync}}$	−0.44	—	$10^9A_{\mathrm{s}}$	2.105	$2.106^{+0.093}_{-0.085}$ (+0.3 $\sigma$ )	$f\sigma_8(0.38)$	0.4800	$0.480^{+0.017}_{-0.017}$ (−0.3 $\sigma$ )
$\beta_{B,\mathrm{sync}}$	−3.05	$-3.10^{+0.68}_{-0.74}$ (+0.0 $\sigma$ )	$10^9A_{\mathrm{s}}e^{-2\tau}$	1.8874	$1.886^{+0.030}_{-0.030}$ (−0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6653	$0.665^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	−0.34	< 0.356 (−0.0 $\sigma$ )	$D_{40}$	1237.9	$1242^{+35}_{-34}$ (−0.1 $\sigma$ )	$f\sigma_8(0.51)$	0.4778	$0.478^{+0.015}_{-0.015}$ (−0.3 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	48.3	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5734	$5733^{+100}_{-100}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6223	$0.622^{+0.014}_{-0.013}$ (+0.2 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.28	—	$D_{810}$	2543.1	$2541^{+35}_{-35}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4723	$0.472^{+0.014}_{-0.014}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.28	$5.5^{+4.5}_{-4.6}$ (+0.2 $\sigma$ )	$D_{1420}$	818.5	$818^{+12}_{-12}$ (+0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5919	$0.592^{+0.013}_{-0.012}$ (+0.2 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	251	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{2000}$	231.30	$231.1^{+4.1}_{-4.1}$ (+0.8 $\sigma$ )	$f\sigma_8(2.33)$	0.2982	$0.2982^{+0.0067}_{-0.0061}$ (+0.3 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	45.8	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9648	$0.965^{+0.011}_{-0.011}$ (+0.5 $\sigma$ )	$\sigma_8(2.33)$	0.3071	$0.3072^{+0.0071}_{-0.0065}$ (+0.4 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	43.9	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.245385	$0.24538^{+0.00015}_{-0.00016}$ (+1.2 $\sigma$ )	$r_{0.002}$	0.0132	< 0.0714 (+0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	118.3	$116^{+30}_{-30}$ (+0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246712	$0.24671^{+0.00015}_{-0.00016}$ (+1.2 $\sigma$ )	$r_{0.01}$	0.0139	< 0.0742 (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$10^5\mathrm{D}/\mathrm{H}$	2.590	$2.591^{+0.071}_{-0.071}$ (−1.2 $\sigma$ )	$\ln(10^{10}A_{\mathrm{t}})$	−1.17	$-0.9^{+1.7}_{-3.6}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.79	$8.8^{+4.8}_{-4.7}$ (−0.0 $\sigma$ )	Age/Gyr	13.803	$13.803^{+0.062}_{-0.064}$ (−1.0 $\sigma$ )	$r_{10}$	0.0067	< 0.0366 (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	10.90	$10.8^{+4.7}_{-4.6}$ (+0.1 $\sigma$ )	$z_{*}$	1089.99	$1089.99^{+0.70}_{-0.72}$ (−1.0 $\sigma$ )	$10^9A_{\mathrm{t}}$	0.031	< 0.162 (+0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	19.5	$18.6^{+8.4}_{-8.5}$ (+0.1 $\sigma$ )	$r_{*}$	144.33	$144.35^{+0.77}_{-0.77}$ (−0.0 $\sigma$ )	$10^9A_{\mathrm{t}}e^{-2\tau}$	0.028	< 0.145 (+0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	94.7	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$100\theta_{*}$	1.04106	$1.04107^{+0.00081}_{-0.00080}$ (+0.3 $\sigma$ )	$f_{2000}^{143}$	29.2	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.113	$0.115^{+0.10}_{-0.096}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	13.863	$13.866^{+0.072}_{-0.072}$ (−0.1 $\sigma$ )	$f_{2000}^{143\times 217}$	32.18	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.077}_{-0.076}$	$z_{\mathrm{drag}}$	1059.89	$1059.90^{+0.80}_{-0.77}$ (+1.3 $\sigma$ )	$f_{2000}^{217}$	106.95	$107.1^{+4.6}_{-4.5}$ (−0.6 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	0.484	$0.48^{+0.22}_{-0.22}$	$r_{\mathrm{drag}}$	146.99	$147.02^{+0.76}_{-0.75}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{BKPLANCK}}^2$	735.2	$739.4$ ( $\nu$ : 3.5) (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.227	$0.23^{+0.14}_{-0.14}$	$k_{\mathrm{D}}$	0.14095	$0.14092^{+0.00081}_{-0.00081}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.2	$397.4$ ( $\nu$ : 2.0) (+0.2 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	0.667	$0.67^{+0.21}_{-0.21}$	$100\theta_{\mathrm{D}}$	0.160772	$0.16078^{+0.00045}_{-0.00046}$ (−1.2 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.97	$24.5$ ( $\nu$ : 0.7) (−0.3 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.10	$2.09^{+0.69}_{-0.69}$	$z_{\mathrm{eq}}$	3413	$3411^{+81}_{-78}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2344.1	$2359.2$ ( $\nu$ : 16.8) (+298.7 $\sigma$ )
$c_{100}$	0.99968	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{\mathrm{eq}}$	0.010417	$0.01041^{+0.00025}_{-0.00024}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	2.1	$13.2$ ( $\nu$ : 11.8) (+1.1 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8113	$0.812^{+0.015}_{-0.015}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	3499.4	$3520.5$ ( $\nu$ : 20.7) (+257.5 $\sigma$ )
$H_0$	67.15	$67.2^{+1.6}_{-1.6}$ (+0.6 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4483	$0.4485^{+0.0077}_{-0.0076}$ (+0.3 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 3501.51$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1586.44$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 3533.72$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.51$ ;  $R - 1 = 0.00500$   
 $\chi_{\mathrm{eff}}^2$ : CMB - BK15\_dust: 735.20 ( $\Delta$  0.33) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.18 ( $\Delta$  0.17) commander\_dx12\_v3\_2\_29: 23.97 ( $\Delta$  -0.29) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.08



17.51 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_BK15\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022418	$0.02241^{+0.00037}_{-0.00034}$ (+1.1 $\sigma$ )	$\Omega_m$	0.3117	$0.312^{+0.016}_{-0.016}$ (+0.0 $\sigma$ )	$H(0.38)$	83.02	$83.02^{+0.75}_{-0.72}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.11944	$0.1194^{+0.0026}_{-0.0026}$ (+0.2 $\sigma$ )	$\Omega_m h^2$	0.14250	$0.1425^{+0.0025}_{-0.0025}$ (+0.4 $\sigma$ )	$D_M(0.38)$	1529.1	$1529^{+20}_{-20}$ (−0.2 $\sigma$ )
$100\theta_{MC}$	1.04099	$1.04100^{+0.00077}_{-0.00075}$ (+0.1 $\sigma$ )	$\Omega_m h^3$	0.09635	$0.09634^{+0.00077}_{-0.00075}$ (+1.0 $\sigma$ )	$H(0.51)$	89.75	$89.75^{+0.61}_{-0.57}$ (+0.5 $\sigma$ )
$\tau$	0.0562	$0.056^{+0.021}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8$	0.8113	$0.811^{+0.019}_{-0.018}$ (+0.3 $\sigma$ )	$D_M(0.51)$	1980.7	$1981^{+23}_{-24}$ (−0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0476	$3.048^{+0.043}_{-0.041}$ (+0.3 $\sigma$ )	$S_8$	0.8269	$0.827^{+0.033}_{-0.032}$ (+0.2 $\sigma$ )	$H(0.61)$	95.374	$95.37^{+0.51}_{-0.47}$ (+0.6 $\sigma$ )
$n_s$	0.9674	$0.9670^{+0.0094}_{-0.0098}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4529	$0.453^{+0.018}_{-0.017}$ (+0.2 $\sigma$ )	$D_M(0.61)$	2304.8	$2305^{+25}_{-26}$ (−0.3 $\sigma$ )
$r$	0.0175	< 0.0798 (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6062	$0.606^{+0.018}_{-0.018}$ (+0.2 $\sigma$ )	$H(2.33)$	236.24	$236.2^{+1.6}_{-1.6}$ (+0.5 $\sigma$ )
$y_{cal}$	1.0009	$1.0010^{+0.0064}_{-0.0065}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9866	$0.987^{+0.026}_{-0.026}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5759.4	$5760^{+23}_{-24}$ (−0.7 $\sigma$ )
$A_{B,dust}$	4.62	$4.9^{+3.2}_{-2.2}$ (+0.0 $\sigma$ )	$r_{drag} h$	99.52	$99.5^{+2.0}_{-2.0}$ (−0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4575	$0.458^{+0.017}_{-0.017}$ (+0.2 $\sigma$ )
$A_{B,sync}$	1.44	< 4.90 (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.439	$2.440^{+0.063}_{-0.062}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7496	$0.750^{+0.017}_{-0.016}$ (+0.3 $\sigma$ )
$\alpha_{B,dust}$	−0.51	—	$z_{re}$	7.85	$7.9^{+2.0}_{-2.1}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4758	$0.476^{+0.015}_{-0.014}$ (+0.2 $\sigma$ )
$\beta_{B,dust}$	1.577	$1.60^{+0.25}_{-0.24}$ (+0.0 $\sigma$ )	$10^9 A_s$	2.106	$2.107^{+0.093}_{-0.085}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6645	$0.664^{+0.015}_{-0.014}$ (+0.3 $\sigma$ )
$\alpha_{B,sync}$	−0.33	—	$10^9 A_s e^{-2\tau}$	1.8825	$1.882^{+0.028}_{-0.028}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4744	$0.474^{+0.013}_{-0.013}$ (+0.3 $\sigma$ )
$\beta_{B,sync}$	−3.03	$-3.10^{+0.68}_{-0.76}$ (+0.0 $\sigma$ )	$D_{40}$	1233.2	$1238^{+33}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6218	$0.622^{+0.014}_{-0.013}$ (+0.3 $\sigma$ )
$\epsilon_{dust,sync}$	−0.35	< 0.359 (−0.0 $\sigma$ )	$D_{220}$	5737	$5738^{+100}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.61)$	0.4694	$0.469^{+0.012}_{-0.012}$ (+0.3 $\sigma$ )
$A_{217}^{CIB}$	47.1	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{810}$	2541.9	$2541^{+35}_{-34}$ (+0.3 $\sigma$ )	$\sigma_8(0.61)$	0.5917	$0.592^{+0.013}_{-0.012}$ (+0.3 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.43	—	$D_{1420}$	819.0	$819^{+13}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(2.33)$	0.2983	$0.2983^{+0.0068}_{-0.0063}$ (+0.3 $\sigma$ )
$A_{143}^{tSZ}$	7.25	$5.5^{+4.4}_{-4.6}$ (+0.2 $\sigma$ )	$D_{2000}$	231.54	$231.4^{+4.1}_{-4.0}$ (+0.7 $\sigma$ )	$\sigma_8(2.33)$	0.3075	$0.3076^{+0.0071}_{-0.0066}$ (+0.3 $\sigma$ )
$A_{100}^{PS}$	249	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$n_{s,0.002}$	0.9674	$0.9670^{+0.0094}_{-0.0098}$ (+0.1 $\sigma$ )	$r_{0.002}$	0.0159	< 0.0738 (+0.1 $\sigma$ )
$A_{143}^{PS}$	47.0	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$Y_P$	0.245414	$0.24541^{+0.00014}_{-0.00014}$ (+1.1 $\sigma$ )	$r_{0.01}$	0.0167	< 0.0765 (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	47.3	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$Y_P^{BBN}$	0.246741	$0.24673^{+0.00014}_{-0.00014}$ (+1.1 $\sigma$ )	$\ln(10^{10} A_t)$	−0.999	$-0.8^{+1.6}_{-3.6}$ (+0.1 $\sigma$ )
$A_{217}^{PS}$	119.8	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$10^5 D/H$	2.577	$2.579^{+0.065}_{-0.067}$ (−1.1 $\sigma$ )	$r_{10}$	0.0081	< 0.0378 (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	Age/Gyr	13.788	$13.789^{+0.052}_{-0.055}$ (−0.8 $\sigma$ )	$10^9 A_t$	0.037	< 0.168 (+0.1 $\sigma$ )
$A_{100}^{dustTT}$	8.83	$8.9^{+4.8}_{-4.9}$ (−0.0 $\sigma$ )	$z_*$	1089.81	$1089.82^{+0.57}_{-0.58}$ (−0.9 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.033	< 0.149 (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	10.97	$10.8^{+4.7}_{-4.7}$ (+0.1 $\sigma$ )	$r_*$	144.54	$144.55^{+0.61}_{-0.61}$ (−0.8 $\sigma$ )	$f_{2000}^{143}$	28.7	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.8	$18.5^{+8.4}_{-8.4}$ (+0.1 $\sigma$ )	$100\theta_*$	1.04117	$1.04119^{+0.00076}_{-0.00074}$ (+0.0 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.88	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{217}^{dustTT}$	95.1	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$D_M(z_*)/\text{Gpc}$	13.882	$13.883^{+0.058}_{-0.058}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	106.62	$106.9^{+4.4}_{-4.4}$ (−0.6 $\sigma$ )
$A_{100}^{dustTE}$	0.116	$0.115^{+0.099}_{-0.096}$	$z_{drag}$	1060.01	$1059.98^{+0.79}_{-0.74}$ (+1.2 $\sigma$ )	$\chi_{BKPLANCK}^2$	735.5	$739.8$ ( $\nu$ : 3.4) (−0.0 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.077}_{-0.076}$	$r_{drag}$	147.19	$147.20^{+0.63}_{-0.63}$ (−0.9 $\sigma$ )	$\chi_{small}^2$	396.5	$397.6$ ( $\nu$ : 2.4) (+0.2 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.481	$0.48^{+0.22}_{-0.22}$	$k_D$	0.14080	$0.14078^{+0.00075}_{-0.00075}$ (+1.1 $\sigma$ )	$\chi_{lowl}^2$	23.56	$24.1$ ( $\nu$ : 0.6) (+0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.224	$0.23^{+0.14}_{-0.14}$	$100\theta_D$	0.160722	$0.16074^{+0.00044}_{-0.00046}$ (−1.2 $\sigma$ )	$\chi_{plik}^2$	2344.7	$2359.2$ ( $\nu$ : 17.0) (+292.7 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.666	$0.67^{+0.21}_{-0.21}$	$z_{eq}$	3390	$3390^{+59}_{-59}$ (+0.4 $\sigma$ )	$\chi_{6DF}^2$	0.039	$0.064$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.70}_{-0.70}$	$k_{eq}$	0.010346	$0.01035^{+0.00018}_{-0.00018}$ (+0.4 $\sigma$ )	$\chi_{MGS}^2$	1.16	$1.21$ ( $\nu$ : 0.1) (−0.1 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{eq}$	0.8157	$0.816^{+0.011}_{-0.011}$ (−0.3 $\sigma$ )	$\chi_{DR12BAO}^2$	4.66	$5.0$ ( $\nu$ : 1.2) (+0.0 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4506	$0.4506^{+0.0058}_{-0.0056}$ (−0.4 $\sigma$ )	$\chi_{prior}^2$	1.9	$13.3$ ( $\nu$ : 12.1) (+1.1 $\sigma$ )
$H_0$	67.61	$67.6^{+1.2}_{-1.1}$ (+0.2 $\sigma$ )	$H(0.15)$	72.90	$72.9^{+1.0}_{-0.98}$ (+0.2 $\sigma$ )	$\chi_{BAO}^2$	5.85	$6.3$ ( $\nu$ : 0.8) (−0.0 $\sigma$ )
$\Omega_\Lambda$	0.6883	$0.688^{+0.016}_{-0.016}$ (−0.0 $\sigma$ )	$D_M(0.15)$	641.2	$641.2^{+9.9}_{-9.9}$ (−0.2 $\sigma$ )	$\chi_{CMB}^2$	3500.2	$3520.7$ ( $\nu$ : 20.8) (+258.8 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 3507.90$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.96$ ;  $\bar{\chi}_{\text{eff}}^2 = 3540.30$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1592.22$ ;  $R - 1 = 0.00604$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.04 ( $\Delta$  0.00) MGS: 1.16 ( $\Delta$  0.00) DR12BAO: 4.66 ( $\Delta$  0.09) CMB - BK15\_dust: 735.50 ( $\Delta$  -0.05) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.48 ( $\Delta$  0.29) commander\_dx12\_v3\_2\_29: 23.56 ( $\Delta$  0.04) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.65



17.52 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_BK15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02234^{+0.00039}_{-0.00037} \quad (+1.2\sigma)$	$\Omega_{\Lambda}$	$0.682^{+0.021}_{-0.022} \quad (+0.5\sigma)$	$H(0.15)$	$72.5^{+1.4}_{-1.3} \quad (+0.6\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1204^{+0.0035}_{-0.0035} \quad (-0.3\sigma)$	$\Omega_{\mathrm{m}}$	$0.318^{+0.022}_{-0.021} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	$645^{+14}_{-13} \quad (-0.6\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04089^{+0.00082}_{-0.00081} \quad (+0.3\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1434^{+0.0033}_{-0.0033} \quad (-0.2\sigma)$	$H(0.38)$	$82.8^{+1.0}_{-0.94} \quad (+0.7\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (+0.3\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09633^{+0.00076}_{-0.00073} \quad (+1.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1536^{+27}_{-27} \quad (-0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.049^{+0.042}_{-0.031} \quad (+0.3\sigma)$	$\sigma_8$	$0.814^{+0.019}_{-0.017} \quad (-0.1\sigma)$	$H(0.51)$	$89.55^{+0.79}_{-0.74} \quad (+0.8\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.011} \quad (+0.5\sigma)$	$S_8$	$0.838^{+0.041}_{-0.040} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1989^{+31}_{-32} \quad (-0.6\sigma)$
$r$	$< 0.0768 \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.459^{+0.023}_{-0.022} \quad (-0.4\sigma)$	$H(0.61)$	$95.22^{+0.64}_{-0.59} \quad (+0.8\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0064}_{-0.0064} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.021}_{-0.020} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	$2314^{+34}_{-34} \quad (-0.6\sigma)$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.1} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.993^{+0.029}_{-0.029} \quad (-0.3\sigma)$	$H(2.33)$	$236.8^{+2.1}_{-2.1} \quad (-0.2\sigma)$
$A_{B,\mathrm{sync}}$	$< 4.91 \quad (-0.0\sigma)$	$r_{\mathrm{drag}}h$	$98.8^{+2.8}_{-2.7} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(2.33)$	$5766^{+27}_{-29} \quad (-0.9\sigma)$
$\alpha_{B,\mathrm{dust}}$	—	$\langle d^2 \rangle^{1/2}$	$2.456^{+0.071}_{-0.069} \quad (-0.3\sigma)$	$f\sigma_8(0.15)$	$0.463^{+0.021}_{-0.021} \quad (-0.4\sigma)$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.61 \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.752^{+0.017}_{-0.015} \quad (-0.0\sigma)$
$\alpha_{B,\mathrm{sync}}$	—	$10^9 A_{\mathrm{s}}$	$2.109^{+0.091}_{-0.065} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.480^{+0.017}_{-0.017} \quad (-0.3\sigma)$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.68}_{-0.73} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.886^{+0.030}_{-0.030} \quad (-0.1\sigma)$	$\sigma_8(0.38)$	$0.666^{+0.015}_{-0.012} \quad (+0.1\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.357 \quad (-0.0\sigma)$	$D_{40}$	$1242^{+35}_{-34} \quad (-0.1\sigma)$	$f\sigma_8(0.51)$	$0.478^{+0.015}_{-0.015} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5733^{+100}_{-100} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.623^{+0.014}_{-0.011} \quad (+0.2\sigma)$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{810}$	$2541^{+35}_{-35} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.472^{+0.013}_{-0.013} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.5}_{-4.6} \quad (+0.2\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.013}_{-0.0099} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{2000}$	$231.1^{+4.1}_{-4.1} \quad (+0.8\sigma)$	$f\sigma_8(2.33)$	$0.2985^{+0.0065}_{-0.0047} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$n_{\mathrm{s},0.002}$	$0.965^{+0.011}_{-0.011} \quad (+0.5\sigma)$	$\sigma_8(2.33)$	$0.3074^{+0.0068}_{-0.0049} \quad (+0.4\sigma)$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+1.2\sigma)$	$r_{0.002}$	$< 0.0711 \quad (+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$116^{+30}_{-30} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+1.2\sigma)$	$r_{0.01}$	$< 0.0739 \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.591^{+0.071}_{-0.071} \quad (-1.2\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.9^{+1.7}_{-3.6} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.8^{+4.8}_{-4.7} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.802^{+0.061}_{-0.064} \quad (-1.0\sigma)$	$r_{10}$	$< 0.0365 \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.7}_{-4.6} \quad (+0.1\sigma)$	$z_*$	$1089.99^{+0.70}_{-0.72} \quad (-1.0\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.161 \quad (+0.1\sigma)$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.5^{+8.4}_{-8.5} \quad (+0.1\sigma)$	$r_*$	$144.36^{+0.77}_{-0.76} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.144 \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$100\theta_*$	$1.04107^{+0.00081}_{-0.00080} \quad (+0.3\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.10}_{-0.096}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.866^{+0.071}_{-0.071} \quad (-0.1\sigma)$	$f_{2000}^{143\times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.077}$	$z_{\mathrm{drag}}$	$1059.90^{+0.79}_{-0.77} \quad (+1.2\sigma)$	$f_{2000}^{217}$	$107.0^{+4.5}_{-4.5} \quad (-0.6\sigma)$
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$r_{\mathrm{drag}}$	$147.02^{+0.76}_{-0.75} \quad (-0.2\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.4 \quad (\nu: 3.5) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$k_{\mathrm{D}}$	$0.14092^{+0.00081}_{-0.00081} \quad (+0.6\sigma)$	$\chi_{\mathrm{small}}^2$	$397.4 \quad (\nu: 2.1) \quad (+0.2\sigma)$
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.21}$	$100\theta_{\mathrm{D}}$	$0.16078^{+0.00045}_{-0.00046} \quad (-1.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.5 \quad (\nu: 0.7) \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.09^{+0.69}_{-0.69}$	$z_{\mathrm{eq}}$	$3410^{+80}_{-78} \quad (-0.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.0 \quad (\nu: 16.6) \quad (+299.6\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01041^{+0.00024}_{-0.00024} \quad (-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$13.2 \quad (\nu: 11.8) \quad (+1.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.015}_{-0.015} \quad (+0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$3520.3 \quad (\nu: 20.4) \quad (+260.4\sigma)$
$H_0$	$67.2^{+1.6}_{-1.5} \quad (+0.6\sigma)$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4486^{+0.0077}_{-0.0075} \quad (+0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3533.51; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.58; R - 1 = 0.00462$$



17.53 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_BK15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02241^{+0.00037}_{-0.00035} \quad (+1.1\sigma)$	$\Omega_m$	$0.312^{+0.016}_{-0.015} \quad (+0.0\sigma)$	$H(0.38)$	$83.03^{+0.75}_{-0.72} \quad (+0.3\sigma)$
$\Omega_c h^2$	$0.1194^{+0.0026}_{-0.0026} \quad (+0.2\sigma)$	$\Omega_m h^2$	$0.1425^{+0.0025}_{-0.0025} \quad (+0.4\sigma)$	$D_M(0.38)$	$1529^{+20}_{-20} \quad (-0.2\sigma)$
$100\theta_{MC}$	$1.04101^{+0.00077}_{-0.00075} \quad (+0.1\sigma)$	$\Omega_m h^3$	$0.09634^{+0.00076}_{-0.00075} \quad (+1.0\sigma)$	$H(0.51)$	$89.75^{+0.61}_{-0.57} \quad (+0.5\sigma)$
$\tau$	$0.057^{+0.019}_{-0.015} \quad (+0.2\sigma)$	$\sigma_8$	$0.812^{+0.019}_{-0.016} \quad (+0.3\sigma)$	$D_M(0.51)$	$1981^{+23}_{-24} \quad (-0.3\sigma)$
$\ln(10^{10} A_s)$	$3.049^{+0.042}_{-0.032} \quad (+0.3\sigma)$	$S_8$	$0.827^{+0.033}_{-0.032} \quad (+0.2\sigma)$	$H(0.61)$	$95.37^{+0.51}_{-0.47} \quad (+0.6\sigma)$
$n_s$	$0.9670^{+0.0093}_{-0.0098} \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.453^{+0.018}_{-0.017} \quad (+0.2\sigma)$	$D_M(0.61)$	$2305^{+25}_{-25} \quad (-0.3\sigma)$
$r$	$< 0.0796 \quad (+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.607^{+0.018}_{-0.017} \quad (+0.2\sigma)$	$H(2.33)$	$236.2^{+1.6}_{-1.6} \quad (+0.5\sigma)$
$y_{cal}$	$1.0010^{+0.0064}_{-0.0065} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.987^{+0.026}_{-0.024} \quad (+0.2\sigma)$	$D_M(2.33)$	$5759^{+23}_{-24} \quad (-0.7\sigma)$
$A_{B,dust}$	$4.9^{+3.2}_{-2.2} \quad (+0.0\sigma)$	$r_{drag} h$	$99.5^{+2.0}_{-2.0} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.016} \quad (+0.2\sigma)$
$A_{B,sync}$	$< 4.90 \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.063}_{-0.059} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.750^{+0.017}_{-0.014} \quad (+0.3\sigma)$
$\alpha_{B,dust}$	—	$z_{re}$	$< 9.69 \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.014}_{-0.014} \quad (+0.2\sigma)$
$\beta_{B,dust}$	$1.60^{+0.25}_{-0.25} \quad (+0.0\sigma)$	$10^9 A_s$	$2.110^{+0.090}_{-0.067} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.665^{+0.015}_{-0.012} \quad (+0.3\sigma)$
$\alpha_{B,sync}$	—	$10^9 A_s e^{-2\tau}$	$1.882^{+0.028}_{-0.028} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.013}_{-0.012} \quad (+0.3\sigma)$
$\beta_{B,sync}$	$-3.10^{+0.68}_{-0.76} \quad (+0.0\sigma)$	$D_{40}$	$1238^{+33}_{-34} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.014}_{-0.011} \quad (+0.3\sigma)$
$\epsilon_{dust,sync}$	$< 0.366 \quad (-0.0\sigma)$	$D_{220}$	$5738^{+100}_{-100} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.012}_{-0.011} \quad (+0.3\sigma)$
$A_{217}^{CIB}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2541^{+35}_{-34} \quad (+0.3\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.013}_{-0.010} \quad (+0.3\sigma)$
$\xi^{tSZ \times CIB}$	—	$D_{1420}$	$819^{+13}_{-12} \quad (+0.5\sigma)$	$f\sigma_8(2.33)$	$0.2985^{+0.0066}_{-0.0049} \quad (+0.3\sigma)$
$A_{143}^{tSZ}$	$5.5^{+4.2}_{-4.9} \quad (+0.2\sigma)$	$D_{2000}$	$231.4^{+4.1}_{-4.0} \quad (+0.7\sigma)$	$\sigma_8(2.33)$	$0.3078^{+0.0070}_{-0.0051} \quad (+0.3\sigma)$
$A_{100}^{PS}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$n_{s,0.002}$	$0.9670^{+0.0093}_{-0.0098} \quad (+0.1\sigma)$	$r_{0.002}$	$< 0.0738 \quad (+0.1\sigma)$
$A_{143}^{PS}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$Y_P$	$0.24541^{+0.00014}_{-0.00014} \quad (+1.1\sigma)$	$r_{0.01}$	$< 0.0765 \quad (+0.1\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$Y_P^{BBN}$	$0.24674^{+0.00014}_{-0.00014} \quad (+1.1\sigma)$	$\ln(10^{10} A_t)$	$-0.8^{+1.6}_{-3.6} \quad (+0.1\sigma)$
$A_{217}^{PS}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$10^5 D/H$	$2.579^{+0.065}_{-0.067} \quad (-1.1\sigma)$	$r_{10}$	$< 0.0377 \quad (+0.1\sigma)$
$A^{kSZ}$	—	Age/Gyr	$13.788^{+0.051}_{-0.055} \quad (-0.8\sigma)$	$10^9 A_t$	$< 0.168 \quad (+0.1\sigma)$
$A_{100}^{dustTT}$	$8.9^{+4.8}_{-4.9} \quad (-0.0\sigma)$	$z_*$	$1089.82^{+0.57}_{-0.59} \quad (-0.9\sigma)$	$10^9 A_t e^{-2\tau}$	$< 0.149 \quad (+0.1\sigma)$
$A_{143}^{dustTT}$	$10.8^{+4.7}_{-4.6} \quad (+0.1\sigma)$	$r_*$	$144.55^{+0.61}_{-0.61} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.5^{+8.4}_{-8.4} \quad (+0.1\sigma)$	$100\theta_*$	$1.04119^{+0.00077}_{-0.00074} \quad (+0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.883^{+0.057}_{-0.058} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.8^{+4.4}_{-4.3} \quad (-0.6\sigma)$
$A_{100}^{dustTE}$	$0.115^{+0.099}_{-0.096}$	$z_{drag}$	$1059.98^{+0.79}_{-0.74} \quad (+1.2\sigma)$	$\chi_{BKPLANCK}^2$	$739.8 \quad (\nu: 3.4) \quad (-0.0\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.077}_{-0.076}$	$r_{drag}$	$147.20^{+0.62}_{-0.63} \quad (-0.9\sigma)$	$\chi_{small}^2$	$397.6 \quad (\nu: 2.5) \quad (+0.2\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.23}_{-0.22}$	$k_D$	$0.14078^{+0.00074}_{-0.00075} \quad (+1.1\sigma)$	$\chi_{lowl}^2$	$24.1 \quad (\nu: 0.6) \quad (+0.1\sigma)$
$A_{143}^{dustTE}$	$0.23^{+0.14}_{-0.14}$	$100\theta_D$	$0.16074^{+0.00044}_{-0.00046} \quad (-1.2\sigma)$	$\chi_{plik}^2$	$2359.1 \quad (\nu: 16.8) \quad (+293.3\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.67^{+0.21}_{-0.21}$	$z_{eq}$	$3389^{+59}_{-59} \quad (+0.4\sigma)$	$\chi_{6DF}^2$	$0.063 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$A_{217}^{dustTE}$	$2.08^{+0.71}_{-0.70}$	$k_{eq}$	$0.01034^{+0.00018}_{-0.00018} \quad (+0.4\sigma)$	$\chi_{MGS}^2$	$1.21 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{eq}$	$0.816^{+0.011}_{-0.011} \quad (-0.3\sigma)$	$\chi_{DR12BAO}^2$	$5.0 \quad (\nu: 1.2) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{s,eq}$	$0.4507^{+0.0058}_{-0.0056} \quad (-0.4\sigma)$	$\chi_{prior}^2$	$13.3 \quad (\nu: 12.1) \quad (+1.1\sigma)$
$H_0$	$67.6^{+1.2}_{-1.1} \quad (+0.2\sigma)$	$H(0.15)$	$72.9^{+1.0}_{-0.98} \quad (+0.2\sigma)$	$\chi_{BAO}^2$	$6.3 \quad (\nu: 0.8) \quad (-0.0\sigma)$
$\Omega_\Lambda$	$0.688^{+0.015}_{-0.016} \quad (-0.0\sigma)$	$D_M(0.15)$	$641.1^{+9.8}_{-9.8} \quad (-0.2\sigma)$	$\chi_{CMB}^2$	$3520.5 \quad (\nu: 20.5) \quad (+260.6\sigma)$

$\bar{\chi}_{eff}^2 = 3540.14$ ;  $\Delta \bar{\chi}_{eff}^2 = 1592.28$ ;  $R - 1 = 0.00660$



17.54 base\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02208	$0.02209^{+0.00057}_{-0.00056}$	$\Omega_{\mathrm{m}}h^3$	0.09590	$0.0959^{+0.0012}_{-0.0012}$	$D_{\mathrm{M}}(0.15)$	649.4	$649^{+21}_{-20}$
$\Omega_{\mathrm{c}}h^2$	0.1211	$0.1210^{+0.0055}_{-0.0052}$	$\sigma_8$	0.8143	$0.814^{+0.023}_{-0.023}$	$H(0.38)$	82.39	$82.4^{+1.5}_{-1.4}$
$100\theta_{\mathrm{MC}}$	1.04075	$1.0408^{+0.0012}_{-0.0012}$	$S_8$	0.846	$0.844^{+0.064}_{-0.060}$	$D_{\mathrm{M}}(0.38)$	1545.8	$1545^{+41}_{-41}$
$\tau$	0.0528	$0.053^{+0.022}_{-0.022}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4632	$0.463^{+0.035}_{-0.033}$	$H(0.51)$	89.22	$89.3^{+1.2}_{-1.1}$
$\ln(10^{10}A_{\mathrm{s}})$	3.0420	$3.042^{+0.043}_{-0.044}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6142	$0.613^{+0.031}_{-0.029}$	$D_{\mathrm{M}}(0.51)$	2000.6	$1999^{+48}_{-48}$
$n_{\mathrm{s}}$	0.9626	$0.963^{+0.015}_{-0.015}$	$\sigma_8/h^{0.5}$	0.9973	$0.996^{+0.042}_{-0.040}$	$H(0.61)$	94.93	$94.96^{+0.95}_{-0.86}$
$r$	0.0132	$< 0.0775$	$r_{\mathrm{drag}}h$	98.08	$98.2^{+4.1}_{-4.2}$	$D_{\mathrm{M}}(0.61)$	2326	$2325^{+52}_{-51}$
$y_{\mathrm{cal}}$	1.0006	$1.0007^{+0.0064}_{-0.0064}$	$\langle d^2 \rangle^{1/2}$	2.461	$2.46^{+0.10}_{-0.095}$	$H(2.33)$	237.00	$236.9^{+3.4}_{-3.2}$
$A_{B,\mathrm{dust}}$	4.60	$4.9^{+3.2}_{-2.1}$	$z_{\mathrm{re}}$	7.60	$7.6^{+2.1}_{-2.4}$	$D_{\mathrm{M}}(2.33)$	5780.7	$5779^{+41}_{-43}$
$A_{B,\mathrm{sync}}$	1.48	$< 4.95$	$10^9 A_{\mathrm{s}}$	2.095	$2.094^{+0.093}_{-0.090}$	$f\sigma_8(0.15)$	0.4668	$0.466^{+0.032}_{-0.030}$
$\alpha_{B,\mathrm{dust}}$	-0.52	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8849	$1.885^{+0.036}_{-0.034}$	$\sigma_8(0.15)$	0.7512	$0.751^{+0.020}_{-0.019}$
$\beta_{B,\mathrm{dust}}$	1.573	$1.60^{+0.25}_{-0.25}$	$D_{40}$	1237.0	$1241^{+42}_{-40}$	$f\sigma_8(0.38)$	0.4825	$0.482^{+0.025}_{-0.024}$
$\alpha_{B,\mathrm{sync}}$	-0.31	—	$D_{220}$	5700	$5702^{+110}_{-110}$	$\sigma_8(0.38)$	0.6646	$0.664^{+0.016}_{-0.016}$
$\beta_{B,\mathrm{sync}}$	-3.03	$-3.10^{+0.68}_{-0.74}$	$D_{810}$	2535.5	$2536^{+36}_{-35}$	$f\sigma_8(0.51)$	0.4797	$0.479^{+0.021}_{-0.021}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	-0.34	$< 0.366$	$D_{1420}$	814.2	$814^{+14}_{-13}$	$\sigma_8(0.51)$	0.6214	$0.621^{+0.014}_{-0.014}$
$A_{100}^{\mathrm{PS}}$	237	$242^{+60}_{-60}$	$D_{2000}$	229.52	$229.6^{+4.8}_{-4.7}$	$f\sigma_8(0.61)$	0.4737	$0.473^{+0.019}_{-0.019}$
$A_{143}^{\mathrm{PS}}$	40.8	$41^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	0.9626	$0.963^{+0.015}_{-0.015}$	$\sigma_8(0.61)$	0.5910	$0.591^{+0.014}_{-0.013}$
$A_{217}^{\mathrm{PS}}$	100.4	$102^{+30}_{-30}$	$Y_{\mathrm{P}}$	0.245274	$0.24527^{+0.00023}_{-0.00026}$	$f\sigma_8(2.33)$	0.2975	$0.2974^{+0.0068}_{-0.0066}$
$A_{217}^{\mathrm{CIB}}$	46.1	$41^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246601	$0.24660^{+0.00023}_{-0.00027}$	$\sigma_8(2.33)$	0.3062	$0.3061^{+0.0072}_{-0.0070}$
$A_{143}^{\mathrm{tSZ}}$	6.47	$< 8.77$	$10^5 \mathrm{D}/\mathrm{H}$	2.641	$2.64^{+0.11}_{-0.11}$	$r_{0.002}$	0.0117	$< 0.0716$
$r_{143 \times 217}^{\mathrm{PS}}$	0.565	$0.65^{+0.31}_{-0.33}$	Age/Gyr	13.836	$13.834^{+0.093}_{-0.096}$	$r_{0.01}$	0.0124	$< 0.0745$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.81	—	$z_*$	1090.39	$1090.4^{+1.1}_{-1.1}$	$\ln(10^{10}A_{\mathrm{t}})$	-1.29	$-0.97^{+1.7}_{-3.7}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.02	—	$r_*$	144.36	$144.4^{+1.2}_{-1.2}$	$r_{10}$	0.0060	$< 0.0369$
$A^{\mathrm{kSZ}}$	0.2	—	$100\theta_*$	1.04097	$1.0410^{+0.0012}_{-0.0012}$	$10^9 A_{\mathrm{t}}$	0.028	$< 0.162$
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.50}_{-0.50}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.868	$13.87^{+0.11}_{-0.12}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	0.025	$< 0.146$
$A_{143}^{\mathrm{dust}}$	0.985	$0.97^{+0.45}_{-0.46}$	$z_{\mathrm{drag}}$	1059.32	$1059.4^{+1.2}_{-1.2}$	$f_{2000}^{143}$	31.3	$31^{+8}_{-8}$
$A_{217}^{\mathrm{dust}}$	0.963	$0.97^{+0.27}_{-0.27}$	$r_{\mathrm{drag}}$	147.12	$147.1^{+1.2}_{-1.3}$	$f_{2000}^{217}$	107.7	$107.7^{+5.2}_{-5.2}$
$A_{143 \times 217}^{\mathrm{dust}}$	0.996	$1.03^{+0.42}_{-0.41}$	$k_{\mathrm{D}}$	0.14061	$0.1406^{+0.0014}_{-0.0013}$	$f_{2000}^{143 \times 217}$	33.1	$33^{+6}_{-6}$
$c_{100}$	0.99756	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_{\mathrm{D}}$	0.16111	$0.16110^{+0.00070}_{-0.00068}$	$\chi_{\mathrm{BKPLANCK}}^2$	734.9	$739.3 (\nu: 3.7)$
$c_{217}$	1.00141	$1.0012^{+0.0041}_{-0.0040}$	$z_{\mathrm{eq}}$	3422	$3420^{+130}_{-120}$	$\chi_{\mathrm{simall}}^2$	396.01	$397.1 (\nu: 1.5)$
$H_0$	66.67	$66.7^{+2.4}_{-2.4}$	$k_{\mathrm{eq}}$	0.010445	$0.01044^{+0.00038}_{-0.00036}$	$\chi_{\mathrm{lowl}}^2$	24.16	$24.7 (\nu: 1.1)$
$\Omega_{\Lambda}$	0.6763	$0.677^{+0.032}_{-0.036}$	$100\theta_{\mathrm{eq}}$	0.8088	$0.809^{+0.023}_{-0.023}$	$\chi_{\mathrm{CamSpec}}^2$	7049.9	$7063.0 (\nu: 14.1)$
$\Omega_{\mathrm{m}}$	0.3237	$0.323^{+0.036}_{-0.032}$	$100\theta_{\mathrm{s,eq}}$	0.4473	$0.448^{+0.012}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	2.3	$9.2 (\nu: 7.3)$
$\Omega_{\mathrm{m}}h^2$	0.1439	$0.1438^{+0.0052}_{-0.0049}$	$H(0.15)$	72.07	$72.1^{+2.0}_{-2.0}$	$\chi_{\mathrm{CMB}}^2$	8205.0	$8224.0 (\nu: 18.8)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 8207.30$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 8233.28$ ;  $R - 1 = 0.00244$

$\chi_{\mathrm{eff}}^2$ : CMB - BK15\_dust: 734.95 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.00 commander\_dx12\_v3\_2\_29: 24.16 CamSpec like\_10.7HM: 7049.91



17.55 base\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.02220^{+0.00051}_{-0.00050}$	$S_8$	0.8233	$0.823^{+0.039}_{-0.038}$	$D_M(0.51)$	1983.0	$1983^{+28}_{-28}$
$\Omega_c h^2$	0.11915	$0.1191^{+0.0032}_{-0.0031}$	$\sigma_8 \Omega_m^{0.5}$	0.4510	$0.451^{+0.021}_{-0.021}$	$H(0.61)$	95.25	$95.25^{+0.66}_{-0.62}$
$100\theta_{MC}$	1.04103	$1.0410^{+0.0010}_{-0.0011}$	$\sigma_8 \Omega_m^{0.25}$	0.6038	$0.604^{+0.021}_{-0.020}$	$D_M(0.61)$	2307.5	$2307^{+31}_{-31}$
$\tau$	0.0547	$0.055^{+0.021}_{-0.020}$	$\sigma_8/h^{0.5}$	0.9836	$0.984^{+0.030}_{-0.029}$	$H(2.33)$	235.85	$235.8^{+2.0}_{-2.0}$
$\ln(10^{10} A_s)$	3.0410	$3.041^{+0.043}_{-0.043}$	$r_{drag} h$	99.64	$99.7^{+2.4}_{-2.4}$	$D_M(2.33)$	5767.4	$5767^{+31}_{-32}$
$n_s$	0.9668	$0.967^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	2.431	$2.430^{+0.071}_{-0.071}$	$f\sigma_8(0.15)$	0.4556	$0.455^{+0.020}_{-0.020}$
$r$	0.0188	$< 0.0824$	$z_{re}$	7.74	$7.7^{+2.1}_{-2.2}$	$\sigma_8(0.15)$	0.7470	$0.747^{+0.018}_{-0.017}$
$y_{cal}$	1.0005	$1.0008^{+0.0065}_{-0.0063}$	$10^9 A_s$	2.093	$2.094^{+0.092}_{-0.088}$	$f\sigma_8(0.38)$	0.4739	$0.474^{+0.017}_{-0.017}$
$A_{B,dust}$	4.62	$4.9^{+3.2}_{-2.1}$	$10^9 A_s e^{-2\tau}$	1.8758	$1.877^{+0.030}_{-0.029}$	$\sigma_8(0.38)$	0.6622	$0.662^{+0.015}_{-0.015}$
$A_{B,sync}$	1.44	$< 4.97$	$D_{40}$	1229.8	$1233^{+37}_{-35}$	$f\sigma_8(0.51)$	0.4726	$0.473^{+0.015}_{-0.015}$
$\alpha_{B,dust}$	-0.50	—	$D_{220}$	5709	$5710^{+110}_{-100}$	$\sigma_8(0.51)$	0.6197	$0.620^{+0.014}_{-0.014}$
$\beta_{B,dust}$	1.578	$1.59^{+0.25}_{-0.24}$	$D_{810}$	2533.2	$2535^{+36}_{-35}$	$f\sigma_8(0.61)$	0.4676	$0.468^{+0.014}_{-0.014}$
$\alpha_{B,sync}$	-0.29	—	$D_{1420}$	814.9	$816^{+13}_{-13}$	$\sigma_8(0.61)$	0.5897	$0.590^{+0.014}_{-0.013}$
$\beta_{B,sync}$	-3.04	$-3.10^{+0.67}_{-0.75}$	$D_{2000}$	229.82	$230.0^{+4.7}_{-4.6}$	$f\sigma_8(2.33)$	0.2973	$0.2974^{+0.0068}_{-0.0065}$
$\epsilon_{dust,sync}$	-0.34	$< 0.370$	$n_{s,0.002}$	0.9668	$0.967^{+0.011}_{-0.011}$	$\sigma_8(2.33)$	0.3066	$0.3067^{+0.0070}_{-0.0068}$
$A_{100}^{PS}$	240	$242^{+60}_{-60}$	$Y_P$	0.245328	$0.24532^{+0.00020}_{-0.00024}$	$r_{0.002}$	0.0171	$< 0.0768$
$A_{143}^{PS}$	39.2	$40^{+20}_{-20}$	$Y_P^{BBN}$	0.246654	$0.24665^{+0.00020}_{-0.00024}$	$r_{0.01}$	0.0179	$< 0.0795$
$A_{217}^{PS}$	99.8	$102^{+30}_{-40}$	$10^5 D/H$	2.617	$2.618^{+0.097}_{-0.094}$	$\ln(10^{10} A_t)$	-0.93	$-0.9^{+1.7}_{-3.6}$
$A_{217}^{CIB}$	44.8	$40^{+20}_{-20}$	Age/Gyr	13.807	$13.807^{+0.072}_{-0.073}$	$r_{10}$	0.0087	$< 0.0394$
$A_{143}^{tSZ}$	5.62	$< 8.90$	$z_*$	1090.06	$1090.05^{+0.76}_{-0.75}$	$10^9 A_t$	0.039	$< 0.173$
$r_{143 \times 217}^{PS}$	0.569	$0.65^{+0.31}_{-0.33}$	$r_*$	144.78	$144.79^{+0.80}_{-0.81}$	$10^9 A_t e^{-2\tau}$	0.035	$< 0.154$
$r_{143 \times 217}^{CIB}$	0.74	—	$100\theta_*$	1.04123	$1.0412^{+0.0010}_{-0.0011}$	$f_{2000}^{143}$	31.0	$30^{+8}_{-8}$
$\xi^{tSZ \times CIB}$	0.04	—	$D_M(z_*)/\text{Gpc}$	13.904	$13.906^{+0.077}_{-0.079}$	$f_{2000}^{217}$	107.5	$107.4^{+5.1}_{-5.2}$
$A^{kSZ}$	1.6	—	$z_{drag}$	1059.47	$1059.5^{+1.1}_{-1.2}$	$f_{2000}^{143 \times 217}$	32.9	$33^{+5}_{-6}$
$A_{100}^{dust}$	1.005	$1.01^{+0.49}_{-0.50}$	$r_{drag}$	147.50	$147.52^{+0.88}_{-0.88}$	$\chi_{BKPLANCK}^2$	735.6	$740.0 (\nu: 3.6)$
$A_{143}^{dust}$	0.992	$0.97^{+0.44}_{-0.46}$	$k_D$	0.14031	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{simall}^2$	396.19	$397.3 (\nu: 1.8)$
$A_{217}^{dust}$	0.966	$0.97^{+0.27}_{-0.27}$	$100\theta_D$	0.16103	$0.16104^{+0.00068}_{-0.00066}$	$\chi_{lowl}^2$	23.47	$23.7 (\nu: 0.6)$
$A_{143 \times 217}^{dust}$	1.011	$1.03^{+0.42}_{-0.40}$	$z_{eq}$	3378	$3377^{+74}_{-72}$	$\chi_{CamSpec}^2$	7050.8	$7063.3 (\nu: 13.8)$
$c_{100}$	0.99750	$0.9975^{+0.0028}_{-0.0027}$	$k_{eq}$	0.010310	$0.01031^{+0.00023}_{-0.00022}$	$\chi_{6DF}^2$	0.030	$0.064 (\nu: 0.0)$
$c_{217}$	1.00140	$1.0012^{+0.0040}_{-0.0039}$	$100\theta_{eq}$	0.8173	$0.818^{+0.014}_{-0.013}$	$\chi_{MGS}^2$	1.22	$1.30 (\nu: 0.1)$
$H_0$	67.55	$67.6^{+1.4}_{-1.4}$	$100\theta_{s,eq}$	0.4516	$0.4517^{+0.0070}_{-0.0069}$	$\chi_{DR12BAO}^2$	4.37	$4.9 (\nu: 1.5)$
$\Omega_\Lambda$	0.6888	$0.689^{+0.018}_{-0.019}$	$H(0.15)$	72.82	$72.8^{+1.2}_{-1.2}$	$\chi_{prior}^2$	2.3	$9.2 (\nu: 7.3)$
$\Omega_m$	0.3112	$0.311^{+0.019}_{-0.018}$	$D_M(0.15)$	641.8	$642^{+12}_{-12}$	$\chi_{BAO}^2$	5.62	$6.3 (\nu: 1.0)$
$\Omega_m h^2$	0.14200	$0.1420^{+0.0031}_{-0.0030}$	$H(0.38)$	82.92	$82.94^{+0.93}_{-0.89}$	$\chi_{CMB}^2$	8206.1	$8224.3 (\nu: 18.1)$
$\Omega_m h^3$	0.09592	$0.0959^{+0.0012}_{-0.0012}$	$D_M(0.38)$	1530.7	$1530^{+24}_{-24}$			
$\sigma_8$	0.8084	$0.809^{+0.020}_{-0.019}$	$H(0.51)$	89.63	$89.64^{+0.78}_{-0.73}$			

Best-fit  $\chi_{\text{eff}}^2 = 8214.03$ ;  $\bar{\chi}_{\text{eff}}^2 = 8239.80$ ;  $R - 1 = 0.00717$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.37 CMB - BK15\_dust: 735.63 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.19 commander\_dx12\_v3\_2\_29: 23.46 CamSpec like\_10.7HM: 7050.82



17.56 base\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02211	$0.02212^{+0.00055}_{-0.00054}$	$\sigma_8$	0.8124	$0.812^{+0.016}_{-0.016}$	$D_M(0.38)$	1542.3	$1541^{+32}_{-32}$
$\Omega_c h^2$	0.12065	$0.1205^{+0.0041}_{-0.0040}$	$S_8$	0.8399	$0.838^{+0.042}_{-0.041}$	$H(0.51)$	89.32	$89.36^{+0.97}_{-0.91}$
$100\theta_{MC}$	1.04081	$1.0408^{+0.0012}_{-0.0012}$	$\sigma_8 \Omega_m^{0.5}$	0.4601	$0.459^{+0.023}_{-0.023}$	$D_M(0.51)$	1996.5	$1995^{+37}_{-38}$
$\tau$	0.0529	$0.053^{+0.021}_{-0.021}$	$\sigma_8 \Omega_m^{0.25}$	0.6114	$0.610^{+0.020}_{-0.020}$	$H(0.61)$	95.00	$95.04^{+0.80}_{-0.75}$
$\ln(10^{10} A_s)$	3.0410	$3.041^{+0.039}_{-0.039}$	$\sigma_8/h^{0.5}$	0.9935	$0.992^{+0.027}_{-0.027}$	$D_M(0.61)$	2322.0	$2320^{+40}_{-41}$
$n_s$	0.9632	$0.964^{+0.013}_{-0.013}$	$r_{drag} h$	98.44	$98.6^{+3.2}_{-3.1}$	$H(2.33)$	236.72	$236.6^{+2.5}_{-2.4}$
$r$	0.0132	$< 0.0789$	$\langle d^2 \rangle^{1/2}$	2.453	$2.450^{+0.064}_{-0.064}$	$D_M(2.33)$	5777.7	$5776^{+37}_{-38}$
$y_{cal}$	1.0006	$1.0007^{+0.0064}_{-0.0064}$	$z_{re}$	7.61	$7.6^{+2.0}_{-2.3}$	$f\sigma_8(0.15)$	0.4639	$0.463^{+0.021}_{-0.021}$
$A_{B,dust}$	4.61	$4.9^{+3.1}_{-2.1}$	$10^9 A_s$	2.093	$2.092^{+0.083}_{-0.080}$	$\sigma_8(0.15)$	0.7498	$0.749^{+0.014}_{-0.014}$
$A_{B,sync}$	1.47	$< 4.95$	$10^9 A_s e^{-2\tau}$	1.8824	$1.882^{+0.029}_{-0.029}$	$f\sigma_8(0.38)$	0.4802	$0.479^{+0.016}_{-0.016}$
$\alpha_{B,dust}$	-0.52	—	$D_{40}$	1235.3	$1239^{+37}_{-35}$	$\sigma_8(0.38)$	0.6637	$0.663^{+0.013}_{-0.013}$
$\beta_{B,dust}$	1.576	$1.60^{+0.24}_{-0.24}$	$D_{220}$	5703	$5705^{+110}_{-100}$	$f\sigma_8(0.51)$	0.4777	$0.477^{+0.013}_{-0.014}$
$\alpha_{B,sync}$	-0.27	—	$D_{810}$	2534.3	$2535^{+35}_{-34}$	$\sigma_8(0.51)$	0.6207	$0.620^{+0.012}_{-0.012}$
$\beta_{B,sync}$	-3.04	$-3.10^{+0.68}_{-0.74}$	$D_{1420}$	814.0	$815^{+14}_{-13}$	$f\sigma_8(0.61)$	0.4720	$0.471^{+0.012}_{-0.012}$
$\epsilon_{dust,sync}$	-0.34	$< 0.364$	$D_{2000}$	229.47	$229.6^{+4.8}_{-4.6}$	$\sigma_8(0.61)$	0.5903	$0.590^{+0.012}_{-0.011}$
$A_{100}^{PS}$	241	$242^{+60}_{-70}$	$n_{s,0.002}$	0.9632	$0.964^{+0.013}_{-0.013}$	$f\sigma_8(2.33)$	0.2973	$0.2972^{+0.0061}_{-0.0060}$
$A_{143}^{PS}$	39.3	$41^{+20}_{-20}$	$Y_P$	0.245289	$0.24529^{+0.00022}_{-0.00026}$	$\sigma_8(2.33)$	0.3061	$0.3061^{+0.0068}_{-0.0067}$
$A_{217}^{PS}$	99.6	$102^{+30}_{-30}$	$Y_P^{BBN}$	0.246615	$0.24661^{+0.00022}_{-0.00026}$	$r_{0.002}$	0.0118	$< 0.0729$
$A_{217}^{CIB}$	45.3	$41^{+20}_{-20}$	$10^5 D/H$	2.635	$2.63^{+0.11}_{-0.10}$	$r_{0.01}$	0.0125	$< 0.0759$
$A_{143}^{tSZ}$	5.64	$< 8.85$	Age/Gyr	13.830	$13.827^{+0.084}_{-0.086}$	$\ln(10^{10} A_t)$	-1.29	$-0.9^{+1.7}_{-3.6}$
$r_{143 \times 217}^{PS}$	0.562	$0.65^{+0.31}_{-0.33}$	$z_*$	1090.31	$1090.28^{+0.92}_{-0.91}$	$r_{10}$	0.0060	$< 0.0376$
$r_{143 \times 217}^{CIB}$	0.75	—	$r_*$	144.46	$144.50^{+0.94}_{-0.95}$	$10^9 A_t$	0.028	$< 0.165$
$\xi^{tSZ \times CIB}$	0.01	—	$100\theta_*$	1.04101	$1.0410^{+0.0011}_{-0.0012}$	$10^9 A_t e^{-2\tau}$	0.025	$< 0.148$
$A^{kSZ}$	1.6	—	$D_M(z_*)/\text{Gpc}$	13.877	$13.880^{+0.088}_{-0.089}$	$f_{2000}^{143}$	31.3	$31^{+8}_{-8}$
$A_{100}^{dust}$	1.00	$1.01^{+0.50}_{-0.50}$	$z_{drag}$	1059.40	$1059.4^{+1.2}_{-1.2}$	$f_{2000}^{217}$	107.8	$107.7^{+5.1}_{-5.2}$
$A_{143}^{dust}$	0.986	$0.97^{+0.45}_{-0.46}$	$r_{drag}$	147.21	$147.25^{+0.96}_{-0.97}$	$f_{2000}^{143 \times 217}$	33.2	$33^{+5}_{-6}$
$A_{217}^{dust}$	0.961	$0.97^{+0.27}_{-0.27}$	$k_D$	0.14054	$0.1405^{+0.0012}_{-0.0011}$	$\chi^2_{lensing}$	9.00	$9.56 (\nu: 0.4)$
$A_{143 \times 217}^{dust}$	0.999	$1.03^{+0.42}_{-0.40}$	$100\theta_D$	0.16108	$0.16108^{+0.00069}_{-0.00067}$	$\chi^2_{BKPLANCK}$	735.2	$739.4 (\nu: 3.5)$
$c_{100}$	0.99746	$0.9975^{+0.0028}_{-0.0027}$	$z_{eq}$	3412	$3408^{+93}_{-91}$	$\chi^2_{small}$	396.01	$397.0 (\nu: 1.3)$
$c_{217}$	1.00143	$1.0012^{+0.0041}_{-0.0040}$	$k_{eq}$	0.010412	$0.01040^{+0.00028}_{-0.00028}$	$\chi^2_{lowl}$	23.99	$24.4 (\nu: 0.8)$
$H_0$	66.87	$67.0^{+1.9}_{-1.8}$	$100\theta_{eq}$	0.8108	$0.812^{+0.017}_{-0.017}$	$\chi^2_{CamSpec}$	7049.8	$7062.6 (\nu: 13.2)$
$\Omega_\Lambda$	0.6793	$0.680^{+0.025}_{-0.027}$	$100\theta_{s,eq}$	0.4483	$0.4487^{+0.0089}_{-0.0087}$	$\chi^2_{prior}$	2.4	$9.2 (\nu: 7.3)$
$\Omega_m$	0.3207	$0.320^{+0.027}_{-0.025}$	$H(0.15)$	72.25	$72.3^{+1.6}_{-1.6}$	$\chi^2_{CMB}$	8214.0	$8233.0 (\nu: 18.7)$
$\Omega_m h^2$	0.14341	$0.1432^{+0.0039}_{-0.0038}$	$D_M(0.15)$	647.6	$647^{+16}_{-16}$			
$\Omega_m h^3$	0.09590	$0.0959^{+0.0012}_{-0.0012}$	$H(0.38)$	82.51	$82.6^{+1.2}_{-1.1}$			

Best-fit  $\chi^2_{eff} = 8216.43$ ;  $\bar{\chi}^2_{eff} = 8242.24$ ;  $R - 1 = 0.00337$

$\chi^2_{eff}$ : CMB - smicadx12.Dec5.ftl\_mv2.ndclpp\_p.teb\_consext8: 9.00 BK15.dust: 735.17 small\_100x143\_offlike5.EE.Aplanck\_B: 396.01 commander\_dx12\_v3.2.29: 23.99 CamSpec like\_10.7HM: 7049.83



# 17.57 base\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02219	$0.02221^{+0.00051}_{-0.00050}$	$S_8$	0.8268	$0.826^{+0.031}_{-0.030}$	$D_M(0.51)$	1985.4	$1984^{+26}_{-26}$
$\Omega_c h^2$	0.11942	$0.1193^{+0.0028}_{-0.0028}$	$\sigma_8 \Omega_m^{0.5}$	0.4529	$0.452^{+0.017}_{-0.017}$	$H(0.61)$	95.20	$95.24^{+0.62}_{-0.60}$
$100\theta_{MC}$	1.04098	$1.0410^{+0.0011}_{-0.0011}$	$\sigma_8 \Omega_m^{0.25}$	0.6055	$0.605^{+0.016}_{-0.016}$	$D_M(0.61)$	2310.1	$2308^{+28}_{-29}$
$\tau$	0.0546	$0.056^{+0.020}_{-0.019}$	$\sigma_8/h^{0.5}$	0.9860	$0.986^{+0.023}_{-0.022}$	$H(2.33)$	236.00	$235.9^{+1.8}_{-1.8}$
$\ln(10^{10} A_s)$	3.0425	$3.045^{+0.038}_{-0.037}$	$r_{drag} h$	99.42	$99.6^{+2.2}_{-2.1}$	$D_M(2.33)$	5769.3	$5768^{+31}_{-31}$
$n_s$	0.9658	$0.967^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	2.437	$2.436^{+0.055}_{-0.055}$	$f\sigma_8(0.15)$	0.4573	$0.457^{+0.016}_{-0.016}$
$r$	0.0130	$< 0.0822$	$z_{re}$	7.74	$7.9^{+1.9}_{-2.0}$	$\sigma_8(0.15)$	0.7480	$0.749^{+0.015}_{-0.014}$
$y_{cal}$	1.0008	$1.0009^{+0.0063}_{-0.0062}$	$10^9 A_s$	2.096	$2.101^{+0.082}_{-0.077}$	$f\sigma_8(0.38)$	0.4754	$0.475^{+0.013}_{-0.013}$
$A_{B,dust}$	4.59	$4.9^{+3.2}_{-2.1}$	$10^9 A_s e^{-2\tau}$	1.8789	$1.878^{+0.028}_{-0.027}$	$\sigma_8(0.38)$	0.6629	$0.664^{+0.013}_{-0.012}$
$A_{B,sync}$	1.46	$< 4.95$	$D_{40}$	1231.2	$1235^{+36}_{-34}$	$f\sigma_8(0.51)$	0.4738	$0.474^{+0.012}_{-0.011}$
$\alpha_{B,dust}$	-0.50	—	$D_{220}$	5715	$5714^{+110}_{-100}$	$\sigma_8(0.51)$	0.6203	$0.621^{+0.012}_{-0.012}$
$\beta_{B,dust}$	1.573	$1.59^{+0.25}_{-0.24}$	$D_{810}$	2535.6	$2536^{+34}_{-34}$	$f\sigma_8(0.61)$	0.4687	$0.469^{+0.011}_{-0.011}$
$\alpha_{B,sync}$	-0.41	—	$D_{1420}$	815.3	$816^{+13}_{-13}$	$\sigma_8(0.61)$	0.5902	$0.591^{+0.012}_{-0.011}$
$\beta_{B,sync}$	-3.03	$-3.10^{+0.67}_{-0.75}$	$D_{2000}$	229.91	$230.1^{+4.6}_{-4.5}$	$f\sigma_8(2.33)$	0.2975	$0.2979^{+0.0060}_{-0.0057}$
$\epsilon_{dust,sync}$	-0.32	$< 0.356$	$n_{s,0.002}$	0.9658	$0.967^{+0.011}_{-0.011}$	$\sigma_8(2.33)$	0.3067	$0.3071^{+0.0064}_{-0.0061}$
$A_{100}^{PS}$	240	$242^{+60}_{-70}$	$Y_P$	0.245321	$0.24533^{+0.00020}_{-0.00024}$	$r_{0.002}$	0.0117	$< 0.0764$
$A_{143}^{PS}$	40.7	$41^{+20}_{-20}$	$Y_P^{BBN}$	0.246648	$0.24665^{+0.00020}_{-0.00024}$	$r_{0.01}$	0.0123	$< 0.0793$
$A_{217}^{PS}$	100.5	$102^{+30}_{-30}$	$10^5 D/H$	2.620	$2.617^{+0.096}_{-0.093}$	$\ln(10^{10} A_t)$	-1.30	$-0.9^{+1.7}_{-3.6}$
$A_{217}^{CIB}$	44.9	$40^{+20}_{-20}$	Age/Gyr	13.812	$13.808^{+0.070}_{-0.072}$	$r_{10}$	0.0060	$< 0.0392$
$A_{143}^{tSZ}$	5.78	$< 8.90$	$z_*$	1090.10	$1090.06^{+0.75}_{-0.74}$	$10^9 A_t$	0.027	$< 0.173$
$r_{143 \times 217}^{PS}$	0.583	$0.65^{+0.31}_{-0.33}$	$r_*$	144.72	$144.75^{+0.73}_{-0.73}$	$10^9 A_t e^{-2\tau}$	0.024	$< 0.154$
$r_{143 \times 217}^{CIB}$	0.76	—	$100\theta_*$	1.04118	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	31.0	$30^{+8}_{-8}$
$\xi^{tSZ \times CIB}$	0.10	—	$D_M(z_*)/\text{Gpc}$	13.899	$13.902^{+0.072}_{-0.073}$	$f_{2000}^{217}$	107.6	$107.4^{+5.1}_{-5.2}$
$A^{kSZ}$	1.3	—	$z_{drag}$	1059.47	$1059.5^{+1.1}_{-1.1}$	$f_{2000}^{143 \times 217}$	32.9	$33^{+5}_{-6}$
$A_{100}^{dust}$	1.01	$1.01^{+0.50}_{-0.50}$	$r_{drag}$	147.45	$147.47^{+0.80}_{-0.81}$	$\chi_{lensing}^2$	8.90	$9.33 (\nu: 0.3)$
$A_{143}^{dust}$	0.977	$0.97^{+0.45}_{-0.46}$	$k_D$	0.14035	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{BKPLANCK}^2$	735.6	$739.8 (\nu: 3.4)$
$A_{217}^{dust}$	0.966	$0.97^{+0.27}_{-0.27}$	$100\theta_D$	0.16104	$0.16103^{+0.00068}_{-0.00066}$	$\chi_{simall}^2$	396.19	$397.4 (\nu: 1.8)$
$A_{143 \times 217}^{dust}$	1.002	$1.03^{+0.42}_{-0.40}$	$z_{eq}$	3384	$3380^{+65}_{-65}$	$\chi_{lowl}^2$	23.50	$23.9 (\nu: 0.6)$
$c_{100}$	0.99759	$0.9975^{+0.0028}_{-0.0027}$	$k_{eq}$	0.010329	$0.01032^{+0.00020}_{-0.00020}$	$\chi_{CamSpec}^2$	7050.6	$7062.9 (\nu: 13.1)$
$c_{217}$	1.00142	$1.0012^{+0.0040}_{-0.0039}$	$100\theta_{eq}$	0.8161	$0.817^{+0.012}_{-0.012}$	$\chi_{6DF}^2$	0.047	$0.064 (\nu: 0.0)$
$H_0$	67.43	$67.5^{+1.3}_{-1.3}$	$100\theta_{s,eq}$	0.4510	$0.4514^{+0.0062}_{-0.0061}$	$\chi_{MGS}^2$	1.10	$1.24 (\nu: 0.1)$
$\Omega_\Lambda$	0.6871	$0.688^{+0.017}_{-0.017}$	$H(0.15)$	72.72	$72.8^{+1.1}_{-1.1}$	$\chi_{DR12BAO}^2$	4.77	$5.0 (\nu: 1.3)$
$\Omega_m$	0.3129	$0.312^{+0.017}_{-0.017}$	$D_M(0.15)$	642.9	$642^{+11}_{-11}$	$\chi_{prior}^2$	2.3	$9.2 (\nu: 7.3)$
$\Omega_m h^2$	0.14226	$0.1421^{+0.0027}_{-0.0027}$	$H(0.38)$	82.85	$82.91^{+0.86}_{-0.83}$	$\chi_{CMB}^2$	8214.8	$8233.2 (\nu: 18.3)$
$\Omega_m h^3$	0.09592	$0.0959^{+0.0012}_{-0.0011}$	$D_M(0.38)$	1532.8	$1531^{+22}_{-22}$	$\chi_{BAO}^2$	5.92	$6.3 (\nu: 0.9)$
$\sigma_8$	0.8096	$0.810^{+0.016}_{-0.016}$	$H(0.51)$	89.57	$89.62^{+0.73}_{-0.69}$			

Best-fit  $\chi_{\text{eff}}^2 = 8223.00$ ;  $\bar{\chi}_{\text{eff}}^2 = 8248.72$ ;  $R - 1 = 0.00847$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.05 MGS: 1.10 DR12BAO: 4.77 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.90 BK15\_dust: 735.61 simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.19 commander\_dx12\_v3.2.29: 23.50 CamSpec like\_10.7HM: 7050.59



17.58 base\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02210^{+0.00057}_{-0.00055}$	$\Omega_{\mathrm{m}}h^3$	$0.0959^{+0.0012}_{-0.0012}$	$D_{\mathrm{M}}(0.15)$	$649^{+21}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.1209^{+0.0055}_{-0.0052}$	$\sigma_8$	$0.815^{+0.023}_{-0.021}$	$H(0.38)$	$82.5^{+1.5}_{-1.4}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0012}_{-0.0012}$	$S_8$	$0.845^{+0.064}_{-0.060}$	$D_{\mathrm{M}}(0.38)$	$1544^{+41}_{-40}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.463^{+0.035}_{-0.033}$	$H(0.51)$	$89.3^{+1.2}_{-1.1}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.041}_{-0.030}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.614^{+0.031}_{-0.029}$	$D_{\mathrm{M}}(0.51)$	$1999^{+48}_{-48}$
$n_{\mathrm{s}}$	$0.963^{+0.015}_{-0.015}$	$\sigma_8/h^{0.5}$	$0.997^{+0.042}_{-0.040}$	$H(0.61)$	$94.98^{+0.95}_{-0.85}$
$r$	$< 0.0777$	$r_{\mathrm{drag}}h$	$98.2^{+4.1}_{-4.2}$	$D_{\mathrm{M}}(0.61)$	$2324^{+51}_{-51}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0064}_{-0.0064}$	$\langle d^2 \rangle^{1/2}$	$2.461^{+0.099}_{-0.094}$	$H(2.33)$	$236.9^{+3.4}_{-3.1}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.1}$	$z_{\mathrm{re}}$	$< 9.47$	$D_{\mathrm{M}}(2.33)$	$5779^{+41}_{-43}$
$A_{B,\mathrm{sync}}$	$< 4.96$	$10^9 A_{\mathrm{s}}$	$2.100^{+0.088}_{-0.063}$	$f\sigma_8(0.15)$	$0.466^{+0.032}_{-0.030}$
$\alpha_{B,\mathrm{dust}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.884^{+0.036}_{-0.034}$	$\sigma_8(0.15)$	$0.752^{+0.019}_{-0.017}$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25}$	$D_{40}$	$1241^{+42}_{-40}$	$f\sigma_8(0.38)$	$0.482^{+0.025}_{-0.024}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{220}$	$5702^{+110}_{-110}$	$\sigma_8(0.38)$	$0.665^{+0.015}_{-0.013}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.68}_{-0.74}$	$D_{810}$	$2536^{+36}_{-35}$	$f\sigma_8(0.51)$	$0.479^{+0.021}_{-0.021}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.364$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.51)$	$0.622^{+0.014}_{-0.012}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{2000}$	$229.6^{+4.8}_{-4.7}$	$f\sigma_8(0.61)$	$0.474^{+0.018}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.963^{+0.015}_{-0.015}$	$\sigma_8(0.61)$	$0.591^{+0.013}_{-0.011}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$Y_{\mathrm{P}}$	$0.24528^{+0.00023}_{-0.00026}$	$f\sigma_8(2.33)$	$0.2978^{+0.0065}_{-0.0048}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24660^{+0.00023}_{-0.00026}$	$\sigma_8(2.33)$	$0.3066^{+0.0068}_{-0.0049}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.77$	$10^5\mathrm{D}/\mathrm{H}$	$2.64^{+0.11}_{-0.11}$	$r_{0.002}$	$< 0.0719$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.832^{+0.092}_{-0.096}$	$r_{0.01}$	$< 0.0747$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$z_*$	$1090.4^{+1.0}_{-1.0}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.97^{+1.7}_{-3.7}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$r_*$	$144.4^{+1.2}_{-1.3}$	$r_{10}$	$< 0.0369$
$A^{\mathrm{kSZ}}$	—	$100\theta_*$	$1.0410^{+0.0012}_{-0.0012}$	$10^9 A_{\mathrm{t}}$	$< 0.163$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.87^{+0.11}_{-0.12}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.146$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.46}$	$z_{\mathrm{drag}}$	$1059.4^{+1.2}_{-1.2}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$r_{\mathrm{drag}}$	$147.1^{+1.2}_{-1.3}$	$f_{2000}^{217}$	$107.6^{+5.1}_{-5.2}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$k_{\mathrm{D}}$	$0.1406^{+0.0014}_{-0.0013}$	$f_{2000}^{143\times 217}$	$33^{+5}_{-6}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$100\theta_{\mathrm{D}}$	$0.16110^{+0.00069}_{-0.00068}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.2 (\nu: 3.6)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$	$z_{\mathrm{eq}}$	$3418^{+130}_{-120}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.5)$
$H_0$	$66.8^{+2.4}_{-2.4}$	$k_{\mathrm{eq}}$	$0.01043^{+0.00039}_{-0.00036}$	$\chi_{\mathrm{lowl}}^2$	$24.7 (\nu: 1.1)$
$\Omega_{\Lambda}$	$0.677^{+0.032}_{-0.036}$	$100\theta_{\mathrm{eq}}$	$0.810^{+0.023}_{-0.023}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.9 (\nu: 13.9)$
$\Omega_{\mathrm{m}}$	$0.323^{+0.036}_{-0.032}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.448^{+0.012}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	$9.2 (\nu: 7.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1437^{+0.0053}_{-0.0049}$	$H(0.15)$	$72.2^{+2.0}_{-2.0}$	$\chi_{\mathrm{CMB}}^2$	$8223.8 (\nu: 18.4)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 8233.01; R - 1 = 0.00318$$



17.59 base\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02221^{+0.00051}_{-0.00050}$	$S_8$	$0.824^{+0.039}_{-0.037}$	$D_{\mathrm{M}}(0.51)$	$1982^{+28}_{-28}$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0032}_{-0.0031}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.021}_{-0.020}$	$H(0.61)$	$95.26^{+0.66}_{-0.62}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0010}_{-0.0011}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.020}_{-0.019}$	$D_{\mathrm{M}}(0.61)$	$2307^{+31}_{-31}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$\sigma_8/h^{0.5}$	$0.984^{+0.029}_{-0.028}$	$H(2.33)$	$235.8^{+2.0}_{-2.0}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.042}_{-0.032}$	$r_{\mathrm{drag}}h$	$99.7^{+2.4}_{-2.4}$	$D_{\mathrm{M}}(2.33)$	$5767^{+31}_{-32}$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.070}_{-0.066}$	$f\sigma_8(0.15)$	$0.456^{+0.020}_{-0.019}$
$r$	$< 0.0827$	$z_{\mathrm{re}}$	$< 9.57$	$\sigma_8(0.15)$	$0.748^{+0.018}_{-0.015}$
$y_{\mathrm{cal}}$	$1.0008^{+0.0064}_{-0.0063}$	$10^9 A_{\mathrm{s}}$	$2.098^{+0.089}_{-0.067}$	$f\sigma_8(0.38)$	$0.474^{+0.017}_{-0.016}$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.1}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.877^{+0.030}_{-0.029}$	$\sigma_8(0.38)$	$0.663^{+0.015}_{-0.012}$
$A_{B,\mathrm{sync}}$	$< 4.97$	$D_{40}$	$1233^{+37}_{-35}$	$f\sigma_8(0.51)$	$0.473^{+0.015}_{-0.014}$
$\alpha_{B,\mathrm{dust}}$	—	$D_{220}$	$5710^{+110}_{-100}$	$\sigma_8(0.51)$	$0.620^{+0.014}_{-0.011}$
$\beta_{B,\mathrm{dust}}$	$1.59^{+0.25}_{-0.24}$	$D_{810}$	$2535^{+35}_{-35}$	$f\sigma_8(0.61)$	$0.468^{+0.014}_{-0.013}$
$\alpha_{B,\mathrm{sync}}$	—	$D_{1420}$	$816^{+13}_{-13}$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.010}$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.67}_{-0.75}$	$D_{2000}$	$230.1^{+4.7}_{-4.6}$	$f\sigma_8(2.33)$	$0.2977^{+0.0067}_{-0.0051}$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.361$	$n_{\mathrm{s},0.002}$	$0.967^{+0.011}_{-0.011}$	$\sigma_8(2.33)$	$0.3070^{+0.0068}_{-0.0051}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-70}$	$Y_{\mathrm{P}}$	$0.24533^{+0.00020}_{-0.00024}$	$r_{0.002}$	$< 0.0774$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00020}_{-0.00024}$	$r_{0.01}$	$< 0.0802$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40}$	$10^5\mathrm{D}/\mathrm{H}$	$2.617^{+0.096}_{-0.094}$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.9^{+1.7}_{-3.6}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.807^{+0.071}_{-0.073}$	$r_{10}$	$< 0.0397$
$A_{143}^{\mathrm{tSZ}}$	$< 8.90$	$z_*$	$1090.05^{+0.76}_{-0.76}$	$10^9 A_{\mathrm{t}}$	$< 0.174$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$r_*$	$144.79^{+0.80}_{-0.80}$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.155$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$100\theta_*$	$1.0412^{+0.0010}_{-0.0011}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.906^{+0.077}_{-0.079}$	$f_{2000}^{217}$	$107.4^{+5.1}_{-5.2}$
$A^{\mathrm{kSZ}}$	—	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$f_{2000}^{143\times 217}$	$33^{+5}_{-6}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.49}$	$r_{\mathrm{drag}}$	$147.52^{+0.87}_{-0.88}$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.9 (\nu: 3.5)$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.44}_{-0.46}$	$k_{\mathrm{D}}$	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 1.9)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$100\theta_{\mathrm{D}}$	$0.16104^{+0.00068}_{-0.00066}$	$\chi_{\mathrm{lowl}}^2$	$23.8 (\nu: 0.6)$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.40}$	$z_{\mathrm{eq}}$	$3376^{+74}_{-72}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.2 (\nu: 13.5)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00023}_{-0.00022}$	$\chi_{6\mathrm{DF}}^2$	$0.062 (\nu: 0.0)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.013}_{-0.013}$	$\chi_{\mathrm{MGS}}^2$	$1.31 (\nu: 0.1)$
$H_0$	$67.6^{+1.4}_{-1.4}$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4517^{+0.0070}_{-0.0069}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 (\nu: 1.4)$
$\Omega_{\Lambda}$	$0.689^{+0.018}_{-0.019}$	$H(0.15)$	$72.9^{+1.2}_{-1.2}$	$\chi_{\mathrm{prior}}^2$	$9.2 (\nu: 7.3)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.019}_{-0.018}$	$D_{\mathrm{M}}(0.15)$	$642^{+12}_{-12}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 1.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1419^{+0.0031}_{-0.0030}$	$H(0.38)$	$82.94^{+0.93}_{-0.88}$	$\chi_{\mathrm{CMB}}^2$	$8224.1 (\nu: 17.7)$
$\Omega_{\mathrm{m}}h^3$	$0.0959^{+0.0012}_{-0.0011}$	$D_{\mathrm{M}}(0.38)$	$1530^{+24}_{-24}$		
$\sigma_8$	$0.809^{+0.020}_{-0.017}$	$H(0.51)$	$89.65^{+0.78}_{-0.72}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 8239.57; R - 1 = 0.00860$$



17.60    base\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02213^{+0.00054}_{-0.00053}$	$\sigma_8$	$0.812^{+0.016}_{-0.015}$	$D_{\text{M}}(0.38)$	$1540^{+31}_{-31}$
$\Omega_{\text{c}}h^2$	$0.1203^{+0.0039}_{-0.0039}$	$S_8$	$0.837^{+0.042}_{-0.041}$	$H(0.51)$	$89.39^{+0.95}_{-0.89}$
$100\theta_{\text{MC}}$	$1.0408^{+0.0011}_{-0.0012}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.459^{+0.023}_{-0.023}$	$D_{\text{M}}(0.51)$	$1994^{+36}_{-37}$
$\tau$	$0.054^{+0.018}_{-0.013}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.610^{+0.020}_{-0.020}$	$H(0.61)$	$95.06^{+0.79}_{-0.74}$
$\ln(10^{10}A_{\text{s}})$	$3.043^{+0.037}_{-0.028}$	$\sigma_8/h^{0.5}$	$0.992^{+0.026}_{-0.027}$	$D_{\text{M}}(0.61)$	$2319^{+39}_{-40}$
$n_{\text{s}}$	$0.964^{+0.013}_{-0.012}$	$r_{\text{drag}}h$	$98.7^{+3.1}_{-3.0}$	$H(2.33)$	$236.5^{+2.4}_{-2.4}$
$r$	$< 0.0796$	$\langle d^2 \rangle^{1/2}$	$2.451^{+0.064}_{-0.064}$	$D_{\text{M}}(2.33)$	$5775^{+37}_{-38}$
$y_{\text{cal}}$	$1.0007^{+0.0064}_{-0.0064}$	$z_{\text{re}}$	$< 9.38$	$f\sigma_8(0.15)$	$0.463^{+0.021}_{-0.021}$
$A_{B,\text{dust}}$	$4.9^{+3.1}_{-2.1}$	$10^9 A_{\text{s}}$	$2.097^{+0.080}_{-0.057}$	$\sigma_8(0.15)$	$0.750^{+0.014}_{-0.013}$
$A_{B,\text{sync}}$	$< 4.95$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.882^{+0.029}_{-0.028}$	$f\sigma_8(0.38)$	$0.479^{+0.016}_{-0.016}$
$\alpha_{B,\text{dust}}$	—	$D_{40}$	$1239^{+37}_{-35}$	$\sigma_8(0.38)$	$0.664^{+0.012}_{-0.010}$
$\beta_{B,\text{dust}}$	$1.60^{+0.24}_{-0.24}$	$D_{220}$	$5705^{+110}_{-100}$	$f\sigma_8(0.51)$	$0.477^{+0.013}_{-0.014}$
$\alpha_{B,\text{sync}}$	—	$D_{810}$	$2535^{+35}_{-34}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0092}$
$\beta_{B,\text{sync}}$	$-3.10^{+0.68}_{-0.75}$	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.61)$	$0.472^{+0.012}_{-0.012}$
$\epsilon_{\text{dust,sync}}$	$< 0.364$	$D_{2000}$	$229.7^{+4.8}_{-4.6}$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0087}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-70}$	$n_{\text{s},0.002}$	$0.964^{+0.013}_{-0.012}$	$f\sigma_8(2.33)$	$0.2976^{+0.0059}_{-0.0044}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$Y_{\text{P}}$	$0.24529^{+0.00021}_{-0.00025}$	$\sigma_8(2.33)$	$0.3065^{+0.0065}_{-0.0048}$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24662^{+0.00021}_{-0.00026}$	$r_{0.002}$	$< 0.0740$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$10^5\text{D}/\text{H}$	$2.63^{+0.10}_{-0.099}$	$r_{0.01}$	$< 0.0767$
$A_{143}^{\text{tSZ}}$	$< 8.87$	$\text{Age}/\text{Gyr}$	$13.825^{+0.083}_{-0.085}$	$\ln(10^{10}A_{\text{t}})$	$-0.9^{+1.7}_{-3.6}$
$r_{143\times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.33}$	$z_*$	$1090.25^{+0.90}_{-0.90}$	$r_{10}$	$< 0.0379$
$r_{143\times 217}^{\text{CIB}}$	—	$r_*$	$144.53^{+0.92}_{-0.92}$	$10^9 A_{\text{t}}$	$< 0.167$
$\xi^{\text{tSZ}\times\text{CIB}}$	—	$100\theta_*$	$1.0411^{+0.0011}_{-0.0012}$	$10^9 A_{\text{t}}e^{-2\tau}$	$< 0.150$
$A^{\text{kSZ}}$	—	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.883^{+0.087}_{-0.087}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.51}$	$z_{\text{drag}}$	$1059.4^{+1.2}_{-1.2}$	$f_{2000}^{217}$	$107.6^{+5.1}_{-5.2}$
$A_{143}^{\text{dust}}$	$0.97^{+0.45}_{-0.46}$	$r_{\text{drag}}$	$147.27^{+0.94}_{-0.95}$	$f_{2000}^{143\times 217}$	$33^{+5}_{-6}$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27}$	$k_{\text{D}}$	$0.1405^{+0.0012}_{-0.0011}$	$\chi_{\text{lensing}}^2$	$9.54\ (\nu: 0.4)$
$A_{143\times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.40}$	$100\theta_{\text{D}}$	$0.16107^{+0.00068}_{-0.00067}$	$\chi_{\text{BKPLANCK}}^2$	$739.4\ (\nu: 3.5)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$z_{\text{eq}}$	$3405^{+89}_{-89}$	$\chi_{\text{simall}}^2$	$397.0\ (\nu: 1.3)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$	$k_{\text{eq}}$	$0.01039^{+0.00027}_{-0.00027}$	$\chi_{\text{lowl}}^2$	$24.4\ (\nu: 0.7)$
$H_0$	$67.0^{+1.8}_{-1.7}$	$100\theta_{\text{eq}}$	$0.812^{+0.017}_{-0.016}$	$\chi_{\text{CamSpec}}^2$	$7062.5\ (\nu: 13.0)$
$\Omega_{\Lambda}$	$0.681^{+0.024}_{-0.025}$	$100\theta_{\text{s,eq}}$	$0.4490^{+0.0087}_{-0.0084}$	$\chi_{\text{prior}}^2$	$9.2\ (\nu: 7.3)$
$\Omega_{\text{m}}$	$0.319^{+0.025}_{-0.024}$	$H(0.15)$	$72.4^{+1.6}_{-1.5}$	$\chi_{\text{CMB}}^2$	$8232.8\ (\nu: 18.2)$
$\Omega_{\text{m}}h^2$	$0.1431^{+0.0037}_{-0.0037}$	$D_{\text{M}}(0.15)$	$646^{+15}_{-16}$		
$\Omega_{\text{m}}h^3$	$0.0959^{+0.0012}_{-0.0011}$	$H(0.38)$	$82.6^{+1.2}_{-1.1}$		

$\bar{\chi}_{\text{eff}}^2 = 8241.99; R - 1 = 0.00437$



17.61 base\_r\_CamSpecHM\_TT\_lowl\_lowE\_BK15\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02221^{+0.00051}_{-0.00049}$	$S_8$	$0.826^{+0.031}_{-0.030}$	$D_M(0.51)$	$1983^{+26}_{-26}$
$\Omega_c h^2$	$0.1192^{+0.0028}_{-0.0027}$	$\sigma_8 \Omega_m^{0.5}$	$0.452^{+0.017}_{-0.017}$	$H(0.61)$	$95.25^{+0.62}_{-0.59}$
$100\theta_{MC}$	$1.0410^{+0.0011}_{-0.0011}$	$\sigma_8 \Omega_m^{0.25}$	$0.606^{+0.016}_{-0.015}$	$D_M(0.61)$	$2308^{+28}_{-29}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$\sigma_8/h^{0.5}$	$0.986^{+0.023}_{-0.022}$	$H(2.33)$	$235.9^{+1.8}_{-1.8}$
$\ln(10^{10} A_s)$	$3.046^{+0.037}_{-0.030}$	$r_{\text{drag}} h$	$99.6^{+2.2}_{-2.1}$	$D_M(2.33)$	$5767^{+30}_{-31}$
$n_s$	$0.967^{+0.011}_{-0.010}$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.054}_{-0.054}$	$f\sigma_8(0.15)$	$0.457^{+0.016}_{-0.016}$
$r$	$< 0.0824$	$z_{\text{re}}$	$< 9.52$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.013}$
$y_{\text{cal}}$	$1.0009^{+0.0063}_{-0.0062}$	$10^9 A_s$	$2.103^{+0.080}_{-0.062}$	$f\sigma_8(0.38)$	$0.475^{+0.013}_{-0.013}$
$A_{B,\text{dust}}$	$4.9^{+3.2}_{-2.1}$	$10^9 A_s e^{-2\tau}$	$1.878^{+0.028}_{-0.027}$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.011}$
$A_{B,\text{sync}}$	$< 4.95$	$D_{40}$	$1235^{+36}_{-34}$	$f\sigma_8(0.51)$	$0.474^{+0.011}_{-0.011}$
$\alpha_{B,\text{dust}}$	—	$D_{220}$	$5714^{+110}_{-100}$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0099}$
$\beta_{B,\text{dust}}$	$1.60^{+0.25}_{-0.24}$	$D_{810}$	$2536^{+34}_{-34}$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.010}$
$\alpha_{B,\text{sync}}$	—	$D_{1420}$	$816^{+13}_{-13}$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0094}$
$\beta_{B,\text{sync}}$	$-3.10^{+0.67}_{-0.75}$	$D_{2000}$	$230.1^{+4.6}_{-4.5}$	$f\sigma_8(2.33)$	$0.2981^{+0.0059}_{-0.0048}$
$\epsilon_{\text{dust,sync}}$	$< 0.351$	$n_{s,0.002}$	$0.967^{+0.011}_{-0.010}$	$\sigma_8(2.33)$	$0.3073^{+0.0063}_{-0.0050}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-70}$	$Y_{\text{P}}$	$0.24533^{+0.00020}_{-0.00023}$	$r_{0.002}$	$< 0.0768$
$A_{143}^{\text{PS}}$	$40^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24665^{+0.00020}_{-0.00024}$	$r_{0.01}$	$< 0.0795$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30}$	$10^5 \text{D/H}$	$2.616^{+0.096}_{-0.093}$	$\ln(10^{10} A_t)$	$-0.9^{+1.7}_{-3.6}$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20}$	$\text{Age/Gyr}$	$13.807^{+0.070}_{-0.072}$	$r_{10}$	$< 0.0393$
$A_{143}^{\text{tSZ}}$	$< 8.90$	$z_*$	$1090.06^{+0.74}_{-0.74}$	$10^9 A_t$	$< 0.174$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.33}$	$r_*$	$144.76^{+0.73}_{-0.73}$	$10^9 A_t e^{-2\tau}$	$< 0.154$
$r_{143 \times 217}^{\text{CIB}}$	—	$100\theta_*$	$1.0412^{+0.0010}_{-0.0011}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_M(z_*)/\text{Gpc}$	$13.902^{+0.071}_{-0.072}$	$f_{2000}^{217}$	$107.4^{+5.0}_{-5.2}$
$A^{\text{kSZ}}$	—	$z_{\text{drag}}$	$1059.5^{+1.1}_{-1.1}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-6}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.50}$	$r_{\text{drag}}$	$147.48^{+0.80}_{-0.80}$	$\chi_{\text{lensing}}^2$	$9.30 (\nu: 0.2)$
$A_{143}^{\text{dust}}$	$0.97^{+0.45}_{-0.46}$	$k_{\text{D}}$	$0.1403^{+0.0011}_{-0.0011}$	$\chi_{\text{BKPLANCK}}^2$	$739.8 (\nu: 3.4)$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27}$	$100\theta_{\text{D}}$	$0.16103^{+0.00067}_{-0.00065}$	$\chi_{\text{simall}}^2$	$397.4 (\nu: 1.9)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.40}$	$z_{\text{eq}}$	$3380^{+64}_{-64}$	$\chi_{\text{lowl}}^2$	$23.9 (\nu: 0.6)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$k_{\text{eq}}$	$0.01032^{+0.00020}_{-0.00020}$	$\chi_{\text{CamSpec}}^2$	$7062.8 (\nu: 13.0)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0039}$	$100\theta_{\text{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{6\text{DF}}^2$	$0.062 (\nu: 0.0)$
$H_0$	$67.5^{+1.3}_{-1.3}$	$100\theta_{s,\text{eq}}$	$0.4514^{+0.0062}_{-0.0061}$	$\chi_{\text{MGS}}^2$	$1.25 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.688^{+0.017}_{-0.017}$	$H(0.15)$	$72.8^{+1.1}_{-1.1}$	$\chi_{\text{DR12BAO}}^2$	$4.9 (\nu: 1.2)$
$\Omega_{\text{m}}$	$0.312^{+0.017}_{-0.017}$	$D_M(0.15)$	$642^{+11}_{-11}$	$\chi_{\text{prior}}^2$	$9.2 (\nu: 7.3)$
$\Omega_{\text{m}} h^2$	$0.1421^{+0.0027}_{-0.0027}$	$H(0.38)$	$82.92^{+0.86}_{-0.82}$	$\chi_{\text{CMB}}^2$	$8233.1 (\nu: 18.1)$
$\Omega_{\text{m}} h^3$	$0.0959^{+0.0012}_{-0.0011}$	$D_M(0.38)$	$1531^{+22}_{-22}$	$\chi_{\text{BAO}}^2$	$6.2 (\nu: 0.8)$
$\sigma_8$	$0.810^{+0.016}_{-0.014}$	$H(0.51)$	$89.63^{+0.72}_{-0.69}$		

$$\bar{\chi}_{\text{eff}}^2 = 8248.57; R - 1 = 0.00954$$



# 17.62 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_BK15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022276	$0.02228^{+0.00042}_{-0.00041}$ (+0.8 $\sigma$ )	$\Omega_{\mathrm{m}}h^2$	0.14281	$0.1427^{+0.0034}_{-0.0033}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	644.0	$644^{+14}_{-13}$ (−0.7 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11989	$0.1198^{+0.0036}_{-0.0035}$ (−0.6 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09610	$0.09608^{+0.00083}_{-0.00081}$ (+0.4 $\sigma$ )	$H(0.38)$	82.79	$82.82^{+0.98}_{-0.97}$ (+0.7 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04085	$1.04086^{+0.00081}_{-0.00080}$ (+0.2 $\sigma$ )	$\sigma_8$	0.8095	$0.810^{+0.020}_{-0.020}$ (−0.5 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1534.9	$1534^{+27}_{-27}$ (−0.7 $\sigma$ )
$\tau$	0.0530	$0.054^{+0.022}_{-0.021}$ (+0.1 $\sigma$ )	$S_8$	0.8300	$0.829^{+0.042}_{-0.041}$ (−0.6 $\sigma$ )	$H(0.51)$	89.55	$89.57^{+0.78}_{-0.75}$ (+0.7 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0398	$3.041^{+0.045}_{-0.043}$ (−0.0 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4546	$0.454^{+0.023}_{-0.022}$ (−0.6 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1987.7	$1987^{+32}_{-31}$ (−0.7 $\sigma$ )
$n_{\mathrm{s}}$	0.9656	$0.966^{+0.012}_{-0.012}$ (+0.6 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6066	$0.606^{+0.021}_{-0.021}$ (−0.6 $\sigma$ )	$H(0.61)$	95.20	$95.21^{+0.64}_{-0.61}$ (+0.7 $\sigma$ )
$r$	0.0194	< 0.0887 (+0.4 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9868	$0.987^{+0.030}_{-0.031}$ (−0.6 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2312.5	$2311^{+34}_{-34}$ (−0.7 $\sigma$ )
$y_{\mathrm{cal}}$	1.0005	$1.0007^{+0.0064}_{-0.0065}$ (+0.0 $\sigma$ )	$r_{\mathrm{drag}}h$	99.07	$99.2^{+2.7}_{-2.8}$ (+0.6 $\sigma$ )	$H(2.33)$	236.38	$236.3^{+2.2}_{-2.2}$ (−0.5 $\sigma$ )
$A_{B,\mathrm{dust}}$	4.60	$4.9^{+3.2}_{-2.1}$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.439	$2.438^{+0.073}_{-0.074}$ (−0.6 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5768.3	$5768^{+29}_{-29}$ (−0.7 $\sigma$ )
$A_{B,\mathrm{sync}}$	1.49	< 4.92 (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.56	$7.6^{+2.1}_{-2.3}$ (+0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4589	$0.458^{+0.021}_{-0.021}$ (−0.6 $\sigma$ )
$\alpha_{B,\mathrm{dust}}$	−0.50	—	$10^9A_{\mathrm{s}}$	2.090	$2.092^{+0.095}_{-0.088}$ (−0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7477	$0.748^{+0.018}_{-0.018}$ (−0.4 $\sigma$ )
$\beta_{B,\mathrm{dust}}$	1.580	$1.60^{+0.25}_{-0.25}$ (+0.0 $\sigma$ )	$10^9A_{\mathrm{s}}e^{-2\tau}$	1.8801	$1.880^{+0.030}_{-0.030}$ (−0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4763	$0.476^{+0.017}_{-0.017}$ (−0.6 $\sigma$ )
$\alpha_{B,\mathrm{sync}}$	−0.23	—	$D_{40}$	1233.5	$1237^{+38}_{-36}$ (−0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6623	$0.663^{+0.016}_{-0.015}$ (−0.3 $\sigma$ )
$\beta_{B,\mathrm{sync}}$	−3.04	$-3.10^{+0.67}_{-0.73}$ (+0.0 $\sigma$ )	$D_{220}$	5716	$5716^{+100}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4745	$0.474^{+0.015}_{-0.016}$ (−0.6 $\sigma$ )
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	−0.35	< 0.346 (−0.0 $\sigma$ )	$D_{810}$	2535.9	$2536^{+36}_{-35}$ (+0.0 $\sigma$ )	$\sigma_8(0.51)$	0.6196	$0.620^{+0.014}_{-0.014}$ (−0.2 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	235	$239^{+60}_{-60}$ (−0.1 $\sigma$ )	$D_{1420}$	815.9	$816^{+13}_{-13}$ (+0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4692	$0.469^{+0.014}_{-0.014}$ (−0.6 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	39.6	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{2000}$	230.31	$230.4^{+4.3}_{-4.3}$ (+0.4 $\sigma$ )	$\sigma_8(0.61)$	0.5895	$0.590^{+0.014}_{-0.013}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	102.6	$103^{+30}_{-40}$ (+0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9656	$0.966^{+0.012}_{-0.012}$ (+0.6 $\sigma$ )	$f\sigma_8(2.33)$	0.2971	$0.2972^{+0.0069}_{-0.0066}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	44.2	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$Y_{\mathrm{P}}$	0.245357	$0.24536^{+0.00016}_{-0.00019}$ (+0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3061	$0.3063^{+0.0072}_{-0.0068}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	6.51	< 8.81 (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246684	$0.24668^{+0.00016}_{-0.00019}$ (+0.8 $\sigma$ )	$r_{0.002}$	0.0175	< 0.0829 (+0.4 $\sigma$ )
$r_{143\times 217}^{\mathrm{PS}}$	0.601	$0.66^{+0.31}_{-0.33}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.603	$2.604^{+0.079}_{-0.076}$ (−0.8 $\sigma$ )	$r_{0.01}$	0.0184	< 0.0857 (+0.4 $\sigma$ )
$r_{143\times 217}^{\mathrm{CIB}}$	0.76	—	Age/Gyr	13.809	$13.808^{+0.064}_{-0.064}$ (−0.7 $\sigma$ )	$\ln(10^{10}A_{\mathrm{t}})$	−0.90	$-0.7^{+1.6}_{-3.3}$ (+0.3 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.09	—	$z_*$	1090.03	$1090.02^{+0.74}_{-0.72}$ (−0.9 $\sigma$ )	$r_{10}$	0.0089	< 0.0427 (+0.4 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.1	—	$r_*$	144.53	$144.57^{+0.82}_{-0.81}$ (+0.4 $\sigma$ )	$10^9A_{\mathrm{t}}$	0.040	< 0.185 (+0.4 $\sigma$ )
$A_{100}^{\mathrm{dust}}$	1.00	$1.00^{+0.50}_{-0.50}$ (−0.0 $\sigma$ )	$100\theta_*$	1.04104	$1.04105^{+0.00080}_{-0.00079}$ (+0.1 $\sigma$ )	$10^9A_{\mathrm{t}}e^{-2\tau}$	0.036	< 0.167 (+0.4 $\sigma$ )
$A_{143}^{\mathrm{dust}}$	0.972	$0.96^{+0.45}_{-0.45}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.883	$13.887^{+0.077}_{-0.075}$ (+0.4 $\sigma$ )	$f_{2000}^{143}$	30.1	$30^{+7}_{-7}$ (−0.4 $\sigma$ )
$A_{217}^{\mathrm{dust}}$	0.971	$0.98^{+0.27}_{-0.26}$ (+0.1 $\sigma$ )	$z_{\mathrm{drag}}$	1059.70	$1059.70^{+0.88}_{-0.88}$ (+0.8 $\sigma$ )	$f_{2000}^{217}$	106.92	$106.9^{+5.0}_{-5.0}$ (−0.4 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}}$	1.009	$1.03^{+0.42}_{-0.41}$ (−0.0 $\sigma$ )	$r_{\mathrm{drag}}$	147.23	$147.26^{+0.83}_{-0.82}$ (+0.3 $\sigma$ )	$f_{2000}^{143\times 217}$	32.3	$32^{+5}_{-5}$ (−0.4 $\sigma$ )
$c_{100}$	0.99764	$0.9975^{+0.0027}_{-0.0027}$ (+0.0 $\sigma$ )	$k_{\mathrm{D}}$	0.14065	$0.14062^{+0.00093}_{-0.00092}$ (+0.0 $\sigma$ )	$\chi_{\mathrm{BKPLANCK}}^2$	735.5	$739.9(\nu: 3.7)$ (+0.2 $\sigma$ )
$c_{217}$	1.00126	$1.0011^{+0.0040}_{-0.0040}$ (−0.0 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16088	$0.16089^{+0.00052}_{-0.00050}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{small}}^2$	395.96	$397.2(\nu: 1.7)$ (+0.0 $\sigma$ )
$c_{TE}$	0.9966	$0.997^{+0.013}_{-0.013}$	$z_{\mathrm{eq}}$	3397	$3394^{+82}_{-80}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.74	$24.2(\nu: 0.7)$ (−0.3 $\sigma$ )
$c_{EE}$	0.9921	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{eq}}$	0.010369	$0.01036^{+0.00025}_{-0.00024}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{CamSpec}}^2$	11498.9	$11513.5(\nu: 15.6)$ (+838.8 $\sigma$ )
$H_0$	67.29	$67.3^{+1.6}_{-1.6}$ (+0.7 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8139	$0.814^{+0.015}_{-0.015}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	2.2	$9.5(\nu: 7.1)$ (+0.1 $\sigma$ )
$\Omega_{\Lambda}$	0.6846	$0.685^{+0.021}_{-0.023}$ (+0.6 $\sigma$ )	$100\theta_{\mathrm{s},\mathrm{eq}}$	0.4498	$0.4501^{+0.0078}_{-0.0077}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	12654.1	$12674.8(\nu: 20.2)$ (+725.0 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3154	$0.315^{+0.023}_{-0.021}$ (−0.6 $\sigma$ )	$H(0.15)$	72.61	$72.7^{+1.3}_{-1.3}$ (+0.7 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 12656.30$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4449.00$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 12684.27$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.00$ ;  $R - 1 = 0.00430$   
 $\chi_{\mathrm{eff}}^2$ : CMB - BK15\_dust: 735.45 ( $\Delta$  0.50) small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.96 ( $\Delta$  -0.04) commander\_dx12\_v3\_2\_29: 23.74 ( $\Delta$  -0.41) CamSpec like\_10.7HM\_1400\_unified: 11498.91



# 17.63 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_BK15\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022330	$0.02233^{+0.00039}_{-0.00038}$ $(+0.6\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.09609	$0.09608^{+0.00084}_{-0.00080}$ $(+0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	1528.3	$1528^{+20}_{-20}$ $(-0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.11901	$0.1190^{+0.0026}_{-0.0026}$ $(-0.1\sigma)$	$\sigma_8$	0.8079	$0.808^{+0.020}_{-0.019}$ $(-0.1\sigma)$	$H(0.51)$	89.73	$89.73^{+0.62}_{-0.59}$ $(+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	1.04095	$1.04095^{+0.00076}_{-0.00075}$ $(-0.2\sigma)$	$S_8$	0.8213	$0.821^{+0.033}_{-0.032}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	1980.1	$1980^{+23}_{-23}$ $(-0.2\sigma)$
$\tau$	0.0548	$0.055^{+0.022}_{-0.021}$ $(-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4498	$0.450^{+0.018}_{-0.018}$ $(-0.1\sigma)$	$H(0.61)$	95.33	$95.33^{+0.51}_{-0.49}$ $(+0.3\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0415	$3.041^{+0.046}_{-0.043}$ $(-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6028	$0.603^{+0.019}_{-0.018}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	2304.3	$2304^{+25}_{-25}$ $(-0.2\sigma)$
$n_{\mathrm{s}}$	0.9681	$0.968^{+0.010}_{-0.010}$ $(+0.1\sigma)$	$\sigma_8/h^{0.5}$	0.9821	$0.982^{+0.027}_{-0.027}$ $(-0.2\sigma)$	$H(2.33)$	235.87	$235.9^{+1.6}_{-1.6}$ $(+0.1\sigma)$
$r$	0.0213	$< 0.0899$ $(+0.3\sigma)$	$r_{\mathrm{drag}}h$	99.76	$99.8^{+2.0}_{-2.0}$ $(+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	5762.7	$5763^{+24}_{-24}$ $(-0.4\sigma)$
$y_{\mathrm{cal}}$	1.0007	$1.0008^{+0.0062}_{-0.0065}$ $(-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	2.426	$2.427^{+0.066}_{-0.066}$ $(-0.1\sigma)$	$f\sigma_8(0.15)$	0.4545	$0.454^{+0.017}_{-0.017}$ $(-0.1\sigma)$
$A_{B,\mathrm{dust}}$	4.57	$4.9^{+3.2}_{-2.2}$ $(-0.0\sigma)$	$z_{\mathrm{re}}$	7.72	$7.7^{+2.1}_{-2.2}$ $(-0.0\sigma)$	$\sigma_8(0.15)$	0.7467	$0.747^{+0.018}_{-0.017}$ $(-0.1\sigma)$
$A_{B,\mathrm{sync}}$	1.40	$< 4.92$ $(-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	2.094	$2.094^{+0.097}_{-0.088}$ $(-0.0\sigma)$	$f\sigma_8(0.38)$	0.4731	$0.473^{+0.015}_{-0.015}$ $(-0.1\sigma)$
$\alpha_{B,\mathrm{dust}}$	-0.49	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8765	$1.877^{+0.029}_{-0.028}$ $(+0.0\sigma)$	$\sigma_8(0.38)$	0.6621	$0.662^{+0.016}_{-0.015}$ $(-0.1\sigma)$
$\beta_{B,\mathrm{dust}}$	1.580	$1.60^{+0.25}_{-0.25}$ $(+0.1\sigma)$	$D_{40}$	1229.1	$1234^{+36}_{-34}$ $(+0.1\sigma)$	$f\sigma_8(0.51)$	0.4719	$0.472^{+0.014}_{-0.013}$ $(-0.1\sigma)$
$\alpha_{B,\mathrm{sync}}$	-0.35	—	$D_{220}$	5718	$5720^{+100}_{-99}$ $(+0.2\sigma)$	$\sigma_8(0.51)$	0.6197	$0.620^{+0.015}_{-0.014}$ $(-0.1\sigma)$
$\beta_{B,\mathrm{sync}}$	-3.04	$-3.10^{+0.69}_{-0.73}$ $(+0.0\sigma)$	$D_{810}$	2535.9	$2536^{+35}_{-35}$ $(+0.1\sigma)$	$f\sigma_8(0.61)$	0.4671	$0.467^{+0.013}_{-0.013}$ $(-0.1\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	-0.35	$< 0.352$ $(-0.0\sigma)$	$D_{1420}$	816.8	$817^{+12}_{-13}$ $(+0.2\sigma)$	$\sigma_8(0.61)$	0.5897	$0.590^{+0.014}_{-0.013}$ $(-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	233	$239^{+60}_{-60}$ $(-0.1\sigma)$	$D_{2000}$	230.66	$230.6^{+4.2}_{-4.2}$ $(+0.3\sigma)$	$f\sigma_8(2.33)$	0.2974	$0.2973^{+0.0070}_{-0.0066}$ $(-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	38.7	$39^{+20}_{-20}$ $(-0.2\sigma)$	$n_{\mathrm{s},0.002}$	0.9681	$0.968^{+0.010}_{-0.010}$ $(+0.1\sigma)$	$\sigma_8(2.33)$	0.3066	$0.3066^{+0.0073}_{-0.0068}$ $(-0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	102.6	$103^{+30}_{-40}$ $(+0.1\sigma)$	$Y_{\mathrm{P}}$	0.245379	$0.24538^{+0.00015}_{-0.00016}$ $(+0.6\sigma)$	$r_{0.002}$	0.0194	$< 0.0843$ $(+0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	44.1	$39^{+20}_{-20}$ $(-0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246706	$0.24670^{+0.00015}_{-0.00016}$ $(+0.6\sigma)$	$r_{0.01}$	0.0204	$< 0.0870$ $(+0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	6.61	$< 8.78$ $(+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	2.593	$2.594^{+0.073}_{-0.071}$ $(-0.6\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	-0.81	$-0.6^{+1.5}_{-3.3}$ $(+0.2\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	0.594	$0.66^{+0.31}_{-0.34}$ $(+0.1\sigma)$	Age/Gyr	13.796	$13.797^{+0.054}_{-0.055}$ $(-0.4\sigma)$	$r_{10}$	0.0099	$< 0.0433$ $(+0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.77	—	$z_*$	1089.88	$1089.89^{+0.61}_{-0.60}$ $(-0.6\sigma)$	$10^9 A_{\mathrm{t}}$	0.045	$< 0.188$ $(+0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.08	—	$r_*$	144.72	$144.72^{+0.65}_{-0.63}$ $(-0.2\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	0.040	$< 0.168$ $(+0.3\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$100\theta_*$	1.04114	$1.04114^{+0.00075}_{-0.00074}$ $(-0.2\sigma)$	$f_{2000}^{143}$	29.7	$29^{+7}_{-7}$ $(-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	1.01	$1.00^{+0.51}_{-0.50}$ $(-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.900	$13.900^{+0.062}_{-0.060}$ $(-0.2\sigma)$	$f_{2000}^{217}$	106.7	$106.8^{+5.1}_{-4.9}$ $(-0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	0.968	$0.96^{+0.46}_{-0.44}$ $(-0.1\sigma)$	$z_{\mathrm{drag}}$	1059.78	$1059.76^{+0.86}_{-0.86}$ $(+0.6\sigma)$	$f_{2000}^{143 \times 217}$	31.9	$32^{+5}_{-5}$ $(-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	0.972	$0.98^{+0.27}_{-0.27}$ $(+0.1\sigma)$	$r_{\mathrm{drag}}$	147.40	$147.40^{+0.68}_{-0.67}$ $(-0.3\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	735.7	$740.2$ $(\nu: 3.6)$ $(+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	1.004	$1.03^{+0.42}_{-0.40}$ $(+0.0\sigma)$	$k_{\mathrm{D}}$	0.14051	$0.14050^{+0.00085}_{-0.00084}$ $(+0.5\sigma)$	$\chi_{\mathrm{small}}^2$	396.16	$397.3$ $(\nu: 1.9)$ $(+0.0\sigma)$
$c_{100}$	0.99763	$0.9975^{+0.0027}_{-0.0027}$ $(+0.0\sigma)$	$100\theta_{\mathrm{D}}$	0.160851	$0.16086^{+0.00049}_{-0.00049}$ $(-0.7\sigma)$	$\chi_{\mathrm{lowl}}^2$	23.32	$23.8$ $(\nu: 0.6)$ $(+0.1\sigma)$
$c_{217}$	1.00128	$1.0011^{+0.0039}_{-0.0040}$ $(-0.0\sigma)$	$z_{\mathrm{eq}}$	3378	$3378^{+60}_{-60}$ $(+0.0\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	11499.2	$11513.4$ $(\nu: 15.5)$ $(+848.2\sigma)$
$c_{TE}$	0.9966	$0.997^{+0.013}_{-0.013}$	$k_{\mathrm{eq}}$	0.010309	$0.01031^{+0.00018}_{-0.00018}$ $(+0.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	0.022	$0.048$ $(\nu: 0.0)$ $(-0.2\sigma)$
$c_{EE}$	0.9923	$0.992^{+0.013}_{-0.012}$	$100\theta_{\mathrm{eq}}$	0.8176	$0.818^{+0.012}_{-0.011}$ $(+0.0\sigma)$	$\chi_{\mathrm{MGS}}^2$	1.28	$1.33$ $(\nu: 0.1)$ $(+0.1\sigma)$
$H_0$	67.68	$67.7^{+1.2}_{-1.2}$ $(+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4517	$0.4517^{+0.0059}_{-0.0057}$ $(-0.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	4.23	$4.6$ $(\nu: 0.9)$ $(-0.1\sigma)$
$\Omega_{\Lambda}$	0.6900	$0.690^{+0.015}_{-0.016}$ $(+0.1\sigma)$	$H(0.15)$	72.94	$72.9^{+1.0}_{-0.99}$ $(+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	2.3	$9.5$ $(\nu: 7.2)$ $(+0.1\sigma)$
$\Omega_{\mathrm{m}}$	0.3100	$0.310^{+0.016}_{-0.015}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	640.7	$641^{+10}_{-9.8}$ $(-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	5.54	$6.0$ $(\nu: 0.5)$ $(-0.2\sigma)$
$\Omega_{\mathrm{m}}h^2$	0.14199	$0.1420^{+0.0025}_{-0.0025}$ $(+0.0\sigma)$	$H(0.38)$	83.03	$83.02^{+0.75}_{-0.73}$ $(+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	12654.4	$12674.7$ $(\nu: 19.9)$ $(+739.7\sigma)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 12662.21$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4448.18$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 12690.24$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.44$ ;  $R - 1 = 0.00669$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.02 ( $\Delta$  -0.01) MGS: 1.28 ( $\Delta$  0.06) DR12BAO: 4.24 ( $\Delta$  -0.14) CMB - BK15\_dust: 735.72 ( $\Delta$  0.09) small.100x143\_offlike5\_EE\_Aplanck\_B: 396.17 ( $\Delta$  -0.02) commander\_dx12.v3.2.29: 23.32 ( $\Delta$  -0.15) CamSpec like\_10.7HM.1400\_unified: 11499.19



17.64 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_BK15\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022288	$0.02228^{+0.00042}_{-0.00041}$ $(+0.7\sigma)$	$\Omega_{\mathrm{m}}h^2$	0.14281	$0.1427^{+0.0029}_{-0.0030}$ $(-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	643.8	$644^{+12}_{-12}$ $(-0.5\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.11988	$0.1198^{+0.0031}_{-0.0031}$ $(-0.4\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.09613	$0.09608^{+0.00083}_{-0.00079}$ $(+0.4\sigma)$	$H(0.38)$	82.81	$82.82^{+0.90}_{-0.86}$ $(+0.6\sigma)$
$100\theta_{\mathrm{MC}}$	1.04086	$1.04085^{+0.00080}_{-0.00077}$ $(+0.0\sigma)$	$\sigma_8$	0.8100	$0.810^{+0.016}_{-0.015}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	1534.5	$1534^{+24}_{-24}$ $(-0.5\sigma)$
$\tau$	0.0534	$0.054^{+0.021}_{-0.019}$ $(+0.2\sigma)$	$S_8$	0.8303	$0.830^{+0.033}_{-0.033}$ $(-0.5\sigma)$	$H(0.51)$	89.56	$89.57^{+0.72}_{-0.68}$ $(+0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0412	$3.042^{+0.040}_{-0.037}$ $(+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4548	$0.455^{+0.018}_{-0.018}$ $(-0.5\sigma)$	$D_{\mathrm{M}}(0.51)$	1987.3	$1987^{+28}_{-29}$ $(-0.5\sigma)$
$n_{\mathrm{s}}$	0.9657	$0.966^{+0.011}_{-0.011}$ $(+0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6070	$0.607^{+0.017}_{-0.017}$ $(-0.5\sigma)$	$H(0.61)$	95.21	$95.21^{+0.60}_{-0.56}$ $(+0.6\sigma)$
$r$	0.0192	$< 0.0878$ $(+0.3\sigma)$	$\sigma_8/h^{0.5}$	0.9873	$0.987^{+0.023}_{-0.023}$ $(-0.5\sigma)$	$D_{\mathrm{M}}(0.61)$	2312.0	$2312^{+30}_{-31}$ $(-0.6\sigma)$
$y_{\mathrm{cal}}$	1.0007	$1.0008^{+0.0063}_{-0.0065}$ $(+0.0\sigma)$	$r_{\mathrm{drag}}h$	99.09	$99.2^{+2.5}_{-2.4}$ $(+0.5\sigma)$	$H(2.33)$	236.39	$236.3^{+1.9}_{-1.9}$ $(-0.3\sigma)$
$A_{B,\mathrm{dust}}$	4.62	$4.9^{+3.2}_{-2.1}$ $(-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	2.440	$2.440^{+0.057}_{-0.057}$ $(-0.4\sigma)$	$D_{\mathrm{M}}(2.33)$	5767.6	$5768^{+27}_{-28}$ $(-0.6\sigma)$
$A_{B,\mathrm{sync}}$	1.43	$< 4.94$ $(-0.0\sigma)$	$z_{\mathrm{re}}$	7.60	$7.7^{+1.9}_{-2.1}$ $(+0.1\sigma)$	$f\sigma_8(0.15)$	0.4591	$0.459^{+0.017}_{-0.017}$ $(-0.5\sigma)$
$\alpha_{B,\mathrm{dust}}$	-0.51	—	$10^9 A_{\mathrm{s}}$	2.093	$2.096^{+0.085}_{-0.077}$ $(+0.1\sigma)$	$\sigma_8(0.15)$	0.7482	$0.748^{+0.014}_{-0.014}$ $(-0.2\sigma)$
$\beta_{B,\mathrm{dust}}$	1.580	$1.60^{+0.25}_{-0.25}$ $(+0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8811	$1.880^{+0.028}_{-0.028}$ $(-0.2\sigma)$	$f\sigma_8(0.38)$	0.4766	$0.476^{+0.013}_{-0.014}$ $(-0.5\sigma)$
$\alpha_{B,\mathrm{sync}}$	-0.35	—	$D_{40}$	1234.0	$1238^{+36}_{-33}$ $(-0.0\sigma)$	$\sigma_8(0.38)$	0.6628	$0.663^{+0.013}_{-0.012}$ $(-0.1\sigma)$
$\beta_{B,\mathrm{sync}}$	-3.04	$-3.10^{+0.67}_{-0.73}$ $(+0.0\sigma)$	$D_{220}$	5720	$5719^{+100}_{-100}$ $(+0.3\sigma)$	$f\sigma_8(0.51)$	0.4747	$0.475^{+0.012}_{-0.012}$ $(-0.4\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	-0.36	$< 0.341$ $(-0.0\sigma)$	$D_{810}$	2537.4	$2537^{+35}_{-35}$ $(+0.1\sigma)$	$\sigma_8(0.51)$	0.6201	$0.620^{+0.012}_{-0.011}$ $(-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	234	$240^{+60}_{-60}$ $(-0.1\sigma)$	$D_{1420}$	816.5	$816^{+12}_{-13}$ $(+0.3\sigma)$	$f\sigma_8(0.61)$	0.4695	$0.469^{+0.011}_{-0.011}$ $(-0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	42.9	$40^{+20}_{-20}$ $(-0.2\sigma)$	$D_{2000}$	230.52	$230.4^{+4.3}_{-4.2}$ $(+0.4\sigma)$	$\sigma_8(0.61)$	0.5899	$0.590^{+0.012}_{-0.011}$ $(+0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	102.9	$103^{+30}_{-30}$ $(+0.1\sigma)$	$n_{\mathrm{s},0.002}$	0.9657	$0.966^{+0.011}_{-0.011}$ $(+0.4\sigma)$	$f\sigma_8(2.33)$	0.2973	$0.2974^{+0.0062}_{-0.0057}$ $(+0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	44.0	$40^{+20}_{-20}$ $(-0.2\sigma)$	$Y_{\mathrm{P}}$	0.245362	$0.24536^{+0.00016}_{-0.00018}$ $(+0.7\sigma)$	$\sigma_8(2.33)$	0.3063	$0.3065^{+0.0068}_{-0.0061}$ $(+0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	6.56	$< 8.76$ $(+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246689	$0.24668^{+0.00016}_{-0.00018}$ $(+0.7\sigma)$	$r_{0.002}$	0.0173	$< 0.0821$ $(+0.3\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	0.632	$0.66^{+0.31}_{-0.33}$ $(+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	2.601	$2.603^{+0.078}_{-0.076}$ $(-0.8\sigma)$	$r_{0.01}$	0.0182	$< 0.0850$ $(+0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.82	—	Age/Gyr	13.807	$13.808^{+0.061}_{-0.062}$ $(-0.6\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	-0.91	$-0.7^{+1.6}_{-3.3}$ $(+0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.29	—	$z_*$	1090.01	$1090.02^{+0.69}_{-0.68}$ $(-0.7\sigma)$	$r_{10}$	0.0088	$< 0.0421$ $(+0.3\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$r_*$	144.53	$144.56^{+0.72}_{-0.71}$ $(+0.2\sigma)$	$10^9 A_{\mathrm{t}}$	0.040	$< 0.184$ $(+0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	1.00	$1.00^{+0.51}_{-0.49}$ $(-0.0\sigma)$	$100\theta_*$	1.04105	$1.04104^{+0.00079}_{-0.00076}$ $(+0.0\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	0.036	$< 0.165$ $(+0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	0.981	$0.96^{+0.46}_{-0.44}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.883	$13.886^{+0.068}_{-0.067}$ $(+0.2\sigma)$	$f_{2000}^{143}$	30.0	$30^{+7}_{-7}$ $(-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	0.973	$0.98^{+0.27}_{-0.27}$ $(+0.1\sigma)$	$z_{\mathrm{drag}}$	1059.74	$1059.71^{+0.87}_{-0.84}$ $(+0.7\sigma)$	$f_{2000}^{217}$	106.8	$106.9^{+5.1}_{-4.9}$ $(-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	1.001	$1.03^{+0.42}_{-0.41}$ $(-0.0\sigma)$	$r_{\mathrm{drag}}$	147.21	$147.25^{+0.75}_{-0.73}$ $(+0.0\sigma)$	$f_{2000}^{143 \times 217}$	32.1	$32^{+5}_{-5}$ $(-0.4\sigma)$
$c_{100}$	0.99768	$0.9975^{+0.0027}_{-0.0027}$ $(+0.0\sigma)$	$k_{\mathrm{D}}$	0.14067	$0.14062^{+0.00087}_{-0.00087}$ $(+0.3\sigma)$	$\chi_{\mathrm{lensing}}^2$	8.85	$9.29$ ( $\nu$ : 0.2) $(-0.3\sigma)$
$c_{217}$	1.00130	$1.0011^{+0.0039}_{-0.0039}$ $(-0.0\sigma)$	$100\theta_{\mathrm{D}}$	0.16087	$0.16088^{+0.00052}_{-0.00051}$ $(-0.8\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	735.4	$739.9$ ( $\nu$ : 3.5) $(+0.2\sigma)$
$c_{TE}$	0.9964	$0.997^{+0.012}_{-0.013}$	$z_{\mathrm{eq}}$	3397	$3394^{+70}_{-71}$ $(-0.4\sigma)$	$\chi_{\mathrm{small}}^2$	396.01	$397.2$ ( $\nu$ : 1.5) $(+0.1\sigma)$
$c_{EE}$	0.9919	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{eq}}$	0.010369	$0.01036^{+0.00021}_{-0.00022}$ $(-0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	23.74	$24.2$ ( $\nu$ : 0.7) $(-0.1\sigma)$
$H_0$	67.31	$67.3^{+1.4}_{-1.4}$ $(+0.5\sigma)$	$100\theta_{\mathrm{eq}}$	0.8139	$0.814^{+0.014}_{-0.013}$ $(+0.4\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	11498.9	$11513.1$ ( $\nu$ : 15.1) $(+866.7\sigma)$
$\Omega_{\Lambda}$	0.6848	$0.685^{+0.019}_{-0.020}$ $(+0.5\sigma)$	$100\theta_{\mathrm{s},\mathrm{eq}}$	0.4498	$0.4500^{+0.0069}_{-0.0066}$ $(+0.4\sigma)$	$\chi_{\mathrm{prior}}^2$	2.3	$9.4$ ( $\nu$ : 7.1) $(+0.1\sigma)$
$\Omega_{\mathrm{m}}$	0.3152	$0.315^{+0.020}_{-0.019}$ $(-0.5\sigma)$	$H(0.15)$	72.63	$72.7^{+1.2}_{-1.2}$ $(+0.5\sigma)$	$\chi_{\mathrm{CMB}}^2$	12662.9	$12683.6$ ( $\nu$ : 20.2) $(+727.0\sigma)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 12665.14$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4448.71$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 12693.08$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.84$ ;  $R - 1 = 0.00549$

$\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.85 ( $\Delta$  -0.16) BK15\_dust: 735.41 ( $\Delta$  0.24) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.01 ( $\Delta$  0.00) com-mander\_dx12\_v3\_2.29: 23.74 ( $\Delta$  -0.25) CamSpec like\_10.7HM\_1400\_unified: 11498.88



17.65 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_BK15\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022314	$0.02233^{+0.00040}_{-0.00038}$ (+0.6 $\sigma$ )	$\sigma_8$	0.8091	$0.809^{+0.016}_{-0.015}$ (−0.1 $\sigma$ )	$D_M(0.51)$	1982.5	$1981^{+22}_{-22}$ (−0.3 $\sigma$ )
$\Omega_c h^2$	0.11928	$0.1191^{+0.0024}_{-0.0024}$ (−0.1 $\sigma$ )	$S_8$	0.8247	$0.824^{+0.027}_{-0.027}$ (−0.2 $\sigma$ )	$H(0.61)$	95.288	$95.32^{+0.51}_{-0.48}$ (+0.3 $\sigma$ )
$100\theta_{MC}$	1.04091	$1.04094^{+0.00076}_{-0.00075}$ (−0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4517	$0.451^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )	$D_M(0.61)$	2306.9	$2305^{+24}_{-24}$ (−0.3 $\sigma$ )
$\tau$	0.0547	$0.056^{+0.020}_{-0.019}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6046	$0.604^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )	$H(2.33)$	236.03	$235.9^{+1.5}_{-1.5}$ (+0.0 $\sigma$ )
$\ln(10^{10} A_s)$	3.0431	$3.045^{+0.040}_{-0.037}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9845	$0.984^{+0.022}_{-0.022}$ (−0.2 $\sigma$ )	$D_M(2.33)$	5764.5	$5763^{+23}_{-24}$ (−0.4 $\sigma$ )
$n_s$	0.9670	$0.967^{+0.010}_{-0.0099}$ (+0.2 $\sigma$ )	$r_{drag} h$	99.54	$99.7^{+1.9}_{-1.9}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4563	$0.456^{+0.014}_{-0.014}$ (−0.2 $\sigma$ )
$r$	0.0197	< 0.0890 (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.433	$2.433^{+0.052}_{-0.053}$ (−0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7477	$0.748^{+0.015}_{-0.014}$ (−0.1 $\sigma$ )
$y_{cal}$	1.0010	$1.0009^{+0.0062}_{-0.0065}$ (−0.0 $\sigma$ )	$z_{re}$	7.72	$7.8^{+1.9}_{-2.0}$ (−0.0 $\sigma$ )	$f\sigma_8(0.38)$	0.4746	$0.474^{+0.012}_{-0.012}$ (−0.2 $\sigma$ )
$A_{B,dust}$	4.62	$4.9^{+3.2}_{-2.2}$ (−0.0 $\sigma$ )	$10^9 A_s$	2.097	$2.101^{+0.085}_{-0.076}$ (+0.0 $\sigma$ )	$\sigma_8(0.38)$	0.6627	$0.663^{+0.013}_{-0.012}$ (−0.1 $\sigma$ )
$A_{B,sync}$	1.48	< 4.93 (−0.0 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8796	$1.878^{+0.027}_{-0.027}$ (−0.0 $\sigma$ )	$f\sigma_8(0.51)$	0.4731	$0.473^{+0.011}_{-0.011}$ (−0.2 $\sigma$ )
$\alpha_{B,dust}$	−0.50	—	$D_{40}$	1232.4	$1236^{+35}_{-33}$ (+0.1 $\sigma$ )	$\sigma_8(0.51)$	0.6202	$0.621^{+0.013}_{-0.012}$ (−0.1 $\sigma$ )
$\beta_{B,dust}$	1.579	$1.60^{+0.25}_{-0.25}$ (+0.1 $\sigma$ )	$D_{220}$	5725	$5724^{+100}_{-99}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4682	$0.468^{+0.010}_{-0.010}$ (−0.2 $\sigma$ )
$\alpha_{B,sync}$	−0.22	—	$D_{810}$	2538.2	$2537^{+34}_{-34}$ (+0.1 $\sigma$ )	$\sigma_8(0.61)$	0.5901	$0.591^{+0.012}_{-0.011}$ (−0.1 $\sigma$ )
$\beta_{B,sync}$	−3.04	$-3.10^{+0.68}_{-0.72}$ (+0.0 $\sigma$ )	$D_{1420}$	817.1	$817^{+12}_{-13}$ (+0.2 $\sigma$ )	$f\sigma_8(2.33)$	0.2975	$0.2978^{+0.0061}_{-0.0057}$ (−0.0 $\sigma$ )
$\epsilon_{dust,sync}$	−0.34	< 0.346 (−0.0 $\sigma$ )	$D_{2000}$	230.72	$230.7^{+4.1}_{-4.1}$ (+0.3 $\sigma$ )	$\sigma_8(2.33)$	0.3067	$0.3071^{+0.0065}_{-0.0061}$ (−0.0 $\sigma$ )
$A_{100}^{PS}$	234	$239^{+60}_{-60}$ (−0.1 $\sigma$ )	$n_{s,0.002}$	0.9670	$0.967^{+0.010}_{-0.0099}$ (+0.2 $\sigma$ )	$r_{0.002}$	0.0179	< 0.0833 (+0.3 $\sigma$ )
$A_{143}^{PS}$	40.5	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$Y_P$	0.245373	$0.24538^{+0.00015}_{-0.00016}$ (+0.6 $\sigma$ )	$r_{0.01}$	0.0188	< 0.0861 (+0.3 $\sigma$ )
$A_{217}^{PS}$	103.0	$103^{+30}_{-30}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246699	$0.24670^{+0.00015}_{-0.00016}$ (+0.6 $\sigma$ )	$\ln(10^{10} A_t)$	−0.88	$-0.7^{+1.6}_{-3.2}$ (+0.2 $\sigma$ )
$A_{217}^{CIB}$	44.1	$39^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^5 D/H$	2.596	$2.594^{+0.072}_{-0.071}$ (−0.6 $\sigma$ )	$r_{10}$	0.0091	< 0.0427 (+0.3 $\sigma$ )
$A_{143}^{tSZ}$	6.54	< 8.79 (+0.1 $\sigma$ )	Age/Gyr	13.800	$13.798^{+0.054}_{-0.054}$ (−0.4 $\sigma$ )	$10^9 A_t$	0.041	< 0.187 (+0.3 $\sigma$ )
$r_{143 \times 217}^{PS}$	0.609	$0.66^{+0.31}_{-0.34}$ (+0.1 $\sigma$ )	$z_*$	1089.93	$1089.90^{+0.60}_{-0.59}$ (−0.6 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.037	< 0.167 (+0.3 $\sigma$ )
$r_{143 \times 217}^{CIB}$	0.79	—	$r_*$	144.66	$144.69^{+0.60}_{-0.59}$ (−0.2 $\sigma$ )	$f_{2000}^{143}$	29.9	$29^{+7}_{-7}$ (−0.3 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.16	—	$100\theta_*$	1.04110	$1.04113^{+0.00074}_{-0.00074}$ (−0.2 $\sigma$ )	$f_{2000}^{217}$	106.9	$106.8^{+5.1}_{-4.9}$ (−0.3 $\sigma$ )
$A^{kSZ}$	0.0	—	$D_M(z_*)/\text{Gpc}$	13.895	$13.898^{+0.058}_{-0.056}$ (−0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.0	$32^{+5}_{-5}$ (−0.3 $\sigma$ )
$A_{100}^{dust}$	1.01	$1.00^{+0.51}_{-0.49}$ (−0.0 $\sigma$ )	$z_{drag}$	1059.74	$1059.77^{+0.85}_{-0.83}$ (+0.6 $\sigma$ )	$\chi^2_{lensing}$	8.87	$9.25 (\nu: 0.2)$ (−0.1 $\sigma$ )
$A_{143}^{dust}$	0.972	$0.96^{+0.46}_{-0.44}$ (−0.1 $\sigma$ )	$r_{drag}$	147.34	$147.37^{+0.65}_{-0.63}$ (−0.3 $\sigma$ )	$\chi^2_{BKPLANCK}$	735.6	$740.0 (\nu: 3.5)$ (+0.1 $\sigma$ )
$A_{217}^{dust}$	0.973	$0.98^{+0.27}_{-0.27}$ (+0.1 $\sigma$ )	$k_D$	0.14056	$0.14053^{+0.00082}_{-0.00083}$ (+0.5 $\sigma$ )	$\chi^2_{small}$	396.18	$397.4 (\nu: 1.9)$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{dust}$	1.003	$1.03^{+0.42}_{-0.40}$ (+0.0 $\sigma$ )	$100\theta_D$	0.160857	$0.16085^{+0.00049}_{-0.00050}$ (−0.7 $\sigma$ )	$\chi^2_{lowl}$	23.52	$24.0 (\nu: 0.6)$ (+0.1 $\sigma$ )
$c_{100}$	0.99766	$0.9975^{+0.0027}_{-0.0027}$ (+0.0 $\sigma$ )	$z_{eq}$	3384	$3380^{+55}_{-56}$ (−0.0 $\sigma$ )	$\chi^2_{CamSpec}$	11498.9	$11512.9 (\nu: 15.0)$ (+867.9 $\sigma$ )
$c_{217}$	1.00128	$1.0011^{+0.0039}_{-0.0040}$ (−0.0 $\sigma$ )	$k_{eq}$	0.010327	$0.01032^{+0.00017}_{-0.00017}$ (−0.0 $\sigma$ )	$\chi^2_{6DF}$	0.037	$0.050 (\nu: 0.0)$ (−0.2 $\sigma$ )
$c_{TE}$	0.9966	$0.997^{+0.013}_{-0.013}$	$100\theta_{eq}$	0.8165	$0.817^{+0.011}_{-0.010}$ (+0.1 $\sigma$ )	$\chi^2_{MGS}$	1.16	$1.28 (\nu: 0.1)$ (+0.1 $\sigma$ )
$c_{EE}$	0.9925	$0.992^{+0.013}_{-0.012}$	$100\theta_{s,eq}$	0.4511	$0.4514^{+0.0054}_{-0.0053}$ (+0.0 $\sigma$ )	$\chi^2_{DR12BAO}$	4.60	$4.7 (\nu: 0.8)$ (−0.1 $\sigma$ )
$H_0$	67.56	$67.6^{+1.1}_{-1.1}$ (+0.2 $\sigma$ )	$H(0.15)$	72.84	$72.90^{+0.97}_{-0.94}$ (+0.2 $\sigma$ )	$\chi^2_{prior}$	2.3	$9.4 (\nu: 7.2)$ (+0.1 $\sigma$ )
$\Omega_\Lambda$	0.6883	$0.689^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )	$D_M(0.15)$	641.7	$641.1^{+9.4}_{-9.5}$ (−0.2 $\sigma$ )	$\chi^2_{CMB}$	12663.0	$12683.6 (\nu: 20.2)$ (+734.6 $\sigma$ )
$\Omega_m$	0.3117	$0.311^{+0.015}_{-0.015}$ (−0.2 $\sigma$ )	$H(0.38)$	82.95	$83.00^{+0.72}_{-0.70}$ (+0.3 $\sigma$ )	$\chi^2_{BAO}$	5.79	$6.1 (\nu: 0.5)$ (−0.2 $\sigma$ )
$\Omega_m h^2$	0.14224	$0.1421^{+0.0023}_{-0.0024}$ (−0.0 $\sigma$ )	$D_M(0.38)$	1530.4	$1529^{+19}_{-19}$ (−0.2 $\sigma$ )			
$\Omega_m h^3$	0.09609	$0.09610^{+0.00084}_{-0.00080}$ (+0.3 $\sigma$ )	$H(0.51)$	89.67	$89.71^{+0.59}_{-0.57}$ (+0.3 $\sigma$ )			

Best-fit  $\chi^2_{\text{eff}} = 12671.15$ ;  $\Delta\chi^2_{\text{eff}} = 4448.15$ ;  $\bar{\chi}^2_{\text{eff}} = 12699.13$ ;  $\Delta\bar{\chi}^2_{\text{eff}} = 4450.41$ ;  $R - 1 = 0.00878$   
 $\chi^2_{\text{eff}}$ : BAO - 6DF: 0.04 ( $\Delta$  -0.01) MGS: 1.16 ( $\Delta$  0.06) DR12BAO: 4.59 ( $\Delta$  -0.18) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp-p-teb\_consext8: 8.87 ( $\Delta$  -0.03) BK15-dust: 735.58 ( $\Delta$  -0.03) simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.18 ( $\Delta$  -0.01) commander\_dx12\_v3.2.29: 23.52 ( $\Delta$  0.02) CamSpec like\_10.7HM\_1400\_unified: 11498.90



17.66 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_BK15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02228^{+0.00042}_{-0.00041} \quad (+0.8\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1426^{+0.0034}_{-0.0033} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+14}_{-13} \quad (-0.7\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0036}_{-0.0035} \quad (-0.6\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09608^{+0.00083}_{-0.00081} \quad (+0.4\sigma)$	$H(0.38)$	$82.84^{+0.98}_{-0.97} \quad (+0.7\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04086^{+0.00081}_{-0.00081} \quad (+0.1\sigma)$	$\sigma_8$	$0.811^{+0.019}_{-0.017} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.38)$	$1534^{+27}_{-26} \quad (-0.7\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.1\sigma)$	$S_8$	$0.830^{+0.042}_{-0.041} \quad (-0.6\sigma)$	$H(0.51)$	$89.58^{+0.78}_{-0.76} \quad (+0.7\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.043}_{-0.030} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.454^{+0.023}_{-0.022} \quad (-0.6\sigma)$	$D_{\mathrm{M}}(0.51)$	$1986^{+32}_{-31} \quad (-0.7\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.012}_{-0.012} \quad (+0.5\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.021}_{-0.021} \quad (-0.6\sigma)$	$H(0.61)$	$95.22^{+0.64}_{-0.61} \quad (+0.7\sigma)$
$r$	$< 0.0885 \quad (+0.4\sigma)$	$\sigma_8/h^{0.5}$	$0.988^{+0.030}_{-0.029} \quad (-0.6\sigma)$	$D_{\mathrm{M}}(0.61)$	$2311^{+34}_{-33} \quad (-0.7\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0064}_{-0.0065} \quad (+0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.2^{+2.7}_{-2.8} \quad (+0.6\sigma)$	$H(2.33)$	$236.3^{+2.2}_{-2.2} \quad (-0.5\sigma)$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.1} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.440^{+0.071}_{-0.070} \quad (-0.6\sigma)$	$D_{\mathrm{M}}(2.33)$	$5767^{+28}_{-29} \quad (-0.7\sigma)$
$A_{B,\mathrm{sync}}$	$< 4.93 \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.50 \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.021}_{-0.021} \quad (-0.6\sigma)$
$\alpha_{B,\mathrm{dust}}$	—	$10^9A_{\mathrm{s}}$	$2.098^{+0.091}_{-0.062} \quad (-0.1\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.017}_{-0.014} \quad (-0.4\sigma)$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25} \quad (+0.0\sigma)$	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.880^{+0.031}_{-0.030} \quad (-0.4\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.017}_{-0.017} \quad (-0.6\sigma)$
$\alpha_{B,\mathrm{sync}}$	—	$D_{40}$	$1237^{+37}_{-36} \quad (-0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.015}_{-0.012} \quad (-0.3\sigma)$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.67}_{-0.73} \quad (+0.0\sigma)$	$D_{220}$	$5716^{+100}_{-100} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.015}_{-0.015} \quad (-0.6\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.342 \quad (-0.0\sigma)$	$D_{810}$	$2536^{+36}_{-35} \quad (+0.0\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.010} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.014}_{-0.013} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{2000}$	$230.4^{+4.3}_{-4.2} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.0097} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-40} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.012}_{-0.012} \quad (+0.5\sigma)$	$f\sigma_8(2.33)$	$0.2976^{+0.0066}_{-0.0046} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$Y_{\mathrm{P}}$	$0.24536^{+0.00016}_{-0.00018} \quad (+0.8\sigma)$	$\sigma_8(2.33)$	$0.3067^{+0.0070}_{-0.0048} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.83 \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24668^{+0.00016}_{-0.00018} \quad (+0.8\sigma)$	$r_{0.002}$	$< 0.0828 \quad (+0.4\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$10^5\mathrm{D}/\mathrm{H}$	$2.603^{+0.078}_{-0.076} \quad (-0.8\sigma)$	$r_{0.01}$	$< 0.0856 \quad (+0.4\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.807^{+0.064}_{-0.064} \quad (-0.7\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.7^{+1.6}_{-3.3} \quad (+0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_*$	$1090.01^{+0.74}_{-0.72} \quad (-0.8\sigma)$	$r_{10}$	$< 0.0424 \quad (+0.4\sigma)$
$A^{\mathrm{kSZ}}$	—	$r_*$	$144.57^{+0.82}_{-0.81} \quad (+0.4\sigma)$	$10^9A_{\mathrm{t}}$	$< 0.186 \quad (+0.4\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.50}_{-0.50} \quad (-0.0\sigma)$	$100\theta_*$	$1.04105^{+0.00080}_{-0.00080} \quad (+0.1\sigma)$	$10^9A_{\mathrm{t}}e^{-2\tau}$	$< 0.166 \quad (+0.4\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.45} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.887^{+0.077}_{-0.075} \quad (+0.4\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.71^{+0.87}_{-0.84} \quad (+0.7\sigma)$	$f_{2000}^{217}$	$106.8^{+4.9}_{-4.9} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}$	$147.27^{+0.82}_{-0.82} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$k_{\mathrm{D}}$	$0.14061^{+0.00093}_{-0.00093} \quad (+0.0\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.9 \quad (\nu: 3.7) \quad (+0.2\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040} \quad (-0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16088^{+0.00051}_{-0.00050} \quad (-0.8\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.7) \quad (+0.0\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$z_{\mathrm{eq}}$	$3393^{+81}_{-80} \quad (-0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.2 \quad (\nu: 0.7) \quad (-0.3\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{eq}}$	$0.01036^{+0.00025}_{-0.00024} \quad (-0.5\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.4 \quad (\nu: 15.5) \quad (+842.8\sigma)$
$H_0$	$67.4^{+1.6}_{-1.6} \quad (+0.7\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.015}_{-0.015} \quad (+0.6\sigma)$	$\chi_{\mathrm{prior}}^2$	$9.5 \quad (\nu: 7.1) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.686^{+0.021}_{-0.023} \quad (+0.6\sigma)$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4501^{+0.0078}_{-0.0077} \quad (+0.5\sigma)$	$\chi_{\mathrm{CMB}}^2$	$12674.6 \quad (\nu: 19.8) \quad (+734.6\sigma)$
$\Omega_{\mathrm{m}}$	$0.314^{+0.023}_{-0.021} \quad (-0.6\sigma)$	$H(0.15)$	$72.7^{+1.3}_{-1.4} \quad (+0.7\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12684.04; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.03; R - 1 = 0.00482$$



17.67 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_BK15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02233^{+0.00039}_{-0.00038} \quad (+0.6\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09609^{+0.00085}_{-0.00081} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1528^{+20}_{-20} \quad (-0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1190^{+0.0026}_{-0.0027} \quad (-0.1\sigma)$	$\sigma_8$	$0.809^{+0.019}_{-0.015} \quad (-0.1\sigma)$	$H(0.51)$	$89.73^{+0.62}_{-0.59} \quad (+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00076}_{-0.00075} \quad (-0.2\sigma)$	$S_8$	$0.822^{+0.033}_{-0.032} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1980^{+23}_{-23} \quad (-0.2\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$H(0.61)$	$95.34^{+0.52}_{-0.49} \quad (+0.3\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.044}_{-0.030} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2304^{+25}_{-25} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.010}_{-0.010} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.026}_{-0.024} \quad (-0.1\sigma)$	$H(2.33)$	$235.9^{+1.6}_{-1.6} \quad (+0.1\sigma)$
$r$	$< 0.0900 \quad (+0.3\sigma)$	$r_{\mathrm{drag}}h$	$99.8^{+2.0}_{-2.0} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5763^{+24}_{-24} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0008^{+0.0062}_{-0.0065} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.064}_{-0.059} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.017}_{-0.016} \quad (-0.1\sigma)$
$A_{B,\mathrm{dust}}$	$4.9^{+3.3}_{-2.1} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.58 \quad (-0.0\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.017}_{-0.013} \quad (-0.1\sigma)$
$A_{B,\mathrm{sync}}$	$< 4.92 \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.098^{+0.093}_{-0.063} \quad (+0.0\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.015}_{-0.014} \quad (-0.1\sigma)$
$\alpha_{B,\mathrm{dust}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.877^{+0.029}_{-0.028} \quad (+0.0\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.015}_{-0.011} \quad (-0.1\sigma)$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25} \quad (+0.1\sigma)$	$D_{40}$	$1234^{+36}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.013}_{-0.012} \quad (-0.1\sigma)$
$\alpha_{B,\mathrm{sync}}$	—	$D_{220}$	$5720^{+100}_{-99} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.014}_{-0.010} \quad (-0.1\sigma)$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.69}_{-0.72} \quad (+0.0\sigma)$	$D_{810}$	$2536^{+34}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.350 \quad (-0.0\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.2\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.014}_{-0.0096} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{2000}$	$230.6^{+4.2}_{-4.2} \quad (+0.3\sigma)$	$f\sigma_8(2.33)$	$0.2976^{+0.0069}_{-0.0047} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$n_{\mathrm{s},0.002}$	$0.968^{+0.010}_{-0.010} \quad (+0.1\sigma)$	$\sigma_8(2.33)$	$0.3069^{+0.0071}_{-0.0049} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-40} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$r_{0.002}$	$< 0.0845 \quad (+0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$r_{0.01}$	$< 0.0871 \quad (+0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.80 \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.594^{+0.072}_{-0.071} \quad (-0.6\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.6^{+1.5}_{-3.3} \quad (+0.2\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.797^{+0.054}_{-0.055} \quad (-0.4\sigma)$	$r_{10}$	$< 0.0434 \quad (+0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$z_*$	$1089.89^{+0.61}_{-0.60} \quad (-0.6\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.189 \quad (+0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$r_*$	$144.72^{+0.65}_{-0.63} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.169 \quad (+0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$100\theta_*$	$1.04114^{+0.00075}_{-0.00074} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.50}_{-0.50} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.901^{+0.062}_{-0.060} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.7^{+5.1}_{-4.9} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.45} \quad (-0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.76^{+0.85}_{-0.82} \quad (+0.6\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.41^{+0.68}_{-0.68} \quad (-0.3\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	$740.1 \quad (\nu: 3.5) \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.40} \quad (+0.0\sigma)$	$k_{\mathrm{D}}$	$0.14050^{+0.00085}_{-0.00084} \quad (+0.5\sigma)$	$\chi_{\mathrm{small}}^2$	$397.3 \quad (\nu: 2.0) \quad (+0.0\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16086^{+0.00049}_{-0.00049} \quad (-0.7\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.9 \quad (\nu: 0.6) \quad (+0.1\sigma)$
$c_{217}$	$1.0011^{+0.0039}_{-0.0040} \quad (-0.0\sigma)$	$z_{\mathrm{eq}}$	$3377^{+60}_{-61} \quad (+0.0\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.3 \quad (\nu: 15.4) \quad (+855.2\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00018}_{-0.00019} \quad (+0.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.047 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.011} \quad (+0.0\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.34 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$H_0$	$67.7^{+1.2}_{-1.2} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4517^{+0.0059}_{-0.0057} \quad (-0.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 0.9) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.015}_{-0.016} \quad (+0.1\sigma)$	$H(0.15)$	$72.9^{+1.0}_{-0.99} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$9.5 \quad (\nu: 7.2) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.015} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$641^{+10}_{-9.7} \quad (-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.0 \quad (\nu: 0.5) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0025}_{-0.0025} \quad (+0.0\sigma)$	$H(0.38)$	$83.03^{+0.75}_{-0.73} \quad (+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$12674.5 \quad (\nu: 19.6) \quad (+749.0\sigma)$
$\bar{\chi}_{\mathrm{eff}}^2 = 12690.02; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.45; R - 1 = 0.00713$					



## 17.68 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_BK15\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02228^{+0.00042}_{-0.00040} \quad (+0.7\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1426^{+0.0029}_{-0.0029} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+12}_{-12} \quad (-0.5\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0031}_{-0.0031} \quad (-0.4\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09608^{+0.00083}_{-0.00080} \quad (+0.4\sigma)$	$H(0.38)$	$82.84^{+0.89}_{-0.86} \quad (+0.5\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04086^{+0.00079}_{-0.00078} \quad (+0.0\sigma)$	$\sigma_8$	$0.811^{+0.015}_{-0.014} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1534^{+24}_{-24} \quad (-0.5\sigma)$
$\tau$	$0.055^{+0.018}_{-0.013} \quad (+0.2\sigma)$	$S_8$	$0.830^{+0.033}_{-0.033} \quad (-0.5\sigma)$	$H(0.51)$	$89.58^{+0.72}_{-0.68} \quad (+0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.038}_{-0.028} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.018}_{-0.018} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.51)$	$1986^{+28}_{-28} \quad (-0.5\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.017}_{-0.016} \quad (-0.4\sigma)$	$H(0.61)$	$95.22^{+0.59}_{-0.56} \quad (+0.6\sigma)$
$r$	$< 0.0878 \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.988^{+0.023}_{-0.023} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	$2311^{+30}_{-30} \quad (-0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0008^{+0.0063}_{-0.0065} \quad (+0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.2^{+2.4}_{-2.4} \quad (+0.4\sigma)$	$H(2.33)$	$236.3^{+1.8}_{-1.9} \quad (-0.3\sigma)$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.1} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.056}_{-0.055} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(2.33)$	$5767^{+27}_{-28} \quad (-0.6\sigma)$
$A_{B,\mathrm{sync}}$	$< 4.94 \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.45 \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.017}_{-0.017} \quad (-0.5\sigma)$
$\alpha_{B,\mathrm{dust}}$	—	$10^9A_{\mathrm{s}}$	$2.100^{+0.082}_{-0.058} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.012} \quad (-0.2\sigma)$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25} \quad (+0.0\sigma)$	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.880^{+0.027}_{-0.027} \quad (-0.1\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.013}_{-0.013} \quad (-0.4\sigma)$
$\alpha_{B,\mathrm{sync}}$	—	$D_{40}$	$1238^{+35}_{-33} \quad (-0.0\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.012}_{-0.010} \quad (-0.1\sigma)$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.67}_{-0.73} \quad (+0.0\sigma)$	$D_{220}$	$5719^{+100}_{-100} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.012}_{-0.012} \quad (-0.4\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.336 \quad (-0.0\sigma)$	$D_{810}$	$2536^{+34}_{-35} \quad (+0.1\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0092} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+12}_{-13} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.010} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{2000}$	$230.4^{+4.3}_{-4.2} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0087} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-40} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$f\sigma_8(2.33)$	$0.2977^{+0.0060}_{-0.0044} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$Y_{\mathrm{P}}$	$0.24536^{+0.00016}_{-0.00018} \quad (+0.7\sigma)$	$\sigma_8(2.33)$	$0.3068^{+0.0066}_{-0.0047} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.77 \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00016}_{-0.00018} \quad (+0.7\sigma)$	$r_{0.002}$	$< 0.0820 \quad (+0.3\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$10^5\mathrm{D}/\mathrm{H}$	$2.602^{+0.077}_{-0.076} \quad (-0.7\sigma)$	$r_{0.01}$	$< 0.0850 \quad (+0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.807^{+0.061}_{-0.062} \quad (-0.6\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.7^{+1.6}_{-3.3} \quad (+0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_*$	$1090.00^{+0.69}_{-0.67} \quad (-0.7\sigma)$	$r_{10}$	$< 0.0421 \quad (+0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$r_*$	$144.57^{+0.72}_{-0.70} \quad (+0.1\sigma)$	$10^9A_{\mathrm{t}}$	$< 0.184 \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.51}_{-0.49} \quad (-0.0\sigma)$	$100\theta_*$	$1.04105^{+0.00079}_{-0.00077} \quad (-0.0\sigma)$	$10^9A_{\mathrm{t}}e^{-2\tau}$	$< 0.165 \quad (+0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.45} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.887^{+0.067}_{-0.066} \quad (+0.1\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.71^{+0.87}_{-0.85} \quad (+0.7\sigma)$	$f_{2000}^{217}$	$106.9^{+5.0}_{-4.9} \quad (-0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.40} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}$	$147.27^{+0.74}_{-0.73} \quad (-0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$k_{\mathrm{D}}$	$0.14062^{+0.00086}_{-0.00087} \quad (+0.3\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.25 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0039}_{-0.0039} \quad (-0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16088^{+0.00052}_{-0.00051} \quad (-0.7\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.8 \quad (\nu: 3.5) \quad (+0.2\sigma)$
$c_{TE}$	$0.997^{+0.012}_{-0.012}$	$z_{\mathrm{eq}}$	$3393^{+69}_{-70} \quad (-0.3\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.6) \quad (+0.1\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{eq}}$	$0.01036^{+0.00021}_{-0.00021} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.2 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$H_0$	$67.4^{+1.4}_{-1.4} \quad (+0.5\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.013}_{-0.013} \quad (+0.4\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.0 \quad (\nu: 15.0) \quad (+871.3\sigma)$
$\Omega_{\Lambda}$	$0.686^{+0.019}_{-0.019} \quad (+0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4502^{+0.0069}_{-0.0066} \quad (+0.4\sigma)$	$\chi_{\mathrm{prior}}^2$	$9.4 \quad (\nu: 7.1) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.314^{+0.019}_{-0.019} \quad (-0.5\sigma)$	$H(0.15)$	$72.7^{+1.2}_{-1.2} \quad (+0.5\sigma)$	$\chi_{\mathrm{CMB}}^2$	$12683.5 \quad (\nu: 20.0) \quad (+737.1\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 12692.90; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.91; R - 1 = 0.00651$$



17.69 base\_r\_CamSpecHM\_TTTEE\_lowl\_lowE\_BK15\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02233^{+0.00039}_{-0.00038} \quad (+0.6\sigma)$	$\sigma_8$	$0.810^{+0.016}_{-0.014} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1981^{+22}_{-22} \quad (-0.3\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0024}_{-0.0024} \quad (-0.1\sigma)$	$S_8$	$0.824^{+0.027}_{-0.027} \quad (-0.2\sigma)$	$H(0.61)$	$95.32^{+0.50}_{-0.47} \quad (+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04094^{+0.00076}_{-0.00075} \quad (-0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.015}_{-0.015} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2305^{+24}_{-24} \quad (-0.3\sigma)$
$\tau$	$0.057^{+0.018}_{-0.014} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.014}_{-0.014} \quad (-0.2\sigma)$	$H(2.33)$	$235.9^{+1.5}_{-1.5} \quad (+0.0\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.039}_{-0.029} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.021}_{-0.021} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5763^{+23}_{-24} \quad (-0.4\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.010}_{-0.0098} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}h$	$99.7^{+1.9}_{-1.8} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.014}_{-0.014} \quad (-0.2\sigma)$
$r$	$< 0.0892 \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.434^{+0.052}_{-0.051} \quad (-0.1\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.012} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0062}_{-0.0065} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.55 \quad (-0.0\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.012}_{-0.012} \quad (-0.2\sigma)$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.2} \quad (+0.0\sigma)$	$10^9A_{\mathrm{s}}$	$2.103^{+0.083}_{-0.061} \quad (+0.0\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.010} \quad (-0.1\sigma)$
$A_{B,\mathrm{sync}}$	$< 4.93 \quad (-0.0\sigma)$	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.027}_{-0.026} \quad (-0.0\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.010} \quad (-0.2\sigma)$
$\alpha_{B,\mathrm{dust}}$	—	$D_{40}$	$1236^{+35}_{-33} \quad (+0.1\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0096} \quad (-0.1\sigma)$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.25} \quad (+0.1\sigma)$	$D_{220}$	$5724^{+100}_{-99} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.010}_{-0.0096} \quad (-0.2\sigma)$
$\alpha_{B,\mathrm{sync}}$	—	$D_{810}$	$2537^{+34}_{-35} \quad (+0.1\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.0091} \quad (-0.1\sigma)$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.68}_{-0.72} \quad (+0.0\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0060}_{-0.0047} \quad (-0.0\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.342 \quad (-0.0\sigma)$	$D_{2000}$	$230.7^{+4.1}_{-4.1} \quad (+0.3\sigma)$	$\sigma_8(2.33)$	$0.3073^{+0.0065}_{-0.0049} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.967^{+0.010}_{-0.0098} \quad (+0.1\sigma)$	$r_{0.002}$	$< 0.0834 \quad (+0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$r_{0.01}$	$< 0.0862 \quad (+0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.7^{+1.6}_{-3.2} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$10^5\mathrm{D}/\mathrm{H}$	$2.594^{+0.072}_{-0.071} \quad (-0.6\sigma)$	$r_{10}$	$< 0.0427 \quad (+0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.80 \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.797^{+0.054}_{-0.055} \quad (-0.4\sigma)$	$10^9A_{\mathrm{t}}$	$< 0.188 \quad (+0.3\sigma)$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$z_*$	$1089.90^{+0.59}_{-0.58} \quad (-0.6\sigma)$	$10^9A_{\mathrm{t}}e^{-2\tau}$	$< 0.167 \quad (+0.3\sigma)$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$r_*$	$144.70^{+0.60}_{-0.59} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.3\sigma)$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$100\theta_*$	$1.04113^{+0.00074}_{-0.00074} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.8^{+5.1}_{-4.9} \quad (-0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.898^{+0.057}_{-0.056} \quad (-0.2\sigma)$	$f_{2000}^{143\times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.51}_{-0.49} \quad (-0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.77^{+0.85}_{-0.83} \quad (+0.6\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.21 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.44} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}$	$147.38^{+0.65}_{-0.64} \quad (-0.3\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	$740.0 \quad (\nu: 3.5) \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14053^{+0.00082}_{-0.00082} \quad (+0.5\sigma)$	$\chi_{\mathrm{small}}^2$	$397.4 \quad (\nu: 2.0) \quad (+0.0\sigma)$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.40} \quad (+0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00049}_{-0.00050} \quad (-0.7\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.0 \quad (\nu: 0.6) \quad (+0.1\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$z_{\mathrm{eq}}$	$3380^{+55}_{-56} \quad (-0.0\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11512.9 \quad (\nu: 15.0) \quad (+871.3\sigma)$
$c_{217}$	$1.0011^{+0.0039}_{-0.0040} \quad (-0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01032^{+0.00017}_{-0.00017} \quad (-0.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.049 \quad (\nu: 0.0) \quad (-0.2\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.012}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.011}_{-0.010} \quad (+0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.29 \quad (\nu: 0.1) \quad (+0.1\sigma)$
$c_{EE}$	$0.992^{+0.012}_{-0.012}$	$100\theta_{\mathrm{s,eq}}$	$0.4515^{+0.0054}_{-0.0052} \quad (+0.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$H_0$	$67.6^{+1.1}_{-1.1} \quad (+0.2\sigma)$	$H(0.15)$	$72.91^{+0.97}_{-0.93} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$9.4 \quad (\nu: 7.2) \quad (+0.1\sigma)$
$\Omega_{\Lambda}$	$0.689^{+0.015}_{-0.015} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$641.0^{+9.4}_{-9.4} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$12683.5 \quad (\nu: 20.0) \quad (+740.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.015}_{-0.015} \quad (-0.2\sigma)$	$H(0.38)$	$83.01^{+0.72}_{-0.69} \quad (+0.3\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.03 \quad (\nu: 0.5) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1421^{+0.0023}_{-0.0023} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1529^{+19}_{-19} \quad (-0.2\sigma)$		
$\Omega_{\mathrm{m}}h^3$	$0.09610^{+0.00084}_{-0.00081} \quad (+0.3\sigma)$	$H(0.51)$	$89.71^{+0.59}_{-0.56} \quad (+0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12699.00; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.43; R - 1 = 0.00924$$



# 17.70 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_BK15\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022382	$0.02236^{+0.00037}_{-0.00037}$ $(+1.2\sigma)$	$\Omega_{\Lambda}$	0.6841	$0.684^{+0.019}_{-0.019}$ $(+0.4\sigma)$	$H(0.15)$	72.65	$72.6^{+1.2}_{-1.2}$ $(+0.5\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.12011	$0.1201^{+0.0031}_{-0.0031}$ $(-0.2\sigma)$	$\Omega_{\mathrm{m}}$	0.3159	$0.316^{+0.019}_{-0.019}$ $(-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	643.7	$644^{+12}_{-12}$ $(-0.5\sigma)$
$100\theta_{\mathrm{MC}}$	1.04089	$1.04091^{+0.00081}_{-0.00078}$ $(+0.3\sigma)$	$\Omega_{\mathrm{m}}h^2$	0.14313	$0.1431^{+0.0029}_{-0.0029}$ $(-0.1\sigma)$	$H(0.38)$	82.84	$82.83^{+0.90}_{-0.84}$ $(+0.6\sigma)$
$\tau$	0.0546	$0.055^{+0.020}_{-0.019}$ $(+0.3\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.09635	$0.09632^{+0.00075}_{-0.00075}$ $(+1.0\sigma)$	$D_{\mathrm{M}}(0.38)$	1534.1	$1535^{+23}_{-24}$ $(-0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0456	$3.046^{+0.039}_{-0.036}$ $(+0.3\sigma)$	$\sigma_8$	0.8123	$0.812^{+0.016}_{-0.015}$ $(+0.1\sigma)$	$H(0.51)$	89.61	$89.60^{+0.71}_{-0.66}$ $(+0.7\sigma)$
$n_{\mathrm{s}}$	0.9659	$0.965^{+0.011}_{-0.010}$ $(+0.4\sigma)$	$S_8$	0.8334	$0.834^{+0.033}_{-0.033}$ $(-0.3\sigma)$	$D_{\mathrm{M}}(0.51)$	1986.6	$1987^{+27}_{-28}$ $(-0.6\sigma)$
$r$	0.0153	$< 0.0802$ $(+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4565	$0.457^{+0.018}_{-0.018}$ $(-0.3\sigma)$	$H(0.61)$	95.27	$95.26^{+0.58}_{-0.54}$ $(+0.8\sigma)$
$y_{\mathrm{cal}}$	1.0006	$1.0009^{+0.0063}_{-0.0062}$ $(+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6089	$0.609^{+0.016}_{-0.016}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	2311.1	$2312^{+29}_{-30}$ $(-0.6\sigma)$
$A_{B,\mathrm{dust}}$	4.62	$4.9^{+3.2}_{-2.1}$ $(-0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9900	$0.990^{+0.023}_{-0.023}$ $(-0.2\sigma)$	$H(2.33)$	236.64	$236.6^{+1.8}_{-1.8}$ $(+0.0\sigma)$
$A_{B,\mathrm{sync}}$	1.44	$< 4.94$ $(+0.0\sigma)$	$r_{\mathrm{drag}}h$	98.99	$99.0^{+2.4}_{-2.3}$ $(+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	5763.7	$5765^{+25}_{-27}$ $(-0.9\sigma)$
$\alpha_{B,\mathrm{dust}}$	-0.51	—	$\langle d^2 \rangle^{1/2}$	2.446	$2.448^{+0.056}_{-0.056}$ $(-0.1\sigma)$	$f\sigma_8(0.15)$	0.4607	$0.461^{+0.017}_{-0.017}$ $(-0.2\sigma)$
$\beta_{B,\mathrm{dust}}$	1.576	$1.60^{+0.25}_{-0.24}$ $(-0.0\sigma)$	$z_{\mathrm{re}}$	7.71	$7.7^{+1.9}_{-2.0}$ $(+0.2\sigma)$	$\sigma_8(0.15)$	0.7501	$0.750^{+0.014}_{-0.014}$ $(+0.2\sigma)$
$\alpha_{B,\mathrm{sync}}$	-0.39	—	$10^9 A_{\mathrm{s}}$	2.102	$2.103^{+0.083}_{-0.075}$ $(+0.3\sigma)$	$f\sigma_8(0.38)$	0.4781	$0.478^{+0.013}_{-0.013}$ $(-0.2\sigma)$
$\beta_{B,\mathrm{sync}}$	-3.03	$-3.10^{+0.68}_{-0.73}$ $(-0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8846	$1.885^{+0.028}_{-0.028}$ $(+0.0\sigma)$	$\sigma_8(0.38)$	0.6645	$0.664^{+0.013}_{-0.012}$ $(+0.3\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	-0.34	$< 0.372$ $(+0.0\sigma)$	$D_{40}$	1235.1	$1241^{+33}_{-32}$ $(-0.0\sigma)$	$f\sigma_8(0.51)$	0.4762	$0.476^{+0.012}_{-0.012}$ $(-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	46.8	$47^{+20}_{-20}$ $(-0.2\sigma)$	$D_{220}$	5732	$5735^{+99}_{-97}$ $(+0.5\sigma)$	$\sigma_8(0.51)$	0.6216	$0.622^{+0.012}_{-0.011}$ $(+0.3\sigma)$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.48	—	$D_{810}$	2541.4	$2541^{+34}_{-34}$ $(+0.3\sigma)$	$f\sigma_8(0.61)$	0.4709	$0.471^{+0.011}_{-0.011}$ $(-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	7.15	$5.5^{+4.3}_{-4.8}$ $(+0.2\sigma)$	$D_{1420}$	818.4	$818^{+12}_{-12}$ $(+0.6\sigma)$	$\sigma_8(0.61)$	0.5914	$0.591^{+0.011}_{-0.011}$ $(+0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	250	$259^{+70}_{-70}$ $(-0.2\sigma)$	$D_{2000}$	231.31	$231.0^{+4.1}_{-4.0}$ $(+0.8\sigma)$	$f\sigma_8(2.33)$	0.2980	$0.2980^{+0.0059}_{-0.0056}$ $(+0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	48.2	$46^{+20}_{-20}$ $(-0.4\sigma)$	$n_{\mathrm{s},0.002}$	0.9659	$0.965^{+0.011}_{-0.010}$ $(+0.4\sigma)$	$\sigma_8(2.33)$	0.3070	$0.3070^{+0.0064}_{-0.0060}$ $(+0.4\sigma)$
$A_{143\times 217}^{\mathrm{PS}}$	48.7	$42^{+20}_{-20}$ $(-0.1\sigma)$	$Y_{\mathrm{P}}$	0.245400	$0.24539^{+0.00014}_{-0.00015}$ $(+1.1\sigma)$	$r_{0.002}$	0.0138	$< 0.0743$ $(+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	120.4	$115^{+30}_{-30}$ $(+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246727	$0.24671^{+0.00014}_{-0.00015}$ $(+1.1\sigma)$	$r_{0.01}$	0.0145	$< 0.0771$ $(+0.1\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$10^5\mathrm{D}/\mathrm{H}$	2.583	$2.588^{+0.070}_{-0.066}$ $(-1.2\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	-1.14	$-0.9^{+1.7}_{-3.5}$ $(+0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	8.76	$8.9^{+4.7}_{-4.7}$ $(-0.0\sigma)$	Age/Gyr	13.797	$13.799^{+0.057}_{-0.060}$ $(-0.9\sigma)$	$r_{10}$	0.0070	$< 0.0381$ $(+0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	10.97	$10.9^{+4.6}_{-4.6}$ $(+0.1\sigma)$	$z_{*}$	1089.91	$1089.95^{+0.66}_{-0.64}$ $(-1.0\sigma)$	$10^9 A_{\mathrm{t}}$	0.032	$< 0.168$ $(+0.1\sigma)$
$A_{143\times 217}^{\mathrm{dust}TT}$	19.8	$18.5^{+8.4}_{-8.6}$ $(+0.1\sigma)$	$r_{*}$	144.39	$144.41^{+0.67}_{-0.68}$ $(-0.3\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	0.029	$< 0.151$ $(+0.1\sigma)$
$A_{217}^{\mathrm{dust}TT}$	95.2	$94^{+20}_{-20}$ $(+0.0\sigma)$	$100\theta_{*}$	1.04107	$1.04110^{+0.00080}_{-0.00077}$ $(+0.2\sigma)$	$f_{2000}^{143}$	28.8	$30^{+7}_{-7}$ $(-0.6\sigma)$
$A_{100}^{\mathrm{dust}TE}$	0.116	$0.115^{+0.098}_{-0.096}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	13.870	$13.871^{+0.064}_{-0.065}$ $(-0.3\sigma)$	$f_{2000}^{143\times 217}$	31.95	$32^{+5}_{-5}$ $(-0.7\sigma)$
$A_{100\times 143}^{\mathrm{dust}TE}$	0.135	$0.135^{+0.075}_{-0.076}$	$z_{\mathrm{drag}}$	1059.97	$1059.91^{+0.74}_{-0.74}$ $(+1.2\sigma)$	$f_{2000}^{217}$	106.59	$107.1^{+4.5}_{-4.5}$ $(-0.6\sigma)$
$A_{100\times 217}^{\mathrm{dust}TE}$	0.481	$0.48^{+0.22}_{-0.22}$	$r_{\mathrm{drag}}$	147.05	$147.08^{+0.68}_{-0.68}$ $(-0.5\sigma)$	$\chi_{\mathrm{lensing}}^2$	8.86	$9.28$ $(\nu: 0.3)$ $(-0.3\sigma)$
$A_{143}^{\mathrm{dust}TE}$	0.223	$0.23^{+0.14}_{-0.14}$	$k_{\mathrm{D}}$	0.14092	$0.14087^{+0.00076}_{-0.00077}$ $(+0.8\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	735.4	$739.6$ $(\nu: 3.4)$ $(+0.1\sigma)$
$A_{143\times 217}^{\mathrm{dust}TE}$	0.664	$0.67^{+0.21}_{-0.20}$	$100\theta_{\mathrm{D}}$	0.160733	$0.16077^{+0.00045}_{-0.00044}$ $(-1.2\sigma)$	$\chi_{\mathrm{small}}^2$	396.18	$397.2$ $(\nu: 1.6)$ $(+0.1\sigma)$
$A_{217}^{\mathrm{dust}TE}$	2.08	$2.09^{+0.69}_{-0.69}$	$z_{\mathrm{eq}}$	3405	$3405^{+69}_{-68}$ $(-0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	23.79	$24.4$ $(\nu: 0.6)$ $(-0.2\sigma)$
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ $(+0.1\sigma)$	$k_{\mathrm{eq}}$	0.010392	$0.01039^{+0.00021}_{-0.00021}$ $(-0.1\sigma)$	$\chi_{\mathrm{plik}}^2$	2344.5	$2359.0$ $(\nu: 15.8)$ $(+303.9\sigma)$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ $(-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	0.8128	$0.813^{+0.013}_{-0.013}$ $(+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	1.7	$13.2$ $(\nu: 11.7)$ $(+1.1\sigma)$
$H_0$	67.32	$67.3^{+1.4}_{-1.4}$ $(+0.5\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4491	$0.4491^{+0.0067}_{-0.0066}$ $(+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	3508.7	$3529.5$ $(\nu: 20.8)$ $(+258.4\sigma)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 3510.40$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1586.09$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 3542.67$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.32$ ;  $R - 1 = 0.00459$   
 $\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.86 ( $\Delta$  -0.12) BK15.dust: 735.35 ( $\Delta$  0.14) small\_100x143.offlike5\_EE\_Aplanck.B: 396.18 ( $\Delta$  0.18) com-  
mander\_dx12\_v3\_2\_29: 23.79 ( $\Delta$  -0.28) plik\_rd12\_HM\_v22b.TTTEEE: 2344.50



17.71 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_BK15\_lensing\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022426	$0.02241^{+0.00035}_{-0.00034}$ (+1.1 $\sigma$ )	$\Omega_m h^2$	0.14249	$0.1425^{+0.0023}_{-0.0023}$ (+0.4 $\sigma$ )	$H(0.51)$	89.76	$89.75^{+0.59}_{-0.56}$ (+0.6 $\sigma$ )
$\Omega_c h^2$	0.11941	$0.1194^{+0.0024}_{-0.0024}$ (+0.2 $\sigma$ )	$\Omega_m h^3$	0.09637	$0.09633^{+0.00075}_{-0.00076}$ (+1.0 $\sigma$ )	$D_M(0.51)$	1980.4	$1981^{+22}_{-22}$ (−0.4 $\sigma$ )
$100\theta_{MC}$	1.04100	$1.04100^{+0.00077}_{-0.00077}$ (+0.1 $\sigma$ )	$\sigma_8$	0.8111	$0.811^{+0.016}_{-0.015}$ (+0.2 $\sigma$ )	$H(0.61)$	95.384	$95.38^{+0.49}_{-0.46}$ (+0.7 $\sigma$ )
$\tau$	0.0560	$0.057^{+0.020}_{-0.018}$ (+0.2 $\sigma$ )	$S_8$	0.8265	$0.827^{+0.027}_{-0.027}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2304.4	$2305^{+24}_{-24}$ (−0.4 $\sigma$ )
$\ln(10^{10} A_s)$	3.0474	$3.048^{+0.039}_{-0.037}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4527	$0.453^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )	$H(2.33)$	236.24	$236.2^{+1.5}_{-1.5}$ (+0.5 $\sigma$ )
$n_s$	0.9675	$0.9668^{+0.0094}_{-0.0095}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6060	$0.606^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5758.9	$5759^{+23}_{-23}$ (−0.8 $\sigma$ )
$r$	0.0181	< 0.0824 (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9863	$0.987^{+0.022}_{-0.021}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4573	$0.457^{+0.014}_{-0.014}$ (+0.1 $\sigma$ )
$y_{cal}$	1.0010	$1.0010^{+0.0062}_{-0.0063}$ (+0.0 $\sigma$ )	$r_{drag}h$	99.54	$99.6^{+1.9}_{-1.8}$ (−0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7495	$0.750^{+0.014}_{-0.014}$ (+0.2 $\sigma$ )
$A_{B,dust}$	4.61	$4.9^{+3.2}_{-2.1}$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.438	$2.440^{+0.053}_{-0.052}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4756	$0.476^{+0.012}_{-0.012}$ (+0.1 $\sigma$ )
$A_{B,sync}$	1.44	< 4.99 (−0.0 $\sigma$ )	$z_{re}$	7.83	$7.9^{+1.9}_{-1.9}$ (+0.1 $\sigma$ )	$\sigma_8(0.38)$	0.6644	$0.664^{+0.013}_{-0.012}$ (+0.2 $\sigma$ )
$\alpha_{B,dust}$	−0.50	—	$10^9 A_s$	2.106	$2.108^{+0.083}_{-0.077}$ (+0.2 $\sigma$ )	$f\sigma_8(0.51)$	0.4742	$0.474^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )
$\beta_{B,dust}$	1.578	$1.60^{+0.25}_{-0.24}$ (−0.0 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8829	$1.882^{+0.027}_{-0.027}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6217	$0.622^{+0.012}_{-0.012}$ (+0.2 $\sigma$ )
$\alpha_{B,sync}$	−0.34	—	$D_{40}$	1233.5	$1239^{+32}_{-31}$ (+0.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4693	$0.469^{+0.010}_{-0.010}$ (+0.2 $\sigma$ )
$\beta_{B,sync}$	−3.04	$-3.10^{+0.68}_{-0.73}$ (+0.0 $\sigma$ )	$D_{220}$	5739	$5740^{+98}_{-95}$ (+0.4 $\sigma$ )	$\sigma_8(0.61)$	0.5916	$0.592^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )
$\epsilon_{dust,sync}$	−0.34	< 0.357 (−0.0 $\sigma$ )	$D_{810}$	2542.6	$2541^{+34}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(2.33)$	0.2983	$0.2983^{+0.0059}_{-0.0056}$ (+0.2 $\sigma$ )
$A_{217}^{CIB}$	47.4	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	819.3	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(2.33)$	0.3075	$0.3076^{+0.0063}_{-0.0060}$ (+0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.40	—	$D_{2000}$	231.65	$231.3^{+4.1}_{-3.9}$ (+0.7 $\sigma$ )	$r_{0.002}$	0.0164	< 0.0772 (+0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.24	$5.5^{+4.4}_{-4.5}$ (+0.2 $\sigma$ )	$n_{s,0.002}$	0.9675	$0.9668^{+0.0094}_{-0.0095}$ (+0.2 $\sigma$ )	$r_{0.01}$	0.0173	< 0.0798 (+0.1 $\sigma$ )
$A_{100}^{PS}$	251	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$Y_P$	0.245417	$0.24541^{+0.00013}_{-0.00014}$ (+1.1 $\sigma$ )	$\ln(10^{10} A_t)$	−0.96	$-0.9^{+1.7}_{-3.5}$ (+0.1 $\sigma$ )
$A_{143}^{PS}$	46.7	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$Y_P^{BBN}$	0.246744	$0.24674^{+0.00013}_{-0.00014}$ (+1.1 $\sigma$ )	$r_{10}$	0.0084	< 0.0396 (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	46.4	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^5 D/H$	2.575	$2.579^{+0.065}_{-0.063}$ (−1.1 $\sigma$ )	$10^9 A_t$	0.038	< 0.173 (+0.1 $\sigma$ )
$A_{217}^{PS}$	119.4	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	Age/Gyr	13.787	$13.788^{+0.051}_{-0.052}$ (−0.8 $\sigma$ )	$10^9 A_t e^{-2\tau}$	0.034	< 0.155 (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$z_*$	1089.80	$1089.82^{+0.57}_{-0.54}$ (−0.9 $\sigma$ )	$f_{2000}^{143}$	28.7	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{dustTT}$	8.84	$8.9^{+4.7}_{-4.7}$ (+0.0 $\sigma$ )	$r_*$	144.54	$144.56^{+0.56}_{-0.56}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.89	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{143}^{dustTT}$	11.04	$10.9^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$100\theta_*$	1.04118	$1.04118^{+0.00075}_{-0.00076}$ (+0.1 $\sigma$ )	$f_{2000}^{217}$	106.69	$106.9^{+4.5}_{-4.5}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.8	$18.6^{+8.2}_{-8.5}$ (+0.1 $\sigma$ )	$D_M(z_*)/\text{Gpc}$	13.882	$13.884^{+0.055}_{-0.054}$ (−0.7 $\sigma$ )	$\chi_{lensing}^2$	8.74	9.10 ( $\nu$ : 0.2) (−0.2 $\sigma$ )
$A_{217}^{dustTT}$	95.0	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_{drag}$	1060.01	$1059.98^{+0.75}_{-0.74}$ (+1.2 $\sigma$ )	$\chi_{BKPLANCK}^2$	735.5	739.8 ( $\nu$ : 3.4) (+0.0 $\sigma$ )
$A_{100}^{dustTE}$	0.115	$0.115^{+0.098}_{-0.095}$	$r_{drag}$	147.19	$147.21^{+0.59}_{-0.58}$ (−0.9 $\sigma$ )	$\chi_{simall}^2$	396.42	397.5 ( $\nu$ : 2.0) (+0.1 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.075}_{-0.074}$	$k_D$	0.14081	$0.14077^{+0.00071}_{-0.00072}$ (+1.1 $\sigma$ )	$\chi_{lowl}^2$	23.54	24.1 ( $\nu$ : 0.5) (+0.0 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.479	$0.48^{+0.22}_{-0.22}$	$100\theta_D$	0.160713	$0.16074^{+0.00043}_{-0.00043}$ (−1.2 $\sigma$ )	$\chi_{plik}^2$	2344.7	2359.0 ( $\nu$ : 15.7) (+299.2 $\sigma$ )
$A_{143}^{dustTE}$	0.226	$0.23^{+0.14}_{-0.14}$	$z_{eq}$	3390	$3389^{+55}_{-55}$ (+0.4 $\sigma$ )	$\chi_{6DF}^2$	0.037	0.058 ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.666	$0.67^{+0.21}_{-0.21}$	$k_{eq}$	0.010345	$0.01034^{+0.00017}_{-0.00017}$ (+0.4 $\sigma$ )	$\chi_{MGS}^2$	1.16	1.22 ( $\nu$ : 0.1) (−0.0 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.70}$	$100\theta_{eq}$	0.8158	$0.816^{+0.010}_{-0.010}$ (−0.2 $\sigma$ )	$\chi_{DR12BAO}^2$	4.61	4.9 ( $\nu$ : 1.0) (−0.0 $\sigma$ )
$c_{100}$	0.99969	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4506	$0.4507^{+0.0053}_{-0.0052}$ (−0.3 $\sigma$ )	$\chi_{prior}^2$	2.0	13.3 ( $\nu$ : 11.5) (+1.1 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$H(0.15)$	72.92	$72.91^{+0.96}_{-0.93}$ (+0.3 $\sigma$ )	$\chi_{CMB}^2$	3508.9	3529.5 ( $\nu$ : 20.6) (+258.6 $\sigma$ )
$H_0$	67.63	$67.6^{+1.1}_{-1.1}$ (+0.3 $\sigma$ )	$D_M(0.15)$	641.0	$641.1^{+9.3}_{-9.3}$ (−0.3 $\sigma$ )	$\chi_{BAO}^2$	5.80	6.2 ( $\nu$ : 0.6) (−0.0 $\sigma$ )
$\Omega_\Lambda$	0.6885	$0.688^{+0.014}_{-0.015}$ (+0.1 $\sigma$ )	$H(0.38)$	83.04	$83.03^{+0.73}_{-0.69}$ (+0.4 $\sigma$ )			
$\Omega_m$	0.3115	$0.312^{+0.015}_{-0.014}$ (−0.1 $\sigma$ )	$D_M(0.38)$	1528.8	$1529^{+19}_{-19}$ (−0.3 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 3516.64$ ;  $\Delta\chi_{eff}^2 = 1585.87$ ;  $\bar{\chi}_{eff}^2 = 3549.03$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.16$ ;  $R - 1 = 0.00581$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.04 ( $\Delta$  -0.01) MGS: 1.16 ( $\Delta$  0.06) DR12BAO: 4.61 ( $\Delta$  -0.17) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.74 ( $\Delta$  -0.07) BK15\_dust: 735.50 ( $\Delta$  0.03) simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.42 ( $\Delta$  0.22) commander\_dx12\_v3.2.29: 23.54 ( $\Delta$  -0.06) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.67



17.72 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_BK15\_lensing\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02236^{+0.00036}_{-0.00036} \quad (+1.2\sigma)$	$\Omega_{\Lambda}$	$0.684^{+0.018}_{-0.019} \quad (+0.3\sigma)$	$H(0.15)$	$72.7^{+1.2}_{-1.1} \quad (+0.5\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1201^{+0.0030}_{-0.0030} \quad (-0.2\sigma)$	$\Omega_{\mathrm{m}}$	$0.316^{+0.019}_{-0.018} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$644^{+12}_{-12} \quad (-0.5\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04092^{+0.00081}_{-0.00078} \quad (+0.3\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1431^{+0.0028}_{-0.0028} \quad (-0.0\sigma)$	$H(0.38)$	$82.84^{+0.89}_{-0.83} \quad (+0.6\sigma)$
$\tau$	$0.055^{+0.018}_{-0.013} \quad (+0.3\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09632^{+0.00075}_{-0.00075} \quad (+1.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1534^{+23}_{-24} \quad (-0.5\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.038}_{-0.028} \quad (+0.3\sigma)$	$\sigma_8$	$0.813^{+0.015}_{-0.014} \quad (+0.1\sigma)$	$H(0.51)$	$89.61^{+0.71}_{-0.66} \quad (+0.7\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.010}_{-0.010} \quad (+0.3\sigma)$	$S_8$	$0.834^{+0.033}_{-0.033} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1987^{+27}_{-28} \quad (-0.5\sigma)$
$r$	$< 0.0802 \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.018}_{-0.018} \quad (-0.2\sigma)$	$H(0.61)$	$95.26^{+0.58}_{-0.53} \quad (+0.8\sigma)$
$y_{\mathrm{cal}}$	$1.0009^{+0.0063}_{-0.0062} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.016}_{-0.016} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2311^{+29}_{-30} \quad (-0.6\sigma)$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.1} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.990^{+0.023}_{-0.023} \quad (-0.2\sigma)$	$H(2.33)$	$236.6^{+1.8}_{-1.8} \quad (+0.1\sigma)$
$A_{B,\mathrm{sync}}$	$< 4.94 \quad (+0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.0^{+2.4}_{-2.3} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5764^{+25}_{-26} \quad (-0.9\sigma)$
$\alpha_{B,\mathrm{dust}}$	—	$\langle d^2 \rangle^{1/2}$	$2.449^{+0.055}_{-0.054} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.461^{+0.016}_{-0.017} \quad (-0.2\sigma)$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.24} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.46 \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.751^{+0.014}_{-0.012} \quad (+0.1\sigma)$
$\alpha_{B,\mathrm{sync}}$	—	$10^9 A_{\mathrm{s}}$	$2.106^{+0.080}_{-0.059} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.013}_{-0.013} \quad (-0.2\sigma)$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.68}_{-0.73} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.884^{+0.028}_{-0.028} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.665^{+0.012}_{-0.010} \quad (+0.2\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.370 \quad (+0.0\sigma)$	$D_{40}$	$1241^{+33}_{-32} \quad (-0.0\sigma)$	$f\sigma_8(0.51)$	$0.476^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5734^{+99}_{-96} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.012}_{-0.0092} \quad (+0.2\sigma)$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{810}$	$2541^{+35}_{-34} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.471^{+0.011}_{-0.010} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.3}_{-4.9} \quad (+0.2\sigma)$	$D_{1420}$	$818^{+13}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.011}_{-0.0088} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$D_{2000}$	$231.0^{+4.1}_{-4.1} \quad (+0.7\sigma)$	$f\sigma_8(2.33)$	$0.2982^{+0.0058}_{-0.0044} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$n_{\mathrm{s},0.002}$	$0.965^{+0.010}_{-0.010} \quad (+0.3\sigma)$	$\sigma_8(2.33)$	$0.3072^{+0.0062}_{-0.0047} \quad (+0.4\sigma)$
$A_{143\times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24539^{+0.00014}_{-0.00015} \quad (+1.1\sigma)$	$r_{0.002}$	$< 0.0744 \quad (+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00014}_{-0.00015} \quad (+1.1\sigma)$	$r_{0.01}$	$< 0.0771 \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.588^{+0.069}_{-0.065} \quad (-1.2\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.9^{+1.7}_{-3.5} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.799^{+0.057}_{-0.059} \quad (-0.9\sigma)$	$r_{10}$	$< 0.0381 \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$z_*$	$1089.94^{+0.65}_{-0.64} \quad (-1.0\sigma)$	$10^9 A_{\mathrm{t}}$	$< 0.169 \quad (+0.1\sigma)$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.5^{+8.3}_{-8.6} \quad (+0.1\sigma)$	$r_*$	$144.42^{+0.67}_{-0.67} \quad (-0.3\sigma)$	$10^9 A_{\mathrm{t}}e^{-2\tau}$	$< 0.151 \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$100\theta_*$	$1.04110^{+0.00080}_{-0.00077} \quad (+0.2\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.098}_{-0.096}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.872^{+0.064}_{-0.064} \quad (-0.4\sigma)$	$f_{2000}^{143\times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.135^{+0.075}_{-0.076}$	$z_{\mathrm{drag}}$	$1059.92^{+0.74}_{-0.75} \quad (+1.2\sigma)$	$f_{2000}^{217}$	$107.0^{+4.5}_{-4.5} \quad (-0.6\sigma)$
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$r_{\mathrm{drag}}$	$147.08^{+0.67}_{-0.67} \quad (-0.5\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.27 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$k_{\mathrm{D}}$	$0.14087^{+0.00076}_{-0.00077} \quad (+0.9\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.6 \quad (\nu: 3.4) \quad (+0.1\sigma)$
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.20}$	$100\theta_{\mathrm{D}}$	$0.16077^{+0.00044}_{-0.00043} \quad (-1.2\sigma)$	$\chi_{\mathrm{small}}^2$	$397.2 \quad (\nu: 1.6) \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.09^{+0.69}_{-0.69}$	$z_{\mathrm{eq}}$	$3404^{+68}_{-68} \quad (-0.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.4 \quad (\nu: 0.6) \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01039^{+0.00021}_{-0.00021} \quad (-0.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2358.9 \quad (\nu: 15.7) \quad (+303.3\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.013}_{-0.013} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$13.2 \quad (\nu: 11.6) \quad (+1.1\sigma)$
$H_0$	$67.3^{+1.4}_{-1.3} \quad (+0.5\sigma)$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4493^{+0.0066}_{-0.0064} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$3529.3 \quad (\nu: 20.5) \quad (+260.3\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 3542.49; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.38; R - 1 = 0.00477$$



17.73 base\_r\_plikHM\_TTTEEE\_lowl\_lowE\_BK15\_lensing\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02241^{+0.00035}_{-0.00034} \quad (+1.1\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1424^{+0.0023}_{-0.0023} \quad (+0.4\sigma)$	$H(0.51)$	$89.76^{+0.58}_{-0.55} \quad (+0.6\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1194^{+0.0024}_{-0.0024} \quad (+0.2\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09633^{+0.00076}_{-0.00076} \quad (+1.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1980^{+22}_{-22} \quad (-0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04101^{+0.00076}_{-0.00077} \quad (+0.1\sigma)$	$\sigma_8$	$0.812^{+0.016}_{-0.014} \quad (+0.2\sigma)$	$H(0.61)$	$95.38^{+0.49}_{-0.46} \quad (+0.7\sigma)$
$\tau$	$0.057^{+0.018}_{-0.015} \quad (+0.1\sigma)$	$S_8$	$0.827^{+0.027}_{-0.027} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2304^{+23}_{-24} \quad (-0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.049^{+0.038}_{-0.030} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$H(2.33)$	$236.2^{+1.5}_{-1.5} \quad (+0.5\sigma)$
$n_{\mathrm{s}}$	$0.9668^{+0.0094}_{-0.0094} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.015}_{-0.014} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5759^{+23}_{-23} \quad (-0.8\sigma)$
$r$	$< 0.0823 \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.987^{+0.022}_{-0.020} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.014}_{-0.014} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0010^{+0.0062}_{-0.0062} \quad (+0.0\sigma)$	$r_{\mathrm{drag}}h$	$99.6^{+1.9}_{-1.8} \quad (-0.0\sigma)$	$\sigma_8(0.15)$	$0.750^{+0.014}_{-0.012} \quad (+0.2\sigma)$
$A_{B,\mathrm{dust}}$	$4.9^{+3.2}_{-2.1} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.052}_{-0.050} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.012}_{-0.011} \quad (+0.1\sigma)$
$A_{B,\mathrm{sync}}$	$< 4.98 \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.60 \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.665^{+0.013}_{-0.010} \quad (+0.2\sigma)$
$\alpha_{B,\mathrm{dust}}$	—	$10^9A_{\mathrm{s}}$	$2.110^{+0.081}_{-0.062} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.011}_{-0.010} \quad (+0.1\sigma)$
$\beta_{B,\mathrm{dust}}$	$1.60^{+0.25}_{-0.24} \quad (-0.0\sigma)$	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.027}_{-0.027} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.012}_{-0.0097} \quad (+0.2\sigma)$
$\alpha_{B,\mathrm{sync}}$	—	$D_{40}$	$1239^{+32}_{-31} \quad (+0.1\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.010}_{-0.0095} \quad (+0.2\sigma)$
$\beta_{B,\mathrm{sync}}$	$-3.10^{+0.68}_{-0.73} \quad (+0.0\sigma)$	$D_{220}$	$5740^{+98}_{-94} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.011}_{-0.0093} \quad (+0.2\sigma)$
$\epsilon_{\mathrm{dust},\mathrm{sync}}$	$< 0.357 \quad (-0.0\sigma)$	$D_{810}$	$2541^{+34}_{-34} \quad (+0.2\sigma)$	$f\sigma_8(2.33)$	$0.2985^{+0.0058}_{-0.0047} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.5\sigma)$	$\sigma_8(2.33)$	$0.3077^{+0.0062}_{-0.0049} \quad (+0.2\sigma)$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{2000}$	$231.3^{+4.1}_{-3.9} \quad (+0.7\sigma)$	$r_{0.002}$	$< 0.0770 \quad (+0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.4}_{-4.5} \quad (+0.2\sigma)$	$n_{\mathrm{s},0.002}$	$0.9668^{+0.0094}_{-0.0094} \quad (+0.2\sigma)$	$r_{0.01}$	$< 0.0797 \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00014} \quad (+1.1\sigma)$	$\ln(10^{10}A_{\mathrm{t}})$	$-0.9^{+1.7}_{-3.5} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00013}_{-0.00014} \quad (+1.1\sigma)$	$r_{10}$	$< 0.0395 \quad (+0.1\sigma)$
$A_{143\times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$10^5\mathrm{D}/\mathrm{H}$	$2.578^{+0.065}_{-0.062} \quad (-1.1\sigma)$	$10^9A_{\mathrm{t}}$	$< 0.173 \quad (+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.788^{+0.051}_{-0.051} \quad (-0.8\sigma)$	$10^9A_{\mathrm{t}}e^{-2\tau}$	$< 0.155 \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1089.81^{+0.56}_{-0.54} \quad (-0.9\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$r_*$	$144.56^{+0.56}_{-0.56} \quad (-0.8\sigma)$	$f_{2000}^{143\times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$100\theta_*$	$1.04119^{+0.00075}_{-0.00076} \quad (+0.0\sigma)$	$f_{2000}^{217}$	$106.9^{+4.4}_{-4.5} \quad (-0.5\sigma)$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.6^{+8.2}_{-8.5} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.884^{+0.055}_{-0.054} \quad (-0.7\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.08 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.99^{+0.75}_{-0.74} \quad (+1.2\sigma)$	$\chi_{\mathrm{BKPLANCK}}^2$	$739.8 \quad (\nu: 3.4) \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.098}_{-0.095}$	$r_{\mathrm{drag}}$	$147.21^{+0.59}_{-0.58} \quad (-0.9\sigma)$	$\chi_{\mathrm{small}}^2$	$397.5 \quad (\nu: 2.1) \quad (+0.1\sigma)$
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.135^{+0.075}_{-0.074}$	$k_{\mathrm{D}}$	$0.14077^{+0.00071}_{-0.00071} \quad (+1.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.1 \quad (\nu: 0.5) \quad (+0.0\sigma)$
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00043}_{-0.00043} \quad (-1.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2358.9 \quad (\nu: 15.6) \quad (+298.9\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$z_{\mathrm{eq}}$	$3388^{+54}_{-54} \quad (+0.4\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.057 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.20}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00017}_{-0.00017} \quad (+0.4\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.22 \quad (\nu: 0.1) \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.69}_{-0.70}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.010}_{-0.010} \quad (-0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 \quad (\nu: 0.9) \quad (-0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{s},\mathrm{eq}}$	$0.4508^{+0.0053}_{-0.0051} \quad (-0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$13.3 \quad (\nu: 11.5) \quad (+1.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$H(0.15)$	$72.92^{+0.95}_{-0.92} \quad (+0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$3529.4 \quad (\nu: 20.3) \quad (+259.4\sigma)$
$H_0$	$67.6^{+1.1}_{-1.1} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$641.0^{+9.2}_{-9.3} \quad (-0.3\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.2 \quad (\nu: 0.6) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.689^{+0.014}_{-0.015} \quad (+0.0\sigma)$	$H(0.38)$	$83.04^{+0.72}_{-0.68} \quad (+0.4\sigma)$		
$\Omega_{\mathrm{m}}$	$0.311^{+0.015}_{-0.014} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1529^{+18}_{-19} \quad (-0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3548.89; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.17; R - 1 = 0.00600$$



# 18 w

## 18.1 base\_w\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02222	$0.02215^{+0.00057}_{-0.00057}$	$\sigma_8 \Omega_m^{0.5}$	0.4077	$0.431^{+0.055}_{-0.041}$	$100\theta_{s,eq}$	0.4490	$0.449^{+0.012}_{-0.011}$
$\Omega_c h^2$	0.1203	$0.1205^{+0.0053}_{-0.0052}$	$\sigma_8 \Omega_m^{0.25}$	0.663	$0.643^{+0.049}_{-0.060}$	$H(0.15)$	88.7	$81.8^{+8.3}_{-14}$
$100\theta_{MC}$	1.04088	$1.0408^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	1.077	$1.045^{+0.071}_{-0.096}$	$D_M(0.15)$	481	$547^{+200}_{-70}$
$\tau$	0.0523	$0.052^{+0.021}_{-0.023}$	$r_{drag}h$	147.1	$125^{+20}_{-40}$	$H(0.38)$	84.31	$84.0^{+2.5}_{-3.8}$
$w_0$	-1.97	$-1.56^{+0.79}_{-0.53}$	$\langle d^2 \rangle^{1/2}$	2.528	$2.50^{+0.11}_{-0.13}$	$D_M(0.38)$	1288	$1386^{+200}_{-100}$
$\ln(10^{10} A_s)$	3.0403	$3.039^{+0.044}_{-0.047}$	$z_{re}$	7.44	$7.4^{+2.1}_{-2.6}$	$H(0.51)$	86.62	$88.1^{+2.2}_{-3.0}$
$n_s$	0.9647	$0.963^{+0.015}_{-0.015}$	$10^9 A_s$	2.091	$2.088^{+0.093}_{-0.096}$	$D_M(0.51)$	1745	$1840^{+300}_{-100}$
$y_{cal}$	1.0003	$1.0004^{+0.0062}_{-0.0061}$	$10^9 A_s e^{-2\tau}$	1.8835	$1.884^{+0.035}_{-0.033}$	$H(0.61)$	90.06	$92.4^{+3.3}_{-3.3}$
$A_{217}^{CIB}$	48.3	$48^{+20}_{-20}$	$D_{40}$	1225.0	$1230^{+40}_{-38}$	$D_M(0.61)$	2085	$2172^{+200}_{-100}$
$\xi^{tSZ \times CIB}$	0.38	—	$D_{220}$	5717	$5716^{+110}_{-100}$	$H(2.33)$	230.5	$232.3^{+9.9}_{-4.6}$
$A_{143}^{tSZ}$	7.0	—	$D_{810}$	2537.0	$2535^{+35}_{-33}$	$D_M(2.33)$	5738	$5750^{+83}_{-51}$
$A_{100}^{PS}$	253	$263^{+70}_{-70}$	$D_{1420}$	815.4	$814^{+13}_{-13}$	$f\sigma_8(0.15)$	0.511	$0.491^{+0.057}_{-0.052}$
$A_{143}^{PS}$	49.1	$49^{+20}_{-20}$	$D_{2000}$	230.40	$229.7^{+4.7}_{-4.6}$	$\sigma_8(0.15)$	1.015	$0.90^{+0.15}_{-0.22}$
$A_{143 \times 217}^{PS}$	47.5	$43^{+20}_{-20}$	$n_{s,0.002}$	0.9647	$0.963^{+0.015}_{-0.015}$	$f\sigma_8(0.38)$	0.648	$0.57^{+0.11}_{-0.13}$
$A_{217}^{PS}$	119.3	$115^{+30}_{-30}$	$Y_P$	0.245335	$0.24530^{+0.00022}_{-0.00027}$	$\sigma_8(0.38)$	0.908	$0.80^{+0.13}_{-0.20}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.246661	$0.24663^{+0.00022}_{-0.00027}$	$f\sigma_8(0.51)$	0.680	$0.59^{+0.12}_{-0.16}$
$A_{100}^{dustTT}$	8.88	$8.9^{+4.8}_{-4.7}$	$10^5 D/H$	2.614	$2.63^{+0.11}_{-0.10}$	$\sigma_8(0.51)$	0.849	$0.75^{+0.12}_{-0.19}$
$A_{143}^{dustTT}$	10.76	$10.7^{+4.6}_{-4.6}$	Age/Gyr	13.451	$13.59^{+0.41}_{-0.21}$	$f\sigma_8(0.61)$	0.685	$0.59^{+0.12}_{-0.17}$
$A_{143 \times 217}^{dustTT}$	19.3	$18.2^{+8.3}_{-8.6}$	$z_*$	1090.13	$1090.2^{+1.1}_{-1.0}$	$\sigma_8(0.61)$	0.805	$0.71^{+0.11}_{-0.18}$
$A_{217}^{dustTT}$	94.5	$93^{+20}_{-20}$	$r_*$	144.48	$144.5^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	0.401	$0.357^{+0.052}_{-0.088}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	1.04108	$1.0410^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.401	$0.360^{+0.049}_{-0.079}$
$c_{217}$	0.99823	$0.9982^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.878	$13.88^{+0.12}_{-0.11}$	$f_{2000}^{143}$	29.7	$31^{+8}_{-7}$
$H_0$	99.9	> 60.9	$z_{drag}$	1059.63	$1059.5^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	32.7	$33^{+5}_{-5}$
$\Omega_\Lambda$	0.857	$0.792^{+0.071}_{-0.18}$	$r_{drag}$	147.19	$147.2^{+1.3}_{-1.2}$	$f_{2000}^{217}$	107.21	$107.9^{+5.0}_{-4.9}$
$\Omega_m$	0.143	$0.208^{+0.18}_{-0.071}$	$k_D$	0.14065	$0.1406^{+0.0014}_{-0.0013}$	$\chi_{simall}^2$	395.73	$396.8 (\nu: 1.2)$
$\Omega_m h^2$	0.1431	$0.1433^{+0.0051}_{-0.0051}$	$100\theta_D$	0.16095	$0.16104^{+0.00069}_{-0.00067}$	$\chi_{lowl}^2$	22.64	$23.2 (\nu: 0.7)$
$\Omega_m h^3$	0.1430	$0.122^{+0.025}_{-0.035}$	$z_{eq}$	3405	$3408^{+120}_{-120}$	$\chi_{plik}^2$	756.6	$770.0 (\nu: 14.7)$
$\sigma_8$	1.077	$0.96^{+0.15}_{-0.22}$	$k_{eq}$	0.010392	$0.01040^{+0.00037}_{-0.00037}$	$\chi_{prior}^2$	1.3	$7.2 (\nu: 6.6)$
$S_8$	0.744	$0.787^{+0.10}_{-0.074}$	$100\theta_{eq}$	0.8124	$0.812^{+0.023}_{-0.022}$	$\chi_{CMB}^2$	1175.0	$1190.0 (\nu: 16.0)$

Best-fit  $\chi_{eff}^2 = 1176.30$ ;  $\bar{\chi}_{eff}^2 = 1197.21$ ;  $R - 1 = 0.00888$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.73 commander\_dx12\_v3.2\_29: 22.64 plik\_rd12\_HM\_v22\_TT: 756.63



## 18.2 base\_w\_plikHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02227	$0.02221^{+0.00055}_{-0.00054}$	$\sigma_8 \Omega_m^{0.25}$	0.6517	$0.635^{+0.033}_{-0.042}$	$D_M(0.15)$	479	$543^{+100}_{-70}$
$\Omega_c h^2$	0.11880	$0.1193^{+0.0044}_{-0.0040}$	$\sigma_8/h^{0.5}$	1.062	$1.034^{+0.050}_{-0.070}$	$H(0.38)$	84.97	$84.4^{+2.1}_{-3.8}$
$100\theta_{MC}$	1.04098	$1.0409^{+0.0011}_{-0.0012}$	$r_{drag}h$	147.4	$126^{+20}_{-40}$	$D_M(0.38)$	1280	$1378^{+200}_{-100}$
$\tau$	0.0519	$0.051^{+0.020}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.500	$2.482^{+0.072}_{-0.083}$	$H(0.51)$	87.18	$88.5^{+1.7}_{-2.4}$
$w_0$	-1.93	$-1.54^{+0.72}_{-0.48}$	$z_{re}$	7.37	$7.3^{+1.9}_{-2.5}$	$D_M(0.51)$	1734	$1829^{+200}_{-100}$
$\ln(10^{10} A_s)$	3.0353	$3.034^{+0.038}_{-0.042}$	$10^9 A_s$	2.081	$2.079^{+0.081}_{-0.086}$	$H(0.61)$	90.51	$92.7^{+3.0}_{-2.9}$
$n_s$	0.9676	$0.965^{+0.013}_{-0.013}$	$10^9 A_s e^{-2\tau}$	1.8757	$1.878^{+0.029}_{-0.027}$	$D_M(0.61)$	2072	$2161^{+240}_{-120}$
$y_{cal}$	1.0000	$1.0002^{+0.0062}_{-0.0062}$	$D_{40}$	1217.1	$1223^{+37}_{-32}$	$H(2.33)$	229.5	$232^{+10}_{-3.9}$
$A_{217}^{CIB}$	48.5	$48^{+20}_{-20}$	$D_{220}$	5718	$5718^{+110}_{-100}$	$D_M(2.33)$	5729	$5743^{+81}_{-47}$
$\xi^{tSZ \times CIB}$	0.32	—	$D_{810}$	2533.5	$2533^{+35}_{-34}$	$f\sigma_8(0.15)$	0.4978	$0.482^{+0.037}_{-0.035}$
$A_{143}^{tSZ}$	7.0	—	$D_{1420}$	815.1	$814^{+14}_{-13}$	$\sigma_8(0.15)$	1.001	$0.89^{+0.13}_{-0.19}$
$A_{100}^{PS}$	253	$263^{+70}_{-70}$	$D_{2000}$	230.24	$229.7^{+4.9}_{-4.6}$	$f\sigma_8(0.38)$	0.632	$0.564^{+0.088}_{-0.11}$
$A_{143}^{PS}$	48.2	$48^{+20}_{-20}$	$n_{s,0.002}$	0.9676	$0.965^{+0.013}_{-0.013}$	$\sigma_8(0.38)$	0.898	$0.80^{+0.12}_{-0.18}$
$A_{143 \times 217}^{PS}$	46.0	$43^{+20}_{-20}$	$Y_P$	0.245357	$0.24533^{+0.00021}_{-0.00026}$	$f\sigma_8(0.51)$	0.664	$0.58^{+0.11}_{-0.14}$
$A_{217}^{PS}$	118.6	$115^{+30}_{-30}$	$Y_P^{BBN}$	0.246683	$0.24665^{+0.00021}_{-0.00026}$	$\sigma_8(0.51)$	0.839	$0.75^{+0.11}_{-0.17}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.604	$2.62^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	0.671	$0.58^{+0.11}_{-0.15}$
$A_{100}^{dustTT}$	8.97	$9.0^{+4.8}_{-4.8}$	Age/Gyr	13.437	$13.58^{+0.39}_{-0.21}$	$\sigma_8(0.61)$	0.797	$0.71^{+0.10}_{-0.16}$
$A_{143}^{dustTT}$	10.84	$10.7^{+4.7}_{-4.5}$	$z_*$	1089.93	$1090.07^{+0.93}_{-0.90}$	$f\sigma_8(2.33)$	0.397	$0.356^{+0.048}_{-0.080}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.3^{+8.2}_{-8.4}$	$r_*$	144.82	$144.73^{+0.95}_{-1.0}$	$\sigma_8(2.33)$	0.398	$0.359^{+0.045}_{-0.071}$
$A_{217}^{dustTT}$	94.5	$93^{+20}_{-20}$	$100\theta_*$	1.04117	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	29.8	$31^{+8}_{-8}$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.909	$13.901^{+0.087}_{-0.093}$	$f_{2000}^{143 \times 217}$	32.7	$33^{+5}_{-5}$
$c_{217}$	0.99825	$0.9983^{+0.0017}_{-0.0016}$	$z_{drag}$	1059.63	$1059.5^{+1.1}_{-1.1}$	$f_{2000}^{217}$	107.17	$107.8^{+4.9}_{-4.8}$
$H_0$	99.9	> 62.2	$r_{drag}$	147.52	$147.45^{+0.99}_{-1.0}$	$\chi_{lensing}^2$	8.41	$9.0 (\nu: 0.7)$
$\Omega_\Lambda$	0.858	$0.796^{+0.069}_{-0.17}$	$k_D$	0.14034	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{small}^2$	395.65	$396.6 (\nu: 0.9)$
$\Omega_m$	0.142	$0.204^{+0.17}_{-0.069}$	$100\theta_D$	0.16094	$0.16101^{+0.00066}_{-0.00064}$	$\chi_{lowl}^2$	22.16	$22.74 (\nu: 0.4)$
$\Omega_m h^2$	0.14172	$0.1422^{+0.0041}_{-0.0038}$	$z_{eq}$	3371	$3382^{+99}_{-91}$	$\chi_{plik}^2$	757.7	$770.3 (\nu: 13.9)$
$\Omega_m h^3$	0.1416	$0.121^{+0.023}_{-0.033}$	$k_{eq}$	0.010289	$0.01032^{+0.00030}_{-0.00028}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.8)$
$\sigma_8$	1.062	$0.95^{+0.13}_{-0.19}$	$100\theta_{eq}$	0.8187	$0.816^{+0.017}_{-0.018}$	$\chi_{CMB}^2$	1183.9	$1198.7 (\nu: 15.7)$
$S_8$	0.730	$0.774^{+0.095}_{-0.068}$	$100\theta_{s,eq}$	0.4523	$0.4512^{+0.0090}_{-0.0095}$			
$\sigma_8 \Omega_m^{0.5}$	0.4000	$0.424^{+0.052}_{-0.037}$	$H(0.15)$	89.2	$82.3^{+8.3}_{-13}$			

Best-fit  $\chi_{\text{eff}}^2 = 1185.20$ ;  $\bar{\chi}_{\text{eff}}^2 = 1205.98$ ;  $R - 1 = 0.01136$   
 $\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.41 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.65 commander\_dx12\_v3.2.29: 22.16 plik\_rd12\_HM.v22.TT: 757.66



### 18.3 base\_w\_plikHM\_TT\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02215	$0.02212^{+0.00055}_{-0.00053}$	$\sigma_8 \Omega_m^{0.25}$	0.6270	$0.626^{+0.035}_{-0.035}$	$D_M(0.15)$	601.1	$602^{+28}_{-25}$
$\Omega_c h^2$	0.1206	$0.1206^{+0.0049}_{-0.0051}$	$\sigma_8/h^{0.5}$	1.019	$1.017^{+0.050}_{-0.050}$	$H(0.38)$	83.57	$83.5^{+1.4}_{-1.4}$
$100\theta_{MC}$	1.04079	$1.0408^{+0.0012}_{-0.0011}$	$r_{drag}h$	108.4	$108.4^{+6.3}_{-6.3}$	$D_M(0.38)$	1467.9	$1469^{+48}_{-42}$
$\tau$	0.0524	$0.051^{+0.022}_{-0.023}$	$\langle d^2 \rangle^{1/2}$	2.482	$2.48^{+0.11}_{-0.11}$	$H(0.51)$	89.24	$89.2^{+1.4}_{-1.4}$
$w_0$	-1.225	$-1.23^{+0.17}_{-0.17}$	$z_{re}$	7.51	$7.4^{+2.2}_{-2.4}$	$D_M(0.51)$	1919.5	$1921^{+51}_{-46}$
$\ln(10^{10} A_s)$	3.0411	$3.038^{+0.045}_{-0.048}$	$10^9 A_s$	2.093	$2.087^{+0.096}_{-0.098}$	$H(0.61)$	94.25	$94.2^{+1.5}_{-1.5}$
$n_s$	0.9638	$0.963^{+0.016}_{-0.015}$	$10^9 A_s e^{-2\tau}$	1.8846	$1.884^{+0.033}_{-0.031}$	$D_M(0.61)$	2246.5	$2248^{+51}_{-48}$
$y_{cal}$	1.0003	$1.0003^{+0.0060}_{-0.0057}$	$D_{40}$	1229.2	$1231^{+40}_{-38}$	$H(2.33)$	234.03	$234.0^{+3.0}_{-2.9}$
$A_{217}^{CIB}$	48.5	$48^{+20}_{-20}$	$D_{220}$	5711	$5712^{+110}_{-86}$	$D_M(2.33)$	5758.2	$5760^{+37}_{-39}$
$\xi^{tSZ \times CIB}$	0.35	—	$D_{810}$	2537.2	$2535^{+32}_{-32}$	$f\sigma_8(0.15)$	0.4756	$0.475^{+0.035}_{-0.036}$
$A_{143}^{tSZ}$	7.0	—	$D_{1420}$	815.2	$814^{+13}_{-13}$	$\sigma_8(0.15)$	0.812	$0.811^{+0.052}_{-0.055}$
$A_{100}^{PS}$	254	$262^{+70}_{-70}$	$D_{2000}$	230.06	$229.5^{+4.4}_{-4.7}$	$f\sigma_8(0.38)$	0.5164	$0.516^{+0.046}_{-0.044}$
$A_{143}^{PS}$	49.6	$49^{+20}_{-20}$	$n_{s,0.002}$	0.9638	$0.963^{+0.016}_{-0.015}$	$\sigma_8(0.38)$	0.7213	$0.720^{+0.045}_{-0.048}$
$A_{143 \times 217}^{PS}$	47.6	$44^{+20}_{-20}$	$Y_P$	0.245307	$0.24529^{+0.00022}_{-0.00025}$	$f\sigma_8(0.51)$	0.5212	$0.521^{+0.048}_{-0.047}$
$A_{217}^{PS}$	119.6	$115^{+30}_{-20}$	$Y_P^{BBN}$	0.246633	$0.24661^{+0.00022}_{-0.00025}$	$\sigma_8(0.51)$	0.6747	$0.673^{+0.042}_{-0.044}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.627	$2.63^{+0.10}_{-0.10}$	$f\sigma_8(0.61)$	0.5185	$0.518^{+0.046}_{-0.047}$
$A_{100}^{dustTT}$	8.90	$8.9^{+4.6}_{-4.7}$	Age/Gyr	13.705	$13.711^{+0.092}_{-0.087}$	$\sigma_8(0.61)$	0.6415	$0.640^{+0.039}_{-0.041}$
$A_{143}^{dustTT}$	10.82	$10.8^{+4.6}_{-5.0}$	$z_*$	1090.25	$1090.3^{+1.0}_{-0.96}$	$f\sigma_8(2.33)$	0.3232	$0.323^{+0.018}_{-0.020}$
$A_{143 \times 217}^{dustTT}$	19.3	$18.3^{+8.3}_{-8.7}$	$r_*$	144.44	$144.5^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	0.3286	$0.328^{+0.016}_{-0.017}$
$A_{217}^{dustTT}$	94.4	$93^{+20}_{-20}$	$100\theta_*$	1.04100	$1.0410^{+0.0012}_{-0.0010}$	$f_{2000}^{143}$	30.2	$31^{+7}_{-8}$
$c_{100}$	0.99967	$0.9996^{+0.0017}_{-0.0015}$	$D_M(z_*)/\text{Gpc}$	13.875	$13.88^{+0.11}_{-0.10}$	$f_{2000}^{143 \times 217}$	33.1	$34^{+5}_{-5}$
$c_{217}$	0.99824	$0.9983^{+0.0017}_{-0.0016}$	$z_{drag}$	1059.47	$1059.4^{+1.1}_{-1.1}$	$f_{2000}^{217}$	107.55	$108.1^{+4.6}_{-5.2}$
$H_0$	73.68	$73.7^{+4.2}_{-4.2}$	$r_{drag}$	147.17	$147.2^{+1.2}_{-1.1}$	$\chi_{simall}^2$	395.82	$396.8 (\nu: 1.4)$
$\Omega_\Lambda$	0.7358	$0.735^{+0.030}_{-0.035}$	$k_D$	0.14062	$0.1405^{+0.0013}_{-0.0012}$	$\chi_{lowl}^2$	23.23	$23.5 (\nu: 0.7)$
$\Omega_m$	0.2642	$0.265^{+0.035}_{-0.030}$	$100\theta_D$	0.16102	$0.16107^{+0.00062}_{-0.00062}$	$\chi_{plik}^2$	757.8	$770.5 (\nu: 14.3)$
$\Omega_m h^2$	0.14340	$0.1434^{+0.0047}_{-0.0049}$	$z_{eq}$	3412	$3411^{+110}_{-120}$	$\chi_{H073p45}^2$	0.02	$1.0 (\nu: 1.0)$
$\Omega_m h^3$	0.1057	$0.1056^{+0.0071}_{-0.0072}$	$k_{eq}$	0.010412	$0.01041^{+0.00034}_{-0.00036}$	$\chi_{prior}^2$	1.3	$7.2 (\nu: 6.5)$
$\sigma_8$	0.875	$0.873^{+0.055}_{-0.058}$	$100\theta_{eq}$	0.8110	$0.811^{+0.023}_{-0.020}$	$\chi_{CMB}^2$	1176.8	$1190.8 (\nu: 15.4)$
$S_8$	0.821	$0.820^{+0.056}_{-0.055}$	$100\theta_{s,eq}$	0.4483	$0.448^{+0.012}_{-0.010}$			
$\sigma_8 \Omega_m^{0.5}$	0.4495	$0.449^{+0.030}_{-0.030}$	$H(0.15)$	76.27	$76.2^{+2.4}_{-2.6}$			

Best-fit  $\chi_{\text{eff}}^2 = 1178.12$ ;  $\bar{\chi}_{\text{eff}}^2 = 1198.92$ ;  $R - 1 = 0.05017$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.82 commander\_dx12\_v3.2\_29: 23.23 plik\_rd12\_HM\_v22\_TT: 757.77 Hubble - H073p45: 0.02



## 18.4 base\_w\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02216^{+0.00057}_{-0.00057}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.431^{+0.055}_{-0.040}$	$100\theta_{\mathrm{s,eq}}$	$0.449^{+0.012}_{-0.011}$
$\Omega_{\mathrm{c}} h^2$	$0.1204^{+0.0053}_{-0.0052}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.644^{+0.049}_{-0.059}$	$H(0.15)$	$81.8^{+8.3}_{-14}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$1.046^{+0.071}_{-0.093}$	$D_{\mathrm{M}}(0.15)$	$546^{+200}_{-70}$
$\tau$	$0.053^{+0.018}_{-0.012}$	$r_{\mathrm{drag}} h$	$125^{+20}_{-40}$	$H(0.38)$	$84.0^{+2.5}_{-3.8}$
$w_0$	$-1.56^{+0.79}_{-0.53}$	$\langle d^2 \rangle^{1/2}$	$2.51^{+0.11}_{-0.13}$	$D_{\mathrm{M}}(0.38)$	$1385^{+200}_{-100}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.041}_{-0.028}$	$z_{\mathrm{re}}$	$< 9.28$	$H(0.51)$	$88.1^{+2.2}_{-3.0}$
$n_{\mathrm{s}}$	$0.963^{+0.015}_{-0.014}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.087}_{-0.059}$	$D_{\mathrm{M}}(0.51)$	$1839^{+300}_{-100}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0063}_{-0.0061}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.034}_{-0.033}$	$H(0.61)$	$92.4^{+3.3}_{-3.3}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{40}$	$1230^{+41}_{-38}$	$D_{\mathrm{M}}(0.61)$	$2171^{+300}_{-100}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{220}$	$5716^{+110}_{-100}$	$H(2.33)$	$232^{+10}_{-4.6}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{810}$	$2535^{+35}_{-33}$	$D_{\mathrm{M}}(2.33)$	$5750^{+84}_{-51}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$D_{1420}$	$814^{+13}_{-12}$	$f\sigma_8(0.15)$	$0.492^{+0.057}_{-0.051}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$D_{2000}$	$229.8^{+4.7}_{-4.5}$	$\sigma_8(0.15)$	$0.90^{+0.15}_{-0.22}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.963^{+0.015}_{-0.014}$	$f\sigma_8(0.38)$	$0.57^{+0.11}_{-0.13}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00022}_{-0.00027}$	$\sigma_8(0.38)$	$0.80^{+0.13}_{-0.20}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00022}_{-0.00027}$	$f\sigma_8(0.51)$	$0.59^{+0.12}_{-0.16}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.7}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.11}_{-0.10}$	$\sigma_8(0.51)$	$0.75^{+0.12}_{-0.19}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.5}_{-4.6}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.59^{+0.41}_{-0.21}$	$f\sigma_8(0.61)$	$0.59^{+0.12}_{-0.17}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.2^{+8.3}_{-8.7}$	$z_*$	$1090.2^{+1.1}_{-1.0}$	$\sigma_8(0.61)$	$0.71^{+0.11}_{-0.18}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$r_*$	$144.5^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	$0.358^{+0.052}_{-0.088}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0012}$	$\sigma_8(2.33)$	$0.361^{+0.049}_{-0.078}$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.88^{+0.11}_{-0.11}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$H_0$	$> 60.9$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$\Omega_{\Lambda}$	$0.792^{+0.071}_{-0.18}$	$r_{\mathrm{drag}}$	$147.2^{+1.3}_{-1.2}$	$f_{2000}^{217}$	$107.9^{+4.9}_{-4.9}$
$\Omega_{\mathrm{m}}$	$0.208^{+0.18}_{-0.071}$	$k_{\mathrm{D}}$	$0.1406^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{simall}}^2$	$396.6 (\nu: 1.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1432^{+0.0050}_{-0.0050}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00069}_{-0.00067}$	$\chi_{\mathrm{lowl}}^2$	$23.2 (\nu: 0.7)$
$\Omega_{\mathrm{m}} h^3$	$0.122^{+0.024}_{-0.035}$	$z_{\mathrm{eq}}$	$3406^{+120}_{-120}$	$\chi_{\mathrm{plik}}^2$	$769.8 (\nu: 14.6)$
$\sigma_8$	$0.96^{+0.15}_{-0.22}$	$k_{\mathrm{eq}}$	$0.01040^{+0.00037}_{-0.00037}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.6)$
$S_8$	$0.787^{+0.10}_{-0.073}$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.023}_{-0.022}$	$\chi_{\mathrm{CMB}}^2$	$1189.7 (\nu: 15.5)$

$\bar{\chi}_{\mathrm{eff}}^2 = 1196.88; R - 1 = 0.00979$



# 18.5 base\_w\_plikHM\_TT\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02222^{+0.00056}_{-0.00053}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.635^{+0.033}_{-0.042}$	$D_{\mathrm{M}}(0.15)$	$544^{+100}_{-70}$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0042}_{-0.0038}$	$\sigma_8/h^{0.5}$	$1.034^{+0.050}_{-0.069}$	$H(0.38)$	$84.5^{+2.1}_{-3.9}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0012}$	$r_{\mathrm{drag}}h$	$126^{+20}_{-40}$	$D_{\mathrm{M}}(0.38)$	$1378^{+200}_{-100}$
$\tau$	$0.053^{+0.017}_{-0.011}$	$\langle d^2 \rangle^{1/2}$	$2.483^{+0.072}_{-0.083}$	$H(0.51)$	$88.6^{+1.7}_{-2.3}$
$w_0$	$-1.53^{+0.71}_{-0.48}$	$z_{\mathrm{re}}$	$< 9.03$	$D_{\mathrm{M}}(0.51)$	$1830^{+200}_{-100}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.038^{+0.036}_{-0.025}$	$10^9 A_{\mathrm{s}}$	$2.087^{+0.076}_{-0.052}$	$H(0.61)$	$92.8^{+2.9}_{-2.9}$
$n_{\mathrm{s}}$	$0.966^{+0.013}_{-0.013}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.877^{+0.029}_{-0.027}$	$D_{\mathrm{M}}(0.61)$	$2161^{+240}_{-120}$
$y_{\mathrm{cal}}$	$1.0002^{+0.0062}_{-0.0062}$	$D_{40}$	$1223^{+37}_{-32}$	$H(2.33)$	$231^{+10}_{-3.9}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5718^{+110}_{-100}$	$D_{\mathrm{M}}(2.33)$	$5742^{+82}_{-47}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2533^{+35}_{-34}$	$f\sigma_8(0.15)$	$0.481^{+0.037}_{-0.035}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.15)$	$0.89^{+0.13}_{-0.19}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-80}$	$D_{2000}$	$229.8^{+4.9}_{-4.5}$	$f\sigma_8(0.38)$	$0.563^{+0.089}_{-0.11}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.013}_{-0.013}$	$\sigma_8(0.38)$	$0.80^{+0.12}_{-0.18}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24533^{+0.00022}_{-0.00025}$	$f\sigma_8(0.51)$	$0.58^{+0.11}_{-0.14}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00022}_{-0.00025}$	$\sigma_8(0.51)$	$0.75^{+0.11}_{-0.17}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.61^{+0.10}_{-0.10}$	$f\sigma_8(0.61)$	$0.58^{+0.11}_{-0.15}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.9}_{-4.7}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.58^{+0.39}_{-0.21}$	$\sigma_8(0.61)$	$0.71^{+0.10}_{-0.16}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.7}_{-4.5}$	$z_*$	$1090.04^{+0.91}_{-0.89}$	$f\sigma_8(2.33)$	$0.356^{+0.048}_{-0.080}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.2}_{-8.5}$	$r_*$	$144.77^{+0.94}_{-0.97}$	$\sigma_8(2.33)$	$0.359^{+0.045}_{-0.072}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.905^{+0.085}_{-0.091}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$c_{217}$	$0.9983^{+0.0017}_{-0.0017}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$f_{2000}^{217}$	$107.8^{+4.9}_{-4.8}$
$H_0$	$> 62.1$	$r_{\mathrm{drag}}$	$147.49^{+0.96}_{-1.0}$	$\chi_{\mathrm{lensing}}^2$	$9.1 (\nu: 0.7)$
$\Omega_{\Lambda}$	$0.795^{+0.070}_{-0.17}$	$k_{\mathrm{D}}$	$0.1403^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{simall}}^2$	$396.4 (\nu: 0.7)$
$\Omega_{\mathrm{m}}$	$0.205^{+0.17}_{-0.070}$	$100\theta_{\mathrm{D}}$	$0.16100^{+0.00065}_{-0.00064}$	$\chi_{\mathrm{lowl}}^2$	$22.70 (\nu: 0.4)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0040}_{-0.0037}$	$z_{\mathrm{eq}}$	$3378^{+96}_{-88}$	$\chi_{\mathrm{plik}}^2$	$770.2 (\nu: 14.2)$
$\Omega_{\mathrm{m}}h^3$	$0.121^{+0.023}_{-0.032}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00029}_{-0.00027}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.8)$
$\sigma_8$	$0.95^{+0.13}_{-0.19}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.017}_{-0.018}$	$\chi_{\mathrm{CMB}}^2$	$1198.3 (\nu: 15.3)$
$S_8$	$0.774^{+0.10}_{-0.065}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0088}_{-0.0091}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.424^{+0.055}_{-0.036}$	$H(0.15)$	$82.2^{+8.3}_{-14}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1205.67; R - 1 = 0.01511$$



# 18.6 base\_w\_plikHM\_TT\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02212^{+0.00055}_{-0.00053}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.627^{+0.034}_{-0.036}$	$D_{\mathrm{M}}(0.15)$	$602^{+28}_{-25}$
$\Omega_{\mathrm{c}}h^2$	$0.1205^{+0.0048}_{-0.0053}$	$\sigma_8/h^{0.5}$	$1.019^{+0.049}_{-0.050}$	$H(0.38)$	$83.5^{+1.4}_{-1.3}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0012}_{-0.0011}$	$r_{\mathrm{drag}}h$	$108.4^{+6.3}_{-6.3}$	$D_{\mathrm{M}}(0.38)$	$1469^{+48}_{-42}$
$\tau$	$0.053^{+0.019}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.48^{+0.10}_{-0.11}$	$H(0.51)$	$89.2^{+1.3}_{-1.5}$
$w_0$	$-1.23^{+0.17}_{-0.17}$	$z_{\mathrm{re}}$	$< 9.35$	$D_{\mathrm{M}}(0.51)$	$1921^{+50}_{-47}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.042^{+0.039}_{-0.030}$	$10^9 A_{\mathrm{s}}$	$2.095^{+0.083}_{-0.062}$	$H(0.61)$	$94.2^{+1.4}_{-1.5}$
$n_{\mathrm{s}}$	$0.963^{+0.016}_{-0.014}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.883^{+0.033}_{-0.031}$	$D_{\mathrm{M}}(0.61)$	$2248^{+50}_{-48}$
$y_{\mathrm{cal}}$	$1.0003^{+0.0060}_{-0.0057}$	$D_{40}$	$1231^{+40}_{-38}$	$H(2.33)$	$234.0^{+2.9}_{-2.9}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5712^{+110}_{-86}$	$D_{\mathrm{M}}(2.33)$	$5760^{+37}_{-38}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2535^{+33}_{-32}$	$f\sigma_8(0.15)$	$0.476^{+0.035}_{-0.038}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$814^{+13}_{-11}$	$\sigma_8(0.15)$	$0.812^{+0.051}_{-0.055}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-60}$	$D_{2000}$	$229.6^{+4.4}_{-4.3}$	$f\sigma_8(0.38)$	$0.516^{+0.046}_{-0.045}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.963^{+0.016}_{-0.014}$	$\sigma_8(0.38)$	$0.721^{+0.045}_{-0.049}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24529^{+0.00022}_{-0.00025}$	$f\sigma_8(0.51)$	$0.521^{+0.046}_{-0.047}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24662^{+0.00022}_{-0.00025}$	$\sigma_8(0.51)$	$0.674^{+0.041}_{-0.044}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.10}_{-0.10}$	$f\sigma_8(0.61)$	$0.518^{+0.046}_{-0.048}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.6}_{-4.6}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.710^{+0.092}_{-0.088}$	$\sigma_8(0.61)$	$0.641^{+0.038}_{-0.041}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.5}_{-5.0}$	$z_*$	$1090.3^{+1.0}_{-0.95}$	$f\sigma_8(2.33)$	$0.323^{+0.018}_{-0.020}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.0}_{-9.2}$	$r_*$	$144.5^{+1.2}_{-1.1}$	$\sigma_8(2.33)$	$0.328^{+0.016}_{-0.017}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0011}$	$f_{2000}^{143}$	$31^{+7}_{-8}$
$c_{100}$	$0.9996^{+0.0017}_{-0.0015}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.88^{+0.10}_{-0.10}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$c_{217}$	$0.9983^{+0.0017}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.4^{+1.1}_{-1.0}$	$f_{2000}^{217}$	$108.0^{+4.5}_{-5.2}$
$H_0$	$73.7^{+4.2}_{-4.2}$	$r_{\mathrm{drag}}$	$147.2^{+1.2}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$396.6 (\nu: 1.2)$
$\Omega_{\Lambda}$	$0.735^{+0.030}_{-0.035}$	$k_{\mathrm{D}}$	$0.1405^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{lowl}}^2$	$23.5 (\nu: 0.7)$
$\Omega_{\mathrm{m}}$	$0.265^{+0.035}_{-0.030}$	$100\theta_{\mathrm{D}}$	$0.16107^{+0.00059}_{-0.00062}$	$\chi_{\mathrm{plik}}^2$	$770.2 (\nu: 14.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1433^{+0.0046}_{-0.0051}$	$z_{\mathrm{eq}}$	$3409^{+110}_{-120}$	$\chi_{\mathrm{H073p45}}^2$	$1.0 (\nu: 1.0)$
$\Omega_{\mathrm{m}}h^3$	$0.1055^{+0.0070}_{-0.0072}$	$k_{\mathrm{eq}}$	$0.01040^{+0.00033}_{-0.00037}$	$\chi_{\mathrm{prior}}^2$	$7.1 (\nu: 6.4)$
$\sigma_8$	$0.874^{+0.054}_{-0.058}$	$100\theta_{\mathrm{eq}}$	$0.811^{+0.023}_{-0.020}$	$\chi_{\mathrm{CMB}}^2$	$1190.3 (\nu: 14.9)$
$S_8$	$0.820^{+0.055}_{-0.054}$	$100\theta_{\mathrm{s,eq}}$	$0.449^{+0.012}_{-0.010}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.030}_{-0.030}$	$H(0.15)$	$76.2^{+2.4}_{-2.6}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1198.47$ ;  $R - 1 = 0.05306$



## 18.7 base\_w\_plikHM\_TTTEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022434	$0.02239^{+0.00040}_{-0.00037}$ (+1.1 $\sigma$ )	$\Omega_m h^2$	0.14291	$0.1430^{+0.0033}_{-0.0031}$ (−0.1 $\sigma$ )	$k_{\text{eq}}$	0.010376	$0.01038^{+0.00024}_{-0.00023}$ (−0.1 $\sigma$ )
$\Omega_c h^2$	0.11983	$0.1199^{+0.0035}_{-0.0033}$ (−0.3 $\sigma$ )	$\Omega_m h^3$	0.1427	$0.124^{+0.021}_{-0.033}$ (+0.2 $\sigma$ )	$100\theta_{\text{eq}}$	0.8140	$0.814^{+0.014}_{-0.015}$ (+0.2 $\sigma$ )
$100\theta_{\text{MC}}$	1.04097	$1.04094^{+0.00082}_{-0.00080}$ (+0.3 $\sigma$ )	$\sigma_8$	1.072	$0.97^{+0.13}_{-0.20}$ (+0.1 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4497	$0.4495^{+0.0073}_{-0.0076}$ (+0.2 $\sigma$ )
$\tau$	0.0540	$0.054^{+0.021}_{-0.021}$ (+0.3 $\sigma$ )	$S_8$	0.741	$0.777^{+0.084}_{-0.059}$ (−0.3 $\sigma$ )	$H(0.15)$	89.0	$82.9^{+7.2}_{-13}$ (+0.2 $\sigma$ )
$w_0$	−1.95	$−1.58^{+0.72}_{-0.45}$ (−0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4058	$0.426^{+0.046}_{-0.032}$ (−0.3 $\sigma$ )	$D_{\text{M}}(0.15)$	480	$537^{+100}_{-60}$ (−0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0435	$3.043^{+0.043}_{-0.043}$ (+0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6596	$0.643^{+0.035}_{-0.052}$ (−0.0 $\sigma$ )	$H(0.38)$	84.72	$84.5^{+1.7}_{-3.0}$ (+0.5 $\sigma$ )
$n_s$	0.9667	$0.965^{+0.011}_{-0.011}$ (+0.4 $\sigma$ )	$\sigma_8/h^{0.5}$	1.073	$1.045^{+0.053}_{-0.083}$ (−0.0 $\sigma$ )	$D_{\text{M}}(0.38)$	1284	$1368^{+200}_{-100}$ (−0.2 $\sigma$ )
$y_{\text{cal}}$	1.0003	$1.0005^{+0.0065}_{-0.0064}$ (+0.1 $\sigma$ )	$r_{\text{drag}} h$	146.9	$127^{+20}_{-30}$ (+0.2 $\sigma$ )	$H(0.51)$	87.01	$88.4^{+1.8}_{-2.3}$ (+0.2 $\sigma$ )
$A_{217}^{\text{CIB}}$	45.5	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.522	$2.501^{+0.083}_{-0.11}$ (−0.1 $\sigma$ )	$D_{\text{M}}(0.51)$	1739	$1820^{+200}_{-100}$ (−0.3 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.67	—	$z_{\text{re}}$	7.57	$7.6^{+2.0}_{-2.2}$ (+0.2 $\sigma$ )	$H(0.61)$	90.41	$92.5^{+3.1}_{-2.8}$ (+0.1 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.02	$5.5^{+4.5}_{-4.6}$ (+0.2 $\sigma$ )	$10^9 A_s$	2.098	$2.098^{+0.091}_{-0.088}$ (+0.3 $\sigma$ )	$D_{\text{M}}(0.61)$	2077	$2151^{+210}_{-100}$ (−0.3 $\sigma$ )
$A_{100}^{\text{PS}}$	248	$257^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8831	$1.883^{+0.030}_{-0.030}$ (−0.0 $\sigma$ )	$H(2.33)$	230.4	$231.9^{+8.0}_{-3.2}$ (−0.2 $\sigma$ )
$A_{143}^{\text{PS}}$	49.8	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{40}$	1223.0	$1227^{+34}_{-32}$ (−0.2 $\sigma$ )	$D_{\text{M}}(2.33)$	5726.0	$5735^{+59}_{-34}$ (−0.7 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	52.9	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{220}$	5734	$5735^{+99}_{-98}$ (+0.5 $\sigma$ )	$f\sigma_8(0.15)$	0.5064	$0.489^{+0.039}_{-0.043}$ (−0.1 $\sigma$ )
$A_{217}^{\text{PS}}$	122.0	$116^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{810}$	2539.6	$2539^{+35}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	1.011	$0.91^{+0.12}_{-0.20}$ (+0.1 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{1420}$	817.8	$817^{+12}_{-12}$ (+0.6 $\sigma$ )	$f\sigma_8(0.38)$	0.642	$0.576^{+0.088}_{-0.13}$ (+0.1 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.80	$8.9^{+4.7}_{-4.8}$ (−0.0 $\sigma$ )	$D_{2000}$	231.54	$231.1^{+4.2}_{-4.0}$ (+0.8 $\sigma$ )	$\sigma_8(0.38)$	0.905	$0.81^{+0.11}_{-0.18}$ (+0.1 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.97	$10.9^{+4.5}_{-4.6}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9667	$0.965^{+0.011}_{-0.011}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.674	$0.59^{+0.10}_{-0.15}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	20.0	$18.5^{+8.5}_{-8.7}$ (+0.1 $\sigma$ )	$Y_{\text{P}}$	0.245420	$0.24540^{+0.00015}_{-0.00015}$ (+1.1 $\sigma$ )	$\sigma_8(0.51)$	0.846	$0.76^{+0.10}_{-0.17}$ (+0.1 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.4	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.246747	$0.24673^{+0.00015}_{-0.00015}$ (+1.1 $\sigma$ )	$f\sigma_8(0.61)$	0.680	$0.60^{+0.11}_{-0.15}$ (+0.1 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.115	$0.114^{+0.099}_{-0.096}$	$10^5 \text{D/H}$	2.574	$2.582^{+0.071}_{-0.071}$ (−1.1 $\sigma$ )	$\sigma_8(0.61)$	0.803	$0.722^{+0.097}_{-0.16}$ (+0.1 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.135^{+0.074}_{-0.074}$	Age/Gyr	13.427	$13.54^{+0.34}_{-0.16}$ (−0.4 $\sigma$ )	$f\sigma_8(2.33)$	0.400	$0.362^{+0.046}_{-0.080}$ (+0.2 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.480	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.82	$1089.89^{+0.70}_{-0.72}$ (−0.9 $\sigma$ )	$\sigma_8(2.33)$	0.400	$0.365^{+0.043}_{-0.071}$ (+0.2 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.225	$0.23^{+0.14}_{-0.14}$	$r_*$	144.43	$144.43^{+0.74}_{-0.78}$ (−0.1 $\sigma$ )	$f_{2000}^{143}$	28.0	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.665	$0.66^{+0.21}_{-0.21}$	$100\theta_*$	1.04114	$1.04112^{+0.00081}_{-0.00078}$ (+0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.50	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.08	$2.08^{+0.69}_{-0.70}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.872	$13.873^{+0.069}_{-0.073}$ (−0.1 $\sigma$ )	$f_{2000}^{217}$	106.10	$106.8^{+4.6}_{-4.6}$ (−0.6 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1060.09	$1059.98^{+0.79}_{-0.78}$ (+1.1 $\sigma$ )	$\chi_{\text{small}}^2$	395.85	$397.0 (\nu: 1.6)$ (+0.1 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	147.06	$147.09^{+0.73}_{-0.76}$ (−0.3 $\sigma$ )	$\chi_{\text{lowl}}^2$	22.44	$22.87 (\nu: 0.4)$ (−0.3 $\sigma$ )
$H_0$	99.9	> 63.9 (+0.2 $\sigma$ )	$k_{\text{D}}$	0.14094	$0.14089^{+0.00084}_{-0.00079}$ (+0.6 $\sigma$ )	$\chi_{\text{plik}}^2$	2341.6	$2357.3 (\nu: 16.7)$ (+293.0 $\sigma$ )
$\Omega_{\Lambda}$	0.857	$0.802^{+0.060}_{-0.16}$ (+0.2 $\sigma$ )	$100\theta_{\text{D}}$	0.160683	$0.16073^{+0.00044}_{-0.00046}$ (−1.1 $\sigma$ )	$\chi_{\text{prior}}^2$	1.5	$11.5 (\nu: 10.1)$ (+1.2 $\sigma$ )
$\Omega_{\text{m}}$	0.143	$0.198^{+0.16}_{-0.060}$ (−0.2 $\sigma$ )	$z_{\text{eq}}$	3400	$3401^{+80}_{-74}$ (−0.1 $\sigma$ )	$\chi_{\text{CMB}}^2$	2759.9	$2777.1 (\nu: 17.6)$ (+280.8 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 2761.37$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.07$ ;  $\bar{\chi}_{\text{eff}}^2 = 2788.65$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.44$ ;  $R - 1 = 0.00965$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.85 ( $\Delta$  0.12) commander\_dx12\_v3.2.29: 22.45 ( $\Delta$  -0.20) plik\_rd12\_HM\_v22b\_TTTEE: 2341.57



## 18.8 base\_w\_plikHM\_TTTEE\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022465	$0.02243^{+0.00039}_{-0.00038}$ (+1.0 $\sigma$ )	$\Omega_m h^3$	0.1420	$0.123^{+0.021}_{-0.031}$ (+0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4514	$0.4508^{+0.0065}_{-0.0068}$ (−0.1 $\sigma$ )
$\Omega_c h^2$	0.11907	$0.1193^{+0.0031}_{-0.0030}$ (+0.0 $\sigma$ )	$\sigma_8$	1.062	$0.96^{+0.12}_{-0.18}$ (+0.1 $\sigma$ )	$H(0.15)$	89.2	$83.0^{+7.3}_{-12}$ (+0.1 $\sigma$ )
$100\theta_{MC}$	1.04100	$1.04099^{+0.00082}_{-0.00081}$ (+0.2 $\sigma$ )	$S_8$	0.732	$0.771^{+0.079}_{-0.057}$ (−0.1 $\sigma$ )	$D_M(0.15)$	479	$537^{+100}_{-60}$ (−0.1 $\sigma$ )
$\tau$	0.0523	$0.052^{+0.020}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4011	$0.422^{+0.043}_{-0.031}$ (−0.1 $\sigma$ )	$H(0.38)$	85.07	$84.7^{+1.6}_{-3.0}$ (+0.3 $\sigma$ )
$w_0$	−1.92	$−1.57^{+0.66}_{-0.44}$ (−0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6528	$0.637^{+0.029}_{-0.042}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1280	$1366^{+200}_{-100}$ (−0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0373	$3.038^{+0.039}_{-0.038}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	1.063	$1.037^{+0.045}_{-0.069}$ (+0.1 $\sigma$ )	$H(0.51)$	87.31	$88.6^{+1.6}_{-2.2}$ (+0.1 $\sigma$ )
$n_s$	0.9683	$0.967^{+0.010}_{-0.011}$ (+0.2 $\sigma$ )	$r_{drag} h$	147.0	$127^{+20}_{-30}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1733	$1816^{+200}_{-100}$ (−0.2 $\sigma$ )
$y_{cal}$	1.0001	$1.0003^{+0.0066}_{-0.0063}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.502	$2.485^{+0.064}_{-0.078}$ (+0.1 $\sigma$ )	$H(0.61)$	90.65	$92.7^{+2.9}_{-2.7}$ (+0.0 $\sigma$ )
$A_{217}^{CIB}$	46.3	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$z_{re}$	7.37	$7.4^{+1.9}_{-2.1}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2071	$2147^{+200}_{-100}$ (−0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.57	—	$10^9 A_s$	2.085	$2.087^{+0.083}_{-0.078}$ (+0.3 $\sigma$ )	$H(2.33)$	229.9	$231.5^{+6.8}_{-3.4}$ (−0.0 $\sigma$ )
$A_{143}^{tSZ}$	7.18	> 0.900 (+0.2 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8779	$1.879^{+0.029}_{-0.027}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5721.7	$5731^{+56}_{-32}$ (−0.5 $\sigma$ )
$A_{100}^{PS}$	248	$257^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{40}$	1217.3	$1223^{+33}_{-29}$ (−0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4987	$0.483^{+0.032}_{-0.035}$ (+0.1 $\sigma$ )
$A_{143}^{PS}$	48.5	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{220}$	5730	$5734^{+98}_{-98}$ (+0.4 $\sigma$ )	$\sigma_8(0.15)$	1.002	$0.90^{+0.12}_{-0.18}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	50.3	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2536.5	$2536^{+35}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.632	$0.569^{+0.084}_{-0.11}$ (+0.1 $\sigma$ )
$A_{217}^{PS}$	120.5	$115^{+20}_{-30}$ (+0.1 $\sigma$ )	$D_{1420}$	817.3	$817^{+13}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(0.38)$	0.898	$0.81^{+0.11}_{-0.17}$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$D_{2000}$	231.36	$230.9^{+4.1}_{-4.2}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.664	$0.587^{+0.098}_{-0.13}$ (+0.1 $\sigma$ )
$A_{100}^{dustTT}$	8.81	$9.0^{+4.7}_{-4.9}$ (−0.0 $\sigma$ )	$n_{s,0.002}$	0.9683	$0.967^{+0.010}_{-0.011}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.840	$0.75^{+0.10}_{-0.16}$ (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	11.06	$10.9^{+4.4}_{-4.7}$ (+0.1 $\sigma$ )	$Y_P$	0.245432	$0.24542^{+0.00015}_{-0.00015}$ (+1.0 $\sigma$ )	$f\sigma_8(0.61)$	0.671	$0.59^{+0.10}_{-0.14}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.1	$18.6^{+8.4}_{-8.6}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246758	$0.24674^{+0.00015}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.797	$0.717^{+0.095}_{-0.15}$ (+0.1 $\sigma$ )
$A_{217}^{dustTT}$	95.3	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.568	$2.576^{+0.071}_{-0.069}$ (−1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.397	$0.360^{+0.045}_{-0.073}$ (+0.1 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.10}_{-0.096}$	Age/Gyr	13.420	$13.54^{+0.32}_{-0.17}$ (−0.3 $\sigma$ )	$\sigma_8(2.33)$	0.398	$0.362^{+0.042}_{-0.066}$ (+0.1 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.074}_{-0.073}$	$z_*$	1089.72	$1089.79^{+0.68}_{-0.67}$ (−0.8 $\sigma$ )	$f_{2000}^{143}$	28.3	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.484	$0.48^{+0.22}_{-0.22}$	$r_*$	144.60	$144.56^{+0.64}_{-0.68}$ (−0.5 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.58	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{143}^{dustTE}$	0.223	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	1.04118	$1.04117^{+0.00080}_{-0.00080}$ (+0.1 $\sigma$ )	$f_{2000}^{217}$	106.15	$106.8^{+4.5}_{-4.5}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.665	$0.66^{+0.21}_{-0.21}$	$D_M(z_*)/\text{Gpc}$	13.888	$13.885^{+0.061}_{-0.064}$ (−0.5 $\sigma$ )	$\chi^2_{lensing}$	8.68	9.0 ( $\nu$ : 0.6) (−0.0 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.07^{+0.70}_{-0.71}$	$z_{drag}$	1060.09	$1060.02^{+0.79}_{-0.77}$ (+1.1 $\sigma$ )	$\chi^2_{small}$	396	1325 ( $\nu$ : 479409.9) (+689.8 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{drag}$	147.23	$147.21^{+0.65}_{-0.69}$ (−0.6 $\sigma$ )	$\chi^2_{lowl}$	22.13	22.59 ( $\nu$ : 0.3) (−0.2 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0017}_{-0.0017}$ (−0.1 $\sigma$ )	$k_D$	0.14079	$0.14079^{+0.00076}_{-0.00074}$ (+0.9 $\sigma$ )	$\chi^2_{plik}$	2342	1430 ( $\nu$ : 479481.8) (+125.0 $\sigma$ )
$H_0$	99.9	> 65.0 (+0.1 $\sigma$ )	$100\theta_D$	0.160670	$0.16072^{+0.00044}_{-0.00046}$ (−1.1 $\sigma$ )	$\chi^2_{prior}$	1.6	11.6 ( $\nu$ : 10.3) (+1.2 $\sigma$ )
$\Omega_\Lambda$	0.857	$0.803^{+0.060}_{-0.14}$ (+0.1 $\sigma$ )	$z_{eq}$	3382	$3388^{+70}_{-64}$ (+0.1 $\sigma$ )	$\chi^2_{CMB}$	2768.9	2786.1 ( $\nu$ : 18.1) (+283.3 $\sigma$ )
$\Omega_m$	0.143	$0.197^{+0.14}_{-0.060}$ (−0.1 $\sigma$ )	$k_{eq}$	0.010323	$0.01034^{+0.00021}_{-0.00020}$ (+0.1 $\sigma$ )			
$\Omega_m h^2$	0.14218	$0.1424^{+0.0029}_{-0.0027}$ (+0.1 $\sigma$ )	$100\theta_{eq}$	0.8172	$0.816^{+0.013}_{-0.013}$ (−0.1 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 2770.54$ ;  $\Delta\chi^2_{eff} = 1585.34$ ;  $\bar{\chi}^2_{eff} = 2797.72$ ;  $\Delta\bar{\chi}^2_{eff} = 1591.74$ ;  $R - 1 = 0.01426$   
 $\chi^2_{eff}$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp.p\_teb\_consext8: 8.68 ( $\Delta$  0.27) small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.65 ( $\Delta$  0.00) commander\_dx12.v3.2\_29: 22.13 ( $\Delta$  -0.03) plik\_rd12\_HM\_v22b\_TTTEE: 2342.46



## 18.9 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022388	$0.02236^{+0.00039}_{-0.00035}$ (+1.2 $\sigma$ )	$\Omega_{\mathrm{m}}h^2$	0.14309	$0.1432^{+0.0034}_{-0.0034}$ (−0.1 $\sigma$ )	$k_{\mathrm{eq}}$	0.010389	$0.01040^{+0.00025}_{-0.00025}$ (−0.1 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.12006	$0.1202^{+0.0035}_{-0.0037}$ (−0.2 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.1055	$0.1055^{+0.0064}_{-0.0064}$ (−0.0 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8130	$0.812^{+0.016}_{-0.015}$ (+0.2 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04093	$1.04092^{+0.00082}_{-0.00077}$ (+0.3 $\sigma$ )	$\sigma_8$	0.8704	$0.870^{+0.049}_{-0.048}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4492	$0.4489^{+0.0080}_{-0.0077}$ (+0.1 $\sigma$ )
$\tau$	0.0545	$0.054^{+0.023}_{-0.019}$ (+0.3 $\sigma$ )	$S_8$	0.8153	$0.816^{+0.041}_{-0.040}$ (−0.2 $\sigma$ )	$H(0.15)$	76.46	$76.4^{+2.4}_{-2.5}$ (+0.2 $\sigma$ )
$w_0$	−1.209	$−1.21^{+0.15}_{-0.15}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4465	$0.447^{+0.023}_{-0.022}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	600.1	$601^{+27}_{-25}$ (−0.1 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0447	$3.044^{+0.042}_{-0.044}$ (+0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6234	$0.624^{+0.026}_{-0.028}$ (−0.2 $\sigma$ )	$H(0.38)$	83.87	$83.8^{+1.1}_{-1.1}$ (+0.5 $\sigma$ )
$n_{\mathrm{s}}$	0.9662	$0.965^{+0.011}_{-0.012}$ (+0.4 $\sigma$ )	$\sigma_8/h^{0.5}$	1.0136	$1.014^{+0.038}_{-0.040}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1464.1	$1466^{+45}_{-41}$ (−0.2 $\sigma$ )
$y_{\mathrm{cal}}$	1.0004	$1.0006^{+0.0061}_{-0.0058}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	108.4	$108.3^{+6.3}_{-6.2}$ (−0.0 $\sigma$ )	$H(0.51)$	89.56	$89.5^{+1.1}_{-0.95}$ (+0.6 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	46.7	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.472	$2.476^{+0.075}_{-0.087}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1914.1	$1916^{+46}_{-44}$ (−0.3 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.50	—	$z_{\mathrm{re}}$	7.67	$7.6^{+2.2}_{-2.1}$ (+0.3 $\sigma$ )	$H(0.61)$	94.58	$94.5^{+1.1}_{-1.0}$ (+0.6 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.1	—	$10^9 A_{\mathrm{s}}$	2.100	$2.099^{+0.090}_{-0.091}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2240.0	$2242^{+47}_{-44}$ (−0.3 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	250	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8835	$1.885^{+0.029}_{-0.028}$ (+0.1 $\sigma$ )	$H(2.33)$	234.02	$234.1^{+2.3}_{-2.1}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	48.2	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{40}$	1226.4	$1231^{+33}_{-29}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5745.8	$5748^{+29}_{-27}$ (−0.9 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	49.0	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{220}$	5728	$5734^{+92}_{-92}$ (+0.6 $\sigma$ )	$f\sigma_8(0.15)$	0.4714	$0.472^{+0.026}_{-0.026}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	120.4	$116^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{810}$	2539.7	$2540^{+36}_{-31}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.8083	$0.808^{+0.047}_{-0.045}$ (−0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{1420}$	817.8	$817^{+12}_{-12}$ (+0.6 $\sigma$ )	$f\sigma_8(0.38)$	0.5116	$0.512^{+0.036}_{-0.035}$ (−0.2 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.76	$9.0^{+4.3}_{-4.7}$ (+0.0 $\sigma$ )	$D_{2000}$	231.31	$231.0^{+3.9}_{-4.1}$ (+0.8 $\sigma$ )	$\sigma_8(0.38)$	0.7185	$0.718^{+0.041}_{-0.040}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	10.92	$11.0^{+4.6}_{-4.8}$ (+0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9662	$0.965^{+0.011}_{-0.012}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.5166	$0.517^{+0.038}_{-0.038}$ (−0.2 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.7	$18.7^{+7.9}_{-8.5}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.245402	$0.24539^{+0.00015}_{-0.00014}$ (+1.1 $\sigma$ )	$\sigma_8(0.51)$	0.6723	$0.672^{+0.038}_{-0.038}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.1	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246729	$0.24672^{+0.00015}_{-0.00014}$ (+1.1 $\sigma$ )	$f\sigma_8(0.61)$	0.5142	$0.515^{+0.038}_{-0.038}$ (−0.2 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.114^{+0.10}_{-0.088}$	$10^5 \mathrm{D}/\mathrm{H}$	2.582	$2.587^{+0.066}_{-0.070}$ (−1.1 $\sigma$ )	$\sigma_8(0.61)$	0.6394	$0.639^{+0.035}_{-0.035}$ (−0.1 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.134	$0.135^{+0.070}_{-0.075}$	Age/Gyr	13.681	$13.685^{+0.084}_{-0.079}$ (−0.7 $\sigma$ )	$f\sigma_8(2.33)$	0.3224	$0.322^{+0.017}_{-0.018}$ (−0.0 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.481	$0.48^{+0.22}_{-0.23}$	$z_*$	1089.90	$1089.95^{+0.65}_{-0.80}$ (−0.9 $\sigma$ )	$\sigma_8(2.33)$	0.3282	$0.328^{+0.016}_{-0.015}$ (−0.0 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.223	$0.23^{+0.14}_{-0.15}$	$r_*$	144.40	$144.38^{+0.77}_{-0.80}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{simall}}^2$	396	1288 ( $\nu$ : 476761.4) (+539.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.669	$0.67^{+0.20}_{-0.20}$	$100\theta_*$	1.04111	$1.04110^{+0.00081}_{-0.00077}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	22.91	23.25 ( $\nu$ : 0.4) (−0.2 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.10	$2.08^{+0.67}_{-0.63}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.870	$13.868^{+0.072}_{-0.073}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2343	1468 ( $\nu$ : 476859.4) (+130.3 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\mathrm{drag}}$	1059.97	$1059.94^{+0.76}_{-0.73}$ (+1.2 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	0.03	0.97 ( $\nu$ : 1.0) (−0.0 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0017}_{-0.0015}$ (−0.1 $\sigma$ )	$r_{\mathrm{drag}}$	147.06	$147.04^{+0.72}_{-0.77}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.6	11.6 ( $\nu$ : 10.4) (+1.2 $\sigma$ )
$H_0$	73.73	$73.7^{+4.2}_{-4.1}$ (+0.0 $\sigma$ )	$k_{\mathrm{D}}$	0.14092	$0.14092^{+0.00096}_{-0.00083}$ (+0.7 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2762.3	2778.8 ( $\nu$ : 18.3) (+285.9 $\sigma$ )
$\Omega_{\Lambda}$	0.7368	$0.736^{+0.029}_{-0.033}$ (+0.0 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.160733	$0.16076^{+0.00042}_{-0.00042}$ (−1.2 $\sigma$ )			
$\Omega_{\mathrm{m}}$	0.2632	$0.264^{+0.033}_{-0.029}$ (−0.0 $\sigma$ )	$z_{\mathrm{eq}}$	3404	$3408^{+81}_{-82}$ (−0.1 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2763.89$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.78$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2791.33$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.41$ ;  $R - 1 = 0.07272$

$\chi_{\mathrm{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.04 ( $\Delta$  0.22) commander\_dx12\_v3\_2\_29: 22.91 ( $\Delta$  -0.32) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.33 Hubble - H073p45: 0.03 ( $\Delta$  0.01)



18.10 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02240^{+0.00040}_{-0.00037} \quad (+1.1\sigma)$	$\Omega_{\text{m}}h^2$	$0.1429^{+0.0033}_{-0.0031} \quad (-0.1\sigma)$	$k_{\text{eq}}$	$0.01038^{+0.00024}_{-0.00022} \quad (-0.1\sigma)$
$\Omega_{\text{c}}h^2$	$0.1199^{+0.0035}_{-0.0033} \quad (-0.2\sigma)$	$\Omega_{\text{m}}h^3$	$0.124^{+0.021}_{-0.033} \quad (+0.1\sigma)$	$100\theta_{\text{eq}}$	$0.814^{+0.014}_{-0.015} \quad (+0.2\sigma)$
$100\theta_{\text{MC}}$	$1.04094^{+0.00082}_{-0.00080} \quad (+0.3\sigma)$	$\sigma_8$	$0.97^{+0.13}_{-0.20} \quad (+0.1\sigma)$	$100\theta_{\text{s,eq}}$	$0.4496^{+0.0072}_{-0.0075} \quad (+0.2\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.3\sigma)$	$S_8$	$0.778^{+0.084}_{-0.058} \quad (-0.3\sigma)$	$H(0.15)$	$82.9^{+7.2}_{-13} \quad (+0.2\sigma)$
$w_0$	$-1.58^{+0.71}_{-0.45} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.426^{+0.046}_{-0.032} \quad (-0.3\sigma)$	$D_{\text{M}}(0.15)$	$537^{+100}_{-60} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.046^{+0.041}_{-0.029} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.643^{+0.035}_{-0.052} \quad (-0.0\sigma)$	$H(0.38)$	$84.5^{+1.7}_{-2.9} \quad (+0.5\sigma)$
$n_{\text{s}}$	$0.966^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$\sigma_8/h^{0.5}$	$1.046^{+0.053}_{-0.083} \quad (-0.0\sigma)$	$D_{\text{M}}(0.38)$	$1368^{+200}_{-100} \quad (-0.2\sigma)$
$y_{\text{cal}}$	$1.0005^{+0.0065}_{-0.0064} \quad (+0.1\sigma)$	$r_{\text{drag}}h$	$127^{+20}_{-30} \quad (+0.2\sigma)$	$H(0.51)$	$88.4^{+1.8}_{-2.3} \quad (+0.2\sigma)$
$A_{217}^{\text{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.504^{+0.081}_{-0.10} \quad (-0.1\sigma)$	$D_{\text{M}}(0.51)$	$1819^{+200}_{-100} \quad (-0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$z_{\text{re}}$	$< 9.48 \quad (+0.2\sigma)$	$H(0.61)$	$92.5^{+3.1}_{-2.8} \quad (+0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$5.5^{+4.5}_{-4.6} \quad (+0.2\sigma)$	$10^9 A_{\text{s}}$	$2.103^{+0.087}_{-0.060} \quad (+0.3\sigma)$	$D_{\text{M}}(0.61)$	$2151^{+210}_{-100} \quad (-0.3\sigma)$
$A_{100}^{\text{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.883^{+0.030}_{-0.029} \quad (-0.0\sigma)$	$H(2.33)$	$231.8^{+8.0}_{-3.2} \quad (-0.2\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{40}$	$1227^{+34}_{-32} \quad (-0.2\sigma)$	$D_{\text{M}}(2.33)$	$5735^{+58}_{-34} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5735^{+99}_{-99} \quad (+0.5\sigma)$	$f\sigma_8(0.15)$	$0.489^{+0.039}_{-0.043} \quad (-0.1\sigma)$
$A_{217}^{\text{PS}}$	$116^{+30}_{-30} \quad (+0.0\sigma)$	$D_{810}$	$2538^{+35}_{-34} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.91^{+0.12}_{-0.20} \quad (+0.1\sigma)$
$A^{\text{kSZ}}$	—	$D_{1420}$	$817^{+12}_{-12} \quad (+0.6\sigma)$	$f\sigma_8(0.38)$	$0.577^{+0.088}_{-0.13} \quad (+0.0\sigma)$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.8}_{-4.8} \quad (-0.0\sigma)$	$D_{2000}$	$231.1^{+4.2}_{-4.0} \quad (+0.8\sigma)$	$\sigma_8(0.38)$	$0.81^{+0.11}_{-0.18} \quad (+0.1\sigma)$
$A_{143}^{\text{dustTT}}$	$10.8^{+4.5}_{-4.6} \quad (+0.1\sigma)$	$n_{\text{s},0.002}$	$0.966^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.59^{+0.10}_{-0.14} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.5^{+8.5}_{-8.6} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.24540^{+0.00015}_{-0.00015} \quad (+1.1\sigma)$	$\sigma_8(0.51)$	$0.76^{+0.10}_{-0.17} \quad (+0.1\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24673^{+0.00015}_{-0.00015} \quad (+1.1\sigma)$	$f\sigma_8(0.61)$	$0.60^{+0.11}_{-0.15} \quad (+0.1\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.099}_{-0.096}$	$10^5 \text{D/H}$	$2.581^{+0.070}_{-0.071} \quad (-1.1\sigma)$	$\sigma_8(0.61)$	$0.723^{+0.097}_{-0.16} \quad (+0.1\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.074}_{-0.073}$	Age/Gyr	$13.54^{+0.34}_{-0.16} \quad (-0.4\sigma)$	$f\sigma_8(2.33)$	$0.362^{+0.045}_{-0.080} \quad (+0.1\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$z_*$	$1089.88^{+0.68}_{-0.72} \quad (-0.9\sigma)$	$\sigma_8(2.33)$	$0.365^{+0.043}_{-0.071} \quad (+0.1\sigma)$
$A_{143}^{\text{dustTE}}$	$0.23^{+0.14}_{-0.14}$	$r_*$	$144.44^{+0.73}_{-0.77} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$100\theta_*$	$1.04113^{+0.00080}_{-0.00078} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.69}_{-0.69}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.874^{+0.069}_{-0.073} \quad (-0.1\sigma)$	$f_{2000}^{217}$	$106.7^{+4.6}_{-4.5} \quad (-0.6\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$z_{\text{drag}}$	$1059.99^{+0.78}_{-0.74} \quad (+1.1\sigma)$	$\chi_{\text{small}}^2$	$396.9 \quad (\nu: 1.7) \quad (+0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$r_{\text{drag}}$	$147.09^{+0.73}_{-0.76} \quad (-0.3\sigma)$	$\chi_{\text{lowl}}^2$	$22.87 \quad (\nu: 0.4) \quad (-0.3\sigma)$
$H_0$	$> 64.0 \quad (+0.2\sigma)$	$k_{\text{D}}$	$0.14088^{+0.00084}_{-0.00079} \quad (+0.6\sigma)$	$\chi_{\text{plik}}^2$	$2357.1 \quad (\nu: 16.5) \quad (+293.5\sigma)$
$\Omega_{\Lambda}$	$0.802^{+0.060}_{-0.16} \quad (+0.2\sigma)$	$100\theta_{\text{D}}$	$0.16073^{+0.00044}_{-0.00046} \quad (-1.1\sigma)$	$\chi_{\text{prior}}^2$	$11.5 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$\Omega_{\text{m}}$	$0.198^{+0.16}_{-0.060} \quad (-0.2\sigma)$	$z_{\text{eq}}$	$3400^{+78}_{-73} \quad (-0.1\sigma)$	$\chi_{\text{CMB}}^2$	$2776.9 \quad (\nu: 17.2) \quad (+285.3\sigma)$

$\bar{\chi}_{\text{eff}}^2 = 2788.38$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.50$ ;  $R - 1 = 0.01060$



## 18.11 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02243^{+0.00039}_{-0.00038} \quad (+1.0\sigma)$	$\Omega_{\text{m}}h^3$	$0.123^{+0.022}_{-0.031} \quad (+0.1\sigma)$	$100\theta_{\text{s,eq}}$	$0.4510^{+0.0064}_{-0.0066} \quad (-0.2\sigma)$
$\Omega_{\text{c}}h^2$	$0.1192^{+0.0031}_{-0.0029} \quad (+0.1\sigma)$	$\sigma_8$	$0.96^{+0.12}_{-0.18} \quad (+0.1\sigma)$	$H(0.15)$	$82.9^{+7.4}_{-12} \quad (+0.1\sigma)$
$100\theta_{\text{MC}}$	$1.04100^{+0.00081}_{-0.00081} \quad (+0.1\sigma)$	$S_8$	$0.771^{+0.079}_{-0.058} \quad (-0.1\sigma)$	$D_{\text{M}}(0.15)$	$537^{+100}_{-60} \quad (-0.1\sigma)$
$\tau$	$0.054^{+0.017}_{-0.012} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.422^{+0.043}_{-0.032} \quad (-0.1\sigma)$	$H(0.38)$	$84.8^{+1.6}_{-3.0} \quad (+0.3\sigma)$
$w_0$	$-1.56^{+0.66}_{-0.44} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.637^{+0.029}_{-0.042} \quad (+0.1\sigma)$	$D_{\text{M}}(0.38)$	$1367^{+200}_{-100} \quad (-0.1\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.041^{+0.037}_{-0.025} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$1.037^{+0.045}_{-0.068} \quad (+0.1\sigma)$	$H(0.51)$	$88.7^{+1.6}_{-2.2} \quad (+0.1\sigma)$
$n_{\text{s}}$	$0.967^{+0.010}_{-0.011} \quad (+0.2\sigma)$	$r_{\text{drag}}h$	$127^{+20}_{-30} \quad (+0.1\sigma)$	$D_{\text{M}}(0.51)$	$1817^{+200}_{-100} \quad (-0.2\sigma)$
$y_{\text{cal}}$	$1.0002^{+0.0067}_{-0.0063} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.487^{+0.063}_{-0.075} \quad (+0.1\sigma)$	$H(0.61)$	$92.8^{+2.8}_{-2.7} \quad (+0.0\sigma)$
$A_{217}^{\text{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\text{re}}$	$< 9.15 \quad (+0.1\sigma)$	$D_{\text{M}}(0.61)$	$2148^{+200}_{-100} \quad (-0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_{\text{s}}$	$2.093^{+0.079}_{-0.052} \quad (+0.2\sigma)$	$H(2.33)$	$231.5^{+6.8}_{-3.4} \quad (+0.0\sigma)$
$A_{143}^{\text{tSZ}}$	$> 0.904 \quad (+0.2\sigma)$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.879^{+0.027}_{-0.026} \quad (+0.1\sigma)$	$D_{\text{M}}(2.33)$	$5731^{+57}_{-32} \quad (-0.5\sigma)$
$A_{100}^{\text{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1223^{+32}_{-28} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.483^{+0.032}_{-0.035} \quad (+0.1\sigma)$
$A_{143}^{\text{PS}}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5733^{+97}_{-98} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.90^{+0.12}_{-0.18} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2536^{+35}_{-34} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.568^{+0.085}_{-0.11} \quad (+0.1\sigma)$
$A_{217}^{\text{PS}}$	$115^{+20}_{-30} \quad (+0.1\sigma)$	$D_{1420}$	$817^{+13}_{-12} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.81^{+0.11}_{-0.17} \quad (+0.1\sigma)$
$A^{\text{kSZ}}$	—	$D_{2000}$	$231.0^{+4.1}_{-4.1} \quad (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.586^{+0.098}_{-0.13} \quad (+0.1\sigma)$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.7}_{-4.9} \quad (+0.0\sigma)$	$n_{\text{s},0.002}$	$0.967^{+0.010}_{-0.011} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.75^{+0.10}_{-0.16} \quad (+0.1\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.4}_{-4.6} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.24542^{+0.00015}_{-0.00015} \quad (+1.0\sigma)$	$f\sigma_8(0.61)$	$0.59^{+0.10}_{-0.14} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.6^{+8.2}_{-8.5} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24674^{+0.00015}_{-0.00015} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.716^{+0.096}_{-0.15} \quad (+0.1\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$10^5 \text{D}/\text{H}$	$2.574^{+0.071}_{-0.069} \quad (-1.0\sigma)$	$f\sigma_8(2.33)$	$0.359^{+0.045}_{-0.073} \quad (+0.1\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.096}$	$\text{Age}/\text{Gyr}$	$13.54^{+0.32}_{-0.17} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.362^{+0.042}_{-0.066} \quad (+0.1\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.074}_{-0.073}$	$z_*$	$1089.78^{+0.66}_{-0.65} \quad (-0.8\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-7} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$144.58^{+0.62}_{-0.68} \quad (-0.5\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-4} \quad (-0.7\sigma)$
$A_{143}^{\text{dustTE}}$	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	$1.04118^{+0.00080}_{-0.00080} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$106.7^{+4.6}_{-4.4} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.886^{+0.059}_{-0.064} \quad (-0.5\sigma)$	$\chi_{\text{lensing}}^2$	$9.0 \quad (\nu: 0.6) \quad (-0.0\sigma)$
$A_{217}^{\text{dustTE}}$	$2.07^{+0.70}_{-0.71}$	$z_{\text{drag}}$	$1060.03^{+0.82}_{-0.74} \quad (+1.1\sigma)$	$\chi_{\text{small}}^2$	$1339 \quad (\nu: 480033.5) \quad (+814.7\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$r_{\text{drag}}$	$147.22^{+0.63}_{-0.69} \quad (-0.7\sigma)$	$\chi_{\text{lowl}}^2$	$22.58 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0017} \quad (-0.1\sigma)$	$k_{\text{D}}$	$0.14077^{+0.00076}_{-0.00074} \quad (+1.0\sigma)$	$\chi_{\text{plik}}^2$	$1416 \quad (\nu: 480047.8) \quad (+121.3\sigma)$
$H_0$	$> 64.9 \quad (+0.1\sigma)$	$100\theta_{\text{D}}$	$0.16071^{+0.00043}_{-0.00046} \quad (-1.1\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.802^{+0.061}_{-0.14} \quad (+0.1\sigma)$	$z_{\text{eq}}$	$3385^{+69}_{-64} \quad (+0.2\sigma)$	$\chi_{\text{CMB}}^2$	$2785.8 \quad (\nu: 17.6) \quad (+286.8\sigma)$
$\Omega_{\text{m}}$	$0.198^{+0.14}_{-0.061} \quad (-0.1\sigma)$	$k_{\text{eq}}$	$0.01033^{+0.00021}_{-0.00020} \quad (+0.2\sigma)$		
$\Omega_{\text{m}}h^2$	$0.1423^{+0.0029}_{-0.0027} \quad (+0.2\sigma)$	$100\theta_{\text{eq}}$	$0.817^{+0.012}_{-0.013} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2797.43; \Delta\bar{\chi}_{\text{eff}}^2 = 1591.76; R - 1 = 0.01516$$



## 18.12 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02236^{+0.00039}_{-0.00035} \quad (+1.1\sigma)$	$\Omega_{\text{m}}h^3$	$0.1055^{+0.0064}_{-0.0064} \quad (-0.0\sigma)$	$100\theta_{\text{s,eq}}$	$0.4490^{+0.0085}_{-0.0077} \quad (+0.1\sigma)$
$\Omega_{\text{c}}h^2$	$0.1202^{+0.0035}_{-0.0040} \quad (-0.2\sigma)$	$\sigma_8$	$0.872^{+0.048}_{-0.048} \quad (-0.1\sigma)$	$H(0.15)$	$76.4^{+2.4}_{-2.5} \quad (+0.2\sigma)$
$100\theta_{\text{MC}}$	$1.04092^{+0.00082}_{-0.00078} \quad (+0.3\sigma)$	$S_8$	$0.817^{+0.042}_{-0.034} \quad (-0.1\sigma)$	$D_{\text{M}}(0.15)$	$601^{+27}_{-25} \quad (-0.1\sigma)$
$\tau$	$0.055^{+0.019}_{-0.015} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.448^{+0.023}_{-0.019} \quad (-0.1\sigma)$	$H(0.38)$	$83.8^{+1.1}_{-1.1} \quad (+0.5\sigma)$
$w_0$	$-1.21^{+0.15}_{-0.15} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.625^{+0.026}_{-0.027} \quad (-0.2\sigma)$	$D_{\text{M}}(0.38)$	$1466^{+45}_{-41} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\text{s}})$	$3.047^{+0.039}_{-0.029} \quad (+0.4\sigma)$	$\sigma_8/h^{0.5}$	$1.015^{+0.038}_{-0.039} \quad (-0.2\sigma)$	$H(0.51)$	$89.5^{+1.1}_{-1.0} \quad (+0.6\sigma)$
$n_{\text{s}}$	$0.965^{+0.011}_{-0.012} \quad (+0.3\sigma)$	$r_{\text{drag}}h$	$108.4^{+6.3}_{-6.2} \quad (-0.0\sigma)$	$D_{\text{M}}(0.51)$	$1916^{+46}_{-43} \quad (-0.3\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0069}_{-0.0057} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.479^{+0.074}_{-0.071} \quad (-0.1\sigma)$	$H(0.61)$	$94.5^{+1.1}_{-1.0} \quad (+0.5\sigma)$
$A_{217}^{\text{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\text{re}}$	$< 9.46 \quad (+0.3\sigma)$	$D_{\text{M}}(0.61)$	$2242^{+47}_{-43} \quad (-0.3\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^9 A_{\text{s}}$	$2.105^{+0.081}_{-0.065} \quad (+0.4\sigma)$	$H(2.33)$	$234.1^{+2.4}_{-2.1} \quad (+0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$> 0.900 \quad (+0.2\sigma)$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.884^{+0.029}_{-0.028} \quad (+0.1\sigma)$	$D_{\text{M}}(2.33)$	$5748^{+27}_{-28} \quad (-0.8\sigma)$
$A_{100}^{\text{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1231^{+33}_{-29} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.473^{+0.026}_{-0.025} \quad (-0.2\sigma)$
$A_{143}^{\text{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5733^{+93}_{-91} \quad (+0.6\sigma)$	$\sigma_8(0.15)$	$0.809^{+0.046}_{-0.046} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2539^{+36}_{-30} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.513^{+0.036}_{-0.035} \quad (-0.2\sigma)$
$A_{217}^{\text{PS}}$	$116^{+30}_{-30} \quad (+0.1\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	$0.719^{+0.040}_{-0.041} \quad (-0.1\sigma)$
$A^{\text{kSZ}}$	—	$D_{2000}$	$231.0^{+3.9}_{-4.3} \quad (+0.8\sigma)$	$f\sigma_8(0.51)$	$0.518^{+0.038}_{-0.039} \quad (-0.2\sigma)$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.2}_{-4.7} \quad (+0.0\sigma)$	$n_{\text{s},0.002}$	$0.965^{+0.011}_{-0.012} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.673^{+0.037}_{-0.038} \quad (-0.1\sigma)$
$A_{143}^{\text{dustTT}}$	$10.9^{+4.5}_{-4.7} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.24539^{+0.00015}_{-0.00014} \quad (+1.1\sigma)$	$f\sigma_8(0.61)$	$0.515^{+0.038}_{-0.038} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{dustTT}}$	$18.7^{+8.1}_{-8.6} \quad (+0.1\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	$0.24672^{+0.00015}_{-0.00014} \quad (+1.1\sigma)$	$\sigma_8(0.61)$	$0.640^{+0.035}_{-0.035} \quad (-0.1\sigma)$
$A_{217}^{\text{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$10^5 \text{D}/\text{H}$	$2.587^{+0.066}_{-0.070} \quad (-1.1\sigma)$	$f\sigma_8(2.33)$	$0.323^{+0.017}_{-0.017} \quad (-0.1\sigma)$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.10}_{-0.088}$	$\text{Age}/\text{Gyr}$	$13.685^{+0.084}_{-0.079} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.328^{+0.015}_{-0.015} \quad (-0.0\sigma)$
$A_{100 \times 143}^{\text{dustTE}}$	$0.134^{+0.071}_{-0.074}$	$z_*$	$1089.95^{+0.65}_{-0.83} \quad (-0.9\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.23}_{-0.23}$	$r_*$	$144.38^{+0.81}_{-0.80} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-4} \quad (-0.7\sigma)$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.15}$	$100\theta_*$	$1.04110^{+0.00081}_{-0.00077} \quad (+0.3\sigma)$	$f_{2000}^{217}$	$106.9^{+4.6}_{-4.4} \quad (-0.6\sigma)$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.21}_{-0.20}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.868^{+0.071}_{-0.073} \quad (-0.3\sigma)$	$\chi_{\text{small}}^2$	$1305 \quad (\nu: 478113.6) \quad (+577.4\sigma)$
$A_{217}^{\text{dustTE}}$	$2.08^{+0.66}_{-0.66}$	$z_{\text{drag}}$	$1059.94^{+0.80}_{-0.73} \quad (+1.2\sigma)$	$\chi_{\text{lowl}}^2$	$23.28 \quad (\nu: 0.4) \quad (-0.2\sigma)$
$c_{100}$	$0.9997^{+0.0017}_{-0.0016} \quad (+0.0\sigma)$	$r_{\text{drag}}$	$147.05^{+0.72}_{-0.77} \quad (-0.4\sigma)$	$\chi_{\text{plik}}^2$	$1450 \quad (\nu: 478081.3) \quad (+127.5\sigma)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0015} \quad (-0.1\sigma)$	$k_{\text{D}}$	$0.14091^{+0.00097}_{-0.00083} \quad (+0.7\sigma)$	$\chi_{\text{H073p45}}^2$	$0.97 \quad (\nu: 1.0) \quad (-0.0\sigma)$
$H_0$	$73.7^{+4.2}_{-4.2} \quad (+0.0\sigma)$	$100\theta_{\text{D}}$	$0.16076^{+0.00042}_{-0.00042} \quad (-1.2\sigma)$	$\chi_{\text{prior}}^2$	$11.6 \quad (\nu: 10.2) \quad (+1.3\sigma)$
$\Omega_{\Lambda}$	$0.736^{+0.029}_{-0.033} \quad (+0.0\sigma)$	$z_{\text{eq}}$	$3407^{+83}_{-86} \quad (-0.0\sigma)$	$\chi_{\text{CMB}}^2$	$2778.4 \quad (\nu: 18.1) \quad (+290.6\sigma)$
$\Omega_{\text{m}}$	$0.264^{+0.033}_{-0.029} \quad (-0.0\sigma)$	$k_{\text{eq}}$	$0.01040^{+0.00025}_{-0.00026} \quad (-0.0\sigma)$		
$\Omega_{\text{m}}h^2$	$0.1432^{+0.0035}_{-0.0036} \quad (-0.0\sigma)$	$100\theta_{\text{eq}}$	$0.812^{+0.017}_{-0.015} \quad (+0.1\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 2791.00; \Delta\bar{\chi}_{\text{eff}}^2 = 1592.53; R - 1 = 0.07585$$



### 18.13 base\_w\_CamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02222	$0.02217^{+0.00058}_{-0.00055}$	$\sigma_8 \Omega_m^{0.5}$	0.4063	$0.430^{+0.054}_{-0.040}$	$H(0.15)$	88.7	$81.6^{+8.5}_{-14}$
$\Omega_c h^2$	0.1200	$0.1202^{+0.0052}_{-0.0051}$	$\sigma_8 \Omega_m^{0.25}$	0.660	$0.641^{+0.047}_{-0.059}$	$D_M(0.15)$	481	$548^{+200}_{-70}$
$100\theta_{MC}$	1.04096	$1.0409^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	1.073	$1.042^{+0.070}_{-0.095}$	$H(0.38)$	84.46	$84.1^{+2.5}_{-3.8}$
$\tau$	0.0524	$0.052^{+0.022}_{-0.023}$	$r_{drag} h$	146.8	$125^{+20}_{-40}$	$D_M(0.38)$	1288	$1388^{+200}_{-100}$
$w_0$	-1.96	$-1.54^{+0.78}_{-0.54}$	$\langle d^2 \rangle^{1/2}$	2.520	$2.50^{+0.11}_{-0.13}$	$H(0.51)$	86.77	$88.2^{+2.1}_{-3.0}$
$\ln(10^{10} A_s)$	3.0381	$3.039^{+0.043}_{-0.045}$	$z_{re}$	7.45	$7.5^{+2.1}_{-2.5}$	$D_M(0.51)$	1744	$1841^{+300}_{-100}$
$n_s$	0.9653	$0.964^{+0.014}_{-0.014}$	$10^9 A_s$	2.087	$2.088^{+0.092}_{-0.093}$	$H(0.61)$	90.19	$92.5^{+3.2}_{-3.4}$
$y_{cal}$	1.0001	$1.0004^{+0.0062}_{-0.0063}$	$10^9 A_s e^{-2\tau}$	1.8790	$1.881^{+0.034}_{-0.034}$	$D_M(0.61)$	2083	$2173^{+200}_{-100}$
$A_{100}^{PS}$	235	$241^{+60}_{-70}$	$D_{40}$	1221.3	$1226^{+40}_{-38}$	$H(2.33)$	230.3	$232^{+10}_{-4.6}$
$A_{143}^{PS}$	42.9	$40^{+20}_{-20}$	$D_{220}$	5707	$5707^{+100}_{-110}$	$D_M(2.33)$	5736	$5748^{+85}_{-50}$
$A_{217}^{PS}$	101.3	$102^{+30}_{-40}$	$D_{810}$	2532.2	$2533^{+35}_{-35}$	$f\sigma_8(0.15)$	0.508	$0.489^{+0.055}_{-0.050}$
$A_{217}^{CIB}$	45.1	$40^{+20}_{-20}$	$D_{1420}$	814.0	$814^{+13}_{-13}$	$\sigma_8(0.15)$	1.010	$0.90^{+0.15}_{-0.22}$
$A_{143}^{tSZ}$	6.50	$< 8.78$	$D_{2000}$	229.96	$229.7^{+4.6}_{-4.7}$	$f\sigma_8(0.38)$	0.644	$0.57^{+0.11}_{-0.13}$
$r_{143 \times 217}^{PS}$	0.610	$0.65^{+0.31}_{-0.33}$	$n_{s,0.002}$	0.9653	$0.964^{+0.014}_{-0.014}$	$\sigma_8(0.38)$	0.904	$0.80^{+0.13}_{-0.20}$
$r_{143 \times 217}^{CIB}$	0.84	—	$Y_P$	0.245335	$0.24531^{+0.00023}_{-0.00026}$	$f\sigma_8(0.51)$	0.675	$0.59^{+0.12}_{-0.16}$
$\xi^{tSZ \times CIB}$	0.24	—	$Y_P^{BBN}$	0.246661	$0.24664^{+0.00023}_{-0.00026}$	$\sigma_8(0.51)$	0.845	$0.75^{+0.12}_{-0.19}$
$A^{kSZ}$	0.1	—	$10^5 D/H$	2.614	$2.62^{+0.11}_{-0.11}$	$f\sigma_8(0.61)$	0.681	$0.59^{+0.12}_{-0.17}$
$A_{100}^{dust}$	1.01	$1.01^{+0.49}_{-0.51}$	Age/Gyr	13.449	$13.59^{+0.42}_{-0.21}$	$\sigma_8(0.61)$	0.802	$0.71^{+0.11}_{-0.18}$
$A_{143}^{dust}$	0.991	$0.97^{+0.45}_{-0.45}$	$z_*$	1090.11	$1090.2^{+1.0}_{-1.0}$	$f\sigma_8(2.33)$	0.399	$0.356^{+0.053}_{-0.088}$
$A_{217}^{dust}$	0.967	$0.97^{+0.27}_{-0.26}$	$r_*$	144.55	$144.5^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	0.400	$0.359^{+0.049}_{-0.078}$
$A_{143 \times 217}^{dust}$	0.993	$1.03^{+0.43}_{-0.41}$	$100\theta_*$	1.04116	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	30.5	$30^{+8}_{-8}$
$c_{100}$	0.99763	$0.9975^{+0.0027}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	13.884	$13.88^{+0.11}_{-0.11}$	$f_{2000}^{217}$	107.0	$107.3^{+5.2}_{-5.1}$
$c_{217}$	1.00138	$1.0011^{+0.0041}_{-0.0040}$	$z_{drag}$	1059.59	$1059.5^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	32.4	$33^{+6}_{-6}$
$H_0$	99.7	$> 60.7$	$r_{drag}$	147.26	$147.3^{+1.2}_{-1.2}$	$\chi_{simall}^2$	395.72	$396.9 (\nu: 1.4)$
$\Omega_\Lambda$	0.856	$0.790^{+0.073}_{-0.18}$	$k_D$	0.14057	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{lowl}^2$	22.46	$23.0 (\nu: 0.6)$
$\Omega_m$	0.144	$0.210^{+0.18}_{-0.073}$	$100\theta_D$	0.16097	$0.16103^{+0.00069}_{-0.00067}$	$\chi_{CamSpec}^2$	7048.6	$7062.0 (\nu: 14.0)$
$\Omega_m h^2$	0.14284	$0.1431^{+0.0050}_{-0.0049}$	$z_{eq}$	3398	$3403^{+120}_{-120}$	$\chi_{prior}^2$	2.0	$7.6 (\nu: 5.8)$
$\Omega_m h^3$	0.1424	$0.121^{+0.025}_{-0.035}$	$k_{eq}$	0.010371	$0.01039^{+0.00036}_{-0.00035}$	$\chi_{CMB}^2$	7466.8	$7481.8 (\nu: 15.0)$
$\sigma_8$	1.072	$0.96^{+0.15}_{-0.22}$	$100\theta_{eq}$	0.8137	$0.813^{+0.022}_{-0.022}$			
$S_8$	0.742	$0.786^{+0.098}_{-0.073}$	$100\theta_{s,eq}$	0.4497	$0.449^{+0.011}_{-0.011}$			

Best-fit  $\chi_{eff}^2 = 7468.79$ ;  $\bar{\chi}_{eff}^2 = 7489.40$ ;  $R - 1 = 0.00889$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.72 commander\_dx12\_v3.2\_29: 22.46 CamSpec like\_10.7HM: 7048.57



## 18.14 base\_w\_CamSpecHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02222^{+0.00055}_{-0.00055}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.424^{+0.051}_{-0.035}$	$H(0.15)$	$82.2^{+8.2}_{-13}$
$\Omega_{\mathrm{c}}h^2$	$0.1193^{+0.0043}_{-0.0040}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.635^{+0.034}_{-0.043}$	$D_{\mathrm{M}}(0.15)$	$544^{+100}_{-70}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0012}$	$\sigma_8/h^{0.5}$	$1.034^{+0.051}_{-0.070}$	$H(0.38)$	$84.5^{+2.1}_{-3.6}$
$\tau$	$0.052^{+0.022}_{-0.022}$	$r_{\mathrm{drag}}h$	$126^{+20}_{-30}$	$D_{\mathrm{M}}(0.38)$	$1378^{+200}_{-100}$
$w_0$	$-1.53^{+0.71}_{-0.49}$	$\langle d^2 \rangle^{1/2}$	$2.481^{+0.072}_{-0.081}$	$H(0.51)$	$88.5^{+1.8}_{-2.5}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.035^{+0.041}_{-0.043}$	$z_{\mathrm{re}}$	$7.4^{+2.1}_{-2.5}$	$D_{\mathrm{M}}(0.51)$	$1829^{+200}_{-100}$
$n_{\mathrm{s}}$	$0.966^{+0.013}_{-0.013}$	$10^9 A_{\mathrm{s}}$	$2.081^{+0.086}_{-0.087}$	$H(0.61)$	$92.7^{+2.9}_{-3.1}$
$y_{\mathrm{cal}}$	$1.0003^{+0.0061}_{-0.0065}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.876^{+0.030}_{-0.030}$	$D_{\mathrm{M}}(0.61)$	$2161^{+230}_{-120}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{40}$	$1221^{+35}_{-33}$	$H(2.33)$	$231.5^{+9.1}_{-4.0}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5709^{+100}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5742^{+77}_{-46}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{810}$	$2531^{+34}_{-35}$	$f\sigma_8(0.15)$	$0.482^{+0.039}_{-0.035}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.15)$	$0.89^{+0.13}_{-0.19}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.84$	$D_{2000}$	$229.7^{+4.7}_{-4.8}$	$f\sigma_8(0.38)$	$0.563^{+0.090}_{-0.11}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.013}_{-0.013}$	$\sigma_8(0.38)$	$0.80^{+0.12}_{-0.18}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24533^{+0.00021}_{-0.00026}$	$f\sigma_8(0.51)$	$0.58^{+0.11}_{-0.14}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00021}_{-0.00026}$	$\sigma_8(0.51)$	$0.75^{+0.11}_{-0.17}$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.61^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	$0.58^{+0.11}_{-0.15}$
$A_{100}^{\mathrm{dust}}$	$1.02^{+0.50}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.57^{+0.38}_{-0.20}$	$\sigma_8(0.61)$	$0.71^{+0.10}_{-0.16}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.45}$	$z_*$	$1090.05^{+0.94}_{-0.91}$	$f\sigma_8(2.33)$	$0.356^{+0.049}_{-0.079}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$	$r_*$	$144.73^{+0.94}_{-0.96}$	$\sigma_8(2.33)$	$0.359^{+0.046}_{-0.070}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.41}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0012}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.900^{+0.089}_{-0.089}$	$f_{2000}^{217}$	$107.3^{+5.5}_{-5.3}$
$c_{217}$	$1.0012^{+0.0042}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.2}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-6}$
$H_0$	$> 62.6$	$r_{\mathrm{drag}}$	$147.45^{+0.99}_{-0.98}$	$\chi_{\mathrm{lensing}}^2$	$9.0\ (\nu: 0.6)$
$\Omega_{\Lambda}$	$0.796^{+0.069}_{-0.16}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{simall}}^2$	$396.8\ (\nu: 1.1)$
$\Omega_{\mathrm{m}}$	$0.204^{+0.16}_{-0.069}$	$100\theta_{\mathrm{D}}$	$0.16100^{+0.00069}_{-0.00066}$	$\chi_{\mathrm{lowl}}^2$	$22.56\ (\nu: 0.4)$
$\Omega_{\mathrm{m}}h^2$	$0.1422^{+0.0040}_{-0.0037}$	$z_{\mathrm{eq}}$	$3382^{+97}_{-89}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.1\ (\nu: 13.2)$
$\Omega_{\mathrm{m}}h^3$	$0.121^{+0.023}_{-0.032}$	$k_{\mathrm{eq}}$	$0.01032^{+0.00029}_{-0.00027}$	$\chi_{\mathrm{prior}}^2$	$7.6\ (\nu: 5.9)$
$\sigma_8$	$0.95^{+0.13}_{-0.19}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.017}_{-0.018}$	$\chi_{\mathrm{CMB}}^2$	$7490.4\ (\nu: 14.9)$
$S_8$	$0.774^{+0.094}_{-0.063}$	$100\theta_{\mathrm{s,eq}}$	$0.4512^{+0.0089}_{-0.0092}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7497.94; R - 1 = 0.01572$$



18.15 base\_w\_CamSpecHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02218^{+0.00058}_{-0.00055}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.431^{+0.054}_{-0.040}$	$H(0.15)$	$81.6^{+8.6}_{-14}$
$\Omega_{\mathrm{c}} h^2$	$0.1201^{+0.0052}_{-0.0051}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.641^{+0.047}_{-0.060}$	$D_{\mathrm{M}}(0.15)$	$548^{+200}_{-80}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$\sigma_8/h^{0.5}$	$1.043^{+0.069}_{-0.095}$	$H(0.38)$	$84.1^{+2.5}_{-3.9}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$r_{\mathrm{drag}} h$	$124^{+20}_{-40}$	$D_{\mathrm{M}}(0.38)$	$1388^{+200}_{-100}$
$w_0$	$-1.53^{+0.78}_{-0.54}$	$\langle d^2 \rangle^{1/2}$	$2.50^{+0.11}_{-0.13}$	$H(0.51)$	$88.3^{+2.1}_{-2.9}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.040}_{-0.030}$	$z_{\mathrm{re}}$	$< 9.39$	$D_{\mathrm{M}}(0.51)$	$1841^{+300}_{-100}$
$n_{\mathrm{s}}$	$0.965^{+0.014}_{-0.014}$	$10^9 A_{\mathrm{s}}$	$2.095^{+0.086}_{-0.063}$	$H(0.61)$	$92.6^{+3.2}_{-3.4}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0062}_{-0.0063}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.033}_{-0.034}$	$D_{\mathrm{M}}(0.61)$	$2173^{+200}_{-100}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-70}$	$D_{40}$	$1225^{+39}_{-38}$	$H(2.33)$	$232^{+10}_{-4.6}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5707^{+100}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5748^{+86}_{-50}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40}$	$D_{810}$	$2533^{+34}_{-35}$	$f\sigma_8(0.15)$	$0.489^{+0.055}_{-0.050}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.15)$	$0.90^{+0.15}_{-0.22}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.78$	$D_{2000}$	$229.8^{+4.6}_{-4.7}$	$f\sigma_8(0.38)$	$0.57^{+0.11}_{-0.13}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.014}_{-0.014}$	$\sigma_8(0.38)$	$0.80^{+0.13}_{-0.20}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24531^{+0.00023}_{-0.00026}$	$f\sigma_8(0.51)$	$0.59^{+0.12}_{-0.16}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00023}_{-0.00026}$	$\sigma_8(0.51)$	$0.75^{+0.12}_{-0.19}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.11}_{-0.11}$	$f\sigma_8(0.61)$	$0.59^{+0.12}_{-0.17}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.51}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.59^{+0.42}_{-0.21}$	$\sigma_8(0.61)$	$0.71^{+0.11}_{-0.18}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.45}$	$z_*$	$1090.2^{+1.0}_{-1.0}$	$f\sigma_8(2.33)$	$0.356^{+0.053}_{-0.088}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$r_*$	$144.5^{+1.2}_{-1.2}$	$\sigma_8(2.33)$	$0.359^{+0.050}_{-0.078}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.43}_{-0.41}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.88^{+0.11}_{-0.11}$	$f_{2000}^{217}$	$107.3^{+5.3}_{-5.2}$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-6}$
$H_0$	$> 60.7$	$r_{\mathrm{drag}}$	$147.3^{+1.2}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.3)$
$\Omega_{\Lambda}$	$0.790^{+0.074}_{-0.18}$	$k_{\mathrm{D}}$	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{lowl}}^2$	$22.9 (\nu: 0.6)$
$\Omega_{\mathrm{m}}$	$0.210^{+0.18}_{-0.074}$	$100\theta_{\mathrm{D}}$	$0.16102^{+0.00069}_{-0.00067}$	$\chi_{\mathrm{CamSpec}}^2$	$7061.9 (\nu: 14.1)$
$\Omega_{\mathrm{m}} h^2$	$0.1430^{+0.0049}_{-0.0048}$	$z_{\mathrm{eq}}$	$3401^{+120}_{-110}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.7)$
$\Omega_{\mathrm{m}} h^3$	$0.121^{+0.025}_{-0.035}$	$k_{\mathrm{eq}}$	$0.01038^{+0.00036}_{-0.00035}$	$\chi_{\mathrm{CMB}}^2$	$7481.6 (\nu: 14.7)$
$\sigma_8$	$0.96^{+0.15}_{-0.22}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.022}_{-0.021}$		
$S_8$	$0.787^{+0.099}_{-0.073}$	$100\theta_{\mathrm{s,eq}}$	$0.449^{+0.011}_{-0.011}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7489.13$ ;  $R - 1 = 0.01149$



## 18.16 base\_w\_CamSpecHM\_TT\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02223^{+0.00055}_{-0.00055}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.424^{+0.051}_{-0.035}$	$H(0.15)$	$82.2^{+8.3}_{-13}$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0042}_{-0.0038}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.635^{+0.034}_{-0.043}$	$D_{\mathrm{M}}(0.15)$	$544^{+100}_{-70}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0012}$	$\sigma_8/h^{0.5}$	$1.034^{+0.052}_{-0.071}$	$H(0.38)$	$84.5^{+2.1}_{-3.7}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$r_{\mathrm{drag}}h$	$125^{+20}_{-30}$	$D_{\mathrm{M}}(0.38)$	$1379^{+200}_{-100}$
$w_0$	$-1.52^{+0.70}_{-0.49}$	$\langle d^2 \rangle^{1/2}$	$2.482^{+0.071}_{-0.081}$	$H(0.51)$	$88.6^{+1.7}_{-2.4}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.039^{+0.038}_{-0.026}$	$z_{\mathrm{re}}$	$< 9.28$	$D_{\mathrm{M}}(0.51)$	$1830^{+200}_{-100}$
$n_{\mathrm{s}}$	$0.967^{+0.012}_{-0.012}$	$10^9 A_{\mathrm{s}}$	$2.088^{+0.081}_{-0.055}$	$H(0.61)$	$92.8^{+2.9}_{-3.0}$
$y_{\mathrm{cal}}$	$1.0003^{+0.0060}_{-0.0065}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.875^{+0.029}_{-0.030}$	$D_{\mathrm{M}}(0.61)$	$2161^{+230}_{-120}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{40}$	$1220^{+34}_{-32}$	$H(2.33)$	$231.5^{+9.2}_{-3.9}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5709^{+100}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5740^{+79}_{-45}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{810}$	$2531^{+33}_{-35}$	$f\sigma_8(0.15)$	$0.481^{+0.038}_{-0.035}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.15)$	$0.89^{+0.13}_{-0.19}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.83$	$D_{2000}$	$229.8^{+4.7}_{-4.7}$	$f\sigma_8(0.38)$	$0.562^{+0.090}_{-0.11}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.967^{+0.012}_{-0.012}$	$\sigma_8(0.38)$	$0.80^{+0.12}_{-0.18}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24534^{+0.00021}_{-0.00026}$	$f\sigma_8(0.51)$	$0.58^{+0.11}_{-0.14}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00022}_{-0.00026}$	$\sigma_8(0.51)$	$0.75^{+0.11}_{-0.17}$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.61^{+0.11}_{-0.10}$	$f\sigma_8(0.61)$	$0.58^{+0.11}_{-0.14}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.57^{+0.38}_{-0.20}$	$\sigma_8(0.61)$	$0.71^{+0.10}_{-0.16}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.47}_{-0.45}$	$z_*$	$1090.02^{+0.93}_{-0.89}$	$f\sigma_8(2.33)$	$0.355^{+0.049}_{-0.079}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$r_*$	$144.76^{+0.92}_{-0.93}$	$\sigma_8(2.33)$	$0.359^{+0.046}_{-0.070}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.40}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.904^{+0.087}_{-0.087}$	$f_{2000}^{217}$	$107.2^{+5.5}_{-5.3}$
$c_{217}$	$1.0012^{+0.0042}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.6^{+1.1}_{-1.2}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-6}$
$H_0$	$> 62.5$	$r_{\mathrm{drag}}$	$147.48^{+0.98}_{-0.96}$	$\chi_{\mathrm{lensing}}^2$	$9.0\ (\nu: 0.6)$
$\Omega_{\Lambda}$	$0.795^{+0.070}_{-0.16}$	$k_{\mathrm{D}}$	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{simall}}^2$	$396.6\ (\nu: 1.0)$
$\Omega_{\mathrm{m}}$	$0.205^{+0.16}_{-0.070}$	$100\theta_{\mathrm{D}}$	$0.16099^{+0.00068}_{-0.00066}$	$\chi_{\mathrm{lowl}}^2$	$22.52\ (\nu: 0.4)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0039}_{-0.0036}$	$z_{\mathrm{eq}}$	$3378^{+93}_{-87}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.0\ (\nu: 13.3)$
$\Omega_{\mathrm{m}}h^3$	$0.121^{+0.024}_{-0.032}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00028}_{-0.00027}$	$\chi_{\mathrm{prior}}^2$	$7.6\ (\nu: 5.9)$
$\sigma_8$	$0.95^{+0.13}_{-0.19}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.017}_{-0.018}$	$\chi_{\mathrm{CMB}}^2$	$7490.1\ (\nu: 14.6)$
$S_8$	$0.775^{+0.094}_{-0.064}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0087}_{-0.0090}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 7497.68; R - 1 = 0.02078$					



# 18.17 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022361	$0.02233^{+0.00040}_{-0.00040}$ $(+0.7\sigma)$	$\sigma_8$	1.060	$0.95^{+0.14}_{-0.21}$ $(-0.1\sigma)$	$100\theta_{\text{eq}}$	0.8166	$0.816^{+0.015}_{-0.014}$ $(+0.4\sigma)$
$\Omega_c h^2$	0.11924	$0.1194^{+0.0034}_{-0.0035}$ $(-0.4\sigma)$	$S_8$	0.737	$0.776^{+0.081}_{-0.062}$ $(-0.3\sigma)$	$100\theta_{\text{s,eq}}$	0.4511	$0.4508^{+0.0079}_{-0.0074}$ $(+0.4\sigma)$
$100\theta_{\text{MC}}$	1.04093	$1.04091^{+0.00079}_{-0.00080}$ $(+0.1\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4035	$0.425^{+0.044}_{-0.034}$ $(-0.3\sigma)$	$H(0.15)$	88.8	$82.1^{+8.2}_{-13}$ $(+0.1\sigma)$
$\tau$	0.0528	$0.052^{+0.020}_{-0.022}$ $(+0.0\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6540	$0.635^{+0.037}_{-0.056}$ $(-0.3\sigma)$	$D_{\text{M}}(0.15)$	482	$546^{+100}_{-70}$ $(-0.1\sigma)$
$w_0$	-1.92	$-1.52^{+0.74}_{-0.49}$ $(+0.0\sigma)$	$\sigma_8/h^{0.5}$	1.065	$1.034^{+0.057}_{-0.089}$ $(-0.3\sigma)$	$H(0.38)$	84.89	$84.5^{+1.9}_{-3.7}$ $(+0.4\sigma)$
$\ln(10^{10} A_{\text{s}})$	3.0380	$3.037^{+0.040}_{-0.047}$ $(-0.1\sigma)$	$r_{\text{drag}} h$	146.0	$125^{+20}_{-30}$ $(+0.0\sigma)$	$D_{\text{M}}(0.38)$	1286	$1381^{+200}_{-100}$ $(-0.1\sigma)$
$n_{\text{s}}$	0.9676	$0.967^{+0.011}_{-0.011}$ $(+0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	2.507	$2.481^{+0.087}_{-0.12}$ $(-0.4\sigma)$	$H(0.51)$	87.21	$88.6^{+1.7}_{-2.3}$ $(+0.3\sigma)$
$y_{\text{cal}}$	1.0002	$1.0003^{+0.0064}_{-0.0062}$ $(-0.0\sigma)$	$z_{\text{re}}$	7.45	$7.4^{+2.0}_{-2.5}$ $(-0.1\sigma)$	$D_{\text{M}}(0.51)$	1740	$1832^{+200}_{-100}$ $(-0.1\sigma)$
$A_{100}^{\text{PS}}$	230	$238^{+60}_{-60}$ $(-0.1\sigma)$	$10^9 A_{\text{s}}$	2.086	$2.085^{+0.085}_{-0.095}$ $(-0.1\sigma)$	$H(0.61)$	90.60	$92.8^{+3.0}_{-2.9}$ $(+0.2\sigma)$
$A_{143}^{\text{PS}}$	43.8	$39^{+20}_{-20}$ $(-0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8772	$1.877^{+0.030}_{-0.030}$ $(-0.2\sigma)$	$D_{\text{M}}(0.61)$	2078	$2163^{+240}_{-120}$ $(-0.1\sigma)$
$A_{217}^{\text{PS}}$	105.9	$103^{+30}_{-30}$ $(+0.1\sigma)$	$D_{40}$	1217.6	$1221^{+33}_{-33}$ $(-0.3\sigma)$	$H(2.33)$	230.0	$231.8^{+9.9}_{-3.7}$ $(-0.2\sigma)$
$A_{217}^{\text{CIB}}$	40.9	$39^{+20}_{-20}$ $(-0.2\sigma)$	$D_{220}$	5719	$5719^{+99}_{-98}$ $(+0.3\sigma)$	$D_{\text{M}}(2.33)$	5728	$5739^{+76}_{-38}$ $(-0.4\sigma)$
$A_{143}^{\text{tSZ}}$	6.01	$< 8.91$ $(+0.1\sigma)$	$D_{810}$	2534.2	$2534^{+35}_{-34}$ $(+0.0\sigma)$	$f\sigma_8(0.15)$	0.5003	$0.482^{+0.039}_{-0.044}$ $(-0.3\sigma)$
$r_{143 \times 217}^{\text{PS}}$	0.718	$0.66^{+0.30}_{-0.33}$ $(+0.1\sigma)$	$D_{1420}$	815.9	$815^{+12}_{-12}$ $(+0.3\sigma)$	$\sigma_8(0.15)$	0.999	$0.89^{+0.14}_{-0.21}$ $(-0.1\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	0.69	—	$D_{2000}$	230.76	$230.4^{+4.1}_{-4.0}$ $(+0.4\sigma)$	$f\sigma_8(0.38)$	0.632	$0.562^{+0.093}_{-0.13}$ $(-0.1\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.53	—	$n_{\text{s},0.002}$	0.9676	$0.967^{+0.011}_{-0.011}$ $(+0.4\sigma)$	$\sigma_8(0.38)$	0.895	$0.80^{+0.13}_{-0.19}$ $(-0.0\sigma)$
$A^{\text{kSZ}}$	0.8	—	$Y_{\text{P}}$	0.245392	$0.24538^{+0.00015}_{-0.00017}$ $(+0.7\sigma)$	$f\sigma_8(0.51)$	0.663	$0.58^{+0.11}_{-0.15}$ $(-0.1\sigma)$
$A_{100}^{\text{dust}}$	1.00	$1.01^{+0.50}_{-0.51}$ $(-0.0\sigma)$	$Y_{\text{P}}^{\text{BBN}}$	0.246719	$0.24670^{+0.00015}_{-0.00017}$ $(+0.7\sigma)$	$\sigma_8(0.51)$	0.837	$0.74^{+0.12}_{-0.18}$ $(-0.0\sigma)$
$A_{143}^{\text{dust}}$	0.943	$0.96^{+0.46}_{-0.45}$ $(-0.1\sigma)$	$10^5 \text{D}/\text{H}$	2.587	$2.593^{+0.076}_{-0.073}$ $(-0.7\sigma)$	$f\sigma_8(0.61)$	0.670	$0.58^{+0.12}_{-0.16}$ $(-0.1\sigma)$
$A_{217}^{\text{dust}}$	0.977	$0.98^{+0.27}_{-0.27}$ $(+0.1\sigma)$	Age/Gyr	13.437	$13.57^{+0.39}_{-0.19}$ $(-0.2\sigma)$	$\sigma_8(0.61)$	0.794	$0.71^{+0.11}_{-0.17}$ $(-0.0\sigma)$
$A_{143 \times 217}^{\text{dust}}$	1.037	$1.03^{+0.42}_{-0.41}$ $(+0.0\sigma)$	$z_*$	1089.86	$1089.92^{+0.70}_{-0.71}$ $(-0.7\sigma)$	$f\sigma_8(2.33)$	0.396	$0.355^{+0.051}_{-0.085}$ $(-0.0\sigma)$
$c_{100}$	0.99782	$0.9975^{+0.0027}_{-0.0027}$ $(+0.0\sigma)$	$r_*$	144.63	$144.62^{+0.81}_{-0.77}$ $(+0.2\sigma)$	$\sigma_8(2.33)$	0.397	$0.358^{+0.048}_{-0.075}$ $(-0.0\sigma)$
$c_{217}$	1.00110	$1.0011^{+0.0042}_{-0.0040}$ $(-0.1\sigma)$	$100\theta_*$	1.04111	$1.04110^{+0.00079}_{-0.00078}$ $(+0.0\sigma)$	$f_{2000}^{143}$	28.9	$29^{+8}_{-7}$ $(-0.4\sigma)$
$c_{TE}$	0.9959	$0.996^{+0.013}_{-0.013}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.892	$13.891^{+0.076}_{-0.072}$ $(+0.2\sigma)$	$f_{2000}^{217}$	105.98	$106.6^{+5.0}_{-4.9}$ $(-0.4\sigma)$
$c_{EE}$	0.9919	$0.992^{+0.013}_{-0.012}$	$z_{\text{drag}}$	1059.86	$1059.81^{+0.81}_{-0.90}$ $(+0.7\sigma)$	$f_{2000}^{143 \times 217}$	31.5	$32^{+5}_{-5}$ $(-0.4\sigma)$
$H_0$	99.1	$> 61.8$ $(+0.0\sigma)$	$r_{\text{drag}}$	147.30	$147.29^{+0.81}_{-0.78}$ $(+0.1\sigma)$	$\chi_{\text{simall}}^2$	395.73	$396.7 (\nu: 1.1)$ $(-0.1\sigma)$
$\Omega_{\Lambda}$	0.855	$0.793^{+0.071}_{-0.17}$ $(+0.1\sigma)$	$k_{\text{D}}$	0.14064	$0.14062^{+0.00088}_{-0.00091}$ $(+0.2\sigma)$	$\chi_{\text{lowl}}^2$	22.18	$22.57 (\nu: 0.3)$ $(-0.4\sigma)$
$\Omega_{\text{m}}$	0.145	$0.207^{+0.17}_{-0.071}$ $(-0.1\sigma)$	$100\theta_{\text{D}}$	0.160796	$0.16083^{+0.00052}_{-0.00048}$ $(-0.7\sigma)$	$\chi_{\text{CamSpec}}^2$	11498.2	$11513.3 (\nu: 15.6)$ $(+840.4\sigma)$
$\Omega_{\text{m}} h^2$	0.14224	$0.1424^{+0.0033}_{-0.0034}$ $(-0.4\sigma)$	$z_{\text{eq}}$	3384	$3387^{+79}_{-80}$ $(-0.4\sigma)$	$\chi_{\text{prior}}^2$	1.9	$7.8 (\nu: 5.8)$ $(+0.1\sigma)$
$\Omega_{\text{m}} h^3$	0.1409	$0.121^{+0.024}_{-0.034}$ $(-0.0\sigma)$	$k_{\text{eq}}$	0.010328	$0.01034^{+0.00024}_{-0.00024}$ $(-0.4\sigma)$	$\chi_{\text{CMB}}^2$	11916.1	$11932.6 (\nu: 16.5)$ $(+811.5\sigma)$

Best-fit  $\chi_{\text{eff}}^2 = 11918.08$ ;  $\Delta\chi_{\text{eff}}^2 = 4449.29$ ;  $\bar{\chi}_{\text{eff}}^2 = 11940.42$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 4451.01$ ;  $R - 1 = 0.01476$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.73 ( $\Delta$  0.01) commander\_dx12\_v3.2.29: 22.18 ( $\Delta$  -0.28) CamSpec like\_10.7HM\_1400\_unified: 11498.24



18.18 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02235^{+0.00040}_{-0.00041} \quad (+0.6\sigma)$	$S_8$	$0.770^{+0.079}_{-0.059} \quad (-0.1\sigma)$	$H(0.15)$	$82.6^{+7.7}_{-12} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1191^{+0.0031}_{-0.0030} \quad (-0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.422^{+0.043}_{-0.032} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$541^{+100}_{-70} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04093^{+0.00076}_{-0.00077} \quad (-0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.634^{+0.031}_{-0.042} \quad (-0.1\sigma)$	$H(0.38)$	$84.7^{+1.7}_{-3.0} \quad (+0.2\sigma)$
$\tau$	$0.052^{+0.019}_{-0.022} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$1.032^{+0.047}_{-0.068} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1372^{+200}_{-100} \quad (-0.1\sigma)$
$w_0$	$-1.54^{+0.67}_{-0.45} \quad (-0.0\sigma)$	$r_{\mathrm{drag}} h$	$126^{+20}_{-30} \quad (+0.0\sigma)$	$H(0.51)$	$88.7^{+1.6}_{-2.1} \quad (+0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.035^{+0.036}_{-0.041} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.476^{+0.066}_{-0.080} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1823^{+200}_{-100} \quad (-0.1\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$z_{\mathrm{re}}$	$7.3^{+1.9}_{-2.4} \quad (-0.0\sigma)$	$H(0.61)$	$92.8^{+2.9}_{-2.8} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0002^{+0.0062}_{-0.0060} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.080^{+0.076}_{-0.084} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2154^{+210}_{-110} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.875^{+0.028}_{-0.028} \quad (-0.0\sigma)$	$H(2.33)$	$231.4^{+7.2}_{-3.7} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1219^{+32}_{-30} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5735^{+57}_{-35} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5719^{+92}_{-96} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.480^{+0.032}_{-0.034} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2532^{+34}_{-33} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.89^{+0.12}_{-0.18} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.95 \quad (+0.1\sigma)$	$D_{1420}$	$815^{+12}_{-12} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.563^{+0.086}_{-0.11} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.30}_{-0.32} \quad (+0.1\sigma)$	$D_{2000}$	$230.3^{+4.1}_{-3.9} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.80^{+0.11}_{-0.17} \quad (+0.0\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.967^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.58^{+0.10}_{-0.13} \quad (-0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00018} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.75^{+0.11}_{-0.16} \quad (+0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00018} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.58^{+0.10}_{-0.14} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.48}_{-0.51} \quad (-0.0\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.590^{+0.079}_{-0.071} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.710^{+0.099}_{-0.15} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.44}_{-0.44} \quad (-0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.56^{+0.33}_{-0.17} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.356^{+0.047}_{-0.075} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$z_*$	$1089.87^{+0.68}_{-0.68} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.359^{+0.044}_{-0.066} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.40} \quad (+0.0\sigma)$	$r_*$	$144.68^{+0.71}_{-0.71} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$100\theta_*$	$1.04112^{+0.00077}_{-0.00077} \quad (-0.1\sigma)$	$f_{2000}^{217}$	$106.6^{+5.1}_{-4.9} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0041} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.897^{+0.067}_{-0.066} \quad (-0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.82^{+0.84}_{-0.92} \quad (+0.6\sigma)$	$\chi_{\mathrm{lensing}}^2$	$8.75 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$c_{EE}$	$0.992^{+0.012}_{-0.012}$	$r_{\mathrm{drag}}$	$147.36^{+0.73}_{-0.73} \quad (-0.2\sigma)$	$\chi_{\mathrm{small}}^2$	$396.6 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$H_0$	$> 64.2 \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14057^{+0.00083}_{-0.00089} \quad (+0.4\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.42 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$\Omega_{\Lambda}$	$0.799^{+0.066}_{-0.15} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16082^{+0.00053}_{-0.00048} \quad (-0.7\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.1 \quad (\nu: 14.8) \quad (+867.6\sigma)$
$\Omega_{\mathrm{m}}$	$0.201^{+0.15}_{-0.066} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3380^{+72}_{-68} \quad (-0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1421^{+0.0030}_{-0.0028} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01032^{+0.00022}_{-0.00021} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11940.9 \quad (\nu: 16.6) \quad (+815.2\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.122^{+0.022}_{-0.031} \quad (+0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.013} \quad (+0.1\sigma)$		
$\sigma_8$	$0.95^{+0.12}_{-0.18} \quad (+0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4515^{+0.0067}_{-0.0068} \quad (+0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11948.65; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.71; R - 1 = 0.02333$$



## 18.19 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02232^{+0.00035}_{-0.00041}$	$S_8$	$0.809^{+0.039}_{-0.039}$	$H(0.15)$	$76.4^{+2.5}_{-2.4}$
$\Omega_{\mathrm{c}}h^2$	$0.1196^{+0.0034}_{-0.0035}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.443^{+0.021}_{-0.021}$	$D_{\mathrm{M}}(0.15)$	$601^{+27}_{-26}$
$100\theta_{\mathrm{MC}}$	$1.04089^{+0.00089}_{-0.00083}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.619^{+0.026}_{-0.027}$	$H(0.38)$	$83.8^{+1.0}_{-1.0}$
$\tau$	$0.052^{+0.018}_{-0.024}$	$\sigma_8/h^{0.5}$	$1.007^{+0.038}_{-0.041}$	$D_{\mathrm{M}}(0.38)$	$1466^{+44}_{-42}$
$w_0$	$-1.20^{+0.15}_{-0.14}$	$r_{\mathrm{drag}}h$	$108.3^{+6.4}_{-6.1}$	$H(0.51)$	$89.56^{+0.90}_{-1.0}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.038^{+0.035}_{-0.042}$	$\langle d^2 \rangle^{1/2}$	$2.460^{+0.075}_{-0.085}$	$D_{\mathrm{M}}(0.51)$	$1916^{+47}_{-45}$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011}$	$z_{\mathrm{re}}$	$7.4^{+1.8}_{-2.6}$	$H(0.61)$	$94.59^{+0.97}_{-1.1}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0068}_{-0.0060}$	$10^9 A_{\mathrm{s}}$	$2.086^{+0.074}_{-0.086}$	$D_{\mathrm{M}}(0.61)$	$2242^{+46}_{-45}$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.030}_{-0.034}$	$H(2.33)$	$233.8^{+2.2}_{-2.2}$
$A_{143}^{\mathrm{PS}}$	$39^{+30}_{-20}$	$D_{40}$	$1225^{+29}_{-31}$	$D_{\mathrm{M}}(2.33)$	$5749^{+29}_{-24}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30}$	$D_{220}$	$5721^{+90}_{-96}$	$f\sigma_8(0.15)$	$0.467^{+0.025}_{-0.026}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{810}$	$2535^{+33}_{-32}$	$\sigma_8(0.15)$	$0.802^{+0.046}_{-0.045}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.69$	$D_{1420}$	$816^{+12}_{-11}$	$f\sigma_8(0.38)$	$0.507^{+0.036}_{-0.034}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.30}_{-0.32}$	$D_{2000}$	$230.4^{+4.0}_{-3.8}$	$\sigma_8(0.38)$	$0.713^{+0.040}_{-0.040}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	$0.512^{+0.037}_{-0.036}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24537^{+0.00013}_{-0.00018}$	$\sigma_8(0.51)$	$0.667^{+0.037}_{-0.037}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00013}_{-0.00018}$	$f\sigma_8(0.61)$	$0.509^{+0.038}_{-0.036}$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.43}_{-0.49}$	$10^5\mathrm{D}/\mathrm{H}$	$2.596^{+0.079}_{-0.064}$	$\sigma_8(0.61)$	$0.634^{+0.035}_{-0.034}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.40}_{-0.43}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.693^{+0.087}_{-0.080}$	$f\sigma_8(2.33)$	$0.320^{+0.017}_{-0.017}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.28}_{-0.29}$	$z_*$	$1089.96^{+0.73}_{-0.61}$	$\sigma_8(2.33)$	$0.326^{+0.015}_{-0.015}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.43}$	$r_*$	$144.57^{+0.85}_{-0.83}$	$f_{2000}^{143}$	$30^{+7}_{-7}$
$c_{100}$	$0.9975^{+0.0025}_{-0.0026}$	$100\theta_*$	$1.04108^{+0.00087}_{-0.00082}$	$f_{2000}^{217}$	$106.8^{+5.0}_{-5.2}$
$c_{217}$	$1.0011^{+0.0038}_{-0.0040}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.887^{+0.081}_{-0.078}$	$f_{2000}^{143\times 217}$	$32^{+5}_{-5}$
$c_{TE}$	$0.996^{+0.014}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.78^{+0.72}_{-0.84}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 0.9)$
$c_{EE}$	$0.992^{+0.011}_{-0.012}$	$r_{\mathrm{drag}}$	$147.25^{+0.81}_{-0.84}$	$\chi_{\mathrm{lowl}}^2$	$22.85 (\nu: 0.4)$
$H_0$	$73.5^{+4.3}_{-4.1}$	$k_{\mathrm{D}}$	$0.14066^{+0.00098}_{-0.00099}$	$\chi_{\mathrm{CamSpec}}^2$	$11513.7 (\nu: 14.2)$
$\Omega_{\Lambda}$	$0.736^{+0.030}_{-0.032}$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00046}_{-0.00044}$	$\chi_{\mathrm{H073p45}}^2$	$1.0 (\nu: 1.0)$
$\Omega_{\mathrm{m}}$	$0.264^{+0.032}_{-0.030}$	$z_{\mathrm{eq}}$	$3392^{+81}_{-81}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 5.9)$
$\Omega_{\mathrm{m}}h^2$	$0.1426^{+0.0034}_{-0.0034}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00025}_{-0.00025}$	$\chi_{\mathrm{CMB}}^2$	$11933.2 (\nu: 15.1)$
$\Omega_{\mathrm{m}}h^3$	$0.1049^{+0.0064}_{-0.0065}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.016}_{-0.015}$		
$\sigma_8$	$0.863^{+0.048}_{-0.048}$	$100\theta_{\mathrm{s,eq}}$	$0.4503^{+0.0080}_{-0.0076}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11941.94; R - 1 = 0.08175$$



# 18.20 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02234^{+0.00040}_{-0.00040} \quad (+0.7\sigma)$	$\sigma_8$	$0.95^{+0.14}_{-0.21} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.015}_{-0.014} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1194^{+0.0034}_{-0.0035} \quad (-0.4\sigma)$	$S_8$	$0.777^{+0.081}_{-0.061} \quad (-0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4509^{+0.0079}_{-0.0073} \quad (+0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04092^{+0.00078}_{-0.00080} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.426^{+0.044}_{-0.034} \quad (-0.3\sigma)$	$H(0.15)$	$82.0^{+8.3}_{-14} \quad (+0.1\sigma)$
$\tau$	$0.054^{+0.017}_{-0.012} \quad (-0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.636^{+0.037}_{-0.056} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$546^{+100}_{-70} \quad (-0.0\sigma)$
$w_0$	$-1.52^{+0.74}_{-0.49} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$1.035^{+0.056}_{-0.090} \quad (-0.3\sigma)$	$H(0.38)$	$84.5^{+1.9}_{-3.8} \quad (+0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.040^{+0.038}_{-0.028} \quad (-0.1\sigma)$	$r_{\mathrm{drag}} h$	$125^{+20}_{-40} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1381^{+200}_{-100} \quad (-0.1\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.484^{+0.086}_{-0.12} \quad (-0.3\sigma)$	$H(0.51)$	$88.6^{+1.7}_{-2.3} \quad (+0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0003^{+0.0064}_{-0.0062} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.22 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1833^{+200}_{-100} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-60} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.080}_{-0.057} \quad (-0.1\sigma)$	$H(0.61)$	$92.8^{+3.0}_{-2.9} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.030}_{-0.030} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2164^{+240}_{-120} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30} \quad (+0.1\sigma)$	$D_{40}$	$1221^{+33}_{-32} \quad (-0.3\sigma)$	$H(2.33)$	$231.8^{+8.4}_{-4.2} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5719^{+97}_{-99} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5738^{+78}_{-37} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.90 \quad (+0.1\sigma)$	$D_{810}$	$2533^{+35}_{-34} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.482^{+0.039}_{-0.045} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.30}_{-0.33} \quad (+0.1\sigma)$	$D_{1420}$	$815^{+12}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.89^{+0.14}_{-0.21} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$230.4^{+4.1}_{-4.0} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.563^{+0.094}_{-0.13} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.967^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.80^{+0.13}_{-0.19} \quad (-0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00017} \quad (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.58^{+0.11}_{-0.15} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.52} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00017} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.74^{+0.12}_{-0.18} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.45} \quad (-0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.592^{+0.076}_{-0.072} \quad (-0.7\sigma)$	$f\sigma_8(0.61)$	$0.58^{+0.12}_{-0.16} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.57^{+0.39}_{-0.19} \quad (-0.2\sigma)$	$\sigma_8(0.61)$	$0.71^{+0.11}_{-0.17} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.41} \quad (+0.0\sigma)$	$z_*$	$1089.91^{+0.68}_{-0.71} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.355^{+0.052}_{-0.085} \quad (-0.0\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$r_*$	$144.62^{+0.82}_{-0.76} \quad (+0.2\sigma)$	$\sigma_8(2.33)$	$0.358^{+0.048}_{-0.076} \quad (-0.0\sigma)$
$c_{217}$	$1.0010^{+0.0042}_{-0.0040} \quad (-0.1\sigma)$	$100\theta_*$	$1.04111^{+0.00078}_{-0.00078} \quad (+0.0\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.4\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.891^{+0.076}_{-0.072} \quad (+0.2\sigma)$	$f_{2000}^{217}$	$106.5^{+5.0}_{-4.8} \quad (-0.4\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$z_{\mathrm{drag}}$	$1059.82^{+0.80}_{-0.87} \quad (+0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$H_0$	$> 61.7 \quad (+0.0\sigma)$	$r_{\mathrm{drag}}$	$147.30^{+0.82}_{-0.78} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$396.6 \quad (\nu: 1.0) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.793^{+0.072}_{-0.17} \quad (+0.0\sigma)$	$k_{\mathrm{D}}$	$0.14063^{+0.00089}_{-0.00093} \quad (+0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.57 \quad (\nu: 0.3) \quad (-0.3\sigma)$
$\Omega_{\mathrm{m}}$	$0.207^{+0.17}_{-0.072} \quad (-0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16082^{+0.00051}_{-0.00047} \quad (-0.7\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.1 \quad (\nu: 15.4) \quad (+839.3\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1423^{+0.0032}_{-0.0034} \quad (-0.3\sigma)$	$z_{\mathrm{eq}}$	$3386^{+77}_{-80} \quad (-0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.121^{+0.024}_{-0.034} \quad (-0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01034^{+0.00024}_{-0.00024} \quad (-0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11932.3 \quad (\nu: 16.0) \quad (+820.7\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 11940.09; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.96; R - 1 = 0.01385$$



18.21 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02236^{+0.00039}_{-0.00041} \quad (+0.6\sigma)$	$S_8$	$0.771^{+0.079}_{-0.060} \quad (-0.1\sigma)$	$H(0.15)$	$82.5^{+7.9}_{-12} \quad (+0.1\sigma)$
$\Omega_c h^2$	$0.1190^{+0.0030}_{-0.0030} \quad (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.422^{+0.043}_{-0.033} \quad (-0.1\sigma)$	$D_M(0.15)$	$542^{+100}_{-70} \quad (-0.1\sigma)$
$100\theta_{MC}$	$1.04095^{+0.00078}_{-0.00077} \quad (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.634^{+0.030}_{-0.042} \quad (-0.1\sigma)$	$H(0.38)$	$84.7^{+1.7}_{-3.0} \quad (+0.1\sigma)$
$\tau$	$0.053^{+0.016}_{-0.011} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$1.032^{+0.047}_{-0.069} \quad (-0.1\sigma)$	$D_M(0.38)$	$1374^{+200}_{-100} \quad (-0.1\sigma)$
$w_0$	$-1.53^{+0.66}_{-0.45} \quad (-0.0\sigma)$	$r_{\text{drag}} h$	$126^{+20}_{-30} \quad (+0.0\sigma)$	$H(0.51)$	$88.7^{+1.5}_{-2.1} \quad (+0.1\sigma)$
$\ln(10^{10} A_s)$	$3.038^{+0.034}_{-0.025} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.478^{+0.065}_{-0.080} \quad (-0.1\sigma)$	$D_M(0.51)$	$1824^{+200}_{-100} \quad (-0.1\sigma)$
$n_s$	$0.967^{+0.011}_{-0.011} \quad (+0.1\sigma)$	$z_{\text{re}}$	$< 9.01 \quad (-0.1\sigma)$	$H(0.61)$	$92.9^{+2.9}_{-2.8} \quad (+0.0\sigma)$
$y_{\text{cal}}$	$1.0002^{+0.0063}_{-0.0060} \quad (-0.0\sigma)$	$10^9 A_s$	$2.086^{+0.071}_{-0.052} \quad (-0.1\sigma)$	$D_M(0.61)$	$2155^{+210}_{-110} \quad (-0.1\sigma)$
$A_{100}^{\text{PS}}$	$238^{+60}_{-60} \quad (-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.875^{+0.028}_{-0.028} \quad (-0.0\sigma)$	$H(2.33)$	$231.4^{+7.3}_{-3.7} \quad (-0.0\sigma)$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{40}$	$1219^{+31}_{-30} \quad (-0.1\sigma)$	$D_M(2.33)$	$5735^{+58}_{-35} \quad (-0.3\sigma)$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5719^{+91}_{-98} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.480^{+0.032}_{-0.034} \quad (-0.1\sigma)$
$A_{217}^{\text{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2532^{+35}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.89^{+0.13}_{-0.18} \quad (+0.0\sigma)$
$A_{143}^{\text{tSZ}}$	$< 9.00 \quad (+0.1\sigma)$	$D_{1420}$	$815^{+13}_{-12} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.562^{+0.086}_{-0.11} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.30}_{-0.32} \quad (+0.1\sigma)$	$D_{2000}$	$230.3^{+4.2}_{-3.9} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.80^{+0.12}_{-0.17} \quad (+0.0\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{s,0.002}$	$0.967^{+0.011}_{-0.011} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.58^{+0.10}_{-0.13} \quad (+0.0\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}$	$0.24539^{+0.00015}_{-0.00017} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.75^{+0.11}_{-0.16} \quad (+0.0\sigma)$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24671^{+0.00015}_{-0.00017} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.58^{+0.11}_{-0.14} \quad (+0.0\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.47}_{-0.51} \quad (-0.0\sigma)$	$10^5 \text{D}/\text{H}$	$2.588^{+0.078}_{-0.070} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.71^{+0.10}_{-0.15} \quad (+0.0\sigma)$
$A_{143}^{\text{dust}}$	$0.96^{+0.44}_{-0.45} \quad (-0.1\sigma)$	$\text{Age}/\text{Gyr}$	$13.56^{+0.33}_{-0.17} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.356^{+0.048}_{-0.075} \quad (+0.0\sigma)$
$A_{217}^{\text{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$z_*$	$1089.85^{+0.67}_{-0.68} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.359^{+0.045}_{-0.067} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.40} \quad (+0.0\sigma)$	$r_*$	$144.70^{+0.71}_{-0.69} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.04113^{+0.00077}_{-0.00077} \quad (-0.1\sigma)$	$f_{2000}^{217}$	$106.5^{+5.1}_{-4.9} \quad (-0.3\sigma)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0041} \quad (-0.1\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.898^{+0.066}_{-0.066} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$z_{\text{drag}}$	$1059.83^{+0.82}_{-0.89} \quad (+0.6\sigma)$	$\chi_{\text{lensing}}^2$	$8.76 \quad (\nu: 0.4) \quad (-0.2\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.012}$	$r_{\text{drag}}$	$147.37^{+0.74}_{-0.72} \quad (-0.3\sigma)$	$\chi_{\text{small}}^2$	$396.4 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$H_0$	$> 64.1 \quad (+0.0\sigma)$	$k_{\text{D}}$	$0.14056^{+0.00083}_{-0.00088} \quad (+0.5\sigma)$	$\chi_{\text{lowl}}^2$	$22.41 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$\Omega_\Lambda$	$0.797^{+0.067}_{-0.15} \quad (+0.0\sigma)$	$100\theta_{\text{D}}$	$0.16081^{+0.00053}_{-0.00048} \quad (-0.7\sigma)$	$\chi_{\text{CamSpec}}^2$	$11513.0 \quad (\nu: 14.8) \quad (+863.6\sigma)$
$\Omega_m$	$0.203^{+0.15}_{-0.067} \quad (-0.0\sigma)$	$z_{\text{eq}}$	$3378^{+67}_{-67} \quad (-0.0\sigma)$	$\chi_{\text{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\Omega_m h^2$	$0.1420^{+0.0028}_{-0.0028} \quad (-0.0\sigma)$	$k_{\text{eq}}$	$0.01031^{+0.00020}_{-0.00020} \quad (-0.0\sigma)$	$\chi_{\text{CMB}}^2$	$11940.6 \quad (\nu: 16.2) \quad (+824.4\sigma)$
$\Omega_m h^3$	$0.121^{+0.022}_{-0.031} \quad (+0.0\sigma)$	$100\theta_{\text{eq}}$	$0.818^{+0.013}_{-0.013} \quad (+0.0\sigma)$		
$\sigma_8$	$0.95^{+0.13}_{-0.18} \quad (+0.0\sigma)$	$100\theta_{s,\text{eq}}$	$0.4517^{+0.0066}_{-0.0064} \quad (+0.0\sigma)$		

$\bar{\chi}_{\text{eff}}^2 = 11948.34$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 4450.66$ ;  $R - 1 = 0.02464$



**18.22**    **base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Riess18\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02232^{+0.00035}_{-0.00039}$	$S_8$	$0.810^{+0.038}_{-0.040}$	$H(0.15)$	$76.3^{+2.5}_{-2.4}$
$\Omega_{\mathrm{c}}h^2$	$0.1196^{+0.0034}_{-0.0037}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.444^{+0.021}_{-0.022}$	$D_{\mathrm{M}}(0.15)$	$602^{+27}_{-26}$
$100\theta_{\mathrm{MC}}$	$1.04090^{+0.00089}_{-0.00086}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.619^{+0.026}_{-0.026}$	$H(0.38)$	$83.9^{+1.0}_{-0.93}$
$\tau$	$0.054^{+0.016}_{-0.013}$	$\sigma_8/h^{0.5}$	$1.008^{+0.038}_{-0.036}$	$D_{\mathrm{M}}(0.38)$	$1466^{+44}_{-43}$
$w_0$	$-1.20^{+0.15}_{-0.15}$	$r_{\mathrm{drag}}h$	$108.3^{+6.5}_{-6.0}$	$H(0.51)$	$89.58^{+0.90}_{-0.92}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.032}_{-0.028}$	$\langle d^2 \rangle^{1/2}$	$2.462^{+0.075}_{-0.079}$	$D_{\mathrm{M}}(0.51)$	$1916^{+46}_{-46}$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.0097}$	$z_{\mathrm{re}}$	$< 9.15$	$H(0.61)$	$94.60^{+0.96}_{-1.1}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0067}_{-0.0060}$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.068}_{-0.058}$	$D_{\mathrm{M}}(0.61)$	$2242^{+45}_{-46}$
$A_{100}^{\mathrm{PS}}$	$238^{+60}_{-60}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.030}_{-0.034}$	$H(2.33)$	$233.8^{+2.1}_{-2.3}$
$A_{143}^{\mathrm{PS}}$	$39^{+30}_{-20}$	$D_{40}$	$1225^{+29}_{-30}$	$D_{\mathrm{M}}(2.33)$	$5749^{+26}_{-24}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30}$	$D_{220}$	$5722^{+85}_{-98}$	$f\sigma_8(0.15)$	$0.468^{+0.026}_{-0.026}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{810}$	$2535^{+34}_{-32}$	$\sigma_8(0.15)$	$0.802^{+0.045}_{-0.043}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.65$	$D_{1420}$	$816^{+12}_{-12}$	$f\sigma_8(0.38)$	$0.507^{+0.036}_{-0.031}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.30}_{-0.33}$	$D_{2000}$	$230.4^{+4.0}_{-3.8}$	$\sigma_8(0.38)$	$0.713^{+0.040}_{-0.038}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.0097}$	$f\sigma_8(0.51)$	$0.512^{+0.037}_{-0.034}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24537^{+0.00013}_{-0.00017}$	$\sigma_8(0.51)$	$0.668^{+0.037}_{-0.035}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00013}_{-0.00017}$	$f\sigma_8(0.61)$	$0.509^{+0.038}_{-0.035}$
$A_{100}^{\mathrm{dust}}$	$0.995^{+0.43}_{-0.48}$	$10^5\mathrm{D}/\mathrm{H}$	$2.595^{+0.074}_{-0.063}$	$\sigma_8(0.61)$	$0.635^{+0.035}_{-0.033}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.47}_{-0.44}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.693^{+0.085}_{-0.081}$	$f\sigma_8(2.33)$	$0.320^{+0.017}_{-0.017}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.28}_{-0.29}$	$z_*$	$1089.95^{+0.61}_{-0.61}$	$\sigma_8(2.33)$	$0.326^{+0.015}_{-0.014}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42}$	$r_*$	$144.58^{+0.84}_{-0.83}$	$f_{2000}^{143}$	$30^{+7}_{-7}$
$c_{100}$	$0.9975^{+0.0025}_{-0.0025}$	$100\theta_*$	$1.04109^{+0.00086}_{-0.00085}$	$f_{2000}^{217}$	$106.8^{+5.0}_{-5.4}$
$c_{217}$	$1.0011^{+0.0037}_{-0.0040}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.887^{+0.080}_{-0.075}$	$f_{2000}^{143\times 217}$	$32^{+6}_{-5}$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.79^{+0.72}_{-0.85}$	$\chi_{\mathrm{simall}}^2$	$396.6\ (\nu: 0.8)$
$c_{EE}$	$0.992^{+0.011}_{-0.012}$	$r_{\mathrm{drag}}$	$147.26^{+0.80}_{-0.82}$	$\chi_{\mathrm{lowl}}^2$	$22.86\ (\nu: 0.3)$
$H_0$	$73.5^{+4.4}_{-4.1}$	$k_{\mathrm{D}}$	$0.14065^{+0.00098}_{-0.00098}$	$\chi_{\mathrm{CamSpec}}^2$	$11513.4\ (\nu: 14.3)$
$\Omega_{\Lambda}$	$0.736^{+0.030}_{-0.032}$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00046}_{-0.00046}$	$\chi_{\mathrm{H073p45}}^2$	$1.0\ (\nu: 1.0)$
$\Omega_{\mathrm{m}}$	$0.264^{+0.032}_{-0.030}$	$z_{\mathrm{eq}}$	$3391^{+77}_{-84}$	$\chi_{\mathrm{prior}}^2$	$7.7\ (\nu: 6.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0032}_{-0.0035}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00024}_{-0.00026}$	$\chi_{\mathrm{CMB}}^2$	$11932.9\ (\nu: 14.7)$
$\Omega_{\mathrm{m}}h^3$	$0.1048^{+0.0065}_{-0.0064}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.016}_{-0.015}$		
$\sigma_8$	$0.864^{+0.048}_{-0.045}$	$100\theta_{\mathrm{s,eq}}$	$0.4504^{+0.0082}_{-0.0075}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11941.58; R - 1 = 0.09840$$



### 18.23 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02217	$0.02217^{+0.00054}_{-0.00052}$	$\sigma_8/h^{0.5}$	0.990	$0.992^{+0.050}_{-0.053}$	$D_M(0.38)$	1524.8	$1522^{+42}_{-42}$
$\Omega_c h^2$	0.11961	$0.1197^{+0.0046}_{-0.0045}$	$r_{\text{drag}} h$	100.5	$100.9^{+6.0}_{-5.0}$	$H(0.51)$	89.54	$89.50^{+0.90}_{-1.0}$
$100\theta_{\text{MC}}$	1.04092	$1.0409^{+0.0012}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.441	$2.45^{+0.10}_{-0.11}$	$D_M(0.51)$	1977.2	$1974^{+43}_{-43}$
$\tau$	0.0528	$0.053^{+0.023}_{-0.021}$	$z_{\text{re}}$	7.56	$7.6^{+2.2}_{-2.3}$	$H(0.61)$	95.09	$95.0^{+1.1}_{-1.3}$
$w_0$	-1.027	$-1.04^{+0.16}_{-0.19}$	$10^9 A_s$	2.090	$2.091^{+0.098}_{-0.091}$	$D_M(0.61)$	2302.2	$2299^{+43}_{-43}$
$\ln(10^{10} A_s)$	3.0400	$3.040^{+0.046}_{-0.045}$	$10^9 A_s e^{-2\tau}$	1.8811	$1.880^{+0.034}_{-0.033}$	$H(2.33)$	235.70	$235.6^{+2.0}_{-2.0}$
$n_s$	0.9655	$0.965^{+0.013}_{-0.013}$	$D_{40}$	1227.4	$1228^{+36}_{-34}$	$D_M(2.33)$	5768.2	$5768^{+31}_{-31}$
$y_{\text{cal}}$	1.0006	$1.0005^{+0.0066}_{-0.0064}$	$D_{220}$	5717	$5716^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4594	$0.461^{+0.034}_{-0.033}$
$A_{217}^{\text{CIB}}$	49.6	$48^{+20}_{-20}$	$D_{810}$	2537.6	$2536^{+36}_{-36}$	$\sigma_8(0.15)$	0.755	$0.759^{+0.059}_{-0.056}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.21	—	$D_{1420}$	815.8	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4799	$0.483^{+0.047}_{-0.043}$
$A_{143}^{\text{tSZ}}$	7.0	—	$D_{2000}$	230.04	$229.8^{+4.5}_{-4.5}$	$\sigma_8(0.38)$	0.669	$0.673^{+0.052}_{-0.049}$
$A_{100}^{\text{PS}}$	257	$263^{+70}_{-70}$	$n_{s,0.002}$	0.9655	$0.965^{+0.013}_{-0.013}$	$f\sigma_8(0.51)$	0.4791	$0.482^{+0.050}_{-0.045}$
$A_{143}^{\text{PS}}$	48.2	$49^{+20}_{-20}$	$Y_{\text{P}}$	0.245315	$0.24531^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	0.6263	$0.629^{+0.048}_{-0.045}$
$A_{143 \times 217}^{\text{PS}}$	43.9	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246641	$0.24664^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	0.4743	$0.477^{+0.050}_{-0.045}$
$A_{217}^{\text{PS}}$	117.7	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.623	$2.62^{+0.10}_{-0.098}$	$\sigma_8(0.61)$	0.5959	$0.599^{+0.045}_{-0.043}$
$A^{\text{kSZ}}$	0.1	—	Age/Gyr	13.799	$13.794^{+0.092}_{-0.087}$	$f\sigma_8(2.33)$	0.3004	$0.302^{+0.022}_{-0.021}$
$A_{100}^{\text{dustTT}}$	8.86	$9.0^{+4.7}_{-4.7}$	$z_*$	1090.13	$1090.15^{+0.91}_{-0.90}$	$\sigma_8(2.33)$	0.3090	$0.310^{+0.018}_{-0.018}$
$A_{143}^{\text{dustTT}}$	10.82	$10.7^{+4.6}_{-4.6}$	$r_*$	144.68	$144.7^{+1.1}_{-1.1}$	$f_{2000}^{143}$	30.7	$31^{+7}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	19.3	$18.3^{+8.3}_{-8.5}$	$100\theta_*$	1.04113	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.4	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	94.5	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.897	$13.90^{+0.10}_{-0.10}$	$f_{2000}^{217}$	107.87	$108.0^{+4.9}_{-5.0}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.44	$1059.4^{+1.1}_{-1.2}$	$\chi_{\text{small}}^2$	395.86	$397.0 (\nu: 1.6)$
$c_{217}$	0.99829	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.42	$147.4^{+1.1}_{-1.1}$	$\chi_{\text{lowl}}^2$	23.15	$23.3 (\nu: 0.5)$
$H_0$	68.14	$68.5^{+4.3}_{-3.6}$	$k_{\text{D}}$	0.14037	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\text{plik}}^2$	759.1	$771.5 (\nu: 15.6)$
$\Omega_{\Lambda}$	0.6933	$0.696^{+0.032}_{-0.031}$	$100\theta_{\text{D}}$	0.16105	$0.16105^{+0.00068}_{-0.00065}$	$\chi_{6\text{DF}}^2$	0.002	$0.13 (\nu: 0.0)$
$\Omega_{\text{m}}$	0.3067	$0.304^{+0.031}_{-0.032}$	$z_{\text{eq}}$	3388	$3390^{+100}_{-100}$	$\chi_{\text{MGS}}^2$	1.54	$1.9 (\nu: 0.5)$
$\Omega_{\text{m}} h^2$	0.14243	$0.1425^{+0.0044}_{-0.0043}$	$k_{\text{eq}}$	0.010341	$0.01035^{+0.00032}_{-0.00032}$	$\chi_{\text{DR12BAO}}^2$	4.36	$5.2 (\nu: 1.2)$
$\Omega_{\text{m}} h^3$	0.0971	$0.0976^{+0.0080}_{-0.0068}$	$100\theta_{\text{eq}}$	0.8153	$0.815^{+0.020}_{-0.019}$	$\chi_{\text{prior}}^2$	1.5	$7.3 (\nu: 6.9)$
$\sigma_8$	0.817	$0.821^{+0.063}_{-0.060}$	$100\theta_{s,\text{eq}}$	0.4506	$0.450^{+0.010}_{-0.0098}$	$\chi_{\text{BAO}}^2$	5.90	$7.2 (\nu: 1.8)$
$S_8$	0.8260	$0.826^{+0.044}_{-0.046}$	$H(0.15)$	73.14	$73.3^{+2.3}_{-2.1}$	$\chi_{\text{CMB}}^2$	1178.1	$1191.8 (\nu: 15.4)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4524	$0.452^{+0.024}_{-0.025}$	$D_M(0.15)$	637.7	$636^{+26}_{-28}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6079	$0.609^{+0.035}_{-0.037}$	$H(0.38)$	82.94	$82.96^{+0.91}_{-0.84}$			

Best-fit  $\chi_{\text{eff}}^2 = 1185.52$ ;  $\bar{\chi}_{\text{eff}}^2 = 1206.32$ ;  $R - 1 = 0.00799$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.54 DR12BAO: 4.36 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3.2.29: 23.15 plik\_rd12\_HM\_v22.TT: 759.14



## 18.24 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.02217^{+0.00051}_{-0.00053}$	$\sigma_8/h^{0.5}$	0.9908	$0.992^{+0.035}_{-0.035}$	$D_M(0.38)$	1523.4	$1521^{+41}_{-41}$
$\Omega_c h^2$	0.11959	$0.1197^{+0.0034}_{-0.0035}$	$r_{\text{drag}} h$	100.6	$101.0^{+5.6}_{-4.9}$	$H(0.51)$	89.55	$89.52^{+0.75}_{-0.85}$
$100\theta_{\text{MC}}$	1.04086	$1.0409^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.444	$2.445^{+0.068}_{-0.068}$	$D_M(0.51)$	1975.7	$1973^{+43}_{-42}$
$\tau$	0.0542	$0.053^{+0.022}_{-0.020}$	$z_{\text{re}}$	7.70	$7.6^{+2.1}_{-2.2}$	$H(0.61)$	95.09	$95.03^{+0.87}_{-1.0}$
$w_0$	-1.031	$-1.04^{+0.13}_{-0.16}$	$10^9 A_s$	2.096	$2.092^{+0.088}_{-0.079}$	$D_M(0.61)$	2300.6	$2298^{+43}_{-43}$
$\ln(10^{10} A_s)$	3.0425	$3.041^{+0.041}_{-0.038}$	$10^9 A_s e^{-2\tau}$	1.8805	$1.880^{+0.028}_{-0.029}$	$H(2.33)$	235.66	$235.6^{+2.0}_{-2.0}$
$n_s$	0.9655	$0.965^{+0.012}_{-0.011}$	$D_{40}$	1227.6	$1229^{+32}_{-30}$	$D_M(2.33)$	5767.3	$5768^{+31}_{-29}$
$y_{\text{cal}}$	1.0003	$1.0005^{+0.0064}_{-0.0063}$	$D_{220}$	5719	$5718^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4600	$0.461^{+0.024}_{-0.023}$
$A_{217}^{\text{CIB}}$	48.6	$48^{+20}_{-20}$	$D_{810}$	2536.8	$2536^{+34}_{-35}$	$\sigma_8(0.15)$	0.7568	$0.759^{+0.045}_{-0.041}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.32	—	$D_{1420}$	815.6	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4809	$0.483^{+0.035}_{-0.031}$
$A_{143}^{\text{tSZ}}$	7.0	—	$D_{2000}$	230.08	$229.8^{+4.3}_{-4.5}$	$\sigma_8(0.38)$	0.6709	$0.673^{+0.040}_{-0.036}$
$A_{100}^{\text{PS}}$	254	$263^{+70}_{-70}$	$n_{s,0.002}$	0.9655	$0.965^{+0.012}_{-0.011}$	$f\sigma_8(0.51)$	0.4802	$0.482^{+0.037}_{-0.032}$
$A_{143}^{\text{PS}}$	49.2	$49^{+20}_{-20}$	$Y_P$	0.245328	$0.24531^{+0.00020}_{-0.00025}$	$\sigma_8(0.51)$	0.6278	$0.630^{+0.037}_{-0.033}$
$A_{143 \times 217}^{\text{PS}}$	46.9	$43^{+20}_{-20}$	$Y_P^{\text{BBN}}$	0.246654	$0.24664^{+0.00020}_{-0.00025}$	$f\sigma_8(0.61)$	0.4754	$0.477^{+0.038}_{-0.033}$
$A_{217}^{\text{PS}}$	119.5	$115^{+30}_{-30}$	$10^5 D/H$	2.617	$2.62^{+0.10}_{-0.094}$	$\sigma_8(0.61)$	0.5973	$0.599^{+0.035}_{-0.032}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.796	$13.793^{+0.091}_{-0.085}$	$f\sigma_8(2.33)$	0.3012	$0.302^{+0.017}_{-0.016}$
$A_{100}^{\text{dustTT}}$	8.88	$8.9^{+5.0}_{-4.9}$	$z_*$	1090.09	$1090.14^{+0.82}_{-0.79}$	$\sigma_8(2.33)$	0.3097	$0.310^{+0.015}_{-0.013}$
$A_{143}^{\text{dustTT}}$	10.80	$10.7^{+4.7}_{-4.3}$	$r_*$	144.66	$144.67^{+0.86}_{-0.84}$	$f_{2000}^{143}$	30.2	$31^{+8}_{-8}$
$A_{143 \times 217}^{\text{dustTT}}$	19.4	$18.3^{+7.9}_{-8.4}$	$100\theta_*$	1.04106	$1.0411^{+0.0010}_{-0.0010}$	$f_{2000}^{143 \times 217}$	33.1	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	94.5	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.896	$13.896^{+0.082}_{-0.080}$	$f_{2000}^{217}$	107.58	$108.0^{+5.0}_{-4.9}$
$c_{100}$	0.99966	$0.9996^{+0.0015}_{-0.0016}$	$z_{\text{drag}}$	1059.51	$1059.5^{+1.2}_{-1.2}$	$\chi_{\text{lensing}}^2$	8.73	$9.35 (\nu: 0.4)$
$c_{217}$	0.99823	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.39	$147.40^{+0.92}_{-0.89}$	$\chi_{\text{small}}^2$	396.05	$397.0 (\nu: 1.5)$
$H_0$	68.25	$68.5^{+3.9}_{-3.4}$	$k_D$	0.14043	$0.1404^{+0.0012}_{-0.0011}$	$\chi_{\text{lowl}}^2$	23.21	$23.32 (\nu: 0.4)$
$\Omega_\Lambda$	0.6943	$0.696^{+0.031}_{-0.031}$	$100\theta_D$	0.16099	$0.16104^{+0.00071}_{-0.00067}$	$\chi_{\text{plik}}^2$	759.0	$770.9 (\nu: 14.0)$
$\Omega_m$	0.3057	$0.304^{+0.031}_{-0.031}$	$z_{\text{eq}}$	3388	$3389^{+78}_{-81}$	$\chi_{6\text{DF}}^2$	0.000	$0.13 (\nu: 0.0)$
$\Omega_m h^2$	0.14244	$0.1425^{+0.0033}_{-0.0034}$	$k_{\text{eq}}$	0.010342	$0.01034^{+0.00024}_{-0.00025}$	$\chi_{\text{MGS}}^2$	1.61	$1.92 (\nu: 0.5)$
$\Omega_m h^3$	0.0972	$0.0977^{+0.0067}_{-0.0058}$	$100\theta_{\text{eq}}$	0.8152	$0.815^{+0.015}_{-0.014}$	$\chi_{\text{DR12BAO}}^2$	4.33	$5.1 (\nu: 1.0)$
$\sigma_8$	0.8186	$0.821^{+0.047}_{-0.043}$	$100\theta_{s,\text{eq}}$	0.4505	$0.4505^{+0.0079}_{-0.0074}$	$\chi_{\text{prior}}^2$	1.3	$7.2 (\nu: 6.6)$
$S_8$	0.8264	$0.825^{+0.031}_{-0.031}$	$H(0.15)$	73.21	$73.4^{+2.2}_{-2.1}$	$\chi_{\text{CMB}}^2$	1187.0	$1200.6 (\nu: 15.6)$
$\sigma_8 \Omega_m^{0.5}$	0.4526	$0.452^{+0.017}_{-0.017}$	$D_M(0.15)$	636.9	$635^{+26}_{-26}$	$\chi_{\text{BAO}}^2$	5.94	$7.2 (\nu: 1.5)$
$\sigma_8 \Omega_m^{0.25}$	0.6087	$0.609^{+0.024}_{-0.024}$	$H(0.38)$	82.97	$82.98^{+0.87}_{-0.85}$			

Best-fit  $\chi_{\text{eff}}^2 = 1194.29$ ;  $\bar{\chi}_{\text{eff}}^2 = 1214.98$ ;  $R - 1 = 0.01126$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.61 DR12BAO: 4.33 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.73 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.05 commander\_dx12.v3.2.29: 23.21 plik\_rd12\_HM.v22\_TT: 759.05



18.25 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02217^{+0.00053}_{-0.00053}$	$\sigma_8/h^{0.5}$	$0.992^{+0.050}_{-0.053}$	$D_{\mathrm{M}}(0.38)$	$1522^{+42}_{-42}$
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0046}_{-0.0045}$	$r_{\mathrm{drag}}h$	$100.9^{+6.0}_{-5.1}$	$H(0.51)$	$89.51^{+0.90}_{-1.0}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.45^{+0.10}_{-0.10}$	$D_{\mathrm{M}}(0.51)$	$1974^{+44}_{-43}$
$\tau$	$0.054^{+0.020}_{-0.013}$	$z_{\mathrm{re}}$	$< 9.56$	$H(0.61)$	$95.0^{+1.0}_{-1.3}$
$w_0$	$-1.04^{+0.16}_{-0.19}$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.095}_{-0.064}$	$D_{\mathrm{M}}(0.61)$	$2299^{+43}_{-42}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.044}_{-0.031}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.034}_{-0.033}$	$H(2.33)$	$235.6^{+2.0}_{-2.0}$
$n_{\mathrm{s}}$	$0.965^{+0.013}_{-0.013}$	$D_{40}$	$1229^{+36}_{-34}$	$D_{\mathrm{M}}(2.33)$	$5768^{+31}_{-30}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0064}$	$D_{220}$	$5716^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.461^{+0.034}_{-0.033}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2536^{+36}_{-36}$	$\sigma_8(0.15)$	$0.759^{+0.059}_{-0.056}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.483^{+0.047}_{-0.043}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.8^{+4.6}_{-4.5}$	$\sigma_8(0.38)$	$0.673^{+0.052}_{-0.049}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.013}_{-0.013}$	$f\sigma_8(0.51)$	$0.482^{+0.050}_{-0.045}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	$0.630^{+0.048}_{-0.045}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	$0.478^{+0.050}_{-0.045}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.10}_{-0.097}$	$\sigma_8(0.61)$	$0.599^{+0.045}_{-0.042}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.794^{+0.092}_{-0.086}$	$f\sigma_8(2.33)$	$0.302^{+0.022}_{-0.021}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.8}$	$z_*$	$1090.14^{+0.91}_{-0.89}$	$\sigma_8(2.33)$	$0.311^{+0.018}_{-0.018}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.6}$	$r_*$	$144.7^{+1.1}_{-1.1}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.3}_{-8.5}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.90^{+0.10}_{-0.10}$	$f_{2000}^{217}$	$107.9^{+4.9}_{-4.9}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.7)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.4^{+1.1}_{-1.1}$	$\chi_{\mathrm{lowl}}^2$	$23.3 (\nu: 0.5)$
$H_0$	$68.5^{+4.3}_{-3.6}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{plik}}^2$	$771.3 (\nu: 15.5)$
$\Omega_{\Lambda}$	$0.696^{+0.032}_{-0.031}$	$100\theta_{\mathrm{D}}$	$0.16104^{+0.00069}_{-0.00066}$	$\chi_{6\mathrm{DF}}^2$	$0.13 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.031}_{-0.032}$	$z_{\mathrm{eq}}$	$3389^{+110}_{-100}$	$\chi_{\mathrm{MGS}}^2$	$1.88 (\nu: 0.5)$
$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0044}_{-0.0043}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00032}_{-0.00032}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.2 (\nu: 1.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0976^{+0.0080}_{-0.0069}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.020}_{-0.019}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$\sigma_8$	$0.821^{+0.062}_{-0.060}$	$100\theta_{\mathrm{s,eq}}$	$0.450^{+0.010}_{-0.0099}$	$\chi_{\mathrm{BAO}}^2$	$7.2 (\nu: 1.8)$
$S_8$	$0.827^{+0.044}_{-0.045}$	$H(0.15)$	$73.3^{+2.3}_{-2.1}$	$\chi_{\mathrm{CMB}}^2$	$1191.6 (\nu: 15.1)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.024}_{-0.025}$	$D_{\mathrm{M}}(0.15)$	$636^{+26}_{-28}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.035}_{-0.036}$	$H(0.38)$	$82.96^{+0.91}_{-0.84}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1206.07$ ;  $R - 1 = 0.00764$



18.26 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02218^{+0.00051}_{-0.00053}$	$\sigma_8/h^{0.5}$	$0.992^{+0.035}_{-0.035}$	$D_M(0.38)$	$1521^{+41}_{-41}$
$\Omega_c h^2$	$0.1196^{+0.0034}_{-0.0034}$	$r_{\text{drag}} h$	$101.0^{+5.6}_{-4.9}$	$H(0.51)$	$89.54^{+0.74}_{-0.85}$
$100\theta_{\text{MC}}$	$1.0409^{+0.0010}_{-0.0010}$	$\langle d^2 \rangle^{1/2}$	$2.446^{+0.068}_{-0.068}$	$D_M(0.51)$	$1973^{+43}_{-42}$
$\tau$	$0.055^{+0.019}_{-0.014}$	$z_{\text{re}}$	$< 9.45$	$H(0.61)$	$95.05^{+0.86}_{-1.0}$
$w_0$	$-1.04^{+0.13}_{-0.16}$	$10^9 A_s$	$2.097^{+0.084}_{-0.057}$	$D_M(0.61)$	$2298^{+43}_{-43}$
$\ln(10^{10} A_s)$	$3.043^{+0.039}_{-0.028}$	$10^9 A_s e^{-2\tau}$	$1.880^{+0.027}_{-0.029}$	$H(2.33)$	$235.6^{+2.0}_{-2.0}$
$n_s$	$0.965^{+0.011}_{-0.011}$	$D_{40}$	$1229^{+33}_{-30}$	$D_M(2.33)$	$5767^{+30}_{-28}$
$y_{\text{cal}}$	$1.0005^{+0.0063}_{-0.0064}$	$D_{220}$	$5718^{+100}_{-110}$	$f\sigma_8(0.15)$	$0.460^{+0.024}_{-0.023}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2536^{+34}_{-35}$	$\sigma_8(0.15)$	$0.759^{+0.045}_{-0.041}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.482^{+0.034}_{-0.030}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$229.9^{+4.3}_{-4.4}$	$\sigma_8(0.38)$	$0.673^{+0.040}_{-0.036}$
$A_{100}^{\text{PS}}$	$262^{+70}_{-70}$	$n_{\text{s},0.002}$	$0.965^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	$0.482^{+0.037}_{-0.032}$
$A_{143}^{\text{PS}}$	$49^{+20}_{-20}$	$Y_{\text{P}}$	$0.24531^{+0.00020}_{-0.00025}$	$\sigma_8(0.51)$	$0.630^{+0.038}_{-0.033}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24664^{+0.00020}_{-0.00025}$	$f\sigma_8(0.61)$	$0.477^{+0.037}_{-0.033}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	$2.62^{+0.10}_{-0.093}$	$\sigma_8(0.61)$	$0.599^{+0.035}_{-0.031}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.793^{+0.092}_{-0.084}$	$f\sigma_8(2.33)$	$0.302^{+0.017}_{-0.016}$
$A_{100}^{\text{dustTT}}$	$8.9^{+5.1}_{-4.9}$	$z_*$	$1090.12^{+0.81}_{-0.78}$	$\sigma_8(2.33)$	$0.311^{+0.015}_{-0.013}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.7}_{-4.3}$	$r_*$	$144.69^{+0.85}_{-0.84}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+7.9}_{-8.4}$	$100\theta_*$	$1.0411^{+0.0010}_{-0.0010}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.898^{+0.081}_{-0.080}$	$f_{2000}^{217}$	$107.9^{+4.9}_{-4.9}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$z_{\text{drag}}$	$1059.5^{+1.2}_{-1.2}$	$\chi_{\text{lensing}}^2$	$9.33 (\nu: 0.4)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	$147.42^{+0.91}_{-0.90}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.5)$
$H_0$	$68.5^{+3.9}_{-3.4}$	$k_{\text{D}}$	$0.1404^{+0.0012}_{-0.0011}$	$\chi_{\text{lowl}}^2$	$23.31 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.696^{+0.031}_{-0.031}$	$100\theta_{\text{D}}$	$0.16104^{+0.00071}_{-0.00067}$	$\chi_{\text{plik}}^2$	$770.9 (\nu: 14.0)$
$\Omega_{\text{m}}$	$0.304^{+0.031}_{-0.031}$	$z_{\text{eq}}$	$3387^{+77}_{-80}$	$\chi_{6\text{DF}}^2$	$0.13 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	$0.1424^{+0.0032}_{-0.0034}$	$k_{\text{eq}}$	$0.01034^{+0.00024}_{-0.00024}$	$\chi_{\text{MGS}}^2$	$1.91 (\nu: 0.5)$
$\Omega_{\text{m}} h^3$	$0.0975^{+0.0066}_{-0.0057}$	$100\theta_{\text{eq}}$	$0.815^{+0.015}_{-0.014}$	$\chi_{\text{DR12BAO}}^2$	$5.1 (\nu: 0.9)$
$\sigma_8$	$0.821^{+0.047}_{-0.043}$	$100\theta_{\text{s,eq}}$	$0.4507^{+0.0078}_{-0.0072}$	$\chi_{\text{prior}}^2$	$7.2 (\nu: 6.6)$
$S_8$	$0.826^{+0.031}_{-0.031}$	$H(0.15)$	$73.3^{+2.2}_{-2.1}$	$\chi_{\text{CMB}}^2$	$1200.4 (\nu: 15.5)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.452^{+0.017}_{-0.017}$	$D_M(0.15)$	$635^{+25}_{-26}$	$\chi_{\text{BAO}}^2$	$7.1 (\nu: 1.5)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.609^{+0.025}_{-0.024}$	$H(0.38)$	$83.00^{+0.86}_{-0.85}$		

$\bar{\chi}_{\text{eff}}^2 = 1214.74; R - 1 = 0.01087$



# 18.27 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022384	$0.02238^{+0.00037}_{-0.00038}$ (+1.1 $\sigma$ )	$\sigma_8$	0.823	$0.822^{+0.053}_{-0.048}$ (+0.1 $\sigma$ )	$D_M(0.15)$	634.2	$634^{+26}_{-27}$ (−0.1 $\sigma$ )
$\Omega_c h^2$	0.11994	$0.1199^{+0.0032}_{-0.0032}$ (+0.1 $\sigma$ )	$S_8$	0.8281	$0.827^{+0.033}_{-0.033}$ (+0.1 $\sigma$ )	$H(0.38)$	83.12	$83.11^{+0.80}_{-0.79}$ (+0.5 $\sigma$ )
$100\theta_{MC}$	1.04092	$1.04095^{+0.00080}_{-0.00079}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4536	$0.453^{+0.018}_{-0.018}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1518.4	$1519^{+41}_{-43}$ (−0.2 $\sigma$ )
$\tau$	0.0544	$0.055^{+0.022}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6110	$0.610^{+0.027}_{-0.027}$ (+0.1 $\sigma$ )	$H(0.51)$	89.66	$89.66^{+0.66}_{-0.75}$ (+0.4 $\sigma$ )
$w_0$	−1.041	$−1.04^{+0.14}_{-0.16}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9936	$0.993^{+0.040}_{-0.039}$ (+0.0 $\sigma$ )	$D_M(0.51)$	1970.1	$1970^{+43}_{-44}$ (−0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0443	$3.044^{+0.043}_{-0.042}$ (+0.3 $\sigma$ )	$r_{drag} h$	100.9	$101.0^{+5.9}_{-5.0}$ (+0.0 $\sigma$ )	$H(0.61)$	95.18	$95.18^{+0.77}_{-0.98}$ (+0.4 $\sigma$ )
$n_s$	0.9663	$0.965^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.449	$2.449^{+0.078}_{-0.081}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2294.7	$2295^{+43}_{-43}$ (−0.3 $\sigma$ )
$y_{cal}$	1.0003	$1.0006^{+0.0064}_{-0.0066}$ (+0.0 $\sigma$ )	$z_{re}$	7.68	$7.7^{+2.1}_{-2.2}$ (+0.1 $\sigma$ )	$H(2.33)$	235.93	$236.0^{+1.8}_{-1.9}$ (+0.4 $\sigma$ )
$A_{217}^{CIB}$	46.4	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.099	$2.100^{+0.091}_{-0.086}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5758.7	$5759^{+24}_{-23}$ (−0.8 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.56	—	$10^9 A_s e^{-2\tau}$	1.8829	$1.883^{+0.029}_{-0.031}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4618	$0.461^{+0.025}_{-0.024}$ (+0.0 $\sigma$ )
$A_{143}^{tSZ}$	7.1	—	$D_{40}$	1227.5	$1230^{+32}_{-32}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7610	$0.760^{+0.051}_{-0.046}$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	249	$259^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{220}$	5729	$5734^{+100}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4838	$0.483^{+0.037}_{-0.033}$ (+0.0 $\sigma$ )
$A_{143}^{PS}$	49.5	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2540.0	$2539^{+35}_{-36}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6747	$0.674^{+0.046}_{-0.041}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	50.8	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	818.0	$817^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4833	$0.483^{+0.040}_{-0.035}$ (+0.0 $\sigma$ )
$A_{217}^{PS}$	121.1	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.23	$231.0^{+4.1}_{-4.1}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6313	$0.631^{+0.042}_{-0.038}$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9663	$0.965^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4786	$0.478^{+0.041}_{-0.036}$ (+0.0 $\sigma$ )
$A_{100}^{dustTT}$	8.81	$8.9^{+4.8}_{-4.7}$ (−0.0 $\sigma$ )	$Y_P$	0.245401	$0.24540^{+0.00014}_{-0.00016}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.6006	$0.600^{+0.040}_{-0.036}$ (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	11.04	$10.9^{+4.5}_{-4.4}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246728	$0.24673^{+0.00014}_{-0.00016}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3028	$0.303^{+0.020}_{-0.018}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.0	$18.6^{+8.6}_{-8.4}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.583	$2.584^{+0.072}_{-0.067}$ (−1.1 $\sigma$ )	$\sigma_8(2.33)$	0.3112	$0.311^{+0.017}_{-0.015}$ (+0.1 $\sigma$ )
$A_{217}^{dustTT}$	95.4	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.771	$13.772^{+0.081}_{-0.080}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	28.7	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.115^{+0.098}_{-0.096}$	$z_*$	1089.90	$1089.89^{+0.69}_{-0.64}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.98	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.136	$0.135^{+0.077}_{-0.073}$	$r_*$	144.44	$144.46^{+0.72}_{-0.71}$ (−0.5 $\sigma$ )	$f_{2000}^{217}$	106.51	$107.0^{+4.5}_{-4.5}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04110	$1.04113^{+0.00080}_{-0.00077}$ (+0.1 $\sigma$ )	$\chi_{small}^2$	396.06	$397.1 (\nu: 1.8)$ (+0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.227	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.873	$13.875^{+0.068}_{-0.067}$ (−0.5 $\sigma$ )	$\chi_{lowl}^2$	23.12	$23.35 (\nu: 0.4)$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.666	$0.66^{+0.21}_{-0.21}$	$z_{drag}$	1059.97	$1059.96^{+0.78}_{-0.79}$ (+1.2 $\sigma$ )	$\chi_{plik}^2$	2344.5	$2359.4 (\nu: 17.6)$ (+284.0 $\sigma$ )
$A_{217}^{dustTE}$	2.09	$2.08^{+0.70}_{-0.70}$	$r_{drag}$	147.09	$147.11^{+0.72}_{-0.70}$ (−0.7 $\sigma$ )	$\chi_{6DF}^2$	0.001	$0.13 (\nu: 0.0)$ (−0.0 $\sigma$ )
$c_{100}$	0.99970	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14088	$0.14086^{+0.00079}_{-0.00079}$ (+0.9 $\sigma$ )	$\chi_{MGS}^2$	1.75	$1.89 (\nu: 0.5)$ (+0.0 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160740	$0.16075^{+0.00046}_{-0.00045}$ (−1.2 $\sigma$ )	$\chi_{DR12BAO}^2$	4.40	$5.2 (\nu: 0.9)$ (−0.0 $\sigma$ )
$H_0$	68.61	$68.6^{+4.1}_{-3.5}$ (+0.1 $\sigma$ )	$z_{eq}$	3401	$3399^{+72}_{-72}$ (+0.2 $\sigma$ )	$\chi_{prior}^2$	1.7	$11.5 (\nu: 10.1)$ (+1.1 $\sigma$ )
$\Omega_\Lambda$	0.6963	$0.696^{+0.032}_{-0.031}$ (+0.0 $\sigma$ )	$k_{eq}$	0.010381	$0.01038^{+0.00022}_{-0.00022}$ (+0.2 $\sigma$ )	$\chi_{BAO}^2$	6.15	$7.2 (\nu: 1.5)$ (−0.0 $\sigma$ )
$\Omega_m$	0.3037	$0.304^{+0.031}_{-0.032}$ (−0.0 $\sigma$ )	$100\theta_{eq}$	0.8135	$0.814^{+0.014}_{-0.013}$ (−0.1 $\sigma$ )	$\chi_{CMB}^2$	2763.7	$2779.9 (\nu: 17.5)$ (+286.0 $\sigma$ )
$\Omega_m h^2$	0.14297	$0.1429^{+0.0030}_{-0.0030}$ (+0.2 $\sigma$ )	$100\theta_{s,eq}$	0.4495	$0.4497^{+0.0071}_{-0.0069}$ (−0.2 $\sigma$ )			
$\Omega_m h^3$	0.0981	$0.0981^{+0.0070}_{-0.0060}$ (+0.2 $\sigma$ )	$H(0.15)$	73.46	$73.5^{+2.3}_{-2.1}$ (+0.2 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 2771.48$ ;  $\Delta\chi_{eff}^2 = 1585.96$ ;  $\bar{\chi}_{eff}^2 = 2798.61$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.29$ ;  $R - 1 = 0.00736$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  -0.00) MGS: 1.75 ( $\Delta$  0.21) DR12BAO: 4.40 ( $\Delta$  0.04) CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 396.06 ( $\Delta$  0.20) commander\_dx12.v3.2.29: 23.12 ( $\Delta$  -0.03) plik\_rd12\_HM.v22b\_TTTEEE: 2344.49



18.28 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022391	$0.02239^{+0.00037}_{-0.00038}$ (+1.1 $\sigma$ )	$\sigma_8$	0.8220	$0.821^{+0.043}_{-0.039}$ (+0.0 $\sigma$ )	$D_M(0.15)$	634.3	$634^{+24}_{-27}$ (−0.1 $\sigma$ )
$\Omega_c h^2$	0.11983	$0.1198^{+0.0028}_{-0.0028}$ (+0.1 $\sigma$ )	$S_8$	0.8271	$0.826^{+0.027}_{-0.027}$ (+0.0 $\sigma$ )	$H(0.38)$	83.14	$83.14^{+0.79}_{-0.78}$ (+0.5 $\sigma$ )
$100\theta_{MC}$	1.04094	$1.04095^{+0.00080}_{-0.00079}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4530	$0.452^{+0.015}_{-0.015}$ (+0.0 $\sigma$ )	$D_M(0.38)$	1518.5	$1518^{+40}_{-42}$ (−0.1 $\sigma$ )
$\tau$	0.0545	$0.055^{+0.021}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6102	$0.609^{+0.021}_{-0.020}$ (+0.0 $\sigma$ )	$H(0.51)$	89.69	$89.69^{+0.60}_{-0.67}$ (+0.5 $\sigma$ )
$w_0$	−1.038	$−1.04^{+0.12}_{-0.15}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9926	$0.991^{+0.031}_{-0.030}$ (−0.0 $\sigma$ )	$D_M(0.51)$	1970.0	$1970^{+42}_{-43}$ (−0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0448	$3.044^{+0.040}_{-0.037}$ (+0.2 $\sigma$ )	$r_{drag} h$	100.9	$101.0^{+5.7}_{-4.8}$ (−0.0 $\sigma$ )	$H(0.61)$	95.21	$95.21^{+0.69}_{-0.87}$ (+0.5 $\sigma$ )
$n_s$	0.9662	$0.966^{+0.010}_{-0.011}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.448	$2.447^{+0.061}_{-0.061}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2294.5	$2294^{+41}_{-42}$ (−0.2 $\sigma$ )
$y_{cal}$	1.0006	$1.0006^{+0.0064}_{-0.0064}$ (+0.0 $\sigma$ )	$z_{re}$	7.68	$7.7^{+2.0}_{-2.0}$ (+0.1 $\sigma$ )	$H(2.33)$	235.90	$235.9^{+1.8}_{-1.8}$ (+0.4 $\sigma$ )
$A_{217}^{CIB}$	46.4	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.100	$2.099^{+0.086}_{-0.077}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5758.1	$5758^{+24}_{-23}$ (−0.8 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.58	—	$10^9 A_s e^{-2\tau}$	1.8837	$1.882^{+0.027}_{-0.027}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4611	$0.460^{+0.020}_{-0.019}$ (−0.0 $\sigma$ )
$A_{143}^{tSZ}$	7.1	—	$D_{40}$	1228.7	$1230^{+29}_{-29}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7601	$0.759^{+0.042}_{-0.037}$ (+0.0 $\sigma$ )
$A_{100}^{PS}$	249	$259^{+70}_{-70}$ (−0.1 $\sigma$ )	$D_{220}$	5735	$5736^{+100}_{-100}$ (+0.5 $\sigma$ )	$f\sigma_8(0.38)$	0.4829	$0.482^{+0.030}_{-0.026}$ (−0.0 $\sigma$ )
$A_{143}^{PS}$	50.1	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2541.3	$2539^{+34}_{-35}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6739	$0.673^{+0.037}_{-0.034}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{PS}$	51.5	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	818.4	$817^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4824	$0.482^{+0.033}_{-0.029}$ (−0.0 $\sigma$ )
$A_{217}^{PS}$	121.4	$115^{+20}_{-30}$ (−0.0 $\sigma$ )	$D_{2000}$	231.32	$231.0^{+4.0}_{-4.1}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6306	$0.630^{+0.035}_{-0.031}$ (+0.0 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9662	$0.966^{+0.010}_{-0.011}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4777	$0.477^{+0.033}_{-0.029}$ (−0.0 $\sigma$ )
$A_{100}^{dustTT}$	8.80	$8.9^{+4.8}_{-4.6}$ (−0.0 $\sigma$ )	$Y_P$	0.245404	$0.24540^{+0.00014}_{-0.00016}$ (+1.1 $\sigma$ )	$\sigma_8(0.61)$	0.5999	$0.599^{+0.032}_{-0.030}$ (+0.0 $\sigma$ )
$A_{143}^{dustTT}$	11.00	$10.9^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246730	$0.24673^{+0.00014}_{-0.00016}$ (+1.1 $\sigma$ )	$f\sigma_8(2.33)$	0.3025	$0.302^{+0.016}_{-0.015}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.1	$18.6^{+8.4}_{-8.4}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.582	$2.582^{+0.071}_{-0.067}$ (−1.1 $\sigma$ )	$\sigma_8(2.33)$	0.3109	$0.311^{+0.014}_{-0.013}$ (+0.0 $\sigma$ )
$A_{217}^{dustTT}$	95.6	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.771	$13.771^{+0.079}_{-0.078}$ (−0.6 $\sigma$ )	$f_{2000}^{143}$	28.9	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.098}_{-0.097}$	$z_*$	1089.88	$1089.87^{+0.63}_{-0.60}$ (−0.9 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.09	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.078}_{-0.074}$	$r_*$	144.46	$144.48^{+0.63}_{-0.64}$ (−0.6 $\sigma$ )	$f_{2000}^{217}$	106.64	$107.0^{+4.5}_{-4.5}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	1.04112	$1.04113^{+0.00080}_{-0.00077}$ (+0.1 $\sigma$ )	$\chi^2_{lensing}$	8.75	$9.16$ ( $\nu$ : 0.2) (−0.2 $\sigma$ )
$A_{143}^{dustTE}$	0.226	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.875	$13.877^{+0.060}_{-0.060}$ (−0.6 $\sigma$ )	$\chi^2_{small}$	396	$226$ ( $\nu$ : 17328.9) (−98.8 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.663	$0.66^{+0.21}_{-0.21}$	$z_{drag}$	1059.97	$1059.97^{+0.76}_{-0.80}$ (+1.2 $\sigma$ )	$\chi^2_{lowl}$	23	$194$ ( $\nu$ : 17321.2) (+192.7 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.72}$	$r_{drag}$	147.11	$147.13^{+0.65}_{-0.64}$ (−0.8 $\sigma$ )	$\chi^2_{plik}$	2344.6	$2359.2$ ( $\nu$ : 16.6) (+300.0 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14086	$0.14084^{+0.00077}_{-0.00075}$ (+1.0 $\sigma$ )	$\chi^2_{6DF}$	0.00	$0.9$ ( $\nu$ : 0.6) (+4.4 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160737	$0.16074^{+0.00047}_{-0.00045}$ (−1.2 $\sigma$ )	$\chi^2_{MGS}$	1.75	$1.1$ ( $\nu$ : 0.7) (−0.9 $\sigma$ )
$H_0$	68.58	$68.6^{+3.9}_{-3.3}$ (+0.1 $\sigma$ )	$z_{eq}$	3399	$3397^{+63}_{-62}$ (+0.2 $\sigma$ )	$\chi^2_{DR12BAO}$	4.32	$5.1$ ( $\nu$ : 0.8) (−0.0 $\sigma$ )
$\Omega_\Lambda$	0.6962	$0.696^{+0.032}_{-0.030}$ (+0.0 $\sigma$ )	$k_{eq}$	0.010373	$0.01037^{+0.00019}_{-0.00019}$ (+0.2 $\sigma$ )	$\chi^2_{prior}$	1.6	$11.5$ ( $\nu$ : 9.9) (+1.2 $\sigma$ )
$\Omega_m$	0.3038	$0.304^{+0.030}_{-0.032}$ (−0.0 $\sigma$ )	$100\theta_{eq}$	0.8140	$0.814^{+0.012}_{-0.012}$ (−0.1 $\sigma$ )	$\chi^2_{CMB}$	2772.5	$2788.7$ ( $\nu$ : 17.5) (+284.1 $\sigma$ )
$\Omega_m h^2$	0.14286	$0.1428^{+0.0027}_{-0.0026}$ (+0.2 $\sigma$ )	$100\theta_{s,eq}$	0.4497	$0.4499^{+0.0061}_{-0.0060}$ (−0.2 $\sigma$ )	$\chi^2_{BAO}$	6.07	$7.1$ ( $\nu$ : 1.3) (−0.1 $\sigma$ )
$\Omega_m h^3$	0.0980	$0.0980^{+0.0063}_{-0.0053}$ (+0.1 $\sigma$ )	$H(0.15)$	73.46	$73.5^{+2.3}_{-2.0}$ (+0.1 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 2780.22$ ;  $\Delta\chi^2_{eff} = 1585.93$ ;  $\bar{\chi}^2_{eff} = 2807.23$ ;  $\Delta\bar{\chi}^2_{eff} = 1592.25$ ;  $R - 1 = 0.01456$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.00 ( $\Delta$  0.00) MGS: 1.75 ( $\Delta$  0.14) DR12BAO: 4.32 ( $\Delta$  -0.01) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.75 ( $\Delta$  0.02) small\_100x143\_offlike5\_EE\_Aplanck: 396.04 ( $\Delta$  -0.01) commander\_dx12\_v3.2\_29: 23.15 ( $\Delta$  -0.06) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.57



18.29 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00037}_{-0.00038} \quad (+1.1\sigma)$	$\sigma_8$	$0.823^{+0.054}_{-0.048} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$634^{+26}_{-27} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1198^{+0.0032}_{-0.0032} \quad (+0.1\sigma)$	$S_8$	$0.828^{+0.033}_{-0.033} \quad (+0.1\sigma)$	$H(0.38)$	$83.12^{+0.80}_{-0.78} \quad (+0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00080}_{-0.00078} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.018}_{-0.018} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1519^{+41}_{-43} \quad (-0.2\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.027}_{-0.027} \quad (+0.1\sigma)$	$H(0.51)$	$89.67^{+0.66}_{-0.75} \quad (+0.4\sigma)$
$w_0$	$-1.04^{+0.14}_{-0.16} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.993^{+0.040}_{-0.039} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1970^{+43}_{-44} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.042}_{-0.031} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$100.9^{+5.8}_{-5.0} \quad (+0.0\sigma)$	$H(0.61)$	$95.19^{+0.77}_{-0.99} \quad (+0.4\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.451^{+0.077}_{-0.081} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2295^{+43}_{-43} \quad (-0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0067} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.54 \quad (+0.1\sigma)$	$H(2.33)$	$235.9^{+1.8}_{-1.8} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.089}_{-0.065} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5759^{+24}_{-23} \quad (-0.8\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.029}_{-0.031} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.462^{+0.025}_{-0.024} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.2}_{-4.9} \quad (+0.2\sigma)$	$D_{40}$	$1230^{+32}_{-32} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.761^{+0.051}_{-0.046} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.1\sigma)$	$D_{220}$	$5734^{+100}_{-100} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.483^{+0.037}_{-0.033} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2539^{+34}_{-36} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.675^{+0.046}_{-0.041} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.483^{+0.040}_{-0.036} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.0^{+4.1}_{-4.1} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.631^{+0.042}_{-0.038} \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.011} \quad (+0.1\sigma)$	$f\sigma_8(0.61)$	$0.478^{+0.041}_{-0.036} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.7} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24540^{+0.00014}_{-0.00016} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.600^{+0.040}_{-0.036} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.5}_{-4.4} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00014}_{-0.00016} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.303^{+0.020}_{-0.018} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.6}_{-8.4} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.583^{+0.072}_{-0.067} \quad (-1.1\sigma)$	$\sigma_8(2.33)$	$0.311^{+0.017}_{-0.015} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.772^{+0.082}_{-0.080} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.098}_{-0.096}$	$z_*$	$1089.89^{+0.69}_{-0.64} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.077}_{-0.072}$	$r_*$	$144.46^{+0.72}_{-0.70} \quad (-0.5\sigma)$	$f_{2000}^{217}$	$106.9^{+4.5}_{-4.5} \quad (-0.5\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04114^{+0.00080}_{-0.00077} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.9) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.875^{+0.068}_{-0.067} \quad (-0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.36 \quad (\nu: 0.4) \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.96^{+0.77}_{-0.79} \quad (+1.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.2 \quad (\nu: 17.5) \quad (+285.4\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.70}_{-0.70}$	$r_{\mathrm{drag}}$	$147.12^{+0.72}_{-0.70} \quad (-0.7\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.13 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14085^{+0.00078}_{-0.00079} \quad (+0.9\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.88 \quad (\nu: 0.5) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16075^{+0.00046}_{-0.00045} \quad (-1.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.1 \quad (\nu: 0.9) \quad (-0.0\sigma)$
$H_0$	$68.6^{+4.1}_{-3.5} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3399^{+73}_{-72} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.0) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.696^{+0.032}_{-0.030} \quad (+0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01037^{+0.00022}_{-0.00022} \quad (+0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$7.2 \quad (\nu: 1.4) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.030}_{-0.032} \quad (-0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.014}_{-0.013} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2779.7 \quad (\nu: 17.1) \quad (+288.9\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1429^{+0.0031}_{-0.0030} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4497^{+0.0071}_{-0.0069} \quad (-0.2\sigma)$		
$\Omega_{\mathrm{m}}h^3$	$0.0980^{+0.0070}_{-0.0059} \quad (+0.2\sigma)$	$H(0.15)$	$73.5^{+2.3}_{-2.1} \quad (+0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2798.36; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.29; R - 1 = 0.00833$$



## 18.30 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00037}_{-0.00037} \quad (+1.1\sigma)$	$\sigma_8$	$0.821^{+0.043}_{-0.039} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$634^{+24}_{-27} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0028}_{-0.0028} \quad (+0.1\sigma)$	$S_8$	$0.826^{+0.027}_{-0.027} \quad (+0.0\sigma)$	$H(0.38)$	$83.14^{+0.79}_{-0.78} \quad (+0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04096^{+0.00080}_{-0.00079} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.015}_{-0.015} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1519^{+39}_{-42} \quad (-0.1\sigma)$
$\tau$	$0.055^{+0.018}_{-0.014} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.021}_{-0.020} \quad (+0.0\sigma)$	$H(0.51)$	$89.70^{+0.60}_{-0.66} \quad (+0.5\sigma)$
$w_0$	$-1.04^{+0.12}_{-0.14} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.991^{+0.031}_{-0.030} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1970^{+41}_{-43} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.039}_{-0.029} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$100.9^{+5.7}_{-4.8} \quad (-0.0\sigma)$	$H(0.61)$	$95.22^{+0.68}_{-0.84} \quad (+0.5\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.011} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.060}_{-0.060} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2295^{+41}_{-42} \quad (-0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0064} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.44 \quad (+0.1\sigma)$	$H(2.33)$	$235.9^{+1.8}_{-1.8} \quad (+0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.084}_{-0.060} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5758^{+24}_{-23} \quad (-0.8\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.027}_{-0.027} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.020}_{-0.019} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1230^{+30}_{-29} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.759^{+0.041}_{-0.038} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.1\sigma)$	$D_{220}$	$5736^{+99}_{-100} \quad (+0.5\sigma)$	$f\sigma_8(0.38)$	$0.482^{+0.030}_{-0.027} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2539^{+34}_{-35} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.673^{+0.037}_{-0.034} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.482^{+0.032}_{-0.029} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (-0.0\sigma)$	$D_{2000}$	$231.0^{+4.0}_{-4.1} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.630^{+0.034}_{-0.032} \quad (+0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.011} \quad (+0.1\sigma)$	$f\sigma_8(0.61)$	$0.477^{+0.033}_{-0.029} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24540^{+0.00014}_{-0.00015} \quad (+1.1\sigma)$	$\sigma_8(0.61)$	$0.599^{+0.032}_{-0.030} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.5}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00014}_{-0.00015} \quad (+1.1\sigma)$	$f\sigma_8(2.33)$	$0.302^{+0.016}_{-0.015} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.3}_{-8.4} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.581^{+0.071}_{-0.067} \quad (-1.1\sigma)$	$\sigma_8(2.33)$	$0.311^{+0.014}_{-0.013} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.771^{+0.079}_{-0.078} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.10}_{-0.096}$	$z_*$	$1089.86^{+0.63}_{-0.59} \quad (-0.9\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.078}_{-0.074}$	$r_*$	$144.49^{+0.62}_{-0.63} \quad (-0.6\sigma)$	$f_{2000}^{217}$	$106.9^{+4.5}_{-4.5} \quad (-0.5\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$100\theta_*$	$1.04114^{+0.00080}_{-0.00077} \quad (+0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.15 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.878^{+0.059}_{-0.060} \quad (-0.6\sigma)$	$\chi_{\mathrm{small}}^2$	$227 \quad (\nu: 17317.2) \quad (-97.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.98^{+0.76}_{-0.81} \quad (+1.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$193 \quad (\nu: 17309.2) \quad (+191.6\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.69}_{-0.70}$	$r_{\mathrm{drag}}$	$147.14^{+0.64}_{-0.63} \quad (-0.8\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.1 \quad (\nu: 16.6) \quad (+299.7\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14084^{+0.00076}_{-0.00074} \quad (+1.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.9 \quad (\nu: 0.6) \quad (+4.4\sigma)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00047}_{-0.00045} \quad (-1.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.1 \quad (\nu: 0.7) \quad (-0.9\sigma)$
$H_0$	$68.6^{+3.9}_{-3.3} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3396^{+62}_{-62} \quad (+0.3\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 \quad (\nu: 0.8) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.696^{+0.031}_{-0.030} \quad (-0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01036^{+0.00019}_{-0.00019} \quad (+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 9.8) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.030}_{-0.031} \quad (+0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.012}_{-0.012} \quad (-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2788.5 \quad (\nu: 17.2) \quad (+285.2\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1427^{+0.0026}_{-0.0026} \quad (+0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4500^{+0.0060}_{-0.0059} \quad (-0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$7.0 \quad (\nu: 1.3) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.0979^{+0.0061}_{-0.0053} \quad (+0.1\sigma)$	$H(0.15)$	$73.5^{+2.3}_{-2.0} \quad (+0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2807.01; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.27; R - 1 = 0.01536$$



### 18.31 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022331	$0.02232^{+0.00039}_{-0.00040}$	$\sigma_8 \Omega_m^{0.5}$	0.4490	$0.449^{+0.019}_{-0.018}$	$H(0.38)$	83.11	$83.08^{+0.83}_{-0.80}$
$\Omega_c h^2$	0.11915	$0.1193^{+0.0033}_{-0.0033}$	$\sigma_8 \Omega_m^{0.25}$	0.6039	$0.605^{+0.028}_{-0.027}$	$D_M(0.38)$	1522.4	$1522^{+42}_{-46}$
$100\theta_{MC}$	1.04092	$1.04092^{+0.00079}_{-0.00079}$	$\sigma_8/h^{0.5}$	0.9835	$0.984^{+0.042}_{-0.040}$	$H(0.51)$	89.72	$89.68^{+0.66}_{-0.74}$
$\tau$	0.0534	$0.053^{+0.022}_{-0.021}$	$r_{drag}h$	100.5	$100.6^{+6.2}_{-4.9}$	$D_M(0.51)$	1973.9	$1974^{+44}_{-47}$
$w_0$	-1.019	$-1.02^{+0.13}_{-0.17}$	$\langle d^2 \rangle^{1/2}$	2.430	$2.431^{+0.085}_{-0.083}$	$H(0.61)$	95.27	$95.22^{+0.77}_{-0.99}$
$\ln(10^{10} A_s)$	3.0385	$3.038^{+0.044}_{-0.043}$	$z_{re}$	7.58	$7.5^{+2.1}_{-2.3}$	$D_M(0.61)$	2298.3	$2298^{+44}_{-47}$
$n_s$	0.9669	$0.967^{+0.011}_{-0.011}$	$10^9 A_s$	2.087	$2.087^{+0.094}_{-0.088}$	$H(2.33)$	235.67	$235.7^{+1.9}_{-1.9}$
$y_{cal}$	1.0003	$1.0005^{+0.0068}_{-0.0065}$	$10^9 A_s e^{-2\tau}$	1.8758	$1.877^{+0.031}_{-0.029}$	$D_M(2.33)$	5761.2	$5762^{+24}_{-24}$
$A_{100}^{PS}$	241	$240^{+60}_{-60}$	$D_{40}$	1223.2	$1224^{+33}_{-31}$	$f\sigma_8(0.15)$	0.4555	$0.456^{+0.027}_{-0.024}$
$A_{143}^{PS}$	42.1	$39^{+20}_{-20}$	$D_{220}$	5719	$5719^{+110}_{-99}$	$\sigma_8(0.15)$	0.7510	$0.752^{+0.053}_{-0.045}$
$A_{217}^{PS}$	102.2	$102^{+30}_{-30}$	$D_{810}$	2533.6	$2535^{+38}_{-36}$	$f\sigma_8(0.38)$	0.4759	$0.477^{+0.039}_{-0.032}$
$A_{217}^{CIB}$	39.1	$40^{+20}_{-20}$	$D_{1420}$	815.6	$816^{+13}_{-12}$	$\sigma_8(0.38)$	0.6660	$0.667^{+0.048}_{-0.041}$
$A_{143}^{tSZ}$	3.40	< 8.84	$D_{2000}$	230.26	$230.3^{+4.3}_{-4.2}$	$f\sigma_8(0.51)$	0.4752	$0.476^{+0.041}_{-0.035}$
$r_{143 \times 217}^{PS}$	0.669	$0.66^{+0.31}_{-0.33}$	$n_{s,0.002}$	0.9669	$0.967^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	0.6233	$0.624^{+0.044}_{-0.038}$
$r_{143 \times 217}^{CIB}$	0.61	—	$Y_P$	0.245380	$0.24537^{+0.00015}_{-0.00017}$	$f\sigma_8(0.61)$	0.4705	$0.472^{+0.042}_{-0.035}$
$\xi^{tSZ \times CIB}$	0.69	—	$Y_P^{BBN}$	0.246706	$0.24670^{+0.00015}_{-0.00017}$	$\sigma_8(0.61)$	0.5931	$0.594^{+0.041}_{-0.035}$
$A^{kSZ}$	5.2	—	$10^5 D/H$	2.593	$2.596^{+0.076}_{-0.071}$	$f\sigma_8(2.33)$	0.2992	$0.300^{+0.021}_{-0.018}$
$A_{100}^{dust}$	1.02	$1.01^{+0.52}_{-0.50}$	Age/Gyr	13.786	$13.786^{+0.084}_{-0.086}$	$\sigma_8(2.33)$	0.3080	$0.308^{+0.018}_{-0.015}$
$A_{143}^{dust}$	0.972	$0.96^{+0.45}_{-0.46}$	$z_*$	1089.89	$1089.92^{+0.68}_{-0.68}$	$f_{2000}^{143}$	29.9	$30^{+7}_{-7}$
$A_{217}^{dust}$	0.983	$0.97^{+0.27}_{-0.26}$	$r_*$	144.68	$144.66^{+0.78}_{-0.75}$	$f_{2000}^{217}$	106.82	$106.8^{+4.9}_{-4.9}$
$A_{143 \times 217}^{dust}$	1.024	$1.03^{+0.43}_{-0.41}$	$100\theta_*$	1.04111	$1.04111^{+0.00078}_{-0.00079}$	$f_{2000}^{143 \times 217}$	32.1	$32^{+5}_{-5}$
$c_{100}$	0.99750	$0.9975^{+0.0027}_{-0.0027}$	$D_M(z_*)/\text{Gpc}$	13.897	$13.895^{+0.073}_{-0.070}$	$\chi_{simall}^2$	395.90	$396.9 (\nu: 1.4)$
$c_{217}$	1.00129	$1.0011^{+0.0039}_{-0.0041}$	$z_{drag}$	1059.78	$1059.76^{+0.86}_{-0.86}$	$\chi_{lowl}^2$	22.84	$22.91 (\nu: 0.4)$
$c_{TE}$	0.9965	$0.997^{+0.013}_{-0.012}$	$r_{drag}$	147.36	$147.35^{+0.79}_{-0.77}$	$\chi_{CamSpec}^2$	11499.9	$11514.7 (\nu: 16.5)$
$c_{EE}$	0.9920	$0.992^{+0.013}_{-0.013}$	$k_D$	0.14055	$0.14056^{+0.00090}_{-0.00088}$	$\chi_{6DF}^2$	0.001	$0.13 (\nu: 0.0)$
$H_0$	68.20	$68.3^{+4.3}_{-3.4}$	$100\theta_D$	0.16084	$0.16085^{+0.00051}_{-0.00049}$	$\chi_{MGS}^2$	1.61	$1.78 (\nu: 0.5)$
$\Omega_\Lambda$	0.6944	$0.695^{+0.034}_{-0.032}$	$z_{eq}$	3381	$3383^{+75}_{-74}$	$\chi_{DR12BAO}^2$	4.04	$4.9 (\nu: 1.0)$
$\Omega_m$	0.3056	$0.305^{+0.032}_{-0.034}$	$k_{eq}$	0.010319	$0.01033^{+0.00023}_{-0.00023}$	$\chi_{prior}^2$	2.4	$7.9 (\nu: 5.9)$
$\Omega_m h^2$	0.14213	$0.1422^{+0.0032}_{-0.0031}$	$100\theta_{eq}$	0.8170	$0.817^{+0.014}_{-0.014}$	$\chi_{BAO}^2$	5.65	$6.9 (\nu: 1.5)$
$\Omega_m h^3$	0.0969	$0.0971^{+0.0072}_{-0.0060}$	$100\theta_{s,eq}$	0.4513	$0.4512^{+0.0073}_{-0.0072}$	$\chi_{CMB}^2$	11918.6	$11934.5 (\nu: 16.6)$
$\sigma_8$	0.812	$0.814^{+0.055}_{-0.048}$	$H(0.15)$	73.25	$73.3^{+2.5}_{-2.1}$			
$S_8$	0.8198	$0.820^{+0.035}_{-0.033}$	$D_M(0.15)$	636.9	$637^{+26}_{-29}$			

Best-fit  $\chi_{eff}^2 = 11926.60$ ;  $\bar{\chi}_{eff}^2 = 11949.21$ ;  $R - 1 = 0.01464$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 MGS: 1.61 DR12BAO: 4.04 CMB - simall-100x143\_offlike5\_EE\_Aplanck.B: 395.90 commander\_dx12\_v3\_2\_29: 22.84 CamSpec like\_10.7HM\_1400\_unified: 11499.85



### 18.32 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02232^{+0.00037}_{-0.00039}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.015}_{-0.015}$	$H(0.38)$	$83.09^{+0.82}_{-0.79}$
$\Omega_{\mathrm{c}}h^2$	$0.1194^{+0.0029}_{-0.0029}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.022}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1520^{+41}_{-45}$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00079}_{-0.00082}$	$\sigma_8/h^{0.5}$	$0.988^{+0.032}_{-0.030}$	$H(0.51)$	$89.66^{+0.62}_{-0.65}$
$\tau$	$0.054^{+0.021}_{-0.019}$	$r_{\mathrm{drag}}h$	$100.8^{+6.1}_{-4.9}$	$D_{\mathrm{M}}(0.51)$	$1972^{+43}_{-47}$
$w_0$	$-1.03^{+0.13}_{-0.16}$	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.062}_{-0.061}$	$H(0.61)$	$95.18^{+0.69}_{-0.84}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.042}_{-0.037}$	$z_{\mathrm{re}}$	$7.6^{+2.0}_{-2.1}$	$D_{\mathrm{M}}(0.61)$	$2297^{+43}_{-46}$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010}$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.089}_{-0.076}$	$H(2.33)$	$235.7^{+2.0}_{-1.9}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0068}_{-0.0067}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.029}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5762^{+23}_{-24}$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-60}$	$D_{40}$	$1226^{+30}_{-28}$	$f\sigma_8(0.15)$	$0.458^{+0.020}_{-0.019}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5722^{+100}_{-98}$	$\sigma_8(0.15)$	$0.756^{+0.045}_{-0.038}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30}$	$D_{810}$	$2536^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.480^{+0.031}_{-0.027}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-13}$	$\sigma_8(0.38)$	$0.670^{+0.040}_{-0.034}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.94$	$D_{2000}$	$230.4^{+4.3}_{-4.3}$	$f\sigma_8(0.51)$	$0.479^{+0.033}_{-0.029}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.010}$	$\sigma_8(0.51)$	$0.627^{+0.038}_{-0.032}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24537^{+0.00014}_{-0.00017}$	$f\sigma_8(0.61)$	$0.474^{+0.035}_{-0.030}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00014}_{-0.00017}$	$\sigma_8(0.61)$	$0.597^{+0.036}_{-0.030}$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.596^{+0.075}_{-0.068}$	$f\sigma_8(2.33)$	$0.301^{+0.018}_{-0.015}$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.51}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.783^{+0.081}_{-0.084}$	$\sigma_8(2.33)$	$0.310^{+0.015}_{-0.013}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.46}$	$z_*$	$1089.94^{+0.64}_{-0.63}$	$f_{2000}^{143}$	$30^{+7}_{-7}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26}$	$r_*$	$144.62^{+0.66}_{-0.66}$	$f_{2000}^{217}$	$106.8^{+4.9}_{-4.9}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42}$	$100\theta_*$	$1.04110^{+0.00078}_{-0.00082}$	$f_{2000}^{143\times 217}$	$32^{+5}_{-5}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.892^{+0.064}_{-0.064}$	$\chi_{\mathrm{lensing}}^2$	$9.26\ (\nu: 0.3)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0042}$	$z_{\mathrm{drag}}$	$1059.77^{+0.85}_{-0.86}$	$\chi_{\mathrm{simall}}^2$	$396.9\ (\nu: 1.4)$
$c_{TE}$	$0.997^{+0.012}_{-0.012}$	$r_{\mathrm{drag}}$	$147.31^{+0.70}_{-0.69}$	$\chi_{\mathrm{lowl}}^2$	$23.05\ (\nu: 0.3)$
$c_{EE}$	$0.992^{+0.014}_{-0.013}$	$k_{\mathrm{D}}$	$0.14060^{+0.00084}_{-0.00085}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.0\ (\nu: 15.4)$
$H_0$	$68.5^{+4.2}_{-3.4}$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00052}_{-0.00048}$	$\chi_{6\mathrm{DF}}^2$	$0.13\ (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.696^{+0.034}_{-0.032}$	$z_{\mathrm{eq}}$	$3387^{+65}_{-65}$	$\chi_{\mathrm{MGS}}^2$	$1.87\ (\nu: 0.5)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.032}_{-0.034}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00020}_{-0.00020}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0\ (\nu: 0.9)$
$\Omega_{\mathrm{m}}h^2$	$0.1424^{+0.0027}_{-0.0027}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.012}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	$7.9\ (\nu: 6.1)$
$\Omega_{\mathrm{m}}h^3$	$0.0975^{+0.0068}_{-0.0055}$	$100\theta_{\mathrm{s,eq}}$	$0.4508^{+0.0064}_{-0.0062}$	$\chi_{\mathrm{CMB}}^2$	$11943.2\ (\nu: 16.8)$
$\sigma_8$	$0.817^{+0.046}_{-0.039}$	$H(0.15)$	$73.4^{+2.4}_{-2.1}$	$\chi_{\mathrm{BAO}}^2$	$7.0\ (\nu: 1.5)$
$S_8$	$0.822^{+0.027}_{-0.027}$	$D_{\mathrm{M}}(0.15)$	$635^{+25}_{-29}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11958.08; R - 1 = 0.01812$$



### 18.33 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02232^{+0.00039}_{-0.00038}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.019}_{-0.018}$	$H(0.38)$	$83.09^{+0.84}_{-0.79}$
$\Omega_{\mathrm{c}} h^2$	$0.1192^{+0.0033}_{-0.0033}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.028}_{-0.027}$	$D_{\mathrm{M}}(0.38)$	$1522^{+42}_{-46}$
$100\theta_{\mathrm{MC}}$	$1.04093^{+0.00078}_{-0.00081}$	$\sigma_8/h^{0.5}$	$0.986^{+0.042}_{-0.039}$	$H(0.51)$	$89.68^{+0.66}_{-0.72}$
$\tau$	$0.054^{+0.019}_{-0.012}$	$r_{\mathrm{drag}} h$	$100.6^{+6.3}_{-4.9}$	$D_{\mathrm{M}}(0.51)$	$1974^{+44}_{-48}$
$w_0$	$-1.02^{+0.14}_{-0.17}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.084}_{-0.078}$	$H(0.61)$	$95.23^{+0.76}_{-0.99}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.041}_{-0.029}$	$z_{\mathrm{re}}$	$< 9.42$	$D_{\mathrm{M}}(0.61)$	$2298^{+44}_{-47}$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.011}$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.088}_{-0.061}$	$H(2.33)$	$235.7^{+1.9}_{-1.9}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0068}_{-0.0065}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.031}_{-0.029}$	$D_{\mathrm{M}}(2.33)$	$5762^{+23}_{-24}$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-60}$	$D_{40}$	$1224^{+33}_{-31}$	$f\sigma_8(0.15)$	$0.457^{+0.026}_{-0.024}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{220}$	$5719^{+110}_{-98}$	$\sigma_8(0.15)$	$0.753^{+0.053}_{-0.045}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2535^{+38}_{-36}$	$f\sigma_8(0.38)$	$0.478^{+0.039}_{-0.033}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-13}$	$\sigma_8(0.38)$	$0.668^{+0.047}_{-0.040}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.89$	$D_{2000}$	$230.4^{+4.3}_{-4.2}$	$f\sigma_8(0.51)$	$0.477^{+0.042}_{-0.035}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.32}$	$n_{\mathrm{s},0.002}$	$0.967^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.625^{+0.044}_{-0.037}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24537^{+0.00015}_{-0.00016}$	$f\sigma_8(0.61)$	$0.472^{+0.043}_{-0.035}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00015}_{-0.00017}$	$\sigma_8(0.61)$	$0.595^{+0.041}_{-0.035}$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.595^{+0.073}_{-0.070}$	$f\sigma_8(2.33)$	$0.300^{+0.021}_{-0.018}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.52}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.786^{+0.084}_{-0.087}$	$\sigma_8(2.33)$	$0.309^{+0.018}_{-0.015}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.46}$	$z_*$	$1089.91^{+0.67}_{-0.67}$	$f_{2000}^{143}$	$30^{+7}_{-7}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26}$	$r_*$	$144.67^{+0.78}_{-0.75}$	$f_{2000}^{217}$	$106.8^{+4.9}_{-5.0}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.41}$	$100\theta_*$	$1.04112^{+0.00078}_{-0.00080}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.896^{+0.073}_{-0.069}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.4)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041}$	$z_{\mathrm{drag}}$	$1059.77^{+0.85}_{-0.83}$	$\chi_{\mathrm{lowl}}^2$	$22.93 (\nu: 0.4)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.35^{+0.79}_{-0.76}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.5 (\nu: 16.3)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.14056^{+0.00088}_{-0.00088}$	$\chi_{6\mathrm{DF}}^2$	$0.13 (\nu: 0.0)$
$H_0$	$68.3^{+4.4}_{-3.4}$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00050}_{-0.00049}$	$\chi_{\mathrm{MGS}}^2$	$1.78 (\nu: 0.5)$
$\Omega_{\Lambda}$	$0.695^{+0.034}_{-0.032}$	$z_{\mathrm{eq}}$	$3382^{+75}_{-75}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 (\nu: 1.0)$
$\Omega_{\mathrm{m}}$	$0.305^{+0.032}_{-0.034}$	$k_{\mathrm{eq}}$	$0.01032^{+0.00023}_{-0.00023}$	$\chi_{\mathrm{prior}}^2$	$7.9 (\nu: 5.9)$
$\Omega_{\mathrm{m}} h^2$	$0.1422^{+0.0031}_{-0.0031}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.014}_{-0.014}$	$\chi_{\mathrm{BAO}}^2$	$6.8 (\nu: 1.5)$
$\Omega_{\mathrm{m}} h^3$	$0.0971^{+0.0074}_{-0.0060}$	$100\theta_{\mathrm{s,eq}}$	$0.4512^{+0.0074}_{-0.0072}$	$\chi_{\mathrm{CMB}}^2$	$11934.2 (\nu: 16.2)$
$\sigma_8$	$0.815^{+0.055}_{-0.047}$	$H(0.15)$	$73.3^{+2.5}_{-2.1}$		
$S_8$	$0.821^{+0.034}_{-0.033}$	$D_{\mathrm{M}}(0.15)$	$637^{+26}_{-30}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11948.94; R - 1 = 0.01259$$



18.34 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02232^{+0.00037}_{-0.00037}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.015}_{-0.015}$	$H(0.38)$	$83.10^{+0.82}_{-0.78}$
$\Omega_{\mathrm{c}}h^2$	$0.1194^{+0.0028}_{-0.0028}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.022}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1521^{+41}_{-45}$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00078}_{-0.00083}$	$\sigma_8/h^{0.5}$	$0.988^{+0.032}_{-0.030}$	$H(0.51)$	$89.67^{+0.62}_{-0.65}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$r_{\mathrm{drag}}h$	$100.8^{+6.1}_{-4.9}$	$D_{\mathrm{M}}(0.51)$	$1972^{+44}_{-46}$
$w_0$	$-1.03^{+0.13}_{-0.16}$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.062}_{-0.060}$	$H(0.61)$	$95.20^{+0.68}_{-0.86}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.041}_{-0.028}$	$z_{\mathrm{re}}$	$< 9.45$	$D_{\mathrm{M}}(0.61)$	$2297^{+43}_{-46}$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.087}_{-0.058}$	$H(2.33)$	$235.7^{+2.0}_{-1.9}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0068}_{-0.0067}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.029}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5762^{+23}_{-24}$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-60}$	$D_{40}$	$1226^{+30}_{-27}$	$f\sigma_8(0.15)$	$0.458^{+0.020}_{-0.019}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{220}$	$5722^{+100}_{-98}$	$\sigma_8(0.15)$	$0.756^{+0.046}_{-0.038}$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-30}$	$D_{810}$	$2535^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.479^{+0.031}_{-0.027}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+13}_{-13}$	$\sigma_8(0.38)$	$0.670^{+0.041}_{-0.034}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.95$	$D_{2000}$	$230.4^{+4.3}_{-4.3}$	$f\sigma_8(0.51)$	$0.479^{+0.034}_{-0.029}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.010}$	$\sigma_8(0.51)$	$0.627^{+0.038}_{-0.032}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24537^{+0.00014}_{-0.00016}$	$f\sigma_8(0.61)$	$0.474^{+0.035}_{-0.030}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00014}_{-0.00016}$	$\sigma_8(0.61)$	$0.597^{+0.036}_{-0.030}$
$A^{\mathrm{kSZ}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.596^{+0.071}_{-0.067}$	$f\sigma_8(2.33)$	$0.301^{+0.018}_{-0.015}$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.51}_{-0.50}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.783^{+0.081}_{-0.084}$	$\sigma_8(2.33)$	$0.310^{+0.015}_{-0.013}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.46}$	$z_*$	$1089.93^{+0.62}_{-0.63}$	$f_{2000}^{143}$	$30^{+7}_{-7}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26}$	$r_*$	$144.63^{+0.65}_{-0.65}$	$f_{2000}^{217}$	$106.8^{+4.9}_{-4.9}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42}$	$100\theta_*$	$1.04110^{+0.00078}_{-0.00082}$	$f_{2000}^{143\times 217}$	$32^{+5}_{-5}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.892^{+0.063}_{-0.062}$	$\chi_{\mathrm{lensing}}^2$	$9.22\,(\nu: 0.3)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0042}$	$z_{\mathrm{drag}}$	$1059.77^{+0.81}_{-0.83}$	$\chi_{\mathrm{simall}}^2$	$396.9\,(\nu: 1.4)$
$c_{TE}$	$0.997^{+0.012}_{-0.012}$	$r_{\mathrm{drag}}$	$147.32^{+0.69}_{-0.68}$	$\chi_{\mathrm{lowl}}^2$	$23.04\,(\nu: 0.3)$
$c_{EE}$	$0.992^{+0.014}_{-0.013}$	$k_{\mathrm{D}}$	$0.14059^{+0.00083}_{-0.00085}$	$\chi_{\mathrm{CamSpec}}^2$	$11513.9\,(\nu: 15.4)$
$H_0$	$68.4^{+4.2}_{-3.4}$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00051}_{-0.00047}$	$\chi_{6\mathrm{DF}}^2$	$0.13\,(\nu: 0.0)$
$\Omega_{\Lambda}$	$0.696^{+0.033}_{-0.032}$	$z_{\mathrm{eq}}$	$3386^{+64}_{-64}$	$\chi_{\mathrm{MGS}}^2$	$1.86\,(\nu: 0.5)$
$\Omega_{\mathrm{m}}$	$0.304^{+0.032}_{-0.033}$	$k_{\mathrm{eq}}$	$0.01033^{+0.00020}_{-0.00019}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9\,(\nu: 0.9)$
$\Omega_{\mathrm{m}}h^2$	$0.1423^{+0.0027}_{-0.0027}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.012}_{-0.012}$	$\chi_{\mathrm{prior}}^2$	$7.9\,(\nu: 6.1)$
$\Omega_{\mathrm{m}}h^3$	$0.0974^{+0.0069}_{-0.0055}$	$100\theta_{\mathrm{s,eq}}$	$0.4509^{+0.0063}_{-0.0061}$	$\chi_{\mathrm{CMB}}^2$	$11943.0\,(\nu: 16.6)$
$\sigma_8$	$0.817^{+0.047}_{-0.039}$	$H(0.15)$	$73.4^{+2.4}_{-2.1}$	$\chi_{\mathrm{BAO}}^2$	$6.9\,(\nu: 1.5)$
$S_8$	$0.823^{+0.027}_{-0.027}$	$D_{\mathrm{M}}(0.15)$	$636^{+25}_{-28}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11957.86; R - 1 = 0.01772$$



18.35 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_JLA

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02219	$0.02218^{+0.00051}_{-0.00051}$	$\sigma_8 \Omega_m^{0.25}$	0.6142	$0.613^{+0.030}_{-0.029}$	$D_M(0.38)$	1507.0	$1507^{+28}_{-27}$
$\Omega_c h^2$	0.12001	$0.1199^{+0.0040}_{-0.0041}$	$\sigma_8/h^{0.5}$	0.9991	$0.998^{+0.043}_{-0.042}$	$H(0.51)$	89.51	$89.51^{+0.89}_{-0.94}$
$100\theta_{MC}$	1.04091	$1.0409^{+0.0011}_{-0.0011}$	$r_{drag}h$	102.71	$102.7^{+3.5}_{-3.4}$	$D_M(0.51)$	1958.9	$1959^{+30}_{-30}$
$\tau$	0.0527	$0.053^{+0.023}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.455	$2.454^{+0.091}_{-0.086}$	$H(0.61)$	94.90	$94.90^{+0.95}_{-1.0}$
$w_0$	-1.085	$-1.08^{+0.11}_{-0.12}$	$z_{re}$	7.55	$7.5^{+2.2}_{-2.3}$	$D_M(0.61)$	2284.3	$2285^{+32}_{-31}$
$\ln(10^{10} A_s)$	3.0406	$3.040^{+0.046}_{-0.043}$	$10^9 A_s$	2.092	$2.090^{+0.097}_{-0.089}$	$H(2.33)$	235.20	$235.2^{+2.0}_{-1.9}$
$n_s$	0.9652	$0.965^{+0.012}_{-0.012}$	$10^9 A_s e^{-2\tau}$	1.8824	$1.881^{+0.033}_{-0.031}$	$D_M(2.33)$	5763.0	$5764^{+31}_{-30}$
$\alpha_{JLA}$	0.1420	$0.142^{+0.017}_{-0.017}$	$D_{40}$	1227.4	$1229^{+36}_{-34}$	$f\sigma_8(0.15)$	0.4646	$0.464^{+0.030}_{-0.028}$
$\beta_{JLA}$	3.116	$3.12^{+0.22}_{-0.21}$	$D_{220}$	5715	$5717^{+110}_{-100}$	$\sigma_8(0.15)$	0.7723	$0.771^{+0.041}_{-0.038}$
$y_{cal}$	1.0004	$1.0004^{+0.0067}_{-0.0064}$	$D_{810}$	2537.8	$2536^{+37}_{-35}$	$f\sigma_8(0.38)$	0.4908	$0.490^{+0.035}_{-0.032}$
$A_{217}^{CIB}$	49.1	$48^{+20}_{-20}$	$D_{1420}$	816.0	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6850	$0.684^{+0.036}_{-0.033}$
$\xi^{tSZ \times CIB}$	0.25	—	$D_{2000}$	230.24	$229.9^{+4.7}_{-4.5}$	$f\sigma_8(0.51)$	0.4916	$0.491^{+0.035}_{-0.033}$
$A_{143}^{tSZ}$	7.0	—	$n_{s,0.002}$	0.9652	$0.965^{+0.012}_{-0.012}$	$\sigma_8(0.51)$	0.6409	$0.640^{+0.033}_{-0.030}$
$A_{100}^{PS}$	255	$263^{+70}_{-70}$	$Y_P$	0.245323	$0.24532^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	0.4874	$0.487^{+0.035}_{-0.032}$
$A_{143}^{PS}$	48.1	$49^{+20}_{-20}$	$Y_P^{BBN}$	0.246649	$0.24664^{+0.00020}_{-0.00024}$	$\sigma_8(0.61)$	0.6097	$0.609^{+0.030}_{-0.028}$
$A_{143 \times 217}^{PS}$	44.8	$43^{+20}_{-20}$	$10^5 D/H$	2.619	$2.621^{+0.098}_{-0.093}$	$f\sigma_8(2.33)$	0.3074	$0.307^{+0.014}_{-0.014}$
$A_{217}^{PS}$	118.4	$115^{+30}_{-30}$	Age/Gyr	13.766	$13.768^{+0.074}_{-0.072}$	$\sigma_8(2.33)$	0.3150	$0.315^{+0.012}_{-0.012}$
$A^{kSZ}$	0.0	—	$z_*$	1090.14	$1090.15^{+0.84}_{-0.82}$	$f_{2000}^{143}$	30.2	$31^{+8}_{-7}$
$A_{100}^{dustTT}$	8.92	$8.9^{+4.7}_{-4.7}$	$r_*$	144.56	$144.60^{+0.99}_{-0.98}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+5}_{-5}$
$A_{143}^{dustTT}$	10.76	$10.7^{+4.6}_{-4.6}$	$100\theta_*$	1.04112	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	107.53	$107.9^{+4.8}_{-4.9}$
$A_{143 \times 217}^{dustTT}$	19.1	$18.3^{+8.4}_{-8.6}$	$D_M(z_*)/\text{Gpc}$	13.886	$13.889^{+0.094}_{-0.093}$	$\chi_{\text{small}}^2$	395.87	$396.9 (\nu: 1.5)$
$A_{217}^{dustTT}$	94.2	$93^{+20}_{-20}$	$z_{drag}$	1059.51	$1059.5^{+1.1}_{-1.1}$	$\chi_{\text{lowl}}^2$	23.12	$23.3 (\nu: 0.5)$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$r_{drag}$	147.29	$147.3^{+1.0}_{-1.0}$	$\chi_{\text{plik}}^2$	758.6	$771.0 (\nu: 14.4)$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0016}$	$k_D$	0.14052	$0.1405^{+0.0012}_{-0.0012}$	$\chi_{H073p45}^2$	5.0	$5.4 (\nu: 3.2)$
$H_0$	69.73	$69.7^{+2.4}_{-2.3}$	$100\theta_D$	0.16100	$0.16102^{+0.00067}_{-0.00065}$	$\chi_{JLA}^2$	696.6	$699.0 (\nu: 3.5)$
$\Omega_\Lambda$	0.7063	$0.706^{+0.020}_{-0.021}$	$z_{eq}$	3398	$3396^{+93}_{-93}$	$\chi_{6DF}^2$	0.118	$0.17 (\nu: 0.0)$
$\Omega_m$	0.2937	$0.294^{+0.021}_{-0.020}$	$k_{eq}$	0.010371	$0.01036^{+0.00028}_{-0.00028}$	$\chi_{MGS}^2$	2.67	$2.73 (\nu: 0.3)$
$\Omega_m h^2$	0.14284	$0.1427^{+0.0039}_{-0.0039}$	$100\theta_{eq}$	0.8135	$0.814^{+0.018}_{-0.017}$	$\chi_{DR12BAO}^2$	4.52	$5.1 (\nu: 0.5)$
$\Omega_m h^3$	0.09961	$0.0995^{+0.0048}_{-0.0046}$	$100\theta_{s,eq}$	0.4496	$0.4499^{+0.0091}_{-0.0087}$	$\chi_{\text{prior}}^2$	1.4	$7.3 (\nu: 6.8)$
$\sigma_8$	0.8343	$0.833^{+0.044}_{-0.041}$	$H(0.15)$	74.08	$74.1^{+1.4}_{-1.4}$	$\chi_{BAO}^2$	7.31	$8.0 (\nu: 1.3)$
$S_8$	0.8256	$0.824^{+0.043}_{-0.041}$	$D_M(0.15)$	626.5	$627^{+17}_{-16}$	$\chi_{CMB}^2$	1177.6	$1191.3 (\nu: 14.5)$
$\sigma_8 \Omega_m^{0.5}$	0.4522	$0.451^{+0.023}_{-0.022}$	$H(0.38)$	83.18	$83.17^{+0.88}_{-0.89}$			

Best-fit  $\chi_{\text{eff}}^2 = 1887.89$ ;  $\bar{\chi}_{\text{eff}}^2 = 1910.92$ ;  $R - 1 = 0.00727$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.12 MGS: 2.67 DR12BAO: 4.52 CMB - small-100x143.offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2.29: 23.12 plik\_rd12\_HM\_v22.TT: 758.61  
Hubble - H073p45: 5.01 SN - JLA December\_2013: 696.56



### 18.36 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.02220^{+0.00050}_{-0.00051}$	$\sigma_8 \Omega_m^{0.25}$	0.6129	$0.612^{+0.021}_{-0.021}$	$D_M(0.38)$	1506.3	$1507^{+28}_{-27}$
$\Omega_c h^2$	0.11977	$0.1197^{+0.0032}_{-0.0033}$	$\sigma_8/h^{0.5}$	0.9973	$0.996^{+0.030}_{-0.030}$	$H(0.51)$	89.55	$89.54^{+0.76}_{-0.83}$
$100\theta_{MC}$	1.04085	$1.0409^{+0.0011}_{-0.0011}$	$r_{drag}h$	102.79	$102.7^{+3.4}_{-3.4}$	$D_M(0.51)$	1958.0	$1959^{+31}_{-30}$
$\tau$	0.0529	$0.052^{+0.022}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	2.451	$2.450^{+0.063}_{-0.064}$	$H(0.61)$	94.93	$94.93^{+0.84}_{-0.89}$
$w_0$	-1.083	$-1.081^{+0.099}_{-0.10}$	$z_{re}$	7.55	$7.5^{+2.1}_{-2.2}$	$D_M(0.61)$	2283.2	$2284^{+31}_{-30}$
$\ln(10^{10} A_s)$	3.0404	$3.039^{+0.040}_{-0.040}$	$10^9 A_s$	2.091	$2.089^{+0.086}_{-0.081}$	$H(2.33)$	235.07	$235.1^{+1.8}_{-1.8}$
$n_s$	0.9656	$0.965^{+0.011}_{-0.011}$	$10^9 A_s e^{-2\tau}$	1.8815	$1.880^{+0.028}_{-0.028}$	$D_M(2.33)$	5762.6	$5763^{+30}_{-28}$
$y_{cal}$	1.0005	$1.0004^{+0.0066}_{-0.0062}$	$D_{40}$	1226.7	$1229^{+31}_{-31}$	$f\sigma_8(0.15)$	0.4632	$0.463^{+0.021}_{-0.021}$
$\alpha_{JLA}$	0.1421	$0.142^{+0.017}_{-0.017}$	$D_{220}$	5717	$5719^{+110}_{-100}$	$\sigma_8(0.15)$	0.7711	$0.770^{+0.031}_{-0.030}$
$\beta_{JLA}$	3.113	$3.12^{+0.22}_{-0.22}$	$D_{810}$	2537.7	$2536^{+35}_{-34}$	$f\sigma_8(0.38)$	0.4895	$0.489^{+0.026}_{-0.025}$
$A_{217}^{CIB}$	48.3	$48^{+20}_{-20}$	$D_{1420}$	816.1	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6842	$0.683^{+0.027}_{-0.027}$
$\xi^{tSZ \times CIB}$	0.37	—	$D_{2000}$	230.26	$229.8^{+4.6}_{-4.6}$	$f\sigma_8(0.51)$	0.4904	$0.489^{+0.027}_{-0.026}$
$A_{143}^{tSZ}$	7.1	—	$n_{s,0.002}$	0.9656	$0.965^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	0.6402	$0.639^{+0.025}_{-0.025}$
$A_{100}^{PS}$	253	$263^{+70}_{-70}$	$Y_P$	0.245330	$0.24532^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	0.4863	$0.485^{+0.027}_{-0.026}$
$A_{143}^{PS}$	49.7	$49^{+20}_{-20}$	$Y_P^{BBN}$	0.246656	$0.24665^{+0.00020}_{-0.00024}$	$\sigma_8(0.61)$	0.6090	$0.608^{+0.023}_{-0.023}$
$A_{143 \times 217}^{PS}$	48.0	$43^{+20}_{-20}$	$10^5 D/H$	2.616	$2.619^{+0.098}_{-0.092}$	$f\sigma_8(2.33)$	0.3071	$0.307^{+0.011}_{-0.011}$
$A_{217}^{PS}$	119.7	$115^{+30}_{-30}$	Age/Gyr	13.765	$13.767^{+0.074}_{-0.071}$	$\sigma_8(2.33)$	0.3147	$0.314^{+0.010}_{-0.0098}$
$A^{kSZ}$	0.0	—	$z_*$	1090.10	$1090.12^{+0.80}_{-0.76}$	$f_{2000}^{143}$	30.1	$31^{+7}_{-8}$
$A_{100}^{dustTT}$	8.84	$8.9^{+4.7}_{-4.7}$	$r_*$	144.61	$144.63^{+0.83}_{-0.79}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+5}_{-5}$
$A_{143}^{dustTT}$	10.75	$10.7^{+4.5}_{-4.5}$	$100\theta_*$	1.04106	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	107.47	$107.9^{+4.7}_{-4.9}$
$A_{143 \times 217}^{dustTT}$	19.5	$18.3^{+8.2}_{-8.7}$	$D_M(z_*)/\text{Gpc}$	13.891	$13.892^{+0.080}_{-0.077}$	$\chi_{lensing}^2$	8.72	$9.22 (\nu: 0.3)$
$A_{217}^{dustTT}$	94.7	$93^{+20}_{-20}$	$z_{drag}$	1059.55	$1059.5^{+1.1}_{-1.1}$	$\chi_{small}^2$	395.86	$396.8 (\nu: 1.3)$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$r_{drag}$	147.33	$147.36^{+0.90}_{-0.85}$	$\chi_{lowl}^2$	23.06	$23.27 (\nu: 0.4)$
$c_{217}$	0.99823	$0.9983^{+0.0016}_{-0.0016}$	$k_D$	0.14049	$0.1405^{+0.0011}_{-0.0011}$	$\chi_{plik}^2$	758.8	$770.9 (\nu: 13.7)$
$H_0$	69.77	$69.7^{+2.4}_{-2.4}$	$100\theta_D$	0.16098	$0.16101^{+0.00067}_{-0.00066}$	$\chi_{H073p45}^2$	4.9	$5.4 (\nu: 3.1)$
$\Omega_\Lambda$	0.7070	$0.707^{+0.020}_{-0.021}$	$z_{eq}$	3393	$3392^{+74}_{-76}$	$\chi_{JLA}^2$	696.6	$698.9 (\nu: 3.3)$
$\Omega_m$	0.2930	$0.293^{+0.021}_{-0.020}$	$k_{eq}$	0.010355	$0.01035^{+0.00023}_{-0.00023}$	$\chi_{6DF}^2$	0.131	$0.18 (\nu: 0.0)$
$\Omega_m h^2$	0.14262	$0.1426^{+0.0031}_{-0.0032}$	$100\theta_{eq}$	0.8145	$0.815^{+0.014}_{-0.014}$	$\chi_{MGS}^2$	2.76	$2.77 (\nu: 0.3)$
$\Omega_m h^3$	0.09951	$0.0994^{+0.0043}_{-0.0042}$	$100\theta_{s,eq}$	0.4501	$0.4502^{+0.0074}_{-0.0070}$	$\chi_{DR12BAO}^2$	4.50	$4.96 (\nu: 0.4)$
$\sigma_8$	0.8330	$0.832^{+0.033}_{-0.032}$	$H(0.15)$	74.12	$74.1^{+1.5}_{-1.5}$	$\chi_{prior}^2$	1.3	$7.2 (\nu: 6.5)$
$S_8$	0.8232	$0.822^{+0.031}_{-0.030}$	$D_M(0.15)$	626.2	$627^{+17}_{-16}$	$\chi_{CMB}^2$	1186.4	$1200.3 (\nu: 14.8)$
$\sigma_8 \Omega_m^{0.5}$	0.4509	$0.450^{+0.017}_{-0.017}$	$H(0.38)$	83.22	$83.21^{+0.81}_{-0.81}$	$\chi_{BAO}^2$	7.38	$7.9 (\nu: 1.3)$

Best-fit  $\chi_{eff}^2 = 1896.64$ ;  $\bar{\chi}_{eff}^2 = 1919.63$ ;  $R - 1 = 0.00916$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.13 MGS: 2.76 DR12BAO: 4.50 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.72 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3\_2\_29: 23.05 plik\_rd12\_HM\_v22\_TT: 758.81 Hubble - H073p45: 4.92 SN - JLA December\_2013: 696.55



18.37 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02219^{+0.00051}_{-0.00050}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.614^{+0.030}_{-0.029}$	$D_{\mathrm{M}}(0.38)$	$1507^{+28}_{-27}$
$\Omega_{\mathrm{c}}h^2$	$0.1199^{+0.0040}_{-0.0040}$	$\sigma_8/h^{0.5}$	$0.999^{+0.043}_{-0.042}$	$H(0.51)$	$89.52^{+0.88}_{-0.93}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}}h$	$102.7^{+3.5}_{-3.4}$	$D_{\mathrm{M}}(0.51)$	$1959^{+31}_{-29}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.456^{+0.090}_{-0.087}$	$H(0.61)$	$94.91^{+0.95}_{-1.0}$
$w_0$	$-1.08^{+0.11}_{-0.12}$	$z_{\mathrm{re}}$	$< 9.51$	$D_{\mathrm{M}}(0.61)$	$2285^{+31}_{-30}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.044}_{-0.029}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.093}_{-0.061}$	$H(2.33)$	$235.2^{+2.1}_{-1.9}$
$n_{\mathrm{s}}$	$0.965^{+0.012}_{-0.012}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.881^{+0.034}_{-0.031}$	$D_{\mathrm{M}}(2.33)$	$5763^{+31}_{-30}$
$\alpha_{JLA}$	$0.142^{+0.017}_{-0.017}$	$D_{40}$	$1229^{+37}_{-34}$	$f\sigma_8(0.15)$	$0.464^{+0.029}_{-0.028}$
$\beta_{JLA}$	$3.12^{+0.22}_{-0.21}$	$D_{220}$	$5717^{+110}_{-110}$	$\sigma_8(0.15)$	$0.772^{+0.041}_{-0.038}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0068}_{-0.0064}$	$D_{810}$	$2536^{+37}_{-35}$	$f\sigma_8(0.38)$	$0.490^{+0.035}_{-0.033}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.685^{+0.035}_{-0.033}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{2000}$	$229.9^{+4.8}_{-4.5}$	$f\sigma_8(0.51)$	$0.491^{+0.036}_{-0.033}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.012}_{-0.012}$	$\sigma_8(0.51)$	$0.641^{+0.032}_{-0.030}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	$0.487^{+0.035}_{-0.033}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00020}_{-0.00024}$	$\sigma_8(0.61)$	$0.609^{+0.030}_{-0.028}$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$10^5\mathrm{D}/\mathrm{H}$	$2.620^{+0.098}_{-0.093}$	$f\sigma_8(2.33)$	$0.307^{+0.014}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.767^{+0.074}_{-0.071}$	$\sigma_8(2.33)$	$0.315^{+0.012}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.14^{+0.84}_{-0.82}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7}$	$r_*$	$144.61^{+0.98}_{-0.98}$	$f_{2000}^{143\times 217}$	$33^{+5}_{-5}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.6}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.9^{+4.9}_{-4.9}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.3^{+8.4}_{-8.7}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.890^{+0.094}_{-0.093}$	$\chi_{\mathrm{simall}}^2$	$396.8\ (\nu: 1.5)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\mathrm{lowl}}^2$	$23.3\ (\nu: 0.5)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.3^{+1.0}_{-1.0}$	$\chi_{\mathrm{plik}}^2$	$770.9\ (\nu: 14.2)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{H073p45}}^2$	$5.4\ (\nu: 3.2)$
$H_0$	$69.7^{+2.4}_{-2.3}$	$100\theta_{\mathrm{D}}$	$0.16102^{+0.00066}_{-0.00065}$	$\chi_{\mathrm{JLA}}^2$	$698.9\ (\nu: 3.5)$
$\Omega_{\Lambda}$	$0.706^{+0.020}_{-0.021}$	$z_{\mathrm{eq}}$	$3395^{+94}_{-92}$	$\chi_{6\mathrm{DF}}^2$	$0.17\ (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.294^{+0.021}_{-0.020}$	$k_{\mathrm{eq}}$	$0.01036^{+0.00029}_{-0.00028}$	$\chi_{\mathrm{MGS}}^2$	$2.74\ (\nu: 0.3)$
$\Omega_{\mathrm{m}}h^2$	$0.1427^{+0.0039}_{-0.0039}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.018}_{-0.017}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.1\ (\nu: 0.5)$
$\Omega_{\mathrm{m}}h^3$	$0.0995^{+0.0049}_{-0.0046}$	$100\theta_{\mathrm{s,eq}}$	$0.4500^{+0.0090}_{-0.0088}$	$\chi_{\mathrm{prior}}^2$	$7.3\ (\nu: 6.8)$
$\sigma_8$	$0.834^{+0.044}_{-0.041}$	$H(0.15)$	$74.1^{+1.4}_{-1.5}$	$\chi_{\mathrm{BAO}}^2$	$8.0\ (\nu: 1.3)$
$S_8$	$0.825^{+0.042}_{-0.041}$	$D_{\mathrm{M}}(0.15)$	$627^{+17}_{-16}$	$\chi_{\mathrm{CMB}}^2$	$1191.0\ (\nu: 14.2)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.023}_{-0.023}$	$H(0.38)$	$83.19^{+0.88}_{-0.89}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1910.63; R - 1 = 0.00797$$



## 18.38 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02220^{+0.00051}_{-0.00050}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.612^{+0.021}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1507^{+28}_{-27}$
$\Omega_{\mathrm{c}}h^2$	$0.1196^{+0.0032}_{-0.0032}$	$\sigma_8/h^{0.5}$	$0.996^{+0.030}_{-0.030}$	$H(0.51)$	$89.56^{+0.75}_{-0.81}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}}h$	$102.7^{+3.4}_{-3.4}$	$D_{\mathrm{M}}(0.51)$	$1959^{+31}_{-29}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.452^{+0.063}_{-0.063}$	$H(0.61)$	$94.95^{+0.82}_{-0.87}$
$w_0$	$-1.079^{+0.098}_{-0.10}$	$z_{\mathrm{re}}$	$< 9.39$	$D_{\mathrm{M}}(0.61)$	$2284^{+31}_{-29}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.042^{+0.038}_{-0.027}$	$10^9 A_{\mathrm{s}}$	$2.094^{+0.081}_{-0.056}$	$H(2.33)$	$235.1^{+1.8}_{-1.7}$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.011}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.880^{+0.028}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5762^{+30}_{-28}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0066}_{-0.0062}$	$D_{40}$	$1228^{+32}_{-31}$	$f\sigma_8(0.15)$	$0.462^{+0.021}_{-0.021}$
$\alpha_{JLA}$	$0.142^{+0.017}_{-0.017}$	$D_{220}$	$5719^{+110}_{-110}$	$\sigma_8(0.15)$	$0.770^{+0.031}_{-0.031}$
$\beta_{JLA}$	$3.12^{+0.22}_{-0.22}$	$D_{810}$	$2535^{+35}_{-35}$	$f\sigma_8(0.38)$	$0.489^{+0.026}_{-0.025}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.683^{+0.027}_{-0.027}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{2000}$	$229.9^{+4.5}_{-4.6}$	$f\sigma_8(0.51)$	$0.489^{+0.027}_{-0.026}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.639^{+0.025}_{-0.025}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	$0.485^{+0.027}_{-0.026}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00020}_{-0.00024}$	$\sigma_8(0.61)$	$0.608^{+0.023}_{-0.023}$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$10^5\mathrm{D}/\mathrm{H}$	$2.618^{+0.097}_{-0.092}$	$f\sigma_8(2.33)$	$0.307^{+0.012}_{-0.011}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.767^{+0.075}_{-0.070}$	$\sigma_8(2.33)$	$0.314^{+0.010}_{-0.0095}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.10^{+0.79}_{-0.75}$	$f_{2000}^{143}$	$31^{+7}_{-8}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.6}_{-4.7}$	$r_*$	$144.65^{+0.83}_{-0.79}$	$f_{2000}^{143\times 217}$	$33^{+5}_{-5}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.5}_{-4.5}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.9^{+4.7}_{-4.9}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.3^{+8.3}_{-8.8}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.894^{+0.079}_{-0.076}$	$\chi_{\mathrm{lensing}}^2$	$9.20 (\nu: 0.3)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.3)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.38^{+0.90}_{-0.85}$	$\chi_{\mathrm{lowl}}^2$	$23.26 (\nu: 0.4)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{plik}}^2$	$770.8 (\nu: 13.7)$
$H_0$	$69.7^{+2.4}_{-2.4}$	$100\theta_{\mathrm{D}}$	$0.16101^{+0.00068}_{-0.00067}$	$\chi_{\mathrm{H073p45}}^2$	$5.4 (\nu: 3.1)$
$\Omega_{\Lambda}$	$0.707^{+0.020}_{-0.021}$	$z_{\mathrm{eq}}$	$3389^{+74}_{-75}$	$\chi_{\mathrm{JLA}}^2$	$698.8 (\nu: 3.3)$
$\Omega_{\mathrm{m}}$	$0.293^{+0.021}_{-0.020}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00022}_{-0.00023}$	$\chi_{6\mathrm{DF}}^2$	$0.18 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0031}_{-0.0031}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.014}_{-0.013}$	$\chi_{\mathrm{MGS}}^2$	$2.78 (\nu: 0.3)$
$\Omega_{\mathrm{m}}h^3$	$0.0993^{+0.0043}_{-0.0042}$	$100\theta_{\mathrm{s,eq}}$	$0.4505^{+0.0073}_{-0.0069}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.92 (\nu: 0.4)$
$\sigma_8$	$0.832^{+0.033}_{-0.032}$	$H(0.15)$	$74.1^{+1.4}_{-1.5}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.5)$
$S_8$	$0.822^{+0.031}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$627^{+17}_{-16}$	$\chi_{\mathrm{CMB}}^2$	$1200.0 (\nu: 14.5)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.017}_{-0.017}$	$H(0.38)$	$83.23^{+0.79}_{-0.81}$	$\chi_{\mathrm{BAO}}^2$	$7.9 (\nu: 1.3)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1919.34; R - 1 = 0.00910$$



## 18.39 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_JLA

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022407	$0.02239^{+0.00037}_{-0.00036}$ (+1.0 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.10004	$0.0999^{+0.0043}_{-0.0041}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	624.9	$625^{+16}_{-16}$ (−0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.12001	$0.1199^{+0.0032}_{-0.0030}$ (+0.0 $\sigma$ )	$\sigma_8$	0.8358	$0.834^{+0.036}_{-0.037}$ (+0.1 $\sigma$ )	$H(0.38)$	83.37	$83.34^{+0.74}_{-0.74}$ (+0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04097	$1.04095^{+0.00081}_{-0.00079}$ (+0.1 $\sigma$ )	$S_8$	0.8254	$0.824^{+0.035}_{-0.033}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1503.3	$1504^{+27}_{-27}$ (−0.3 $\sigma$ )
$\tau$	0.0545	$0.054^{+0.022}_{-0.021}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4521	$0.452^{+0.019}_{-0.018}$ (+0.0 $\sigma$ )	$H(0.51)$	89.69	$89.67^{+0.72}_{-0.74}$ (+0.5 $\sigma$ )
$w_0$	−1.084	$−1.082^{+0.094}_{-0.10}$ (+0.0 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6147	$0.614^{+0.024}_{-0.024}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1954.2	$1955^{+29}_{-29}$ (−0.3 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0450	$3.045^{+0.044}_{-0.042}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9995	$0.998^{+0.035}_{-0.035}$ (+0.0 $\sigma$ )	$H(0.61)$	95.08	$95.07^{+0.78}_{-0.82}$ (+0.4 $\sigma$ )
$n_{\mathrm{s}}$	0.9667	$0.965^{+0.010}_{-0.011}$ (+0.2 $\sigma$ )	$r_{\mathrm{drag}}h$	102.83	$102.8^{+3.5}_{-3.3}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2279.0	$2280^{+29}_{-30}$ (−0.4 $\sigma$ )
$\alpha_{\mathrm{JLA}}$	0.1420	$0.142^{+0.017}_{-0.017}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.455	$2.456^{+0.073}_{-0.077}$ (+0.1 $\sigma$ )	$H(2.33)$	235.42	$235.4^{+1.6}_{-1.6}$ (+0.3 $\sigma$ )
$\beta_{\mathrm{JLA}}$	3.117	$3.12^{+0.21}_{-0.21}$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.68	$7.6^{+2.1}_{-2.2}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5753.2	$5754^{+24}_{-24}$ (−0.8 $\sigma$ )
$y_{\mathrm{cal}}$	1.0005	$1.0007^{+0.0065}_{-0.0066}$ (+0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.101	$2.100^{+0.095}_{-0.086}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4646	$0.464^{+0.023}_{-0.022}$ (−0.0 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	45.4	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8842	$1.884^{+0.029}_{-0.031}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7737	$0.772^{+0.033}_{-0.035}$ (+0.1 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.72	—	$D_{40}$	1227.0	$1230^{+32}_{-32}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4911	$0.490^{+0.028}_{-0.027}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.07	$5.5^{+4.4}_{-4.6}$ (+0.2 $\sigma$ )	$D_{220}$	5731	$5737^{+100}_{-100}$ (+0.5 $\sigma$ )	$\sigma_8(0.38)$	0.6865	$0.685^{+0.029}_{-0.030}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	248	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{810}$	2541.6	$2540^{+35}_{-35}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4920	$0.491^{+0.029}_{-0.028}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	51.2	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{1420}$	818.8	$818^{+12}_{-13}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6423	$0.641^{+0.027}_{-0.028}$ (+0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	54.7	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{2000}$	231.56	$231.1^{+4.0}_{-4.1}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4879	$0.487^{+0.028}_{-0.028}$ (+0.0 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	122.7	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9667	$0.965^{+0.010}_{-0.011}$ (+0.2 $\sigma$ )	$\sigma_8(0.61)$	0.6110	$0.610^{+0.025}_{-0.026}$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$Y_{\mathrm{P}}$	0.245410	$0.24540^{+0.00014}_{-0.00015}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3082	$0.308^{+0.012}_{-0.013}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.80	$8.9^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246736	$0.24673^{+0.00014}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3158	$0.315^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.08	$10.9^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.579	$2.582^{+0.069}_{-0.066}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	28.4	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	20.3	$18.6^{+8.2}_{-8.5}$ (+0.1 $\sigma$ )	Age/Gyr	13.743	$13.747^{+0.060}_{-0.058}$ (−0.8 $\sigma$ )	$f_{2000}^{143\times 217}$	31.79	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.7	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_*$	1089.87	$1089.89^{+0.62}_{-0.65}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	106.31	$106.9^{+4.7}_{-4.6}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.115^{+0.099}_{-0.095}$	$r_*$	144.40	$144.43^{+0.69}_{-0.73}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.06	$397.1$ ( $\nu$ : 1.9) (+0.1 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.076}_{-0.079}$	$100\theta_*$	1.04115	$1.04113^{+0.00081}_{-0.00078}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.01	$23.29$ ( $\nu$ : 0.4) (−0.0 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	0.480	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.869	$13.873^{+0.064}_{-0.068}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2344.3	$2358.9$ ( $\nu$ : 17.3) (+296.3 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.226	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	1060.01	$1059.97^{+0.76}_{-0.77}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	4.5	$5.0$ ( $\nu$ : 3.1) (−0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	0.665	$0.67^{+0.21}_{-0.21}$	$r_{\mathrm{drag}}$	147.05	$147.09^{+0.69}_{-0.73}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	696.6	$698.9$ ( $\nu$ : 3.3) (−0.0 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.09	$2.08^{+0.70}_{-0.67}$	$k_{\mathrm{D}}$	0.14094	$0.14088^{+0.00082}_{-0.00076}$ (+0.9 $\sigma$ )	$\chi_{\mathrm{6DF}}^2$	0.135	$0.18$ ( $\nu$ : 0.0) (+0.1 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.160715	$0.16074^{+0.00044}_{-0.00044}$ (−1.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	2.76	$2.77$ ( $\nu$ : 0.3) (+0.1 $\sigma$ )
$c_{217}$	0.99817	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{\mathrm{eq}}$	3403	$3401^{+72}_{-68}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	4.54	$4.98$ ( $\nu$ : 0.4) (−0.1 $\sigma$ )
$H_0$	69.93	$69.9^{+2.4}_{-2.3}$ (+0.2 $\sigma$ )	$k_{\mathrm{eq}}$	0.010387	$0.01038^{+0.00022}_{-0.00021}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.6	$11.6$ ( $\nu$ : 10.2) (+1.2 $\sigma$ )
$\Omega_{\Lambda}$	0.7074	$0.707^{+0.019}_{-0.021}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8132	$0.814^{+0.013}_{-0.013}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	7.44	$7.9$ ( $\nu$ : 1.3) (−0.0 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.2926	$0.293^{+0.021}_{-0.019}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4493	$0.4495^{+0.0067}_{-0.0069}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2763.3	$2779.3$ ( $\nu$ : 17.3) (+294.6 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.14306	$0.1430^{+0.0030}_{-0.0029}$ (+0.1 $\sigma$ )	$H(0.15)$	74.27	$74.2^{+1.5}_{-1.4}$ (+0.3 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 3473.47$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.58$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 3502.78$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.86$ ;  $R - 1 = 0.01464$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.14 ( $\Delta$  0.02) MGS: 2.76 ( $\Delta$  0.08) DR12BAO: 4.54 ( $\Delta$  0.02) CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 396.06 ( $\Delta$  0.19) commander\_dx12.v3.2.29: 23.01 ( $\Delta$  -0.11) plik\_rd12\_HM.v22b\_TTTEEE: 2344.29 Hubble - H073p45: 4.50 ( $\Delta$  -0.51) SN - JLA December\_2013: 696.62 ( $\Delta$  0.06)



18.40 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022427	$0.02240^{+0.00036}_{-0.00035}$ (+1.0 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09975	$0.0998^{+0.0039}_{-0.0038}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	625.2	$625^{+16}_{-16}$ (−0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11970	$0.1197^{+0.0026}_{-0.0027}$ (+0.0 $\sigma$ )	$\sigma_8$	0.8329	$0.832^{+0.030}_{-0.031}$ (+0.1 $\sigma$ )	$H(0.38)$	83.41	$83.38^{+0.72}_{-0.71}$ (+0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04096	$1.04096^{+0.00077}_{-0.00078}$ (+0.1 $\sigma$ )	$S_8$	0.8225	$0.822^{+0.028}_{-0.027}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1503.4	$1504^{+27}_{-28}$ (−0.3 $\sigma$ )
$\tau$	0.0545	$0.054^{+0.022}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4505	$0.450^{+0.015}_{-0.015}$ (−0.0 $\sigma$ )	$H(0.51)$	89.75	$89.71^{+0.69}_{-0.65}$ (+0.5 $\sigma$ )
$w_0$	−1.078	$−1.079^{+0.091}_{-0.093}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6126	$0.612^{+0.019}_{-0.018}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1954.1	$1955^{+29}_{-30}$ (−0.3 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0454	$3.043^{+0.042}_{-0.037}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9965	$0.996^{+0.027}_{-0.027}$ (−0.0 $\sigma$ )	$H(0.61)$	95.14	$95.10^{+0.73}_{-0.75}$ (+0.5 $\sigma$ )
$n_{\mathrm{s}}$	0.9666	$0.9657^{+0.0098}_{-0.0095}$ (+0.2 $\sigma$ )	$r_{\mathrm{drag}}h$	102.77	$102.8^{+3.6}_{-3.3}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2278.6	$2279^{+30}_{-30}$ (−0.4 $\sigma$ )
$y_{\mathrm{cal}}$	1.0009	$1.0006^{+0.0064}_{-0.0067}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.452	$2.452^{+0.058}_{-0.057}$ (+0.1 $\sigma$ )	$H(2.33)$	235.32	$235.3^{+1.5}_{-1.5}$ (+0.3 $\sigma$ )
$\alpha_{JLA}$	0.1420	$0.142^{+0.018}_{-0.017}$ (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	7.68	$7.6^{+2.1}_{-2.1}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5752.3	$5754^{+23}_{-24}$ (−0.8 $\sigma$ )
$\beta_{JLA}$	3.115	$3.12^{+0.20}_{-0.21}$ (+0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.102	$2.097^{+0.089}_{-0.077}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	0.4625	$0.462^{+0.018}_{-0.018}$ (−0.0 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	46.3	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8846	$1.883^{+0.028}_{-0.030}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7711	$0.771^{+0.028}_{-0.029}$ (+0.1 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.58	—	$D_{40}$	1228.6	$1229^{+29}_{-29}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4887	$0.489^{+0.023}_{-0.022}$ (−0.0 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.13	$5.5^{+4.4}_{-4.4}$ (+0.2 $\sigma$ )	$D_{220}$	5742	$5737^{+98}_{-100}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6843	$0.684^{+0.025}_{-0.026}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	249	$257^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{810}$	2543.1	$2539^{+34}_{-35}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4896	$0.489^{+0.024}_{-0.023}$ (−0.0 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	49.4	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{1420}$	819.1	$817^{+12}_{-13}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6404	$0.640^{+0.023}_{-0.024}$ (+0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	51.2	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{2000}$	231.63	$231.0^{+3.9}_{-4.2}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4856	$0.485^{+0.024}_{-0.024}$ (+0.0 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	121.3	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9666	$0.9657^{+0.0098}_{-0.0095}$ (+0.2 $\sigma$ )	$\sigma_8(0.61)$	0.6092	$0.609^{+0.022}_{-0.023}$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$Y_{\mathrm{P}}$	0.245418	$0.24541^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3073	$0.307^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.80	$8.9^{+4.6}_{-4.8}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246744	$0.24673^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3151	$0.3148^{+0.0098}_{-0.010}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.03	$10.9^{+4.5}_{-4.8}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.575	$2.580^{+0.066}_{-0.064}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	28.6	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	20.1	$18.6^{+8.2}_{-8.6}$ (+0.1 $\sigma$ )	Age/Gyr	13.743	$13.746^{+0.061}_{-0.057}$ (−0.8 $\sigma$ )	$f_{2000}^{143\times 217}$	31.86	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.6	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_*$	1089.82	$1089.86^{+0.58}_{-0.62}$ (−0.9 $\sigma$ )	$f_{2000}^{217}$	106.52	$106.9^{+4.9}_{-4.5}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.113	$0.114^{+0.10}_{-0.093}$	$r_*$	144.46	$144.47^{+0.61}_{-0.63}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	8.71	$9.10$ ( $\nu$ : 0.2) (−0.2 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.075}_{-0.076}$	$100\theta_*$	1.04114	$1.04114^{+0.00075}_{-0.00078}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.06	$397.0$ ( $\nu$ : 1.5) (+0.1 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	0.483	$0.48^{+0.21}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.876	$13.876^{+0.057}_{-0.060}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.04	$23.21$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.224	$0.22^{+0.14}_{-0.13}$	$z_{\mathrm{drag}}$	1060.05	$1059.99^{+0.75}_{-0.74}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2344.2	$2358.8$ ( $\nu$ : 17.0) (+302.9 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	0.664	$0.67^{+0.20}_{-0.20}$	$r_{\mathrm{drag}}$	147.11	$147.13^{+0.62}_{-0.65}$ (−0.7 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	4.7	$5.0$ ( $\nu$ : 3.0) (−0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.08	$2.09^{+0.71}_{-0.66}$	$k_{\mathrm{D}}$	0.14089	$0.14085^{+0.00077}_{-0.00070}$ (+0.9 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	696.4	$698.8$ ( $\nu$ : 3.1) (−0.0 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0015}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.160696	$0.16073^{+0.00044}_{-0.00044}$ (−1.1 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.133	$0.19$ ( $\nu$ : 0.0) (+0.1 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{\mathrm{eq}}$	3396	$3397^{+59}_{-60}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	2.76	$2.81$ ( $\nu$ : 0.3) (+0.1 $\sigma$ )
$H_0$	69.86	$69.9^{+2.4}_{-2.2}$ (+0.2 $\sigma$ )	$k_{\mathrm{eq}}$	0.010366	$0.01037^{+0.00018}_{-0.00018}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	4.45	$4.91$ ( $\nu$ : 0.4) (−0.1 $\sigma$ )
$\Omega_{\Lambda}$	0.7075	$0.707^{+0.020}_{-0.020}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8145	$0.814^{+0.012}_{-0.011}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.7	$11.6$ ( $\nu$ : 10.0) (+1.2 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.2925	$0.293^{+0.020}_{-0.020}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4500	$0.4499^{+0.0060}_{-0.0057}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2772.0	$2788.1$ ( $\nu$ : 17.7) (+291.8 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.14277	$0.1428^{+0.0025}_{-0.0025}$ (+0.2 $\sigma$ )	$H(0.15)$	74.26	$74.2^{+1.5}_{-1.4}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	7.34	$7.9$ ( $\nu$ : 1.3) (−0.0 $\sigma$ )

Best-fit  $\chi_{\mathrm{eff}}^2 = 3482.22$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.59$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 3511.42$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.78$ ;  $R - 1 = 0.02202$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.13 ( $\Delta$  0.00) MGS: 2.76 ( $\Delta$  0.00) DR12BAO: 4.45 ( $\Delta$  -0.05) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.71 ( $\Delta$  -0.01) small\_100x143\_offlike5\_EE\_Aplanck 396.06 ( $\Delta$  0.20) commander\_dx12\_v3.2.29: 23.04 ( $\Delta$  -0.02) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.24 Hubble - H073p45: 4.67 ( $\Delta$  -0.25) SN - JLA December.2013: 696.43 ( $\Delta$  -0.12)



## 18.41 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00037}_{-0.00036}$ (+1.0 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	$0.0999^{+0.0043}_{-0.0041}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$625^{+16}_{-16}$ (−0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1199^{+0.0032}_{-0.0031}$ (+0.0 $\sigma$ )	$\sigma_8$	$0.835^{+0.035}_{-0.037}$ (+0.1 $\sigma$ )	$H(0.38)$	$83.34^{+0.74}_{-0.74}$ (+0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00081}_{-0.00079}$ (+0.1 $\sigma$ )	$S_8$	$0.825^{+0.035}_{-0.033}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1504^{+27}_{-27}$ (−0.3 $\sigma$ )
$\tau$	$0.056^{+0.020}_{-0.014}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.019}_{-0.018}$ (+0.0 $\sigma$ )	$H(0.51)$	$89.68^{+0.72}_{-0.74}$ (+0.4 $\sigma$ )
$w_0$	$-1.081^{+0.094}_{-0.10}$ (+0.0 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.614^{+0.024}_{-0.023}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1955^{+29}_{-29}$ (−0.3 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.043}_{-0.030}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.999^{+0.035}_{-0.034}$ (+0.0 $\sigma$ )	$H(0.61)$	$95.07^{+0.77}_{-0.81}$ (+0.4 $\sigma$ )
$n_{\mathrm{s}}$	$0.965^{+0.010}_{-0.010}$ (+0.2 $\sigma$ )	$r_{\mathrm{drag}}h$	$102.8^{+3.5}_{-3.4}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2280^{+30}_{-30}$ (−0.4 $\sigma$ )
$\alpha_{JLA}$	$0.142^{+0.017}_{-0.017}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.459^{+0.072}_{-0.073}$ (+0.1 $\sigma$ )	$H(2.33)$	$235.4^{+1.6}_{-1.6}$ (+0.3 $\sigma$ )
$\beta_{JLA}$	$3.12^{+0.21}_{-0.21}$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	$< 9.62$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5754^{+24}_{-24}$ (−0.7 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0066}$ (+0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}$	$2.105^{+0.091}_{-0.063}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	$0.464^{+0.023}_{-0.022}$ (+0.0 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.883^{+0.029}_{-0.031}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	$0.773^{+0.033}_{-0.034}$ (+0.1 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{40}$	$1230^{+32}_{-32}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	$0.490^{+0.028}_{-0.027}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.4}_{-4.5}$ (+0.2 $\sigma$ )	$D_{220}$	$5736^{+99}_{-100}$ (+0.5 $\sigma$ )	$\sigma_8(0.38)$	$0.686^{+0.029}_{-0.030}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{810}$	$2540^{+35}_{-35}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	$0.491^{+0.028}_{-0.028}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{1420}$	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	$0.642^{+0.027}_{-0.027}$ (+0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{2000}$	$231.1^{+4.0}_{-4.0}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	$0.487^{+0.028}_{-0.028}$ (+0.0 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$n_{\mathrm{s},0.002}$	$0.965^{+0.010}_{-0.010}$ (+0.2 $\sigma$ )	$\sigma_8(0.61)$	$0.610^{+0.025}_{-0.026}$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24540^{+0.00014}_{-0.00015}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	$0.308^{+0.012}_{-0.013}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00014}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(2.33)$	$0.316^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	$2.582^{+0.069}_{-0.066}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	$18.6^{+8.2}_{-8.6}$ (+0.1 $\sigma$ )	$\mathrm{Age}/\mathrm{Gyr}$	$13.746^{+0.060}_{-0.058}$ (−0.8 $\sigma$ )	$f_{2000}^{143\times 217}$	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_*$	$1089.89^{+0.62}_{-0.65}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	$106.9^{+4.7}_{-4.6}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.098}_{-0.096}$	$r_*$	$144.44^{+0.69}_{-0.73}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{small}}^2$	$397.1$ ( $\nu$ : 2.0) (+0.1 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	$0.135^{+0.076}_{-0.079}$	$100\theta_*$	$1.04113^{+0.00079}_{-0.00078}$ (+0.0 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$23.31$ ( $\nu$ : 0.4) (−0.0 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.873^{+0.065}_{-0.067}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	$2358.7$ ( $\nu$ : 17.2) (+297.5 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.98^{+0.75}_{-0.77}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	$5.0$ ( $\nu$ : 3.1) (−0.2 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.21}$	$r_{\mathrm{drag}}$	$147.09^{+0.69}_{-0.74}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	$698.9$ ( $\nu$ : 3.3) (−0.0 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.70}_{-0.67}$	$k_{\mathrm{D}}$	$0.14088^{+0.00082}_{-0.00076}$ (+0.9 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	$0.18$ ( $\nu$ : 0.0) (+0.1 $\sigma$ )
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00044}_{-0.00044}$ (−1.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$2.78$ ( $\nu$ : 0.3) (+0.1 $\sigma$ )
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{\mathrm{eq}}$	$3401^{+73}_{-69}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$4.97$ ( $\nu$ : 0.4) (−0.1 $\sigma$ )
$H_0$	$69.9^{+2.4}_{-2.3}$ (+0.2 $\sigma$ )	$k_{\mathrm{eq}}$	$0.01038^{+0.00022}_{-0.00021}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$11.6$ ( $\nu$ : 10.2) (+1.2 $\sigma$ )
$\Omega_{\Lambda}$	$0.707^{+0.019}_{-0.021}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.814^{+0.013}_{-0.013}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$7.9$ ( $\nu$ : 1.3) (−0.0 $\sigma$ )
$\Omega_{\mathrm{m}}$	$0.293^{+0.021}_{-0.019}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4496^{+0.0067}_{-0.0069}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$2779.1$ ( $\nu$ : 17.0) (+298.1 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	$0.1429^{+0.0030}_{-0.0029}$ (+0.2 $\sigma$ )	$H(0.15)$	$74.2^{+1.5}_{-1.4}$ (+0.3 $\sigma$ )		

 $\bar{\chi}_{\mathrm{eff}}^2 = 3502.55$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.92$ ;  $R - 1 = 0.01555$



## 18.42 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00035}_{-0.00036}$ (+1.0 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	$0.0997^{+0.0038}_{-0.0038}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$625^{+16}_{-16}$ (−0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0026}_{-0.0027}$ (+0.1 $\sigma$ )	$\sigma_8$	$0.833^{+0.030}_{-0.031}$ (+0.1 $\sigma$ )	$H(0.38)$	$83.39^{+0.71}_{-0.71}$ (+0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.04097^{+0.00075}_{-0.00079}$ (+0.1 $\sigma$ )	$S_8$	$0.822^{+0.027}_{-0.028}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1504^{+27}_{-28}$ (−0.3 $\sigma$ )
$\tau$	$0.055^{+0.020}_{-0.013}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.015}_{-0.015}$ (−0.0 $\sigma$ )	$H(0.51)$	$89.72^{+0.68}_{-0.64}$ (+0.5 $\sigma$ )
$w_0$	$-1.078^{+0.090}_{-0.088}$ (+0.0 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.612^{+0.019}_{-0.018}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1955^{+29}_{-30}$ (−0.3 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.040}_{-0.027}$ (+0.3 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.996^{+0.027}_{-0.027}$ (+0.0 $\sigma$ )	$H(0.61)$	$95.12^{+0.73}_{-0.72}$ (+0.5 $\sigma$ )
$n_{\mathrm{s}}$	$0.9658^{+0.0097}_{-0.0095}$ (+0.2 $\sigma$ )	$r_{\mathrm{drag}}h$	$102.8^{+3.6}_{-3.3}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2279^{+30}_{-30}$ (−0.4 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0006^{+0.0065}_{-0.0068}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.453^{+0.057}_{-0.055}$ (+0.1 $\sigma$ )	$H(2.33)$	$235.3^{+1.5}_{-1.5}$ (+0.4 $\sigma$ )
$\alpha_{JLA}$	$0.142^{+0.018}_{-0.017}$ (−0.0 $\sigma$ )	$z_{\mathrm{re}}$	$< 9.55$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5753^{+23}_{-23}$ (−0.8 $\sigma$ )
$\beta_{JLA}$	$3.12^{+0.20}_{-0.21}$ (+0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}$	$2.101^{+0.085}_{-0.056}$ (+0.3 $\sigma$ )	$f\sigma_8(0.15)$	$0.462^{+0.018}_{-0.018}$ (−0.0 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.027}_{-0.029}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	$0.771^{+0.028}_{-0.030}$ (+0.1 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{40}$	$1229^{+29}_{-29}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	$0.489^{+0.023}_{-0.022}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	$5.6^{+4.4}_{-4.4}$ (+0.2 $\sigma$ )	$D_{220}$	$5736^{+99}_{-100}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	$0.684^{+0.025}_{-0.026}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{810}$	$2539^{+34}_{-35}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	$0.490^{+0.024}_{-0.024}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{1420}$	$817^{+12}_{-13}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	$0.640^{+0.023}_{-0.024}$ (+0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{2000}$	$231.0^{+3.9}_{-4.2}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	$0.485^{+0.024}_{-0.024}$ (+0.0 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30}$ (−0.0 $\sigma$ )	$n_{\mathrm{s},0.002}$	$0.9658^{+0.0097}_{-0.0095}$ (+0.2 $\sigma$ )	$\sigma_8(0.61)$	$0.609^{+0.022}_{-0.023}$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	$0.307^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.6}_{-4.8}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(2.33)$	$0.3150^{+0.0096}_{-0.010}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.5}_{-4.9}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	$2.580^{+0.067}_{-0.064}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	$18.6^{+8.1}_{-8.6}$ (+0.1 $\sigma$ )	$\mathrm{Age}/\mathrm{Gyr}$	$13.746^{+0.061}_{-0.057}$ (−0.8 $\sigma$ )	$f_{2000}^{143\times 217}$	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_*$	$1089.85^{+0.59}_{-0.61}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	$106.9^{+4.8}_{-4.5}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.10}_{-0.093}$	$r_*$	$144.48^{+0.61}_{-0.63}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	$9.09$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	$0.135^{+0.076}_{-0.076}$	$100\theta_*$	$1.04115^{+0.00074}_{-0.00077}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{small}}^2$	$396.9$ ( $\nu$ : 1.6) (+0.1 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.877^{+0.058}_{-0.060}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$23.21$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$z_{\mathrm{drag}}$	$1059.99^{+0.74}_{-0.75}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	$2358.7$ ( $\nu$ : 16.7) (+303.5 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	$0.67^{+0.20}_{-0.21}$	$r_{\mathrm{drag}}$	$147.13^{+0.61}_{-0.65}$ (−0.7 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	$5.0$ ( $\nu$ : 3.0) (−0.2 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	$2.09^{+0.71}_{-0.66}$	$k_{\mathrm{D}}$	$0.14085^{+0.00077}_{-0.00071}$ (+1.0 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	$698.8$ ( $\nu$ : 3.1) (−0.0 $\sigma$ )
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	$0.16073^{+0.00045}_{-0.00044}$ (−1.1 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	$0.19$ ( $\nu$ : 0.0) (+0.0 $\sigma$ )
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{\mathrm{eq}}$	$3396^{+58}_{-60}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$2.81$ ( $\nu$ : 0.3) (+0.0 $\sigma$ )
$H_0$	$69.9^{+2.4}_{-2.3}$ (+0.2 $\sigma$ )	$k_{\mathrm{eq}}$	$0.01036^{+0.00018}_{-0.00018}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$4.89$ ( $\nu$ : 0.4) (−0.0 $\sigma$ )
$\Omega_{\Lambda}$	$0.707^{+0.020}_{-0.021}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.815^{+0.012}_{-0.011}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$11.6$ ( $\nu$ : 10.0) (+1.2 $\sigma$ )
$\Omega_{\mathrm{m}}$	$0.293^{+0.021}_{-0.020}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4500^{+0.0059}_{-0.0055}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$2787.9$ ( $\nu$ : 17.3) (+295.3 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	$0.1428^{+0.0024}_{-0.0025}$ (+0.2 $\sigma$ )	$H(0.15)$	$74.2^{+1.5}_{-1.4}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$7.9$ ( $\nu$ : 1.3) (+0.0 $\sigma$ )

$$\bar{\chi}_{\mathrm{eff}}^2 = 3511.18; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.84; R - 1 = 0.02300$$



18.43 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02218^{+0.00053}_{-0.00051}$	$\sigma_8/h^{0.5}$	0.9902	$0.989^{+0.041}_{-0.042}$	$D_M(0.38)$	1524.9	$1525^{+27}_{-27}$
$\Omega_c h^2$	0.11970	$0.1195^{+0.0039}_{-0.0040}$	$r_{\text{drag}} h$	100.43	$100.5^{+3.2}_{-3.0}$	$H(0.51)$	89.53	$89.55^{+0.86}_{-0.86}$
$100\theta_{\text{MC}}$	1.04089	$1.0409^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.442	$2.441^{+0.089}_{-0.089}$	$D_M(0.51)$	1977.4	$1977^{+30}_{-30}$
$\tau$	0.0527	$0.053^{+0.022}_{-0.023}$	$z_{\text{re}}$	7.54	$7.6^{+2.1}_{-2.6}$	$H(0.61)$	95.08	$95.10^{+0.87}_{-0.90}$
$w_0$	-1.029	$-1.027^{+0.094}_{-0.095}$	$10^9 A_s$	2.090	$2.091^{+0.097}_{-0.097}$	$D_M(0.61)$	2302.4	$2302^{+31}_{-32}$
$\ln(10^{10} A_s)$	3.0399	$3.040^{+0.045}_{-0.047}$	$10^9 A_s e^{-2\tau}$	1.8813	$1.880^{+0.031}_{-0.031}$	$H(2.33)$	235.75	$235.7^{+2.0}_{-1.9}$
$n_s$	0.9654	$0.965^{+0.012}_{-0.012}$	$D_{40}$	1227.5	$1228^{+35}_{-34}$	$D_M(2.33)$	5768.3	$5768^{+32}_{-33}$
$y_{\text{cal}}$	1.0005	$1.0005^{+0.0063}_{-0.0064}$	$D_{220}$	5717	$5719^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4599	$0.459^{+0.028}_{-0.027}$
$A_{217}^{\text{CIB}}$	49.7	$48^{+20}_{-20}$	$D_{810}$	2537.7	$2536^{+35}_{-34}$	$\sigma_8(0.15)$	0.7556	$0.754^{+0.036}_{-0.037}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.17	—	$D_{1420}$	815.9	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4805	$0.479^{+0.030}_{-0.031}$
$A_{143}^{\text{tSZ}}$	7.1	—	$D_{2000}$	230.10	$229.8^{+4.6}_{-4.5}$	$\sigma_8(0.38)$	0.6698	$0.669^{+0.031}_{-0.032}$
$A_{100}^{\text{PS}}$	257	$263^{+70}_{-70}$	$n_{s,0.002}$	0.9654	$0.965^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	0.4796	$0.479^{+0.030}_{-0.031}$
$A_{143}^{\text{PS}}$	47.0	$49^{+20}_{-20}$	$Y_{\text{P}}$	0.245319	$0.24531^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	0.6267	$0.626^{+0.028}_{-0.029}$
$A_{143 \times 217}^{\text{PS}}$	42.9	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246646	$0.24664^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	0.4748	$0.474^{+0.030}_{-0.030}$
$A_{217}^{\text{PS}}$	117.5	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.621	$2.62^{+0.10}_{-0.097}$	$\sigma_8(0.61)$	0.5962	$0.595^{+0.026}_{-0.028}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.798	$13.799^{+0.073}_{-0.077}$	$f\sigma_8(2.33)$	0.3006	$0.300^{+0.013}_{-0.014}$
$A_{100}^{\text{dustTT}}$	8.84	$8.9^{+4.7}_{-4.8}$	$z_*$	1090.13	$1090.12^{+0.84}_{-0.85}$	$\sigma_8(2.33)$	0.3091	$0.309^{+0.011}_{-0.012}$
$A_{143}^{\text{dustTT}}$	10.75	$10.7^{+4.7}_{-4.5}$	$r_*$	144.65	$144.71^{+0.98}_{-0.97}$	$f_{2000}^{143}$	30.4	$31^{+7}_{-7}$
$A_{143 \times 217}^{\text{dustTT}}$	19.0	$18.3^{+8.4}_{-8.5}$	$100\theta_*$	1.04109	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.2	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	94.1	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.894	$13.899^{+0.093}_{-0.092}$	$f_{2000}^{217}$	107.71	$108.0^{+4.9}_{-4.9}$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.47	$1059.4^{+1.1}_{-1.2}$	$\chi_{\text{small}}^2$	395.85	$397.0 (\nu: 1.6)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.38	$147.4^{+1.0}_{-1.0}$	$\chi_{\text{lowl}}^2$	23.15	$23.3 (\nu: 0.5)$
$H_0$	68.15	$68.2^{+2.2}_{-2.1}$	$k_{\text{D}}$	0.14042	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\text{plik}}^2$	759.1	$771.6 (\nu: 14.8)$
$\Omega_{\Lambda}$	0.6931	$0.694^{+0.020}_{-0.021}$	$100\theta_{\text{D}}$	0.16102	$0.16105^{+0.00068}_{-0.00066}$	$\chi_{\text{JLA}}^2$	1034.71	$1035.4 (\nu: 0.5)$
$\Omega_{\text{m}}$	0.3069	$0.306^{+0.021}_{-0.020}$	$z_{\text{eq}}$	3391	$3386^{+91}_{-91}$	$\chi_{6\text{DF}}^2$	0.002	$0.049 (\nu: 0.0)$
$\Omega_{\text{m}} h^2$	0.14253	$0.1423^{+0.0038}_{-0.0038}$	$k_{\text{eq}}$	0.010348	$0.01033^{+0.00028}_{-0.00028}$	$\chi_{\text{MGS}}^2$	1.54	$1.64 (\nu: 0.2)$
$\Omega_{\text{m}} h^3$	0.09713	$0.0970^{+0.0041}_{-0.0042}$	$100\theta_{\text{eq}}$	0.8148	$0.816^{+0.017}_{-0.016}$	$\chi_{\text{DR12BAO}}^2$	4.45	$4.9 (\nu: 1.1)$
$\sigma_8$	0.8174	$0.816^{+0.039}_{-0.040}$	$100\theta_{s,\text{eq}}$	0.4503	$0.4508^{+0.0090}_{-0.0086}$	$\chi_{\text{prior}}^2$	1.4	$7.3 (\nu: 6.7)$
$S_8$	0.8267	$0.825^{+0.043}_{-0.042}$	$H(0.15)$	73.13	$73.2^{+1.4}_{-1.4}$	$\chi_{\text{BAO}}^2$	6.00	$6.6 (\nu: 0.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4528	$0.452^{+0.024}_{-0.023}$	$D_M(0.15)$	637.7	$638^{+16}_{-16}$	$\chi_{\text{CMB}}^2$	1178.1	$1191.9 (\nu: 14.9)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6084	$0.607^{+0.029}_{-0.029}$	$H(0.38)$	82.93	$82.95^{+0.92}_{-0.89}$			

Best-fit  $\chi_{\text{eff}}^2 = 2220.25$ ;  $\bar{\chi}_{\text{eff}}^2 = 2241.16$ ;  $R - 1 = 0.00635$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.54 DR12BAO: 4.45 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.85 commander\_dx12\_v3.2.29: 23.15 plik\_rd12\_HM\_v22.TT: 759.09  
SN - JLA Pantheon18: 1034.71



## 18.44 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.02218^{+0.00051}_{-0.00050}$	$\sigma_8 \Omega_m^{0.25}$	0.6081	$0.608^{+0.020}_{-0.021}$	$D_M(0.15)$	637.6	$637^{+16}_{-16}$
$\Omega_c h^2$	0.11964	$0.1195^{+0.0032}_{-0.0033}$	$\sigma_8/h^{0.5}$	0.9897	$0.990^{+0.029}_{-0.030}$	$H(0.38)$	82.97	$82.96^{+0.88}_{-0.82}$
$100\theta_{MC}$	1.04097	$1.0409^{+0.0011}_{-0.0011}$	$r_{drag}h$	100.44	$100.6^{+3.1}_{-3.1}$	$D_M(0.38)$	1524.4	$1524^{+27}_{-27}$
$\tau$	0.0529	$0.054^{+0.021}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.442	$2.443^{+0.062}_{-0.062}$	$H(0.51)$	89.57	$89.55^{+0.80}_{-0.78}$
$w_0$	-1.027	$-1.029^{+0.083}_{-0.086}$	$z_{re}$	7.57	$7.6^{+2.0}_{-2.2}$	$D_M(0.51)$	1976.6	$1977^{+30}_{-30}$
$\ln(10^{10} A_s)$	3.0408	$3.041^{+0.040}_{-0.039}$	$10^9 A_s$	2.092	$2.093^{+0.086}_{-0.081}$	$H(0.61)$	95.12	$95.09^{+0.81}_{-0.81}$
$n_s$	0.9656	$0.965^{+0.011}_{-0.011}$	$10^9 A_s e^{-2\tau}$	1.8819	$1.880^{+0.027}_{-0.027}$	$D_M(0.61)$	2301.5	$2301^{+31}_{-31}$
$y_{cal}$	1.0007	$1.0006^{+0.0064}_{-0.0063}$	$D_{40}$	1227.9	$1229^{+31}_{-30}$	$H(2.33)$	235.77	$235.7^{+1.8}_{-1.7}$
$A_{217}^{CIB}$	49.4	$48^{+20}_{-20}$	$D_{220}$	5721	$5721^{+110}_{-100}$	$D_M(2.33)$	5766.4	$5768^{+31}_{-32}$
$\xi^{tSZ \times CIB}$	0.23	—	$D_{810}$	2538.9	$2536^{+34}_{-34}$	$f\sigma_8(0.15)$	0.4595	$0.459^{+0.020}_{-0.020}$
$A_{143}^{tSZ}$	7.0	—	$D_{1420}$	816.4	$815^{+13}_{-13}$	$\sigma_8(0.15)$	0.7553	$0.756^{+0.027}_{-0.029}$
$A_{100}^{PS}$	258	$263^{+70}_{-70}$	$D_{2000}$	230.30	$229.8^{+4.6}_{-4.4}$	$f\sigma_8(0.38)$	0.4800	$0.480^{+0.023}_{-0.023}$
$A_{143}^{PS}$	48.0	$49^{+20}_{-20}$	$n_{s,0.002}$	0.9656	$0.965^{+0.011}_{-0.011}$	$\sigma_8(0.38)$	0.6696	$0.670^{+0.024}_{-0.025}$
$A_{143 \times 217}^{PS}$	44.2	$43^{+20}_{-20}$	$Y_P$	0.245328	$0.24531^{+0.00020}_{-0.00024}$	$f\sigma_8(0.51)$	0.4792	$0.479^{+0.024}_{-0.024}$
$A_{217}^{PS}$	118.1	$115^{+30}_{-30}$	$Y_P^{BBN}$	0.246654	$0.24664^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	0.6265	$0.627^{+0.023}_{-0.023}$
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.617	$2.622^{+0.097}_{-0.093}$	$f\sigma_8(0.61)$	0.4744	$0.475^{+0.023}_{-0.024}$
$A_{100}^{dustTT}$	8.81	$8.9^{+4.8}_{-4.8}$	Age/Gyr	13.795	$13.798^{+0.073}_{-0.077}$	$\sigma_8(0.61)$	0.5961	$0.596^{+0.021}_{-0.022}$
$A_{143}^{dustTT}$	10.80	$10.7^{+4.6}_{-4.5}$	$z_*$	1090.10	$1090.12^{+0.79}_{-0.80}$	$f\sigma_8(2.33)$	0.3005	$0.301^{+0.011}_{-0.011}$
$A_{143 \times 217}^{dustTT}$	19.2	$18.3^{+8.3}_{-8.6}$	$r_*$	144.65	$144.69^{+0.82}_{-0.81}$	$\sigma_8(2.33)$	0.3091	$0.3092^{+0.0092}_{-0.0094}$
$A_{217}^{dustTT}$	94.3	$93^{+20}_{-20}$	$100\theta_*$	1.04116	$1.0411^{+0.0011}_{-0.0011}$	$\chi^2_{lensing}$	8.77	$9.26 (\nu: 0.3)$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.893	$13.898^{+0.079}_{-0.077}$	$\chi^2_{small}$	395.89	$397.0 (\nu: 1.4)$
$c_{217}$	0.99823	$0.9982^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.51	$1059.5^{+1.1}_{-1.2}$	$\chi^2_{lowl}$	23.14	$23.35 (\nu: 0.4)$
$H_0$	68.16	$68.2^{+2.1}_{-2.1}$	$r_{drag}$	147.37	$147.42^{+0.87}_{-0.88}$	$\chi^2_{plik}$	759.3	$771.2 (\nu: 13.6)$
$\Omega_\Lambda$	0.6933	$0.694^{+0.019}_{-0.020}$	$k_D$	0.14045	$0.1404^{+0.0011}_{-0.0011}$	$\chi^2_{JLA}$	1034.71	$1035.40 (\nu: 0.5)$
$\Omega_m$	0.3067	$0.306^{+0.020}_{-0.019}$	$100\theta_D$	0.16100	$0.16104^{+0.00068}_{-0.00065}$	$\chi^2_{6DF}$	0.002	$0.048 (\nu: 0.0)$
$\Omega_m h^2$	0.14249	$0.1424^{+0.0031}_{-0.0032}$	$z_{eq}$	3390	$3387^{+74}_{-76}$	$\chi^2_{MGS}$	1.54	$1.66 (\nu: 0.2)$
$\Omega_m h^3$	0.09712	$0.0971^{+0.0037}_{-0.0037}$	$k_{eq}$	0.010346	$0.01034^{+0.00023}_{-0.00023}$	$\chi^2_{DR12BAO}$	4.36	$4.8 (\nu: 0.8)$
$\sigma_8$	0.8171	$0.817^{+0.029}_{-0.031}$	$100\theta_{eq}$	0.8151	$0.816^{+0.014}_{-0.013}$	$\chi^2_{prior}$	1.4	$7.3 (\nu: 6.8)$
$S_8$	0.8262	$0.825^{+0.032}_{-0.032}$	$100\theta_{s,eq}$	0.4505	$0.4507^{+0.0073}_{-0.0069}$	$\chi^2_{CMB}$	1187.1	$1200.8 (\nu: 14.8)$
$\sigma_8 \Omega_m^{0.5}$	0.4525	$0.452^{+0.017}_{-0.017}$	$H(0.15)$	73.16	$73.2^{+1.4}_{-1.4}$	$\chi^2_{BAO}$	5.90	$6.5 (\nu: 0.6)$

Best-fit  $\chi^2_{eff} = 2229.02$ ;  $\bar{\chi}^2_{eff} = 2249.95$ ;  $R - 1 = 0.00823$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.00 MGS: 1.54 DR12BAO: 4.36 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.77 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.89 commander\_dx12\_v3\_2\_29: 23.14 plik\_rd12\_HM\_v22\_TT: 759.25 SN - JLA Pantheon18: 1034.71



18.45 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02218^{+0.00053}_{-0.00051}$	$\sigma_8/h^{0.5}$	$0.990^{+0.040}_{-0.040}$	$D_{\mathrm{M}}(0.38)$	$1524^{+27}_{-27}$
$\Omega_{\mathrm{c}}h^2$	$0.1195^{+0.0039}_{-0.0039}$	$r_{\mathrm{drag}}h$	$100.5^{+3.2}_{-3.0}$	$H(0.51)$	$89.56^{+0.85}_{-0.86}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.443^{+0.088}_{-0.082}$	$D_{\mathrm{M}}(0.51)$	$1977^{+29}_{-30}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$z_{\mathrm{re}}$	$< 9.47$	$H(0.61)$	$95.11^{+0.87}_{-0.90}$
$w_0$	$-1.026^{+0.094}_{-0.095}$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.093}_{-0.062}$	$D_{\mathrm{M}}(0.61)$	$2302^{+31}_{-32}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.043}_{-0.030}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.031}_{-0.030}$	$H(2.33)$	$235.7^{+2.0}_{-1.9}$
$n_{\mathrm{s}}$	$0.965^{+0.012}_{-0.012}$	$D_{40}$	$1228^{+35}_{-34}$	$D_{\mathrm{M}}(2.33)$	$5768^{+31}_{-33}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0064}$	$D_{220}$	$5719^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.459^{+0.028}_{-0.027}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2536^{+34}_{-34}$	$\sigma_8(0.15)$	$0.755^{+0.036}_{-0.036}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.480^{+0.031}_{-0.031}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.8^{+4.5}_{-4.4}$	$\sigma_8(0.38)$	$0.670^{+0.031}_{-0.031}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	$0.479^{+0.030}_{-0.031}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00021}_{-0.00024}$	$\sigma_8(0.51)$	$0.627^{+0.028}_{-0.029}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00021}_{-0.00024}$	$f\sigma_8(0.61)$	$0.474^{+0.030}_{-0.030}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.622^{+0.099}_{-0.097}$	$\sigma_8(0.61)$	$0.596^{+0.026}_{-0.027}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.799^{+0.073}_{-0.076}$	$f\sigma_8(2.33)$	$0.301^{+0.013}_{-0.013}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.8}$	$z_*$	$1090.11^{+0.84}_{-0.84}$	$\sigma_8(2.33)$	$0.309^{+0.011}_{-0.011}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.7}_{-4.5}$	$r_*$	$144.72^{+0.97}_{-0.97}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.3}_{-8.6}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.900^{+0.092}_{-0.092}$	$f_{2000}^{217}$	$108.0^{+4.8}_{-4.9}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.6)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.4^{+1.0}_{-1.0}$	$\chi_{\mathrm{lowl}}^2$	$23.3 (\nu: 0.5)$
$H_0$	$68.2^{+2.2}_{-2.1}$	$k_{\mathrm{D}}$	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{plik}}^2$	$771.4 (\nu: 14.5)$
$\Omega_{\Lambda}$	$0.694^{+0.020}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16104^{+0.00067}_{-0.00065}$	$\chi_{\mathrm{JLA}}^2$	$1035.42 (\nu: 0.5)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.020}_{-0.020}$	$z_{\mathrm{eq}}$	$3385^{+91}_{-90}$	$\chi_{6\mathrm{DF}}^2$	$0.049 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1423^{+0.0038}_{-0.0038}$	$k_{\mathrm{eq}}$	$0.01033^{+0.00028}_{-0.00027}$	$\chi_{\mathrm{MGS}}^2$	$1.65 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0970^{+0.0041}_{-0.0042}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.017}_{-0.017}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.0)$
$\sigma_8$	$0.817^{+0.038}_{-0.040}$	$100\theta_{\mathrm{s,eq}}$	$0.4509^{+0.0089}_{-0.0086}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.7)$
$S_8$	$0.825^{+0.043}_{-0.041}$	$H(0.15)$	$73.2^{+1.4}_{-1.4}$	$\chi_{\mathrm{BAO}}^2$	$6.5 (\nu: 0.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.024}_{-0.023}$	$D_{\mathrm{M}}(0.15)$	$638^{+16}_{-16}$	$\chi_{\mathrm{CMB}}^2$	$1191.6 (\nu: 14.4)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.028}_{-0.028}$	$H(0.38)$	$82.96^{+0.92}_{-0.88}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 2240.85; R - 1 = 0.00444$



## 18.46 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02219^{+0.00051}_{-0.00050}$	$\sigma_8/h^{0.5}$	$0.990^{+0.029}_{-0.030}$	$D_M(0.38)$	$1524^{+27}_{-27}$
$\Omega_c h^2$	$0.1195^{+0.0032}_{-0.0032}$	$r_{\text{drag}} h$	$100.6^{+3.1}_{-3.0}$	$H(0.51)$	$89.56^{+0.80}_{-0.75}$
$100\theta_{\text{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.444^{+0.061}_{-0.062}$	$D_M(0.51)$	$1976^{+29}_{-30}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$z_{\text{re}}$	$< 9.42$	$H(0.61)$	$95.11^{+0.80}_{-0.79}$
$w_0$	$-1.028^{+0.082}_{-0.086}$	$10^9 A_s$	$2.098^{+0.083}_{-0.057}$	$D_M(0.61)$	$2301^{+30}_{-31}$
$\ln(10^{10} A_s)$	$3.043^{+0.039}_{-0.028}$	$10^9 A_s e^{-2\tau}$	$1.880^{+0.027}_{-0.027}$	$H(2.33)$	$235.6^{+1.8}_{-1.7}$
$n_s$	$0.965^{+0.011}_{-0.011}$	$D_{40}$	$1229^{+31}_{-30}$	$D_M(2.33)$	$5768^{+30}_{-32}$
$y_{\text{cal}}$	$1.0006^{+0.0064}_{-0.0064}$	$D_{220}$	$5721^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.459^{+0.020}_{-0.020}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2536^{+34}_{-34}$	$\sigma_8(0.15)$	$0.756^{+0.028}_{-0.029}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.480^{+0.023}_{-0.023}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$229.8^{+4.5}_{-4.4}$	$\sigma_8(0.38)$	$0.670^{+0.024}_{-0.025}$
$A_{100}^{\text{PS}}$	$263^{+70}_{-70}$	$n_{s,0.002}$	$0.965^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	$0.479^{+0.024}_{-0.024}$
$A_{143}^{\text{PS}}$	$49^{+20}_{-20}$	$Y_{\text{P}}$	$0.24532^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	$0.627^{+0.023}_{-0.023}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24664^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	$0.475^{+0.023}_{-0.024}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D/H}$	$2.621^{+0.097}_{-0.093}$	$\sigma_8(0.61)$	$0.597^{+0.021}_{-0.022}$
$A^{\text{kSZ}}$	—	Age/Gyr	$13.798^{+0.073}_{-0.077}$	$f\sigma_8(2.33)$	$0.301^{+0.011}_{-0.011}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.8}_{-4.8}$	$z_*$	$1090.11^{+0.78}_{-0.79}$	$\sigma_8(2.33)$	$0.3094^{+0.0091}_{-0.0092}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.6}_{-4.5}$	$r_*$	$144.71^{+0.81}_{-0.80}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.1}_{-8.6}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.900^{+0.078}_{-0.076}$	$f_{2000}^{217}$	$108.0^{+4.8}_{-4.9}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\text{lensing}}^2$	$9.24 (\nu: 0.3)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	$147.44^{+0.86}_{-0.88}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.5)$
$H_0$	$68.2^{+2.1}_{-2.1}$	$k_{\text{D}}$	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{\text{lowl}}^2$	$23.34 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.694^{+0.019}_{-0.020}$	$100\theta_{\text{D}}$	$0.16103^{+0.00067}_{-0.00065}$	$\chi_{\text{plik}}^2$	$771.1 (\nu: 13.5)$
$\Omega_{\text{m}}$	$0.306^{+0.020}_{-0.019}$	$z_{\text{eq}}$	$3385^{+74}_{-75}$	$\chi_{\text{JLA}}^2$	$1035.38 (\nu: 0.4)$
$\Omega_{\text{m}} h^2$	$0.1423^{+0.0031}_{-0.0032}$	$k_{\text{eq}}$	$0.01033^{+0.00022}_{-0.00023}$	$\chi_{6\text{DF}}^2$	$0.047 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.0970^{+0.0037}_{-0.0037}$	$100\theta_{\text{eq}}$	$0.816^{+0.014}_{-0.013}$	$\chi_{\text{MGS}}^2$	$1.67 (\nu: 0.2)$
$\sigma_8$	$0.818^{+0.030}_{-0.030}$	$100\theta_{\text{s,eq}}$	$0.4509^{+0.0073}_{-0.0069}$	$\chi_{\text{DR12BAO}}^2$	$4.7 (\nu: 0.7)$
$S_8$	$0.826^{+0.032}_{-0.032}$	$H(0.15)$	$73.2^{+1.4}_{-1.4}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.7)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.452^{+0.017}_{-0.018}$	$D_M(0.15)$	$637^{+16}_{-15}$	$\chi_{\text{CMB}}^2$	$1200.6 (\nu: 14.6)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.608^{+0.020}_{-0.021}$	$H(0.38)$	$82.97^{+0.87}_{-0.79}$	$\chi_{\text{BAO}}^2$	$6.5 (\nu: 0.6)$

$$\bar{\chi}_{\text{eff}}^2 = 2249.69; R - 1 = 0.00980$$



# 18.47 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022402	$0.02239^{+0.00036}_{-0.00036}$ (+1.1 $\sigma$ )	$\sigma_8$	0.8195	$0.819^{+0.033}_{-0.035}$ (+0.2 $\sigma$ )	$D_M(0.15)$	635.7	$636^{+16}_{-15}$ (−0.2 $\sigma$ )
$\Omega_c h^2$	0.11974	$0.1197^{+0.0031}_{-0.0031}$ (+0.2 $\sigma$ )	$S_8$	0.8269	$0.827^{+0.035}_{-0.034}$ (+0.1 $\sigma$ )	$H(0.38)$	83.12	$83.09^{+0.72}_{-0.72}$ (+0.4 $\sigma$ )
$100\theta_{MC}$	1.04094	$1.04096^{+0.00078}_{-0.00078}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4529	$0.453^{+0.019}_{-0.019}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1520.7	$1522^{+26}_{-26}$ (−0.3 $\sigma$ )
$\tau$	0.0545	$0.055^{+0.022}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6092	$0.609^{+0.023}_{-0.024}$ (+0.2 $\sigma$ )	$H(0.51)$	89.71	$89.69^{+0.65}_{-0.67}$ (+0.4 $\sigma$ )
$w_0$	−1.030	$−1.028^{+0.085}_{-0.085}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9911	$0.991^{+0.033}_{-0.035}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1972.2	$1973^{+28}_{-28}$ (−0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0451	$3.045^{+0.045}_{-0.041}$ (+0.3 $\sigma$ )	$r_{drag} h$	100.60	$100.5^{+3.1}_{-3.1}$ (+0.0 $\sigma$ )	$H(0.61)$	95.25	$95.25^{+0.68}_{-0.70}$ (+0.4 $\sigma$ )
$n_s$	0.9664	$0.966^{+0.011}_{-0.010}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.445	$2.446^{+0.073}_{-0.076}$ (+0.2 $\sigma$ )	$D_M(0.61)$	2296.6	$2298^{+29}_{-28}$ (−0.3 $\sigma$ )
$y_{cal}$	1.0009	$1.0006^{+0.0063}_{-0.0061}$ (+0.0 $\sigma$ )	$z_{re}$	7.68	$7.7^{+2.1}_{-2.2}$ (+0.2 $\sigma$ )	$H(2.33)$	235.98	$236.0^{+1.6}_{-1.6}$ (+0.5 $\sigma$ )
$A_{217}^{CIB}$	47.2	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.101	$2.101^{+0.097}_{-0.085}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5758.2	$5759^{+23}_{-23}$ (−0.8 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.42	—	$10^9 A_s e^{-2\tau}$	1.8844	$1.882^{+0.028}_{-0.029}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4602	$0.460^{+0.021}_{-0.022}$ (+0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.25	$> 0.917$ (+0.2 $\sigma$ )	$D_{40}$	1229.0	$1229^{+31}_{-31}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7577	$0.757^{+0.030}_{-0.033}$ (+0.2 $\sigma$ )
$A_{100}^{PS}$	250	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5739	$5734^{+98}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4812	$0.481^{+0.025}_{-0.026}$ (+0.1 $\sigma$ )
$A_{143}^{PS}$	47.2	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2542.6	$2539^{+33}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6718	$0.671^{+0.027}_{-0.029}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{PS}$	47.4	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	818.9	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4805	$0.480^{+0.025}_{-0.026}$ (+0.1 $\sigma$ )
$A_{217}^{PS}$	119.8	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.47	$231.0^{+4.0}_{-4.1}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6286	$0.628^{+0.025}_{-0.027}$ (+0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9664	$0.966^{+0.011}_{-0.010}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4758	$0.475^{+0.025}_{-0.026}$ (+0.1 $\sigma$ )
$A_{100}^{dustTT}$	8.82	$8.9^{+4.6}_{-4.7}$ (−0.0 $\sigma$ )	$Y_P$	0.245408	$0.24540^{+0.00014}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5981	$0.597^{+0.023}_{-0.025}$ (+0.2 $\sigma$ )
$A_{143}^{dustTT}$	10.97	$10.9^{+4.7}_{-4.5}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246735	$0.24673^{+0.00014}_{-0.00015}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3016	$0.301^{+0.012}_{-0.013}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.7	$18.6^{+8.3}_{-8.4}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.580	$2.582^{+0.068}_{-0.065}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3102	$0.310^{+0.010}_{-0.011}$ (+0.2 $\sigma$ )
$A_{217}^{dustTT}$	95.0	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.774	$13.777^{+0.059}_{-0.057}$ (−0.8 $\sigma$ )	$f_{2000}^{143}$	28.8	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.097}_{-0.095}$	$z_*$	1089.86	$1089.87^{+0.64}_{-0.62}$ (−0.8 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.96	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.076}_{-0.075}$	$r_*$	144.47	$144.49^{+0.69}_{-0.68}$ (−0.6 $\sigma$ )	$f_{2000}^{217}$	106.67	$106.9^{+4.6}_{-4.5}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04112	$1.04114^{+0.00077}_{-0.00076}$ (+0.0 $\sigma$ )	$\chi_{small}^2$	396.1	$397.2$ ( $\nu$ : 2.0) (+0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.877	$13.878^{+0.066}_{-0.064}$ (−0.6 $\sigma$ )	$\chi_{lowl}^2$	23.11	$23.27$ ( $\nu$ : 0.4) (−0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.665	$0.67^{+0.21}_{-0.21}$	$z_{drag}$	1060.01	$1059.96^{+0.73}_{-0.75}$ (+1.1 $\sigma$ )	$\chi_{plik}^2$	2344.5	$2359.3$ ( $\nu$ : 16.8) (+292.3 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.68}$	$r_{drag}$	147.12	$147.14^{+0.69}_{-0.68}$ (−0.8 $\sigma$ )	$\chi_{JLA}^2$	1034.74	$1035.39$ ( $\nu$ : 0.5) (−0.0 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14086	$0.14083^{+0.00077}_{-0.00078}$ (+1.0 $\sigma$ )	$\chi_{6DF}^2$	0.000	$0.048$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160727	$0.16075^{+0.00044}_{-0.00042}$ (−1.2 $\sigma$ )	$\chi_{MGS}^2$	1.61	$1.64$ ( $\nu$ : 0.2) (−0.0 $\sigma$ )
$H_0$	68.38	$68.3^{+2.1}_{-2.1}$ (+0.2 $\sigma$ )	$z_{eq}$	3397	$3396^{+69}_{-68}$ (+0.3 $\sigma$ )	$\chi_{DR12BAO}^2$	4.35	$4.8$ ( $\nu$ : 0.7) (−0.0 $\sigma$ )
$\Omega_\Lambda$	0.6946	$0.694^{+0.019}_{-0.020}$ (+0.0 $\sigma$ )	$k_{eq}$	0.010367	$0.01037^{+0.00021}_{-0.00021}$ (+0.3 $\sigma$ )	$\chi_{prior}^2$	1.9	$11.5$ ( $\nu$ : 10.1) (+1.2 $\sigma$ )
$\Omega_m$	0.3054	$0.306^{+0.020}_{-0.019}$ (−0.0 $\sigma$ )	$100\theta_{eq}$	0.8144	$0.814^{+0.013}_{-0.013}$ (−0.2 $\sigma$ )	$\chi_{BAO}^2$	5.96	$6.5$ ( $\nu$ : 0.5) (−0.0 $\sigma$ )
$\Omega_m h^2$	0.14279	$0.1428^{+0.0029}_{-0.0029}$ (+0.3 $\sigma$ )	$100\theta_{s,eq}$	0.4499	$0.4500^{+0.0067}_{-0.0066}$ (−0.2 $\sigma$ )	$\chi_{CMB}^2$	2763.7	$2779.8$ ( $\nu$ : 16.7) (+291.0 $\sigma$ )
$\Omega_m h^3$	0.09763	$0.0975^{+0.0037}_{-0.0037}$ (+0.3 $\sigma$ )	$H(0.15)$	73.34	$73.3^{+1.4}_{-1.3}$ (+0.3 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 3806.25$ ;  $\Delta\chi_{eff}^2 = 1586.00$ ;  $\bar{\chi}_{eff}^2 = 3833.20$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.04$ ;  $R - 1 = 0.00703$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  -0.00) MGS: 1.61 ( $\Delta$  0.07) DR12BAO: 4.35 ( $\Delta$  -0.10) CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.06 ( $\Delta$  0.21) commander\_dx12\_v3\_2\_29: 23.11 ( $\Delta$  -0.04) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.51 SN - JLA Pantheon18: 1034.74 ( $\Delta$  0.03)



## 18.48 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022416	$0.02240^{+0.00036}_{-0.00036}$ (+1.1 $\sigma$ )	$\Omega_m h^3$	0.09767	$0.0975^{+0.0035}_{-0.0035}$ (+0.3 $\sigma$ )	$100\theta_{s,eq}$	0.4501	$0.4501^{+0.0059}_{-0.0057}$ (−0.2 $\sigma$ )
$\Omega_c h^2$	0.11965	$0.1197^{+0.0026}_{-0.0027}$ (+0.1 $\sigma$ )	$\sigma_8$	0.8197	$0.818^{+0.027}_{-0.028}$ (+0.1 $\sigma$ )	$H(0.15)$	73.40	$73.3^{+1.3}_{-1.3}$ (+0.3 $\sigma$ )
$100\theta_{MC}$	1.04098	$1.04096^{+0.00075}_{-0.00075}$ (+0.1 $\sigma$ )	$S_8$	0.8260	$0.826^{+0.027}_{-0.028}$ (+0.0 $\sigma$ )	$D_M(0.15)$	635.2	$636^{+15}_{-15}$ (−0.2 $\sigma$ )
$\tau$	0.0551	$0.055^{+0.020}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4524	$0.452^{+0.015}_{-0.015}$ (+0.0 $\sigma$ )	$H(0.38)$	83.16	$83.11^{+0.69}_{-0.67}$ (+0.5 $\sigma$ )
$w_0$	−1.030	$−1.028^{+0.080}_{-0.082}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6090	$0.608^{+0.018}_{-0.018}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1519.6	$1521^{+25}_{-26}$ (−0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0459	$3.045^{+0.039}_{-0.037}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9908	$0.990^{+0.026}_{-0.027}$ (+0.0 $\sigma$ )	$H(0.51)$	89.74	$89.71^{+0.62}_{-0.62}$ (+0.5 $\sigma$ )
$n_s$	0.9668	$0.966^{+0.010}_{-0.0097}$ (+0.2 $\sigma$ )	$r_{drag} h$	100.70	$100.6^{+3.2}_{-3.0}$ (+0.0 $\sigma$ )	$D_M(0.51)$	1970.9	$1973^{+27}_{-28}$ (−0.3 $\sigma$ )
$y_{cal}$	1.0007	$1.0006^{+0.0062}_{-0.0061}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.445	$2.445^{+0.055}_{-0.058}$ (+0.1 $\sigma$ )	$H(0.61)$	95.28	$95.26^{+0.63}_{-0.65}$ (+0.5 $\sigma$ )
$A_{217}^{CIB}$	46.6	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$z_{re}$	7.75	$7.7^{+1.9}_{-2.1}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2295.2	$2297^{+28}_{-28}$ (−0.4 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.56	—	$10^9 A_s$	2.103	$2.101^{+0.083}_{-0.077}$ (+0.2 $\sigma$ )	$H(2.33)$	235.93	$236.0^{+1.5}_{-1.5}$ (+0.5 $\sigma$ )
$A_{143}^{tSZ}$	7.1	—	$10^9 A_s e^{-2\tau}$	1.8833	$1.882^{+0.026}_{-0.027}$ (+0.1 $\sigma$ )	$D_M(2.33)$	5756.9	$5758^{+22}_{-23}$ (−0.8 $\sigma$ )
$A_{100}^{PS}$	249	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{40}$	1227.8	$1229^{+29}_{-29}$ (+0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4598	$0.460^{+0.017}_{-0.017}$ (+0.0 $\sigma$ )
$A_{143}^{PS}$	49.4	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{220}$	5737	$5735^{+97}_{-97}$ (+0.4 $\sigma$ )	$\sigma_8(0.15)$	0.7579	$0.757^{+0.026}_{-0.027}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	50.9	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	2541.8	$2539^{+33}_{-33}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4810	$0.480^{+0.020}_{-0.021}$ (+0.0 $\sigma$ )
$A_{217}^{PS}$	120.9	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{1420}$	818.8	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(0.38)$	0.6721	$0.671^{+0.023}_{-0.024}$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$D_{2000}$	231.49	$231.0^{+4.0}_{-4.1}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4804	$0.480^{+0.021}_{-0.022}$ (+0.0 $\sigma$ )
$A_{100}^{dustTT}$	8.82	$8.9^{+4.6}_{-4.9}$ (−0.0 $\sigma$ )	$n_{s,0.002}$	0.9668	$0.966^{+0.010}_{-0.0097}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6289	$0.628^{+0.021}_{-0.022}$ (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	11.04	$10.9^{+4.6}_{-4.4}$ (+0.1 $\sigma$ )	$Y_P$	0.245413	$0.24540^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$f\sigma_8(0.61)$	0.4758	$0.475^{+0.021}_{-0.022}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.0	$18.6^{+8.3}_{-8.6}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246740	$0.24673^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5984	$0.597^{+0.020}_{-0.021}$ (+0.1 $\sigma$ )
$A_{217}^{dustTT}$	95.2	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.577	$2.581^{+0.068}_{-0.064}$ (−1.1 $\sigma$ )	$f\sigma_8(2.33)$	0.3018	$0.301^{+0.010}_{-0.011}$ (+0.1 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.096}_{-0.093}$	Age/Gyr	13.771	$13.776^{+0.057}_{-0.057}$ (−0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3104	$0.3098^{+0.0091}_{-0.0092}$ (+0.2 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.075}_{-0.077}$	$z_*$	1089.83	$1089.86^{+0.59}_{-0.60}$ (−0.9 $\sigma$ )	$\chi^2_{lensing}$	8.72	$9.13$ ( $\nu$ : 0.2) (−0.2 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.481	$0.48^{+0.23}_{-0.22}$	$r_*$	144.49	$144.50^{+0.62}_{-0.60}$ (−0.6 $\sigma$ )	$\chi^2_{small}$	396.20	$397.1$ ( $\nu$ : 1.6) (+0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	1.04116	$1.04114^{+0.00075}_{-0.00074}$ (+0.1 $\sigma$ )	$\chi^2_{lowl}$	23.06	$23.27$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.663	$0.66^{+0.21}_{-0.21}$	$D_M(z_*)/\text{Gpc}$	13.878	$13.879^{+0.059}_{-0.057}$ (−0.6 $\sigma$ )	$\chi^2_{plik}$	2344.7	$2359.1$ ( $\nu$ : 15.8) (+304.9 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.70}_{-0.68}$	$z_{drag}$	1060.01	$1059.97^{+0.72}_{-0.76}$ (+1.1 $\sigma$ )	$\chi^2_{JLA}$	1034.76	$1035.36$ ( $\nu$ : 0.4) (−0.0 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{drag}$	147.13	$147.15^{+0.62}_{-0.61}$ (−0.8 $\sigma$ )	$\chi^2_{6DF}$	0.000	$0.046$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0015}$ (−0.1 $\sigma$ )	$k_D$	0.14086	$0.14082^{+0.00072}_{-0.00073}$ (+1.0 $\sigma$ )	$\chi^2_{MGS}$	1.68	$1.67$ ( $\nu$ : 0.2) (+0.0 $\sigma$ )
$H_0$	68.44	$68.3^{+2.1}_{-2.1}$ (+0.2 $\sigma$ )	$100\theta_D$	0.160717	$0.16074^{+0.00044}_{-0.00042}$ (−1.1 $\sigma$ )	$\chi^2_{DR12BAO}$	4.23	$4.7$ ( $\nu$ : 0.5) (−0.1 $\sigma$ )
$\Omega_\Lambda$	0.6953	$0.694^{+0.019}_{-0.020}$ (+0.1 $\sigma$ )	$z_{eq}$	3395	$3395^{+60}_{-61}$ (+0.3 $\sigma$ )	$\chi^2_{prior}$	1.7	$11.6$ ( $\nu$ : 10.2) (+1.2 $\sigma$ )
$\Omega_m$	0.3047	$0.306^{+0.020}_{-0.019}$ (−0.1 $\sigma$ )	$k_{eq}$	0.010361	$0.01036^{+0.00018}_{-0.00018}$ (+0.3 $\sigma$ )	$\chi^2_{CMB}$	2772.6	$2788.6$ ( $\nu$ : 16.5) (+291.4 $\sigma$ )
$\Omega_m h^2$	0.14271	$0.1427^{+0.0025}_{-0.0025}$ (+0.3 $\sigma$ )	$100\theta_{eq}$	0.8148	$0.815^{+0.012}_{-0.011}$ (−0.2 $\sigma$ )	$\chi^2_{BAO}$	5.91	$6.45$ ( $\nu$ : 0.4) (−0.1 $\sigma$ )

Best-fit  $\chi^2_{eff} = 3814.98$ ;  $\Delta\chi^2_{eff} = 1585.96$ ;  $\bar{\chi}^2_{eff} = 3841.96$ ;  $\Delta\bar{\chi}^2_{eff} = 1592.01$ ;  $R - 1 = 0.01118$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.00 ( $\Delta$  -0.00) MGS: 1.68 ( $\Delta$  0.14) DR12BAO: 4.23 ( $\Delta$  -0.12) CMB - smicadx12.Dec5.ftl.mv2.ndclpp-p.teb.consext8: 8.72 ( $\Delta$  -0.05) small\_100x143.offlike5\_EE\_Aplanc  
396.20 ( $\Delta$  0.31) commander\_dx12.v3.2.29: 23.06 ( $\Delta$  -0.08) plik\_rd12\_HM.v22b.TTTEEE: 2344.67 SN - JLA Pantheon18: 1034.76 ( $\Delta$  0.05)



## 18.49 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00036}_{-0.00036}$ (+1.0 $\sigma$ )	$\sigma_8$	$0.819^{+0.032}_{-0.034}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$636^{+16}_{-15}$ (−0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1197^{+0.0031}_{-0.0031}$ (+0.2 $\sigma$ )	$S_8$	$0.827^{+0.034}_{-0.034}$ (+0.1 $\sigma$ )	$H(0.38)$	$83.10^{+0.72}_{-0.73}$ (+0.4 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.04096^{+0.00078}_{-0.00077}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.019}_{-0.018}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1522^{+26}_{-26}$ (−0.3 $\sigma$ )
$\tau$	$0.056^{+0.019}_{-0.014}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.022}_{-0.023}$ (+0.1 $\sigma$ )	$H(0.51)$	$89.70^{+0.65}_{-0.68}$ (+0.4 $\sigma$ )
$w_0$	$-1.028^{+0.084}_{-0.086}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.991^{+0.033}_{-0.034}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1973^{+28}_{-28}$ (−0.3 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.044}_{-0.030}$ (+0.3 $\sigma$ )	$r_{\mathrm{drag}}h$	$100.5^{+3.1}_{-3.1}$ (+0.0 $\sigma$ )	$H(0.61)$	$95.25^{+0.67}_{-0.71}$ (+0.4 $\sigma$ )
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.010}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.071}_{-0.073}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2298^{+29}_{-28}$ (−0.3 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0006^{+0.0063}_{-0.0061}$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	$< 9.60$ (+0.1 $\sigma$ )	$H(2.33)$	$236.0^{+1.6}_{-1.5}$ (+0.5 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9A_{\mathrm{s}}$	$2.105^{+0.094}_{-0.063}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5759^{+23}_{-23}$ (−0.7 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.028}_{-0.029}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	$0.460^{+0.021}_{-0.022}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	$> 0.922$ (+0.2 $\sigma$ )	$D_{40}$	$1229^{+31}_{-32}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	$0.757^{+0.030}_{-0.031}$ (+0.2 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	$5734^{+98}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	$0.481^{+0.025}_{-0.025}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	$2539^{+33}_{-33}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	$0.672^{+0.026}_{-0.028}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	$818^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	$0.480^{+0.025}_{-0.026}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	$231.0^{+4.0}_{-4.1}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	$0.628^{+0.024}_{-0.025}$ (+0.2 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.010}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	$0.476^{+0.025}_{-0.026}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.6}_{-4.7}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}$	$0.24540^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	$0.598^{+0.023}_{-0.024}$ (+0.2 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.7}_{-4.5}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00014}_{-0.00015}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	$0.301^{+0.011}_{-0.012}$ (+0.2 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.2}_{-8.3}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	$2.582^{+0.069}_{-0.065}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	$0.310^{+0.010}_{-0.010}$ (+0.2 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$\mathrm{Age}/\mathrm{Gyr}$	$13.776^{+0.059}_{-0.057}$ (−0.8 $\sigma$ )	$f_{2000}^{143}$	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.098}_{-0.095}$	$z_*$	$1089.87^{+0.64}_{-0.62}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.076}_{-0.075}$	$r_*$	$144.49^{+0.69}_{-0.68}$ (−0.6 $\sigma$ )	$f_{2000}^{217}$	$106.9^{+4.6}_{-4.5}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04114^{+0.00076}_{-0.00076}$ (+0.0 $\sigma$ )	$\chi_{\mathrm{small}}^2$	$397.2$ ( $\nu$ : 2.0) (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.878^{+0.066}_{-0.064}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$23.28$ ( $\nu$ : 0.4) (−0.0 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.96^{+0.73}_{-0.76}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	$2359.1$ ( $\nu$ : 16.6) (+294.8 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.68}_{-0.68}$	$r_{\mathrm{drag}}$	$147.14^{+0.69}_{-0.68}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	$1035.39$ ( $\nu$ : 0.5) (−0.0 $\sigma$ )
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{\mathrm{D}}$	$0.14083^{+0.00077}_{-0.00077}$ (+1.0 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	$0.047$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	$0.16075^{+0.00044}_{-0.00042}$ (−1.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$1.64$ ( $\nu$ : 0.2) (−0.0 $\sigma$ )
$H_0$	$68.3^{+2.1}_{-2.1}$ (+0.2 $\sigma$ )	$z_{\mathrm{eq}}$	$3396^{+69}_{-68}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$4.8$ ( $\nu$ : 0.7) (−0.0 $\sigma$ )
$\Omega_{\Lambda}$	$0.694^{+0.019}_{-0.020}$ (+0.0 $\sigma$ )	$k_{\mathrm{eq}}$	$0.01036^{+0.00021}_{-0.00021}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$11.5$ ( $\nu$ : 10.1) (+1.2 $\sigma$ )
$\Omega_{\mathrm{m}}$	$0.306^{+0.020}_{-0.019}$ (−0.0 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.815^{+0.013}_{-0.013}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$6.5$ ( $\nu$ : 0.5) (−0.0 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	$0.1428^{+0.0029}_{-0.0029}$ (+0.3 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4500^{+0.0067}_{-0.0067}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$2779.6$ ( $\nu$ : 16.3) (+296.2 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	$0.0975^{+0.0037}_{-0.0037}$ (+0.3 $\sigma$ )	$H(0.15)$	$73.3^{+1.4}_{-1.3}$ (+0.3 $\sigma$ )		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3832.98; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.13; R - 1 = 0.00746$$



## 18.50 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00036}_{-0.00036}$ (+1.1 $\sigma$ )	$\sigma_8$	$0.819^{+0.027}_{-0.028}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$636^{+15}_{-15}$ (−0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1196^{+0.0026}_{-0.0027}$ (+0.1 $\sigma$ )	$S_8$	$0.826^{+0.027}_{-0.027}$ (+0.1 $\sigma$ )	$H(0.38)$	$83.12^{+0.68}_{-0.68}$ (+0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.04097^{+0.00075}_{-0.00075}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1521^{+25}_{-26}$ (−0.3 $\sigma$ )
$\tau$	$0.056^{+0.018}_{-0.014}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.018}_{-0.018}$ (+0.1 $\sigma$ )	$H(0.51)$	$89.72^{+0.61}_{-0.61}$ (+0.5 $\sigma$ )
$w_0$	$-1.027^{+0.079}_{-0.082}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.990^{+0.025}_{-0.027}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1973^{+27}_{-28}$ (−0.3 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.038}_{-0.028}$ (+0.2 $\sigma$ )	$r_{\mathrm{drag}}h$	$100.6^{+3.2}_{-3.0}$ (+0.0 $\sigma$ )	$H(0.61)$	$95.27^{+0.62}_{-0.65}$ (+0.5 $\sigma$ )
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.0096}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.446^{+0.055}_{-0.057}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2297^{+28}_{-28}$ (−0.4 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0006^{+0.0063}_{-0.0061}$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	$< 9.44$ (+0.1 $\sigma$ )	$H(2.33)$	$236.0^{+1.5}_{-1.4}$ (+0.5 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9A_{\mathrm{s}}$	$2.104^{+0.080}_{-0.058}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5758^{+22}_{-23}$ (−0.8 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.026}_{-0.027}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	$0.460^{+0.017}_{-0.017}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	—	$D_{40}$	$1229^{+29}_{-29}$ (+0.0 $\sigma$ )	$\sigma_8(0.15)$	$0.757^{+0.026}_{-0.026}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	$5735^{+98}_{-97}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	$0.481^{+0.020}_{-0.021}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	$2539^{+33}_{-32}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	$0.671^{+0.023}_{-0.024}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	$817^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	$0.480^{+0.021}_{-0.022}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	$231.0^{+4.0}_{-4.0}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	$0.628^{+0.021}_{-0.022}$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.0096}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	$0.475^{+0.021}_{-0.022}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.6}_{-4.8}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}$	$0.24540^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	$0.598^{+0.020}_{-0.020}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.4}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	$0.301^{+0.010}_{-0.010}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.3}_{-8.6}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	$2.581^{+0.068}_{-0.064}$ (−1.1 $\sigma$ )	$\sigma_8(2.33)$	$0.3100^{+0.0089}_{-0.0091}$ (+0.2 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$\mathrm{Age}/\mathrm{Gyr}$	$13.775^{+0.057}_{-0.057}$ (−0.8 $\sigma$ )	$f_{2000}^{143}$	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.097}_{-0.094}$	$z_*$	$1089.85^{+0.60}_{-0.60}$ (−0.8 $\sigma$ )	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.076}_{-0.077}$	$r_*$	$144.51^{+0.61}_{-0.58}$ (−0.7 $\sigma$ )	$f_{2000}^{217}$	$106.9^{+4.6}_{-4.6}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.23}_{-0.22}$	$100\theta_*$	$1.04115^{+0.00075}_{-0.00074}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	$9.11$ ( $\nu$ : 0.2) (−0.2 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.879^{+0.058}_{-0.056}$ (−0.7 $\sigma$ )	$\chi_{\mathrm{small}}^2$	$397.1$ ( $\nu$ : 1.7) (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.98^{+0.72}_{-0.77}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$23.27$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.70}_{-0.68}$	$r_{\mathrm{drag}}$	$147.16^{+0.62}_{-0.61}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	$2359.0$ ( $\nu$ : 15.7) (+305.5 $\sigma$ )
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{\mathrm{D}}$	$0.14082^{+0.00072}_{-0.00073}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	$1035.36$ ( $\nu$ : 0.4) (−0.0 $\sigma$ )
$c_{217}$	$0.9982^{+0.0016}_{-0.0015}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00045}_{-0.00042}$ (−1.1 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	$0.046$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$H_0$	$68.3^{+2.1}_{-2.1}$ (+0.2 $\sigma$ )	$z_{\mathrm{eq}}$	$3394^{+58}_{-60}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$1.67$ ( $\nu$ : 0.2) (−0.0 $\sigma$ )
$\Omega_{\Lambda}$	$0.694^{+0.019}_{-0.020}$ (+0.0 $\sigma$ )	$k_{\mathrm{eq}}$	$0.01036^{+0.00018}_{-0.00018}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$4.7$ ( $\nu$ : 0.5) (−0.0 $\sigma$ )
$\Omega_{\mathrm{m}}$	$0.306^{+0.020}_{-0.019}$ (−0.0 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.815^{+0.011}_{-0.011}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$11.6$ ( $\nu$ : 10.2) (+1.2 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	$0.1427^{+0.0024}_{-0.0025}$ (+0.3 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4502^{+0.0059}_{-0.0056}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$2788.4$ ( $\nu$ : 16.3) (+294.2 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	$0.0975^{+0.0036}_{-0.0035}$ (+0.3 $\sigma$ )	$H(0.15)$	$73.3^{+1.3}_{-1.3}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$6.42$ ( $\nu$ : 0.4) (−0.0 $\sigma$ )

$$\bar{\chi}_{\mathrm{eff}}^2 = 3841.79; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.10; R - 1 = 0.01215$$



18.51 base\_w\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02215	$0.02219^{+0.00054}_{-0.00052}$	$\sigma_8 \Omega_m^{0.25}$	0.6135	$0.606^{+0.028}_{-0.029}$	$H(0.38)$	82.86	$82.98^{+0.89}_{-0.87}$
$\Omega_c h^2$	0.12025	$0.1194^{+0.0039}_{-0.0039}$	$\sigma_8/h^{0.5}$	0.9976	$0.987^{+0.040}_{-0.041}$	$D_M(0.38)$	1525.4	$1524^{+27}_{-27}$
$100\theta_{MC}$	1.04092	$1.0410^{+0.0011}_{-0.0011}$	$r_{drag} h$	100.43	$100.5^{+3.1}_{-3.0}$	$H(0.51)$	89.45	$89.59^{+0.85}_{-0.88}$
$\tau$	0.0540	$0.053^{+0.022}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.460	$2.436^{+0.087}_{-0.089}$	$D_M(0.51)$	1978.3	$1977^{+30}_{-30}$
$w_0$	-1.037	$-1.024^{+0.093}_{-0.097}$	$z_{re}$	7.69	$7.6^{+2.1}_{-2.3}$	$H(0.61)$	94.99	$95.14^{+0.89}_{-0.91}$
$\ln(10^{10} A_s)$	3.0460	$3.039^{+0.044}_{-0.044}$	$10^9 A_s$	2.103	$2.088^{+0.095}_{-0.090}$	$D_M(0.61)$	2303.6	$2301^{+31}_{-31}$
$n_s$	0.9637	$0.966^{+0.012}_{-0.012}$	$10^9 A_s e^{-2\tau}$	1.8880	$1.877^{+0.032}_{-0.032}$	$H(2.33)$	235.96	$235.7^{+1.9}_{-1.9}$
$y_{cal}$	1.0023	$1.0005^{+0.0065}_{-0.0065}$	$D_{40}$	1234.6	$1225^{+35}_{-34}$	$D_M(2.33)$	5769.7	$5767^{+31}_{-31}$
$A_{100}^{PS}$	245	$243^{+60}_{-70}$	$D_{220}$	5730	$5709^{+110}_{-100}$	$f\sigma_8(0.15)$	0.4646	$0.458^{+0.028}_{-0.027}$
$A_{143}^{PS}$	39	$41^{+20}_{-20}$	$D_{810}$	2543.3	$2533^{+36}_{-36}$	$\sigma_8(0.15)$	0.7614	$0.753^{+0.036}_{-0.037}$
$A_{217}^{PS}$	99.3	$101^{+30}_{-40}$	$D_{1420}$	817.0	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4855	$0.478^{+0.031}_{-0.030}$
$A_{217}^{CIB}$	45.0	$41^{+20}_{-20}$	$D_{2000}$	230.42	$229.7^{+4.7}_{-4.6}$	$\sigma_8(0.38)$	0.6747	$0.668^{+0.031}_{-0.032}$
$A_{143}^{tSZ}$	5.17	< 8.74	$n_{s,0.002}$	0.9637	$0.966^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	0.4845	$0.478^{+0.031}_{-0.031}$
$r_{143 \times 217}^{PS}$	0.560	$0.65^{+0.32}_{-0.32}$	$Y_P$	0.245306	$0.24532^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	0.6311	$0.625^{+0.028}_{-0.029}$
$r_{143 \times 217}^{CIB}$	0.70	—	$Y_P^{BBN}$	0.246632	$0.24665^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	0.4796	$0.473^{+0.030}_{-0.030}$
$\xi^{tSZ \times CIB}$	0.00	—	$10^5 D/H$	2.627	$2.62^{+0.10}_{-0.098}$	$\sigma_8(0.61)$	0.6003	$0.595^{+0.026}_{-0.027}$
$A^{kSZ}$	2.3	—	Age/Gyr	13.798	$13.797^{+0.074}_{-0.072}$	$f\sigma_8(2.33)$	0.3026	$0.300^{+0.013}_{-0.013}$
$A_{100}^{dust}$	1.03	$1.01^{+0.51}_{-0.51}$	$z_*$	1090.22	$1090.10^{+0.86}_{-0.85}$	$\sigma_8(2.33)$	0.3109	$0.309^{+0.011}_{-0.012}$
$A_{143}^{dust}$	0.987	$0.98^{+0.45}_{-0.45}$	$r_*$	144.53	$144.72^{+0.95}_{-0.95}$	$f_{2000}^{143}$	31.3	$31^{+8}_{-8}$
$A_{217}^{dust}$	0.965	$0.97^{+0.27}_{-0.27}$	$100\theta_*$	1.04113	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	108.1	$107.5^{+5.2}_{-5.2}$
$A_{143 \times 217}^{dust}$	1.017	$1.03^{+0.42}_{-0.42}$	$D_M(z_*)/\text{Gpc}$	13.883	$13.899^{+0.091}_{-0.091}$	$f_{2000}^{143 \times 217}$	33.2	$33^{+6}_{-5}$
$c_{100}$	0.99756	$0.9975^{+0.0028}_{-0.0027}$	$z_{drag}$	1059.44	$1059.5^{+1.1}_{-1.2}$	$\chi_{simall}^2$	396.06	$396.9 (\nu: 1.5)$
$c_{217}$	1.00140	$1.0012^{+0.0041}_{-0.0040}$	$r_{drag}$	147.27	$147.4^{+1.0}_{-1.0}$	$\chi_{lowl}^2$	23.45	$23.05 (\nu: 0.5)$
$H_0$	68.19	$68.1^{+2.1}_{-2.1}$	$k_D$	0.14051	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{CamSpec}^2$	7049.7	$7063.4 (\nu: 14.7)$
$\Omega_\Lambda$	0.6924	$0.693^{+0.020}_{-0.020}$	$100\theta_D$	0.16106	$0.16104^{+0.00068}_{-0.00066}$	$\chi_{JLA}^2$	1034.75	$1035.42 (\nu: 0.5)$
$\Omega_m$	0.3076	$0.307^{+0.020}_{-0.020}$	$z_{eq}$	3403	$3384^{+91}_{-90}$	$\chi_{6DF}^2$	0.004	$0.049 (\nu: 0.0)$
$\Omega_m h^2$	0.14304	$0.1423^{+0.0038}_{-0.0038}$	$k_{eq}$	0.010386	$0.01033^{+0.00028}_{-0.00027}$	$\chi_{MGS}^2$	1.47	$1.64 (\nu: 0.2)$
$\Omega_m h^3$	0.09754	$0.0969^{+0.0041}_{-0.0042}$	$100\theta_{eq}$	0.8126	$0.816^{+0.017}_{-0.016}$	$\chi_{DR12BAO}^2$	4.86	$4.8 (\nu: 1.0)$
$\sigma_8$	0.8238	$0.815^{+0.039}_{-0.039}$	$100\theta_{s,eq}$	0.4492	$0.4510^{+0.0088}_{-0.0085}$	$\chi_{prior}^2$	3.0	$7.7 (\nu: 6.1)$
$S_8$	0.8342	$0.824^{+0.042}_{-0.042}$	$H(0.15)$	73.11	$73.2^{+1.4}_{-1.4}$	$\chi_{BAO}^2$	6.33	$6.5 (\nu: 0.8)$
$\sigma_8 \Omega_m^{0.5}$	0.4569	$0.451^{+0.023}_{-0.023}$	$D_M(0.15)$	637.6	$638^{+16}_{-15}$	$\chi_{CMB}^2$	7469.2	$7483.4 (\nu: 14.6)$

Best-fit  $\chi_{eff}^2 = 8513.28$ ;  $\bar{\chi}_{eff}^2 = 8532.92$ ;  $R - 1 = 0.00642$

$\chi_{eff}^2$ : BAO - 6DF: 0.00 MGS: 1.47 DR12BAO: 4.86 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.06 commander\_dx12\_v3.2.29: 23.45 CamSpec like\_10.7HM: 7049.66 SN - JLA Pantheon18: 1034.75



18.52 base\_w\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02219^{+0.00052}_{-0.00052}$	$\sigma_8/h^{0.5}$	$0.990^{+0.029}_{-0.030}$	$H(0.51)$	$89.56^{+0.76}_{-0.76}$
$\Omega_{\mathrm{c}}h^2$	$0.1196^{+0.0032}_{-0.0033}$	$r_{\mathrm{drag}}h$	$100.5^{+3.1}_{-3.0}$	$D_{\mathrm{M}}(0.51)$	$1976^{+29}_{-29}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.442^{+0.062}_{-0.063}$	$H(0.61)$	$95.11^{+0.78}_{-0.80}$
$\tau$	$0.054^{+0.021}_{-0.019}$	$z_{\mathrm{re}}$	$7.7^{+2.0}_{-2.0}$	$D_{\mathrm{M}}(0.61)$	$2301^{+30}_{-30}$
$w_0$	$-1.028^{+0.083}_{-0.088}$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.086}_{-0.078}$	$H(2.33)$	$235.7^{+1.7}_{-1.8}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.040}_{-0.038}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.028}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5767^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.011}$	$D_{40}$	$1227^{+32}_{-31}$	$f\sigma_8(0.15)$	$0.459^{+0.020}_{-0.020}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0065}_{-0.0064}$	$D_{220}$	$5712^{+110}_{-100}$	$\sigma_8(0.15)$	$0.755^{+0.028}_{-0.028}$
$A_{100}^{\mathrm{PS}}$	$243^{+70}_{-70}$	$D_{810}$	$2534^{+35}_{-35}$	$f\sigma_8(0.38)$	$0.480^{+0.023}_{-0.023}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.670^{+0.025}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{2000}$	$229.8^{+4.7}_{-4.5}$	$f\sigma_8(0.51)$	$0.479^{+0.024}_{-0.023}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.627^{+0.023}_{-0.023}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.73$	$Y_{\mathrm{P}}$	$0.24532^{+0.00020}_{-0.00025}$	$f\sigma_8(0.61)$	$0.474^{+0.024}_{-0.023}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.32}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00020}_{-0.00025}$	$\sigma_8(0.61)$	$0.596^{+0.021}_{-0.022}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.10}_{-0.094}$	$f\sigma_8(2.33)$	$0.301^{+0.011}_{-0.011}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.796^{+0.073}_{-0.071}$	$\sigma_8(2.33)$	$0.3092^{+0.0094}_{-0.0093}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.11^{+0.79}_{-0.79}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50}$	$r_*$	$144.68^{+0.80}_{-0.78}$	$f_{2000}^{217}$	$107.5^{+5.3}_{-5.2}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.46}_{-0.45}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.28}_{-0.27}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.896^{+0.077}_{-0.075}$	$\chi_{\mathrm{lensing}}^2$	$9.34 (\nu: 0.3)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.5)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.40^{+0.85}_{-0.82}$	$\chi_{\mathrm{lowl}}^2$	$23.17 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$k_{\mathrm{D}}$	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.8 (\nu: 13.2)$
$H_0$	$68.2^{+2.1}_{-2.0}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00069}_{-0.00064}$	$\chi_{\mathrm{JLA}}^2$	$1035.38 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.694^{+0.019}_{-0.020}$	$z_{\mathrm{eq}}$	$3388^{+74}_{-75}$	$\chi_{6\mathrm{DF}}^2$	$0.047 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.020}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00023}_{-0.00023}$	$\chi_{\mathrm{MGS}}^2$	$1.65 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1424^{+0.0031}_{-0.0031}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.014}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 0.7)$
$\Omega_{\mathrm{m}}h^3$	$0.0971^{+0.0038}_{-0.0037}$	$100\theta_{\mathrm{s,eq}}$	$0.4506^{+0.0073}_{-0.0070}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 6.1)$
$\sigma_8$	$0.817^{+0.030}_{-0.030}$	$H(0.15)$	$73.2^{+1.4}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$7492.3 (\nu: 14.3)$
$S_8$	$0.826^{+0.031}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-15}$	$\chi_{\mathrm{BAO}}^2$	$6.5 (\nu: 0.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.017}_{-0.017}$	$H(0.38)$	$82.97^{+0.82}_{-0.79}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.020}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1524^{+26}_{-26}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 8541.75; R - 1 = 0.00879$					



18.53 base\_w\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02220^{+0.00054}_{-0.00052}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.607^{+0.028}_{-0.028}$	$H(0.38)$	$82.99^{+0.89}_{-0.87}$
$\Omega_{\mathrm{c}}h^2$	$0.1194^{+0.0039}_{-0.0039}$	$\sigma_8/h^{0.5}$	$0.988^{+0.040}_{-0.040}$	$D_{\mathrm{M}}(0.38)$	$1524^{+27}_{-27}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}}h$	$100.5^{+3.1}_{-3.0}$	$H(0.51)$	$89.59^{+0.85}_{-0.87}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.085}_{-0.086}$	$D_{\mathrm{M}}(0.51)$	$1977^{+29}_{-30}$
$w_0$	$-1.024^{+0.094}_{-0.096}$	$z_{\mathrm{re}}$	$< 9.48$	$H(0.61)$	$95.14^{+0.89}_{-0.90}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.042}_{-0.030}$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.090}_{-0.063}$	$D_{\mathrm{M}}(0.61)$	$2301^{+31}_{-31}$
$n_{\mathrm{s}}$	$0.966^{+0.012}_{-0.012}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.877^{+0.032}_{-0.031}$	$H(2.33)$	$235.7^{+1.9}_{-1.9}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0065}$	$D_{40}$	$1225^{+35}_{-34}$	$D_{\mathrm{M}}(2.33)$	$5767^{+31}_{-31}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{220}$	$5709^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.458^{+0.027}_{-0.027}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{810}$	$2533^{+35}_{-36}$	$\sigma_8(0.15)$	$0.754^{+0.035}_{-0.036}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.479^{+0.030}_{-0.030}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.7^{+4.8}_{-4.6}$	$\sigma_8(0.38)$	$0.669^{+0.030}_{-0.032}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.74$	$n_{\mathrm{s},0.002}$	$0.966^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	$0.478^{+0.030}_{-0.030}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.32}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	$0.626^{+0.028}_{-0.029}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	$0.473^{+0.030}_{-0.030}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.62^{+0.10}_{-0.098}$	$\sigma_8(0.61)$	$0.595^{+0.026}_{-0.027}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.797^{+0.073}_{-0.073}$	$f\sigma_8(2.33)$	$0.300^{+0.013}_{-0.013}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.51}$	$z_*$	$1090.09^{+0.86}_{-0.85}$	$\sigma_8(2.33)$	$0.309^{+0.011}_{-0.011}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.45}$	$r_*$	$144.72^{+0.95}_{-0.94}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.4^{+5.2}_{-5.2}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.900^{+0.090}_{-0.090}$	$f_{2000}^{143\times 217}$	$33^{+6}_{-5}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.5)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.45^{+0.99}_{-0.99}$	$\chi_{\mathrm{lowl}}^2$	$23.07 (\nu: 0.5)$
$H_0$	$68.1^{+2.1}_{-2.1}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.2 (\nu: 14.5)$
$\Omega_{\Lambda}$	$0.694^{+0.020}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00068}_{-0.00066}$	$\chi_{\mathrm{JLA}}^2$	$1035.42 (\nu: 0.5)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.020}_{-0.020}$	$z_{\mathrm{eq}}$	$3384^{+90}_{-90}$	$\chi_{6\mathrm{DF}}^2$	$0.049 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1422^{+0.0038}_{-0.0037}$	$k_{\mathrm{eq}}$	$0.01033^{+0.00027}_{-0.00027}$	$\chi_{\mathrm{MGS}}^2$	$1.64 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0969^{+0.0041}_{-0.0042}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.017}_{-0.016}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.0)$
$\sigma_8$	$0.816^{+0.039}_{-0.039}$	$100\theta_{\mathrm{s,eq}}$	$0.4510^{+0.0088}_{-0.0084}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 6.1)$
$S_8$	$0.824^{+0.042}_{-0.041}$	$H(0.15)$	$73.2^{+1.4}_{-1.3}$	$\chi_{\mathrm{BAO}}^2$	$6.5 (\nu: 0.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.15)$	$638^{+15}_{-15}$	$\chi_{\mathrm{CMB}}^2$	$7483.1 (\nu: 14.2)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 8532.67; R - 1 = 0.00753$$



## 18.54 base\_w\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02220^{+0.00052}_{-0.00052}$	$\sigma_8/h^{0.5}$	$0.990^{+0.029}_{-0.029}$	$H(0.51)$	$89.57^{+0.75}_{-0.74}$
$\Omega_{\mathrm{c}}h^2$	$0.1195^{+0.0031}_{-0.0032}$	$r_{\mathrm{drag}}h$	$100.5^{+3.2}_{-3.0}$	$D_{\mathrm{M}}(0.51)$	$1976^{+28}_{-29}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.443^{+0.062}_{-0.063}$	$H(0.61)$	$95.12^{+0.78}_{-0.78}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$z_{\mathrm{re}}$	$< 9.43$	$D_{\mathrm{M}}(0.61)$	$2301^{+29}_{-30}$
$w_0$	$-1.027^{+0.083}_{-0.087}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.083}_{-0.058}$	$H(2.33)$	$235.7^{+1.7}_{-1.8}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.039}_{-0.028}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.028}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5767^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011}$	$D_{40}$	$1226^{+31}_{-31}$	$f\sigma_8(0.15)$	$0.459^{+0.020}_{-0.020}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0064}$	$D_{220}$	$5711^{+110}_{-100}$	$\sigma_8(0.15)$	$0.756^{+0.028}_{-0.028}$
$A_{100}^{\mathrm{PS}}$	$243^{+70}_{-70}$	$D_{810}$	$2534^{+35}_{-35}$	$f\sigma_8(0.38)$	$0.480^{+0.023}_{-0.023}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.670^{+0.024}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{2000}$	$229.8^{+4.7}_{-4.5}$	$f\sigma_8(0.51)$	$0.479^{+0.024}_{-0.023}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.627^{+0.023}_{-0.023}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.74$	$Y_{\mathrm{P}}$	$0.24532^{+0.00020}_{-0.00025}$	$f\sigma_8(0.61)$	$0.475^{+0.024}_{-0.023}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.32}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00020}_{-0.00025}$	$\sigma_8(0.61)$	$0.596^{+0.021}_{-0.021}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.62^{+0.10}_{-0.095}$	$f\sigma_8(2.33)$	$0.301^{+0.011}_{-0.011}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.796^{+0.072}_{-0.072}$	$\sigma_8(2.33)$	$0.3094^{+0.0093}_{-0.0091}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.10^{+0.79}_{-0.79}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50}$	$r_*$	$144.69^{+0.80}_{-0.76}$	$f_{2000}^{217}$	$107.4^{+5.3}_{-5.2}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.46}_{-0.46}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.897^{+0.077}_{-0.073}$	$\chi_{\mathrm{lensing}}^2$	$9.30 (\nu: 0.3)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.5)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.41^{+0.85}_{-0.82}$	$\chi_{\mathrm{lowl}}^2$	$23.16 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$	$k_{\mathrm{D}}$	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.8 (\nu: 13.2)$
$H_0$	$68.2^{+2.1}_{-2.0}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00069}_{-0.00065}$	$\chi_{\mathrm{JLA}}^2$	$1035.37 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.694^{+0.019}_{-0.019}$	$z_{\mathrm{eq}}$	$3387^{+72}_{-74}$	$\chi_{6\mathrm{DF}}^2$	$0.047 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.019}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00022}_{-0.00023}$	$\chi_{\mathrm{MGS}}^2$	$1.65 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1424^{+0.0030}_{-0.0031}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.014}_{-0.013}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 0.7)$
$\Omega_{\mathrm{m}}h^3$	$0.0971^{+0.0038}_{-0.0037}$	$100\theta_{\mathrm{s,eq}}$	$0.4507^{+0.0072}_{-0.0068}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 6.1)$
$\sigma_8$	$0.817^{+0.030}_{-0.030}$	$H(0.15)$	$73.2^{+1.4}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$7492.2 (\nu: 14.1)$
$S_8$	$0.826^{+0.031}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-15}$	$\chi_{\mathrm{BAO}}^2$	$6.5 (\nu: 0.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.017}_{-0.017}$	$H(0.38)$	$82.98^{+0.82}_{-0.79}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.020}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1524^{+26}_{-26}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 8541.57; R - 1 = 0.00916$					



18.55 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022333	$0.02232^{+0.00038}_{-0.00039}$ (+0.7 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4496	$0.449^{+0.019}_{-0.019}$ (−0.2 $\sigma$ )	$H(0.38)$	83.09	$83.09^{+0.75}_{-0.70}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.11922	$0.1192^{+0.0030}_{-0.0030}$ (−0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6042	$0.604^{+0.025}_{-0.024}$ (−0.2 $\sigma$ )	$D_M(0.38)$	1523.4	$1523^{+25}_{-25}$ (−0.2 $\sigma$ )
$100\theta_{MC}$	1.04096	$1.04093^{+0.00080}_{-0.00079}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9839	$0.984^{+0.035}_{-0.036}$ (−0.2 $\sigma$ )	$H(0.51)$	89.72	$89.70^{+0.66}_{-0.66}$ (+0.3 $\sigma$ )
$\tau$	0.0533	$0.053^{+0.021}_{-0.021}$ (−0.0 $\sigma$ )	$r_{drag}h$	100.36	$100.5^{+3.1}_{-3.0}$ (+0.0 $\sigma$ )	$D_M(0.51)$	1975.0	$1974^{+28}_{-28}$ (−0.2 $\sigma$ )
$w_0$	−1.017	$−1.020^{+0.086}_{-0.087}$ (+0.1 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.430	$2.431^{+0.075}_{-0.077}$ (−0.2 $\sigma$ )	$H(0.61)$	95.28	$95.25^{+0.69}_{-0.71}$ (+0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0390	$3.039^{+0.044}_{-0.044}$ (−0.0 $\sigma$ )	$z_{re}$	7.57	$7.5^{+2.0}_{-2.3}$ (−0.0 $\sigma$ )	$D_M(0.61)$	2299.3	$2299^{+28}_{-29}$ (−0.2 $\sigma$ )
$n_s$	0.9672	$0.967^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )	$10^9 A_s$	2.088	$2.088^{+0.094}_{-0.090}$ (−0.0 $\sigma$ )	$H(2.33)$	235.76	$235.7^{+1.5}_{-1.6}$ (+0.0 $\sigma$ )
$y_{cal}$	1.0005	$1.0005^{+0.0065}_{-0.0065}$ (−0.0 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8774	$1.877^{+0.030}_{-0.029}$ (−0.0 $\sigma$ )	$D_M(2.33)$	5761.0	$5762^{+23}_{-24}$ (−0.4 $\sigma$ )
$A_{100}^{PS}$	234	$239^{+60}_{-60}$ (−0.1 $\sigma$ )	$D_{40}$	1223.3	$1224^{+31}_{-32}$ (−0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4558	$0.456^{+0.023}_{-0.022}$ (−0.2 $\sigma$ )
$A_{143}^{PS}$	39.1	$39^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5720	$5721^{+100}_{-100}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7508	$0.751^{+0.034}_{-0.034}$ (−0.1 $\sigma$ )
$A_{217}^{PS}$	102.1	$102^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{810}$	2535.6	$2535^{+35}_{-35}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4759	$0.476^{+0.027}_{-0.026}$ (−0.2 $\sigma$ )
$A_{217}^{CIB}$	44.4	$40^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	816.4	$816^{+12}_{-13}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6657	$0.666^{+0.030}_{-0.030}$ (−0.1 $\sigma$ )
$A_{143}^{tSZ}$	6.56	< 8.87 (+0.1 $\sigma$ )	$D_{2000}$	230.53	$230.3^{+4.1}_{-4.3}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4751	$0.476^{+0.027}_{-0.027}$ (−0.2 $\sigma$ )
$r_{143 \times 217}^{PS}$	0.597	$0.66^{+0.31}_{-0.33}$ (+0.1 $\sigma$ )	$n_{s,0.002}$	0.9672	$0.967^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6231	$0.623^{+0.027}_{-0.027}$ (−0.1 $\sigma$ )
$r_{143 \times 217}^{CIB}$	0.76	—	$Y_P$	0.245381	$0.24537^{+0.00014}_{-0.00017}$ (+0.6 $\sigma$ )	$f\sigma_8(0.61)$	0.4704	$0.471^{+0.027}_{-0.027}$ (−0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.08	—	$Y_P^{BBN}$	0.246707	$0.24670^{+0.00014}_{-0.00017}$ (+0.6 $\sigma$ )	$\sigma_8(0.61)$	0.5929	$0.593^{+0.026}_{-0.026}$ (−0.1 $\sigma$ )
$A^{kSZ}$	0.1	—	$10^5 D/H$	2.592	$2.595^{+0.074}_{-0.069}$ (−0.7 $\sigma$ )	$f\sigma_8(2.33)$	0.2990	$0.299^{+0.013}_{-0.013}$ (−0.1 $\sigma$ )
$A_{100}^{dust}$	1.01	$1.01^{+0.50}_{-0.50}$ (−0.0 $\sigma$ )	Age/Gyr	13.786	$13.787^{+0.060}_{-0.060}$ (−0.4 $\sigma$ )	$\sigma_8(2.33)$	0.3079	$0.308^{+0.011}_{-0.011}$ (−0.1 $\sigma$ )
$A_{143}^{dust}$	0.966	$0.96^{+0.46}_{-0.45}$ (−0.1 $\sigma$ )	$z_*$	1089.90	$1089.91^{+0.65}_{-0.65}$ (−0.6 $\sigma$ )	$f_{2000}^{143}$	29.9	$30^{+7}_{-7}$ (−0.3 $\sigma$ )
$A_{217}^{dust}$	0.967	$0.97^{+0.27}_{-0.27}$ (+0.0 $\sigma$ )	$r_*$	144.66	$144.67^{+0.72}_{-0.70}$ (−0.1 $\sigma$ )	$f_{2000}^{217}$	106.72	$106.8^{+5.0}_{-4.8}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{dust}$	1.011	$1.03^{+0.42}_{-0.42}$ (−0.0 $\sigma$ )	$100\theta_*$	1.04115	$1.04112^{+0.00080}_{-0.00078}$ (−0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.0	$32^{+5}_{-5}$ (−0.4 $\sigma$ )
$c_{100}$	0.99766	$0.9975^{+0.0027}_{-0.0027}$ (+0.1 $\sigma$ )	$D_M(z_*)/\text{Gpc}$	13.894	$13.896^{+0.069}_{-0.067}$ (−0.1 $\sigma$ )	$\chi_{small}^2$	395.88	$396.9 (\nu: 1.3)$ (−0.0 $\sigma$ )
$c_{217}$	1.00123	$1.0011^{+0.0041}_{-0.0040}$ (−0.0 $\sigma$ )	$z_{drag}$	1059.78	$1059.77^{+0.81}_{-0.83}$ (+0.7 $\sigma$ )	$\chi_{lowl}^2$	22.80	$22.94 (\nu: 0.4)$ (−0.1 $\sigma$ )
$c_{TE}$	0.9964	$0.997^{+0.013}_{-0.013}$	$r_{drag}$	147.34	$147.35^{+0.75}_{-0.73}$ (−0.2 $\sigma$ )	$\chi_{CamSpec}^2$	11499.9	$11514.5 (\nu: 16.0)$ (+820.2 $\sigma$ )
$c_{EE}$	0.9922	$0.992^{+0.013}_{-0.012}$	$k_D$	0.14058	$0.14055^{+0.00083}_{-0.00087}$ (+0.4 $\sigma$ )	$\chi_{JLA}^2$	1034.72	$1035.39 (\nu: 0.4)$ (−0.0 $\sigma$ )
$H_0$	68.11	$68.2^{+2.1}_{-2.0}$ (+0.1 $\sigma$ )	$100\theta_D$	0.160841	$0.16085^{+0.00049}_{-0.00048}$ (−0.7 $\sigma$ )	$\chi_{6DF}^2$	0.002	$0.048 (\nu: 0.0)$ (−0.0 $\sigma$ )
$\Omega_\Lambda$	0.6935	$0.694^{+0.019}_{-0.019}$ (+0.1 $\sigma$ )	$z_{eq}$	3383	$3382^{+69}_{-69}$ (−0.1 $\sigma$ )	$\chi_{MGS}^2$	1.54	$1.66 (\nu: 0.2)$ (+0.0 $\sigma$ )
$\Omega_m$	0.3065	$0.306^{+0.019}_{-0.019}$ (−0.1 $\sigma$ )	$k_{eq}$	0.010324	$0.01032^{+0.00021}_{-0.00021}$ (−0.1 $\sigma$ )	$\chi_{DR12BAO}^2$	4.10	$4.6 (\nu: 0.6)$ (−0.2 $\sigma$ )
$\Omega_m h^2$	0.14219	$0.1422^{+0.0029}_{-0.0029}$ (−0.1 $\sigma$ )	$100\theta_{eq}$	0.8167	$0.817^{+0.013}_{-0.013}$ (+0.1 $\sigma$ )	$\chi_{prior}^2$	2.2	$7.8 (\nu: 5.9)$ (+0.1 $\sigma$ )
$\Omega_m h^3$	0.09685	$0.0969^{+0.0039}_{-0.0038}$ (−0.0 $\sigma$ )	$100\theta_{s,eq}$	0.4512	$0.4512^{+0.0068}_{-0.0066}$ (+0.1 $\sigma$ )	$\chi_{BAO}^2$	5.64	$6.26 (\nu: 0.5)$ (−0.2 $\sigma$ )
$\sigma_8$	0.8120	$0.813^{+0.036}_{-0.036}$ (−0.2 $\sigma$ )	$H(0.15)$	73.20	$73.2^{+1.3}_{-1.3}$ (+0.1 $\sigma$ )	$\chi_{CMB}^2$	11918.5	$11934.4 (\nu: 16.2)$ (+824.1 $\sigma$ )
$S_8$	0.8208	$0.820^{+0.035}_{-0.034}$ (−0.2 $\sigma$ )	$D_M(0.15)$	637.5	$637^{+15}_{-15}$ (−0.1 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 12961.06$ ;  $\Delta\chi_{eff}^2 = 4447.77$ ;  $\bar{\chi}_{eff}^2 = 12983.86$ ;  $\Delta\bar{\chi}_{eff}^2 = 4450.94$ ;  $R - 1 = 0.00833$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  -0.00) MGS: 1.54 ( $\Delta$  0.07) DR12BAO: 4.10 ( $\Delta$  -0.76) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.88 ( $\Delta$  -0.18) commander\_dx12\_v3\_2\_29: 22.80 ( $\Delta$  -0.65) CamSpec like\_10.7HM\_1400\_unified: 11499.86 SN - JLA Pantheon18: 1034.72 ( $\Delta$  -0.03)



18.56 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02232^{+0.00038}_{-0.00038} \quad (+0.6\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.015}_{-0.015} \quad (-0.2\sigma)$	$H(0.38)$	$83.07^{+0.72}_{-0.66} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1194^{+0.0026}_{-0.0027} \quad (-0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.018}_{-0.019} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1522^{+25}_{-25} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00078}_{-0.00077} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.987^{+0.027}_{-0.027} \quad (-0.2\sigma)$	$H(0.51)$	$89.68^{+0.62}_{-0.59} \quad (+0.4\sigma)$
$\tau$	$0.054^{+0.020}_{-0.019} \quad (+0.0\sigma)$	$r_{\mathrm{drag}} h$	$100.5^{+3.1}_{-2.9} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1974^{+27}_{-28} \quad (-0.2\sigma)$
$w_0$	$-1.024^{+0.076}_{-0.081} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.058}_{-0.058} \quad (-0.2\sigma)$	$H(0.61)$	$95.22^{+0.62}_{-0.65} \quad (+0.4\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.040}_{-0.037} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$7.6^{+1.9}_{-2.0} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2299^{+28}_{-29} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.094^{+0.086}_{-0.077} \quad (+0.0\sigma)$	$H(2.33)$	$235.7^{+1.4}_{-1.5} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0065}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.027}_{-0.027} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5762^{+23}_{-23} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-60} \quad (-0.1\sigma)$	$D_{40}$	$1226^{+30}_{-29} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.017}_{-0.017} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5724^{+100}_{-100} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.754^{+0.027}_{-0.026} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2536^{+35}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.021}_{-0.021} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+12}_{-13} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.668^{+0.024}_{-0.024} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.79 \quad (+0.1\sigma)$	$D_{2000}$	$230.4^{+4.1}_{-4.3} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.477^{+0.022}_{-0.021} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.32}_{-0.34} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.625^{+0.022}_{-0.022} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24537^{+0.00014}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.473^{+0.022}_{-0.021} \quad (-0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00014}_{-0.00017} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.595^{+0.021}_{-0.021} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.595^{+0.073}_{-0.069} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.300^{+0.010}_{-0.010} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.50} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.786^{+0.060}_{-0.059} \quad (-0.4\sigma)$	$\sigma_8(2.33)$	$0.3089^{+0.0093}_{-0.0092} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.48} \quad (-0.1\sigma)$	$z_*$	$1089.93^{+0.61}_{-0.61} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27} \quad (+0.0\sigma)$	$r_*$	$144.63^{+0.66}_{-0.63} \quad (-0.1\sigma)$	$f_{2000}^{217}$	$106.8^{+5.1}_{-4.8} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.42}_{-0.41} \quad (-0.0\sigma)$	$100\theta_*$	$1.04110^{+0.00078}_{-0.00076} \quad (-0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{100}$	$0.9976^{+0.0028}_{-0.0027} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.892^{+0.063}_{-0.060} \quad (-0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.24 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0041} \quad (-0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.77^{+0.81}_{-0.83} \quad (+0.6\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.2) \quad (-0.0\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	$147.32^{+0.69}_{-0.66} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.07 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.14059^{+0.00079}_{-0.00083} \quad (+0.4\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.1 \quad (\nu: 14.9) \quad (+866.1\sigma)$
$H_0$	$68.2^{+2.2}_{-2.0} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00050}_{-0.00047} \quad (-0.7\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.35 \quad (\nu: 0.4) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.019}_{-0.019} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3386^{+60}_{-62} \quad (-0.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.047 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.019}_{-0.019} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01033^{+0.00018}_{-0.00019} \quad (-0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.67 \quad (\nu: 0.2) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1423^{+0.0025}_{-0.0026} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.012}_{-0.011} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.60 \quad (\nu: 0.5) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0971^{+0.0035}_{-0.0034} \quad (+0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4509^{+0.0061}_{-0.0057} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 6.0) \quad (+0.1\sigma)$
$\sigma_8$	$0.815^{+0.029}_{-0.028} \quad (-0.2\sigma)$	$H(0.15)$	$73.3^{+1.3}_{-1.3} \quad (+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11943.3 \quad (\nu: 16.1) \quad (+832.6\sigma)$
$S_8$	$0.823^{+0.028}_{-0.028} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-15} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.32 \quad (\nu: 0.4) \quad (-0.2\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 12992.76; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.01; R - 1 = 0.01319$$



18.57 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02233^{+0.00039}_{-0.00038} \quad (+0.7\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.019}_{-0.018} \quad (-0.2\sigma)$	$H(0.38)$	$83.09^{+0.75}_{-0.70} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1192^{+0.0031}_{-0.0030} \quad (-0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.024}_{-0.023} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1523^{+25}_{-25} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04093^{+0.00081}_{-0.00079} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.035}_{-0.034} \quad (-0.2\sigma)$	$H(0.51)$	$89.71^{+0.66}_{-0.66} \quad (+0.3\sigma)$
$\tau$	$0.055^{+0.018}_{-0.013} \quad (+0.0\sigma)$	$r_{\mathrm{drag}} h$	$100.5^{+3.1}_{-3.0} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1974^{+28}_{-28} \quad (-0.2\sigma)$
$w_0$	$-1.020^{+0.086}_{-0.087} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.073}_{-0.071} \quad (-0.2\sigma)$	$H(0.61)$	$95.26^{+0.68}_{-0.71} \quad (+0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.042}_{-0.030} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.39 \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2299^{+28}_{-29} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.010}_{-0.011} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.090}_{-0.061} \quad (+0.0\sigma)$	$H(2.33)$	$235.7^{+1.5}_{-1.6} \quad (+0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.030}_{-0.029} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5761^{+23}_{-24} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{40}$	$1224^{+31}_{-32} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.022}_{-0.021} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5721^{+100}_{-100} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.752^{+0.033}_{-0.033} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2535^{+35}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.027}_{-0.025} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+12}_{-13} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.667^{+0.029}_{-0.028} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.85 \quad (+0.1\sigma)$	$D_{2000}$	$230.4^{+4.1}_{-4.3} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.476^{+0.027}_{-0.026} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.967^{+0.010}_{-0.011} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.624^{+0.027}_{-0.026} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.471^{+0.027}_{-0.026} \quad (-0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.594^{+0.025}_{-0.025} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.594^{+0.072}_{-0.070} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.300^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.787^{+0.059}_{-0.060} \quad (-0.4\sigma)$	$\sigma_8(2.33)$	$0.308^{+0.011}_{-0.010} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.45} \quad (-0.1\sigma)$	$z_*$	$1089.90^{+0.65}_{-0.64} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27} \quad (+0.0\sigma)$	$r_*$	$144.67^{+0.74}_{-0.70} \quad (-0.1\sigma)$	$f_{2000}^{217}$	$106.8^{+5.0}_{-4.8} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.42} \quad (-0.0\sigma)$	$100\theta_*$	$1.04112^{+0.00080}_{-0.00078} \quad (-0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.896^{+0.0070}_{-0.0066} \quad (-0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$396.8 \quad (\nu: 1.3) \quad (-0.0\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040} \quad (-0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.78^{+0.80}_{-0.84} \quad (+0.7\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.96 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.36^{+0.75}_{-0.73} \quad (-0.2\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.4 \quad (\nu: 15.9) \quad (+826.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.14056^{+0.00082}_{-0.00087} \quad (+0.4\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.39 \quad (\nu: 0.4) \quad (-0.0\sigma)$
$H_0$	$68.2^{+2.1}_{-2.0} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16085^{+0.00048}_{-0.00048} \quad (-0.7\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.048 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.019}_{-0.019} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3382^{+69}_{-69} \quad (-0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.67 \quad (\nu: 0.2) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.019}_{-0.019} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01032^{+0.00021}_{-0.00021} \quad (-0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.5 \quad (\nu: 0.5) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1422^{+0.0029}_{-0.0029} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.013} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0969^{+0.0039}_{-0.0039} \quad (+0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4513^{+0.0068}_{-0.0066} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.25 \quad (\nu: 0.5) \quad (-0.2\sigma)$
$\sigma_8$	$0.814^{+0.035}_{-0.035} \quad (-0.1\sigma)$	$H(0.15)$	$73.2^{+1.3}_{-1.3} \quad (+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11934.1 \quad (\nu: 15.9) \quad (+834.9\sigma)$
$S_8$	$0.821^{+0.035}_{-0.033} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$637^{+15}_{-15} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12983.61; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.94; R - 1 = 0.00895$$



18.58 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02232^{+0.00038}_{-0.00037} \quad (+0.6\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.015}_{-0.015} \quad (-0.2\sigma)$	$H(0.38)$	$83.08^{+0.72}_{-0.65} \quad (+0.3\sigma)$
$\Omega_c h^2$	$0.1193^{+0.0026}_{-0.0027} \quad (-0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.606^{+0.018}_{-0.019} \quad (-0.2\sigma)$	$D_M(0.38)$	$1522^{+25}_{-25} \quad (-0.2\sigma)$
$100\theta_{MC}$	$1.04091^{+0.00078}_{-0.00077} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.987^{+0.027}_{-0.027} \quad (-0.2\sigma)$	$H(0.51)$	$89.68^{+0.61}_{-0.59} \quad (+0.4\sigma)$
$\tau$	$0.055^{+0.018}_{-0.013} \quad (+0.0\sigma)$	$r_{\text{drag}} h$	$100.5^{+3.1}_{-2.9} \quad (+0.0\sigma)$	$D_M(0.51)$	$1974^{+27}_{-28} \quad (-0.2\sigma)$
$w_0$	$-1.023^{+0.075}_{-0.079} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.057}_{-0.057} \quad (-0.2\sigma)$	$H(0.61)$	$95.23^{+0.62}_{-0.65} \quad (+0.4\sigma)$
$\ln(10^{10} A_s)$	$3.043^{+0.039}_{-0.028} \quad (+0.0\sigma)$	$z_{\text{re}}$	$< 9.35 \quad (-0.0\sigma)$	$D_M(0.61)$	$2299^{+28}_{-29} \quad (-0.2\sigma)$
$n_s$	$0.966^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$10^9 A_s$	$2.097^{+0.083}_{-0.058} \quad (+0.0\sigma)$	$H(2.33)$	$235.7^{+1.5}_{-1.5} \quad (+0.1\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0066}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	$1.878^{+0.027}_{-0.027} \quad (+0.0\sigma)$	$D_M(2.33)$	$5762^{+22}_{-23} \quad (-0.4\sigma)$
$A_{100}^{\text{PS}}$	$240^{+60}_{-60} \quad (-0.1\sigma)$	$D_{40}$	$1226^{+30}_{-29} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.018} \quad (-0.2\sigma)$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5724^{+100}_{-100} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.754^{+0.027}_{-0.026} \quad (-0.2\sigma)$
$A_{217}^{\text{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2536^{+35}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.021}_{-0.020} \quad (-0.2\sigma)$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+12}_{-13} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.669^{+0.024}_{-0.023} \quad (-0.1\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.81 \quad (+0.1\sigma)$	$D_{2000}$	$230.4^{+4.1}_{-4.3} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.478^{+0.021}_{-0.021} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.32}_{-0.34} \quad (+0.1\sigma)$	$n_{s,0.002}$	$0.966^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.626^{+0.022}_{-0.021} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}$	$0.24537^{+0.00014}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(0.61)$	$0.473^{+0.021}_{-0.021} \quad (-0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24670^{+0.00014}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.595^{+0.021}_{-0.020} \quad (-0.1\sigma)$
$A^{\text{kSZ}}$	—	$10^5 \text{D}/\text{H}$	$2.595^{+0.071}_{-0.069} \quad (-0.7\sigma)$	$f\sigma_8(2.33)$	$0.300^{+0.010}_{-0.010} \quad (-0.1\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.50} \quad (-0.0\sigma)$	$\text{Age}/\text{Gyr}$	$13.786^{+0.059}_{-0.059} \quad (-0.4\sigma)$	$\sigma_8(2.33)$	$0.3090^{+0.0092}_{-0.0089} \quad (-0.1\sigma)$
$A_{143}^{\text{dust}}$	$0.96^{+0.45}_{-0.48} \quad (-0.1\sigma)$	$z_*$	$1089.92^{+0.60}_{-0.61} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\text{dust}}$	$0.97^{+0.27}_{-0.27} \quad (+0.0\sigma)$	$r_*$	$144.64^{+0.66}_{-0.63} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.8^{+5.1}_{-4.8} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.02^{+0.41}_{-0.41} \quad (-0.0\sigma)$	$100\theta_*$	$1.04110^{+0.00078}_{-0.00077} \quad (-0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{100}$	$0.9976^{+0.0028}_{-0.0027} \quad (+0.1\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.893^{+0.063}_{-0.059} \quad (-0.1\sigma)$	$\chi_{\text{lensing}}^2$	$9.20 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0042} \quad (-0.0\sigma)$	$z_{\text{drag}}$	$1059.78^{+0.80}_{-0.84} \quad (+0.6\sigma)$	$\chi_{\text{small}}^2$	$396.9 \quad (\nu: 1.3) \quad (-0.0\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$r_{\text{drag}}$	$147.32^{+0.69}_{-0.65} \quad (-0.3\sigma)$	$\chi_{\text{lowl}}^2$	$23.07 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$k_{\text{D}}$	$0.14059^{+0.00078}_{-0.00083} \quad (+0.5\sigma)$	$\chi_{\text{CamSpec}}^2$	$11514.0 \quad (\nu: 14.9) \quad (+867.1\sigma)$
$H_0$	$68.2^{+2.2}_{-2.0} \quad (+0.1\sigma)$	$100\theta_{\text{D}}$	$0.16084^{+0.00048}_{-0.00047} \quad (-0.7\sigma)$	$\chi_{\text{JLA}}^2$	$1035.35 \quad (\nu: 0.4) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.019}_{-0.019} \quad (+0.1\sigma)$	$z_{\text{eq}}$	$3385^{+60}_{-62} \quad (-0.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.047 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$\Omega_{\text{m}}$	$0.306^{+0.019}_{-0.019} \quad (-0.1\sigma)$	$k_{\text{eq}}$	$0.01033^{+0.00018}_{-0.00019} \quad (-0.1\sigma)$	$\chi_{\text{MGS}}^2$	$1.68 \quad (\nu: 0.2) \quad (+0.0\sigma)$
$\Omega_{\text{m}} h^2$	$0.1423^{+0.0025}_{-0.0026} \quad (-0.1\sigma)$	$100\theta_{\text{eq}}$	$0.816^{+0.012}_{-0.011} \quad (+0.1\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.58 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$\Omega_{\text{m}} h^3$	$0.0971^{+0.0035}_{-0.0033} \quad (+0.0\sigma)$	$100\theta_{s,\text{eq}}$	$0.4510^{+0.0061}_{-0.0056} \quad (+0.1\sigma)$	$\chi_{\text{prior}}^2$	$7.8 \quad (\nu: 6.0) \quad (+0.1\sigma)$
$\sigma_8$	$0.816^{+0.028}_{-0.028} \quad (-0.2\sigma)$	$H(0.15)$	$73.3^{+1.3}_{-1.3} \quad (+0.2\sigma)$	$\chi_{\text{CMB}}^2$	$11943.1 \quad (\nu: 15.9) \quad (+839.2\sigma)$
$S_8$	$0.823^{+0.027}_{-0.027} \quad (-0.2\sigma)$	$D_M(0.15)$	$637^{+15}_{-15} \quad (-0.1\sigma)$	$\chi_{\text{BAO}}^2$	$6.30 \quad (\nu: 0.4) \quad (-0.1\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 12992.59; \Delta\bar{\chi}_{\text{eff}}^2 = 4451.02; R - 1 = 0.01370$$



18.59 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.02220^{+0.00051}_{-0.00051}$	$\sigma_8/h^{0.5}$	0.9958	$0.994^{+0.040}_{-0.039}$	$D_M(0.38)$	1511.7	$1512^{+25}_{-24}$
$\Omega_c h^2$	0.11980	$0.1197^{+0.0040}_{-0.0039}$	$r_{\text{drag}} h$	102.07	$102.1^{+2.8}_{-2.9}$	$H(0.51)$	89.55	$89.57^{+0.88}_{-0.91}$
$100\theta_{\text{MC}}$	1.04090	$1.0409^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.450	$2.448^{+0.087}_{-0.086}$	$D_M(0.51)$	1963.6	$1964^{+28}_{-27}$
$\tau$	0.0531	$0.053^{+0.023}_{-0.022}$	$z_{\text{re}}$	7.58	$7.5^{+2.2}_{-2.4}$	$H(0.61)$	94.98	$95.00^{+0.90}_{-0.92}$
$w_0$	-1.067	$-1.064^{+0.088}_{-0.089}$	$10^9 A_s$	2.092	$2.091^{+0.097}_{-0.090}$	$D_M(0.61)$	2288.8	$2289^{+30}_{-29}$
$\ln(10^{10} A_s)$	3.0408	$3.040^{+0.046}_{-0.044}$	$10^9 A_s e^{-2\tau}$	1.8814	$1.881^{+0.031}_{-0.031}$	$H(2.33)$	235.31	$235.3^{+2.0}_{-2.0}$
$n_s$	0.9656	$0.965^{+0.012}_{-0.012}$	$D_{40}$	1226.7	$1229^{+34}_{-35}$	$D_M(2.33)$	5763.7	$5764^{+31}_{-31}$
$y_{\text{cal}}$	1.0004	$1.0005^{+0.0064}_{-0.0064}$	$D_{220}$	5716	$5721^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4626	$0.461^{+0.027}_{-0.026}$
$A_{217}^{\text{CIB}}$	48.5	$48^{+20}_{-20}$	$D_{810}$	2537.5	$2537^{+35}_{-36}$	$\sigma_8(0.15)$	0.7670	$0.765^{+0.034}_{-0.034}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.34	—	$D_{1420}$	816.0	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4872	$0.486^{+0.030}_{-0.029}$
$A_{143}^{\text{tSZ}}$	7.0	—	$D_{2000}$	230.24	$230.0^{+4.6}_{-4.4}$	$\sigma_8(0.38)$	0.6803	$0.679^{+0.030}_{-0.030}$
$A_{100}^{\text{PS}}$	254	$262^{+70}_{-70}$	$n_{s,0.002}$	0.9656	$0.965^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	0.4875	$0.486^{+0.030}_{-0.029}$
$A_{143}^{\text{PS}}$	49.3	$48^{+20}_{-20}$	$Y_{\text{P}}$	0.245328	$0.24532^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	0.6365	$0.635^{+0.027}_{-0.027}$
$A_{143 \times 217}^{\text{PS}}$	47.2	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246655	$0.24665^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	0.4832	$0.482^{+0.029}_{-0.029}$
$A_{217}^{\text{PS}}$	119.5	$115^{+30}_{-30}$	$10^5 \text{D/H}$	2.617	$2.618^{+0.098}_{-0.093}$	$\sigma_8(0.61)$	0.6055	$0.604^{+0.025}_{-0.025}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.774	$13.775^{+0.071}_{-0.069}$	$f\sigma_8(2.33)$	0.3054	$0.305^{+0.012}_{-0.012}$
$A_{100}^{\text{dustTT}}$	8.92	$8.9^{+4.7}_{-4.7}$	$z_*$	1090.11	$1090.11^{+0.84}_{-0.81}$	$\sigma_8(2.33)$	0.3132	$0.313^{+0.011}_{-0.011}$
$A_{143}^{\text{dustTT}}$	10.83	$10.7^{+4.5}_{-4.6}$	$r_*$	144.61	$144.65^{+0.96}_{-0.94}$	$f_{2000}^{143}$	30.1	$31^{+8}_{-7}$
$A_{143 \times 217}^{\text{dustTT}}$	19.5	$18.3^{+8.4}_{-8.4}$	$100\theta_*$	1.04110	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.1	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	94.8	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.890	$13.894^{+0.092}_{-0.089}$	$f_{2000}^{217}$	107.53	$107.9^{+4.8}_{-4.7}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.55	$1059.5^{+1.1}_{-1.1}$	$\chi_{\text{small}}^2$	395.89	$397.0 (\nu: 1.6)$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.33	$147.4^{+1.0}_{-0.98}$	$\chi_{\text{lowl}}^2$	23.08	$23.28 (\nu: 0.5)$
$H_0$	69.28	$69.3^{+1.9}_{-1.9}$	$k_{\text{D}}$	0.14049	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\text{plik}}^2$	758.8	$771.1 (\nu: 14.2)$
$\Omega_{\Lambda}$	0.7028	$0.703^{+0.017}_{-0.019}$	$100\theta_{\text{D}}$	0.16099	$0.16101^{+0.00065}_{-0.00065}$	$\chi_{\text{H073p45}}^2$	6.3	$6.6 (\nu: 2.7)$
$\Omega_{\text{m}}$	0.2972	$0.297^{+0.019}_{-0.017}$	$z_{\text{eq}}$	3394	$3390^{+92}_{-89}$	$\chi_{\text{JLA}}^2$	1036.11	$1036.6 (\nu: 1.8)$
$\Omega_{\text{m}} h^2$	0.14265	$0.1425^{+0.0038}_{-0.0037}$	$k_{\text{eq}}$	0.010358	$0.01035^{+0.00028}_{-0.00027}$	$\chi_{6\text{DF}}^2$	0.056	$0.098 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	0.09884	$0.0987^{+0.0038}_{-0.0039}$	$100\theta_{\text{eq}}$	0.8144	$0.815^{+0.017}_{-0.017}$	$\chi_{\text{MGS}}^2$	2.35	$2.41 (\nu: 0.2)$
$\sigma_8$	0.8289	$0.827^{+0.038}_{-0.037}$	$100\theta_{s,\text{eq}}$	0.4501	$0.4504^{+0.0088}_{-0.0086}$	$\chi_{\text{DR12BAO}}^2$	4.30	$4.78 (\nu: 0.5)$
$S_8$	0.8250	$0.823^{+0.043}_{-0.041}$	$H(0.15)$	73.83	$73.8^{+1.3}_{-1.3}$	$\chi_{\text{prior}}^2$	1.4	$7.3 (\nu: 6.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4519	$0.451^{+0.023}_{-0.023}$	$D_M(0.15)$	629.6	$630^{+14}_{-14}$	$\chi_{\text{BAO}}^2$	6.70	$7.3 (\nu: 0.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6120	$0.611^{+0.028}_{-0.027}$	$H(0.38)$	83.14	$83.15^{+0.91}_{-0.91}$	$\chi_{\text{CMB}}^2$	1177.8	$1191.4 (\nu: 14.5)$

Best-fit  $\chi_{\text{eff}}^2 = 2228.28$ ;  $\bar{\chi}_{\text{eff}}^2 = 2249.11$ ;  $R - 1 = 0.00515$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.06 MGS: 2.35 DR12BAO: 4.30 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.89 commander\_dx12\_v3.2.29: 23.08 plik\_rd12\_HM\_v22.TT: 758.84  
Hubble - H073p45: 6.30 SN - JLA Pantheon18: 1036.11



18.60 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02222	$0.02221^{+0.00051}_{-0.00050}$	$\sigma_8/h^{0.5}$	0.9924	$0.993^{+0.029}_{-0.029}$	$D_M(0.38)$	1510.7	$1511^{+26}_{-24}$
$\Omega_c h^2$	0.11947	$0.1196^{+0.0033}_{-0.0032}$	$r_{\text{drag}} h$	102.15	$102.1^{+2.8}_{-2.9}$	$H(0.51)$	89.62	$89.58^{+0.78}_{-0.80}$
$100\theta_{\text{MC}}$	1.04093	$1.0409^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.444	$2.447^{+0.062}_{-0.061}$	$D_M(0.51)$	1962.3	$1963^{+28}_{-27}$
$\tau$	0.0529	$0.053^{+0.021}_{-0.020}$	$z_{\text{re}}$	7.55	$7.6^{+2.0}_{-2.2}$	$H(0.61)$	95.05	$95.02^{+0.80}_{-0.84}$
$w_0$	-1.063	$-1.064^{+0.080}_{-0.081}$	$10^9 A_s$	2.090	$2.092^{+0.085}_{-0.079}$	$D_M(0.61)$	2287.2	$2288^{+30}_{-28}$
$\ln(10^{10} A_s)$	3.0398	$3.040^{+0.040}_{-0.038}$	$10^9 A_s e^{-2\tau}$	1.8801	$1.880^{+0.029}_{-0.028}$	$H(2.33)$	235.16	$235.2^{+1.7}_{-1.7}$
$n_s$	0.9657	$0.965^{+0.011}_{-0.011}$	$D_{40}$	1226.9	$1229^{+31}_{-30}$	$D_M(2.33)$	5762.1	$5763^{+30}_{-30}$
$y_{\text{cal}}$	1.0005	$1.0005^{+0.0063}_{-0.0065}$	$D_{220}$	5721	$5722^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4602	$0.461^{+0.020}_{-0.020}$
$A_{217}^{\text{CIB}}$	50.3	$48^{+20}_{-20}$	$D_{810}$	2537.0	$2536^{+35}_{-34}$	$\sigma_8(0.15)$	0.7646	$0.765^{+0.027}_{-0.027}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.09	—	$D_{1420}$	815.8	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4847	$0.485^{+0.023}_{-0.023}$
$A_{143}^{\text{tSZ}}$	7.2	—	$D_{2000}$	230.14	$229.9^{+4.6}_{-4.4}$	$\sigma_8(0.38)$	0.6783	$0.679^{+0.023}_{-0.024}$
$A_{100}^{\text{PS}}$	256	$263^{+70}_{-70}$	$n_{\text{s},0.002}$	0.9657	$0.965^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	0.4852	$0.486^{+0.023}_{-0.023}$
$A_{143}^{\text{PS}}$	45.4	$48^{+20}_{-20}$	$Y_{\text{P}}$	0.245336	$0.24533^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	0.6348	$0.635^{+0.021}_{-0.022}$
$A_{143 \times 217}^{\text{PS}}$	40.4	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246662	$0.24665^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	0.4810	$0.482^{+0.023}_{-0.023}$
$A_{217}^{\text{PS}}$	116.4	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	2.613	$2.616^{+0.098}_{-0.092}$	$\sigma_8(0.61)$	0.6039	$0.604^{+0.020}_{-0.021}$
$A^{\text{kSZ}}$	0.0	—	Age/Gyr	13.772	$13.774^{+0.071}_{-0.067}$	$f\sigma_8(2.33)$	0.3046	$0.3047^{+0.0098}_{-0.010}$
$A_{100}^{\text{dustTT}}$	8.84	$8.9^{+4.8}_{-4.5}$	$z_*$	1090.06	$1090.09^{+0.81}_{-0.76}$	$\sigma_8(2.33)$	0.3126	$0.3127^{+0.0089}_{-0.0087}$
$A_{143}^{\text{dustTT}}$	10.79	$10.7^{+4.4}_{-4.6}$	$r_*$	144.68	$144.66^{+0.82}_{-0.80}$	$\chi_{\text{lensing}}^2$	8.67	$9.19 (\nu: 0.3)$
$A_{143 \times 217}^{\text{dustTT}}$	18.9	$18.3^{+8.1}_{-8.3}$	$100\theta_*$	1.04113	$1.0411^{+0.0011}_{-0.0011}$	$\chi_{\text{small}}^2$	395.85	$396.9 (\nu: 1.4)$
$A_{217}^{\text{dustTT}}$	93.7	$94^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.896	$13.895^{+0.078}_{-0.077}$	$\chi_{\text{lowl}}^2$	23.07	$23.27 (\nu: 0.4)$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	1059.55	$1059.5^{+1.1}_{-1.1}$	$\chi_{\text{plik}}^2$	758.9	$770.9 (\nu: 13.1)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.40	$147.38^{+0.88}_{-0.85}$	$\chi_{\text{H073p45}}^2$	6.2	$6.5 (\nu: 2.6)$
$H_0$	69.31	$69.3^{+1.9}_{-1.9}$	$k_{\text{D}}$	0.14044	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{\text{JLA}}^2$	1036.03	$1036.6 (\nu: 1.7)$
$\Omega_{\Lambda}$	0.7037	$0.703^{+0.017}_{-0.019}$	$100\theta_{\text{D}}$	0.16098	$0.16100^{+0.00065}_{-0.00064}$	$\chi_{6\text{DF}}^2$	0.067	$0.10 (\nu: 0.0)$
$\Omega_{\text{m}}$	0.2963	$0.297^{+0.019}_{-0.017}$	$z_{\text{eq}}$	3386	$3388^{+75}_{-75}$	$\chi_{\text{MGS}}^2$	2.43	$2.44 (\nu: 0.2)$
$\Omega_{\text{m}} h^2$	0.14234	$0.1424^{+0.0032}_{-0.0031}$	$k_{\text{eq}}$	0.010335	$0.01034^{+0.00023}_{-0.00023}$	$\chi_{\text{DR12BAO}}^2$	4.18	$4.66 (\nu: 0.3)$
$\Omega_{\text{m}} h^3$	0.09865	$0.0987^{+0.0034}_{-0.0035}$	$100\theta_{\text{eq}}$	0.8158	$0.815^{+0.014}_{-0.014}$	$\chi_{\text{prior}}^2$	1.5	$7.2 (\nu: 6.6)$
$\sigma_8$	0.8261	$0.827^{+0.029}_{-0.029}$	$100\theta_{\text{s,eq}}$	0.4508	$0.4506^{+0.0072}_{-0.0071}$	$\chi_{\text{CMB}}^2$	1186.5	$1200.2 (\nu: 14.2)$
$S_8$	0.8211	$0.822^{+0.031}_{-0.031}$	$H(0.15)$	73.88	$73.8^{+1.3}_{-1.3}$	$\chi_{\text{BAO}}^2$	6.68	$7.2 (\nu: 0.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4497	$0.450^{+0.017}_{-0.017}$	$D_M(0.15)$	629.3	$630^{+15}_{-13}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6095	$0.610^{+0.020}_{-0.020}$	$H(0.38)$	83.21	$83.17^{+0.81}_{-0.83}$			

Best-fit  $\chi_{\text{eff}}^2 = 2237.00$ ;  $\bar{\chi}_{\text{eff}}^2 = 2257.74$ ;  $R - 1 = 0.00918$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.07 MGS: 2.43 DR12BAO: 4.18 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.68 small\_100x143.offlike5\_EE\_Aplanck\_B: 395.85 commander\_dx12.v3.2.29: 23.07 plik\_rd12\_HM.v22\_TT: 758.91 Hubble - H073p45: 6.23 SN - JLA Pantheon18: 1036.03



## 18.61 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02221^{+0.00050}_{-0.00051}$	$\sigma_8/h^{0.5}$	$0.995^{+0.039}_{-0.038}$	$D_M(0.38)$	$1512^{+25}_{-24}$
$\Omega_c h^2$	$0.1196^{+0.0039}_{-0.0039}$	$r_{\text{drag}} h$	$102.1^{+2.8}_{-2.9}$	$H(0.51)$	$89.58^{+0.88}_{-0.89}$
$100\theta_{\text{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.451^{+0.085}_{-0.082}$	$D_M(0.51)$	$1964^{+28}_{-27}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$z_{\text{re}}$	$< 9.53$	$H(0.61)$	$95.01^{+0.90}_{-0.91}$
$w_0$	$-1.064^{+0.088}_{-0.089}$	$10^9 A_s$	$2.097^{+0.093}_{-0.062}$	$D_M(0.61)$	$2289^{+30}_{-29}$
$\ln(10^{10} A_s)$	$3.043^{+0.044}_{-0.030}$	$10^9 A_s e^{-2\tau}$	$1.881^{+0.031}_{-0.031}$	$H(2.33)$	$235.3^{+2.0}_{-2.0}$
$n_s$	$0.965^{+0.012}_{-0.012}$	$D_{40}$	$1229^{+34}_{-34}$	$D_M(2.33)$	$5763^{+31}_{-31}$
$y_{\text{cal}}$	$1.0005^{+0.0063}_{-0.0065}$	$D_{220}$	$5721^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.462^{+0.027}_{-0.026}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2536^{+35}_{-36}$	$\sigma_8(0.15)$	$0.766^{+0.034}_{-0.034}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.486^{+0.030}_{-0.029}$
$A_{143}^{\text{tSZ}}$	$5.2^{+4.5}_{-4.7}$	$D_{2000}$	$230.0^{+4.5}_{-4.4}$	$\sigma_8(0.38)$	$0.680^{+0.029}_{-0.029}$
$A_{100}^{\text{PS}}$	$262^{+70}_{-70}$	$n_{s,0.002}$	$0.965^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	$0.487^{+0.030}_{-0.029}$
$A_{143}^{\text{PS}}$	$48^{+20}_{-20}$	$Y_{\text{P}}$	$0.24533^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	$0.636^{+0.027}_{-0.026}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24665^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	$0.482^{+0.029}_{-0.029}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	$2.617^{+0.099}_{-0.092}$	$\sigma_8(0.61)$	$0.605^{+0.025}_{-0.025}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.774^{+0.071}_{-0.069}$	$f\sigma_8(2.33)$	$0.305^{+0.012}_{-0.012}$
$A_{100}^{\text{dustTT}}$	$9.0^{+4.7}_{-4.7}$	$z_*$	$1090.09^{+0.84}_{-0.80}$	$\sigma_8(2.33)$	$0.313^{+0.011}_{-0.010}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.5}_{-4.6}$	$r_*$	$144.66^{+0.97}_{-0.93}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.4}_{-8.4}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	$13.894^{+0.092}_{-0.088}$	$f_{2000}^{217}$	$107.8^{+4.9}_{-4.7}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.6)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	$147.4^{+1.0}_{-0.97}$	$\chi_{\text{lowl}}^2$	$23.29 (\nu: 0.5)$
$H_0$	$69.3^{+1.9}_{-2.0}$	$k_{\text{D}}$	$0.1404^{+0.0012}_{-0.0012}$	$\chi_{\text{plik}}^2$	$770.9 (\nu: 14.0)$
$\Omega_{\Lambda}$	$0.703^{+0.017}_{-0.019}$	$100\theta_{\text{D}}$	$0.16100^{+0.00065}_{-0.00064}$	$\chi_{\text{H073p45}}^2$	$6.6 (\nu: 2.7)$
$\Omega_{\text{m}}$	$0.297^{+0.019}_{-0.017}$	$z_{\text{eq}}$	$3389^{+90}_{-90}$	$\chi_{\text{JLA}}^2$	$1036.6 (\nu: 1.8)$
$\Omega_{\text{m}} h^2$	$0.1425^{+0.0038}_{-0.0037}$	$k_{\text{eq}}$	$0.01034^{+0.00027}_{-0.00027}$	$\chi_{6\text{DF}}^2$	$0.099 (\nu: 0.0)$
$\Omega_{\text{m}} h^3$	$0.0987^{+0.0038}_{-0.0039}$	$100\theta_{\text{eq}}$	$0.815^{+0.017}_{-0.016}$	$\chi_{\text{MGS}}^2$	$2.42 (\nu: 0.2)$
$\sigma_8$	$0.828^{+0.037}_{-0.036}$	$100\theta_{\text{s,eq}}$	$0.4505^{+0.0088}_{-0.0084}$	$\chi_{\text{DR12BAO}}^2$	$4.76 (\nu: 0.5)$
$S_8$	$0.824^{+0.042}_{-0.041}$	$H(0.15)$	$73.8^{+1.3}_{-1.3}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.6)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.451^{+0.023}_{-0.023}$	$D_M(0.15)$	$630^{+14}_{-14}$	$\chi_{\text{BAO}}^2$	$7.3 (\nu: 0.7)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.611^{+0.028}_{-0.027}$	$H(0.38)$	$83.16^{+0.92}_{-0.91}$	$\chi_{\text{CMB}}^2$	$1191.1 (\nu: 14.1)$

$$\bar{\chi}_{\text{eff}}^2 = 2248.83; R - 1 = 0.00554$$



18.62 base\_w\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02222^{+0.00050}_{-0.00051}$	$r_{\mathrm{drag}}h$	$102.1^{+2.8}_{-2.9}$	$D_{\mathrm{M}}(0.51)$	$1963^{+29}_{-26}$
$\Omega_{\mathrm{c}}h^2$	$0.1195^{+0.0031}_{-0.0032}$	$\langle d^2 \rangle^{1/2}$	$2.449^{+0.062}_{-0.059}$	$H(0.61)$	$95.04^{+0.79}_{-0.80}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$z_{\mathrm{re}}$	$< 9.44$	$D_{\mathrm{M}}(0.61)$	$2288^{+30}_{-28}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.082}_{-0.056}$	$H(2.33)$	$235.2^{+1.7}_{-1.7}$
$w_0$	$-1.062^{+0.080}_{-0.079}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.880^{+0.029}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5763^{+31}_{-29}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.039}_{-0.027}$	$D_{40}$	$1228^{+31}_{-30}$	$f\sigma_8(0.15)$	$0.461^{+0.020}_{-0.020}$
$n_{\mathrm{s}}$	$0.965^{+0.010}_{-0.011}$	$D_{220}$	$5722^{+100}_{-100}$	$\sigma_8(0.15)$	$0.765^{+0.027}_{-0.027}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0066}$	$D_{810}$	$2536^{+35}_{-35}$	$f\sigma_8(0.38)$	$0.485^{+0.023}_{-0.022}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.679^{+0.023}_{-0.024}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{2000}$	$230.0^{+4.6}_{-4.4}$	$f\sigma_8(0.51)$	$0.486^{+0.023}_{-0.023}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.010}_{-0.011}$	$\sigma_8(0.51)$	$0.635^{+0.021}_{-0.022}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.24533^{+0.00019}_{-0.00024}$	$f\sigma_8(0.61)$	$0.482^{+0.023}_{-0.023}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00019}_{-0.00024}$	$\sigma_8(0.61)$	$0.604^{+0.020}_{-0.020}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.615^{+0.098}_{-0.091}$	$f\sigma_8(2.33)$	$0.3049^{+0.0098}_{-0.010}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.773^{+0.071}_{-0.067}$	$\sigma_8(2.33)$	$0.3129^{+0.0087}_{-0.0085}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.07^{+0.78}_{-0.75}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.5}$	$r_*$	$144.68^{+0.82}_{-0.78}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.4}_{-4.6}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.9^{+4.9}_{-4.6}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.2}_{-8.3}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.896^{+0.078}_{-0.076}$	$\chi_{\mathrm{lensing}}^2$	$9.17 (\nu: 0.3)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.4)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.40^{+0.87}_{-0.82}$	$\chi_{\mathrm{lowl}}^2$	$23.26 (\nu: 0.4)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{plik}}^2$	$770.7 (\nu: 13.0)$
$H_0$	$69.3^{+1.9}_{-2.0}$	$100\theta_{\mathrm{D}}$	$0.16099^{+0.00065}_{-0.00064}$	$\chi_{\mathrm{H073p45}}^2$	$6.5 (\nu: 2.6)$
$\Omega_{\Lambda}$	$0.703^{+0.017}_{-0.019}$	$z_{\mathrm{eq}}$	$3386^{+72}_{-74}$	$\chi_{\mathrm{JLA}}^2$	$1036.5 (\nu: 1.6)$
$\Omega_{\mathrm{m}}$	$0.297^{+0.019}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00022}_{-0.00022}$	$\chi_{6\mathrm{DF}}^2$	$0.10 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1424^{+0.0030}_{-0.0031}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.014}_{-0.013}$	$\chi_{\mathrm{MGS}}^2$	$2.46 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0986^{+0.0034}_{-0.0034}$	$100\theta_{\mathrm{s,eq}}$	$0.4508^{+0.0071}_{-0.0068}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.63 (\nu: 0.3)$
$\sigma_8$	$0.827^{+0.029}_{-0.029}$	$H(0.15)$	$73.8^{+1.3}_{-1.3}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.6)$
$S_8$	$0.822^{+0.031}_{-0.030}$	$D_{\mathrm{M}}(0.15)$	$630^{+15}_{-13}$	$\chi_{\mathrm{CMB}}^2$	$1200.0 (\nu: 13.9)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.017}_{-0.017}$	$H(0.38)$	$83.19^{+0.81}_{-0.82}$	$\chi_{\mathrm{BAO}}^2$	$7.2 (\nu: 0.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.020}_{-0.020}$	$D_{\mathrm{M}}(0.38)$	$1511^{+26}_{-24}$		
$\sigma_8/h^{0.5}$	$0.994^{+0.029}_{-0.029}$	$H(0.51)$	$89.60^{+0.77}_{-0.76}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2257.48; R - 1 = 0.01061$$



18.63 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022427	$0.02240^{+0.00036}_{-0.00035}$ (+1.0 $\sigma$ )	$\sigma_8$	0.8277	$0.828^{+0.033}_{-0.032}$ (+0.1 $\sigma$ )	$D_M(0.15)$	628.7	$629^{+14}_{-14}$ (−0.2 $\sigma$ )
$\Omega_c h^2$	0.11971	$0.1198^{+0.0030}_{-0.0030}$ (+0.1 $\sigma$ )	$S_8$	0.8233	$0.824^{+0.033}_{-0.033}$ (+0.1 $\sigma$ )	$H(0.38)$	83.33	$83.29^{+0.72}_{-0.70}$ (+0.4 $\sigma$ )
$100\theta_{MC}$	1.04099	$1.04097^{+0.00077}_{-0.00077}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4510	$0.451^{+0.018}_{-0.018}$ (+0.1 $\sigma$ )	$D_M(0.38)$	1509.1	$1510^{+23}_{-23}$ (−0.3 $\sigma$ )
$\tau$	0.0546	$0.055^{+0.022}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6109	$0.612^{+0.023}_{-0.023}$ (+0.1 $\sigma$ )	$H(0.51)$	89.75	$89.71^{+0.67}_{-0.68}$ (+0.4 $\sigma$ )
$w_0$	−1.061	$−1.063^{+0.078}_{-0.081}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9939	$0.995^{+0.034}_{-0.034}$ (+0.1 $\sigma$ )	$D_M(0.51)$	1959.9	$1961^{+25}_{-25}$ (−0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0442	$3.045^{+0.045}_{-0.042}$ (+0.3 $\sigma$ )	$r_{drag} h$	102.02	$102.0^{+2.9}_{-2.8}$ (−0.0 $\sigma$ )	$H(0.61)$	95.20	$95.16^{+0.70}_{-0.71}$ (+0.4 $\sigma$ )
$n_s$	0.9666	$0.966^{+0.010}_{-0.011}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.448	$2.451^{+0.076}_{-0.074}$ (+0.1 $\sigma$ )	$D_M(0.61)$	2284.3	$2285^{+26}_{-26}$ (−0.3 $\sigma$ )
$y_{cal}$	1.0003	$1.0006^{+0.0062}_{-0.0063}$ (+0.0 $\sigma$ )	$z_{re}$	7.68	$7.7^{+2.1}_{-2.2}$ (+0.2 $\sigma$ )	$H(2.33)$	235.55	$235.6^{+1.5}_{-1.5}$ (+0.4 $\sigma$ )
$A_{217}^{CIB}$	47.0	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.099	$2.101^{+0.096}_{-0.087}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5753.4	$5755^{+22}_{-23}$ (−0.7 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.52	—	$10^9 A_s e^{-2\tau}$	1.8821	$1.882^{+0.029}_{-0.029}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4613	$0.462^{+0.022}_{-0.021}$ (+0.0 $\sigma$ )
$A_{143}^{tSZ}$	7.14	$5.5^{+4.4}_{-4.5}$ (+0.2 $\sigma$ )	$D_{40}$	1227.2	$1229^{+32}_{-31}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7659	$0.767^{+0.031}_{-0.030}$ (+0.1 $\sigma$ )
$A_{100}^{PS}$	249	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5734	$5735^{+100}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4856	$0.486^{+0.025}_{-0.025}$ (+0.0 $\sigma$ )
$A_{143}^{PS}$	48.8	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2539.9	$2539^{+34}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6795	$0.680^{+0.027}_{-0.026}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	49.7	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	818.2	$818^{+12}_{-12}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4860	$0.487^{+0.026}_{-0.025}$ (+0.1 $\sigma$ )
$A_{217}^{PS}$	120.0	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.33	$231.1^{+4.0}_{-4.0}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6359	$0.636^{+0.025}_{-0.024}$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9666	$0.966^{+0.010}_{-0.011}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4818	$0.482^{+0.025}_{-0.025}$ (+0.1 $\sigma$ )
$A_{100}^{dustTT}$	8.85	$8.9^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	$Y_P$	0.245418	$0.24541^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.6050	$0.605^{+0.023}_{-0.022}$ (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	11.02	$10.9^{+4.6}_{-4.7}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246745	$0.24673^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3052	$0.305^{+0.012}_{-0.011}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.9	$18.6^{+8.4}_{-8.7}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.575	$2.580^{+0.067}_{-0.064}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3132	$0.313^{+0.010}_{-0.0097}$ (+0.2 $\sigma$ )
$A_{217}^{dustTT}$	95.0	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.752	$13.755^{+0.053}_{-0.053}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	28.7	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.098}_{-0.095}$	$z_*$	1089.82	$1089.86^{+0.61}_{-0.62}$ (−0.8 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.94	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.077}_{-0.075}$	$r_*$	144.46	$144.47^{+0.67}_{-0.66}$ (−0.5 $\sigma$ )	$f_{2000}^{217}$	106.43	$106.9^{+4.5}_{-4.5}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04117	$1.04115^{+0.00076}_{-0.00076}$ (+0.0 $\sigma$ )	$\chi_{small}^2$	396.06	$397.2$ ( $\nu$ : 2.0) (+0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.224	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.875	$13.876^{+0.064}_{-0.062}$ (−0.5 $\sigma$ )	$\chi_{lowl}^2$	23.05	$23.25$ ( $\nu$ : 0.4) (−0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.664	$0.66^{+0.21}_{-0.21}$	$z_{drag}$	1060.05	$1059.99^{+0.74}_{-0.75}$ (+1.1 $\sigma$ )	$\chi_{plik}^2$	2344.5	$2359.1$ ( $\nu$ : 17.0) (+298.2 $\sigma$ )
$A_{217}^{dustTE}$	2.09	$2.08^{+0.69}_{-0.69}$	$r_{drag}$	147.10	$147.12^{+0.68}_{-0.68}$ (−0.7 $\sigma$ )	$\chi_{H073p45}^2$	6.1	$6.3$ ( $\nu$ : 2.5) (−0.1 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14090	$0.14086^{+0.00079}_{-0.00078}$ (+0.9 $\sigma$ )	$\chi_{JLA}^2$	1035.90	$1036.5$ ( $\nu$ : 1.8) (−0.0 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0015}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160700	$0.16073^{+0.00045}_{-0.00043}$ (−1.1 $\sigma$ )	$\chi_{6DF}^2$	0.055	$0.09$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$H_0$	69.35	$69.4^{+2.0}_{-1.9}$ (+0.1 $\sigma$ )	$z_{eq}$	3397	$3398^{+67}_{-67}$ (+0.2 $\sigma$ )	$\chi_{MGS}^2$	2.35	$2.40$ ( $\nu$ : 0.2) (−0.0 $\sigma$ )
$\Omega_\Lambda$	0.7031	$0.703^{+0.017}_{-0.018}$ (+0.0 $\sigma$ )	$k_{eq}$	0.010367	$0.01037^{+0.00020}_{-0.00020}$ (+0.2 $\sigma$ )	$\chi_{DR12BAO}^2$	4.21	$4.65$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$\Omega_m$	0.2969	$0.297^{+0.018}_{-0.017}$ (−0.0 $\sigma$ )	$100\theta_{eq}$	0.8145	$0.814^{+0.013}_{-0.012}$ (−0.1 $\sigma$ )	$\chi_{prior}^2$	1.7	$11.5$ ( $\nu$ : 10.2) (+1.2 $\sigma$ )
$\Omega_m h^2$	0.14278	$0.1428^{+0.0028}_{-0.0028}$ (+0.2 $\sigma$ )	$100\theta_{s,eq}$	0.4500	$0.4499^{+0.0066}_{-0.0064}$ (−0.2 $\sigma$ )	$\chi_{BAO}^2$	6.61	$7.1$ ( $\nu$ : 0.6) (−0.1 $\sigma$ )
$\Omega_m h^3$	0.09902	$0.0991^{+0.0035}_{-0.0034}$ (+0.2 $\sigma$ )	$H(0.15)$	73.95	$73.9^{+1.2}_{-1.2}$ (+0.2 $\sigma$ )	$\chi_{CMB}^2$	2763.6	$2779.5$ ( $\nu$ : 16.6) (+294.8 $\sigma$ )

Best-fit  $\chi_{eff}^2 = 3813.86$ ;  $\Delta\chi_{eff}^2 = 1585.58$ ;  $\bar{\chi}_{eff}^2 = 3841.02$ ;  $\Delta\bar{\chi}_{eff}^2 = 1591.91$ ;  $R - 1 = 0.00783$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.06 ( $\Delta$  -0.00) MGS: 2.35 ( $\Delta$  0.00) DR12BAO: 4.21 ( $\Delta$  -0.09) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.06 ( $\Delta$  0.17) commander\_dx12\_v3\_2\_29: 23.05 ( $\Delta$  -0.03) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.47 Hubble - H073p45: 6.09 ( $\Delta$  -0.21) SN - JLA Pantheon18: 1035.90 ( $\Delta$  -0.21)



## 18.64 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022427	$0.02241^{+0.00035}_{-0.00035}$ (+1.0 $\sigma$ )	$\sigma_8$	0.8281	$0.827^{+0.027}_{-0.026}$ (+0.0 $\sigma$ )	$D_M(0.15)$	628.7	$629^{+14}_{-13}$ (−0.2 $\sigma$ )
$\Omega_c h^2$	0.11967	$0.1197^{+0.0027}_{-0.0027}$ (+0.1 $\sigma$ )	$S_8$	0.8237	$0.823^{+0.027}_{-0.027}$ (+0.0 $\sigma$ )	$H(0.38)$	83.33	$83.32^{+0.69}_{-0.67}$ (+0.4 $\sigma$ )
$100\theta_{MC}$	1.04098	$1.04098^{+0.00077}_{-0.00075}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4512	$0.451^{+0.015}_{-0.015}$ (+0.0 $\sigma$ )	$D_M(0.38)$	1509.1	$1509^{+24}_{-23}$ (−0.2 $\sigma$ )
$\tau$	0.0552	$0.055^{+0.021}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6112	$0.611^{+0.018}_{-0.018}$ (+0.0 $\sigma$ )	$H(0.51)$	89.75	$89.74^{+0.61}_{-0.61}$ (+0.5 $\sigma$ )
$w_0$	−1.060	$−1.061^{+0.075}_{-0.078}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9944	$0.993^{+0.026}_{-0.026}$ (−0.0 $\sigma$ )	$D_M(0.51)$	1959.9	$1960^{+26}_{-25}$ (−0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0457	$3.044^{+0.040}_{-0.037}$ (+0.2 $\sigma$ )	$r_{drag} h$	102.02	$102.1^{+2.8}_{-2.8}$ (−0.0 $\sigma$ )	$H(0.61)$	95.20	$95.18^{+0.64}_{-0.63}$ (+0.5 $\sigma$ )
$n_s$	0.9667	$0.9660^{+0.0096}_{-0.0099}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.449	$2.448^{+0.057}_{-0.056}$ (+0.0 $\sigma$ )	$D_M(0.61)$	2284.3	$2285^{+27}_{-26}$ (−0.3 $\sigma$ )
$y_{cal}$	1.0005	$1.0006^{+0.0062}_{-0.0063}$ (+0.0 $\sigma$ )	$z_{re}$	7.75	$7.7^{+2.0}_{-2.0}$ (+0.1 $\sigma$ )	$H(2.33)$	235.53	$235.5^{+1.5}_{-1.4}$ (+0.4 $\sigma$ )
$A_{217}^{CIB}$	46.6	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.103	$2.099^{+0.085}_{-0.077}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5753.5	$5754^{+21}_{-22}$ (−0.8 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.52	—	$10^9 A_s e^{-2\tau}$	1.8827	$1.882^{+0.027}_{-0.027}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4614	$0.461^{+0.017}_{-0.017}$ (−0.0 $\sigma$ )
$A_{143}^{tSZ}$	7.19	$5.5^{+4.5}_{-4.5}$ (+0.2 $\sigma$ )	$D_{40}$	1227.5	$1229^{+29}_{-28}$ (+0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7664	$0.766^{+0.026}_{-0.025}$ (+0.0 $\sigma$ )
$A_{100}^{PS}$	249	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5736	$5736^{+100}_{-99}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4858	$0.485^{+0.020}_{-0.020}$ (−0.0 $\sigma$ )
$A_{143}^{PS}$	48.4	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2540.8	$2539^{+33}_{-34}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6799	$0.679^{+0.023}_{-0.022}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	49.5	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	818.5	$818^{+12}_{-12}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4862	$0.486^{+0.021}_{-0.020}$ (−0.0 $\sigma$ )
$A_{217}^{PS}$	120.6	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.43	$231.1^{+3.9}_{-4.0}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6362	$0.636^{+0.021}_{-0.020}$ (+0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9667	$0.9660^{+0.0096}_{-0.0099}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4820	$0.482^{+0.021}_{-0.021}$ (−0.0 $\sigma$ )
$A_{100}^{dustTT}$	8.82	$8.9^{+4.7}_{-4.6}$ (+0.0 $\sigma$ )	$Y_P$	0.245418	$0.24541^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.6053	$0.605^{+0.020}_{-0.019}$ (+0.1 $\sigma$ )
$A_{143}^{dustTT}$	10.97	$10.9^{+4.7}_{-4.6}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246745	$0.24674^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3053	$0.3050^{+0.0099}_{-0.0095}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.9	$18.6^{+8.3}_{-8.5}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.575	$2.579^{+0.067}_{-0.063}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3134	$0.3131^{+0.0089}_{-0.0083}$ (+0.1 $\sigma$ )
$A_{217}^{dustTT}$	95.3	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.752	$13.754^{+0.054}_{-0.052}$ (−0.7 $\sigma$ )	$\chi^2_{lensing}$	8.70	$9.09$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.114^{+0.096}_{-0.098}$	$z_*$	1089.82	$1089.84^{+0.58}_{-0.59}$ (−0.8 $\sigma$ )	$\chi^2_{small}$	396.19	$397.0$ ( $\nu$ : 1.5) (+0.1 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.078}_{-0.074}$	$r_*$	144.47	$144.49^{+0.62}_{-0.60}$ (−0.6 $\sigma$ )	$\chi^2_{lowl}$	23.05	$23.20$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04116	$1.04116^{+0.00076}_{-0.00074}$ (+0.1 $\sigma$ )	$\chi^2_{plik}$	2344.4	$2359.1$ ( $\nu$ : 16.3) (+310.9 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.876	$13.878^{+0.058}_{-0.057}$ (−0.6 $\sigma$ )	$\chi^2_{H073p45}$	6.1	$6.3$ ( $\nu$ : 2.5) (−0.1 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.664	$0.67^{+0.21}_{-0.21}$	$z_{drag}$	1060.05	$1060.00^{+0.73}_{-0.76}$ (+1.1 $\sigma$ )	$\chi^2_{JLA}$	1035.89	$1036.5$ ( $\nu$ : 1.7) (−0.0 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.67}$	$r_{drag}$	147.11	$147.14^{+0.62}_{-0.61}$ (−0.7 $\sigma$ )	$\chi^2_{6DF}$	0.055	$0.097$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0015}$ (+0.1 $\sigma$ )	$k_D$	0.14089	$0.14085^{+0.00074}_{-0.00073}$ (+1.0 $\sigma$ )	$\chi^2_{MGS}$	2.35	$2.42$ ( $\nu$ : 0.2) (−0.0 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160699	$0.16072^{+0.00045}_{-0.00043}$ (−1.1 $\sigma$ )	$\chi^2_{DR12BAO}$	4.20	$4.58$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$H_0$	69.35	$69.4^{+1.9}_{-1.9}$ (+0.1 $\sigma$ )	$z_{eq}$	3396	$3395^{+60}_{-60}$ (+0.2 $\sigma$ )	$\chi^2_{prior}$	1.6	$11.6$ ( $\nu$ : 10.2) (+1.2 $\sigma$ )
$\Omega_\Lambda$	0.7032	$0.703^{+0.017}_{-0.018}$ (+0.0 $\sigma$ )	$k_{eq}$	0.010364	$0.01036^{+0.00018}_{-0.00018}$ (+0.2 $\sigma$ )	$\chi^2_{CMB}$	2772.3	$2788.3$ ( $\nu$ : 16.7) (+297.5 $\sigma$ )
$\Omega_m$	0.2968	$0.297^{+0.018}_{-0.017}$ (−0.0 $\sigma$ )	$100\theta_{eq}$	0.8147	$0.815^{+0.011}_{-0.011}$ (−0.1 $\sigma$ )	$\chi^2_{BAO}$	6.60	$7.1$ ( $\nu$ : 0.6) (−0.1 $\sigma$ )
$\Omega_m h^2$	0.14274	$0.1427^{+0.0025}_{-0.0025}$ (+0.2 $\sigma$ )	$100\theta_{s,eq}$	0.4501	$0.4501^{+0.0058}_{-0.0057}$ (−0.2 $\sigma$ )			
$\Omega_m h^3$	0.09899	$0.0990^{+0.0033}_{-0.0032}$ (+0.2 $\sigma$ )	$H(0.15)$	73.95	$74.0^{+1.2}_{-1.2}$ (+0.2 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 3822.55$ ;  $\Delta\chi^2_{eff} = 1585.55$ ;  $\bar{\chi}^2_{eff} = 3849.70$ ;  $\Delta\bar{\chi}^2_{eff} = 1591.96$ ;  $R - 1 = 0.00999$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.06 ( $\Delta$  -0.01) MGS: 2.35 ( $\Delta$  -0.08) DR12BAO: 4.20 ( $\Delta$  0.02) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb.consect8: 8.70 ( $\Delta$  0.02) small\_100x143\_offlike5\_EE\_Aplanck 396.19 ( $\Delta$  0.34) commander\_dx12\_v3.2.29: 23.05 ( $\Delta$  -0.02) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.38 Hubble - H073p45: 6.10 ( $\Delta$  -0.13) SN - JLA Pantheon18: 1035.89 ( $\Delta$  -0.14)



## 18.65 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00036}_{-0.00035}$ (+1.0 $\sigma$ )	$\sigma_8$	$0.829^{+0.033}_{-0.032}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$629^{+14}_{-14}$ (−0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1198^{+0.0030}_{-0.0030}$ (+0.1 $\sigma$ )	$S_8$	$0.825^{+0.033}_{-0.033}$ (+0.1 $\sigma$ )	$H(0.38)$	$83.30^{+0.71}_{-0.70}$ (+0.4 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.04097^{+0.00077}_{-0.00077}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.018}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1510^{+24}_{-23}$ (−0.2 $\sigma$ )
$\tau$	$0.056^{+0.020}_{-0.014}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.612^{+0.023}_{-0.022}$ (+0.1 $\sigma$ )	$H(0.51)$	$89.72^{+0.67}_{-0.68}$ (+0.4 $\sigma$ )
$w_0$	$-1.062^{+0.078}_{-0.080}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.996^{+0.033}_{-0.032}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1961^{+26}_{-25}$ (−0.3 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.044}_{-0.030}$ (+0.3 $\sigma$ )	$r_{\mathrm{drag}}h$	$102.0^{+2.9}_{-2.8}$ (−0.0 $\sigma$ )	$H(0.61)$	$95.16^{+0.69}_{-0.71}$ (+0.4 $\sigma$ )
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.011}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.453^{+0.074}_{-0.071}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2285^{+27}_{-26}$ (−0.3 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0006^{+0.0062}_{-0.0063}$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	$< 9.61$ (+0.1 $\sigma$ )	$H(2.33)$	$235.6^{+1.5}_{-1.5}$ (+0.4 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9A_{\mathrm{s}}$	$2.105^{+0.094}_{-0.063}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5755^{+22}_{-23}$ (−0.7 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.029}_{-0.029}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	$0.462^{+0.021}_{-0.021}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.4}_{-4.5}$ (+0.2 $\sigma$ )	$D_{40}$	$1229^{+32}_{-31}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	$0.767^{+0.031}_{-0.029}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	$5735^{+100}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	$0.487^{+0.025}_{-0.024}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	$2539^{+35}_{-35}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	$0.681^{+0.027}_{-0.025}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	$818^{+12}_{-12}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	$0.487^{+0.025}_{-0.025}$ (+0.0 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	$231.1^{+4.0}_{-4.0}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	$0.637^{+0.025}_{-0.024}$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.011}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	$0.483^{+0.025}_{-0.024}$ (+0.0 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.7}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	$0.606^{+0.023}_{-0.022}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.7}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	$0.306^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.4}_{-8.7}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	$2.580^{+0.067}_{-0.064}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	$0.314^{+0.010}_{-0.0094}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$\mathrm{Age}/\mathrm{Gyr}$	$13.755^{+0.053}_{-0.053}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.098}_{-0.095}$	$z_*$	$1089.86^{+0.61}_{-0.62}$ (−0.7 $\sigma$ )	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.076}_{-0.075}$	$r_*$	$144.47^{+0.67}_{-0.66}$ (−0.5 $\sigma$ )	$f_{2000}^{217}$	$106.8^{+4.5}_{-4.5}$ (−0.5 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04115^{+0.00076}_{-0.00076}$ (+0.0 $\sigma$ )	$\chi_{\mathrm{small}}^2$	$397.1$ ( $\nu$ : 2.1) (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.876^{+0.063}_{-0.062}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$23.26$ ( $\nu$ : 0.4) (−0.0 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1060.00^{+0.74}_{-0.75}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	$2358.9$ ( $\nu$ : 16.7) (+300.3 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.69}_{-0.69}$	$r_{\mathrm{drag}}$	$147.12^{+0.68}_{-0.67}$ (−0.7 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	$6.3$ ( $\nu$ : 2.5) (−0.1 $\sigma$ )
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{\mathrm{D}}$	$0.14086^{+0.00078}_{-0.00077}$ (+0.9 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	$1036.5$ ( $\nu$ : 1.7) (−0.0 $\sigma$ )
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	$0.16073^{+0.00045}_{-0.00043}$ (−1.1 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	$0.09$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$H_0$	$69.3^{+2.0}_{-1.9}$ (+0.1 $\sigma$ )	$z_{\mathrm{eq}}$	$3397^{+67}_{-67}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$2.40$ ( $\nu$ : 0.2) (−0.0 $\sigma$ )
$\Omega_{\Lambda}$	$0.703^{+0.017}_{-0.018}$ (+0.0 $\sigma$ )	$k_{\mathrm{eq}}$	$0.01037^{+0.00020}_{-0.00020}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$4.64$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$\Omega_{\mathrm{m}}$	$0.297^{+0.018}_{-0.017}$ (−0.0 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.814^{+0.013}_{-0.012}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$11.5$ ( $\nu$ : 10.2) (+1.2 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	$0.1428^{+0.0028}_{-0.0028}$ (+0.2 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4499^{+0.0065}_{-0.0064}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$7.1$ ( $\nu$ : 0.6) (−0.1 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	$0.0990^{+0.0034}_{-0.0034}$ (+0.2 $\sigma$ )	$H(0.15)$	$73.9^{+1.2}_{-1.2}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$2779.3$ ( $\nu$ : 16.2) (+299.3 $\sigma$ )

$$\bar{\chi}_{\mathrm{eff}}^2 = 3840.79; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.96; R - 1 = 0.00674$$



## 18.66 base\_w\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02241^{+0.00035}_{-0.00035}$ (+1.0 $\sigma$ )	$S_8$	$0.823^{+0.027}_{-0.027}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1509^{+24}_{-23}$ (−0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1196^{+0.0026}_{-0.0026}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.015}_{-0.015}$ (+0.0 $\sigma$ )	$H(0.51)$	$89.75^{+0.61}_{-0.60}$ (+0.5 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.04098^{+0.00077}_{-0.00076}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.018}_{-0.018}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1960^{+26}_{-25}$ (−0.3 $\sigma$ )
$\tau$	$0.055^{+0.018}_{-0.013}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.994^{+0.025}_{-0.025}$ (+0.0 $\sigma$ )	$H(0.61)$	$95.19^{+0.64}_{-0.63}$ (+0.5 $\sigma$ )
$w_0$	$-1.060^{+0.075}_{-0.076}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	$102.1^{+2.8}_{-2.9}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2284^{+27}_{-26}$ (−0.3 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.038}_{-0.027}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.450^{+0.056}_{-0.055}$ (+0.0 $\sigma$ )	$H(2.33)$	$235.5^{+1.5}_{-1.4}$ (+0.4 $\sigma$ )
$n_{\mathrm{s}}$	$0.9661^{+0.0096}_{-0.0099}$ (+0.2 $\sigma$ )	$z_{\mathrm{re}}$	$< 9.42$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5754^{+21}_{-22}$ (−0.7 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0005^{+0.0062}_{-0.0063}$ (+0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}$	$2.102^{+0.082}_{-0.057}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	$0.461^{+0.017}_{-0.016}$ (+0.0 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.026}_{-0.027}$ (+0.1 $\sigma$ )	$\sigma_8(0.15)$	$0.766^{+0.026}_{-0.024}$ (+0.0 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{40}$	$1229^{+29}_{-28}$ (+0.0 $\sigma$ )	$f\sigma_8(0.38)$	$0.485^{+0.020}_{-0.020}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	$> 1.10$ (+0.2 $\sigma$ )	$D_{220}$	$5736^{+100}_{-98}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	$0.679^{+0.023}_{-0.022}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{810}$	$2539^{+33}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(0.51)$	$0.486^{+0.021}_{-0.020}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{1420}$	$817^{+12}_{-12}$ (+0.4 $\sigma$ )	$\sigma_8(0.51)$	$0.636^{+0.021}_{-0.020}$ (+0.1 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{2000}$	$231.1^{+3.9}_{-4.0}$ (+0.6 $\sigma$ )	$f\sigma_8(0.61)$	$0.482^{+0.020}_{-0.021}$ (+0.0 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$n_{\mathrm{s},0.002}$	$0.9661^{+0.0096}_{-0.0099}$ (+0.2 $\sigma$ )	$\sigma_8(0.61)$	$0.605^{+0.020}_{-0.019}$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24541^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	$0.3051^{+0.0099}_{-0.0094}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.6}_{-4.7}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24674^{+0.00013}_{-0.00014}$ (+1.0 $\sigma$ )	$\sigma_8(2.33)$	$0.3133^{+0.0087}_{-0.0082}$ (+0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.7}_{-4.6}$ (+0.1 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	$2.578^{+0.067}_{-0.063}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	$18.6^{+8.3}_{-8.5}$ (+0.1 $\sigma$ )	$\mathrm{Age}/\mathrm{Gyr}$	$13.754^{+0.054}_{-0.052}$ (−0.7 $\sigma$ )	$f_{2000}^{143\times 217}$	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$z_*$	$1089.83^{+0.59}_{-0.58}$ (−0.8 $\sigma$ )	$f_{2000}^{217}$	$106.8^{+4.6}_{-4.5}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.096}_{-0.097}$	$r_*$	$144.50^{+0.61}_{-0.59}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	$9.07$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	$0.135^{+0.077}_{-0.074}$	$100\theta_*$	$1.04116^{+0.00076}_{-0.00075}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{simall}}^2$	$396.9$ ( $\nu$ : 1.5) (+0.1 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.879^{+0.057}_{-0.056}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$23.20$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1060.01^{+0.73}_{-0.76}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	$2358.9$ ( $\nu$ : 16.1) (+311.4 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.21}$	$r_{\mathrm{drag}}$	$147.15^{+0.62}_{-0.61}$ (−0.8 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	$6.3$ ( $\nu$ : 2.5) (−0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.69}_{-0.66}$	$k_{\mathrm{D}}$	$0.14084^{+0.00074}_{-0.00073}$ (+1.0 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	$1036.4$ ( $\nu$ : 1.6) (−0.0 $\sigma$ )
$c_{100}$	$0.9997^{+0.0016}_{-0.0015}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	$0.16072^{+0.00046}_{-0.00042}$ (−1.1 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	$0.097$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{\mathrm{eq}}$	$3394^{+59}_{-60}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$2.43$ ( $\nu$ : 0.2) (−0.0 $\sigma$ )
$H_0$	$69.4^{+1.9}_{-1.9}$ (+0.1 $\sigma$ )	$k_{\mathrm{eq}}$	$0.01036^{+0.00018}_{-0.00018}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$4.56$ ( $\nu$ : 0.2) (−0.1 $\sigma$ )
$\Omega_{\Lambda}$	$0.703^{+0.017}_{-0.018}$ (+0.0 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.815^{+0.011}_{-0.011}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$11.5$ ( $\nu$ : 10.1) (+1.2 $\sigma$ )
$\Omega_{\mathrm{m}}$	$0.297^{+0.018}_{-0.017}$ (−0.0 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4502^{+0.0058}_{-0.0056}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$2788.1$ ( $\nu$ : 16.3) (+301.6 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	$0.1427^{+0.0025}_{-0.0025}$ (+0.3 $\sigma$ )	$H(0.15)$	$74.0^{+1.2}_{-1.2}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$7.1$ ( $\nu$ : 0.6) (−0.1 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	$0.0989^{+0.0032}_{-0.0032}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$629^{+14}_{-13}$ (−0.2 $\sigma$ )		
$\sigma_8$	$0.828^{+0.027}_{-0.026}$ (+0.0 $\sigma$ )	$H(0.38)$	$83.32^{+0.68}_{-0.68}$ (+0.4 $\sigma$ )		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3849.47; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.99; R - 1 = 0.00919$$



18.67 base\_w\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.02222^{+0.00052}_{-0.00050}$	$\sigma_8/h^{0.5}$	1.0025	$0.993^{+0.040}_{-0.042}$	$H(0.51)$	89.52	$89.62^{+0.90}_{-0.87}$
$\Omega_c h^2$	0.12017	$0.1196^{+0.0038}_{-0.0041}$	$r_{\text{drag}} h$	101.84	$102.1^{+2.8}_{-3.0}$	$D_M(0.51)$	1965.5	$1963^{+28}_{-26}$
$100\theta_{\text{MC}}$	1.04099	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.467	$2.444^{+0.085}_{-0.092}$	$H(0.61)$	94.97	$95.05^{+0.94}_{-0.89}$
$\tau$	0.0574	$0.054^{+0.023}_{-0.021}$	$z_{\text{re}}$	8.03	$7.6^{+2.2}_{-2.3}$	$D_M(0.61)$	2290.7	$2288^{+29}_{-28}$
$w_0$	-1.067	$-1.062^{+0.091}_{-0.091}$	$10^9 A_s$	2.112	$2.09^{+0.10}_{-0.092}$	$H(2.33)$	235.56	$235.3^{+1.9}_{-1.9}$
$\ln(10^{10} A_s)$	3.0502	$3.040^{+0.047}_{-0.045}$	$10^9 A_s e^{-2\tau}$	1.8828	$1.878^{+0.031}_{-0.032}$	$D_M(2.33)$	5763.6	$5762^{+30}_{-31}$
$n_s$	0.9645	$0.966^{+0.013}_{-0.012}$	$D_{40}$	1230.8	$1225^{+35}_{-35}$	$f\sigma_8(0.15)$	0.4665	$0.461^{+0.027}_{-0.028}$
$y_{\text{cal}}$	1.0010	$1.0005^{+0.0065}_{-0.0064}$	$D_{220}$	5717	$5711^{+110}_{-100}$	$\sigma_8(0.15)$	0.7713	$0.765^{+0.035}_{-0.036}$
$A_{100}^{\text{PS}}$	239	$241^{+60}_{-60}$	$D_{810}$	2536.9	$2534^{+36}_{-35}$	$f\sigma_8(0.38)$	0.4908	$0.485^{+0.030}_{-0.032}$
$A_{143}^{\text{PS}}$	42.8	$40^{+20}_{-20}$	$D_{1420}$	815.4	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6839	$0.678^{+0.030}_{-0.031}$
$A_{217}^{\text{PS}}$	97.1	$101^{+30}_{-30}$	$D_{2000}$	230.16	$230.0^{+4.7}_{-4.5}$	$f\sigma_8(0.51)$	0.4909	$0.485^{+0.030}_{-0.032}$
$A_{217}^{\text{CIB}}$	46.2	$41^{+20}_{-20}$	$n_{s,0.002}$	0.9645	$0.966^{+0.013}_{-0.012}$	$\sigma_8(0.51)$	0.6398	$0.635^{+0.027}_{-0.029}$
$A_{143}^{\text{tSZ}}$	5.70	$< 8.83$	$Y_P$	0.245327	$0.24533^{+0.00020}_{-0.00023}$	$f\sigma_8(0.61)$	0.4864	$0.481^{+0.029}_{-0.031}$
$r_{143 \times 217}^{\text{PS}}$	0.566	$0.65^{+0.31}_{-0.33}$	$Y_P^{\text{BBN}}$	0.246653	$0.24666^{+0.00020}_{-0.00023}$	$\sigma_8(0.61)$	0.6086	$0.604^{+0.025}_{-0.027}$
$r_{143 \times 217}^{\text{CIB}}$	0.91	—	$10^5 \text{D}/\text{H}$	2.617	$2.614^{+0.096}_{-0.095}$	$f\sigma_8(2.33)$	0.3068	$0.305^{+0.012}_{-0.013}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.29	—	Age/Gyr	13.773	$13.771^{+0.068}_{-0.069}$	$\sigma_8(2.33)$	0.3147	$0.313^{+0.011}_{-0.011}$
$A^{\text{kSZ}}$	1.7	—	$z_*$	1090.14	$1090.07^{+0.81}_{-0.86}$	$f_{2000}^{143}$	31.1	$30^{+8}_{-8}$
$A_{100}^{\text{dust}}$	1.01	$1.01^{+0.50}_{-0.50}$	$r_*$	144.51	$144.65^{+0.99}_{-0.91}$	$f_{2000}^{217}$	107.4	$107.3^{+5.2}_{-5.2}$
$A_{143}^{\text{dust}}$	1.003	$0.98^{+0.45}_{-0.45}$	$100\theta_*$	1.04119	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	32.6	$33^{+6}_{-5}$
$A_{217}^{\text{dust}}$	0.954	$0.97^{+0.27}_{-0.26}$	$D_M(z_*)/\text{Gpc}$	13.880	$13.893^{+0.094}_{-0.087}$	$\chi_{\text{simall}}^2$	396.83	$397.0 (\nu: 1.7)$
$A_{143 \times 217}^{\text{dust}}$	0.931	$1.03^{+0.42}_{-0.41}$	$z_{\text{drag}}$	1059.55	$1059.6^{+1.1}_{-1.1}$	$\chi_{\text{lowl}}^2$	23.38	$23.02 (\nu: 0.5)$
$c_{100}$	0.99751	$0.9975^{+0.0027}_{-0.0027}$	$r_{\text{drag}}$	147.23	$147.4^{+1.0}_{-0.96}$	$\chi_{\text{CamSpec}}^2$	7049.3	$7063.1 (\nu: 14.5)$
$c_{217}$	1.00152	$1.0012^{+0.0040}_{-0.0041}$	$k_D$	0.14059	$0.1405^{+0.0012}_{-0.0012}$	$\chi_{\text{H073p45}}^2$	6.6	$6.6 (\nu: 2.7)$
$H_0$	69.17	$69.3^{+1.9}_{-2.0}$	$100\theta_D$	0.16100	$0.16099^{+0.00067}_{-0.00063}$	$\chi_{\text{JLA}}^2$	1035.92	$1036.5 (\nu: 1.8)$
$\Omega_\Lambda$	0.7011	$0.703^{+0.017}_{-0.019}$	$z_{\text{eq}}$	3402	$3388^{+87}_{-94}$	$\chi_{\text{6DF}}^2$	0.036	$0.099 (\nu: 0.0)$
$\Omega_m$	0.2989	$0.297^{+0.019}_{-0.017}$	$k_{\text{eq}}$	0.010384	$0.01034^{+0.00027}_{-0.00029}$	$\chi_{\text{MGS}}^2$	2.19	$2.43 (\nu: 0.2)$
$\Omega_m h^2$	0.14302	$0.1424^{+0.0036}_{-0.0039}$	$100\theta_{\text{eq}}$	0.8129	$0.815^{+0.018}_{-0.016}$	$\chi_{\text{DR12BAO}}^2$	4.41	$4.71 (\nu: 0.4)$
$\Omega_m h^3$	0.09893	$0.0987^{+0.0040}_{-0.0041}$	$100\theta_{s,\text{eq}}$	0.4493	$0.4506^{+0.0094}_{-0.0082}$	$\chi_{\text{prior}}^2$	2.6	$7.6 (\nu: 6.0)$
$\sigma_8$	0.8338	$0.826^{+0.038}_{-0.040}$	$H(0.15)$	73.74	$73.8^{+1.2}_{-1.3}$	$\chi_{\text{BAO}}^2$	6.64	$7.2 (\nu: 0.7)$
$S_8$	0.8322	$0.822^{+0.041}_{-0.044}$	$D_M(0.15)$	630.5	$630^{+14}_{-13}$	$\chi_{\text{CMB}}^2$	7469.5	$7483.1 (\nu: 14.6)$
$\sigma_8 \Omega_m^{0.5}$	0.4558	$0.450^{+0.023}_{-0.024}$	$H(0.38)$	83.09	$83.20^{+0.89}_{-0.87}$			
$\sigma_8 \Omega_m^{0.25}$	0.6165	$0.610^{+0.028}_{-0.029}$	$D_M(0.38)$	1513.4	$1511^{+25}_{-23}$			

Best-fit  $\chi_{\text{eff}}^2 = 8521.38$ ;  $\bar{\chi}_{\text{eff}}^2 = 8541.10$ ;  $R - 1 = 0.00624$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.04 MGS: 2.19 DR12BAO: 4.41 CMB - simall\_100x143\_offlike5.EE\_Aplanck\_B: 396.83 commander\_dx12\_v3.2.29: 23.38 CamSpec like\_10.7HM: 7049.34  
Hubble - H073p45: 6.64 SN - JLA Pantheon18: 1035.92



18.68 base\_w\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02223^{+0.00051}_{-0.00049}$	$\sigma_8/h^{0.5}$	$0.994^{+0.028}_{-0.030}$	$H(0.51)$	$89.61^{+0.80}_{-0.77}$
$\Omega_c h^2$	$0.1196^{+0.0032}_{-0.0033}$	$r_{\text{drag}} h$	$102.1^{+2.9}_{-3.0}$	$D_M(0.51)$	$1963^{+28}_{-27}$
$100\theta_{\text{MC}}$	$1.0410^{+0.0012}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.447^{+0.061}_{-0.064}$	$H(0.61)$	$95.04^{+0.83}_{-0.79}$
$\tau$	$0.054^{+0.022}_{-0.020}$	$z_{\text{re}}$	$7.7^{+2.1}_{-2.1}$	$D_M(0.61)$	$2288^{+30}_{-28}$
$w_0$	$-1.063^{+0.082}_{-0.082}$	$10^9 A_s$	$2.093^{+0.087}_{-0.077}$	$H(2.33)$	$235.3^{+1.7}_{-1.7}$
$\ln(10^{10} A_s)$	$3.041^{+0.041}_{-0.038}$	$10^9 A_s e^{-2\tau}$	$1.879^{+0.028}_{-0.029}$	$D_M(2.33)$	$5762^{+28}_{-30}$
$n_s$	$0.966^{+0.012}_{-0.011}$	$D_{40}$	$1226^{+32}_{-31}$	$f\sigma_8(0.15)$	$0.461^{+0.020}_{-0.020}$
$y_{\text{cal}}$	$1.0006^{+0.0065}_{-0.0063}$	$D_{220}$	$5713^{+110}_{-99}$	$\sigma_8(0.15)$	$0.766^{+0.027}_{-0.028}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-60}$	$D_{810}$	$2534^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.486^{+0.023}_{-0.023}$
$A_{143}^{\text{PS}}$	$40^{+20}_{-20}$	$D_{1420}$	$815^{+14}_{-12}$	$\sigma_8(0.38)$	$0.679^{+0.023}_{-0.024}$
$A_{217}^{\text{PS}}$	$101^{+30}_{-40}$	$D_{2000}$	$230.0^{+4.7}_{-4.3}$	$f\sigma_8(0.51)$	$0.486^{+0.023}_{-0.024}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$n_{s,0.002}$	$0.966^{+0.012}_{-0.011}$	$\sigma_8(0.51)$	$0.636^{+0.021}_{-0.022}$
$A_{143}^{\text{tSZ}}$	$< 8.95$	$Y_P$	$0.24533^{+0.00019}_{-0.00023}$	$f\sigma_8(0.61)$	$0.482^{+0.023}_{-0.023}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.31}$	$Y_P^{\text{BBN}}$	$0.24666^{+0.00020}_{-0.00023}$	$\sigma_8(0.61)$	$0.605^{+0.020}_{-0.021}$
$r_{143 \times 217}^{\text{CIB}}$	—	$10^5 D/H$	$2.613^{+0.094}_{-0.092}$	$f\sigma_8(2.33)$	$0.3049^{+0.0099}_{-0.010}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	Age/Gyr	$13.770^{+0.068}_{-0.069}$	$\sigma_8(2.33)$	$0.3130^{+0.0088}_{-0.0090}$
$A^{\text{kSZ}}$	—	$z_*$	$1090.07^{+0.76}_{-0.77}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{100}^{\text{dust}}$	$1.01^{+0.51}_{-0.50}$	$r_*$	$144.64^{+0.84}_{-0.78}$	$f_{2000}^{217}$	$107.3^{+5.1}_{-5.2}$
$A_{143}^{\text{dust}}$	$0.98^{+0.43}_{-0.44}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.26}$	$D_M(z_*)/\text{Gpc}$	$13.892^{+0.082}_{-0.075}$	$\chi_{\text{lensing}}^2$	$9.25 (\nu: 0.3)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.41}$	$z_{\text{drag}}$	$1059.6^{+1.1}_{-1.1}$	$\chi_{\text{simall}}^2$	$397.0 (\nu: 1.5)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0027}$	$r_{\text{drag}}$	$147.35^{+0.88}_{-0.84}$	$\chi_{\text{lowl}}^2$	$23.08 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$k_D$	$0.1405^{+0.0011}_{-0.0011}$	$\chi_{\text{CamSpec}}^2$	$7062.7 (\nu: 13.7)$
$H_0$	$69.3^{+1.9}_{-2.0}$	$100\theta_D$	$0.16098^{+0.00066}_{-0.00064}$	$\chi_{\text{H073p45}}^2$	$6.5 (\nu: 2.6)$
$\Omega_\Lambda$	$0.703^{+0.017}_{-0.019}$	$z_{\text{eq}}$	$3390^{+71}_{-75}$	$\chi_{\text{JLA}}^2$	$1036.6 (\nu: 1.7)$
$\Omega_m$	$0.297^{+0.019}_{-0.017}$	$k_{\text{eq}}$	$0.01035^{+0.00022}_{-0.00023}$	$\chi_{6\text{DF}}^2$	$0.10 (\nu: 0.0)$
$\Omega_m h^2$	$0.1425^{+0.0030}_{-0.0031}$	$100\theta_{\text{eq}}$	$0.815^{+0.014}_{-0.013}$	$\chi_{\text{MGS}}^2$	$2.45 (\nu: 0.2)$
$\Omega_m h^3$	$0.0987^{+0.0035}_{-0.0036}$	$100\theta_{s,\text{eq}}$	$0.4505^{+0.0073}_{-0.0068}$	$\chi_{\text{DR12BAO}}^2$	$4.64 (\nu: 0.3)$
$\sigma_8$	$0.827^{+0.029}_{-0.030}$	$H(0.15)$	$73.9^{+1.2}_{-1.3}$	$\chi_{\text{prior}}^2$	$7.6 (\nu: 5.8)$
$S_8$	$0.823^{+0.031}_{-0.031}$	$D_M(0.15)$	$629^{+15}_{-13}$	$\chi_{\text{CMB}}^2$	$7492.0 (\nu: 14.8)$
$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.017}_{-0.017}$	$H(0.38)$	$83.20^{+0.83}_{-0.79}$	$\chi_{\text{BAO}}^2$	$7.2 (\nu: 0.6)$
$\sigma_8 \Omega_m^{0.25}$	$0.611^{+0.020}_{-0.021}$	$D_M(0.38)$	$1511^{+25}_{-23}$		
$\bar{\chi}_{\text{eff}}^2 = 8549.81; R - 1 = 0.01112$					



18.69 base\_w\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02223^{+0.00052}_{-0.00050}$	$\sigma_8/h^{0.5}$	$0.994^{+0.039}_{-0.041}$	$H(0.51)$	$89.62^{+0.90}_{-0.86}$
$\Omega_{\mathrm{c}} h^2$	$0.1195^{+0.0038}_{-0.0041}$	$r_{\mathrm{drag}} h$	$102.1^{+2.8}_{-3.0}$	$D_{\mathrm{M}}(0.51)$	$1963^{+28}_{-26}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.446^{+0.083}_{-0.087}$	$H(0.61)$	$95.06^{+0.94}_{-0.88}$
$\tau$	$0.055^{+0.020}_{-0.013}$	$z_{\mathrm{re}}$	$< 9.60$	$D_{\mathrm{M}}(0.61)$	$2288^{+29}_{-28}$
$w_0$	$-1.061^{+0.091}_{-0.091}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.096}_{-0.063}$	$H(2.33)$	$235.3^{+1.9}_{-1.9}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.045}_{-0.031}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.031}_{-0.031}$	$D_{\mathrm{M}}(2.33)$	$5761^{+30}_{-31}$
$n_{\mathrm{s}}$	$0.966^{+0.013}_{-0.012}$	$D_{40}$	$1225^{+35}_{-34}$	$f\sigma_8(0.15)$	$0.461^{+0.027}_{-0.028}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0064}$	$D_{220}$	$5711^{+110}_{-100}$	$\sigma_8(0.15)$	$0.765^{+0.034}_{-0.036}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-60}$	$D_{810}$	$2534^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.485^{+0.030}_{-0.031}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.679^{+0.029}_{-0.031}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{2000}$	$230.0^{+4.7}_{-4.5}$	$f\sigma_8(0.51)$	$0.486^{+0.030}_{-0.032}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.013}_{-0.012}$	$\sigma_8(0.51)$	$0.635^{+0.027}_{-0.028}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.85$	$Y_{\mathrm{P}}$	$0.24533^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	$0.482^{+0.029}_{-0.031}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00020}_{-0.00024}$	$\sigma_8(0.61)$	$0.605^{+0.025}_{-0.026}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.613^{+0.097}_{-0.094}$	$f\sigma_8(2.33)$	$0.305^{+0.012}_{-0.013}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.771^{+0.069}_{-0.068}$	$\sigma_8(2.33)$	$0.313^{+0.011}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.06^{+0.81}_{-0.86}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.49}$	$r_*$	$144.66^{+0.98}_{-0.92}$	$f_{2000}^{217}$	$107.2^{+5.2}_{-5.2}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.46}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.893^{+0.093}_{-0.087}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.8)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$z_{\mathrm{drag}}$	$1059.6^{+1.1}_{-1.1}$	$\chi_{\mathrm{lowl}}^2$	$23.03 (\nu: 0.5)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.4^{+1.0}_{-0.95}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.9 (\nu: 14.4)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0041}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{H073p45}}^2$	$6.6 (\nu: 2.7)$
$H_0$	$69.3^{+1.9}_{-2.0}$	$100\theta_{\mathrm{D}}$	$0.16099^{+0.00067}_{-0.00062}$	$\chi_{\mathrm{JLA}}^2$	$1036.5 (\nu: 1.8)$
$\Omega_{\Lambda}$	$0.703^{+0.017}_{-0.019}$	$z_{\mathrm{eq}}$	$3388^{+87}_{-94}$	$\chi_{6\mathrm{DF}}^2$	$0.10 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.297^{+0.019}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00027}_{-0.00029}$	$\chi_{\mathrm{MGS}}^2$	$2.44 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^2$	$0.1424^{+0.0037}_{-0.0039}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.018}_{-0.016}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.70 (\nu: 0.4)$
$\Omega_{\mathrm{m}} h^3$	$0.0986^{+0.0040}_{-0.0041}$	$100\theta_{\mathrm{s,eq}}$	$0.4507^{+0.0093}_{-0.0082}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.9)$
$\sigma_8$	$0.827^{+0.038}_{-0.039}$	$H(0.15)$	$73.8^{+1.2}_{-1.3}$	$\chi_{\mathrm{BAO}}^2$	$7.2 (\nu: 0.7)$
$S_8$	$0.823^{+0.041}_{-0.042}$	$D_{\mathrm{M}}(0.15)$	$630^{+14}_{-13}$	$\chi_{\mathrm{CMB}}^2$	$7482.9 (\nu: 14.3)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.022}_{-0.023}$	$H(0.38)$	$83.20^{+0.90}_{-0.87}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.028}_{-0.029}$	$D_{\mathrm{M}}(0.38)$	$1511^{+25}_{-23}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 8540.87$ ;  $R - 1 = 0.00534$



18.70 base\_w\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02223^{+0.00050}_{-0.00049}$	$\sigma_8/h^{0.5}$	$0.994^{+0.028}_{-0.029}$	$H(0.51)$	$89.62^{+0.79}_{-0.76}$
$\Omega_{\mathrm{c}} h^2$	$0.1195^{+0.0031}_{-0.0032}$	$r_{\mathrm{drag}} h$	$102.1^{+2.9}_{-3.0}$	$D_{\mathrm{M}}(0.51)$	$1963^{+28}_{-27}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0012}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.061}_{-0.063}$	$H(0.61)$	$95.06^{+0.82}_{-0.78}$
$\tau$	$0.055^{+0.019}_{-0.014}$	$z_{\mathrm{re}}$	$< 9.53$	$D_{\mathrm{M}}(0.61)$	$2287^{+30}_{-28}$
$w_0$	$-1.062^{+0.081}_{-0.081}$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.084}_{-0.059}$	$H(2.33)$	$235.3^{+1.7}_{-1.7}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.039}_{-0.028}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.028}_{-0.029}$	$D_{\mathrm{M}}(2.33)$	$5761^{+29}_{-30}$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011}$	$D_{40}$	$1226^{+32}_{-31}$	$f\sigma_8(0.15)$	$0.461^{+0.020}_{-0.020}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0065}_{-0.0063}$	$D_{220}$	$5713^{+110}_{-100}$	$\sigma_8(0.15)$	$0.766^{+0.027}_{-0.028}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-60}$	$D_{810}$	$2534^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.486^{+0.023}_{-0.023}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.679^{+0.023}_{-0.024}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{2000}$	$230.0^{+4.7}_{-4.3}$	$f\sigma_8(0.51)$	$0.486^{+0.023}_{-0.023}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.636^{+0.021}_{-0.022}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.95$	$Y_{\mathrm{P}}$	$0.24534^{+0.00019}_{-0.00023}$	$f\sigma_8(0.61)$	$0.482^{+0.023}_{-0.023}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.31}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24666^{+0.00019}_{-0.00023}$	$\sigma_8(0.61)$	$0.605^{+0.020}_{-0.021}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.612^{+0.094}_{-0.091}$	$f\sigma_8(2.33)$	$0.3051^{+0.0098}_{-0.010}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.770^{+0.067}_{-0.069}$	$\sigma_8(2.33)$	$0.3131^{+0.0086}_{-0.0088}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.06^{+0.76}_{-0.76}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.49}$	$r_*$	$144.65^{+0.83}_{-0.77}$	$f_{2000}^{217}$	$107.3^{+5.1}_{-5.3}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.43}_{-0.44}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.893^{+0.082}_{-0.074}$	$\chi_{\mathrm{lensing}}^2$	$9.22 (\nu: 0.3)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$z_{\mathrm{drag}}$	$1059.6^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.6)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.37^{+0.88}_{-0.83}$	$\chi_{\mathrm{lowl}}^2$	$23.06 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$k_{\mathrm{D}}$	$0.1405^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.6 (\nu: 13.6)$
$H_0$	$69.3^{+1.9}_{-2.0}$	$100\theta_{\mathrm{D}}$	$0.16098^{+0.00066}_{-0.00063}$	$\chi_{\mathrm{H073p45}}^2$	$6.5 (\nu: 2.6)$
$\Omega_{\Lambda}$	$0.703^{+0.017}_{-0.019}$	$z_{\mathrm{eq}}$	$3388^{+71}_{-74}$	$\chi_{\mathrm{JLA}}^2$	$1036.5 (\nu: 1.7)$
$\Omega_{\mathrm{m}}$	$0.297^{+0.019}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01034^{+0.00022}_{-0.00022}$	$\chi_{6\mathrm{DF}}^2$	$0.10 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1424^{+0.0030}_{-0.0031}$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.014}_{-0.013}$	$\chi_{\mathrm{MGS}}^2$	$2.46 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0987^{+0.0035}_{-0.0035}$	$100\theta_{\mathrm{s,eq}}$	$0.4507^{+0.0072}_{-0.0067}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.61 (\nu: 0.3)$
$\sigma_8$	$0.828^{+0.029}_{-0.030}$	$H(0.15)$	$73.9^{+1.2}_{-1.3}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.8)$
$S_8$	$0.823^{+0.031}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$629^{+15}_{-13}$	$\chi_{\mathrm{CMB}}^2$	$7491.8 (\nu: 14.5)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.017}$	$H(0.38)$	$83.21^{+0.82}_{-0.79}$	$\chi_{\mathrm{BAO}}^2$	$7.2 (\nu: 0.6)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.020}_{-0.020}$	$D_{\mathrm{M}}(0.38)$	$1511^{+26}_{-23}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 8549.61; R - 1 = 0.01012$					



18.71 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022344	$0.02233^{+0.00040}_{-0.00038}$ (+0.5 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4481	$0.448^{+0.019}_{-0.018}$ (-0.3 $\sigma$ )	$H(0.38)$	83.30	$83.30^{+0.72}_{-0.72}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.11925	$0.1193^{+0.0030}_{-0.0030}$ (-0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6069	$0.607^{+0.023}_{-0.023}$ (-0.3 $\sigma$ )	$D_M(0.38)$	1510.6	$1510^{+24}_{-24}$ (-0.1 $\sigma$ )
$100\theta_{MC}$	1.04095	$1.04094^{+0.00079}_{-0.00076}$ (-0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9883	$0.989^{+0.033}_{-0.033}$ (-0.3 $\sigma$ )	$H(0.51)$	89.74	$89.72^{+0.68}_{-0.69}$ (+0.3 $\sigma$ )
$\tau$	0.0531	$0.053^{+0.021}_{-0.021}$ (-0.1 $\sigma$ )	$r_{drag}h$	101.96	$102.1^{+3.0}_{-2.9}$ (+0.0 $\sigma$ )	$D_M(0.51)$	1961.6	$1961^{+26}_{-26}$ (-0.2 $\sigma$ )
$w_0$	-1.053	$-1.056^{+0.079}_{-0.081}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.435	$2.436^{+0.072}_{-0.073}$ (-0.2 $\sigma$ )	$H(0.61)$	95.19	$95.16^{+0.70}_{-0.72}$ (+0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0387	$3.038^{+0.044}_{-0.044}$ (-0.1 $\sigma$ )	$z_{re}$	7.55	$7.5^{+2.0}_{-2.3}$ (-0.1 $\sigma$ )	$D_M(0.61)$	2286.0	$2286^{+27}_{-27}$ (-0.2 $\sigma$ )
$n_s$	0.9671	$0.967^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )	$10^9 A_s$	2.088	$2.087^{+0.093}_{-0.089}$ (-0.1 $\sigma$ )	$H(2.33)$	235.27	$235.2^{+1.6}_{-1.5}$ (-0.0 $\sigma$ )
$y_{cal}$	1.0005	$1.0005^{+0.0063}_{-0.0065}$ (-0.0 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8772	$1.877^{+0.029}_{-0.029}$ (-0.1 $\sigma$ )	$D_M(2.33)$	5757.0	$5758^{+23}_{-23}$ (-0.3 $\sigma$ )
$A_{100}^{PS}$	234	$240^{+60}_{-60}$ (-0.1 $\sigma$ )	$D_{40}$	1222.9	$1224^{+32}_{-32}$ (-0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4577	$0.458^{+0.021}_{-0.021}$ (-0.3 $\sigma$ )
$A_{143}^{PS}$	39.3	$39^{+20}_{-20}$ (-0.1 $\sigma$ )	$D_{220}$	5720	$5721^{+100}_{-100}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	0.7609	$0.762^{+0.029}_{-0.031}$ (-0.2 $\sigma$ )
$A_{217}^{PS}$	102.2	$102^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{810}$	2535.2	$2535^{+34}_{-35}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4816	$0.482^{+0.024}_{-0.024}$ (-0.2 $\sigma$ )
$A_{217}^{CIB}$	44.2	$40^{+20}_{-20}$ (-0.1 $\sigma$ )	$D_{1420}$	816.3	$816^{+12}_{-13}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6751	$0.676^{+0.026}_{-0.027}$ (-0.2 $\sigma$ )
$A_{143}^{tSZ}$	6.58	< 8.79 (+0.0 $\sigma$ )	$D_{2000}$	230.55	$230.4^{+4.1}_{-4.2}$ (+0.2 $\sigma$ )	$f\sigma_8(0.51)$	0.4820	$0.483^{+0.025}_{-0.025}$ (-0.2 $\sigma$ )
$r_{143 \times 217}^{PS}$	0.600	$0.66^{+0.31}_{-0.34}$ (+0.0 $\sigma$ )	$n_{s,0.002}$	0.9671	$0.967^{+0.011}_{-0.011}$ (+0.2 $\sigma$ )	$\sigma_8(0.51)$	0.6319	$0.632^{+0.024}_{-0.025}$ (-0.2 $\sigma$ )
$r_{143 \times 217}^{CIB}$	0.78	—	$Y_P$	0.245385	$0.24538^{+0.00015}_{-0.00016}$ (+0.5 $\sigma$ )	$f\sigma_8(0.61)$	0.4778	$0.478^{+0.024}_{-0.024}$ (-0.2 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.11	—	$Y_P^{BBN}$	0.246712	$0.24671^{+0.00015}_{-0.00016}$ (+0.5 $\sigma$ )	$\sigma_8(0.61)$	0.6012	$0.602^{+0.022}_{-0.023}$ (-0.2 $\sigma$ )
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.590	$2.593^{+0.072}_{-0.073}$ (-0.5 $\sigma$ )	$f\sigma_8(2.33)$	0.3033	$0.304^{+0.011}_{-0.012}$ (-0.2 $\sigma$ )
$A_{100}^{dust}$	1.01	$1.01^{+0.50}_{-0.51}$ (-0.0 $\sigma$ )	Age/Gyr	13.764	$13.764^{+0.056}_{-0.057}$ (-0.3 $\sigma$ )	$\sigma_8(2.33)$	0.3116	$0.3118^{+0.0098}_{-0.010}$ (-0.2 $\sigma$ )
$A_{143}^{dust}$	0.977	$0.96^{+0.46}_{-0.45}$ (-0.1 $\sigma$ )	$z_*$	1089.89	$1089.90^{+0.64}_{-0.65}$ (-0.5 $\sigma$ )	$f_{2000}^{143}$	29.7	$30^{+7}_{-7}$ (-0.3 $\sigma$ )
$A_{217}^{dust}$	0.971	$0.97^{+0.26}_{-0.27}$ (+0.0 $\sigma$ )	$r_*$	144.65	$144.65^{+0.68}_{-0.69}$ (-0.0 $\sigma$ )	$f_{2000}^{217}$	106.67	$106.7^{+4.9}_{-4.9}$ (-0.3 $\sigma$ )
$A_{143 \times 217}^{dust}$	1.002	$1.03^{+0.42}_{-0.41}$ (-0.0 $\sigma$ )	$100\theta_*$	1.04114	$1.04113^{+0.00078}_{-0.00074}$ (-0.2 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.0	$32^{+5}_{-5}$ (-0.3 $\sigma$ )
$c_{100}$	0.99765	$0.9975^{+0.0027}_{-0.0028}$ (+0.0 $\sigma$ )	$D_M(z_*)/\text{Gpc}$	13.893	$13.894^{+0.065}_{-0.066}$ (+0.0 $\sigma$ )	$\chi_{simall}^2$	395.86	$396.9 (\nu: 1.3)$ (-0.1 $\sigma$ )
$c_{217}$	1.00129	$1.0011^{+0.0040}_{-0.0041}$ (-0.0 $\sigma$ )	$z_{drag}$	1059.82	$1059.80^{+0.86}_{-0.82}$ (+0.5 $\sigma$ )	$\chi_{lowl}^2$	22.75	$22.88 (\nu: 0.4)$ (-0.1 $\sigma$ )
$c_{TE}$	0.9964	$0.997^{+0.013}_{-0.012}$	$r_{drag}$	147.32	$147.33^{+0.71}_{-0.72}$ (-0.1 $\sigma$ )	$\chi_{CamSpec}^2$	11499.6	$11514.4 (\nu: 15.8)$ (+825.4 $\sigma$ )
$c_{EE}$	0.9917	$0.992^{+0.013}_{-0.013}$	$k_D$	0.14061	$0.14059^{+0.00086}_{-0.00084}$ (+0.3 $\sigma$ )	$\chi_{H073p45}^2$	6.5	$6.5 (\nu: 2.7)$ (-0.0 $\sigma$ )
$H_0$	69.21	$69.3^{+2.1}_{-2.0}$ (+0.0 $\sigma$ )	$100\theta_D$	0.160825	$0.16084^{+0.00049}_{-0.00049}$ (-0.6 $\sigma$ )	$\chi_{JLA}^2$	1035.62	$1036.4 (\nu: 1.7)$ (-0.1 $\sigma$ )
$\Omega_\Lambda$	0.7030	$0.704^{+0.018}_{-0.018}$ (+0.1 $\sigma$ )	$z_{eq}$	3384	$3384^{+67}_{-66}$ (-0.1 $\sigma$ )	$\chi_{6DF}^2$	0.054	$0.10 (\nu: 0.0)$ (+0.0 $\sigma$ )
$\Omega_m$	0.2970	$0.296^{+0.018}_{-0.018}$ (-0.1 $\sigma$ )	$k_{eq}$	0.010327	$0.01033^{+0.00021}_{-0.00020}$ (-0.1 $\sigma$ )	$\chi_{MGS}^2$	2.35	$2.47 (\nu: 0.2)$ (+0.1 $\sigma$ )
$\Omega_m h^2$	0.14224	$0.1422^{+0.0028}_{-0.0028}$ (-0.1 $\sigma$ )	$100\theta_{eq}$	0.8166	$0.817^{+0.013}_{-0.013}$ (+0.2 $\sigma$ )	$\chi_{DR12BAO}^2$	4.05	$4.51 (\nu: 0.3)$ (-0.2 $\sigma$ )
$\Omega_m h^3$	0.09844	$0.0986^{+0.0035}_{-0.0035}$ (-0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4511	$0.4511^{+0.0065}_{-0.0064}$ (+0.1 $\sigma$ )	$\chi_{prior}^2$	2.2	$7.8 (\nu: 5.8)$ (+0.1 $\sigma$ )
$\sigma_8$	0.8222	$0.823^{+0.032}_{-0.033}$ (-0.2 $\sigma$ )	$H(0.15)$	73.87	$73.9^{+1.3}_{-1.3}$ (+0.1 $\sigma$ )	$\chi_{BAO}^2$	6.46	$7.1 (\nu: 0.7)$ (-0.1 $\sigma$ )
$S_8$	0.8180	$0.818^{+0.034}_{-0.033}$ (-0.3 $\sigma$ )	$D_M(0.15)$	629.7	$629^{+14}_{-14}$ (-0.1 $\sigma$ )	$\chi_{CMB}^2$	11918.2	$11934.1 (\nu: 16.1)$ (+822.5 $\sigma$ )

Best-fit  $\chi_{eff}^2 = 12969.03$ ;  $\Delta\chi_{eff}^2 = 4447.65$ ;  $\bar{\chi}_{eff}^2 = 12991.92$ ;  $\Delta\bar{\chi}_{eff}^2 = 4450.82$ ;  $R - 1 = 0.00648$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.05 ( $\Delta$  0.02) MGS: 2.35 ( $\Delta$  0.16) DR12BAO: 4.05 ( $\Delta$  -0.35) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 ( $\Delta$  -0.97) commander\_dx12\_v3\_2\_29: 22.75 ( $\Delta$  -0.63) CamSpec like\_10.7HM\_1400\_unified: 11499.61 Hubble - H073p45: 6.54 ( $\Delta$  -0.10) SN - JLA Pantheon18: 1035.62 ( $\Delta$  -0.30)



**18.72**    **base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02233^{+0.00039}_{-0.00038} \quad (+0.5\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.017}_{-0.018} \quad (-0.3\sigma)$	$H(0.51)$	$89.71^{+0.64}_{-0.63} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1193^{+0.0026}_{-0.0027} \quad (-0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.990^{+0.025}_{-0.026} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.51)$	$1961^{+26}_{-26} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04093^{+0.00080}_{-0.00073} \quad (-0.2\sigma)$	$r_{\mathrm{drag}} h$	$102.1^{+3.0}_{-2.9} \quad (+0.0\sigma)$	$H(0.61)$	$95.14^{+0.67}_{-0.68} \quad (+0.3\sigma)$
$\tau$	$0.054^{+0.020}_{-0.019} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.056}_{-0.057} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2285^{+27}_{-27} \quad (-0.2\sigma)$
$w_0$	$-1.059^{+0.075}_{-0.078} \quad (+0.2\sigma)$	$z_{\mathrm{re}}$	$7.6^{+1.9}_{-2.0} \quad (-0.1\sigma)$	$H(2.33)$	$235.3^{+1.5}_{-1.5} \quad (-0.0\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.040}_{-0.037} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.085}_{-0.076} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5758^{+23}_{-23} \quad (-0.3\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.011} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.026}_{-0.028} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.017}_{-0.017} \quad (-0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0062}_{-0.0063} \quad (+0.0\sigma)$	$D_{40}$	$1225^{+30}_{-31} \quad (-0.0\sigma)$	$\sigma_8(0.15)$	$0.763^{+0.025}_{-0.026} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{220}$	$5724^{+99}_{-99} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.483^{+0.020}_{-0.020} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2535^{+34}_{-35} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.677^{+0.022}_{-0.023} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$D_{1420}$	$816^{+12}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.484^{+0.021}_{-0.020} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$230.4^{+4.0}_{-4.2} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.634^{+0.021}_{-0.021} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.80 \quad (+0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.011} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.480^{+0.021}_{-0.021} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.5\sigma)$	$\sigma_8(0.61)$	$0.603^{+0.020}_{-0.020} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+0.5\sigma)$	$f\sigma_8(2.33)$	$0.3042^{+0.0098}_{-0.010} \quad (-0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.593^{+0.073}_{-0.070} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.3123^{+0.0087}_{-0.0087} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.763^{+0.056}_{-0.058} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51} \quad (-0.0\sigma)$	$z_*$	$1089.91^{+0.61}_{-0.63} \quad (-0.5\sigma)$	$f_{2000}^{217}$	$106.7^{+4.9}_{-5.0} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.45} \quad (-0.1\sigma)$	$r_*$	$144.63^{+0.64}_{-0.63} \quad (-0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.26}_{-0.27} \quad (+0.0\sigma)$	$100\theta_*$	$1.04111^{+0.00079}_{-0.00072} \quad (-0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.13 \quad (\nu: 0.2) \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.892^{+0.059}_{-0.060} \quad (-0.0\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.2) \quad (-0.1\sigma)$
$c_{100}$	$0.9976^{+0.0026}_{-0.0028} \quad (+0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.80^{+0.86}_{-0.82} \quad (+0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.98 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}$	$147.31^{+0.66}_{-0.65} \quad (-0.1\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.9 \quad (\nu: 15.5) \quad (+850.3\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14061^{+0.00081}_{-0.00081} \quad (+0.3\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$6.4 \quad (\nu: 2.7) \quad (-0.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16083^{+0.00050}_{-0.00049} \quad (-0.6\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1036.5 \quad (\nu: 1.8) \quad (-0.1\sigma)$
$H_0$	$69.3^{+2.1}_{-2.0} \quad (+0.0\sigma)$	$z_{\mathrm{eq}}$	$3386^{+60}_{-61} \quad (-0.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.11 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.704^{+0.017}_{-0.018} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01033^{+0.00018}_{-0.00018} \quad (-0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$2.48 \quad (\nu: 0.2) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.296^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.012}_{-0.011} \quad (+0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.51 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1423^{+0.0025}_{-0.0025} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4509^{+0.0059}_{-0.0058} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0987^{+0.0034}_{-0.0033} \quad (-0.1\sigma)$	$H(0.15)$	$73.9^{+1.3}_{-1.3} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11942.9 \quad (\nu: 16.7) \quad (+817.8\sigma)$
$\sigma_8$	$0.825^{+0.027}_{-0.027} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$629^{+14}_{-14} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$7.1 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$S_8$	$0.819^{+0.028}_{-0.026} \quad (-0.3\sigma)$	$H(0.38)$	$83.29^{+0.69}_{-0.68} \quad (+0.3\sigma)$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.015}_{-0.014} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1510^{+24}_{-23} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 13000.66; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.85; R - 1 = 0.00726$$



**18.73 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02234^{+0.00040}_{-0.00038} \quad (+0.5\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.018}_{-0.018} \quad (-0.3\sigma)$	$H(0.38)$	$83.30^{+0.72}_{-0.72} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1192^{+0.0030}_{-0.0030} \quad (-0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.022}_{-0.022} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1510^{+24}_{-24} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04094^{+0.00080}_{-0.00076} \quad (-0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.990^{+0.032}_{-0.032} \quad (-0.3\sigma)$	$H(0.51)$	$89.73^{+0.68}_{-0.70} \quad (+0.3\sigma)$
$\tau$	$0.054^{+0.018}_{-0.012} \quad (-0.1\sigma)$	$r_{\mathrm{drag}} h$	$102.1^{+3.0}_{-2.9} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1961^{+27}_{-26} \quad (-0.2\sigma)$
$w_0$	$-1.056^{+0.078}_{-0.079} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.070}_{-0.071} \quad (-0.2\sigma)$	$H(0.61)$	$95.17^{+0.71}_{-0.71} \quad (+0.3\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.041}_{-0.029} \quad (-0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.37 \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2286^{+27}_{-27} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.088}_{-0.060} \quad (-0.1\sigma)$	$H(2.33)$	$235.2^{+1.6}_{-1.5} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0065} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.029}_{-0.029} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5757^{+23}_{-23} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{40}$	$1224^{+32}_{-32} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.021}_{-0.021} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5720^{+100}_{-100} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.762^{+0.029}_{-0.030} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2535^{+34}_{-35} \quad (+0.0\sigma)$	$f\sigma_8(0.38)$	$0.483^{+0.024}_{-0.024} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+12}_{-13} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.677^{+0.025}_{-0.026} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.78 \quad (+0.0\sigma)$	$D_{2000}$	$230.4^{+4.1}_{-4.2} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.483^{+0.024}_{-0.024} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.967^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.633^{+0.023}_{-0.024} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.5\sigma)$	$f\sigma_8(0.61)$	$0.479^{+0.024}_{-0.024} \quad (-0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24671^{+0.00015}_{-0.00016} \quad (+0.5\sigma)$	$\sigma_8(0.61)$	$0.602^{+0.022}_{-0.022} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.592^{+0.073}_{-0.073} \quad (-0.5\sigma)$	$f\sigma_8(2.33)$	$0.304^{+0.011}_{-0.011} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.51} \quad (-0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.764^{+0.056}_{-0.057} \quad (-0.3\sigma)$	$\sigma_8(2.33)$	$0.3122^{+0.0094}_{-0.0095} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.45} \quad (-0.1\sigma)$	$z_*$	$1089.90^{+0.65}_{-0.65} \quad (-0.5\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.26}_{-0.27} \quad (+0.0\sigma)$	$r_*$	$144.66^{+0.68}_{-0.69} \quad (-0.0\sigma)$	$f_{2000}^{217}$	$106.7^{+4.9}_{-4.9} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41} \quad (-0.0\sigma)$	$100\theta_*$	$1.04113^{+0.00078}_{-0.00075} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0028} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.894^{+0.064}_{-0.066} \quad (+0.0\sigma)$	$\chi_{\mathrm{small}}^2$	$396.8 \quad (\nu: 1.3) \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041} \quad (-0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.80^{+0.86}_{-0.82} \quad (+0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.89 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	$147.33^{+0.70}_{-0.72} \quad (-0.1\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.2 \quad (\nu: 15.7) \quad (+830.2\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.14059^{+0.00087}_{-0.00084} \quad (+0.3\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$6.5 \quad (\nu: 2.7) \quad (-0.0\sigma)$
$H_0$	$69.3^{+2.0}_{-2.0} \quad (+0.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.16083^{+0.00049}_{-0.00049} \quad (-0.6\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1036.4 \quad (\nu: 1.6) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.704^{+0.018}_{-0.018} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3383^{+67}_{-66} \quad (-0.1\sigma)$	$\chi_{\mathrm{6DF}}^2$	$0.10 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.296^{+0.018}_{-0.018} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01033^{+0.00020}_{-0.00020} \quad (-0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$2.47 \quad (\nu: 0.2) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1422^{+0.0028}_{-0.0028} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.012} \quad (+0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.50 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0985^{+0.0035}_{-0.0035} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4512^{+0.0066}_{-0.0064} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\sigma_8$	$0.824^{+0.031}_{-0.032} \quad (-0.2\sigma)$	$H(0.15)$	$73.9^{+1.3}_{-1.3} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$7.1 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$S_8$	$0.819^{+0.034}_{-0.032} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$629^{+14}_{-14} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11933.9 \quad (\nu: 15.8) \quad (+831.8\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 12991.69; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.82; R - 1 = 0.00727$$



18.74 base\_w\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}} h^2$	$0.02234^{+0.00040}_{-0.00039} \quad (+0.5\sigma)$	$\sigma_8 \Omega_{\text{m}}^{0.25}$	$0.609^{+0.017}_{-0.018} \quad (-0.3\sigma)$	$H(0.51)$	$89.72^{+0.64}_{-0.64} \quad (+0.3\sigma)$
$\Omega_{\text{c}} h^2$	$0.1193^{+0.0026}_{-0.0026} \quad (-0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.991^{+0.025}_{-0.025} \quad (-0.3\sigma)$	$D_{\text{M}}(0.51)$	$1961^{+26}_{-26} \quad (-0.2\sigma)$
$100\theta_{\text{MC}}$	$1.04093^{+0.00080}_{-0.00073} \quad (-0.2\sigma)$	$r_{\text{drag}} h$	$102.1^{+3.0}_{-2.9} \quad (+0.0\sigma)$	$H(0.61)$	$95.16^{+0.67}_{-0.67} \quad (+0.3\sigma)$
$\tau$	$0.055^{+0.018}_{-0.013} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.442^{+0.055}_{-0.055} \quad (-0.2\sigma)$	$D_{\text{M}}(0.61)$	$2285^{+27}_{-27} \quad (-0.2\sigma)$
$w_0$	$-1.058^{+0.074}_{-0.076} \quad (+0.1\sigma)$	$z_{\text{re}}$	$< 9.33 \quad (-0.1\sigma)$	$H(2.33)$	$235.2^{+1.5}_{-1.5} \quad (-0.0\sigma)$
$\ln(10^{10} A_{\text{s}})$	$3.042^{+0.038}_{-0.028} \quad (-0.0\sigma)$	$10^9 A_{\text{s}}$	$2.096^{+0.082}_{-0.057} \quad (-0.0\sigma)$	$D_{\text{M}}(2.33)$	$5757^{+23}_{-23} \quad (-0.3\sigma)$
$n_{\text{s}}$	$0.967^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$10^9 A_{\text{s}} e^{-2\tau}$	$1.878^{+0.026}_{-0.027} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.017}_{-0.017} \quad (-0.3\sigma)$
$y_{\text{cal}}$	$1.0006^{+0.0063}_{-0.0063} \quad (+0.0\sigma)$	$D_{40}$	$1225^{+29}_{-30} \quad (-0.0\sigma)$	$\sigma_8(0.15)$	$0.764^{+0.025}_{-0.025} \quad (-0.2\sigma)$
$A_{100}^{\text{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{220}$	$5723^{+99}_{-100} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.483^{+0.020}_{-0.020} \quad (-0.3\sigma)$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2535^{+33}_{-35} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.678^{+0.022}_{-0.023} \quad (-0.2\sigma)$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$D_{1420}$	$816^{+12}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.484^{+0.021}_{-0.021} \quad (-0.2\sigma)$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$230.5^{+4.0}_{-4.2} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.634^{+0.020}_{-0.021} \quad (-0.2\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.79 \quad (+0.0\sigma)$	$n_{\text{s},0.002}$	$0.967^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.480^{+0.021}_{-0.020} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$Y_{\text{P}}$	$0.24538^{+0.00015}_{-0.00016} \quad (+0.5\sigma)$	$\sigma_8(0.61)$	$0.603^{+0.019}_{-0.020} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.24671^{+0.00015}_{-0.00017} \quad (+0.5\sigma)$	$f\sigma_8(2.33)$	$0.3044^{+0.0096}_{-0.0098} \quad (-0.2\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$10^5 \text{D}/\text{H}$	$2.592^{+0.073}_{-0.071} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.3126^{+0.0085}_{-0.0085} \quad (-0.2\sigma)$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.763^{+0.057}_{-0.057} \quad (-0.3\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.52} \quad (-0.0\sigma)$	$z_*$	$1089.90^{+0.62}_{-0.63} \quad (-0.5\sigma)$	$f_{2000}^{217}$	$106.7^{+4.9}_{-5.0} \quad (-0.3\sigma)$
$A_{143}^{\text{dust}}$	$0.96^{+0.44}_{-0.45} \quad (-0.1\sigma)$	$r_*$	$144.64^{+0.63}_{-0.62} \quad (-0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.3\sigma)$
$A_{217}^{\text{dust}}$	$0.98^{+0.26}_{-0.27} \quad (+0.0\sigma)$	$100\theta_*$	$1.04112^{+0.00079}_{-0.00072} \quad (-0.2\sigma)$	$\chi_{\text{lensing}}^2$	$9.09 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.41} \quad (-0.0\sigma)$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.893^{+0.059}_{-0.059} \quad (-0.0\sigma)$	$\chi_{\text{small}}^2$	$396.8 \quad (\nu: 1.3) \quad (-0.1\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0028} \quad (+0.0\sigma)$	$z_{\text{drag}}$	$1059.81^{+0.85}_{-0.83} \quad (+0.5\sigma)$	$\chi_{\text{lowl}}^2$	$22.97 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0041} \quad (-0.1\sigma)$	$r_{\text{drag}}$	$147.32^{+0.66}_{-0.65} \quad (-0.2\sigma)$	$\chi_{\text{CamSpec}}^2$	$11513.9 \quad (\nu: 15.6) \quad (+854.6\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.012}$	$k_{\text{D}}$	$0.14060^{+0.00081}_{-0.00081} \quad (+0.3\sigma)$	$\chi_{\text{H073p45}}^2$	$6.4 \quad (\nu: 2.7) \quad (-0.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\text{D}}$	$0.16083^{+0.00050}_{-0.00049} \quad (-0.6\sigma)$	$\chi_{\text{JLA}}^2$	$1036.4 \quad (\nu: 1.7) \quad (-0.1\sigma)$
$H_0$	$69.3^{+2.0}_{-2.0} \quad (+0.0\sigma)$	$z_{\text{eq}}$	$3385^{+59}_{-60} \quad (-0.1\sigma)$	$\chi_{6\text{DF}}^2$	$0.11 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.704^{+0.017}_{-0.018} \quad (+0.1\sigma)$	$k_{\text{eq}}$	$0.01033^{+0.00018}_{-0.00018} \quad (-0.1\sigma)$	$\chi_{\text{MGS}}^2$	$2.48 \quad (\nu: 0.2) \quad (+0.0\sigma)$
$\Omega_{\text{m}}$	$0.296^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$100\theta_{\text{eq}}$	$0.816^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.50 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$\Omega_{\text{m}} h^2$	$0.1423^{+0.0025}_{-0.0025} \quad (-0.1\sigma)$	$100\theta_{\text{s,eq}}$	$0.4510^{+0.0059}_{-0.0057} \quad (+0.1\sigma)$	$\chi_{\text{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\Omega_{\text{m}} h^3$	$0.0986^{+0.0034}_{-0.0033} \quad (-0.0\sigma)$	$H(0.15)$	$73.9^{+1.3}_{-1.3} \quad (+0.1\sigma)$	$\chi_{\text{CMB}}^2$	$11942.8 \quad (\nu: 16.5) \quad (+825.6\sigma)$
$\sigma_8$	$0.825^{+0.026}_{-0.027} \quad (-0.2\sigma)$	$D_{\text{M}}(0.15)$	$629^{+15}_{-14} \quad (-0.1\sigma)$	$\chi_{\text{BAO}}^2$	$7.1 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$S_8$	$0.820^{+0.028}_{-0.026} \quad (-0.3\sigma)$	$H(0.38)$	$83.30^{+0.69}_{-0.68} \quad (+0.3\sigma)$		
$\sigma_8 \Omega_{\text{m}}^{0.5}$	$0.449^{+0.015}_{-0.014} \quad (-0.3\sigma)$	$D_{\text{M}}(0.38)$	$1510^{+24}_{-23} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 13000.46; \Delta\bar{\chi}_{\text{eff}}^2 = 4450.85; R - 1 = 0.00765$$



18.75 base\_w\_CleanedCamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02216	$0.02215^{+0.00055}_{-0.00057}$	$\sigma_8/h^{0.5}$	1.076	$1.041^{+0.071}_{-0.095}$	$D_M(0.15)$	481	$547^{+100}_{-70}$
$\Omega_c h^2$	0.1201	$0.1201^{+0.0054}_{-0.0054}$	$r_{\text{drag}} h$	147.3	$125^{+20}_{-40}$	$H(0.38)$	84.30	$84.1^{+2.5}_{-3.7}$
$100\theta_{\text{MC}}$	1.04087	$1.0408^{+0.0012}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	2.529	$2.50^{+0.11}_{-0.14}$	$D_M(0.38)$	1288	$1386^{+200}_{-100}$
$\tau$	0.0528	$0.052^{+0.022}_{-0.021}$	$z_{\text{re}}$	7.51	$7.4^{+2.1}_{-2.4}$	$H(0.51)$	86.59	$88.2^{+2.2}_{-3.0}$
$w_0$	-1.97	$-1.55^{+0.78}_{-0.54}$	$10^9 A_s$	2.089	$2.085^{+0.093}_{-0.089}$	$D_M(0.51)$	1745	$1839^{+200}_{-100}$
$\ln(10^{10} A_s)$	3.0393	$3.037^{+0.044}_{-0.044}$	$10^9 A_s e^{-2\tau}$	1.8795	$1.879^{+0.036}_{-0.035}$	$H(0.61)$	90.02	$92.5^{+3.3}_{-3.4}$
$n_s$	0.9632	$0.963^{+0.015}_{-0.015}$	$D_{40}$	1226.3	$1228^{+40}_{-40}$	$D_M(0.61)$	2085	$2171^{+200}_{-100}$
$y_{\text{cal}}$	1.0001	$1.0004^{+0.0066}_{-0.0064}$	$D_{220}$	5711	$5710^{+110}_{-110}$	$H(2.33)$	230.4	$232.1^{+9.8}_{-4.7}$
$A_{100}^{\text{PS}}$	250	$254^{+70}_{-70}$	$D_{810}$	2530.7	$2531^{+36}_{-36}$	$D_M(2.33)$	5740	$5749^{+81}_{-49}$
$A_{143}^{\text{tSZ}}$	6.15	$< 8.84$	$D_{1420}$	812.4	$812^{+13}_{-13}$	$f\sigma_8(0.15)$	0.510	$0.488^{+0.056}_{-0.052}$
$A^{\text{kSZ}}$	0.4	—	$D_{2000}$	229.29	$229.2^{+4.5}_{-4.6}$	$\sigma_8(0.15)$	1.014	$0.90^{+0.15}_{-0.21}$
$A_{100}^{\text{dust}}$	1.00	$1.01^{+0.51}_{-0.50}$	$n_{\text{s},0.002}$	0.9632	$0.963^{+0.015}_{-0.015}$	$f\sigma_8(0.38)$	0.647	$0.57^{+0.11}_{-0.13}$
$A_{143}^{\text{power}}$	11.7	$10.2^{+6.2}_{-5.5}$	$Y_{\text{P}}$	0.245310	$0.24530^{+0.00022}_{-0.00027}$	$\sigma_8(0.38)$	0.908	$0.80^{+0.13}_{-0.20}$
$A_{217}^{\text{power}}$	11.0	$8.0^{+7.4}_{-4.5}$	$Y_{\text{P}}^{\text{BBN}}$	0.246637	$0.24663^{+0.00022}_{-0.00027}$	$f\sigma_8(0.51)$	0.679	$0.59^{+0.12}_{-0.16}$
$A_{143 \times 217}^{\text{power}}$	7.3	$< 10.1$	$10^5 \text{D}/\text{H}$	2.625	$2.63^{+0.11}_{-0.10}$	$\sigma_8(0.51)$	0.848	$0.75^{+0.12}_{-0.18}$
$\gamma_{143}^{\text{power}}$	1.34	$> 0.369$	Age/Gyr	13.456	$13.59^{+0.40}_{-0.21}$	$f\sigma_8(0.61)$	0.685	$0.59^{+0.12}_{-0.17}$
$\gamma_{217}^{\text{power}}$	1.35	—	$z_*$	1090.19	$1090.2^{+1.1}_{-0.99}$	$\sigma_8(0.61)$	0.804	$0.71^{+0.11}_{-0.17}$
$\gamma_{143 \times 217}^{\text{power}}$	1.27	—	$r_*$	144.56	$144.6^{+1.3}_{-1.2}$	$f\sigma_8(2.33)$	0.400	$0.356^{+0.053}_{-0.087}$
$c_{100}$	0.99813	$0.9978^{+0.0027}_{-0.0028}$	$100\theta_*$	1.04107	$1.0410^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.401	$0.359^{+0.050}_{-0.077}$
$c_{217}$	0.99899	$0.9994^{+0.0044}_{-0.0034}$	$D_M(z_*)/\text{Gpc}$	13.886	$13.89^{+0.11}_{-0.11}$	$f_{2000}^{143}$	23.0	$23^{+8}_{-7}$
$H_0$	99.98	$> 61.2$	$z_{\text{drag}}$	1059.47	$1059.4^{+1.1}_{-1.2}$	$f_{2000}^{217}$	16.6	$16.6^{+5.2}_{-5.0}$
$\Omega_\Lambda$	0.857	$0.792^{+0.072}_{-0.18}$	$r_{\text{drag}}$	147.29	$147.3^{+1.2}_{-1.2}$	$f_{2000}^{143 \times 217}$	11.0	$10.8^{+5.6}_{-5.2}$
$\Omega_{\text{m}}$	0.143	$0.208^{+0.18}_{-0.072}$	$k_{\text{D}}$	0.14049	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\text{simall}}^2$	395.78	$396.8 (\nu: 1.3)$
$\Omega_{\text{m}} h^2$	0.1429	$0.1429^{+0.0052}_{-0.0051}$	$100\theta_{\text{D}}$	0.16104	$0.16105^{+0.00070}_{-0.00064}$	$\chi_{\text{lowl}}^2$	22.79	$23.1 (\nu: 0.6)$
$\Omega_{\text{m}} h^3$	0.1429	$0.121^{+0.025}_{-0.035}$	$z_{\text{eq}}$	3400	$3400^{+120}_{-120}$	$\chi_{\text{CamSpec}}^2$	6702.4	$6715.0 (\nu: 13.0)$
$\sigma_8$	1.075	$0.96^{+0.15}_{-0.22}$	$k_{\text{eq}}$	0.010377	$0.01038^{+0.00038}_{-0.00037}$	$\chi_{\text{prior}}^2$	1.2	$5.2 (\nu: 4.2)$
$S_8$	0.742	$0.783^{+0.097}_{-0.076}$	$100\theta_{\text{eq}}$	0.8131	$0.813^{+0.024}_{-0.023}$	$\chi_{\text{CMB}}^2$	7121.0	$7135.0 (\nu: 14.0)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4067	$0.429^{+0.053}_{-0.041}$	$100\theta_{\text{s,eq}}$	0.4494	$0.449^{+0.012}_{-0.012}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.661	$0.640^{+0.048}_{-0.060}$	$H(0.15)$	88.7	$81.8^{+8.6}_{-14}$			

Best-fit  $\chi_{\text{eff}}^2 = 7122.16$ ;  $\bar{\chi}_{\text{eff}}^2 = 7140.23$ ;  $R - 1 = 0.00669$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.78 commander\_dx12\_v3.2\_29: 22.79 CamSpec like\_10.7cleaned: 6702.39



## 19 w+wa

### 19.1 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02217	$0.02213^{+0.00054}_{-0.00052}$	$\sigma_8 \Omega_m^{0.25}$	0.6089	$0.609^{+0.036}_{-0.036}$	$H(0.38)$	84.71	$84.8^{+2.5}_{-2.9}$
$\Omega_c h^2$	0.12035	$0.1206^{+0.0048}_{-0.0049}$	$\sigma_8/h^{0.5}$	0.990	$0.990^{+0.052}_{-0.052}$	$D_M(0.38)$	1527.0	$1527^{+45}_{-45}$
$100\theta_{MC}$	1.04079	$1.0408^{+0.0012}_{-0.0012}$	$r_{drag} h$	95.6	$95.5^{+10}_{-7.8}$	$H(0.51)$	91.42	$91.4^{+2.8}_{-3.1}$
$\tau$	0.0530	$0.052^{+0.022}_{-0.023}$	$\langle d^2 \rangle^{1/2}$	2.466	$2.47^{+0.11}_{-0.11}$	$D_M(0.51)$	1969.8	$1969^{+45}_{-45}$
$w_0$	-0.62	$-0.59^{+0.57}_{-0.69}$	$z_{re}$	7.57	$7.4^{+2.1}_{-2.6}$	$H(0.61)$	96.82	$96.8^{+2.9}_{-2.9}$
$w_a$	-1.20	< 0.411	$10^9 A_s$	2.093	$2.089^{+0.096}_{-0.097}$	$D_M(0.61)$	2288.5	$2288^{+47}_{-45}$
$\ln(10^{10} A_s)$	3.0413	$3.039^{+0.045}_{-0.048}$	$10^9 A_s e^{-2\tau}$	1.8827	$1.884^{+0.034}_{-0.034}$	$H(2.33)$	233.96	$234.0^{+3.3}_{-2.9}$
$n_s$	0.9644	$0.963^{+0.014}_{-0.013}$	$D_{40}$	1228.6	$1232^{+38}_{-37}$	$D_M(2.33)$	5754.1	$5757^{+36}_{-37}$
$y_{cal}$	1.0001	$1.0004^{+0.0062}_{-0.0062}$	$D_{220}$	5710	$5714^{+110}_{-100}$	$f\sigma_8(0.15)$	0.4487	$0.449^{+0.038}_{-0.035}$
$A_{217}^{CIB}$	48.3	$48^{+20}_{-20}$	$D_{810}$	2536.0	$2536^{+36}_{-34}$	$\sigma_8(0.15)$	0.736	$0.736^{+0.067}_{-0.061}$
$\xi^{tSZ \times CIB}$	0.37	—	$D_{1420}$	815.1	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	0.460	$0.460^{+0.057}_{-0.050}$
$A_{143}^{tSZ}$	7.0	—	$D_{2000}$	230.03	$229.7^{+4.5}_{-4.4}$	$\sigma_8(0.38)$	0.653	$0.653^{+0.059}_{-0.053}$
$A_{100}^{PS}$	253	$262^{+70}_{-70}$	$n_{s,0.002}$	0.9644	$0.963^{+0.014}_{-0.013}$	$f\sigma_8(0.51)$	0.460	$0.460^{+0.058}_{-0.052}$
$A_{143}^{PS}$	49.9	$49^{+20}_{-20}$	$Y_P$	0.245314	$0.24529^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	0.612	$0.612^{+0.054}_{-0.048}$
$A_{143 \times 217}^{PS}$	48.0	$44^{+20}_{-20}$	$Y_P^{BBN}$	0.246641	$0.24662^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	0.457	$0.458^{+0.057}_{-0.052}$
$A_{217}^{PS}$	119.8	$115^{+30}_{-30}$	$10^5 D/H$	2.623	$2.63^{+0.10}_{-0.099}$	$\sigma_8(0.61)$	0.5830	$0.583^{+0.050}_{-0.045}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.775	$13.777^{+0.092}_{-0.085}$	$f\sigma_8(2.33)$	0.2963	$0.296^{+0.023}_{-0.020}$
$A_{100}^{dustTT}$	8.90	$8.9^{+4.7}_{-4.8}$	$z_*$	1090.20	$1090.28^{+0.94}_{-0.92}$	$\sigma_8(2.33)$	0.3014	$0.301^{+0.023}_{-0.020}$
$A_{143}^{dustTT}$	10.75	$10.7^{+4.6}_{-4.6}$	$r_*$	144.49	$144.5^{+1.2}_{-1.1}$	$f_{2000}^{143}$	30.1	$31^{+7}_{-7}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.3^{+8.5}_{-8.5}$	$100\theta_*$	1.04100	$1.0410^{+0.0011}_{-0.0012}$	$f_{2000}^{143 \times 217}$	33.1	$33^{+5}_{-5}$
$A_{217}^{dustTT}$	94.6	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.880	$13.88^{+0.11}_{-0.10}$	$f_{2000}^{217}$	107.46	$108.0^{+4.9}_{-4.9}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0015}$	$z_{drag}$	1059.51	$1059.4^{+1.1}_{-1.1}$	$\chi_{small}^2$	395.89	$396.9 (\nu: 1.4)$
$c_{217}$	0.99825	$0.9982^{+0.0016}_{-0.0016}$	$r_{drag}$	147.22	$147.2^{+1.2}_{-1.1}$	$\chi_{lowl}^2$	23.46	$23.8 (\nu: 0.7)$
$H_0$	64.9	$64.9^{+6.9}_{-5.4}$	$k_D$	0.14058	$0.1406^{+0.0013}_{-0.0013}$	$\chi_{plik}^2$	758.0	$770.5 (\nu: 14.3)$
$\Omega_\Lambda$	0.661	$0.658^{+0.065}_{-0.062}$	$100\theta_D$	0.16101	$0.16106^{+0.00067}_{-0.00063}$	$\chi_{6DF}^2$	0.32	$0.56 (\nu: 0.2)$
$\Omega_m$	0.339	$0.342^{+0.062}_{-0.065}$	$z_{eq}$	3406	$3410^{+110}_{-110}$	$\chi_{MGS}^2$	0.63	$0.89 (\nu: 0.4)$
$\Omega_m h^2$	0.14316	$0.1433^{+0.0046}_{-0.0047}$	$k_{eq}$	0.010395	$0.01041^{+0.00033}_{-0.00035}$	$\chi_{DR12BAO}^2$	3.49	$5.0 (\nu: 1.1)$
$\Omega_m h^3$	0.0930	$0.0930^{+0.010}_{-0.0086}$	$100\theta_{eq}$	0.8120	$0.811^{+0.021}_{-0.020}$	$\chi_{prior}^2$	1.3	$7.2 (\nu: 6.4)$
$\sigma_8$	0.798	$0.798^{+0.070}_{-0.064}$	$100\theta_{s,eq}$	0.4489	$0.448^{+0.011}_{-0.010}$	$\chi_{BAO}^2$	4.43	$6.4 (\nu: 1.7)$
$S_8$	0.849	$0.850^{+0.055}_{-0.058}$	$H(0.15)$	73.09	$73.1^{+2.5}_{-2.3}$	$\chi_{CMB}^2$	1177.3	$1191.2 (\nu: 14.9)$
$\sigma_8 \Omega_m^{0.5}$	0.4648	$0.466^{+0.030}_{-0.032}$	$D_M(0.15)$	651.6	$652^{+36}_{-37}$			

Best-fit  $\chi_{eff}^2 = 1183.08$ ;  $\bar{\chi}_{eff}^2 = 1204.85$ ;  $R - 1 = 0.00724$

$\chi_{eff}^2$ : BAO - 6DF: 0.32 MGS: 0.62 DR12BAO: 3.49 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.89 commander\_dx12\_v3.2.29: 23.46 plik\_rd12\_HM\_v22.TT: 757.98



## 19.2 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02220	$0.02216^{+0.00052}_{-0.00049}$	$\sigma_8 \Omega_m^{0.25}$	0.6047	$0.605^{+0.025}_{-0.025}$	$H(0.38)$	84.55	$84.7^{+2.6}_{-2.9}$
$\Omega_c h^2$	0.11973	$0.1199^{+0.0036}_{-0.0037}$	$\sigma_8/h^{0.5}$	0.9841	$0.984^{+0.036}_{-0.037}$	$D_M(0.38)$	1527.2	$1528^{+43}_{-46}$
$100\theta_{MC}$	1.04093	$1.0408^{+0.0011}_{-0.0011}$	$r_{drag}h$	96.1	$95.7^{+10}_{-7.8}$	$H(0.51)$	91.30	$91.5^{+2.9}_{-3.1}$
$\tau$	0.0525	$0.051^{+0.021}_{-0.023}$	$\langle d^2 \rangle^{1/2}$	2.451	$2.455^{+0.068}_{-0.071}$	$D_M(0.51)$	1970.8	$1970^{+44}_{-46}$
$w_0$	-0.66	$-0.61^{+0.60}_{-0.67}$	$z_{re}$	7.51	$7.4^{+2.1}_{-2.6}$	$H(0.61)$	96.75	$96.9^{+2.8}_{-3.0}$
$w_a$	-1.01	< 0.445	$10^9 A_s$	2.088	$2.084^{+0.087}_{-0.088}$	$D_M(0.61)$	2289.8	$2289^{+46}_{-46}$
$\ln(10^{10} A_s)$	3.0389	$3.037^{+0.041}_{-0.043}$	$10^9 A_s e^{-2\tau}$	1.8801	$1.881^{+0.029}_{-0.028}$	$H(2.33)$	234.01	$233.9^{+3.5}_{-2.9}$
$n_s$	0.9657	$0.964^{+0.012}_{-0.012}$	$D_{40}$	1225.7	$1229^{+32}_{-32}$	$D_M(2.33)$	5752.4	$5755^{+38}_{-36}$
$y_{cal}$	1.0001	$1.0003^{+0.0062}_{-0.0062}$	$D_{220}$	5712	$5715^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4463	$0.445^{+0.033}_{-0.030}$
$A_{217}^{CIB}$	48.8	$48^{+20}_{-20}$	$D_{810}$	2535.8	$2535^{+35}_{-34}$	$\sigma_8(0.15)$	0.734	$0.732^{+0.061}_{-0.053}$
$\xi^{tSZ \times CIB}$	0.30	—	$D_{1420}$	815.4	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4577	$0.456^{+0.052}_{-0.045}$
$A_{143}^{tSZ}$	7.1	—	$D_{2000}$	230.09	$229.6^{+4.5}_{-4.3}$	$\sigma_8(0.38)$	0.6513	$0.650^{+0.053}_{-0.046}$
$A_{100}^{PS}$	254	$263^{+70}_{-70}$	$n_{s,0.002}$	0.9657	$0.964^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	0.458	$0.456^{+0.054}_{-0.046}$
$A_{143}^{PS}$	48.8	$49^{+20}_{-20}$	$Y_P$	0.245324	$0.24531^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	0.6103	$0.609^{+0.049}_{-0.042}$
$A_{143 \times 217}^{PS}$	46.1	$43^{+20}_{-20}$	$Y_P^{BBN}$	0.246650	$0.24663^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	0.4547	$0.453^{+0.052}_{-0.045}$
$A_{217}^{PS}$	118.8	$115^{+30}_{-30}$	$10^5 D/H$	2.619	$2.626^{+0.096}_{-0.095}$	$\sigma_8(0.61)$	0.5811	$0.580^{+0.046}_{-0.040}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.776	$13.779^{+0.090}_{-0.086}$	$f\sigma_8(2.33)$	0.2953	$0.294^{+0.020}_{-0.018}$
$A_{100}^{dustTT}$	8.88	$8.9^{+4.9}_{-5.0}$	$z_*$	1090.12	$1090.18^{+0.84}_{-0.81}$	$\sigma_8(2.33)$	0.3011	$0.300^{+0.022}_{-0.019}$
$A_{143}^{dustTT}$	10.84	$10.7^{+4.5}_{-4.6}$	$r_*$	144.63	$144.61^{+0.88}_{-0.85}$	$f_{2000}^{143}$	30.2	$31^{+7}_{-7}$
$A_{143 \times 217}^{dustTT}$	19.5	$18.3^{+8.3}_{-8.3}$	$100\theta_*$	1.04112	$1.0410^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.1	$33^{+5}_{-5}$
$A_{217}^{dustTT}$	94.6	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.892	$13.891^{+0.086}_{-0.081}$	$f_{2000}^{217}$	107.48	$108.0^{+5.0}_{-4.9}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0015}$	$z_{drag}$	1059.51	$1059.4^{+1.1}_{-1.1}$	$\chi_{lensing}^2$	8.80	$9.4 (\nu: 0.5)$
$c_{217}$	0.99825	$0.9982^{+0.0016}_{-0.0016}$	$r_{drag}$	147.36	$147.35^{+0.92}_{-0.88}$	$\chi_{small}^2$	395.81	$396.8 (\nu: 1.1)$
$H_0$	65.2	$64.9^{+7.0}_{-5.4}$	$k_D$	0.14045	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{lowl}^2$	23.18	$23.52 (\nu: 0.4)$
$\Omega_\Lambda$	0.665	$0.660^{+0.064}_{-0.063}$	$100\theta_D$	0.16101	$0.16104^{+0.00066}_{-0.00063}$	$\chi_{plik}^2$	758.6	$770.6 (\nu: 13.3)$
$\Omega_m$	0.335	$0.340^{+0.063}_{-0.064}$	$z_{eq}$	3392	$3395^{+82}_{-85}$	$\chi_{6DF}^2$	0.25	$0.55 (\nu: 0.2)$
$\Omega_m h^2$	0.14257	$0.1427^{+0.0034}_{-0.0036}$	$k_{eq}$	0.010352	$0.01036^{+0.00025}_{-0.00026}$	$\chi_{MGS}^2$	0.72	$0.91 (\nu: 0.4)$
$\Omega_m h^3$	0.0930	$0.0927^{+0.010}_{-0.0082}$	$100\theta_{eq}$	0.8147	$0.814^{+0.016}_{-0.015}$	$\chi_{DR12BAO}^2$	3.34	$4.9 (\nu: 1.2)$
$\sigma_8$	0.795	$0.793^{+0.063}_{-0.055}$	$100\theta_{s,eq}$	0.4502	$0.4499^{+0.0083}_{-0.0077}$	$\chi_{prior}^2$	1.4	$7.2 (\nu: 6.5)$
$S_8$	0.8400	$0.842^{+0.040}_{-0.042}$	$H(0.15)$	73.05	$73.1^{+2.5}_{-2.2}$	$\chi_{CMB}^2$	1186.4	$1200.3 (\nu: 14.7)$
$\sigma_8 \Omega_m^{0.5}$	0.4601	$0.461^{+0.022}_{-0.023}$	$D_M(0.15)$	650.6	$652^{+35}_{-37}$	$\chi_{BAO}^2$	4.31	$6.3 (\nu: 1.9)$

Best-fit  $\chi_{eff}^2 = 1192.04$ ;  $\bar{\chi}_{eff}^2 = 1213.89$ ;  $R - 1 = 0.01045$

$\chi_{eff}^2$ : BAO - 6DF: 0.25 MGS: 0.72 DR12BAO: 3.34 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.80 small\_100x143.offlike5\_EE\_Aplanck\_B: 395.81 commander\_dx12.v3.2.29: 23.18 plik\_rd12\_HM.v22\_TT: 758.58



### 19.3 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02214^{+0.00053}_{-0.00052}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.610^{+0.036}_{-0.036}$	$H(0.38)$	$84.8^{+2.5}_{-2.9}$
$\Omega_{\mathrm{c}} h^2$	$0.1205^{+0.0048}_{-0.0049}$	$\sigma_8/h^{0.5}$	$0.992^{+0.052}_{-0.051}$	$D_{\mathrm{M}}(0.38)$	$1527^{+45}_{-45}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	$95.6^{+10}_{-7.9}$	$H(0.51)$	$91.4^{+2.8}_{-3.1}$
$\tau$	$0.054^{+0.019}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.47^{+0.11}_{-0.11}$	$D_{\mathrm{M}}(0.51)$	$1969^{+45}_{-45}$
$w_0$	$-0.59^{+0.57}_{-0.69}$	$z_{\mathrm{re}}$	$< 9.39$	$H(0.61)$	$96.8^{+2.9}_{-3.0}$
$w_a$	$< 0.429$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.091}_{-0.061}$	$D_{\mathrm{M}}(0.61)$	$2288^{+47}_{-45}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.042}_{-0.030}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.884^{+0.034}_{-0.034}$	$H(2.33)$	$234.0^{+3.3}_{-3.0}$
$n_{\mathrm{s}}$	$0.963^{+0.014}_{-0.014}$	$D_{40}$	$1232^{+38}_{-38}$	$D_{\mathrm{M}}(2.33)$	$5757^{+37}_{-37}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0063}_{-0.0062}$	$D_{220}$	$5714^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.449^{+0.038}_{-0.035}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2536^{+36}_{-34}$	$\sigma_8(0.15)$	$0.737^{+0.067}_{-0.060}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.460^{+0.057}_{-0.050}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.7^{+4.5}_{-4.4}$	$\sigma_8(0.38)$	$0.654^{+0.058}_{-0.052}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.963^{+0.014}_{-0.014}$	$f\sigma_8(0.51)$	$0.461^{+0.058}_{-0.052}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00021}_{-0.00025}$	$\sigma_8(0.51)$	$0.613^{+0.053}_{-0.048}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24662^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	$0.458^{+0.057}_{-0.051}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.10}_{-0.098}$	$\sigma_8(0.61)$	$0.584^{+0.049}_{-0.044}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.777^{+0.092}_{-0.085}$	$f\sigma_8(2.33)$	$0.296^{+0.023}_{-0.020}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.8}$	$z_*$	$1090.26^{+0.95}_{-0.92}$	$\sigma_8(2.33)$	$0.301^{+0.023}_{-0.020}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.6}_{-4.6}$	$r_*$	$144.5^{+1.2}_{-1.1}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.4}_{-8.5}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.88^{+0.11}_{-0.10}$	$f_{2000}^{217}$	$108.0^{+5.0}_{-4.8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0015}$	$z_{\mathrm{drag}}$	$1059.4^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.3)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.2^{+1.2}_{-1.1}$	$\chi_{\mathrm{lowl}}^2$	$23.8 (\nu: 0.7)$
$H_0$	$64.9^{+7.0}_{-5.4}$	$k_{\mathrm{D}}$	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{plik}}^2$	$770.3 (\nu: 14.3)$
$\Omega_{\Lambda}$	$0.659^{+0.065}_{-0.062}$	$100\theta_{\mathrm{D}}$	$0.16105^{+0.00068}_{-0.00064}$	$\chi_{6\mathrm{DF}}^2$	$0.56 (\nu: 0.2)$
$\Omega_{\mathrm{m}}$	$0.341^{+0.062}_{-0.065}$	$z_{\mathrm{eq}}$	$3408^{+110}_{-110}$	$\chi_{\mathrm{MGS}}^2$	$0.89 (\nu: 0.4)$
$\Omega_{\mathrm{m}} h^2$	$0.1433^{+0.0046}_{-0.0047}$	$k_{\mathrm{eq}}$	$0.01040^{+0.00033}_{-0.00034}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.0 (\nu: 1.1)$
$\Omega_{\mathrm{m}} h^3$	$0.0930^{+0.010}_{-0.0087}$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.021}_{-0.020}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.4)$
$\sigma_8$	$0.799^{+0.070}_{-0.063}$	$100\theta_{\mathrm{s,eq}}$	$0.449^{+0.011}_{-0.010}$	$\chi_{\mathrm{BAO}}^2$	$6.4 (\nu: 1.8)$
$S_8$	$0.851^{+0.055}_{-0.058}$	$H(0.15)$	$73.1^{+2.5}_{-2.3}$	$\chi_{\mathrm{CMB}}^2$	$1190.9 (\nu: 14.5)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.466^{+0.030}_{-0.032}$	$D_{\mathrm{M}}(0.15)$	$652^{+36}_{-37}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1204.53; R - 1 = 0.00721$$



# 19.4 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02217^{+0.00051}_{-0.00049}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.025}_{-0.025}$	$H(0.38)$	$84.7^{+2.6}_{-2.9}$
$\Omega_{\mathrm{c}}h^2$	$0.1198^{+0.0034}_{-0.0036}$	$\sigma_8/h^{0.5}$	$0.984^{+0.036}_{-0.037}$	$D_{\mathrm{M}}(0.38)$	$1528^{+44}_{-46}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}}h$	$95.7^{+10}_{-8.0}$	$H(0.51)$	$91.5^{+2.9}_{-3.1}$
$\tau$	$0.053^{+0.018}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.456^{+0.068}_{-0.071}$	$D_{\mathrm{M}}(0.51)$	$1971^{+44}_{-46}$
$w_0$	$-0.61^{+0.60}_{-0.67}$	$z_{\mathrm{re}}$	$< 9.24$	$H(0.61)$	$96.9^{+2.8}_{-3.0}$
$w_a$	$-1.2^{+1.6}_{-1.8}$	$10^9 A_{\mathrm{s}}$	$2.091^{+0.082}_{-0.054}$	$D_{\mathrm{M}}(0.61)$	$2289^{+46}_{-47}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.040^{+0.038}_{-0.026}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.880^{+0.029}_{-0.028}$	$H(2.33)$	$233.9^{+3.5}_{-3.0}$
$n_{\mathrm{s}}$	$0.965^{+0.012}_{-0.012}$	$D_{40}$	$1229^{+32}_{-32}$	$D_{\mathrm{M}}(2.33)$	$5755^{+38}_{-36}$
$y_{\mathrm{cal}}$	$1.0003^{+0.0062}_{-0.0062}$	$D_{220}$	$5715^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.445^{+0.033}_{-0.030}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2535^{+35}_{-34}$	$\sigma_8(0.15)$	$0.732^{+0.060}_{-0.054}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.456^{+0.053}_{-0.045}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.7^{+4.6}_{-4.3}$	$\sigma_8(0.38)$	$0.650^{+0.053}_{-0.047}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.012}_{-0.012}$	$f\sigma_8(0.51)$	$0.456^{+0.054}_{-0.046}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	$0.609^{+0.048}_{-0.043}$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	$0.454^{+0.052}_{-0.045}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$10^5\mathrm{D}/\mathrm{H}$	$2.624^{+0.096}_{-0.094}$	$\sigma_8(0.61)$	$0.580^{+0.045}_{-0.040}$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.780^{+0.091}_{-0.087}$	$f\sigma_8(2.33)$	$0.295^{+0.020}_{-0.018}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.9}_{-5.1}$	$z_*$	$1090.15^{+0.79}_{-0.80}$	$\sigma_8(2.33)$	$0.300^{+0.022}_{-0.019}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.6}_{-4.7}$	$r_*$	$144.64^{+0.88}_{-0.82}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143\times 217}^{\mathrm{dustTT}}$	$18.3^{+8.2}_{-8.3}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143\times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.894^{+0.084}_{-0.078}$	$f_{2000}^{217}$	$108.0^{+5.1}_{-4.9}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0015}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\mathrm{lensing}}^2$	$9.4 (\nu: 0.5)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.38^{+0.91}_{-0.87}$	$\chi_{\mathrm{simall}}^2$	$396.6 (\nu: 1.0)$
$H_0$	$65.0^{+7.0}_{-5.5}$	$k_{\mathrm{D}}$	$0.1404^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{lowl}}^2$	$23.50 (\nu: 0.4)$
$\Omega_{\Lambda}$	$0.661^{+0.064}_{-0.063}$	$100\theta_{\mathrm{D}}$	$0.16104^{+0.00065}_{-0.00063}$	$\chi_{\mathrm{plik}}^2$	$770.5 (\nu: 13.4)$
$\Omega_{\mathrm{m}}$	$0.339^{+0.063}_{-0.064}$	$z_{\mathrm{eq}}$	$3392^{+78}_{-84}$	$\chi_{6\mathrm{DF}}^2$	$0.54 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1426^{+0.0033}_{-0.0035}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00024}_{-0.00026}$	$\chi_{\mathrm{MGS}}^2$	$0.91 (\nu: 0.4)$
$\Omega_{\mathrm{m}}h^3$	$0.0926^{+0.010}_{-0.0083}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.016}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 (\nu: 1.2)$
$\sigma_8$	$0.793^{+0.063}_{-0.055}$	$100\theta_{\mathrm{s,eq}}$	$0.4502^{+0.0082}_{-0.0073}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.5)$
$S_8$	$0.842^{+0.040}_{-0.042}$	$H(0.15)$	$73.0^{+2.5}_{-2.2}$	$\chi_{\mathrm{CMB}}^2$	$1200.0 (\nu: 14.2)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.461^{+0.022}_{-0.023}$	$D_{\mathrm{M}}(0.15)$	$652^{+36}_{-37}$	$\chi_{\mathrm{BAO}}^2$	$6.3 (\nu: 1.9)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1213.56; R - 1 = 0.01398$$



# 19.5 base\_w\_wa\_plikHM\_TTTEE\_lowl\_lowE\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.022395	$0.02236^{+0.00037}_{-0.00037} (+1.1\sigma)$	$\Omega_{\mathrm{m}} h^3$	0.0929	$0.0930^{+0.010}_{-0.0080} (-0.0\sigma)$	$H(0.15)$	73.19	$73.2^{+2.3}_{-2.3} (+0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	0.12001	$0.1203^{+0.0033}_{-0.0033} (-0.2\sigma)$	$\sigma_8$	0.795	$0.795^{+0.065}_{-0.056} (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	651.2	$652^{+35}_{-38} (-0.0\sigma)$
$100\theta_{\mathrm{MC}}$	1.04093	$1.04089^{+0.00083}_{-0.00079} (+0.2\sigma)$	$S_8$	0.8454	$0.848^{+0.043}_{-0.045} (-0.1\sigma)$	$H(0.38)$	84.95	$85.0^{+2.5}_{-2.8} (+0.2\sigma)$
$\tau$	0.0546	$0.054^{+0.022}_{-0.020} (+0.3\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4631	$0.464^{+0.023}_{-0.024} (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	1524.6	$1524^{+45}_{-43} (-0.1\sigma)$
$w_0$	-0.60	$-0.58^{+0.58}_{-0.70} (+0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6067	$0.608^{+0.027}_{-0.027} (-0.1\sigma)$	$H(0.51)$	91.71	$91.7^{+2.8}_{-3.1} (+0.2\sigma)$
$w_a$	-1.20	$< 0.356 (+0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9865	$0.988^{+0.040}_{-0.040} (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	1966.1	$1965^{+47}_{-43} (-0.2\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	3.0454	$3.044^{+0.044}_{-0.041} (+0.3\sigma)$	$r_{\mathrm{drag}} h$	95.5	$95.4^{+10}_{-7.9} (-0.0\sigma)$	$H(0.61)$	97.14	$97.1^{+2.8}_{-3.0} (+0.3\sigma)$
$n_{\mathrm{s}}$	0.9664	$0.965^{+0.011}_{-0.011} (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	2.461	$2.466^{+0.079}_{-0.083} (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	2283.8	$2283^{+48}_{-44} (-0.3\sigma)$
$y_{\mathrm{cal}}$	1.0006	$1.0005^{+0.0062}_{-0.0066} (+0.0\sigma)$	$z_{\mathrm{re}}$	7.68	$7.6^{+2.1}_{-2.1} (+0.2\sigma)$	$H(2.33)$	234.06	$234.1^{+3.2}_{-2.7} (+0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	45.5	$47^{+20}_{-20} (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	2.102	$2.099^{+0.094}_{-0.085} (+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	5742.5	$5746^{+32}_{-28} (-0.8\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.69	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8846	$1.884^{+0.029}_{-0.030} (+0.0\sigma)$	$f\sigma_8(0.15)$	0.4460	$0.446^{+0.034}_{-0.029} (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	7.02	$5.5^{+4.5}_{-4.6} (+0.2\sigma)$	$D_{40}$	1228.1	$1232^{+32}_{-32} (-0.1\sigma)$	$\sigma_8(0.15)$	0.734	$0.734^{+0.063}_{-0.054} (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	248	$258^{+70}_{-70} (-0.2\sigma)$	$D_{220}$	5732	$5731^{+97}_{-100} (+0.4\sigma)$	$f\sigma_8(0.38)$	0.4563	$0.457^{+0.055}_{-0.045} (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	51.1	$46^{+20}_{-20} (-0.4\sigma)$	$D_{810}$	2541.5	$2539^{+34}_{-36} (+0.2\sigma)$	$\sigma_8(0.38)$	0.651	$0.652^{+0.055}_{-0.047} (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	54.0	$42^{+20}_{-20} (-0.1\sigma)$	$D_{1420}$	818.5	$817^{+12}_{-13} (+0.5\sigma)$	$f\sigma_8(0.51)$	0.457	$0.457^{+0.056}_{-0.046} (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	122.4	$115^{+30}_{-30} (-0.0\sigma)$	$D_{2000}$	231.50	$230.9^{+4.0}_{-4.3} (+0.7\sigma)$	$\sigma_8(0.51)$	0.6105	$0.611^{+0.050}_{-0.043} (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$n_{\mathrm{s},0.002}$	0.9664	$0.965^{+0.011}_{-0.011} (+0.3\sigma)$	$f\sigma_8(0.61)$	0.4538	$0.455^{+0.054}_{-0.045} (-0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	8.79	$8.9^{+4.7}_{-4.6} (-0.0\sigma)$	$Y_{\mathrm{P}}$	0.245405	$0.24539^{+0.00014}_{-0.00016} (+1.0\sigma)$	$\sigma_8(0.61)$	0.5814	$0.582^{+0.047}_{-0.040} (-0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	11.00	$10.9^{+4.6}_{-4.6} (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246732	$0.24671^{+0.00014}_{-0.00016} (+1.0\sigma)$	$f\sigma_8(2.33)$	0.2958	$0.296^{+0.021}_{-0.018} (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.2	$18.6^{+8.4}_{-8.5} (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	2.581	$2.589^{+0.071}_{-0.067} (-1.1\sigma)$	$\sigma_8(2.33)$	0.3011	$0.301^{+0.022}_{-0.019} (-0.0\sigma)$
$A_{217}^{\mathrm{dustTT}}$	95.7	$94^{+20}_{-20} (+0.0\sigma)$	Age/Gyr	13.753	$13.755^{+0.084}_{-0.074} (-0.6\sigma)$	$f_{2000}^{143}$	28.5	$29^{+7}_{-7} (-0.5\sigma)$
$A_{100}^{\mathrm{dustTE}}$	0.115	$0.115^{+0.10}_{-0.096}$	$z_*$	1089.89	$1089.96^{+0.68}_{-0.65} (-0.8\sigma)$	$f_{2000}^{143 \times 217}$	31.83	$32^{+5}_{-5} (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.135	$0.134^{+0.076}_{-0.075}$	$r_*$	144.41	$144.37^{+0.76}_{-0.73} (-0.2\sigma)$	$f_{2000}^{217}$	106.35	$106.9^{+4.6}_{-4.6} (-0.6\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.483	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04111	$1.04108^{+0.00082}_{-0.00078} (+0.2\sigma)$	$\chi_{\mathrm{small}}^2$	396.05	$397.0 (\nu: 1.6) (+0.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	0.226	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.871	$13.867^{+0.071}_{-0.069} (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	23.24	$23.63 (\nu: 0.4) (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.665	$0.67^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	1060.01	$1059.92^{+0.77}_{-0.79} (+1.1\sigma)$	$\chi_{\mathrm{plik}}^2$	2343.6	$2358.5 (\nu: 16.6) (+297.4\sigma)$
$A_{217}^{\mathrm{dustTE}}$	2.09	$2.09^{+0.69}_{-0.68}$	$r_{\mathrm{drag}}$	147.06	$147.03^{+0.76}_{-0.73} (-0.4\sigma)$	$\chi_{6\mathrm{DF}}^2$	0.33	$0.57 (\nu: 0.2) (+0.0\sigma)$
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016} (+0.1\sigma)$	$k_{\mathrm{D}}$	0.14092	$0.14092^{+0.00082}_{-0.00085} (+0.7\sigma)$	$\chi_{\mathrm{MGS}}^2$	0.63	$0.87 (\nu: 0.4) (-0.0\sigma)$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016} (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	0.160724	$0.16077^{+0.00046}_{-0.00045} (-1.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	3.45	$4.9 (\nu: 1.1) (-0.1\sigma)$
$H_0$	64.9	$64.9^{+7.1}_{-5.4} (-0.0\sigma)$	$z_{\mathrm{eq}}$	3403	$3409^{+74}_{-75} (-0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	1.6	$11.5 (\nu: 10.0) (+1.2\sigma)$
$\Omega_{\Lambda}$	0.661	$0.658^{+0.064}_{-0.063} (+0.0\sigma)$	$k_{\mathrm{eq}}$	0.010387	$0.01040^{+0.00022}_{-0.00023} (-0.0\sigma)$	$\chi_{\mathrm{BAO}}^2$	4.40	$6.3 (\nu: 1.7) (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	0.339	$0.342^{+0.063}_{-0.064} (-0.0\sigma)$	$100\theta_{\mathrm{eq}}$	0.8132	$0.812^{+0.014}_{-0.014} (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	2762.9	$2779.1 (\nu: 17.0) (+290.9\sigma)$
$\Omega_{\mathrm{m}} h^2$	0.14305	$0.1433^{+0.0031}_{-0.0032} (-0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4493	$0.4488^{+0.0073}_{-0.0070} (+0.1\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2768.85$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.77$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2796.92$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.08$ ;  $R - 1 = 0.01402$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.33 ( $\Delta$  0.01) MGS: 0.62 ( $\Delta$  0.00) DR12BAO: 3.45 ( $\Delta$  -0.04) CMB - small\_100x143.offlike5\_EE\_Aplanck.B: 396.05 ( $\Delta$  0.16) commander\_dx12.v3.2.29: 23.24 ( $\Delta$  -0.22) plik\_rd12\_HM.v22b\_TTTEE: 2343.59



## 19.6 base\_w\_wa\_plikHM\_TTTEE\_lowl\_lowE\_BAO\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022408	$0.02238^{+0.00036}_{-0.00036}$ (+1.1 $\sigma$ )	$\Omega_m h^3$	0.0929	$0.0928^{+0.010}_{-0.0079}$ (+0.0 $\sigma$ )	$H(0.15)$	73.10	$73.2^{+2.3}_{-2.3}$ (+0.1 $\sigma$ )
$\Omega_c h^2$	0.11969	$0.1199^{+0.0029}_{-0.0028}$ (−0.0 $\sigma$ )	$\sigma_8$	0.792	$0.792^{+0.064}_{-0.052}$ (−0.0 $\sigma$ )	$D_M(0.15)$	651.2	$651^{+35}_{-37}$ (−0.0 $\sigma$ )
$100\theta_{MC}$	1.04095	$1.04092^{+0.00084}_{-0.00080}$ (+0.2 $\sigma$ )	$S_8$	0.8396	$0.842^{+0.036}_{-0.037}$ (−0.0 $\sigma$ )	$H(0.38)$	84.79	$85.0^{+2.7}_{-2.8}$ (+0.2 $\sigma$ )
$\tau$	0.0530	$0.053^{+0.021}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4599	$0.461^{+0.020}_{-0.020}$ (−0.0 $\sigma$ )	$D_M(0.38)$	1526.2	$1525^{+45}_{-42}$ (−0.2 $\sigma$ )
$w_0$	−0.63	$−0.59^{+0.61}_{-0.68}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6034	$0.604^{+0.022}_{-0.021}$ (−0.0 $\sigma$ )	$H(0.51)$	91.58	$91.7^{+3.0}_{-3.1}$ (+0.2 $\sigma$ )
$w_a$	−1.07	< 0.360 (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9817	$0.983^{+0.033}_{-0.032}$ (−0.1 $\sigma$ )	$D_M(0.51)$	1968.5	$1966^{+46}_{-43}$ (−0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0408	$3.041^{+0.040}_{-0.037}$ (+0.3 $\sigma$ )	$r_{drag} h$	95.7	$95.6^{+10}_{-7.9}$ (−0.0 $\sigma$ )	$H(0.61)$	97.05	$97.1^{+2.9}_{-3.0}$ (+0.2 $\sigma$ )
$n_s$	0.9671	$0.965^{+0.010}_{-0.010}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.448	$2.455^{+0.060}_{-0.061}$ (+0.0 $\sigma$ )	$D_M(0.61)$	2286.5	$2284^{+47}_{-44}$ (−0.3 $\sigma$ )
$y_{cal}$	1.0005	$1.0004^{+0.0062}_{-0.0066}$ (+0.0 $\sigma$ )	$z_{re}$	7.51	$7.5^{+2.0}_{-2.0}$ (+0.2 $\sigma$ )	$H(2.33)$	234.19	$234.1^{+3.3}_{-2.8}$ (+0.1 $\sigma$ )
$A_{217}^{CIB}$	46.6	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.092	$2.092^{+0.085}_{-0.076}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5742.7	$5744^{+33}_{-28}$ (−0.8 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.52	—	$10^9 A_s e^{-2\tau}$	1.8818	$1.882^{+0.027}_{-0.028}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4444	$0.444^{+0.032}_{-0.027}$ (−0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.16	> 0.851 (+0.2 $\sigma$ )	$D_{40}$	1225.3	$1229^{+29}_{-29}$ (+0.0 $\sigma$ )	$\sigma_8(0.15)$	0.731	$0.731^{+0.062}_{-0.050}$ (−0.0 $\sigma$ )
$A_{100}^{PS}$	249	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5729	$5732^{+98}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4549	$0.455^{+0.053}_{-0.043}$ (−0.1 $\sigma$ )
$A_{143}^{PS}$	48.6	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2539.7	$2538^{+34}_{-36}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6489	$0.649^{+0.054}_{-0.044}$ (−0.0 $\sigma$ )
$A_{143 \times 217}^{PS}$	49.7	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	818.2	$817^{+12}_{-13}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4548	$0.455^{+0.054}_{-0.044}$ (−0.1 $\sigma$ )
$A_{217}^{PS}$	120.6	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{2000}$	231.36	$230.8^{+3.9}_{-4.4}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6081	$0.608^{+0.049}_{-0.040}$ (−0.0 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9671	$0.965^{+0.010}_{-0.010}$ (+0.2 $\sigma$ )	$f\sigma_8(0.61)$	0.4519	$0.452^{+0.052}_{-0.043}$ (−0.1 $\sigma$ )
$A_{100}^{dustTT}$	8.85	$8.9^{+4.7}_{-4.5}$ (−0.0 $\sigma$ )	$Y_P$	0.245411	$0.24540^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.5791	$0.579^{+0.046}_{-0.037}$ (−0.0 $\sigma$ )
$A_{143}^{dustTT}$	11.02	$10.9^{+4.5}_{-4.7}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246737	$0.24672^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.2945	$0.295^{+0.020}_{-0.017}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.9	$18.6^{+8.3}_{-8.6}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.578	$2.584^{+0.068}_{-0.065}$ (−1.1 $\sigma$ )	$\sigma_8(2.33)$	0.3004	$0.300^{+0.022}_{-0.018}$ (+0.0 $\sigma$ )
$A_{217}^{dustTT}$	95.2	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.757	$13.756^{+0.083}_{-0.075}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	28.6	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	0.114	$0.115^{+0.099}_{-0.095}$	$z_*$	1089.84	$1089.90^{+0.62}_{-0.61}$ (−0.9 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.89	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.134^{+0.077}_{-0.077}$	$r_*$	144.48	$144.45^{+0.64}_{-0.65}$ (−0.5 $\sigma$ )	$f_{2000}^{217}$	106.47	$106.9^{+4.6}_{-4.6}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.481	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	1.04113	$1.04111^{+0.00084}_{-0.00079}$ (+0.2 $\sigma$ )	$\chi^2_{lensing}$	8.77	$9.28$ ( $\nu$ : 0.4) (−0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.225	$0.22^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.877	$13.875^{+0.061}_{-0.061}$ (−0.5 $\sigma$ )	$\chi^2_{small}$	395.82	$396.8$ ( $\nu$ : 1.2) (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.666	$0.67^{+0.21}_{-0.21}$	$z_{drag}$	1060.01	$1059.95^{+0.79}_{-0.78}$ (+1.1 $\sigma$ )	$\chi^2_{lowl}$	23.02	$23.44$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.68}_{-0.70}$	$r_{drag}$	147.13	$147.11^{+0.66}_{-0.65}$ (−0.7 $\sigma$ )	$\chi^2_{plik}$	2344.2	$2358.6$ ( $\nu$ : 16.1) (+307.6 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14085	$0.14085^{+0.00075}_{-0.00076}$ (+1.0 $\sigma$ )	$\chi^2_{6DF}$	0.31	$0.56$ ( $\nu$ : 0.2) (+0.0 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0017}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160720	$0.16075^{+0.00045}_{-0.00045}$ (−1.1 $\sigma$ )	$\chi^2_{MGS}$	0.63	$0.89$ ( $\nu$ : 0.4) (−0.0 $\sigma$ )
$H_0$	65.1	$65.0^{+6.9}_{-5.4}$ (+0.0 $\sigma$ )	$z_{eq}$	3396	$3400^{+65}_{-63}$ (+0.2 $\sigma$ )	$\chi^2_{DR12BAO}$	3.35	$4.8$ ( $\nu$ : 1.1) (−0.0 $\sigma$ )
$\Omega_\Lambda$	0.663	$0.660^{+0.063}_{-0.063}$ (−0.0 $\sigma$ )	$k_{eq}$	0.010364	$0.01038^{+0.00020}_{-0.00019}$ (+0.2 $\sigma$ )	$\chi^2_{prior}$	1.7	$11.5$ ( $\nu$ : 10.2) (+1.2 $\sigma$ )
$\Omega_m$	0.337	$0.340^{+0.063}_{-0.063}$ (+0.0 $\sigma$ )	$100\theta_{eq}$	0.8146	$0.814^{+0.012}_{-0.012}$ (−0.0 $\sigma$ )	$\chi^2_{CMB}$	2771.8	$2788.1$ ( $\nu$ : 17.1) (+292.5 $\sigma$ )
$\Omega_m h^2$	0.14275	$0.1429^{+0.0027}_{-0.0027}$ (+0.2 $\sigma$ )	$100\theta_{s,eq}$	0.4500	$0.4496^{+0.0061}_{-0.0062}$ (−0.1 $\sigma$ )	$\chi^2_{BAO}$	4.28	$6.3$ ( $\nu$ : 1.7) (−0.0 $\sigma$ )

Best-fit  $\chi^2_{eff} = 2777.81$ ;  $\Delta\chi^2_{eff} = 1585.78$ ;  $\bar{\chi}^2_{eff} = 2805.90$ ;  $\Delta\bar{\chi}^2_{eff} = 1592.01$ ;  $R - 1 = 0.01750$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.31 ( $\Delta$  0.06) MGS: 0.62 ( $\Delta$  -0.09) DR12BAO: 3.35 ( $\Delta$  0.01) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.77 ( $\Delta$  -0.03) small\_100x143\_offlike5\_EE\_Aplanck  
395.82 ( $\Delta$  0.01) commander\_dx12\_v3\_2.29: 23.02 ( $\Delta$  -0.16) plik\_rd12\_HM\_v22b\_TTTEE: 2344.24



## 19.7 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02236^{+0.00037}_{-0.00038} \quad (+1.1\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0929^{+0.010}_{-0.0080} \quad (-0.0\sigma)$	$H(0.15)$	$73.2^{+2.3}_{-2.3} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1202^{+0.0033}_{-0.0033} \quad (-0.1\sigma)$	$\sigma_8$	$0.796^{+0.066}_{-0.054} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$652^{+35}_{-38} \quad (-0.0\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04090^{+0.00084}_{-0.00079} \quad (+0.2\sigma)$	$S_8$	$0.848^{+0.042}_{-0.044} \quad (-0.1\sigma)$	$H(0.38)$	$85.0^{+2.5}_{-2.9} \quad (+0.2\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.465^{+0.023}_{-0.024} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1524^{+45}_{-43} \quad (-0.1\sigma)$
$w_0$	$-0.58^{+0.58}_{-0.70} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.027}_{-0.027} \quad (-0.1\sigma)$	$H(0.51)$	$91.7^{+2.8}_{-3.1} \quad (+0.2\sigma)$
$w_a$	$< 0.360 \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.988^{+0.040}_{-0.040} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1966^{+46}_{-43} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.042}_{-0.030} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$95.4^{+10}_{-7.9} \quad (-0.0\sigma)$	$H(0.61)$	$97.1^{+2.8}_{-3.1} \quad (+0.3\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.011} \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.468^{+0.079}_{-0.081} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2283^{+48}_{-43} \quad (-0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0062}_{-0.0066} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.51 \quad (+0.2\sigma)$	$H(2.33)$	$234.1^{+3.2}_{-2.7} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.090}_{-0.062} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5745^{+32}_{-28} \quad (-0.8\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.884^{+0.029}_{-0.030} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.447^{+0.034}_{-0.029} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.5}_{-4.6} \quad (+0.2\sigma)$	$D_{40}$	$1232^{+32}_{-32} \quad (-0.0\sigma)$	$\sigma_8(0.15)$	$0.735^{+0.063}_{-0.052} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.1\sigma)$	$D_{220}$	$5731^{+97}_{-100} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.457^{+0.055}_{-0.044} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2539^{+34}_{-36} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.652^{+0.055}_{-0.046} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.458^{+0.056}_{-0.045} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{2000}$	$230.9^{+4.0}_{-4.3} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.611^{+0.051}_{-0.042} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.011}_{-0.011} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.455^{+0.054}_{-0.044} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.6} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24539^{+0.00014}_{-0.00016} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.582^{+0.047}_{-0.039} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00014}_{-0.00016} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.296^{+0.021}_{-0.018} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.5^{+8.4}_{-8.5} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.588^{+0.071}_{-0.067} \quad (-1.1\sigma)$	$\sigma_8(2.33)$	$0.301^{+0.022}_{-0.018} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.755^{+0.084}_{-0.073} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.10}_{-0.096}$	$z_*$	$1089.96^{+0.68}_{-0.65} \quad (-0.8\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.076}_{-0.075}$	$r_*$	$144.38^{+0.76}_{-0.72} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.9^{+4.5}_{-4.6} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04108^{+0.00083}_{-0.00078} \quad (+0.2\sigma)$	$\chi_{\mathrm{small}}^2$	$397.0 \quad (\nu: 1.7) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.868^{+0.071}_{-0.068} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.64 \quad (\nu: 0.4) \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.93^{+0.77}_{-0.80} \quad (+1.1\sigma)$	$\chi_{\mathrm{plik}}^2$	$2358.3 \quad (\nu: 16.5) \quad (+297.3\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.09^{+0.69}_{-0.68}$	$r_{\mathrm{drag}}$	$147.04^{+0.76}_{-0.73} \quad (-0.4\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.57 \quad (\nu: 0.2) \quad (+0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14091^{+0.00082}_{-0.00085} \quad (+0.7\sigma)$	$\chi_{\mathrm{MGS}}^2$	$0.87 \quad (\nu: 0.4) \quad (-0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16076^{+0.00046}_{-0.00045} \quad (-1.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 \quad (\nu: 1.1) \quad (-0.1\sigma)$
$H_0$	$64.9^{+7.1}_{-5.4} \quad (-0.0\sigma)$	$z_{\mathrm{eq}}$	$3408^{+74}_{-75} \quad (-0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.0) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.658^{+0.065}_{-0.062} \quad (-0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01040^{+0.00022}_{-0.00023} \quad (-0.0\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.3 \quad (\nu: 1.7) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.342^{+0.062}_{-0.065} \quad (+0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.014}_{-0.014} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2778.9 \quad (\nu: 16.7) \quad (+294.9\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1432^{+0.0031}_{-0.0031} \quad (-0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4489^{+0.0073}_{-0.0070} \quad (+0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2796.70; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.17; R - 1 = 0.01451$$



# 19.8 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02238^{+0.00036}_{-0.00036} \quad (+1.1\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0928^{+0.010}_{-0.0079} \quad (+0.0\sigma)$	$H(0.15)$	$73.2^{+2.2}_{-2.3} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1198^{+0.0028}_{-0.0028} \quad (+0.0\sigma)$	$\sigma_8$	$0.792^{+0.064}_{-0.052} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$652^{+35}_{-38} \quad (-0.0\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04093^{+0.00085}_{-0.00080} \quad (+0.2\sigma)$	$S_8$	$0.842^{+0.036}_{-0.037} \quad (+0.0\sigma)$	$H(0.38)$	$85.0^{+2.7}_{-2.8} \quad (+0.2\sigma)$
$\tau$	$0.054^{+0.018}_{-0.012} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.461^{+0.020}_{-0.020} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.38)$	$1525^{+45}_{-42} \quad (-0.2\sigma)$
$w_0$	$-0.60^{+0.61}_{-0.68} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.022}_{-0.021} \quad (-0.0\sigma)$	$H(0.51)$	$91.7^{+3.0}_{-3.1} \quad (+0.2\sigma)$
$w_a$	$< 0.365 \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.033}_{-0.032} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1967^{+46}_{-43} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.038}_{-0.026} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$95.6^{+10}_{-7.9} \quad (-0.1\sigma)$	$H(0.61)$	$97.1^{+2.9}_{-3.0} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.457^{+0.059}_{-0.059} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2284^{+47}_{-43} \quad (-0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0003^{+0.0062}_{-0.0066} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.32 \quad (+0.1\sigma)$	$H(2.33)$	$234.1^{+3.3}_{-2.8} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.081}_{-0.054} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5744^{+33}_{-28} \quad (-0.7\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.881^{+0.027}_{-0.028} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.444^{+0.032}_{-0.027} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 0.838 \quad (+0.2\sigma)$	$D_{40}$	$1229^{+29}_{-29} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.731^{+0.062}_{-0.050} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5731^{+98}_{-100} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.455^{+0.053}_{-0.043} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2537^{+34}_{-36} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.650^{+0.054}_{-0.044} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.455^{+0.055}_{-0.044} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$D_{2000}$	$230.8^{+4.0}_{-4.4} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.609^{+0.049}_{-0.040} \quad (-0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.452^{+0.053}_{-0.042} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.5} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24540^{+0.00013}_{-0.00015} \quad (+1.0\sigma)$	$\sigma_8(0.61)$	$0.580^{+0.046}_{-0.037} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.4}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00013}_{-0.00015} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.295^{+0.020}_{-0.017} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.3}_{-8.6} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.583^{+0.068}_{-0.064} \quad (-1.1\sigma)$	$\sigma_8(2.33)$	$0.300^{+0.022}_{-0.018} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.757^{+0.083}_{-0.075} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.115^{+0.099}_{-0.095}$	$z_*$	$1089.89^{+0.60}_{-0.60} \quad (-0.8\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.077}_{-0.077}$	$r_*$	$144.47^{+0.64}_{-0.63} \quad (-0.5\sigma)$	$f_{2000}^{217}$	$106.9^{+4.5}_{-4.6} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	$1.04112^{+0.00084}_{-0.00079} \quad (+0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.29 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.876^{+0.060}_{-0.059} \quad (-0.6\sigma)$	$\chi_{\mathrm{small}}^2$	$396.7 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.95^{+0.78}_{-0.78} \quad (+1.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.43 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.67}_{-0.68}$	$r_{\mathrm{drag}}$	$147.12^{+0.65}_{-0.64} \quad (-0.7\sigma)$	$\chi_{\mathrm{plik}}^2$	$2358.5 \quad (\nu: 16.0) \quad (+307.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14084^{+0.00074}_{-0.00077} \quad (+1.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.56 \quad (\nu: 0.2) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16075^{+0.00046}_{-0.00045} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$0.89 \quad (\nu: 0.4) \quad (-0.0\sigma)$
$H_0$	$65.0^{+6.9}_{-5.4} \quad (-0.0\sigma)$	$z_{\mathrm{eq}}$	$3398^{+62}_{-62} \quad (+0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 \quad (\nu: 1.1) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.660^{+0.063}_{-0.062} \quad (-0.0\sigma)$	$k_{\mathrm{eq}}$	$0.01037^{+0.00019}_{-0.00019} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.2) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.340^{+0.062}_{-0.063} \quad (+0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.012}_{-0.012} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2787.9 \quad (\nu: 16.8) \quad (+297.8\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1429^{+0.0026}_{-0.0026} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4498^{+0.0061}_{-0.0060} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.3 \quad (\nu: 1.7) \quad (-0.0\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2805.65; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.09; R - 1 = 0.01782$$



## 19.9 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_JLA

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02214^{+0.00058}_{-0.00053}$	$\sigma_8 \Omega_m^{0.5}$	0.4571	$0.458^{+0.027}_{-0.029}$	$H(0.38)$	83.67	$83.7^{+1.8}_{-1.8}$
$\Omega_c h^2$	0.12068	$0.1209^{+0.0044}_{-0.0047}$	$\sigma_8 \Omega_m^{0.25}$	0.6194	$0.620^{+0.032}_{-0.034}$	$D_M(0.38)$	1500.3	$1499^{+36}_{-36}$
$100\theta_{MC}$	1.04085	$1.0408^{+0.0011}_{-0.0012}$	$\sigma_8/h^{0.5}$	1.0064	$1.008^{+0.045}_{-0.050}$	$H(0.51)$	89.89	$89.8^{+1.5}_{-1.5}$
$\tau$	0.0523	$0.052^{+0.021}_{-0.022}$	$r_{drag} h$	102.36	$102.4^{+3.7}_{-3.6}$	$D_M(0.51)$	1949.9	$1949^{+42}_{-41}$
$w_0$	-1.010	$-0.998^{+0.28}_{-0.25}$	$\langle d^2 \rangle^{1/2}$	2.473	$2.478^{+0.099}_{-0.11}$	$H(0.61)$	95.16	$95.1^{+1.4}_{-1.2}$
$w_a$	-0.31	$-0.40^{+0.97}_{-1.3}$	$z_{re}$	7.51	$7.5^{+2.1}_{-2.5}$	$D_M(0.61)$	2274.1	$2273^{+45}_{-44}$
$\ln(10^{10} A_s)$	3.0415	$3.041^{+0.041}_{-0.045}$	$10^9 A_s$	2.094	$2.092^{+0.088}_{-0.093}$	$H(2.33)$	234.70	$234.7^{+2.6}_{-2.5}$
$n_s$	0.9641	$0.962^{+0.014}_{-0.012}$	$10^9 A_s e^{-2\tau}$	1.8857	$1.886^{+0.032}_{-0.033}$	$D_M(2.33)$	5758.8	$5762^{+33}_{-35}$
$\alpha_{JLA}$	0.1417	$0.142^{+0.017}_{-0.016}$	$D_{40}$	1229.7	$1233^{+36}_{-35}$	$f\sigma_8(0.15)$	0.4661	$0.467^{+0.028}_{-0.030}$
$\beta_{JLA}$	3.111	$3.11^{+0.21}_{-0.20}$	$D_{220}$	5713	$5714^{+100}_{-110}$	$\sigma_8(0.15)$	0.7770	$0.778^{+0.041}_{-0.043}$
$y_{cal}$	1.0004	$1.0004^{+0.0062}_{-0.0064}$	$D_{810}$	2538.9	$2537^{+34}_{-35}$	$f\sigma_8(0.38)$	0.4925	$0.494^{+0.034}_{-0.034}$
$A_{217}^{CIB}$	48.0	$48^{+20}_{-20}$	$D_{1420}$	816.1	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6895	$0.691^{+0.037}_{-0.038}$
$\xi^{tSZ \times CIB}$	0.47	—	$D_{2000}$	230.38	$229.8^{+4.4}_{-4.4}$	$f\sigma_8(0.51)$	0.4942	$0.496^{+0.035}_{-0.035}$
$A_{143}^{tSZ}$	7.0	—	$n_{s,0.002}$	0.9641	$0.962^{+0.014}_{-0.012}$	$\sigma_8(0.51)$	0.6452	$0.646^{+0.034}_{-0.035}$
$A_{100}^{PS}$	252	$263^{+70}_{-70}$	$Y_P$	0.245319	$0.24530^{+0.00023}_{-0.00025}$	$f\sigma_8(0.61)$	0.4908	$0.492^{+0.036}_{-0.036}$
$A_{143}^{PS}$	51.0	$49^{+20}_{-20}$	$Y_P^{BBN}$	0.246645	$0.24662^{+0.00023}_{-0.00025}$	$\sigma_8(0.61)$	0.6138	$0.615^{+0.031}_{-0.033}$
$A_{143 \times 217}^{PS}$	50.5	$44^{+20}_{-20}$	$10^5 D/H$	2.621	$2.63^{+0.10}_{-0.11}$	$f\sigma_8(2.33)$	0.3100	$0.310^{+0.015}_{-0.017}$
$A_{217}^{PS}$	120.5	$115^{+30}_{-30}$	Age/Gyr	13.746	$13.749^{+0.092}_{-0.087}$	$\sigma_8(2.33)$	0.3161	$0.316^{+0.013}_{-0.013}$
$A^{kSZ}$	0.1	—	$z_*$	1090.22	$1090.29^{+0.91}_{-0.97}$	$f_{2000}^{143}$	29.9	$31^{+8}_{-8}$
$A_{100}^{dustTT}$	8.91	$8.9^{+4.8}_{-4.7}$	$r_*$	144.40	$144.4^{+1.1}_{-1.0}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+5}_{-5}$
$A_{143}^{dustTT}$	10.70	$10.7^{+4.6}_{-4.6}$	$100\theta_*$	1.04105	$1.0410^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	107.38	$107.9^{+4.9}_{-4.8}$
$A_{143 \times 217}^{dustTT}$	19.5	$18.2^{+8.5}_{-8.8}$	$D_M(z_*)/\text{Gpc}$	13.871	$13.87^{+0.10}_{-0.099}$	$\chi_{simall}^2$	395.83	$396.9 (\nu: 1.3)$
$A_{217}^{dustTT}$	94.6	$93^{+20}_{-20}$	$z_{drag}$	1059.55	$1059.5^{+1.2}_{-1.2}$	$\chi_{lowl}^2$	23.33	$23.7 (\nu: 0.6)$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$r_{drag}$	147.12	$147.1^{+1.1}_{-1.1}$	$\chi_{plik}^2$	758.1	$770.5 (\nu: 14.4)$
$c_{217}$	0.99824	$0.9982^{+0.0016}_{-0.0016}$	$k_D$	0.14069	$0.1406^{+0.0013}_{-0.0012}$	$\chi_{H073p45}^2$	5.5	$5.7 (\nu: 3.6)$
$H_0$	69.57	$69.6^{+2.5}_{-2.4}$	$100\theta_D$	0.16099	$0.16104^{+0.00069}_{-0.00069}$	$\chi_{JLA}^2$	695.5	$698.3 (\nu: 3.4)$
$\Omega_\Lambda$	0.7035	$0.703^{+0.021}_{-0.023}$	$z_{eq}$	3414	$3417^{+100}_{-110}$	$\chi_{6DF}^2$	0.133	$0.21 (\nu: 0.0)$
$\Omega_m$	0.2965	$0.297^{+0.023}_{-0.021}$	$k_{eq}$	0.010420	$0.01043^{+0.00031}_{-0.00033}$	$\chi_{MGS}^2$	2.84	$2.99 (\nu: 0.3)$
$\Omega_m h^2$	0.14351	$0.1436^{+0.0043}_{-0.0045}$	$100\theta_{eq}$	0.8106	$0.810^{+0.020}_{-0.018}$	$\chi_{DR12BAO}^2$	4.81	$5.9 (\nu: 1.5)$
$\Omega_m h^3$	0.09984	$0.09999^{+0.0048}_{-0.0048}$	$100\theta_{s,eq}$	0.4481	$0.448^{+0.010}_{-0.0095}$	$\chi_{prior}^2$	1.3	$7.2 (\nu: 6.6)$
$\sigma_8$	0.8395	$0.841^{+0.044}_{-0.046}$	$H(0.15)$	74.46	$74.6^{+2.0}_{-1.9}$	$\chi_{BAO}^2$	7.8	$9.1 (\nu: 3.1)$
$S_8$	0.835	$0.836^{+0.048}_{-0.053}$	$D_M(0.15)$	625.2	$625^{+17}_{-17}$	$\chi_{CMB}^2$	1177.3	$1191.1 (\nu: 14.8)$

Best-fit  $\chi_{eff}^2 = 1887.34$ ;  $\bar{\chi}_{eff}^2 = 1911.34$ ;  $R - 1 = 0.00894$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.13 MGS: 2.84 DR12BAO: 4.81 CMB - simall-100x143.offlike5-EE\_Aplanck\_B: 395.83 commander\_dx12\_v3.2.29: 23.34 plik\_rd12\_HM\_v22.TT: 758.14  
Hubble - H073p45: 5.46 SN - JLA December\_2013: 695.50



19.10 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02222	$0.02217^{+0.00055}_{-0.00051}$	$\sigma_8 \Omega_m^{0.25}$	0.6136	$0.615^{+0.022}_{-0.023}$	$H(0.51)$	89.90	$89.9^{+1.6}_{-1.5}$
$\Omega_c h^2$	0.11990	$0.1201^{+0.0034}_{-0.0035}$	$\sigma_8/h^{0.5}$	0.9982	$0.9997^{+0.031}_{-0.033}$	$D_M(0.51)$	1950.4	$1950^{+41}_{-42}$
$100\theta_{MC}$	1.04088	$1.0408^{+0.0011}_{-0.0011}$	$r_{drag} h$	102.59	$102.5^{+3.8}_{-3.5}$	$H(0.61)$	95.20	$95.2^{+1.4}_{-1.3}$
$\tau$	0.0519	$0.051^{+0.021}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.455	$2.461^{+0.068}_{-0.071}$	$D_M(0.61)$	2274.5	$2274^{+43}_{-45}$
$w_0$	-1.025	$-1.01^{+0.27}_{-0.25}$	$z_{re}$	7.44	$7.4^{+2.0}_{-2.4}$	$H(2.33)$	234.57	$234.6^{+2.7}_{-2.4}$
$w_a$	-0.21	$-0.29^{+0.86}_{-1.0}$	$10^9 A_s$	2.088	$2.086^{+0.084}_{-0.082}$	$D_M(2.33)$	5757.3	$5760^{+33}_{-34}$
$\ln(10^{10} A_s)$	3.0386	$3.038^{+0.039}_{-0.040}$	$10^9 A_s e^{-2\tau}$	1.8820	$1.882^{+0.029}_{-0.029}$	$f\sigma_8(0.15)$	0.4615	$0.462^{+0.021}_{-0.021}$
$n_s$	0.9654	$0.964^{+0.012}_{-0.011}$	$D_{40}$	1226.5	$1230^{+32}_{-32}$	$\sigma_8(0.15)$	0.7713	$0.772^{+0.031}_{-0.032}$
$y_{cal}$	1.0004	$1.0003^{+0.0061}_{-0.0065}$	$D_{220}$	5717	$5716^{+100}_{-110}$	$f\sigma_8(0.38)$	0.4877	$0.488^{+0.026}_{-0.026}$
$\alpha_{JLA}$	0.1415	$0.142^{+0.017}_{-0.016}$	$D_{810}$	2537.6	$2535^{+33}_{-34}$	$\sigma_8(0.38)$	0.6847	$0.685^{+0.028}_{-0.028}$
$\beta_{JLA}$	3.111	$3.11^{+0.21}_{-0.20}$	$D_{1420}$	816.1	$815^{+12}_{-13}$	$f\sigma_8(0.51)$	0.4893	$0.490^{+0.027}_{-0.027}$
$A_{217}^{CIB}$	48.1	$48^{+20}_{-20}$	$D_{2000}$	230.32	$229.7^{+4.3}_{-4.5}$	$\sigma_8(0.51)$	0.6408	$0.641^{+0.025}_{-0.026}$
$\xi^{tSZ \times CIB}$	0.44	—	$n_{s,0.002}$	0.9654	$0.964^{+0.012}_{-0.011}$	$f\sigma_8(0.61)$	0.4858	$0.487^{+0.027}_{-0.027}$
$A_{143}^{tSZ}$	7.0	—	$Y_P$	0.245334	$0.24531^{+0.00021}_{-0.00024}$	$\sigma_8(0.61)$	0.6097	$0.610^{+0.024}_{-0.024}$
$A_{100}^{PS}$	253	$263^{+70}_{-70}$	$Y_P^{BBN}$	0.246661	$0.24664^{+0.00021}_{-0.00024}$	$f\sigma_8(2.33)$	0.3080	$0.308^{+0.012}_{-0.012}$
$A_{143}^{PS}$	50.7	$49^{+20}_{-20}$	$10^5 D/H$	2.614	$2.624^{+0.099}_{-0.10}$	$\sigma_8(2.33)$	0.3147	$0.3146^{+0.0097}_{-0.010}$
$A_{143 \times 217}^{PS}$	49.8	$43^{+20}_{-20}$	Age/Gyr	13.749	$13.752^{+0.090}_{-0.087}$	$f_{2000}^{143}$	30.0	$31^{+8}_{-8}$
$A_{217}^{PS}$	120.2	$115^{+30}_{-30}$	$z_*$	1090.10	$1090.19^{+0.83}_{-0.84}$	$f_{2000}^{143 \times 217}$	33.1	$33^{+5}_{-5}$
$A^{kSZ}$	0.0	—	$r_*$	144.57	$144.55^{+0.83}_{-0.83}$	$f_{2000}^{217}$	107.41	$107.9^{+4.9}_{-4.8}$
$A_{100}^{dustTT}$	8.91	$8.9^{+4.8}_{-4.8}$	$100\theta_*$	1.04108	$1.0411^{+0.0011}_{-0.0011}$	$\chi_{lensing}^2$	8.75	$9.4 (\nu: 0.6)$
$A_{143}^{dustTT}$	10.82	$10.7^{+4.5}_{-4.8}$	$D_M(z_*)/\text{Gpc}$	13.887	$13.885^{+0.079}_{-0.080}$	$\chi_{small}^2$	395.76	$396.8 (\nu: 1.1)$
$A_{143 \times 217}^{dustTT}$	19.5	$18.2^{+8.7}_{-8.8}$	$z_{drag}$	1059.59	$1059.5^{+1.2}_{-1.2}$	$\chi_{lowl}^2$	23.05	$23.40 (\nu: 0.4)$
$A_{217}^{dustTT}$	94.6	$93^{+20}_{-20}$	$r_{drag}$	147.28	$147.28^{+0.88}_{-0.88}$	$\chi_{plik}^2$	758.7	$770.7 (\nu: 14.1)$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$k_D$	0.14055	$0.1405^{+0.0012}_{-0.0011}$	$\chi_{H073p45}^2$	5.2	$5.7 (\nu: 3.6)$
$c_{217}$	0.99826	$0.9982^{+0.0016}_{-0.0016}$	$100\theta_D$	0.16096	$0.16102^{+0.00070}_{-0.00068}$	$\chi_{JLA}^2$	695.7	$698.2 (\nu: 3.4)$
$H_0$	69.65	$69.6^{+2.5}_{-2.4}$	$z_{eq}$	3396	$3401^{+78}_{-81}$	$\chi_{6DF}^2$	0.155	$0.21 (\nu: 0.0)$
$\Omega_\Lambda$	0.7057	$0.705^{+0.021}_{-0.022}$	$k_{eq}$	0.010365	$0.01038^{+0.00024}_{-0.00025}$	$\chi_{MGS}^2$	2.92	$2.99 (\nu: 0.3)$
$\Omega_m$	0.2943	$0.295^{+0.022}_{-0.021}$	$100\theta_{eq}$	0.8139	$0.813^{+0.015}_{-0.014}$	$\chi_{DR12BAO}^2$	4.72	$5.7 (\nu: 1.5)$
$\Omega_m h^2$	0.14276	$0.1430^{+0.0033}_{-0.0034}$	$100\theta_{s,eq}$	0.4498	$0.4494^{+0.0077}_{-0.0073}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.7)$
$\Omega_m h^3$	0.09944	$0.0995^{+0.0042}_{-0.0044}$	$H(0.15)$	74.43	$74.5^{+2.0}_{-1.9}$	$\chi_{CMB}^2$	1186.3	$1200.2 (\nu: 15.4)$
$\sigma_8$	0.8331	$0.834^{+0.033}_{-0.034}$	$D_M(0.15)$	625.1	$625^{+17}_{-17}$	$\chi_{BAO}^2$	7.8	$8.9 (\nu: 3.2)$
$S_8$	0.8251	$0.827^{+0.034}_{-0.034}$	$H(0.38)$	83.64	$83.7^{+1.8}_{-1.8}$			
$\sigma_8 \Omega_m^{0.5}$	0.4519	$0.453^{+0.019}_{-0.019}$	$D_M(0.38)$	1500.7	$1500^{+35}_{-36}$			

Best-fit  $\chi_{eff}^2 = 1896.26$ ;  $\bar{\chi}_{eff}^2 = 1920.42$ ;  $R - 1 = 0.01184$

$\chi_{eff}^2$ : BAO - 6DF: 0.15 MGS: 2.92 DR12BAO: 4.72 CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.75 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.76 commander\_dx12\_v3\_2\_29: 23.05 plik\_rd12\_HM\_v22\_TT: 758.73 Hubble - H073p45: 5.23 SN - JLA December\_2013: 695.66



19.11 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02215^{+0.00058}_{-0.00053}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.458^{+0.026}_{-0.028}$	$H(0.38)$	$83.7^{+1.8}_{-1.8}$
$\Omega_{\mathrm{c}} h^2$	$0.1208^{+0.0044}_{-0.0047}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.621^{+0.032}_{-0.034}$	$D_{\mathrm{M}}(0.38)$	$1499^{+36}_{-35}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0011}_{-0.0012}$	$\sigma_8/h^{0.5}$	$1.009^{+0.044}_{-0.049}$	$H(0.51)$	$89.9^{+1.5}_{-1.5}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$r_{\mathrm{drag}} h$	$102.4^{+3.7}_{-3.6}$	$D_{\mathrm{M}}(0.51)$	$1949^{+42}_{-41}$
$w_0$	$-0.999^{+0.28}_{-0.25}$	$\langle d^2 \rangle^{1/2}$	$2.481^{+0.098}_{-0.11}$	$H(0.61)$	$95.1^{+1.4}_{-1.2}$
$w_a$	$-0.39^{+0.96}_{-1.2}$	$z_{\mathrm{re}}$	$< 9.32$	$D_{\mathrm{M}}(0.61)$	$2273^{+45}_{-44}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.039}_{-0.029}$	$10^9 A_{\mathrm{s}}$	$2.099^{+0.083}_{-0.060}$	$H(2.33)$	$234.7^{+2.7}_{-2.5}$
$n_{\mathrm{s}}$	$0.963^{+0.014}_{-0.012}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.885^{+0.032}_{-0.033}$	$D_{\mathrm{M}}(2.33)$	$5762^{+33}_{-36}$
$\alpha_{JLA}$	$0.142^{+0.017}_{-0.016}$	$D_{40}$	$1233^{+36}_{-36}$	$f\sigma_8(0.15)$	$0.467^{+0.027}_{-0.028}$
$\beta_{JLA}$	$3.11^{+0.21}_{-0.20}$	$D_{220}$	$5714^{+100}_{-110}$	$\sigma_8(0.15)$	$0.779^{+0.041}_{-0.042}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0062}_{-0.0064}$	$D_{810}$	$2536^{+34}_{-35}$	$f\sigma_8(0.38)$	$0.494^{+0.034}_{-0.034}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$815^{+12}_{-13}$	$\sigma_8(0.38)$	$0.691^{+0.036}_{-0.037}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{2000}$	$229.8^{+4.4}_{-4.4}$	$f\sigma_8(0.51)$	$0.496^{+0.035}_{-0.035}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.963^{+0.014}_{-0.012}$	$\sigma_8(0.51)$	$0.647^{+0.033}_{-0.035}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00023}_{-0.00025}$	$f\sigma_8(0.61)$	$0.493^{+0.036}_{-0.036}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00023}_{-0.00025}$	$\sigma_8(0.61)$	$0.615^{+0.031}_{-0.033}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.10}_{-0.11}$	$f\sigma_8(2.33)$	$0.311^{+0.015}_{-0.017}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.749^{+0.091}_{-0.088}$	$\sigma_8(2.33)$	$0.316^{+0.012}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.28^{+0.90}_{-0.96}$	$f_{2000}^{143}$	$31^{+7}_{-8}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.8}$	$r_*$	$144.4^{+1.1}_{-1.0}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.6}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0012}$	$f_{2000}^{217}$	$107.9^{+4.9}_{-4.8}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.2^{+8.5}_{-8.8}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.87^{+0.10}_{-0.098}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.2)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.1}$	$\chi_{\mathrm{lowl}}^2$	$23.7 (\nu: 0.6)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.1^{+1.1}_{-1.1}$	$\chi_{\mathrm{plik}}^2$	$770.3 (\nu: 14.3)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1406^{+0.0013}_{-0.0012}$	$\chi_{\mathrm{H073p45}}^2$	$5.7 (\nu: 3.6)$
$H_0$	$69.6^{+2.5}_{-2.5}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00069}_{-0.00070}$	$\chi_{\mathrm{JLA}}^2$	$698.3 (\nu: 3.4)$
$\Omega_{\Lambda}$	$0.703^{+0.021}_{-0.023}$	$z_{\mathrm{eq}}$	$3416^{+100}_{-110}$	$\chi_{6\mathrm{DF}}^2$	$0.21 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.297^{+0.023}_{-0.021}$	$k_{\mathrm{eq}}$	$0.01043^{+0.00031}_{-0.00032}$	$\chi_{\mathrm{MGS}}^2$	$2.98 (\nu: 0.3)$
$\Omega_{\mathrm{m}} h^2$	$0.1436^{+0.0042}_{-0.0045}$	$100\theta_{\mathrm{eq}}$	$0.810^{+0.020}_{-0.018}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.9 (\nu: 1.4)$
$\Omega_{\mathrm{m}} h^3$	$0.0999^{+0.0048}_{-0.0048}$	$100\theta_{\mathrm{s,eq}}$	$0.448^{+0.010}_{-0.0093}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.6)$
$\sigma_8$	$0.842^{+0.044}_{-0.046}$	$H(0.15)$	$74.5^{+2.0}_{-1.9}$	$\chi_{\mathrm{BAO}}^2$	$9.1 (\nu: 3.1)$
$S_8$	$0.837^{+0.048}_{-0.051}$	$D_{\mathrm{M}}(0.15)$	$625^{+17}_{-17}$	$\chi_{\mathrm{CMB}}^2$	$1190.8 (\nu: 14.2)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1911.05; R - 1 = 0.01013$$



## 19.12 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02218^{+0.00054}_{-0.00051}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.615^{+0.022}_{-0.023}$	$H(0.51)$	$89.9^{+1.6}_{-1.5}$
$\Omega_{\mathrm{c}}h^2$	$0.1200^{+0.0033}_{-0.0034}$	$\sigma_8/h^{0.5}$	$1.000^{+0.031}_{-0.033}$	$D_{\mathrm{M}}(0.51)$	$1950^{+41}_{-41}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}}h$	$102.5^{+3.8}_{-3.6}$	$H(0.61)$	$95.2^{+1.4}_{-1.3}$
$\tau$	$0.053^{+0.018}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.462^{+0.068}_{-0.070}$	$D_{\mathrm{M}}(0.61)$	$2275^{+43}_{-44}$
$w_0$	$-1.01^{+0.27}_{-0.25}$	$z_{\mathrm{re}}$	$< 9.23$	$H(2.33)$	$234.6^{+2.7}_{-2.4}$
$w_{\mathrm{a}}$	$-0.27^{+0.84}_{-1.0}$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.079}_{-0.053}$	$D_{\mathrm{M}}(2.33)$	$5760^{+32}_{-34}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.037}_{-0.026}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.881^{+0.028}_{-0.029}$	$f\sigma_8(0.15)$	$0.462^{+0.021}_{-0.021}$
$n_{\mathrm{s}}$	$0.964^{+0.012}_{-0.011}$	$D_{40}$	$1229^{+32}_{-32}$	$\sigma_8(0.15)$	$0.772^{+0.031}_{-0.032}$
$y_{\mathrm{cal}}$	$1.0003^{+0.0061}_{-0.0064}$	$D_{220}$	$5716^{+100}_{-110}$	$f\sigma_8(0.38)$	$0.488^{+0.026}_{-0.026}$
$\alpha_{JLA}$	$0.142^{+0.017}_{-0.016}$	$D_{810}$	$2535^{+33}_{-34}$	$\sigma_8(0.38)$	$0.686^{+0.027}_{-0.028}$
$\beta_{JLA}$	$3.11^{+0.21}_{-0.20}$	$D_{1420}$	$815^{+12}_{-13}$	$f\sigma_8(0.51)$	$0.490^{+0.027}_{-0.027}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{2000}$	$229.8^{+4.3}_{-4.6}$	$\sigma_8(0.51)$	$0.642^{+0.025}_{-0.026}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.964^{+0.012}_{-0.011}$	$f\sigma_8(0.61)$	$0.487^{+0.027}_{-0.027}$
$A_{143}^{\mathrm{tSZ}}$	—	$Y_{\mathrm{P}}$	$0.24532^{+0.00021}_{-0.00024}$	$\sigma_8(0.61)$	$0.610^{+0.024}_{-0.024}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00021}_{-0.00024}$	$f\sigma_8(2.33)$	$0.308^{+0.012}_{-0.013}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$10^5\mathrm{D}/\mathrm{H}$	$2.621^{+0.098}_{-0.099}$	$\sigma_8(2.33)$	$0.3149^{+0.0096}_{-0.010}$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.752^{+0.087}_{-0.088}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$z_*$	$1090.16^{+0.79}_{-0.83}$	$f_{2000}^{143\times 217}$	$33^{+5}_{-5}$
$A^{\mathrm{kSZ}}$	—	$r_*$	$144.57^{+0.82}_{-0.80}$	$f_{2000}^{217}$	$107.9^{+4.9}_{-4.7}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.8}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{lensing}}^2$	$9.4\ (\nu: 0.6)$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.8}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.887^{+0.078}_{-0.077}$	$\chi_{\mathrm{simall}}^2$	$396.6\ (\nu: 1.0)$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.2^{+8.8}_{-8.8}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.2}$	$\chi_{\mathrm{lowl}}^2$	$23.38\ (\nu: 0.4)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$r_{\mathrm{drag}}$	$147.30^{+0.88}_{-0.87}$	$\chi_{\mathrm{plik}}^2$	$770.6\ (\nu: 14.0)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{H073p45}}^2$	$5.7\ (\nu: 3.6)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$100\theta_{\mathrm{D}}$	$0.16101^{+0.00069}_{-0.00068}$	$\chi_{\mathrm{JLA}}^2$	$698.2\ (\nu: 3.4)$
$H_0$	$69.6^{+2.5}_{-2.4}$	$z_{\mathrm{eq}}$	$3398^{+76}_{-79}$	$\chi_{6\mathrm{DF}}^2$	$0.21\ (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.705^{+0.021}_{-0.022}$	$k_{\mathrm{eq}}$	$0.01037^{+0.00023}_{-0.00024}$	$\chi_{\mathrm{MGS}}^2$	$2.98\ (\nu: 0.3)$
$\Omega_{\mathrm{m}}$	$0.295^{+0.022}_{-0.021}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.015}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.7\ (\nu: 1.5)$
$\Omega_{\mathrm{m}}h^2$	$0.1428^{+0.0032}_{-0.0033}$	$100\theta_{\mathrm{s,eq}}$	$0.4497^{+0.0076}_{-0.0071}$	$\chi_{\mathrm{prior}}^2$	$7.3\ (\nu: 6.7)$
$\Omega_{\mathrm{m}}h^3$	$0.0994^{+0.0041}_{-0.0044}$	$H(0.15)$	$74.4^{+2.0}_{-1.9}$	$\chi_{\mathrm{CMB}}^2$	$1199.9\ (\nu: 14.9)$
$\sigma_8$	$0.834^{+0.033}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$625^{+17}_{-17}$	$\chi_{\mathrm{BAO}}^2$	$8.8\ (\nu: 3.2)$
$S_8$	$0.827^{+0.034}_{-0.034}$	$H(0.38)$	$83.7^{+1.8}_{-1.7}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.019}_{-0.019}$	$D_{\mathrm{M}}(0.38)$	$1501^{+36}_{-35}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1920.07; R - 1 = 0.01435$$



### 19.13 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_JLA

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.022383	$0.02237^{+0.00037}_{-0.00038}$ (+1.1 $\sigma$ )	$\Omega_{\text{m}}h^2$	0.14321	$0.1434^{+0.0030}_{-0.0031}$ (−0.1 $\sigma$ )	$H(0.15)$	74.51	$74.7^{+1.9}_{-1.9}$ (+0.1 $\sigma$ )
$\Omega_{\text{c}}h^2$	0.12018	$0.1204^{+0.0032}_{-0.0032}$ (−0.3 $\sigma$ )	$\Omega_{\text{m}}h^3$	0.09971	$0.09996^{+0.0041}_{-0.0039}$ (−0.0 $\sigma$ )	$D_{\text{M}}(0.15)$	624.8	$624^{+17}_{-17}$ (−0.1 $\sigma$ )
$100\theta_{\text{MC}}$	1.04092	$1.04090^{+0.00076}_{-0.00079}$ (+0.2 $\sigma$ )	$\sigma_8$	0.8356	$0.837^{+0.036}_{-0.036}$ (−0.2 $\sigma$ )	$H(0.38)$	83.79	$83.9^{+1.7}_{-1.7}$ (+0.3 $\sigma$ )
$\tau$	0.0544	$0.054^{+0.022}_{-0.021}$ (+0.2 $\sigma$ )	$S_8$	0.8292	$0.831^{+0.037}_{-0.038}$ (−0.3 $\sigma$ )	$D_{\text{M}}(0.38)$	1499.0	$1497^{+35}_{-34}$ (−0.2 $\sigma$ )
$w_0$	−1.013	$−1.00^{+0.25}_{-0.24}$ (−0.0 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.5}$	0.4542	$0.455^{+0.020}_{-0.021}$ (−0.3 $\sigma$ )	$H(0.51)$	90.06	$90.1^{+1.4}_{-1.4}$ (+0.4 $\sigma$ )
$w_a$	−0.25	$−0.33^{+0.83}_{-1.0}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\text{m}}^{0.25}$	0.6160	$0.617^{+0.025}_{-0.025}$ (−0.3 $\sigma$ )	$D_{\text{M}}(0.51)$	1947.9	$1945^{+41}_{-39}$ (−0.2 $\sigma$ )
$\ln(10^{10}A_{\text{s}})$	3.0447	$3.044^{+0.043}_{-0.042}$ (+0.2 $\sigma$ )	$\sigma_8/h^{0.5}$	1.0014	$1.003^{+0.036}_{-0.037}$ (−0.3 $\sigma$ )	$H(0.61)$	95.36	$95.3^{+1.2}_{-1.2}$ (+0.5 $\sigma$ )
$n_{\text{s}}$	0.9661	$0.964^{+0.011}_{-0.010}$ (+0.4 $\sigma$ )	$r_{\text{drag}}h$	102.37	$102.5^{+3.6}_{-3.6}$ (+0.0 $\sigma$ )	$D_{\text{M}}(0.61)$	2271.5	$2269^{+43}_{-42}$ (−0.2 $\sigma$ )
$\alpha_{\text{JLA}}$	0.1417	$0.142^{+0.017}_{-0.017}$ (+0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.463	$2.469^{+0.081}_{-0.083}$ (−0.2 $\sigma$ )	$H(2.33)$	234.84	$234.8^{+2.5}_{-2.3}$ (+0.1 $\sigma$ )
$\beta_{\text{JLA}}$	3.108	$3.11^{+0.21}_{-0.20}$ (+0.0 $\sigma$ )	$z_{\text{re}}$	7.67	$7.6^{+2.1}_{-2.2}$ (+0.1 $\sigma$ )	$D_{\text{M}}(2.33)$	5749.9	$5751^{+28}_{-26}$ (−0.9 $\sigma$ )
$y_{\text{cal}}$	1.0003	$1.0006^{+0.0065}_{-0.0063}$ (+0.1 $\sigma$ )	$10^9 A_{\text{s}}$	2.100	$2.099^{+0.092}_{-0.088}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4630	$0.464^{+0.022}_{-0.021}$ (−0.3 $\sigma$ )
$A_{217}^{\text{CIB}}$	46.8	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_{\text{s}}e^{-2\tau}$	1.8840	$1.885^{+0.030}_{-0.029}$ (−0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7736	$0.775^{+0.034}_{-0.033}$ (−0.2 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.48	—	$D_{40}$	1227.4	$1232^{+30}_{-31}$ (−0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4890	$0.490^{+0.027}_{-0.026}$ (−0.3 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.20	$5.5^{+4.3}_{-4.8}$ (+0.2 $\sigma$ )	$D_{220}$	5727	$5734^{+97}_{-98}$ (+0.5 $\sigma$ )	$\sigma_8(0.38)$	0.6867	$0.688^{+0.031}_{-0.030}$ (−0.2 $\sigma$ )
$A_{100}^{\text{PS}}$	248	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{810}$	2540.1	$2540^{+36}_{-34}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4906	$0.492^{+0.028}_{-0.027}$ (−0.3 $\sigma$ )
$A_{143}^{\text{PS}}$	47.6	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{1420}$	818.0	$817^{+12}_{-12}$ (+0.6 $\sigma$ )	$\sigma_8(0.51)$	0.6427	$0.644^{+0.028}_{-0.028}$ (−0.2 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	48.4	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{2000}$	231.32	$231.0^{+4.0}_{-4.1}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4872	$0.489^{+0.028}_{-0.027}$ (−0.3 $\sigma$ )
$A_{217}^{\text{PS}}$	120.1	$116^{+30}_{-30}$ (+0.0 $\sigma$ )	$n_{\text{s},0.002}$	0.9661	$0.964^{+0.011}_{-0.010}$ (+0.4 $\sigma$ )	$\sigma_8(0.61)$	0.6115	$0.613^{+0.026}_{-0.026}$ (−0.2 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$Y_{\text{P}}$	0.245401	$0.24539^{+0.00014}_{-0.00016}$ (+1.1 $\sigma$ )	$f\sigma_8(2.33)$	0.3090	$0.310^{+0.013}_{-0.014}$ (−0.1 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.94	$8.9^{+4.8}_{-4.7}$ (−0.0 $\sigma$ )	$Y_{\text{P}}^{\text{BBN}}$	0.246727	$0.24672^{+0.00014}_{-0.00016}$ (+1.1 $\sigma$ )	$\sigma_8(2.33)$	0.3155	$0.316^{+0.011}_{-0.011}$ (−0.1 $\sigma$ )
$A_{143}^{\text{dustTT}}$	10.97	$10.8^{+4.6}_{-4.6}$ (+0.1 $\sigma$ )	$10^5 \text{D}/\text{H}$	2.583	$2.587^{+0.072}_{-0.066}$ (−1.1 $\sigma$ )	$f_{2000}^{143}$	28.5	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.8	$18.5^{+8.4}_{-8.6}$ (+0.1 $\sigma$ )	Age/Gyr	13.731	$13.729^{+0.081}_{-0.073}$ (−0.6 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.77	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.0	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$z_*$	1089.92	$1089.96^{+0.69}_{-0.66}$ (−0.9 $\sigma$ )	$f_{2000}^{217}$	106.41	$106.9^{+4.5}_{-4.6}$ (−0.5 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.099}_{-0.096}$	$r_*$	144.38	$144.34^{+0.72}_{-0.69}$ (−0.1 $\sigma$ )	$\chi_{\text{small}}^2$	396.04	$397.0$ ( $\nu$ : 1.6) (+0.1 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.134	$0.134^{+0.075}_{-0.075}$	$100\theta_*$	1.04110	$1.04108^{+0.00075}_{-0.00077}$ (+0.2 $\sigma$ )	$\chi_{\text{lowl}}^2$	23.09	$23.43$ ( $\nu$ : 0.4) (−0.3 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.481	$0.48^{+0.22}_{-0.22}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.868	$13.864^{+0.069}_{-0.065}$ (−0.2 $\sigma$ )	$\chi_{\text{plik}}^2$	2343.7	$2358.5$ ( $\nu$ : 16.5) (+295.8 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.223	$0.23^{+0.14}_{-0.14}$	$z_{\text{drag}}$	1059.97	$1059.95^{+0.74}_{-0.78}$ (+1.1 $\sigma$ )	$\chi_{\text{H073p45}}^2$	5.3	$5.4$ ( $\nu$ : 3.4) (−0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.669	$0.67^{+0.21}_{-0.20}$	$r_{\text{drag}}$	147.03	$147.00^{+0.73}_{-0.70}$ (−0.3 $\sigma$ )	$\chi_{\text{JLA}}^2$	695.5	$698.2$ ( $\nu$ : 3.3) (−0.0 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.08	$2.08^{+0.68}_{-0.68}$	$k_{\text{D}}$	0.14094	$0.14096^{+0.00076}_{-0.00080}$ (+0.6 $\sigma$ )	$\chi_{\text{6DF}}^2$	0.133	$0.22$ ( $\nu$ : 0.0) (+0.0 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$100\theta_{\text{D}}$	0.160734	$0.16075^{+0.00046}_{-0.00044}$ (−1.1 $\sigma$ )	$\chi_{\text{MGS}}^2$	2.84	$3.02$ ( $\nu$ : 0.3) (+0.0 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{\text{eq}}$	3407	$3411^{+71}_{-73}$ (−0.1 $\sigma$ )	$\chi_{\text{DR12BAO}}^2$	4.68	$5.8$ ( $\nu$ : 1.5) (−0.1 $\sigma$ )
$H_0$	69.63	$69.7^{+2.4}_{-2.4}$ (+0.1 $\sigma$ )	$k_{\text{eq}}$	0.010398	$0.01041^{+0.00022}_{-0.00022}$ (−0.1 $\sigma$ )	$\chi_{\text{prior}}^2$	1.7	$11.5$ ( $\nu$ : 10.2) (+1.2 $\sigma$ )
$\Omega_{\Lambda}$	0.7046	$0.705^{+0.021}_{-0.022}$ (+0.2 $\sigma$ )	$100\theta_{\text{eq}}$	0.8125	$0.812^{+0.014}_{-0.013}$ (+0.2 $\sigma$ )	$\chi_{\text{BAO}}^2$	7.6	$9.0$ ( $\nu$ : 3.4) (−0.0 $\sigma$ )
$\Omega_{\text{m}}$	0.2954	$0.295^{+0.022}_{-0.021}$ (−0.2 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4490	$0.4485^{+0.0071}_{-0.0068}$ (+0.2 $\sigma$ )	$\chi_{\text{CMB}}^2$	2762.8	$2778.9$ ( $\nu$ : 16.9) (+292.3 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 3472.92$ ;  $\Delta\chi_{\text{eff}}^2 = 1585.58$ ;  $\bar{\chi}_{\text{eff}}^2 = 3502.96$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1591.62$ ;  $R - 1 = 0.01220$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.13 ( $\Delta$  0.00) MGS: 2.84 ( $\Delta$  0.00) DR12BAO: 4.67 ( $\Delta$  -0.13) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.04 ( $\Delta$  0.20) commander\_dx12\_v3\_2\_29: 23.09 ( $\Delta$  -0.25) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.70 Hubble - H073p45: 5.30 ( $\Delta$  -0.15) SN - JLA December\_2013: 695.47 ( $\Delta$  -0.04)



## 19.14 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022394	$0.02239^{+0.00035}_{-0.00036}$ (+1.1 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09957	$0.0997^{+0.0040}_{-0.0038}$ (+0.1 $\sigma$ )	$H(0.38)$	83.84	$83.9^{+1.7}_{-1.7}$ (+0.3 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11988	$0.1200^{+0.0027}_{-0.0029}$ (−0.1 $\sigma$ )	$\sigma_8$	0.8326	$0.833^{+0.031}_{-0.029}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1498.2	$1498^{+33}_{-33}$ (−0.2 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04096	$1.04093^{+0.00074}_{-0.00076}$ (+0.2 $\sigma$ )	$S_8$	0.8249	$0.826^{+0.029}_{-0.030}$ (−0.1 $\sigma$ )	$H(0.51)$	90.10	$90.1^{+1.4}_{-1.4}$ (+0.4 $\sigma$ )
$\tau$	0.0531	$0.053^{+0.020}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4518	$0.452^{+0.016}_{-0.016}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1946.8	$1946^{+40}_{-39}$ (−0.2 $\sigma$ )
$w_0$	−1.012	$-1.01^{+0.24}_{-0.24}$ (+0.0 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6133	$0.614^{+0.019}_{-0.019}$ (−0.1 $\sigma$ )	$H(0.61)$	95.41	$95.4^{+1.1}_{-1.2}$ (+0.4 $\sigma$ )
$w_a$	−0.24	$-0.28^{+0.79}_{-0.93}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9975	$0.998^{+0.027}_{-0.027}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2270.2	$2270^{+43}_{-41}$ (−0.3 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0418	$3.041^{+0.039}_{-0.038}$ (+0.2 $\sigma$ )	$r_{\mathrm{drag}}h$	102.48	$102.5^{+3.5}_{-3.6}$ (+0.0 $\sigma$ )	$H(2.33)$	234.72	$234.7^{+2.5}_{-2.3}$ (+0.2 $\sigma$ )
$n_{\mathrm{s}}$	0.9663	$0.9651^{+0.0098}_{-0.010}$ (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.456	$2.459^{+0.059}_{-0.062}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5748.7	$5750^{+27}_{-26}$ (−0.8 $\sigma$ )
$y_{\mathrm{cal}}$	1.0004	$1.0005^{+0.0063}_{-0.0064}$ (+0.1 $\sigma$ )	$z_{\mathrm{re}}$	7.53	$7.5^{+2.0}_{-2.1}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4606	$0.461^{+0.019}_{-0.018}$ (−0.1 $\sigma$ )
$\alpha_{JLA}$	0.1417	$0.142^{+0.017}_{-0.017}$ (−0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.094	$2.092^{+0.084}_{-0.078}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7709	$0.772^{+0.029}_{-0.028}$ (−0.0 $\sigma$ )
$\beta_{JLA}$	3.106	$3.12^{+0.20}_{-0.21}$ (+0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8834	$1.883^{+0.027}_{-0.026}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4865	$0.487^{+0.023}_{-0.022}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	46.0	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{40}$	1227.1	$1230^{+29}_{-29}$ (−0.0 $\sigma$ )	$\sigma_8(0.38)$	0.6845	$0.685^{+0.026}_{-0.024}$ (−0.0 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	0.63	—	$D_{220}$	5732	$5734^{+94}_{-98}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4882	$0.489^{+0.024}_{-0.022}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.09	$5.5^{+4.3}_{-4.9}$ (+0.2 $\sigma$ )	$D_{810}$	2540.5	$2539^{+34}_{-33}$ (+0.3 $\sigma$ )	$\sigma_8(0.51)$	0.6407	$0.641^{+0.024}_{-0.023}$ (−0.0 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	249	$259^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{1420}$	818.2	$817^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.61)$	0.4849	$0.486^{+0.024}_{-0.023}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	50.7	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{2000}$	231.31	$230.9^{+4.0}_{-3.8}$ (+0.7 $\sigma$ )	$\sigma_8(0.61)$	0.6096	$0.610^{+0.023}_{-0.022}$ (−0.0 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	52.9	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9663	$0.9651^{+0.0098}_{-0.010}$ (+0.3 $\sigma$ )	$f\sigma_8(2.33)$	0.3081	$0.308^{+0.011}_{-0.011}$ (+0.0 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	122.0	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$Y_{\mathrm{P}}$	0.245405	$0.24540^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3148	$0.3148^{+0.0098}_{-0.0095}$ (+0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246731	$0.24673^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$f_{2000}^{143}$	28.8	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.79	$8.9^{+4.9}_{-4.7}$ (−0.0 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	2.581	$2.583^{+0.068}_{-0.063}$ (−1.1 $\sigma$ )	$f_{2000}^{143\times 217}$	32.04	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.02	$10.8^{+4.6}_{-4.5}$ (+0.1 $\sigma$ )	Age/Gyr	13.730	$13.730^{+0.078}_{-0.071}$ (−0.6 $\sigma$ )	$f_{2000}^{217}$	106.55	$106.9^{+4.5}_{-4.5}$ (−0.5 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTT}}$	20.2	$18.5^{+8.5}_{-9.0}$ (+0.1 $\sigma$ )	$z_*$	1089.88	$1089.90^{+0.63}_{-0.60}$ (−0.9 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	8.77	$9.23$ ( $\nu$ : 0.4) (−0.2 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.6	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$r_*$	144.44	$144.41^{+0.65}_{-0.61}$ (−0.4 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396	$216$ ( $\nu$ : 19035.3) (−122.4 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.114^{+0.099}_{-0.096}$	$100\theta_*$	1.04113	$1.04111^{+0.00072}_{-0.00077}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.02	$23.27$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$A_{100\times 143}^{\mathrm{dustTE}}$	0.135	$0.134^{+0.074}_{-0.074}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.874	$13.871^{+0.062}_{-0.058}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2344.1	$2358.6$ ( $\nu$ : 15.3) (+298.9 $\sigma$ )
$A_{100\times 217}^{\mathrm{dustTE}}$	0.485	$0.48^{+0.22}_{-0.22}$	$z_{\mathrm{drag}}$	1059.97	$1059.97^{+0.76}_{-0.77}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	5	$186$ ( $\nu$ : 19024.8) (+67.1 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.226	$0.23^{+0.15}_{-0.13}$	$r_{\mathrm{drag}}$	147.10	$147.06^{+0.66}_{-0.62}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	695.5	$698.2$ ( $\nu$ : 3.4) (−0.0 $\sigma$ )
$A_{143\times 217}^{\mathrm{dustTE}}$	0.665	$0.66^{+0.21}_{-0.20}$	$k_{\mathrm{D}}$	0.14088	$0.14091^{+0.00073}_{-0.00074}$ (+0.9 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	0.150	$0.22$ ( $\nu$ : 0.0) (+0.0 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.09	$2.08^{+0.66}_{-0.68}$	$100\theta_{\mathrm{D}}$	0.160734	$0.16074^{+0.00044}_{-0.00045}$ (−1.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	2.92	$3.02$ ( $\nu$ : 0.3) (+0.0 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\mathrm{eq}}$	3400	$3404^{+63}_{-66}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	4.74	$5.7$ ( $\nu$ : 1.5) (−0.0 $\sigma$ )
$c_{217}$	0.99820	$0.9982^{+0.0016}_{-0.0017}$ (−0.1 $\sigma$ )	$k_{\mathrm{eq}}$	0.010377	$0.01039^{+0.00019}_{-0.00020}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.6	$11.5$ ( $\nu$ : 10.1) (+1.1 $\sigma$ )
$H_0$	69.67	$69.7^{+2.4}_{-2.4}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8138	$0.813^{+0.012}_{-0.012}$ (+0.0 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2772	$2607$ ( $\nu$ : 19062.9) (+253.9 $\sigma$ )
$\Omega_{\Lambda}$	0.7055	$0.705^{+0.021}_{-0.022}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4496	$0.4493^{+0.0063}_{-0.0060}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	7.8	$8.9$ ( $\nu$ : 3.4) (+0.0 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.2945	$0.295^{+0.022}_{-0.021}$ (−0.1 $\sigma$ )	$H(0.15)$	74.56	$74.6^{+1.9}_{-1.8}$ (+0.2 $\sigma$ )			
$\Omega_{\mathrm{m}}h^2$	0.14292	$0.1431^{+0.0026}_{-0.0027}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	624.4	$624^{+17}_{-17}$ (−0.2 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 3481.83$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.57$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 3511.91$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.49$ ;  $R - 1 = 0.02088$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.15 ( $\Delta$  -0.01) MGS: 2.92 ( $\Delta$  0.00) DR12BAO: 4.74 ( $\Delta$  0.02) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.77 ( $\Delta$  0.02) small\_100x143\_offlike5\_EE\_Aplanck: 395.84 ( $\Delta$  0.08) commander\_dx12\_v3.2.29: 23.02 ( $\Delta$  -0.04) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.12 Hubble - H073p45: 5.19 ( $\Delta$  -0.04) SN - JLA December.2013: 695.46 ( $\Delta$  -0.20)



## 19.15 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02237^{+0.00037}_{-0.00038} \quad (+1.1\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1434^{+0.0030}_{-0.0031} \quad (-0.1\sigma)$	$H(0.15)$	$74.6^{+1.9}_{-1.9} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1203^{+0.0031}_{-0.0032} \quad (-0.3\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0999^{+0.0041}_{-0.0040} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$624^{+17}_{-17} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00076}_{-0.00077} \quad (+0.2\sigma)$	$\sigma_8$	$0.838^{+0.036}_{-0.035} \quad (-0.2\sigma)$	$H(0.38)$	$83.9^{+1.7}_{-1.7} \quad (+0.3\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.2\sigma)$	$S_8$	$0.831^{+0.036}_{-0.038} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1497^{+35}_{-34} \quad (-0.2\sigma)$
$w_0$	$-1.00^{+0.25}_{-0.24} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.020}_{-0.021} \quad (-0.3\sigma)$	$H(0.51)$	$90.1^{+1.4}_{-1.4} \quad (+0.4\sigma)$
$w_a$	$-0.33^{+0.83}_{-1.0} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.618^{+0.025}_{-0.025} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.51)$	$1946^{+41}_{-39} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.041}_{-0.030} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$1.004^{+0.036}_{-0.036} \quad (-0.3\sigma)$	$H(0.61)$	$95.3^{+1.2}_{-1.2} \quad (+0.5\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.010} \quad (+0.4\sigma)$	$r_{\mathrm{drag}}h$	$102.5^{+3.6}_{-3.6} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2269^{+43}_{-42} \quad (-0.2\sigma)$
$\alpha_{JLA}$	$0.142^{+0.017}_{-0.017} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.471^{+0.079}_{-0.081} \quad (-0.2\sigma)$	$H(2.33)$	$234.8^{+2.5}_{-2.3} \quad (+0.1\sigma)$
$\beta_{JLA}$	$3.11^{+0.21}_{-0.20} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.50 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5751^{+28}_{-26} \quad (-0.9\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0062} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.088}_{-0.062} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.464^{+0.022}_{-0.021} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.885^{+0.030}_{-0.028} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.776^{+0.034}_{-0.033} \quad (-0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{40}$	$1232^{+30}_{-31} \quad (-0.1\sigma)$	$f\sigma_8(0.38)$	$0.490^{+0.027}_{-0.025} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.3}_{-4.8} \quad (+0.2\sigma)$	$D_{220}$	$5733^{+97}_{-98} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.689^{+0.030}_{-0.029} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{810}$	$2540^{+35}_{-34} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.492^{+0.028}_{-0.027} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.645^{+0.028}_{-0.027} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$231.1^{+4.0}_{-4.0} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.489^{+0.028}_{-0.027} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$116^{+30}_{-30} \quad (+0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.965^{+0.011}_{-0.010} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.613^{+0.026}_{-0.026} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24539^{+0.00014}_{-0.00016} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.310^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.7} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00014}_{-0.00016} \quad (+1.0\sigma)$	$\sigma_8(2.33)$	$0.316^{+0.011}_{-0.011} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.6}_{-4.6} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.586^{+0.071}_{-0.066} \quad (-1.1\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.5^{+8.4}_{-8.6} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.729^{+0.081}_{-0.074} \quad (-0.6\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.95^{+0.68}_{-0.65} \quad (-0.9\sigma)$	$f_{2000}^{217}$	$106.9^{+4.5}_{-4.5} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.099}_{-0.096}$	$r_*$	$144.34^{+0.73}_{-0.70} \quad (-0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.6) \quad (+0.1\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.134^{+0.074}_{-0.075}$	$100\theta_*$	$1.04109^{+0.00075}_{-0.00076} \quad (+0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.44 \quad (\nu: 0.4) \quad (-0.3\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.865^{+0.069}_{-0.065} \quad (-0.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2358.3 \quad (\nu: 16.3) \quad (+297.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.96^{+0.74}_{-0.79} \quad (+1.1\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$5.4 \quad (\nu: 3.4) \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.20}$	$r_{\mathrm{drag}}$	$147.00^{+0.72}_{-0.70} \quad (-0.3\sigma)$	$\chi_{\mathrm{JLA}}^2$	$698.2 \quad (\nu: 3.4) \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.67}_{-0.68}$	$k_{\mathrm{D}}$	$0.14096^{+0.00076}_{-0.00080} \quad (+0.6\sigma)$	$\chi_{\mathrm{6DF}}^2$	$0.22 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16075^{+0.00046}_{-0.00044} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$3.02 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3411^{+71}_{-73} \quad (-0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.8 \quad (\nu: 1.5) \quad (-0.1\sigma)$
$H_0$	$69.7^{+2.4}_{-2.4} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01041^{+0.00022}_{-0.00022} \quad (-0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.705^{+0.021}_{-0.022} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.014}_{-0.013} \quad (+0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$9.0 \quad (\nu: 3.4) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.295^{+0.022}_{-0.021} \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4486^{+0.0071}_{-0.0066} \quad (+0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2778.6 \quad (\nu: 16.5) \quad (+297.7\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 3502.71; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.66; R - 1 = 0.01370$$



## 19.16 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_JLA\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00035}_{-0.00036}$ (+1.0 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	$0.0997^{+0.0041}_{-0.0038}$ (+0.2 $\sigma$ )	$H(0.38)$	$83.8^{+1.7}_{-1.7}$ (+0.3 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1200^{+0.0027}_{-0.0029}$ (−0.0 $\sigma$ )	$\sigma_8$	$0.834^{+0.031}_{-0.029}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1498^{+34}_{-33}$ (−0.2 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.04094^{+0.00074}_{-0.00076}$ (+0.2 $\sigma$ )	$S_8$	$0.826^{+0.029}_{-0.030}$ (−0.1 $\sigma$ )	$H(0.51)$	$90.1^{+1.3}_{-1.4}$ (+0.3 $\sigma$ )
$\tau$	$0.054^{+0.017}_{-0.012}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.016}_{-0.016}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1946^{+40}_{-39}$ (−0.3 $\sigma$ )
$w_0$	$-1.01^{+0.23}_{-0.24}$ (+0.0 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.614^{+0.018}_{-0.019}$ (−0.1 $\sigma$ )	$H(0.61)$	$95.4^{+1.1}_{-1.2}$ (+0.4 $\sigma$ )
$w_a$	$-0.27^{+0.79}_{-0.91}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.999^{+0.027}_{-0.027}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2270^{+43}_{-40}$ (−0.3 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.037}_{-0.026}$ (+0.2 $\sigma$ )	$r_{\mathrm{drag}}h$	$102.5^{+3.6}_{-3.7}$ (+0.0 $\sigma$ )	$H(2.33)$	$234.7^{+2.6}_{-2.3}$ (+0.2 $\sigma$ )
$n_{\mathrm{s}}$	$0.9653^{+0.0097}_{-0.010}$ (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.460^{+0.058}_{-0.060}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5750^{+28}_{-25}$ (−0.8 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0062}$ (+0.1 $\sigma$ )	$z_{\mathrm{re}}$	$< 9.24$ (+0.0 $\sigma$ )	$f\sigma_8(0.15)$	$0.461^{+0.019}_{-0.018}$ (−0.1 $\sigma$ )
$\alpha_{JLA}$	$0.142^{+0.017}_{-0.017}$ (−0.0 $\sigma$ )	$10^9A_{\mathrm{s}}$	$2.098^{+0.080}_{-0.055}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	$0.772^{+0.029}_{-0.027}$ (−0.0 $\sigma$ )
$\beta_{JLA}$	$3.12^{+0.21}_{-0.21}$ (+0.0 $\sigma$ )	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.883^{+0.027}_{-0.026}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	$0.487^{+0.023}_{-0.022}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{40}$	$1229^{+29}_{-29}$ (+0.0 $\sigma$ )	$\sigma_8(0.38)$	$0.685^{+0.026}_{-0.024}$ (−0.0 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{220}$	$5733^{+94}_{-97}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	$0.489^{+0.024}_{-0.022}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.2}_{-4.9}$ (+0.2 $\sigma$ )	$D_{810}$	$2539^{+34}_{-33}$ (+0.3 $\sigma$ )	$\sigma_8(0.51)$	$0.642^{+0.024}_{-0.022}$ (−0.0 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{1420}$	$817^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.61)$	$0.486^{+0.024}_{-0.023}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{2000}$	$231.0^{+4.0}_{-3.8}$ (+0.7 $\sigma$ )	$\sigma_8(0.61)$	$0.610^{+0.023}_{-0.021}$ (−0.0 $\sigma$ )
$A_{143\times 217}^{\mathrm{PS}}$	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	$0.9653^{+0.0097}_{-0.010}$ (+0.3 $\sigma$ )	$f\sigma_8(2.33)$	$0.308^{+0.011}_{-0.011}$ (+0.0 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$Y_{\mathrm{P}}$	$0.24540^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(2.33)$	$0.3150^{+0.0096}_{-0.0088}$ (+0.0 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00013}_{-0.00015}$ (+1.0 $\sigma$ )	$f_{2000}^{143}$	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.9}_{-4.6}$ (−0.0 $\sigma$ )	$10^5\mathrm{D}/\mathrm{H}$	$2.582^{+0.067}_{-0.063}$ (−1.0 $\sigma$ )	$f_{2000}^{143\times 217}$	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.6}_{-4.5}$ (+0.1 $\sigma$ )	$\mathrm{Age}/\mathrm{Gyr}$	$13.730^{+0.079}_{-0.071}$ (−0.6 $\sigma$ )	$f_{2000}^{217}$	$106.8^{+4.4}_{-4.5}$ (−0.5 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.5^{+8.5}_{-9.0}$ (+0.1 $\sigma$ )	$z_*$	$1089.89^{+0.60}_{-0.59}$ (−0.9 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	$9.24$ ( $\nu$ : 0.4) (−0.2 $\sigma$ )
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$r_*$	$144.43^{+0.64}_{-0.60}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{small}}^2$	$218$ ( $\nu$ : 19002.6) (−126.1 $\sigma$ )
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.099}_{-0.096}$	$100\theta_*$	$1.04112^{+0.00072}_{-0.00075}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$23.26$ ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$A_{100\times 143}^{\mathrm{dust}TE}$	$0.134^{+0.073}_{-0.074}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.872^{+0.062}_{-0.056}$ (−0.5 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	$2358.4$ ( $\nu$ : 15.3) (+299.6 $\sigma$ )
$A_{100\times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$z_{\mathrm{drag}}$	$1059.98^{+0.75}_{-0.77}$ (+1.1 $\sigma$ )	$\chi_{\mathrm{H073p45}}^2$	$184$ ( $\nu$ : 18991.4) (+66.4 $\sigma$ )
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.15}_{-0.13}$	$r_{\mathrm{drag}}$	$147.08^{+0.66}_{-0.60}$ (−0.6 $\sigma$ )	$\chi_{\mathrm{JLA}}^2$	$698.2$ ( $\nu$ : 3.5) (−0.0 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.20}$	$k_{\mathrm{D}}$	$0.14089^{+0.00071}_{-0.00074}$ (+0.9 $\sigma$ )	$\chi_{\mathrm{6DF}}^2$	$0.22$ ( $\nu$ : 0.0) (+0.0 $\sigma$ )
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.66}_{-0.67}$	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00044}_{-0.00045}$ (−1.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$3.02$ ( $\nu$ : 0.3) (+0.0 $\sigma$ )
$c_{100}$	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\mathrm{eq}}$	$3402^{+61}_{-66}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$5.7$ ( $\nu$ : 1.5) (+0.0 $\sigma$ )
$c_{217}$	$0.9982^{+0.0016}_{-0.0017}$ (−0.1 $\sigma$ )	$k_{\mathrm{eq}}$	$0.01038^{+0.00019}_{-0.00020}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$11.5$ ( $\nu$ : 9.9) (+1.1 $\sigma$ )
$H_0$	$69.7^{+2.4}_{-2.4}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.813^{+0.012}_{-0.011}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$2609$ ( $\nu$ : 19039.6) (+258.3 $\sigma$ )
$\Omega_{\Lambda}$	$0.705^{+0.021}_{-0.022}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4495^{+0.0063}_{-0.0058}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$8.9$ ( $\nu$ : 3.5) (+0.0 $\sigma$ )
$\Omega_{\mathrm{m}}$	$0.295^{+0.022}_{-0.021}$ (−0.1 $\sigma$ )	$H(0.15)$	$74.6^{+1.9}_{-1.8}$ (+0.2 $\sigma$ )		
$\Omega_{\mathrm{m}}h^2$	$0.1430^{+0.0026}_{-0.0028}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$624^{+17}_{-17}$ (−0.2 $\sigma$ )		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3511.63; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.55; R - 1 = 0.02239$$



# 19.17 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02215	$0.02212^{+0.00057}_{-0.00053}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6137	$0.615^{+0.034}_{-0.034}$	$H(0.38)$	83.41	$83.4^{+1.6}_{-1.6}$
$\Omega_{\mathrm{c}} h^2$	0.12027	$0.1206^{+0.0048}_{-0.0045}$	$\sigma_8/h^{0.5}$	0.9978	$0.999^{+0.049}_{-0.049}$	$D_{\mathrm{M}}(0.38)$	1516.3	$1516^{+34}_{-34}$
$100\theta_{\mathrm{MC}}$	1.04082	$1.0408^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	100.49	$100.3^{+3.3}_{-3.0}$	$H(0.51)$	89.88	$89.9^{+1.3}_{-1.3}$
$\tau$	0.0526	$0.052^{+0.021}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.460	$2.47^{+0.11}_{-0.11}$	$D_{\mathrm{M}}(0.51)$	1966.6	$1966^{+41}_{-40}$
$w_0$	-0.971	$-0.95^{+0.22}_{-0.20}$	$z_{\mathrm{re}}$	7.55	$7.5^{+2.1}_{-2.4}$	$H(0.61)$	95.31	$95.3^{+1.2}_{-1.1}$
$w_a$	-0.27	$-0.36^{+0.79}_{-1.1}$	$10^9 A_{\mathrm{s}}$	2.092	$2.091^{+0.093}_{-0.090}$	$D_{\mathrm{M}}(0.61)$	2290.6	$2290^{+43}_{-42}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0406	$3.040^{+0.044}_{-0.044}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8828	$1.884^{+0.035}_{-0.034}$	$H(2.33)$	235.10	$235.1^{+2.5}_{-2.5}$
$n_{\mathrm{s}}$	0.9646	$0.963^{+0.013}_{-0.013}$	$D_{40}$	1228.3	$1232^{+38}_{-36}$	$D_{\mathrm{M}}(2.33)$	5763.8	$5766^{+32}_{-33}$
$y_{\mathrm{cal}}$	1.0003	$1.0005^{+0.0066}_{-0.0065}$	$D_{220}$	5710	$5713^{+110}_{-110}$	$f\sigma_8(0.15)$	0.4618	$0.462^{+0.029}_{-0.027}$
$A_{217}^{\mathrm{CIB}}$	48.9	$48^{+20}_{-20}$	$D_{810}$	2536.9	$2536^{+37}_{-36}$	$\sigma_8(0.15)$	0.7621	$0.763^{+0.042}_{-0.041}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.31	—	$D_{1420}$	815.3	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4832	$0.484^{+0.034}_{-0.031}$
$A_{143}^{\mathrm{tSZ}}$	7.1	—	$D_{2000}$	230.01	$229.6^{+4.6}_{-4.6}$	$\sigma_8(0.38)$	0.6759	$0.676^{+0.036}_{-0.036}$
$A_{100}^{\mathrm{PS}}$	254	$263^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	0.9646	$0.963^{+0.013}_{-0.013}$	$f\sigma_8(0.51)$	0.4834	$0.484^{+0.036}_{-0.033}$
$A_{143}^{\mathrm{PS}}$	49.0	$49^{+20}_{-20}$	$Y_{\mathrm{P}}$	0.245306	$0.24529^{+0.00022}_{-0.00025}$	$\sigma_8(0.51)$	0.6325	$0.633^{+0.033}_{-0.034}$
$A_{143 \times 217}^{\mathrm{PS}}$	46.5	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246632	$0.24661^{+0.00022}_{-0.00025}$	$f\sigma_8(0.61)$	0.4793	$0.480^{+0.037}_{-0.033}$
$A_{217}^{\mathrm{PS}}$	119.0	$115^{+30}_{-30}$	$10^5 \mathrm{D}/\mathrm{H}$	2.627	$2.63^{+0.10}_{-0.10}$	$\sigma_8(0.61)$	0.6018	$0.602^{+0.031}_{-0.032}$
$A^{\mathrm{kSZ}}$	0.0	—	Age/Gyr	13.778	$13.779^{+0.093}_{-0.088}$	$f\sigma_8(2.33)$	0.3040	$0.304^{+0.015}_{-0.017}$
$A_{100}^{\mathrm{dustTT}}$	8.86	$9.0^{+4.7}_{-4.7}$	$z_*$	1090.22	$1090.29^{+0.96}_{-0.93}$	$\sigma_8(2.33)$	0.3110	$0.311^{+0.012}_{-0.013}$
$A_{143}^{\mathrm{dustTT}}$	10.85	$10.7^{+4.6}_{-4.6}$	$r_*$	144.53	$144.5^{+1.1}_{-1.1}$	$f_{2000}^{143}$	30.3	$31^{+8}_{-7}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.4	$18.3^{+8.3}_{-8.5}$	$100\theta_*$	1.04103	$1.0410^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.2	$34^{+5}_{-5}$
$A_{217}^{\mathrm{dustTT}}$	94.5	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.883	$13.88^{+0.10}_{-0.10}$	$f_{2000}^{217}$	107.61	$108.1^{+5.0}_{-4.8}$
$c_{100}$	0.99966	$0.9996^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	1059.44	$1059.4^{+1.2}_{-1.1}$	$\chi_{\mathrm{small}}^2$	395.87	$396.9 (\nu: 1.3)$
$c_{217}$	0.99825	$0.9983^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	147.26	$147.2^{+1.2}_{-1.1}$	$\chi_{\mathrm{lowl}}^2$	23.28	$23.7 (\nu: 0.6)$
$H_0$	68.24	$68.1^{+2.2}_{-2.1}$	$k_{\mathrm{D}}$	0.14052	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{plik}}^2$	758.4	$770.8 (\nu: 14.6)$
$\Omega_{\Lambda}$	0.6928	$0.691^{+0.021}_{-0.021}$	$100\theta_{\mathrm{D}}$	0.16104	$0.16107^{+0.00069}_{-0.00070}$	$\chi_{\mathrm{JLA}}^2$	1034.78	$1035.9 (\nu: 1.1)$
$\Omega_{\mathrm{m}}$	0.3072	$0.309^{+0.021}_{-0.021}$	$z_{\mathrm{eq}}$	3404	$3410^{+110}_{-100}$	$\chi_{6\mathrm{DF}}^2$	0.001	$0.052 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	0.14307	$0.1433^{+0.0045}_{-0.0043}$	$k_{\mathrm{eq}}$	0.010388	$0.01041^{+0.00033}_{-0.00032}$	$\chi_{\mathrm{MGS}}^2$	1.82	$1.87 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^3$	0.09763	$0.0977^{+0.0046}_{-0.0043}$	$100\theta_{\mathrm{eq}}$	0.8124	$0.811^{+0.020}_{-0.020}$	$\chi_{\mathrm{DR12BAO}}^2$	4.04	$5.0 (\nu: 0.9)$
$\sigma_8$	0.8243	$0.825^{+0.045}_{-0.044}$	$100\theta_{\mathrm{s,eq}}$	0.4491	$0.449^{+0.010}_{-0.010}$	$\chi_{\mathrm{prior}}^2$	1.4	$7.3 (\nu: 6.8)$
$S_8$	0.834	$0.837^{+0.052}_{-0.052}$	$H(0.15)$	73.60	$73.6^{+1.9}_{-1.8}$	$\chi_{\mathrm{BAO}}^2$	5.86	$6.9 (\nu: 1.1)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4569	$0.458^{+0.029}_{-0.028}$	$D_{\mathrm{M}}(0.15)$	634.9	$635^{+17}_{-17}$	$\chi_{\mathrm{CMB}}^2$	1177.5	$1191.3 (\nu: 15.0)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 2219.53$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2241.47$ ;  $R - 1 = 0.00718$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 4.04 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.87 commander\_dx12\_v3.2.29: 23.29 plik\_rd12\_HM\_v22.TT: 758.36  
SN - JLA Pantheon18: 1034.78



19.18 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02219	$0.02215^{+0.00055}_{-0.00051}$	$\sigma_8 \Omega_m^{0.25}$	0.6096	$0.611^{+0.022}_{-0.023}$	$H(0.38)$	83.40	$83.4^{+1.7}_{-1.5}$
$\Omega_c h^2$	0.11971	$0.1200^{+0.0035}_{-0.0034}$	$\sigma_8/h^{0.5}$	0.9921	$0.994^{+0.031}_{-0.032}$	$D_M(0.38)$	1517.3	$1517^{+33}_{-34}$
$100\theta_{MC}$	1.04081	$1.0408^{+0.0011}_{-0.0011}$	$r_{drag}h$	100.49	$100.4^{+3.3}_{-3.0}$	$H(0.51)$	89.90	$89.9^{+1.3}_{-1.3}$
$\tau$	0.0528	$0.052^{+0.021}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.449	$2.455^{+0.068}_{-0.071}$	$D_M(0.51)$	1967.5	$1967^{+39}_{-40}$
$w_0$	-0.974	$-0.96^{+0.21}_{-0.19}$	$z_{re}$	7.55	$7.4^{+2.1}_{-2.4}$	$H(0.61)$	95.36	$95.3^{+1.2}_{-1.1}$
$w_a$	-0.22	$-0.29^{+0.70}_{-0.90}$	$10^9 A_s$	2.090	$2.087^{+0.082}_{-0.081}$	$D_M(0.61)$	2291.4	$2291^{+42}_{-43}$
$\ln(10^{10} A_s)$	3.0397	$3.038^{+0.039}_{-0.039}$	$10^9 A_s e^{-2\tau}$	1.8804	$1.882^{+0.028}_{-0.028}$	$H(2.33)$	235.02	$235.0^{+2.5}_{-2.5}$
$n_s$	0.9653	$0.964^{+0.011}_{-0.012}$	$D_{40}$	1226.7	$1230^{+32}_{-31}$	$D_M(2.33)$	5762.9	$5765^{+32}_{-33}$
$y_{cal}$	1.0003	$1.0004^{+0.0065}_{-0.0064}$	$D_{220}$	5715	$5716^{+100}_{-110}$	$f\sigma_8(0.15)$	0.4584	$0.459^{+0.020}_{-0.020}$
$A_{217}^{CIB}$	49.0	$48^{+20}_{-20}$	$D_{810}$	2536.1	$2535^{+35}_{-35}$	$\sigma_8(0.15)$	0.7576	$0.759^{+0.030}_{-0.030}$
$\xi^{tSZ \times CIB}$	0.26	—	$D_{1420}$	815.3	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4794	$0.481^{+0.023}_{-0.024}$
$A_{143}^{tSZ}$	7.1	—	$D_{2000}$	229.98	$229.6^{+4.4}_{-4.5}$	$\sigma_8(0.38)$	0.6720	$0.673^{+0.026}_{-0.026}$
$A_{100}^{PS}$	255	$264^{+70}_{-70}$	$n_{s,0.002}$	0.9653	$0.964^{+0.011}_{-0.012}$	$f\sigma_8(0.51)$	0.4795	$0.481^{+0.024}_{-0.024}$
$A_{143}^{PS}$	48.4	$49^{+20}_{-20}$	$Y_P$	0.245320	$0.24530^{+0.00022}_{-0.00024}$	$\sigma_8(0.51)$	0.6290	$0.630^{+0.024}_{-0.024}$
$A_{143 \times 217}^{PS}$	45.2	$43^{+20}_{-20}$	$Y_P^{BBN}$	0.246647	$0.24663^{+0.00022}_{-0.00024}$	$f\sigma_8(0.61)$	0.4754	$0.477^{+0.025}_{-0.025}$
$A_{217}^{PS}$	118.5	$115^{+30}_{-30}$	$10^5 D/H$	2.620	$2.628^{+0.098}_{-0.10}$	$\sigma_8(0.61)$	0.5985	$0.599^{+0.023}_{-0.023}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.781	$13.781^{+0.087}_{-0.091}$	$f\sigma_8(2.33)$	0.3023	$0.303^{+0.012}_{-0.012}$
$A_{100}^{dustTT}$	8.91	$9.0^{+4.6}_{-4.8}$	$z_*$	1090.13	$1090.21^{+0.83}_{-0.83}$	$\sigma_8(2.33)$	0.3098	$0.3098^{+0.0094}_{-0.0094}$
$A_{143}^{dustTT}$	10.82	$10.8^{+4.4}_{-4.6}$	$r_*$	144.65	$144.59^{+0.87}_{-0.86}$	$\chi^2_{lensing}$	8.72	$9.40 (\nu: 0.5)$
$A_{143 \times 217}^{dustTT}$	19.5	$18.3^{+8.0}_{-8.6}$	$100\theta_*$	1.04102	$1.0410^{+0.0011}_{-0.0011}$	$\chi^2_{small}$	395.86	$396.8 (\nu: 1.1)$
$A_{217}^{dustTT}$	94.8	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.895	$13.889^{+0.082}_{-0.082}$	$\chi^2_{lowl}$	23.14	$23.48 (\nu: 0.4)$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0017}$	$z_{drag}$	1059.47	$1059.4^{+1.2}_{-1.1}$	$\chi^2_{plik}$	758.7	$770.7 (\nu: 13.9)$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$r_{drag}$	147.37	$147.33^{+0.92}_{-0.90}$	$\chi^2_{JLA}$	1034.79	$1035.9 (\nu: 1.1)$
$H_0$	68.19	$68.1^{+2.2}_{-2.1}$	$k_D$	0.14043	$0.1404^{+0.0012}_{-0.0012}$	$\chi^2_{6DF}$	0.001	$0.053 (\nu: 0.0)$
$\Omega_\Lambda$	0.6934	$0.692^{+0.020}_{-0.021}$	$100\theta_D$	0.16101	$0.16105^{+0.00069}_{-0.00071}$	$\chi^2_{MGS}$	1.82	$1.89 (\nu: 0.2)$
$\Omega_m$	0.3066	$0.308^{+0.021}_{-0.020}$	$z_{eq}$	3391	$3398^{+80}_{-77}$	$\chi^2_{DR12BAO}$	3.86	$4.8 (\nu: 0.8)$
$\Omega_m h^2$	0.14254	$0.1428^{+0.0033}_{-0.0032}$	$k_{eq}$	0.010350	$0.01037^{+0.00024}_{-0.00024}$	$\chi^2_{prior}$	1.5	$7.3 (\nu: 6.8)$
$\Omega_m h^3$	0.09720	$0.0973^{+0.0039}_{-0.0038}$	$100\theta_{eq}$	0.8147	$0.813^{+0.015}_{-0.014}$	$\chi^2_{CMB}$	1186.4	$1200.4 (\nu: 15.5)$
$\sigma_8$	0.8193	$0.821^{+0.031}_{-0.032}$	$100\theta_{s,eq}$	0.4503	$0.4496^{+0.0075}_{-0.0074}$	$\chi^2_{BAO}$	5.68	$6.7 (\nu: 1.1)$
$S_8$	0.8282	$0.831^{+0.034}_{-0.034}$	$H(0.15)$	73.54	$73.6^{+1.9}_{-1.7}$			
$\sigma_8 \Omega_m^{0.5}$	0.4536	$0.455^{+0.019}_{-0.019}$	$D_M(0.15)$	635.4	$635^{+17}_{-17}$			

Best-fit  $\chi^2_{eff} = 2228.36$ ;  $\bar{\chi}^2_{eff} = 2250.30$ ;  $R - 1 = 0.00973$

$\chi^2_{eff}$ : BAO - 6DF: 0.00 MGS: 1.82 DR12BAO: 3.86 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.72 small\_100x143.offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12.v3.2.29: 23.14 plik\_rd12\_HM.v22\_TT: 758.71 SN - JLA Pantheon18: 1034.79



19.19 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02213^{+0.00056}_{-0.00053}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.615^{+0.034}_{-0.033}$	$H(0.38)$	$83.4^{+1.6}_{-1.6}$
$\Omega_{\text{c}}h^2$	$0.1205^{+0.0047}_{-0.0045}$	$\sigma_8/h^{0.5}$	$1.000^{+0.048}_{-0.047}$	$D_{\text{M}}(0.38)$	$1516^{+34}_{-34}$
$100\theta_{\text{MC}}$	$1.0408^{+0.0012}_{-0.0011}$	$r_{\text{drag}}h$	$100.3^{+3.3}_{-3.0}$	$H(0.51)$	$89.9^{+1.3}_{-1.3}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.47^{+0.10}_{-0.10}$	$D_{\text{M}}(0.51)$	$1967^{+40}_{-40}$
$w_0$	$-0.95^{+0.22}_{-0.20}$	$z_{\text{re}}$	$< 9.35$	$H(0.61)$	$95.3^{+1.2}_{-1.1}$
$w_a$	$-0.35^{+0.78}_{-1.0}$	$10^9 A_{\text{s}}$	$2.097^{+0.088}_{-0.061}$	$D_{\text{M}}(0.61)$	$2291^{+43}_{-42}$
$\ln(10^{10}A_{\text{s}})$	$3.043^{+0.041}_{-0.030}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.884^{+0.034}_{-0.033}$	$H(2.33)$	$235.1^{+2.5}_{-2.5}$
$n_{\text{s}}$	$0.963^{+0.012}_{-0.013}$	$D_{40}$	$1232^{+38}_{-36}$	$D_{\text{M}}(2.33)$	$5766^{+32}_{-33}$
$y_{\text{cal}}$	$1.0005^{+0.0066}_{-0.0065}$	$D_{220}$	$5713^{+110}_{-110}$	$f\sigma_8(0.15)$	$0.463^{+0.028}_{-0.027}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2536^{+36}_{-36}$	$\sigma_8(0.15)$	$0.763^{+0.041}_{-0.040}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{1420}$	$814^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.484^{+0.034}_{-0.031}$
$A_{143}^{\text{tSZ}}$	—	$D_{2000}$	$229.7^{+4.6}_{-4.5}$	$\sigma_8(0.38)$	$0.677^{+0.036}_{-0.036}$
$A_{100}^{\text{PS}}$	$263^{+70}_{-70}$	$n_{\text{s},0.002}$	$0.963^{+0.012}_{-0.013}$	$f\sigma_8(0.51)$	$0.485^{+0.036}_{-0.033}$
$A_{143}^{\text{PS}}$	$49^{+20}_{-20}$	$Y_{\text{P}}$	$0.24529^{+0.00022}_{-0.00025}$	$\sigma_8(0.51)$	$0.633^{+0.033}_{-0.033}$
$A_{143 \times 217}^{\text{PS}}$	$43^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24662^{+0.00022}_{-0.00026}$	$f\sigma_8(0.61)$	$0.481^{+0.036}_{-0.033}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$10^5 \text{D}/\text{H}$	$2.63^{+0.10}_{-0.10}$	$\sigma_8(0.61)$	$0.603^{+0.030}_{-0.031}$
$A^{\text{kSZ}}$	—	$\text{Age}/\text{Gyr}$	$13.779^{+0.093}_{-0.088}$	$f\sigma_8(2.33)$	$0.304^{+0.015}_{-0.017}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.7}_{-4.7}$	$z_*$	$1090.27^{+0.95}_{-0.93}$	$\sigma_8(2.33)$	$0.311^{+0.012}_{-0.012}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.6}_{-4.6}$	$r_*$	$144.5^{+1.1}_{-1.1}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.3}_{-8.5}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.88^{+0.10}_{-0.10}$	$f_{2000}^{217}$	$108.0^{+5.0}_{-4.8}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$z_{\text{drag}}$	$1059.4^{+1.2}_{-1.2}$	$\chi_{\text{simall}}^2$	$396.8 (\nu: 1.3)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	$147.2^{+1.1}_{-1.1}$	$\chi_{\text{lowl}}^2$	$23.7 (\nu: 0.6)$
$H_0$	$68.1^{+2.3}_{-2.1}$	$k_{\text{D}}$	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\text{plik}}^2$	$770.6 (\nu: 14.5)$
$\Omega_{\Lambda}$	$0.691^{+0.021}_{-0.021}$	$100\theta_{\text{D}}$	$0.16107^{+0.00069}_{-0.00070}$	$\chi_{\text{JLA}}^2$	$1035.9 (\nu: 1.2)$
$\Omega_{\text{m}}$	$0.309^{+0.021}_{-0.021}$	$z_{\text{eq}}$	$3408^{+110}_{-100}$	$\chi_{6\text{DF}}^2$	$0.053 (\nu: 0.0)$
$\Omega_{\text{m}}h^2$	$0.1433^{+0.0045}_{-0.0043}$	$k_{\text{eq}}$	$0.01040^{+0.00033}_{-0.00031}$	$\chi_{\text{MGS}}^2$	$1.86 (\nu: 0.2)$
$\Omega_{\text{m}}h^3$	$0.0976^{+0.0045}_{-0.0043}$	$100\theta_{\text{eq}}$	$0.812^{+0.019}_{-0.019}$	$\chi_{\text{DR12BAO}}^2$	$5.0 (\nu: 0.9)$
$\sigma_8$	$0.826^{+0.045}_{-0.044}$	$100\theta_{\text{s,eq}}$	$0.4487^{+0.0099}_{-0.010}$	$\chi_{\text{prior}}^2$	$7.3 (\nu: 6.8)$
$S_8$	$0.838^{+0.052}_{-0.050}$	$H(0.15)$	$73.6^{+1.9}_{-1.8}$	$\chi_{\text{BAO}}^2$	$6.9 (\nu: 1.1)$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.459^{+0.028}_{-0.027}$	$D_{\text{M}}(0.15)$	$635^{+17}_{-17}$	$\chi_{\text{CMB}}^2$	$1191.0 (\nu: 14.5)$

$$\bar{\chi}_{\text{eff}}^2 = 2241.17; R - 1 = 0.00784$$



19.20 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02216^{+0.00055}_{-0.00051}$	$\sigma_8/h^{0.5}$	$0.994^{+0.031}_{-0.032}$	$H(0.51)$	$89.9^{+1.3}_{-1.3}$
$\Omega_{\mathrm{c}}h^2$	$0.1199^{+0.0034}_{-0.0033}$	$r_{\mathrm{drag}}h$	$100.4^{+3.3}_{-3.1}$	$D_{\mathrm{M}}(0.51)$	$1967^{+40}_{-41}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.456^{+0.068}_{-0.071}$	$H(0.61)$	$95.3^{+1.2}_{-1.1}$
$\tau$	$0.053^{+0.018}_{-0.012}$	$z_{\mathrm{re}}$	$< 9.25$	$D_{\mathrm{M}}(0.61)$	$2291^{+42}_{-43}$
$w_0$	$-0.96^{+0.21}_{-0.20}$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.077}_{-0.056}$	$H(2.33)$	$235.0^{+2.6}_{-2.6}$
$w_a$	$-0.28^{+0.69}_{-0.89}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.881^{+0.028}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5764^{+33}_{-34}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.036}_{-0.027}$	$D_{40}$	$1230^{+32}_{-31}$	$f\sigma_8(0.15)$	$0.459^{+0.020}_{-0.020}$
$n_{\mathrm{s}}$	$0.964^{+0.011}_{-0.011}$	$D_{220}$	$5716^{+100}_{-110}$	$\sigma_8(0.15)$	$0.759^{+0.030}_{-0.030}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0066}_{-0.0064}$	$D_{810}$	$2535^{+35}_{-34}$	$f\sigma_8(0.38)$	$0.480^{+0.023}_{-0.024}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.38)$	$0.673^{+0.026}_{-0.027}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{2000}$	$229.7^{+4.4}_{-4.4}$	$f\sigma_8(0.51)$	$0.481^{+0.024}_{-0.024}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.964^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.630^{+0.024}_{-0.025}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.24530^{+0.00022}_{-0.00024}$	$f\sigma_8(0.61)$	$0.477^{+0.025}_{-0.024}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00022}_{-0.00024}$	$\sigma_8(0.61)$	$0.599^{+0.023}_{-0.023}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.626^{+0.098}_{-0.10}$	$f\sigma_8(2.33)$	$0.303^{+0.012}_{-0.012}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	Age/Gyr	$13.781^{+0.089}_{-0.091}$	$\sigma_8(2.33)$	$0.3100^{+0.0094}_{-0.0093}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.18^{+0.82}_{-0.81}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.7}_{-4.8}$	$r_*$	$144.62^{+0.84}_{-0.83}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.5}_{-4.7}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$108.1^{+5.0}_{-5.0}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+7.9}_{-8.6}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.892^{+0.081}_{-0.079}$	$\chi_{\mathrm{lensing}}^2$	$9.39 (\nu: 0.5)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.4^{+1.2}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.0)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0017}$	$r_{\mathrm{drag}}$	$147.35^{+0.90}_{-0.89}$	$\chi_{\mathrm{lowl}}^2$	$23.44 (\nu: 0.4)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1404^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{plik}}^2$	$770.6 (\nu: 14.1)$
$H_0$	$68.1^{+2.3}_{-2.1}$	$100\theta_{\mathrm{D}}$	$0.16105^{+0.00069}_{-0.00071}$	$\chi_{\mathrm{JLA}}^2$	$1035.9 (\nu: 1.2)$
$\Omega_{\Lambda}$	$0.692^{+0.021}_{-0.021}$	$z_{\mathrm{eq}}$	$3395^{+78}_{-75}$	$\chi_{6\mathrm{DF}}^2$	$0.053 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.308^{+0.021}_{-0.021}$	$k_{\mathrm{eq}}$	$0.01036^{+0.00024}_{-0.00023}$	$\chi_{\mathrm{MGS}}^2$	$1.88 (\nu: 0.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1427^{+0.0033}_{-0.0031}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.014}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 0.8)$
$\Omega_{\mathrm{m}}h^3$	$0.0972^{+0.0037}_{-0.0037}$	$100\theta_{\mathrm{s,eq}}$	$0.4499^{+0.0073}_{-0.0073}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$\sigma_8$	$0.821^{+0.032}_{-0.032}$	$H(0.15)$	$73.6^{+1.9}_{-1.7}$	$\chi_{\mathrm{CMB}}^2$	$1200.1 (\nu: 15.3)$
$S_8$	$0.831^{+0.034}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$636^{+17}_{-17}$	$\chi_{\mathrm{BAO}}^2$	$6.7 (\nu: 1.1)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.019}_{-0.019}$	$H(0.38)$	$83.4^{+1.7}_{-1.5}$		
$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.022}_{-0.023}$	$D_{\mathrm{M}}(0.38)$	$1517^{+34}_{-34}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 2250.01; R - 1 = 0.01194$					



# 19.21 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022366	$0.02236^{+0.00036}_{-0.00036}$ (+1.2 $\sigma$ )	$\Omega_m h^3$	0.09770	$0.0978^{+0.0037}_{-0.0037}$ (+0.1 $\sigma$ )	$H(0.15)$	73.70	$73.8^{+1.9}_{-1.8}$ (+0.2 $\sigma$ )
$\Omega_c h^2$	0.12004	$0.1202^{+0.0033}_{-0.0032}$ (−0.2 $\sigma$ )	$\sigma_8$	0.8226	$0.823^{+0.035}_{-0.036}$ (−0.1 $\sigma$ )	$D_M(0.15)$	634.2	$634^{+17}_{-17}$ (−0.2 $\sigma$ )
$100\theta_{MC}$	1.04088	$1.04090^{+0.00076}_{-0.00077}$ (+0.2 $\sigma$ )	$S_8$	0.8318	$0.833^{+0.037}_{-0.038}$ (−0.2 $\sigma$ )	$H(0.38)$	83.57	$83.7^{+1.6}_{-1.6}$ (+0.4 $\sigma$ )
$\tau$	0.0544	$0.054^{+0.020}_{-0.020}$ (+0.3 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4556	$0.456^{+0.020}_{-0.021}$ (−0.2 $\sigma$ )	$D_M(0.38)$	1514.1	$1512^{+33}_{-35}$ (−0.3 $\sigma$ )
$w_0$	−0.967	$−0.95^{+0.23}_{-0.21}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6122	$0.613^{+0.025}_{-0.026}$ (−0.2 $\sigma$ )	$H(0.51)$	90.07	$90.1^{+1.3}_{-1.3}$ (+0.5 $\sigma$ )
$w_a$	−0.25	$−0.33^{+0.75}_{-0.97}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9954	$0.996^{+0.036}_{-0.038}$ (−0.2 $\sigma$ )	$D_M(0.51)$	1963.5	$1961^{+40}_{-41}$ (−0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0448	$3.044^{+0.041}_{-0.041}$ (+0.2 $\sigma$ )	$r_{drag} h$	100.45	$100.4^{+3.1}_{-3.1}$ (+0.1 $\sigma$ )	$H(0.61)$	95.52	$95.5^{+1.1}_{-1.0}$ (+0.6 $\sigma$ )
$n_s$	0.9661	$0.965^{+0.011}_{-0.011}$ (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.456	$2.461^{+0.081}_{-0.086}$ (−0.1 $\sigma$ )	$D_M(0.61)$	2286.8	$2285^{+42}_{-43}$ (−0.3 $\sigma$ )
$y_{cal}$	1.0006	$1.0005^{+0.0062}_{-0.0063}$ (+0.0 $\sigma$ )	$z_{re}$	7.68	$7.6^{+1.9}_{-2.2}$ (+0.2 $\sigma$ )	$H(2.33)$	235.30	$235.3^{+2.4}_{-2.3}$ (+0.1 $\sigma$ )
$A_{217}^{CIB}$	46.9	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$10^9 A_s$	2.101	$2.099^{+0.087}_{-0.085}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5754.1	$5754^{+27}_{-24}$ (−0.9 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.46	—	$10^9 A_s e^{-2\tau}$	1.8840	$1.884^{+0.028}_{-0.030}$ (−0.0 $\sigma$ )	$f\sigma_8(0.15)$	0.4601	$0.460^{+0.021}_{-0.021}$ (−0.2 $\sigma$ )
$A_{143}^{tSZ}$	7.23	$5.5^{+4.5}_{-4.6}$ (+0.2 $\sigma$ )	$D_{40}$	1228.1	$1231^{+32}_{-32}$ (−0.1 $\sigma$ )	$\sigma_8(0.15)$	0.7607	$0.761^{+0.033}_{-0.034}$ (−0.1 $\sigma$ )
$A_{100}^{PS}$	249	$259^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5729	$5733^{+96}_{-100}$ (+0.5 $\sigma$ )	$f\sigma_8(0.38)$	0.4813	$0.482^{+0.025}_{-0.025}$ (−0.2 $\sigma$ )
$A_{143}^{PS}$	47.8	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2540.6	$2539^{+33}_{-35}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6748	$0.675^{+0.029}_{-0.030}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	48.3	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	818.1	$817^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4815	$0.482^{+0.026}_{-0.026}$ (−0.2 $\sigma$ )
$A_{217}^{PS}$	120.2	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.25	$230.9^{+4.0}_{-3.9}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6316	$0.632^{+0.027}_{-0.028}$ (−0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9661	$0.965^{+0.011}_{-0.011}$ (+0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4774	$0.478^{+0.027}_{-0.026}$ (−0.2 $\sigma$ )
$A_{100}^{dustTT}$	8.87	$8.9^{+4.7}_{-4.9}$ (−0.0 $\sigma$ )	$Y_P$	0.245394	$0.24539^{+0.00013}_{-0.00015}$ (+1.1 $\sigma$ )	$\sigma_8(0.61)$	0.6010	$0.601^{+0.026}_{-0.026}$ (−0.1 $\sigma$ )
$A_{143}^{dustTT}$	11.00	$10.9^{+4.6}_{-4.5}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246721	$0.24672^{+0.00013}_{-0.00015}$ (+1.1 $\sigma$ )	$f\sigma_8(2.33)$	0.3037	$0.304^{+0.013}_{-0.014}$ (−0.0 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.9	$18.6^{+8.4}_{-8.5}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.586	$2.587^{+0.069}_{-0.065}$ (−1.2 $\sigma$ )	$\sigma_8(2.33)$	0.3110	$0.311^{+0.011}_{-0.011}$ (+0.0 $\sigma$ )
$A_{217}^{dustTT}$	95.3	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.759	$13.755^{+0.082}_{-0.073}$ (−0.7 $\sigma$ )	$f_{2000}^{143}$	28.7	$29^{+7}_{-7}$ (−0.6 $\sigma$ )
$A_{100}^{dustTE}$	0.113	$0.115^{+0.098}_{-0.097}$	$z_*$	1089.93	$1089.95^{+0.66}_{-0.64}$ (−0.9 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.95	$32^{+5}_{-5}$ (−0.7 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.078}_{-0.077}$	$r_*$	144.42	$144.38^{+0.73}_{-0.73}$ (−0.2 $\sigma$ )	$f_{2000}^{217}$	106.63	$107.0^{+4.5}_{-4.7}$ (−0.6 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04107	$1.04108^{+0.00075}_{-0.00076}$ (+0.2 $\sigma$ )	$\chi_{small}^2$	396.04	$397.0$ ( $\nu$ : 1.6) (+0.1 $\sigma$ )
$A_{143}^{dustTE}$	0.226	$0.23^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.873	$13.869^{+0.068}_{-0.068}$ (−0.3 $\sigma$ )	$\chi_{lowl}^2$	23.14	$23.49$ ( $\nu$ : 0.4) (−0.2 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.664	$0.67^{+0.21}_{-0.21}$	$z_{drag}$	1059.93	$1059.93^{+0.72}_{-0.73}$ (+1.2 $\sigma$ )	$\chi_{plik}^2$	2344.0	$2358.7$ ( $\nu$ : 16.5) (+293.6 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.09^{+0.69}_{-0.68}$	$r_{drag}$	147.08	$147.04^{+0.74}_{-0.72}$ (−0.4 $\sigma$ )	$\chi_{JLA}^2$	1034.82	$1035.9$ ( $\nu$ : 1.2) (−0.0 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14087	$0.14091^{+0.00079}_{-0.00081}$ (+0.7 $\sigma$ )	$\chi_{6DF}^2$	0.001	$0.054$ ( $\nu$ : 0.0) (+0.0 $\sigma$ )
$c_{217}$	0.99819	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160757	$0.16076^{+0.00044}_{-0.00043}$ (−1.2 $\sigma$ )	$\chi_{MGS}^2$	1.82	$1.95$ ( $\nu$ : 0.2) (+0.1 $\sigma$ )
$H_0$	68.29	$68.3^{+2.1}_{-2.1}$ (+0.2 $\sigma$ )	$z_{eq}$	3403	$3407^{+74}_{-72}$ (−0.1 $\sigma$ )	$\chi_{DR12BAO}^2$	3.91	$4.8$ ( $\nu$ : 0.7) (−0.2 $\sigma$ )
$\Omega_\Lambda$	0.6933	$0.693^{+0.019}_{-0.021}$ (+0.2 $\sigma$ )	$k_{eq}$	0.010387	$0.01040^{+0.00023}_{-0.00022}$ (−0.1 $\sigma$ )	$\chi_{prior}^2$	1.8	$11.6$ ( $\nu$ : 10.4) (+1.2 $\sigma$ )
$\Omega_m$	0.3067	$0.307^{+0.021}_{-0.019}$ (−0.2 $\sigma$ )	$100\theta_{eq}$	0.8131	$0.812^{+0.014}_{-0.014}$ (+0.1 $\sigma$ )	$\chi_{BAO}^2$	5.73	$6.8$ ( $\nu$ : 1.1) (−0.1 $\sigma$ )
$\Omega_m h^2$	0.14305	$0.1432^{+0.0031}_{-0.0030}$ (−0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4493	$0.4489^{+0.0070}_{-0.0070}$ (+0.1 $\sigma$ )	$\chi_{CMB}^2$	2763.1	$2779.2$ ( $\nu$ : 16.6) (+289.5 $\sigma$ )

Best-fit  $\chi_{eff}^2 = 3805.46$ ;  $\Delta\chi_{eff}^2 = 1585.92$ ;  $\bar{\chi}_{eff}^2 = 3833.50$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.03$ ;  $R - 1 = 0.00745$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  0.00) MGS: 1.82 ( $\Delta$  0.00) DR12BAO: 3.91 ( $\Delta$  -0.12) CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 396.04 ( $\Delta$  0.16) commander\_dx12\_v3\_2\_29: 23.14 ( $\Delta$  -0.15) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.97 SN - JLA Pantheon18: 1034.82 ( $\Delta$  0.05)



19.22 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022398	$0.02238^{+0.00035}_{-0.00036}$ (+1.2 $\sigma$ )	$\Omega_m h^3$	0.09764	$0.0977^{+0.0035}_{-0.0034}$ (+0.2 $\sigma$ )	$H(0.15)$	73.71	$73.8^{+1.8}_{-1.7}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.11992	$0.1199^{+0.0028}_{-0.0027}$ (−0.1 $\sigma$ )	$\sigma_8$	0.8210	$0.820^{+0.029}_{-0.029}$ (−0.0 $\sigma$ )	$D_M(0.15)$	634.2	$634^{+16}_{-17}$ (−0.2 $\sigma$ )
$100\theta_{MC}$	1.04094	$1.04092^{+0.00075}_{-0.00074}$ (+0.2 $\sigma$ )	$S_8$	0.8298	$0.829^{+0.029}_{-0.028}$ (−0.1 $\sigma$ )	$H(0.38)$	83.60	$83.7^{+1.6}_{-1.5}$ (+0.3 $\sigma$ )
$\tau$	0.0540	$0.053^{+0.020}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4545	$0.454^{+0.016}_{-0.016}$ (−0.1 $\sigma$ )	$D_M(0.38)$	1513.9	$1513^{+33}_{-33}$ (−0.3 $\sigma$ )
$w_0$	−0.967	$−0.96^{+0.23}_{-0.21}$ (+0.0 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6108	$0.610^{+0.018}_{-0.019}$ (−0.1 $\sigma$ )	$H(0.51)$	90.10	$90.1^{+1.3}_{-1.3}$ (+0.4 $\sigma$ )
$w_a$	−0.24	$−0.29^{+0.71}_{-0.88}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9934	$0.993^{+0.027}_{-0.028}$ (−0.1 $\sigma$ )	$D_M(0.51)$	1963.2	$1962^{+39}_{-39}$ (−0.3 $\sigma$ )
$\ln(10^{10} A_s)$	3.0437	$3.042^{+0.037}_{-0.038}$ (+0.3 $\sigma$ )	$r_{drag} h$	100.45	$100.5^{+3.1}_{-3.0}$ (+0.1 $\sigma$ )	$H(0.61)$	95.56	$95.6^{+1.0}_{-1.1}$ (+0.5 $\sigma$ )
$n_s$	0.9666	$0.965^{+0.010}_{-0.010}$ (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.452	$2.454^{+0.060}_{-0.063}$ (−0.0 $\sigma$ )	$D_M(0.61)$	2286.3	$2285^{+41}_{-42}$ (−0.3 $\sigma$ )
$y_{cal}$	1.0005	$1.0004^{+0.0063}_{-0.0063}$ (+0.0 $\sigma$ )	$z_{re}$	7.63	$7.6^{+1.9}_{-2.0}$ (+0.2 $\sigma$ )	$H(2.33)$	235.33	$235.2^{+2.4}_{-2.3}$ (+0.2 $\sigma$ )
$A_{217}^{CIB}$	46.3	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s$	2.098	$2.095^{+0.079}_{-0.078}$ (+0.3 $\sigma$ )	$D_M(2.33)$	5752.4	$5753^{+27}_{-23}$ (−0.9 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.57	—	$10^9 A_s e^{-2\tau}$	1.8834	$1.883^{+0.026}_{-0.028}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4589	$0.458^{+0.017}_{-0.017}$ (−0.1 $\sigma$ )
$A_{143}^{tSZ}$	7.2	—	$D_{40}$	1227.0	$1230^{+28}_{-30}$ (+0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7592	$0.759^{+0.027}_{-0.027}$ (+0.0 $\sigma$ )
$A_{100}^{PS}$	249	$259^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5730	$5734^{+98}_{-100}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4800	$0.479^{+0.020}_{-0.020}$ (−0.1 $\sigma$ )
$A_{143}^{PS}$	49.0	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2540.7	$2538^{+33}_{-35}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6735	$0.673^{+0.024}_{-0.024}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{PS}$	50.9	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	818.4	$817^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4802	$0.480^{+0.021}_{-0.021}$ (−0.1 $\sigma$ )
$A_{217}^{PS}$	121.1	$115^{+30}_{-30}$ (−0.0 $\sigma$ )	$D_{2000}$	231.40	$230.8^{+4.1}_{-3.9}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6304	$0.630^{+0.023}_{-0.022}$ (+0.0 $\sigma$ )
$A^{kSZ}$	0.0	—	$n_{s,0.002}$	0.9666	$0.965^{+0.010}_{-0.010}$ (+0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4762	$0.476^{+0.022}_{-0.021}$ (−0.1 $\sigma$ )
$A_{100}^{dustTT}$	8.85	$9.0^{+4.7}_{-4.5}$ (−0.0 $\sigma$ )	$Y_P$	0.245406	$0.24540^{+0.00013}_{-0.00015}$ (+1.1 $\sigma$ )	$\sigma_8(0.61)$	0.5999	$0.600^{+0.021}_{-0.021}$ (+0.0 $\sigma$ )
$A_{143}^{dustTT}$	11.05	$10.9^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$Y_P^{BBN}$	0.246733	$0.24672^{+0.00013}_{-0.00015}$ (+1.1 $\sigma$ )	$f\sigma_8(2.33)$	0.3031	$0.303^{+0.011}_{-0.011}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	20.1	$18.6^{+8.3}_{-8.2}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.580	$2.584^{+0.068}_{-0.063}$ (−1.1 $\sigma$ )	$\sigma_8(2.33)$	0.3106	$0.3102^{+0.0090}_{-0.0090}$ (+0.1 $\sigma$ )
$A_{217}^{dustTT}$	95.4	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	Age/Gyr	13.756	$13.756^{+0.079}_{-0.071}$ (−0.7 $\sigma$ )	$\chi^2_{lensing}$	8.81	9.20 ( $\nu$ : 0.3) (−0.2 $\sigma$ )
$A_{100}^{dustTE}$	0.115	$0.114^{+0.10}_{-0.098}$	$z_*$	1089.88	$1089.90^{+0.61}_{-0.59}$ (−1.0 $\sigma$ )	$\chi^2_{small}$	396.01	396.9 ( $\nu$ : 1.2) (+0.1 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.135	$0.135^{+0.076}_{-0.078}$	$r_*$	144.43	$144.44^{+0.63}_{-0.62}$ (−0.4 $\sigma$ )	$\chi^2_{lowl}$	23.05	23.38 ( $\nu$ : 0.3) (−0.1 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04112	$1.04110^{+0.00074}_{-0.00074}$ (+0.2 $\sigma$ )	$\chi^2_{plik}$	2344.2	2358.6 ( $\nu$ : 15.6) (+300.6 $\sigma$ )
$A_{143}^{dustTE}$	0.226	$0.23^{+0.14}_{-0.14}$	$D_M(z_*)/\text{Gpc}$	13.873	$13.874^{+0.060}_{-0.061}$ (−0.5 $\sigma$ )	$\chi^2_{JLA}$	1034.83	1035.9 ( $\nu$ : 1.3) (+0.0 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.663	$0.67^{+0.21}_{-0.21}$	$z_{drag}$	1060.01	$1059.95^{+0.74}_{-0.75}$ (+1.2 $\sigma$ )	$\chi^2_{6DF}$	0.001	0.053 ( $\nu$ : 0.0) (+0.0 $\sigma$ )
$A_{217}^{dustTE}$	2.08	$2.08^{+0.69}_{-0.66}$	$r_{drag}$	147.08	$147.10^{+0.65}_{-0.64}$ (−0.6 $\sigma$ )	$\chi^2_{MGS}$	1.82	1.96 ( $\nu$ : 0.2) (+0.1 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_D$	0.14090	$0.14087^{+0.00074}_{-0.00077}$ (+0.9 $\sigma$ )	$\chi^2_{DR12BAO}$	3.86	4.7 ( $\nu$ : 0.6) (−0.1 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_D$	0.160725	$0.16075^{+0.00045}_{-0.00043}$ (−1.2 $\sigma$ )	$\chi^2_{prior}$	1.7	11.6 ( $\nu$ : 10.3) (+1.2 $\sigma$ )
$H_0$	68.30	$68.3^{+2.1}_{-2.1}$ (+0.2 $\sigma$ )	$z_{eq}$	3401	$3401^{+65}_{-62}$ (+0.1 $\sigma$ )	$\chi^2_{CMB}$	2772.1	2788.0 ( $\nu$ : 16.6) (+285.1 $\sigma$ )
$\Omega_\Lambda$	0.6935	$0.693^{+0.019}_{-0.020}$ (+0.2 $\sigma$ )	$k_{eq}$	0.010380	$0.01038^{+0.00020}_{-0.00019}$ (+0.1 $\sigma$ )	$\chi^2_{BAO}$	5.68	6.7 ( $\nu$ : 1.0) (−0.1 $\sigma$ )
$\Omega_m$	0.3065	$0.307^{+0.020}_{-0.019}$ (−0.2 $\sigma$ )	$100\theta_{eq}$	0.8136	$0.814^{+0.012}_{-0.012}$ (+0.0 $\sigma$ )			
$\Omega_m h^2$	0.14296	$0.1430^{+0.0027}_{-0.0026}$ (+0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4495	$0.4495^{+0.0060}_{-0.0061}$ (−0.0 $\sigma$ )			

Best-fit  $\chi^2_{eff} = 3814.30$ ;  $\Delta\chi^2_{eff} = 1585.94$ ;  $\bar{\chi}^2_{eff} = 3842.17$ ;  $\Delta\bar{\chi}^2_{eff} = 1591.87$ ;  $R - 1 = 0.01143$   
 $\chi^2_{eff}$ : BAO - 6DF: 0.00 ( $\Delta$  0.00) MGS: 1.82 ( $\Delta$  0.00) DR12BAO: 3.86 ( $\Delta$  -0.00) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.80 ( $\Delta$  0.08) small\_100x143\_offlike5\_EE\_Aplanck: 396.01 ( $\Delta$  0.15) commander\_dx12\_v3\_2.29: 23.05 ( $\Delta$  -0.09) plik\_rd12\_HM\_v22b.TTTEEE: 2344.24 SN - JLA Pantheon18: 1034.83 ( $\Delta$  0.04)



19.23 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02237^{+0.00036}_{-0.00037} \quad (+1.1\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0978^{+0.0037}_{-0.0037} \quad (+0.1\sigma)$	$H(0.15)$	$73.8^{+2.0}_{-1.8} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1202^{+0.0033}_{-0.0032} \quad (-0.2\sigma)$	$\sigma_8$	$0.824^{+0.035}_{-0.036} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$634^{+17}_{-17} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04090^{+0.00076}_{-0.00078} \quad (+0.2\sigma)$	$S_8$	$0.833^{+0.037}_{-0.038} \quad (-0.2\sigma)$	$H(0.38)$	$83.7^{+1.6}_{-1.5} \quad (+0.3\sigma)$
$\tau$	$0.055^{+0.018}_{-0.013} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.020}_{-0.021} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1513^{+33}_{-35} \quad (-0.3\sigma)$
$w_0$	$-0.95^{+0.23}_{-0.21} \quad (+0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.613^{+0.024}_{-0.025} \quad (-0.2\sigma)$	$H(0.51)$	$90.1^{+1.3}_{-1.3} \quad (+0.5\sigma)$
$w_a$	$-0.32^{+0.74}_{-0.98} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.997^{+0.036}_{-0.037} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1962^{+39}_{-41} \quad (-0.3\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.039}_{-0.030} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$100.4^{+3.1}_{-3.1} \quad (+0.1\sigma)$	$H(0.61)$	$95.5^{+1.0}_{-1.0} \quad (+0.6\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.011} \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.463^{+0.079}_{-0.083} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2285^{+42}_{-43} \quad (-0.3\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0064} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.42 \quad (+0.1\sigma)$	$H(2.33)$	$235.3^{+2.4}_{-2.3} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.084}_{-0.062} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5754^{+27}_{-24} \quad (-0.9\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.884^{+0.029}_{-0.030} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.021}_{-0.021} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.5}_{-4.6} \quad (+0.2\sigma)$	$D_{40}$	$1231^{+32}_{-32} \quad (-0.0\sigma)$	$\sigma_8(0.15)$	$0.762^{+0.033}_{-0.034} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5732^{+97}_{-100} \quad (+0.5\sigma)$	$f\sigma_8(0.38)$	$0.482^{+0.024}_{-0.025} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2539^{+34}_{-35} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.676^{+0.029}_{-0.030} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.482^{+0.026}_{-0.026} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$230.9^{+4.0}_{-4.0} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.633^{+0.027}_{-0.028} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.011}_{-0.011} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.479^{+0.027}_{-0.026} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.9} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.24539^{+0.00013}_{-0.00015} \quad (+1.1\sigma)$	$\sigma_8(0.61)$	$0.602^{+0.026}_{-0.026} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24672^{+0.00013}_{-0.00015} \quad (+1.1\sigma)$	$f\sigma_8(2.33)$	$0.304^{+0.013}_{-0.014} \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.5}_{-8.5} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.587^{+0.069}_{-0.065} \quad (-1.1\sigma)$	$\sigma_8(2.33)$	$0.311^{+0.010}_{-0.010} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.755^{+0.081}_{-0.073} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.098}_{-0.097}$	$z_*$	$1089.94^{+0.66}_{-0.64} \quad (-0.9\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.078}_{-0.078}$	$r_*$	$144.39^{+0.73}_{-0.73} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$107.0^{+4.5}_{-4.6} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04108^{+0.00074}_{-0.00076} \quad (+0.2\sigma)$	$\chi_{\mathrm{simall}}^2$	$397.0 \quad (\nu: 1.6) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.869^{+0.068}_{-0.068} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.50 \quad (\nu: 0.4) \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.94^{+0.72}_{-0.73} \quad (+1.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2358.5 \quad (\nu: 16.3) \quad (+295.1\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.09^{+0.69}_{-0.68}$	$r_{\mathrm{drag}}$	$147.05^{+0.73}_{-0.72} \quad (-0.4\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.9 \quad (\nu: 1.2) \quad (-0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14091^{+0.00079}_{-0.00081} \quad (+0.8\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.054 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16076^{+0.00045}_{-0.00043} \quad (-1.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.95 \quad (\nu: 0.2) \quad (+0.1\sigma)$
$H_0$	$68.3^{+2.1}_{-2.1} \quad (+0.2\sigma)$	$z_{\mathrm{eq}}$	$3406^{+74}_{-72} \quad (-0.0\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 \quad (\nu: 0.7) \quad (-0.2\sigma)$
$\Omega_{\Lambda}$	$0.693^{+0.019}_{-0.021} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01040^{+0.00023}_{-0.00022} \quad (-0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.5) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.307^{+0.021}_{-0.019} \quad (-0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.014}_{-0.014} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.7 \quad (\nu: 1.1) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1432^{+0.0031}_{-0.0030} \quad (-0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4490^{+0.0070}_{-0.0070} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2779.0 \quad (\nu: 16.2) \quad (+294.8\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 3833.27; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.10; R - 1 = 0.00878$$



## 19.24 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02238^{+0.00035}_{-0.00035} \quad (+1.1\sigma)$	$\sigma_8$	$0.821^{+0.028}_{-0.029} \quad (+0.0\sigma)$	$H(0.38)$	$83.6^{+1.6}_{-1.5} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1199^{+0.0027}_{-0.0027} \quad (-0.0\sigma)$	$S_8$	$0.829^{+0.029}_{-0.028} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1513^{+33}_{-34} \quad (-0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04092^{+0.00075}_{-0.00075} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.454^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$H(0.51)$	$90.1^{+1.3}_{-1.3} \quad (+0.4\sigma)$
$\tau$	$0.055^{+0.018}_{-0.013} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.018}_{-0.019} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1962^{+39}_{-40} \quad (-0.3\sigma)$
$w_0$	$-0.96^{+0.22}_{-0.20} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.993^{+0.027}_{-0.028} \quad (-0.1\sigma)$	$H(0.61)$	$95.6^{+1.0}_{-1.1} \quad (+0.5\sigma)$
$w_a$	$-0.28^{+0.70}_{-0.87} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}h$	$100.5^{+3.1}_{-3.0} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2285^{+41}_{-42} \quad (-0.3\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.036}_{-0.027} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.455^{+0.060}_{-0.063} \quad (-0.0\sigma)$	$H(2.33)$	$235.2^{+2.4}_{-2.3} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.010}_{-0.0097} \quad (+0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.31 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5753^{+27}_{-23} \quad (-0.9\sigma)$
$y_{\mathrm{cal}}$	$1.0004^{+0.0064}_{-0.0064} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.099^{+0.076}_{-0.056} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.017} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.026}_{-0.028} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.759^{+0.027}_{-0.027} \quad (+0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{40}$	$1230^{+28}_{-30} \quad (+0.0\sigma)$	$f\sigma_8(0.38)$	$0.480^{+0.020}_{-0.020} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{220}$	$5733^{+99}_{-100} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.673^{+0.024}_{-0.024} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.2\sigma)$	$D_{810}$	$2538^{+34}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.480^{+0.021}_{-0.020} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.630^{+0.022}_{-0.022} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$230.8^{+4.0}_{-4.0} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.476^{+0.022}_{-0.021} \quad (-0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.965^{+0.010}_{-0.0097} \quad (+0.2\sigma)$	$\sigma_8(0.61)$	$0.600^{+0.021}_{-0.021} \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24540^{+0.00013}_{-0.00015} \quad (+1.1\sigma)$	$f\sigma_8(2.33)$	$0.303^{+0.011}_{-0.011} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00013}_{-0.00015} \quad (+1.1\sigma)$	$\sigma_8(2.33)$	$0.3104^{+0.0088}_{-0.0088} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.6}_{-4.4} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.583^{+0.067}_{-0.062} \quad (-1.1\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.4}_{-8.3} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.756^{+0.078}_{-0.072} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$z_*$	$1089.89^{+0.62}_{-0.58} \quad (-0.9\sigma)$	$f_{2000}^{217}$	$107.0^{+4.5}_{-4.8} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.099}_{-0.098}$	$r_*$	$144.45^{+0.62}_{-0.61} \quad (-0.5\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.19 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.135^{+0.076}_{-0.078}$	$100\theta_*$	$1.04110^{+0.00074}_{-0.00075} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$396.8 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.875^{+0.060}_{-0.060} \quad (-0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.37 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.23^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.96^{+0.74}_{-0.75} \quad (+1.2\sigma)$	$\chi_{\mathrm{plik}}^2$	$2358.4 \quad (\nu: 15.5) \quad (+299.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.67^{+0.20}_{-0.21}$	$r_{\mathrm{drag}}$	$147.11^{+0.65}_{-0.62} \quad (-0.7\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.9 \quad (\nu: 1.2) \quad (-0.0\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.70}_{-0.66}$	$k_{\mathrm{D}}$	$0.14086^{+0.00074}_{-0.00076} \quad (+1.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.053 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00044}_{-0.00043} \quad (-1.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.95 \quad (\nu: 0.2) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3400^{+61}_{-60} \quad (+0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 0.6) \quad (-0.1\sigma)$
$H_0$	$68.3^{+2.1}_{-2.1} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01038^{+0.00019}_{-0.00018} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.019}_{-0.020} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.011}_{-0.011} \quad (-0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2787.8 \quad (\nu: 16.2) \quad (+287.4\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.020}_{-0.019} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4497^{+0.0059}_{-0.0058} \quad (-0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.6 \quad (\nu: 1.0) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1429^{+0.0026}_{-0.0025} \quad (+0.2\sigma)$	$H(0.15)$	$73.8^{+1.8}_{-1.7} \quad (+0.3\sigma)$		
$\Omega_{\mathrm{m}}h^3$	$0.0976^{+0.0036}_{-0.0034} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$634^{+16}_{-17} \quad (-0.3\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3841.93; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.92; R - 1 = 0.01414$$



## 19.25 base\_w\_wa\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02219	$0.02214^{+0.00054}_{-0.00053}$	$\sigma_8 \Omega_m^{0.25}$	0.6134	$0.614^{+0.033}_{-0.035}$	$D_M(0.38)$	1518.3	$1516^{+35}_{-37}$
$\Omega_c h^2$	0.11995	$0.1204^{+0.0045}_{-0.0048}$	$\sigma_8/h^{0.5}$	0.9979	$0.998^{+0.047}_{-0.051}$	$H(0.51)$	89.84	$89.9^{+1.3}_{-1.3}$
$100\theta_{MC}$	1.04095	$1.0409^{+0.0012}_{-0.0012}$	$r_{drag}h$	100.48	$100.4^{+3.3}_{-3.2}$	$D_M(0.51)$	1968.9	$1966^{+42}_{-43}$
$\tau$	0.0590	$0.052^{+0.021}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.462	$2.46^{+0.10}_{-0.11}$	$H(0.61)$	95.32	$95.3^{+1.1}_{-1.1}$
$w_0$	-0.985	$-0.96^{+0.23}_{-0.21}$	$z_{re}$	8.18	$7.5^{+2.0}_{-2.5}$	$D_M(0.61)$	2292.9	$2290^{+45}_{-45}$
$w_a$	-0.18	$-0.34^{+0.81}_{-1.1}$	$10^9 A_s$	2.109	$2.088^{+0.091}_{-0.091}$	$H(2.33)$	235.28	$235.1^{+2.5}_{-2.5}$
$\ln(10^{10} A_s)$	3.0490	$3.039^{+0.043}_{-0.044}$	$10^9 A_s e^{-2\tau}$	1.8748	$1.881^{+0.033}_{-0.033}$	$D_M(2.33)$	5762.3	$5765^{+33}_{-34}$
$n_s$	0.9649	$0.964^{+0.014}_{-0.013}$	$D_{40}$	1225.7	$1228^{+35}_{-36}$	$f\sigma_8(0.15)$	0.4619	$0.461^{+0.028}_{-0.029}$
$y_{cal}$	0.9992	$1.0004^{+0.0063}_{-0.0063}$	$D_{220}$	5695	$5704^{+100}_{-100}$	$\sigma_8(0.15)$	0.7620	$0.762^{+0.041}_{-0.043}$
$A_{100}^{PS}$	237	$242^{+60}_{-60}$	$D_{810}$	2527.2	$2534^{+35}_{-34}$	$f\sigma_8(0.38)$	0.4830	$0.483^{+0.032}_{-0.033}$
$A_{143}^{PS}$	44.0	$41^{+20}_{-20}$	$D_{1420}$	812.3	$814^{+13}_{-13}$	$\sigma_8(0.38)$	0.6758	$0.676^{+0.036}_{-0.038}$
$A_{217}^{PS}$	97.5	$101^{+30}_{-30}$	$D_{2000}$	229.24	$229.6^{+4.7}_{-4.5}$	$f\sigma_8(0.51)$	0.4829	$0.483^{+0.034}_{-0.034}$
$A_{217}^{CIB}$	46.0	$41^{+20}_{-20}$	$n_{s,0.002}$	0.9649	$0.964^{+0.014}_{-0.013}$	$\sigma_8(0.51)$	0.6324	$0.632^{+0.033}_{-0.035}$
$A_{143}^{tSZ}$	5.97	$< 8.77$	$Y_P$	0.245322	$0.24529^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	0.4786	$0.479^{+0.035}_{-0.035}$
$r_{143 \times 217}^{PS}$	0.614	$0.65^{+0.31}_{-0.32}$	$Y_P^{BBN}$	0.246649	$0.24662^{+0.00021}_{-0.00025}$	$\sigma_8(0.61)$	0.6017	$0.601^{+0.031}_{-0.033}$
$r_{143 \times 217}^{CIB}$	0.87	—	$10^5 D/H$	2.619	$2.63^{+0.10}_{-0.099}$	$f\sigma_8(2.33)$	0.3039	$0.304^{+0.015}_{-0.017}$
$\xi^{tSZ \times CIB}$	0.35	—	Age/Gyr	13.779	$13.777^{+0.095}_{-0.088}$	$\sigma_8(2.33)$	0.3115	$0.311^{+0.012}_{-0.013}$
$A^{kSZ}$	1.2	—	$z_*$	1090.14	$1090.26^{+0.91}_{-0.95}$	$f_{2000}^{143}$	31.0	$31^{+8}_{-8}$
$A_{100}^{dust}$	1.01	$1.01^{+0.50}_{-0.50}$	$r_*$	144.58	$144.5^{+1.1}_{-1.1}$	$f_{2000}^{217}$	107.1	$107.5^{+5.2}_{-5.2}$
$A_{143}^{dust}$	0.996	$0.98^{+0.45}_{-0.46}$	$100\theta_*$	1.04115	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	32.8	$33^{+5}_{-5}$
$A_{217}^{dust}$	0.954	$0.97^{+0.26}_{-0.26}$	$D_M(z_*)/\text{Gpc}$	13.887	$13.88^{+0.11}_{-0.10}$	$\chi_{\text{small}}^2$	397.31	$396.9 (\nu: 1.3)$
$A_{143 \times 217}^{dust}$	0.973	$1.03^{+0.42}_{-0.41}$	$z_{drag}$	1059.51	$1059.4^{+1.2}_{-1.1}$	$\chi_{\text{lowl}}^2$	23.37	$23.4 (\nu: 0.6)$
$c_{100}$	0.99756	$0.9974^{+0.0027}_{-0.0027}$	$r_{drag}$	147.30	$147.2^{+1.2}_{-1.1}$	$\chi_{\text{CamSpec}}^2$	7049.3	$7062.7 (\nu: 14.5)$
$c_{217}$	1.00160	$1.0012^{+0.0040}_{-0.0040}$	$k_D$	0.14050	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\text{JLA}}^2$	1034.74	$1035.9 (\nu: 1.2)$
$H_0$	68.21	$68.2^{+2.3}_{-2.1}$	$100\theta_D$	0.16101	$0.16107^{+0.00069}_{-0.00065}$	$\chi_{6DF}^2$	0.000	$0.056 (\nu: 0.0)$
$\Omega_\Lambda$	0.6931	$0.692^{+0.021}_{-0.022}$	$z_{eq}$	3397	$3406^{+100}_{-110}$	$\chi_{\text{MGS}}^2$	1.75	$1.92 (\nu: 0.3)$
$\Omega_m$	0.3069	$0.308^{+0.022}_{-0.021}$	$k_{eq}$	0.010367	$0.01040^{+0.00032}_{-0.00033}$	$\chi_{\text{DR12BAO}}^2$	3.97	$4.9 (\nu: 0.9)$
$\Omega_m h^2$	0.14278	$0.1432^{+0.0043}_{-0.0046}$	$100\theta_{eq}$	0.8138	$0.812^{+0.021}_{-0.019}$	$\chi_{\text{prior}}^2$	2.5	$7.6 (\nu: 5.8)$
$\Omega_m h^3$	0.09739	$0.0976^{+0.0045}_{-0.0045}$	$100\theta_{s,eq}$	0.4498	$0.449^{+0.011}_{-0.0097}$	$\chi_{\text{BAO}}^2$	5.72	$6.9 (\nu: 1.2)$
$\sigma_8$	0.8241	$0.824^{+0.044}_{-0.046}$	$H(0.15)$	73.49	$73.7^{+2.1}_{-1.9}$	$\chi_{\text{CMB}}^2$	7470.0	$7483.0 (\nu: 14.6)$
$S_8$	0.834	$0.835^{+0.049}_{-0.053}$	$D_M(0.15)$	635.6	$635^{+17}_{-18}$			
$\sigma_8 \Omega_m^{0.5}$	0.4565	$0.457^{+0.027}_{-0.029}$	$H(0.38)$	83.32	$83.5^{+1.7}_{-1.6}$			

Best-fit  $\chi_{\text{eff}}^2 = 8512.97$ ;  $\bar{\chi}_{\text{eff}}^2 = 8533.43$ ;  $R - 1 = 0.00675$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.97 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 397.31 commander\_dx12\_v3.2.29: 23.37 CamSpec like\_10.7HM: 7049.34  
SN - JLA Pantheon18: 1034.74



19.26 base\_w\_wa\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02215^{+0.00052}_{-0.00051}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.612^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1516^{+34}_{-36}$
$\Omega_{\mathrm{c}}h^2$	$0.1201^{+0.0034}_{-0.0036}$	$\sigma_8/h^{0.5}$	$0.995^{+0.031}_{-0.032}$	$H(0.51)$	$89.9^{+1.3}_{-1.3}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0012}$	$r_{\mathrm{drag}}h$	$100.5^{+3.2}_{-3.2}$	$D_{\mathrm{M}}(0.51)$	$1966^{+41}_{-43}$
$\tau$	$0.052^{+0.021}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	$2.454^{+0.067}_{-0.072}$	$H(0.61)$	$95.3^{+1.1}_{-1.1}$
$w_0$	$-0.96^{+0.21}_{-0.20}$	$z_{\mathrm{re}}$	$7.5^{+2.0}_{-2.4}$	$D_{\mathrm{M}}(0.61)$	$2289^{+44}_{-45}$
$w_{\mathrm{a}}$	$-0.30^{+0.72}_{-0.97}$	$10^9 A_{\mathrm{s}}$	$2.086^{+0.084}_{-0.085}$	$H(2.33)$	$235.0^{+2.5}_{-2.5}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.038^{+0.040}_{-0.041}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.880^{+0.028}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5764^{+32}_{-32}$
$n_{\mathrm{s}}$	$0.964^{+0.012}_{-0.011}$	$D_{40}$	$1227^{+30}_{-32}$	$f\sigma_8(0.15)$	$0.460^{+0.019}_{-0.020}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0063}_{-0.0064}$	$D_{220}$	$5706^{+100}_{-100}$	$\sigma_8(0.15)$	$0.760^{+0.029}_{-0.030}$
$A_{100}^{\mathrm{PS}}$	$243^{+70}_{-60}$	$D_{810}$	$2533^{+34}_{-34}$	$f\sigma_8(0.38)$	$0.481^{+0.023}_{-0.023}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.38)$	$0.674^{+0.026}_{-0.027}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{2000}$	$229.5^{+4.7}_{-4.5}$	$f\sigma_8(0.51)$	$0.481^{+0.024}_{-0.024}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.964^{+0.012}_{-0.011}$	$\sigma_8(0.51)$	$0.631^{+0.024}_{-0.025}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.78$	$Y_{\mathrm{P}}$	$0.24530^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	$0.477^{+0.025}_{-0.024}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.32}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00020}_{-0.00024}$	$\sigma_8(0.61)$	$0.600^{+0.023}_{-0.024}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.627^{+0.099}_{-0.095}$	$f\sigma_8(2.33)$	$0.303^{+0.012}_{-0.013}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.777^{+0.089}_{-0.087}$	$\sigma_8(2.33)$	$0.3101^{+0.0094}_{-0.0098}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.21^{+0.84}_{-0.81}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$r_*$	$144.57^{+0.85}_{-0.83}$	$f_{2000}^{217}$	$107.6^{+5.3}_{-5.2}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.46}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143\times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.887^{+0.081}_{-0.079}$	$\chi_{\mathrm{lensing}}^2$	$9.40\ (\nu: 0.4)$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.42}$	$z_{\mathrm{drag}}$	$1059.4^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$396.8\ (\nu: 1.2)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.30^{+0.92}_{-0.90}$	$\chi_{\mathrm{lowl}}^2$	$23.29\ (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0039}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.3\ (\nu: 13.6)$
$H_0$	$68.2^{+2.2}_{-2.1}$	$100\theta_{\mathrm{D}}$	$0.16105^{+0.00067}_{-0.00065}$	$\chi_{\mathrm{JLA}}^2$	$1035.9\ (\nu: 1.1)$
$\Omega_{\Lambda}$	$0.693^{+0.020}_{-0.021}$	$z_{\mathrm{eq}}$	$3400^{+79}_{-81}$	$\chi_{6\mathrm{DF}}^2$	$0.056\ (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.307^{+0.021}_{-0.020}$	$k_{\mathrm{eq}}$	$0.01038^{+0.00024}_{-0.00025}$	$\chi_{\mathrm{MGS}}^2$	$1.94\ (\nu: 0.3)$
$\Omega_{\mathrm{m}}h^2$	$0.1429^{+0.0033}_{-0.0034}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.016}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8\ (\nu: 0.8)$
$\Omega_{\mathrm{m}}h^3$	$0.0975^{+0.0041}_{-0.0039}$	$100\theta_{\mathrm{s,eq}}$	$0.4495^{+0.0079}_{-0.0074}$	$\chi_{\mathrm{prior}}^2$	$7.6\ (\nu: 5.8)$
$\sigma_8$	$0.821^{+0.031}_{-0.032}$	$H(0.15)$	$73.6^{+2.0}_{-1.8}$	$\chi_{\mathrm{CMB}}^2$	$7491.9\ (\nu: 14.9)$
$S_8$	$0.831^{+0.034}_{-0.035}$	$D_{\mathrm{M}}(0.15)$	$635^{+17}_{-18}$	$\chi_{\mathrm{BAO}}^2$	$6.8\ (\nu: 1.2)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.018}_{-0.019}$	$H(0.38)$	$83.5^{+1.6}_{-1.6}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 8542.20; R - 1 = 0.00753$					



19.27    base\_w\_wa\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02214^{+0.00054}_{-0.00052}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.614^{+0.033}_{-0.036}$	$D_{\text{M}}(0.38)$	$1516^{+35}_{-37}$
$\Omega_{\text{c}}h^2$	$0.1203^{+0.0045}_{-0.0048}$	$\sigma_8/h^{0.5}$	$0.998^{+0.046}_{-0.051}$	$H(0.51)$	$89.9^{+1.3}_{-1.3}$
$100\theta_{\text{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$r_{\text{drag}}h$	$100.4^{+3.3}_{-3.2}$	$D_{\text{M}}(0.51)$	$1966^{+42}_{-42}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.46^{+0.10}_{-0.11}$	$H(0.61)$	$95.3^{+1.1}_{-1.1}$
$w_0$	$-0.96^{+0.22}_{-0.20}$	$z_{\text{re}}$	$< 9.36$	$D_{\text{M}}(0.61)$	$2290^{+45}_{-45}$
$w_a$	$-0.33^{+0.81}_{-1.1}$	$10^9 A_{\text{s}}$	$2.095^{+0.085}_{-0.061}$	$H(2.33)$	$235.1^{+2.5}_{-2.5}$
$\ln(10^{10} A_{\text{s}})$	$3.042^{+0.040}_{-0.030}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.881^{+0.033}_{-0.033}$	$D_{\text{M}}(2.33)$	$5764^{+33}_{-33}$
$n_{\text{s}}$	$0.964^{+0.014}_{-0.013}$	$D_{40}$	$1228^{+35}_{-36}$	$f\sigma_8(0.15)$	$0.462^{+0.028}_{-0.029}$
$y_{\text{cal}}$	$1.0004^{+0.0064}_{-0.0064}$	$D_{220}$	$5704^{+110}_{-100}$	$\sigma_8(0.15)$	$0.762^{+0.041}_{-0.043}$
$A_{100}^{\text{PS}}$	$242^{+60}_{-60}$	$D_{810}$	$2533^{+35}_{-34}$	$f\sigma_8(0.38)$	$0.483^{+0.032}_{-0.033}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.38)$	$0.676^{+0.036}_{-0.038}$
$A_{217}^{\text{PS}}$	$101^{+30}_{-30}$	$D_{2000}$	$229.6^{+4.7}_{-4.4}$	$f\sigma_8(0.51)$	$0.484^{+0.035}_{-0.034}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$n_{\text{s},0.002}$	$0.964^{+0.014}_{-0.013}$	$\sigma_8(0.51)$	$0.633^{+0.033}_{-0.035}$
$A_{143}^{\text{tSZ}}$	$< 8.81$	$Y_{\text{P}}$	$0.24530^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	$0.480^{+0.036}_{-0.035}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.31}_{-0.32}$	$Y_{\text{P}}^{\text{BBN}}$	$0.24662^{+0.00021}_{-0.00025}$	$\sigma_8(0.61)$	$0.602^{+0.031}_{-0.033}$
$r_{143 \times 217}^{\text{CIB}}$	—	$10^5 \text{D}/\text{H}$	$2.63^{+0.10}_{-0.10}$	$f\sigma_8(2.33)$	$0.304^{+0.015}_{-0.018}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$\text{Age}/\text{Gyr}$	$13.777^{+0.095}_{-0.088}$	$\sigma_8(2.33)$	$0.311^{+0.012}_{-0.013}$
$A^{\text{kSZ}}$	—	$z_*$	$1090.24^{+0.90}_{-0.94}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.50}$	$r_*$	$144.5^{+1.1}_{-1.1}$	$f_{2000}^{217}$	$107.5^{+5.2}_{-5.2}$
$A_{143}^{\text{dust}}$	$0.98^{+0.45}_{-0.46}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.26}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.88^{+0.11}_{-0.10}$	$\chi_{\text{simall}}^2$	$396.8 (\nu: 1.3)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.42}$	$z_{\text{drag}}$	$1059.4^{+1.2}_{-1.1}$	$\chi_{\text{lowl}}^2$	$23.4 (\nu: 0.6)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$r_{\text{drag}}$	$147.3^{+1.2}_{-1.1}$	$\chi_{\text{CamSpec}}^2$	$7062.5 (\nu: 14.5)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0040}$	$k_{\text{D}}$	$0.1405^{+0.0013}_{-0.0013}$	$\chi_{\text{JLA}}^2$	$1035.9 (\nu: 1.2)$
$H_0$	$68.2^{+2.3}_{-2.1}$	$100\theta_{\text{D}}$	$0.16106^{+0.00067}_{-0.00065}$	$\chi_{6\text{DF}}^2$	$0.055 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.692^{+0.021}_{-0.022}$	$z_{\text{eq}}$	$3404^{+100}_{-110}$	$\chi_{\text{MGS}}^2$	$1.91 (\nu: 0.3)$
$\Omega_{\text{m}}$	$0.308^{+0.022}_{-0.021}$	$k_{\text{eq}}$	$0.01039^{+0.00032}_{-0.00034}$	$\chi_{\text{DR12BAO}}^2$	$4.9 (\nu: 0.9)$
$\Omega_{\text{m}}h^2$	$0.1431^{+0.0044}_{-0.0046}$	$100\theta_{\text{eq}}$	$0.812^{+0.021}_{-0.019}$	$\chi_{\text{prior}}^2$	$7.6 (\nu: 5.8)$
$\Omega_{\text{m}}h^3$	$0.0976^{+0.0044}_{-0.0045}$	$100\theta_{\text{s,eq}}$	$0.449^{+0.011}_{-0.0097}$	$\chi_{\text{BAO}}^2$	$6.9 (\nu: 1.2)$
$\sigma_8$	$0.824^{+0.044}_{-0.047}$	$H(0.15)$	$73.6^{+2.1}_{-1.9}$	$\chi_{\text{CMB}}^2$	$7482.7 (\nu: 14.3)$
$S_8$	$0.835^{+0.049}_{-0.053}$	$D_{\text{M}}(0.15)$	$635^{+17}_{-18}$		
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.457^{+0.027}_{-0.029}$	$H(0.38)$	$83.5^{+1.6}_{-1.6}$		

$\bar{\chi}_{\text{eff}}^2 = 8533.12; R - 1 = 0.00716$



19.28 base\_w\_wa\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02216^{+0.00052}_{-0.00050}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.612^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1516^{+35}_{-37}$
$\Omega_{\mathrm{c}} h^2$	$0.1200^{+0.0033}_{-0.0035}$	$\sigma_8/h^{0.5}$	$0.995^{+0.031}_{-0.032}$	$H(0.51)$	$89.9^{+1.3}_{-1.3}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	$100.5^{+3.2}_{-3.2}$	$D_{\mathrm{M}}(0.51)$	$1966^{+41}_{-42}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.455^{+0.067}_{-0.071}$	$H(0.61)$	$95.4^{+1.1}_{-1.1}$
$w_0$	$-0.96^{+0.21}_{-0.20}$	$z_{\mathrm{re}}$	$< 9.32$	$D_{\mathrm{M}}(0.61)$	$2290^{+44}_{-45}$
$w_a$	$-0.29^{+0.71}_{-0.92}$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.079}_{-0.057}$	$H(2.33)$	$235.0^{+2.5}_{-2.5}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.037}_{-0.028}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.028}_{-0.027}$	$D_{\mathrm{M}}(2.33)$	$5763^{+33}_{-32}$
$n_{\mathrm{s}}$	$0.965^{+0.012}_{-0.011}$	$D_{40}$	$1227^{+30}_{-32}$	$f\sigma_8(0.15)$	$0.460^{+0.020}_{-0.020}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0064}_{-0.0064}$	$D_{220}$	$5706^{+100}_{-100}$	$\sigma_8(0.15)$	$0.760^{+0.029}_{-0.030}$
$A_{100}^{\mathrm{PS}}$	$242^{+70}_{-60}$	$D_{810}$	$2533^{+35}_{-34}$	$f\sigma_8(0.38)$	$0.481^{+0.023}_{-0.023}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.38)$	$0.674^{+0.026}_{-0.027}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{2000}$	$229.6^{+4.7}_{-4.5}$	$f\sigma_8(0.51)$	$0.481^{+0.024}_{-0.024}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.012}_{-0.011}$	$\sigma_8(0.51)$	$0.631^{+0.024}_{-0.025}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.85$	$Y_{\mathrm{P}}$	$0.24531^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	$0.477^{+0.025}_{-0.024}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.31}_{-0.33}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00020}_{-0.00024}$	$\sigma_8(0.61)$	$0.600^{+0.023}_{-0.023}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.625^{+0.097}_{-0.095}$	$f\sigma_8(2.33)$	$0.303^{+0.012}_{-0.012}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.777^{+0.091}_{-0.088}$	$\sigma_8(2.33)$	$0.3104^{+0.0093}_{-0.0095}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.18^{+0.78}_{-0.80}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$r_*$	$144.60^{+0.84}_{-0.81}$	$f_{2000}^{217}$	$107.5^{+5.3}_{-5.1}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.46}_{-0.46}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.889^{+0.080}_{-0.078}$	$\chi_{\mathrm{lensing}}^2$	$9.39 (\nu: 0.4)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.42}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.1)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$r_{\mathrm{drag}}$	$147.33^{+0.90}_{-0.88}$	$\chi_{\mathrm{lowl}}^2$	$23.26 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0039}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.2 (\nu: 13.6)$
$H_0$	$68.2^{+2.2}_{-2.1}$	$100\theta_{\mathrm{D}}$	$0.16104^{+0.00066}_{-0.00065}$	$\chi_{\mathrm{JLA}}^2$	$1035.9 (\nu: 1.1)$
$\Omega_{\Lambda}$	$0.693^{+0.020}_{-0.021}$	$z_{\mathrm{eq}}$	$3397^{+75}_{-80}$	$\chi_{6\mathrm{DF}}^2$	$0.055 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.307^{+0.021}_{-0.020}$	$k_{\mathrm{eq}}$	$0.01037^{+0.00023}_{-0.00024}$	$\chi_{\mathrm{MGS}}^2$	$1.94 (\nu: 0.3)$
$\Omega_{\mathrm{m}} h^2$	$0.1428^{+0.0031}_{-0.0033}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.015}_{-0.014}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 0.8)$
$\Omega_{\mathrm{m}} h^3$	$0.0974^{+0.0040}_{-0.0038}$	$100\theta_{\mathrm{s,eq}}$	$0.4498^{+0.0077}_{-0.0071}$	$\chi_{\mathrm{prior}}^2$	$7.7 (\nu: 5.9)$
$\sigma_8$	$0.822^{+0.031}_{-0.032}$	$H(0.15)$	$73.6^{+2.0}_{-1.8}$	$\chi_{\mathrm{CMB}}^2$	$7491.6 (\nu: 14.5)$
$S_8$	$0.831^{+0.034}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$635^{+17}_{-17}$	$\chi_{\mathrm{BAO}}^2$	$6.8 (\nu: 1.2)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.455^{+0.018}_{-0.019}$	$H(0.38)$	$83.5^{+1.7}_{-1.6}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 8541.86$ ;  $R - 1 = 0.00901$



19.29 base\_w\_wa\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022301	$0.02229^{+0.00040}_{-0.00038}$ (+0.8 $\sigma$ )	$S_8$	0.8238	$0.825^{+0.038}_{-0.039}$ (−0.5 $\sigma$ )	$D_M(0.15)$	635.1	$635^{+17}_{-17}$ (+0.0 $\sigma$ )
$\Omega_c h^2$	0.11951	$0.1196^{+0.0033}_{-0.0034}$ (−0.4 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4512	$0.452^{+0.021}_{-0.021}$ (−0.5 $\sigma$ )	$H(0.38)$	83.49	$83.5^{+1.6}_{-1.6}$ (+0.1 $\sigma$ )
$100\theta_{MC}$	1.04091	$1.04088^{+0.00081}_{-0.00080}$ (+0.1 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6066	$0.607^{+0.025}_{-0.026}$ (−0.5 $\sigma$ )	$D_M(0.38)$	1516.1	$1516^{+35}_{-34}$ (+0.0 $\sigma$ )
$\tau$	0.0520	$0.052^{+0.021}_{-0.022}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9874	$0.989^{+0.037}_{-0.038}$ (−0.5 $\sigma$ )	$H(0.51)$	90.02	$90.0^{+1.3}_{-1.4}$ (+0.2 $\sigma$ )
$w_0$	−0.972	$−0.97^{+0.22}_{-0.20}$ (−0.1 $\sigma$ )	$r_{drag}h$	100.48	$100.5^{+3.3}_{-3.1}$ (+0.0 $\sigma$ )	$D_M(0.51)$	1965.8	$1966^{+41}_{-41}$ (−0.0 $\sigma$ )
$w_a$	−0.20	$−0.24^{+0.73}_{-0.92}$ (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.439	$2.442^{+0.084}_{-0.085}$ (−0.4 $\sigma$ )	$H(0.61)$	95.49	$95.5^{+1.1}_{-1.1}$ (+0.4 $\sigma$ )
$\ln(10^{10} A_s)$	3.0366	$3.038^{+0.044}_{-0.046}$ (−0.1 $\sigma$ )	$z_{re}$	7.44	$7.5^{+2.0}_{-2.5}$ (−0.0 $\sigma$ )	$D_M(0.61)$	2289.2	$2289^{+45}_{-43}$ (−0.0 $\sigma$ )
$n_s$	0.9662	$0.966^{+0.011}_{-0.011}$ (+0.4 $\sigma$ )	$10^9 A_s$	2.083	$2.086^{+0.093}_{-0.094}$ (−0.1 $\sigma$ )	$H(2.33)$	235.13	$235.1^{+2.6}_{-2.4}$ (+0.0 $\sigma$ )
$y_{cal}$	1.0003	$1.0005^{+0.0067}_{-0.0065}$ (+0.0 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8777	$1.878^{+0.030}_{-0.029}$ (−0.2 $\sigma$ )	$D_M(2.33)$	5757.1	$5759^{+29}_{-28}$ (−0.5 $\sigma$ )
$A_{100}^{PS}$	235	$240^{+60}_{-60}$ (−0.1 $\sigma$ )	$D_{40}$	1224.2	$1225^{+33}_{-32}$ (−0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4557	$0.456^{+0.022}_{-0.022}$ (−0.5 $\sigma$ )
$A_{143}^{PS}$	38.1	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5717	$5718^{+100}_{-99}$ (+0.4 $\sigma$ )	$\sigma_8(0.15)$	0.7541	$0.755^{+0.034}_{-0.035}$ (−0.4 $\sigma$ )
$A_{217}^{PS}$	101.6	$102^{+30}_{-40}$ (+0.1 $\sigma$ )	$D_{810}$	2534.1	$2535^{+36}_{-35}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4765	$0.477^{+0.026}_{-0.025}$ (−0.5 $\sigma$ )
$A_{217}^{CIB}$	44.8	$40^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{1420}$	815.5	$816^{+13}_{-12}$ (+0.3 $\sigma$ )	$\sigma_8(0.38)$	0.6691	$0.670^{+0.030}_{-0.031}$ (−0.4 $\sigma$ )
$A_{143}^{tSZ}$	6.65	< 8.74 (+0.0 $\sigma$ )	$D_{2000}$	230.22	$230.2^{+4.2}_{-4.1}$ (+0.4 $\sigma$ )	$f\sigma_8(0.51)$	0.4766	$0.477^{+0.027}_{-0.027}$ (−0.4 $\sigma$ )
$r_{143 \times 217}^{PS}$	0.573	$0.66^{+0.31}_{-0.32}$ (+0.1 $\sigma$ )	$n_{s,0.002}$	0.9662	$0.966^{+0.011}_{-0.011}$ (+0.4 $\sigma$ )	$\sigma_8(0.51)$	0.6263	$0.627^{+0.028}_{-0.029}$ (−0.4 $\sigma$ )
$r_{143 \times 217}^{CIB}$	0.77	—	$Y_P$	0.245367	$0.24536^{+0.00015}_{-0.00017}$ (+0.8 $\sigma$ )	$f\sigma_8(0.61)$	0.4725	$0.473^{+0.028}_{-0.027}$ (−0.4 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.01	—	$Y_P^{BBN}$	0.246694	$0.24669^{+0.00015}_{-0.00017}$ (+0.8 $\sigma$ )	$\sigma_8(0.61)$	0.5960	$0.597^{+0.026}_{-0.027}$ (−0.4 $\sigma$ )
$A^{kSZ}$	0.0	—	$10^5 D/H$	2.599	$2.600^{+0.073}_{-0.073}$ (−0.8 $\sigma$ )	$f\sigma_8(2.33)$	0.3011	$0.301^{+0.013}_{-0.015}$ (−0.4 $\sigma$ )
$A_{100}^{dust}$	1.01	$1.01^{+0.50}_{-0.50}$ (+0.0 $\sigma$ )	Age/Gyr	13.770	$13.771^{+0.086}_{-0.079}$ (−0.2 $\sigma$ )	$\sigma_8(2.33)$	0.3089	$0.309^{+0.011}_{-0.012}$ (−0.3 $\sigma$ )
$A_{143}^{dust}$	0.978	$0.96^{+0.47}_{-0.45}$ (−0.1 $\sigma$ )	$z_*$	1089.97	$1089.98^{+0.67}_{-0.69}$ (−0.8 $\sigma$ )	$f_{2000}^{143}$	30.1	$30^{+7}_{-7}$ (−0.3 $\sigma$ )
$A_{217}^{dust}$	0.968	$0.97^{+0.26}_{-0.27}$ (+0.1 $\sigma$ )	$r_*$	144.61	$144.59^{+0.77}_{-0.77}$ (+0.2 $\sigma$ )	$f_{2000}^{217}$	106.86	$106.9^{+5.0}_{-5.0}$ (−0.3 $\sigma$ )
$A_{143 \times 217}^{dust}$	1.003	$1.03^{+0.41}_{-0.41}$ (−0.0 $\sigma$ )	$100\theta_*$	1.04110	$1.04107^{+0.00080}_{-0.00079}$ (+0.0 $\sigma$ )	$f_{2000}^{143 \times 217}$	32.1	$32^{+5}_{-5}$ (−0.4 $\sigma$ )
$c_{100}$	0.99760	$0.9975^{+0.0027}_{-0.0027}$ (+0.1 $\sigma$ )	$D_M(z_*)/Gpc$	13.890	$13.889^{+0.072}_{-0.072}$ (+0.2 $\sigma$ )	$\chi_{small}^2$	395.76	$396.9$ ( $\nu$ : 1.2) (−0.0 $\sigma$ )
$c_{217}$	1.00127	$1.0011^{+0.0040}_{-0.0039}$ (−0.1 $\sigma$ )	$z_{drag}$	1059.74	$1059.73^{+0.85}_{-0.83}$ (+0.7 $\sigma$ )	$\chi_{lowl}^2$	22.92	$23.05$ ( $\nu$ : 0.4) (−0.3 $\sigma$ )
$c_{TE}$	0.9964	$0.997^{+0.013}_{-0.012}$	$r_{drag}$	147.30	$147.28^{+0.78}_{-0.78}$ (+0.1 $\sigma$ )	$\chi_{CamSpec}^2$	11499.4	$11514.3$ ( $\nu$ : 16.0) (+826.6 $\sigma$ )
$c_{EE}$	0.9921	$0.992^{+0.013}_{-0.013}$	$k_D$	0.14060	$0.14060^{+0.00089}_{-0.00088}$ (+0.2 $\sigma$ )	$\chi_{JLA}^2$	1034.83	$1035.9$ ( $\nu$ : 1.2) (−0.0 $\sigma$ )
$H_0$	68.22	$68.2^{+2.2}_{-2.1}$ (+0.0 $\sigma$ )	$100\theta_D$	0.160868	$0.16087^{+0.00049}_{-0.00050}$ (−0.8 $\sigma$ )	$\chi_{6DF}^2$	0.001	$0.055$ ( $\nu$ : 0.0) (−0.0 $\sigma$ )
$\Omega_\Lambda$	0.6939	$0.693^{+0.020}_{-0.020}$ (+0.2 $\sigma$ )	$z_{eq}$	3389	$3391^{+76}_{-76}$ (−0.4 $\sigma$ )	$\chi_{MGS}^2$	1.82	$1.91$ ( $\nu$ : 0.2) (−0.0 $\sigma$ )
$\Omega_m$	0.3061	$0.307^{+0.020}_{-0.020}$ (−0.2 $\sigma$ )	$k_{eq}$	0.010343	$0.01035^{+0.00023}_{-0.00023}$ (−0.4 $\sigma$ )	$\chi_{DR12BAO}^2$	3.77	$4.7$ ( $\nu$ : 0.8) (−0.2 $\sigma$ )
$\Omega_m h^2$	0.14246	$0.1425^{+0.0032}_{-0.0032}$ (−0.4 $\sigma$ )	$100\theta_{eq}$	0.8155	$0.815^{+0.015}_{-0.014}$ (+0.4 $\sigma$ )	$\chi_{prior}^2$	2.2	$7.8$ ( $\nu$ : 5.9) (+0.1 $\sigma$ )
$\Omega_m h^3$	0.09718	$0.0972^{+0.0039}_{-0.0039}$ (−0.2 $\sigma$ )	$100\theta_{s,eq}$	0.4506	$0.4504^{+0.0075}_{-0.0072}$ (+0.4 $\sigma$ )	$\chi_{BAO}^2$	5.59	$6.6$ ( $\nu$ : 1.1) (−0.2 $\sigma$ )
$\sigma_8$	0.8155	$0.816^{+0.036}_{-0.037}$ (−0.4 $\sigma$ )	$H(0.15)$	73.60	$73.6^{+1.9}_{-1.8}$ (−0.1 $\sigma$ )	$\chi_{CMB}^2$	11918.0	$11934.2$ ( $\nu$ : 16.6) (+824.6 $\sigma$ )

Best-fit  $\chi_{eff}^2 = 12960.67$ ;  $\Delta\chi_{eff}^2 = 4447.70$ ;  $\bar{\chi}_{eff}^2 = 12984.58$ ;  $\Delta\bar{\chi}_{eff}^2 = 4451.15$ ;  $R - 1 = 0.00938$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.00 ( $\Delta$  0.00) MGS: 1.82 ( $\Delta$  0.07) DR12BAO: 3.77 ( $\Delta$  -0.21) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.76 ( $\Delta$  -1.55) commander\_dx12\_v3\_2\_29: 22.92 ( $\Delta$  -0.45) CamSpec like\_10.7HM\_1400\_unified: 11499.35 SN - JLA Pantheon18: 1034.83 ( $\Delta$  0.08)



19.30 base\_w\_wa\_CamSpecHM\_TTTEE\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02229^{+0.00039}_{-0.00037} \quad (+0.7\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.016}_{-0.016} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1515^{+34}_{-33} \quad (-0.0\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1196^{+0.0028}_{-0.0027} \quad (-0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.019}_{-0.019} \quad (-0.4\sigma)$	$H(0.51)$	$90.0^{+1.3}_{-1.3} \quad (+0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04087^{+0.00080}_{-0.00078} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.028}_{-0.028} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1965^{+40}_{-39} \quad (-0.1\sigma)$
$\tau$	$0.053^{+0.020}_{-0.020} \quad (+0.1\sigma)$	$r_{\mathrm{drag}} h$	$100.5^{+3.3}_{-3.1} \quad (+0.0\sigma)$	$H(0.61)$	$95.5^{+1.1}_{-1.1} \quad (+0.3\sigma)$
$w_0$	$-0.96^{+0.21}_{-0.20} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.444^{+0.061}_{-0.062} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	$2288^{+44}_{-43} \quad (-0.1\sigma)$
$w_{\mathrm{a}}$	$-0.25^{+0.70}_{-0.86} \quad (+0.2\sigma)$	$z_{\mathrm{re}}$	$7.5^{+1.9}_{-2.2} \quad (+0.1\sigma)$	$H(2.33)$	$235.1^{+2.5}_{-2.4} \quad (+0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.039^{+0.039}_{-0.039} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.088^{+0.083}_{-0.081} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5758^{+28}_{-28} \quad (-0.4\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010} \quad (+0.3\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.028}_{-0.027} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.018}_{-0.017} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0069}_{-0.0065} \quad (+0.0\sigma)$	$D_{40}$	$1226^{+30}_{-29} \quad (-0.1\sigma)$	$\sigma_8(0.15)$	$0.756^{+0.028}_{-0.028} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-60} \quad (-0.1\sigma)$	$D_{220}$	$5720^{+100}_{-98} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.021}_{-0.021} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2535^{+35}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.671^{+0.025}_{-0.025} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.478^{+0.023}_{-0.022} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{2000}$	$230.2^{+4.1}_{-4.2} \quad (+0.4\sigma)$	$\sigma_8(0.51)$	$0.628^{+0.023}_{-0.023} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.64 \quad (+0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.010} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.474^{+0.023}_{-0.022} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.32} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24536^{+0.00015}_{-0.00016} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.597^{+0.022}_{-0.022} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00015}_{-0.00016} \quad (+0.7\sigma)$	$f\sigma_8(2.33)$	$0.302^{+0.011}_{-0.012} \quad (-0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.600^{+0.071}_{-0.071} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.3093^{+0.0093}_{-0.0093} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.770^{+0.081}_{-0.077} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.50} \quad (+0.0\sigma)$	$z_*$	$1089.98^{+0.62}_{-0.63} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$106.9^{+5.0}_{-4.9} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.45} \quad (-0.1\sigma)$	$r_*$	$144.59^{+0.65}_{-0.65} \quad (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26} \quad (+0.1\sigma)$	$100\theta_*$	$1.04106^{+0.00079}_{-0.00076} \quad (-0.0\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.19 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.42} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.888^{+0.062}_{-0.061} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$396.8 \quad (\nu: 1.1) \quad (-0.0\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.73^{+0.81}_{-0.83} \quad (+0.7\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.10 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0038} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}$	$147.28^{+0.69}_{-0.68} \quad (-0.1\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.9 \quad (\nu: 15.0) \quad (+852.8\sigma)$
$c_{TE}$	$0.997^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14061^{+0.00081}_{-0.00083} \quad (+0.3\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.9 \quad (\nu: 1.2) \quad (+0.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16087^{+0.00049}_{-0.00050} \quad (-0.7\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.055 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$H_0$	$68.2^{+2.2}_{-2.1} \quad (+0.0\sigma)$	$z_{\mathrm{eq}}$	$3391^{+64}_{-62} \quad (-0.3\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.93 \quad (\nu: 0.2) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.020}_{-0.020} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01035^{+0.00020}_{-0.00019} \quad (-0.3\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.020}_{-0.020} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.012}_{-0.012} \quad (+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.7) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1426^{+0.0027}_{-0.0026} \quad (-0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4503^{+0.0061}_{-0.0060} \quad (+0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11942.9 \quad (\nu: 16.5) \quad (+815.9\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0973^{+0.0036}_{-0.0036} \quad (-0.1\sigma)$	$H(0.15)$	$73.7^{+1.8}_{-1.8} \quad (+0.0\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.6 \quad (\nu: 1.1) \quad (-0.1\sigma)$
$\sigma_8$	$0.817^{+0.029}_{-0.029} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$635^{+16}_{-16} \quad (-0.0\sigma)$		
$S_8$	$0.826^{+0.029}_{-0.028} \quad (-0.4\sigma)$	$H(0.38)$	$83.5^{+1.6}_{-1.6} \quad (+0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12993.26; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.06; R - 1 = 0.00901$$



19.31 base\_w\_wa\_CamSpecHM\_TTTEE\_lowl\_lowE\_BAO\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02230^{+0.00040}_{-0.00038} \quad (+0.8\sigma)$	$S_8$	$0.826^{+0.037}_{-0.038} \quad (-0.5\sigma)$	$D_M(0.15)$	$635^{+17}_{-17} \quad (+0.0\sigma)$
$\Omega_c h^2$	$0.1195^{+0.0033}_{-0.0033} \quad (-0.4\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.452^{+0.021}_{-0.021} \quad (-0.5\sigma)$	$H(0.38)$	$83.5^{+1.6}_{-1.6} \quad (+0.1\sigma)$
$100\theta_{MC}$	$1.04089^{+0.00081}_{-0.00080} \quad (+0.0\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.608^{+0.025}_{-0.025} \quad (-0.5\sigma)$	$D_M(0.38)$	$1516^{+35}_{-34} \quad (+0.0\sigma)$
$\tau$	$0.054^{+0.018}_{-0.012} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.990^{+0.036}_{-0.037} \quad (-0.5\sigma)$	$H(0.51)$	$90.0^{+1.3}_{-1.4} \quad (+0.2\sigma)$
$w_0$	$-0.97^{+0.21}_{-0.20} \quad (-0.1\sigma)$	$r_{\text{drag}} h$	$100.5^{+3.3}_{-3.1} \quad (+0.0\sigma)$	$D_M(0.51)$	$1966^{+41}_{-40} \quad (-0.0\sigma)$
$w_a$	$-0.23^{+0.72}_{-0.91} \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.445^{+0.082}_{-0.084} \quad (-0.4\sigma)$	$H(0.61)$	$95.5^{+1.1}_{-1.1} \quad (+0.3\sigma)$
$\ln(10^{10} A_s)$	$3.041^{+0.041}_{-0.029} \quad (-0.1\sigma)$	$z_{\text{re}}$	$< 9.31 \quad (-0.0\sigma)$	$D_M(0.61)$	$2289^{+45}_{-43} \quad (-0.0\sigma)$
$n_s$	$0.966^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$10^9 A_s$	$2.093^{+0.088}_{-0.060} \quad (-0.1\sigma)$	$H(2.33)$	$235.2^{+2.5}_{-2.4} \quad (+0.0\sigma)$
$y_{\text{cal}}$	$1.0005^{+0.0067}_{-0.0065} \quad (+0.0\sigma)$	$10^9 A_s e^{-2\tau}$	$1.878^{+0.029}_{-0.029} \quad (-0.2\sigma)$	$D_M(2.33)$	$5759^{+29}_{-28} \quad (-0.5\sigma)$
$A_{100}^{\text{PS}}$	$240^{+60}_{-60} \quad (-0.1\sigma)$	$D_{40}$	$1225^{+32}_{-31} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.022}_{-0.022} \quad (-0.4\sigma)$
$A_{143}^{\text{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5718^{+100}_{-99} \quad (+0.4\sigma)$	$\sigma_8(0.15)$	$0.756^{+0.033}_{-0.034} \quad (-0.4\sigma)$
$A_{217}^{\text{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$D_{810}$	$2535^{+35}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.026}_{-0.025} \quad (-0.4\sigma)$
$A_{217}^{\text{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$\sigma_8(0.38)$	$0.671^{+0.030}_{-0.030} \quad (-0.4\sigma)$
$A_{143}^{\text{tSZ}}$	$< 8.73 \quad (+0.0\sigma)$	$D_{2000}$	$230.3^{+4.2}_{-4.1} \quad (+0.4\sigma)$	$f\sigma_8(0.51)$	$0.478^{+0.027}_{-0.027} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\text{PS}}$	$0.66^{+0.31}_{-0.32} \quad (+0.1\sigma)$	$n_{s,0.002}$	$0.966^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$\sigma_8(0.51)$	$0.628^{+0.027}_{-0.028} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\text{CIB}}$	—	$Y_P$	$0.24536^{+0.00015}_{-0.00017} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.474^{+0.027}_{-0.027} \quad (-0.4\sigma)$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_P^{\text{BBN}}$	$0.24669^{+0.00015}_{-0.00017} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.597^{+0.026}_{-0.027} \quad (-0.4\sigma)$
$A^{\text{kSZ}}$	—	$10^5 D/H$	$2.599^{+0.073}_{-0.072} \quad (-0.8\sigma)$	$f\sigma_8(2.33)$	$0.302^{+0.013}_{-0.015} \quad (-0.4\sigma)$
$A_{100}^{\text{dust}}$	$1.01^{+0.50}_{-0.50} \quad (+0.0\sigma)$	$\text{Age/Gyr}$	$13.772^{+0.087}_{-0.078} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.309^{+0.011}_{-0.011} \quad (-0.3\sigma)$
$A_{143}^{\text{dust}}$	$0.96^{+0.46}_{-0.45} \quad (-0.1\sigma)$	$z_*$	$1089.97^{+0.67}_{-0.69} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.27} \quad (+0.1\sigma)$	$r_*$	$144.60^{+0.77}_{-0.76} \quad (+0.2\sigma)$	$f_{2000}^{217}$	$106.8^{+5.0}_{-4.9} \quad (-0.3\sigma)$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.41}_{-0.41} \quad (-0.0\sigma)$	$100\theta_*$	$1.04108^{+0.00080}_{-0.00079} \quad (+0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.890^{+0.072}_{-0.070} \quad (+0.2\sigma)$	$\chi_{\text{small}}^2$	$396.7 \quad (\nu: 1.2) \quad (-0.0\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040} \quad (-0.1\sigma)$	$z_{\text{drag}}$	$1059.74^{+0.84}_{-0.83} \quad (+0.7\sigma)$	$\chi_{\text{lowl}}^2$	$23.06 \quad (\nu: 0.4) \quad (-0.3\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.012}$	$r_{\text{drag}}$	$147.29^{+0.78}_{-0.76} \quad (+0.1\sigma)$	$\chi_{\text{CamSpec}}^2$	$11514.2 \quad (\nu: 15.9) \quad (+826.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$k_D$	$0.14060^{+0.00088}_{-0.00088} \quad (+0.2\sigma)$	$\chi_{\text{JLA}}^2$	$1035.9 \quad (\nu: 1.2) \quad (-0.0\sigma)$
$H_0$	$68.2^{+2.2}_{-2.1} \quad (+0.0\sigma)$	$100\theta_D$	$0.16087^{+0.00049}_{-0.00049} \quad (-0.8\sigma)$	$\chi_{6\text{DF}}^2$	$0.055 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$\Omega_\Lambda$	$0.694^{+0.020}_{-0.020} \quad (+0.2\sigma)$	$z_{\text{eq}}$	$3390^{+75}_{-75} \quad (-0.4\sigma)$	$\chi_{\text{MGS}}^2$	$1.90 \quad (\nu: 0.2) \quad (-0.0\sigma)$
$\Omega_m$	$0.306^{+0.020}_{-0.020} \quad (-0.2\sigma)$	$k_{\text{eq}}$	$0.01035^{+0.00023}_{-0.00023} \quad (-0.4\sigma)$	$\chi_{\text{DR12BAO}}^2$	$4.7 \quad (\nu: 0.7) \quad (-0.2\sigma)$
$\Omega_m h^2$	$0.1425^{+0.0031}_{-0.0032} \quad (-0.4\sigma)$	$100\theta_{\text{eq}}$	$0.815^{+0.014}_{-0.014} \quad (+0.4\sigma)$	$\chi_{\text{prior}}^2$	$7.8 \quad (\nu: 5.9) \quad (+0.1\sigma)$
$\Omega_m h^3$	$0.0972^{+0.0039}_{-0.0039} \quad (-0.2\sigma)$	$100\theta_{s,\text{eq}}$	$0.4505^{+0.0074}_{-0.0071} \quad (+0.4\sigma)$	$\chi_{\text{BAO}}^2$	$6.6 \quad (\nu: 1.1) \quad (-0.2\sigma)$
$\sigma_8$	$0.817^{+0.035}_{-0.037} \quad (-0.4\sigma)$	$H(0.15)$	$73.6^{+1.9}_{-1.8} \quad (-0.1\sigma)$	$\chi_{\text{CMB}}^2$	$11933.9 \quad (\nu: 16.1) \quad (+832.4\sigma)$

$$\bar{\chi}_{\text{eff}}^2 = 12984.26; \Delta\bar{\chi}_{\text{eff}}^2 = 4451.14; R - 1 = 0.00880$$



**19.32**    **base\_w\_wa\_CamSpecHM\_TTTEE\_lowl\_lowE\_BAO\_Pantheon18\_post\_lensing\_zre6p5**

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02230^{+0.00039}_{-0.00037} \quad (+0.7\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.016}_{-0.016} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1516^{+34}_{-33} \quad (-0.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1195^{+0.0027}_{-0.0027} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.019}_{-0.019} \quad (-0.4\sigma)$	$H(0.51)$	$90.0^{+1.3}_{-1.3} \quad (+0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04088^{+0.00080}_{-0.00077} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.028} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1965^{+40}_{-39} \quad (-0.0\sigma)$
$\tau$	$0.054^{+0.017}_{-0.012} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}h$	$100.5^{+3.3}_{-3.1} \quad (+0.0\sigma)$	$H(0.61)$	$95.5^{+1.1}_{-1.1} \quad (+0.3\sigma)$
$w_0$	$-0.97^{+0.21}_{-0.20} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.446^{+0.060}_{-0.061} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	$2289^{+44}_{-43} \quad (-0.1\sigma)$
$w_{\mathrm{a}}$	$-0.24^{+0.69}_{-0.86} \quad (+0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.25 \quad (+0.0\sigma)$	$H(2.33)$	$235.1^{+2.5}_{-2.4} \quad (+0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.037}_{-0.027} \quad (+0.0\sigma)$	$10^9A_{\mathrm{s}}$	$2.093^{+0.079}_{-0.056} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5758^{+28}_{-28} \quad (-0.4\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010} \quad (+0.3\sigma)$	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.027}_{-0.027} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.018}_{-0.017} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0068}_{-0.0065} \quad (+0.0\sigma)$	$D_{40}$	$1226^{+30}_{-29} \quad (-0.1\sigma)$	$\sigma_8(0.15)$	$0.756^{+0.028}_{-0.028} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-60} \quad (-0.1\sigma)$	$D_{220}$	$5719^{+100}_{-99} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.021}_{-0.021} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2535^{+34}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.671^{+0.025}_{-0.025} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{1420}$	$816^{+12}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.478^{+0.022}_{-0.022} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{2000}$	$230.3^{+4.1}_{-4.2} \quad (+0.4\sigma)$	$\sigma_8(0.51)$	$0.628^{+0.023}_{-0.023} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.64 \quad (+0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.010} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.474^{+0.023}_{-0.022} \quad (-0.3\sigma)$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.32} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24537^{+0.00015}_{-0.00016} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.598^{+0.022}_{-0.022} \quad (-0.3\sigma)$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24669^{+0.00015}_{-0.00016} \quad (+0.7\sigma)$	$f\sigma_8(2.33)$	$0.302^{+0.011}_{-0.012} \quad (-0.3\sigma)$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.599^{+0.071}_{-0.070} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.3096^{+0.0091}_{-0.0091} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.770^{+0.081}_{-0.077} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.49} \quad (+0.0\sigma)$	$z_*$	$1089.97^{+0.61}_{-0.62} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$106.9^{+5.0}_{-4.8} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.45} \quad (-0.1\sigma)$	$r_*$	$144.60^{+0.64}_{-0.64} \quad (+0.0\sigma)$	$f_{2000}^{143\times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27} \quad (+0.0\sigma)$	$100\theta_*$	$1.04107^{+0.00079}_{-0.00076} \quad (-0.0\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.16 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$A_{143\times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.43} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.890^{+0.061}_{-0.061} \quad (+0.0\sigma)$	$\chi_{\mathrm{small}}^2$	$396.7 \quad (\nu: 1.1) \quad (-0.0\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.74^{+0.80}_{-0.84} \quad (+0.7\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.09 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0038} \quad (-0.1\sigma)$	$r_{\mathrm{drag}}$	$147.29^{+0.68}_{-0.67} \quad (-0.1\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.8 \quad (\nu: 14.9) \quad (+855.1\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14060^{+0.00082}_{-0.00082} \quad (+0.3\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1035.9 \quad (\nu: 1.2) \quad (+0.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16086^{+0.00049}_{-0.00049} \quad (-0.7\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.055 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$H_0$	$68.2^{+2.2}_{-2.1} \quad (+0.0\sigma)$	$z_{\mathrm{eq}}$	$3390^{+62}_{-61} \quad (-0.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.93 \quad (\nu: 0.2) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.020}_{-0.020} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01035^{+0.00019}_{-0.00019} \quad (-0.2\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.020}_{-0.020} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.012}_{-0.011} \quad (+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.7) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0026}_{-0.0026} \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4505^{+0.0060}_{-0.0059} \quad (+0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11942.7 \quad (\nu: 16.1) \quad (+827.7\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.0972^{+0.0036}_{-0.0035} \quad (-0.1\sigma)$	$H(0.15)$	$73.6^{+1.8}_{-1.8} \quad (+0.0\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.6 \quad (\nu: 1.1) \quad (-0.1\sigma)$
$\sigma_8$	$0.818^{+0.029}_{-0.029} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$635^{+16}_{-17} \quad (-0.0\sigma)$		
$S_8$	$0.826^{+0.029}_{-0.028} \quad (-0.4\sigma)$	$H(0.38)$	$83.5^{+1.6}_{-1.6} \quad (+0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12993.01; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4451.15; R - 1 = 0.00841$$



### 19.33 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02216^{+0.00053}_{-0.00052}$	$\sigma_8/h^{0.5}$	1.0046	$1.004^{+0.048}_{-0.048}$	$H(0.51)$	89.93	$89.9^{+1.3}_{-1.3}$
$\Omega_c h^2$	0.12056	$0.1207^{+0.0046}_{-0.0047}$	$r_{\text{drag}} h$	102.01	$101.9^{+3.0}_{-2.9}$	$D_M(0.51)$	1952.1	$1953^{+40}_{-40}$
$100\theta_{\text{MC}}$	1.04082	$1.0408^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	2.471	$2.47^{+0.10}_{-0.11}$	$H(0.61)$	95.22	$95.2^{+1.2}_{-1.1}$
$\tau$	0.0525	$0.052^{+0.022}_{-0.021}$	$z_{\text{re}}$	7.52	$7.5^{+2.1}_{-2.4}$	$D_M(0.61)$	2276.1	$2277^{+43}_{-43}$
$w_0$	-0.997	$-0.99^{+0.24}_{-0.21}$	$10^9 A_s$	2.094	$2.092^{+0.095}_{-0.092}$	$H(2.33)$	234.69	$234.8^{+2.4}_{-2.4}$
$w_a$	-0.32	$-0.37^{+0.83}_{-1.2}$	$10^9 A_s e^{-2\tau}$	1.8854	$1.885^{+0.033}_{-0.033}$	$D_M(2.33)$	5759.2	$5762^{+32}_{-33}$
$\ln(10^{10} A_s)$	3.0417	$3.041^{+0.045}_{-0.045}$	$D_{40}$	1230.5	$1233^{+36}_{-36}$	$f\sigma_8(0.15)$	0.4649	$0.465^{+0.029}_{-0.029}$
$n_s$	0.9639	$0.963^{+0.014}_{-0.013}$	$D_{220}$	5716	$5716^{+100}_{-100}$	$\sigma_8(0.15)$	0.7741	$0.774^{+0.041}_{-0.041}$
$y_{\text{cal}}$	1.0006	$1.0004^{+0.0064}_{-0.0063}$	$D_{810}$	2538.8	$2537^{+36}_{-35}$	$f\sigma_8(0.38)$	0.4903	$0.490^{+0.033}_{-0.033}$
$A_{217}^{\text{CIB}}$	49.1	$48^{+20}_{-20}$	$D_{1420}$	815.9	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6869	$0.686^{+0.036}_{-0.036}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.24	—	$D_{2000}$	230.28	$229.8^{+4.6}_{-4.5}$	$f\sigma_8(0.51)$	0.4919	$0.492^{+0.035}_{-0.034}$
$A_{143}^{\text{tSZ}}$	7.1	—	$n_{\text{s},0.002}$	0.9639	$0.963^{+0.014}_{-0.013}$	$\sigma_8(0.51)$	0.6428	$0.642^{+0.033}_{-0.033}$
$A_{100}^{\text{PS}}$	254	$262^{+70}_{-70}$	$Y_{\text{P}}$	0.245318	$0.24530^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	0.4884	$0.489^{+0.036}_{-0.034}$
$A_{143}^{\text{PS}}$	47.5	$49^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.246644	$0.24663^{+0.00021}_{-0.00025}$	$\sigma_8(0.61)$	0.6115	$0.611^{+0.031}_{-0.031}$
$A_{143 \times 217}^{\text{PS}}$	44.6	$43^{+20}_{-20}$	$10^5 \text{D/H}$	2.622	$2.63^{+0.10}_{-0.098}$	$f\sigma_8(2.33)$	0.3089	$0.309^{+0.015}_{-0.016}$
$A_{217}^{\text{PS}}$	118.2	$115^{+30}_{-30}$	Age/Gyr	13.751	$13.754^{+0.089}_{-0.084}$	$\sigma_8(2.33)$	0.3151	$0.315^{+0.012}_{-0.012}$
$A^{\text{kSZ}}$	0.0	—	$z_*$	1090.21	$1090.25^{+0.92}_{-0.93}$	$f_{2000}^{143}$	30.1	$31^{+7}_{-7}$
$A_{100}^{\text{dustTT}}$	8.87	$8.9^{+4.7}_{-4.7}$	$r_*$	144.43	$144.4^{+1.1}_{-1.1}$	$f_{2000}^{143 \times 217}$	33.0	$33^{+5}_{-5}$
$A_{143}^{\text{dustTT}}$	10.74	$10.7^{+4.6}_{-4.5}$	$100\theta_*$	1.04103	$1.0410^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	107.56	$107.9^{+4.8}_{-4.8}$
$A_{143 \times 217}^{\text{dustTT}}$	19.3	$18.2^{+8.5}_{-8.6}$	$D_M(z_*)/\text{Gpc}$	13.874	$13.87^{+0.11}_{-0.10}$	$\chi_{\text{small}}^2$	395.86	$396.9 (\nu: 1.4)$
$A_{217}^{\text{dustTT}}$	94.5	$93^{+20}_{-20}$	$z_{\text{drag}}$	1059.55	$1059.5^{+1.1}_{-1.1}$	$\chi_{\text{lowl}}^2$	23.38	$23.7 (\nu: 0.6)$
$c_{100}$	0.99967	$0.9996^{+0.0016}_{-0.0016}$	$r_{\text{drag}}$	147.15	$147.2^{+1.2}_{-1.1}$	$\chi_{\text{plik}}^2$	757.9	$770.5 (\nu: 14.2)$
$c_{217}$	0.99827	$0.9983^{+0.0016}_{-0.0016}$	$k_{\text{D}}$	0.14065	$0.1406^{+0.0013}_{-0.0013}$	$\chi_{\text{H073p45}}^2$	6.2	$6.6 (\nu: 2.8)$
$H_0$	69.32	$69.3^{+2.0}_{-2.0}$	$100\theta_{\text{D}}$	0.16099	$0.16102^{+0.00065}_{-0.00065}$	$\chi_{\text{JLA}}^2$	1035.41	$1036.3 (\nu: 1.5)$
$\Omega_{\Lambda}$	0.7016	$0.701^{+0.019}_{-0.020}$	$z_{\text{eq}}$	3411	$3413^{+110}_{-110}$	$\chi_{6\text{DF}}^2$	0.096	$0.14 (\nu: 0.0)$
$\Omega_{\text{m}}$	0.2984	$0.299^{+0.020}_{-0.019}$	$k_{\text{eq}}$	0.010411	$0.01042^{+0.00032}_{-0.00033}$	$\chi_{\text{MGS}}^2$	2.67	$2.71 (\nu: 0.3)$
$\Omega_{\text{m}} h^2$	0.14338	$0.1435^{+0.0044}_{-0.0046}$	$100\theta_{\text{eq}}$	0.8111	$0.811^{+0.021}_{-0.019}$	$\chi_{\text{DR12BAO}}^2$	4.61	$5.5 (\nu: 1.1)$
$\Omega_{\text{m}} h^3$	0.09939	$0.0994^{+0.0042}_{-0.0043}$	$100\theta_{\text{s,eq}}$	0.4484	$0.448^{+0.011}_{-0.0098}$	$\chi_{\text{prior}}^2$	1.4	$7.2 (\nu: 6.7)$
$\sigma_8$	0.8364	$0.836^{+0.044}_{-0.044}$	$H(0.15)$	74.34	$74.3^{+2.0}_{-1.8}$	$\chi_{\text{BAO}}^2$	7.4	$8.4 (\nu: 2.2)$
$S_8$	0.834	$0.835^{+0.051}_{-0.051}$	$D_M(0.15)$	626.8	$627^{+16}_{-16}$	$\chi_{\text{CMB}}^2$	1177.2	$1191.1 (\nu: 14.9)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4569	$0.457^{+0.028}_{-0.028}$	$H(0.38)$	83.67	$83.7^{+1.6}_{-1.6}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6182	$0.618^{+0.033}_{-0.034}$	$D_M(0.38)$	1502.6	$1503^{+34}_{-34}$			

Best-fit  $\chi_{\text{eff}}^2 = 2227.58$ ;  $\bar{\chi}_{\text{eff}}^2 = 2249.60$ ;  $R - 1 = 0.00852$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.10 MGS: 2.67 DR12BAO: 4.61 CMB - small-100x143.offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3.2.29: 23.38 plik\_rd12\_HM\_v22.TT: 757.93  
Hubble - H073p45: 6.19 SN - JLA Pantheon18: 1035.41



19.34 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02221	$0.02219^{+0.00051}_{-0.00051}$	$\sigma_8 \Omega_m^{0.25}$	0.6128	$0.613^{+0.022}_{-0.022}$	$H(0.38)$	83.61	$83.6^{+1.6}_{-1.6}$
$\Omega_c h^2$	0.12003	$0.1200^{+0.0035}_{-0.0035}$	$\sigma_8/h^{0.5}$	0.9968	$0.997^{+0.031}_{-0.031}$	$D_M(0.38)$	1504.9	$1504^{+33}_{-34}$
$100\theta_{MC}$	1.04090	$1.0409^{+0.0011}_{-0.0011}$	$r_{drag}h$	101.92	$102.0^{+3.0}_{-2.9}$	$H(0.51)$	89.93	$89.9^{+1.3}_{-1.3}$
$\tau$	0.0510	$0.052^{+0.022}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	2.455	$2.458^{+0.068}_{-0.067}$	$D_M(0.51)$	1954.5	$1954^{+39}_{-40}$
$w_0$	-1.004	$-0.998^{+0.22}_{-0.20}$	$z_{re}$	7.36	$7.4^{+2.1}_{-2.3}$	$H(0.61)$	95.27	$95.2^{+1.1}_{-1.1}$
$w_a$	-0.25	$-0.29^{+0.73}_{-0.95}$	$10^9 A_s$	2.084	$2.086^{+0.087}_{-0.083}$	$D_M(0.61)$	2278.5	$2278^{+42}_{-44}$
$\ln(10^{10} A_s)$	3.0368	$3.038^{+0.041}_{-0.040}$	$10^9 A_s e^{-2\tau}$	1.8818	$1.882^{+0.028}_{-0.029}$	$H(2.33)$	234.72	$234.6^{+2.5}_{-2.5}$
$n_s$	0.9648	$0.964^{+0.011}_{-0.011}$	$D_{40}$	1227.4	$1230^{+31}_{-31}$	$D_M(2.33)$	5758.2	$5760^{+32}_{-33}$
$y_{cal}$	1.0003	$1.0004^{+0.0066}_{-0.0065}$	$D_{220}$	5716	$5719^{+100}_{-110}$	$f\sigma_8(0.15)$	0.4608	$0.461^{+0.020}_{-0.020}$
$A_{217}^{CIB}$	49.1	$48^{+20}_{-20}$	$D_{810}$	2536.6	$2536^{+35}_{-34}$	$\sigma_8(0.15)$	0.7674	$0.768^{+0.029}_{-0.029}$
$\xi^{tSZ \times CIB}$	0.24	—	$D_{1420}$	815.5	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	0.4854	$0.486^{+0.024}_{-0.024}$
$A_{143}^{tSZ}$	7.2	—	$D_{2000}$	230.10	$229.8^{+4.4}_{-4.6}$	$\sigma_8(0.38)$	0.6811	$0.682^{+0.026}_{-0.026}$
$A_{100}^{PS}$	254	$263^{+70}_{-70}$	$n_{s,0.002}$	0.9648	$0.964^{+0.011}_{-0.011}$	$f\sigma_8(0.51)$	0.4867	$0.487^{+0.025}_{-0.024}$
$A_{143}^{PS}$	47.8	$49^{+20}_{-20}$	$Y_P$	0.245330	$0.24532^{+0.00020}_{-0.00024}$	$\sigma_8(0.51)$	0.6375	$0.638^{+0.024}_{-0.024}$
$A_{143 \times 217}^{PS}$	44.7	$43^{+20}_{-20}$	$Y_P^{BBN}$	0.246656	$0.24664^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	0.4831	$0.484^{+0.025}_{-0.024}$
$A_{217}^{PS}$	118.5	$115^{+30}_{-30}$	$10^5 D/H$	2.616	$2.620^{+0.098}_{-0.093}$	$\sigma_8(0.61)$	0.6065	$0.607^{+0.023}_{-0.023}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.755	$13.756^{+0.086}_{-0.084}$	$f\sigma_8(2.33)$	0.3064	$0.307^{+0.011}_{-0.012}$
$A_{100}^{dustTT}$	8.87	$8.9^{+4.8}_{-4.8}$	$z_*$	1090.13	$1090.15^{+0.82}_{-0.80}$	$\sigma_8(2.33)$	0.3131	$0.3133^{+0.0093}_{-0.0091}$
$A_{143}^{dustTT}$	10.78	$10.7^{+4.6}_{-4.3}$	$r_*$	144.55	$144.56^{+0.87}_{-0.84}$	$\chi_{lensing}^2$	8.75	$9.35 (\nu: 0.5)$
$A_{143 \times 217}^{dustTT}$	19.4	$18.2^{+8.4}_{-8.6}$	$100\theta_*$	1.04110	$1.0411^{+0.0011}_{-0.0011}$	$\chi_{small}^2$	395.69	$396.8 (\nu: 1.1)$
$A_{217}^{dustTT}$	94.5	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.884	$13.886^{+0.081}_{-0.081}$	$\chi_{lowl}^2$	23.16	$23.41 (\nu: 0.4)$
$c_{100}$	0.99964	$0.9996^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.55	$1059.5^{+1.1}_{-1.1}$	$\chi_{plik}^2$	758.5	$770.6 (\nu: 13.4)$
$c_{217}$	0.99826	$0.9983^{+0.0016}_{-0.0016}$	$r_{drag}$	147.26	$147.29^{+0.90}_{-0.89}$	$\chi_{H073p45}^2$	6.5	$6.6 (\nu: 2.8)$
$H_0$	69.21	$69.2^{+2.0}_{-1.9}$	$k_D$	0.14056	$0.1405^{+0.0011}_{-0.0011}$	$\chi_{JLA}^2$	1035.26	$1036.2 (\nu: 1.5)$
$\Omega_\Lambda$	0.7017	$0.702^{+0.018}_{-0.019}$	$100\theta_D$	0.16098	$0.16100^{+0.00064}_{-0.00065}$	$\chi_{6DF}^2$	0.081	$0.14 (\nu: 0.0)$
$\Omega_m$	0.2983	$0.298^{+0.019}_{-0.018}$	$z_{eq}$	3399	$3399^{+80}_{-80}$	$\chi_{MGS}^2$	2.59	$2.72 (\nu: 0.3)$
$\Omega_m h^2$	0.14289	$0.1429^{+0.0033}_{-0.0034}$	$k_{eq}$	0.010375	$0.01037^{+0.00024}_{-0.00024}$	$\chi_{DR12BAO}^2$	4.37	$5.3 (\nu: 1.0)$
$\Omega_m h^3$	0.09889	$0.0989^{+0.0037}_{-0.0038}$	$100\theta_{eq}$	0.8134	$0.813^{+0.015}_{-0.015}$	$\chi_{prior}^2$	1.5	$7.2 (\nu: 6.8)$
$\sigma_8$	0.8292	$0.830^{+0.031}_{-0.031}$	$100\theta_{s,eq}$	0.4495	$0.4496^{+0.0079}_{-0.0075}$	$\chi_{CMB}^2$	1186.1	$1200.1 (\nu: 14.6)$
$S_8$	0.8269	$0.827^{+0.034}_{-0.033}$	$H(0.15)$	74.21	$74.3^{+1.9}_{-1.7}$	$\chi_{BAO}^2$	7.0	$8.2 (\nu: 2.2)$
$\sigma_8 \Omega_m^{0.5}$	0.4529	$0.453^{+0.018}_{-0.018}$	$D_M(0.15)$	627.9	$628^{+16}_{-16}$			

Best-fit  $\chi_{eff}^2 = 2236.45$ ;  $\bar{\chi}_{eff}^2 = 2258.39$ ;  $R - 1 = 0.00927$

$\chi_{eff}^2$ : BAO - 6DF: 0.08 MGS: 2.59 DR12BAO: 4.37 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.75 small\_100x143.offlike5\_EE\_Aplanck\_B: 395.69 commander\_dx12.v3.2.29: 23.16 plik\_rd12\_HM.v22\_TT: 758.52 Hubble - H073p45: 6.52 SN - JLA Pantheon18: 1035.26



19.35 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02216^{+0.00053}_{-0.00052}$	$\sigma_8/h^{0.5}$	$1.006^{+0.048}_{-0.048}$	$H(0.51)$	$89.9^{+1.3}_{-1.3}$
$\Omega_{\mathrm{c}}h^2$	$0.1206^{+0.0046}_{-0.0047}$	$r_{\mathrm{drag}}h$	$101.9^{+3.0}_{-3.0}$	$D_{\mathrm{M}}(0.51)$	$1953^{+40}_{-41}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0011}_{-0.0012}$	$\langle d^2 \rangle^{1/2}$	$2.48^{+0.10}_{-0.11}$	$H(0.61)$	$95.2^{+1.2}_{-1.1}$
$\tau$	$0.054^{+0.019}_{-0.012}$	$z_{\mathrm{re}}$	$< 9.43$	$D_{\mathrm{M}}(0.61)$	$2277^{+43}_{-44}$
$w_0$	$-0.99^{+0.24}_{-0.20}$	$10^9 A_{\mathrm{s}}$	$2.099^{+0.090}_{-0.061}$	$H(2.33)$	$234.8^{+2.4}_{-2.4}$
$w_{\mathrm{a}}$	$-0.37^{+0.82}_{-1.2}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.885^{+0.034}_{-0.033}$	$D_{\mathrm{M}}(2.33)$	$5761^{+32}_{-33}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.042}_{-0.029}$	$D_{40}$	$1233^{+36}_{-36}$	$f\sigma_8(0.15)$	$0.465^{+0.029}_{-0.028}$
$n_{\mathrm{s}}$	$0.963^{+0.014}_{-0.013}$	$D_{220}$	$5716^{+100}_{-110}$	$\sigma_8(0.15)$	$0.774^{+0.040}_{-0.040}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0066}_{-0.0062}$	$D_{810}$	$2537^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.491^{+0.033}_{-0.032}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.687^{+0.036}_{-0.035}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{2000}$	$229.8^{+4.7}_{-4.5}$	$f\sigma_8(0.51)$	$0.492^{+0.035}_{-0.033}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.963^{+0.014}_{-0.013}$	$\sigma_8(0.51)$	$0.643^{+0.033}_{-0.032}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.24531^{+0.00021}_{-0.00025}$	$f\sigma_8(0.61)$	$0.489^{+0.036}_{-0.034}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24663^{+0.00021}_{-0.00025}$	$\sigma_8(0.61)$	$0.612^{+0.031}_{-0.030}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.63^{+0.10}_{-0.098}$	$f\sigma_8(2.33)$	$0.309^{+0.015}_{-0.016}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$\mathrm{Age}/\mathrm{Gyr}$	$13.754^{+0.090}_{-0.084}$	$\sigma_8(2.33)$	$0.315^{+0.012}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.24^{+0.92}_{-0.93}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.7}$	$r_*$	$144.4^{+1.1}_{-1.0}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.5}$	$100\theta_*$	$1.0410^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.9^{+4.8}_{-4.9}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.5}_{-8.6}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.87^{+0.11}_{-0.099}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.4)$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\mathrm{lowl}}^2$	$23.7 (\nu: 0.6)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.2^{+1.1}_{-1.1}$	$\chi_{\mathrm{plik}}^2$	$770.3 (\nu: 14.2)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1406^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{H073p45}}^2$	$6.6 (\nu: 2.8)$
$H_0$	$69.3^{+2.0}_{-2.0}$	$100\theta_{\mathrm{D}}$	$0.16102^{+0.00066}_{-0.00065}$	$\chi_{\mathrm{JLA}}^2$	$1036.3 (\nu: 1.5)$
$\Omega_{\Lambda}$	$0.701^{+0.018}_{-0.020}$	$z_{\mathrm{eq}}$	$3412^{+110}_{-110}$	$\chi_{6\mathrm{DF}}^2$	$0.14 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.299^{+0.020}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01041^{+0.00032}_{-0.00033}$	$\chi_{\mathrm{MGS}}^2$	$2.71 (\nu: 0.3)$
$\Omega_{\mathrm{m}}h^2$	$0.1434^{+0.0045}_{-0.0045}$	$100\theta_{\mathrm{eq}}$	$0.811^{+0.020}_{-0.019}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.5 (\nu: 1.1)$
$\Omega_{\mathrm{m}}h^3$	$0.0993^{+0.0043}_{-0.0043}$	$100\theta_{\mathrm{s,eq}}$	$0.448^{+0.011}_{-0.0098}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.7)$
$\sigma_8$	$0.837^{+0.043}_{-0.044}$	$H(0.15)$	$74.3^{+2.0}_{-1.8}$	$\chi_{\mathrm{BAO}}^2$	$8.3 (\nu: 2.3)$
$S_8$	$0.835^{+0.051}_{-0.051}$	$D_{\mathrm{M}}(0.15)$	$627^{+16}_{-16}$	$\chi_{\mathrm{CMB}}^2$	$1190.8 (\nu: 14.6)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.458^{+0.028}_{-0.028}$	$H(0.38)$	$83.7^{+1.7}_{-1.6}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.619^{+0.034}_{-0.034}$	$D_{\mathrm{M}}(0.38)$	$1503^{+34}_{-35}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2249.33; R - 1 = 0.01064$$



19.36 base\_w\_wa\_plikHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02220^{+0.00052}_{-0.00051}$	$\sigma_8/h^{0.5}$	$0.998^{+0.031}_{-0.031}$	$H(0.51)$	$89.9^{+1.3}_{-1.3}$
$\Omega_{\mathrm{c}}h^2$	$0.1199^{+0.0033}_{-0.0034}$	$r_{\mathrm{drag}}h$	$102.0^{+2.9}_{-2.9}$	$D_{\mathrm{M}}(0.51)$	$1954^{+39}_{-41}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.459^{+0.068}_{-0.067}$	$H(0.61)$	$95.2^{+1.1}_{-1.1}$
$\tau$	$0.053^{+0.018}_{-0.012}$	$z_{\mathrm{re}}$	$< 9.29$	$D_{\mathrm{M}}(0.61)$	$2278^{+42}_{-44}$
$w_0$	$-1.00^{+0.22}_{-0.20}$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.083}_{-0.053}$	$H(2.33)$	$234.6^{+2.5}_{-2.5}$
$w_a$	$-0.27^{+0.72}_{-0.94}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.881^{+0.028}_{-0.029}$	$D_{\mathrm{M}}(2.33)$	$5759^{+32}_{-33}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.039}_{-0.026}$	$D_{40}$	$1229^{+31}_{-31}$	$f\sigma_8(0.15)$	$0.461^{+0.020}_{-0.020}$
$n_{\mathrm{s}}$	$0.964^{+0.011}_{-0.011}$	$D_{220}$	$5718^{+100}_{-110}$	$\sigma_8(0.15)$	$0.768^{+0.029}_{-0.029}$
$y_{\mathrm{cal}}$	$1.0003^{+0.0067}_{-0.0065}$	$D_{810}$	$2535^{+35}_{-34}$	$f\sigma_8(0.38)$	$0.486^{+0.024}_{-0.024}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.682^{+0.026}_{-0.026}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{2000}$	$229.8^{+4.4}_{-4.6}$	$f\sigma_8(0.51)$	$0.487^{+0.025}_{-0.024}$
$A_{143}^{\mathrm{tSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.964^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.638^{+0.024}_{-0.024}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$Y_{\mathrm{P}}$	$0.24532^{+0.00020}_{-0.00024}$	$f\sigma_8(0.61)$	$0.484^{+0.025}_{-0.025}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00020}_{-0.00024}$	$\sigma_8(0.61)$	$0.607^{+0.023}_{-0.023}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$10^5 \mathrm{D}/\mathrm{H}$	$2.619^{+0.099}_{-0.094}$	$f\sigma_8(2.33)$	$0.307^{+0.011}_{-0.012}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	Age/Gyr	$13.757^{+0.086}_{-0.085}$	$\sigma_8(2.33)$	$0.3136^{+0.0092}_{-0.0090}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.13^{+0.83}_{-0.81}$	$f_{2000}^{143}$	$31^{+7}_{-7}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.8}$	$r_*$	$144.59^{+0.85}_{-0.83}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.6}_{-4.3}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.9^{+4.8}_{-4.8}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.4}_{-8.5}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.889^{+0.081}_{-0.079}$	$\chi_{\mathrm{lensing}}^2$	$9.3 (\nu: 0.5)$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$396.6 (\nu: 1.1)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.31^{+0.90}_{-0.89}$	$\chi_{\mathrm{lowl}}^2$	$23.38 (\nu: 0.4)$
$c_{217}$	$0.9983^{+0.0016}_{-0.0015}$	$k_{\mathrm{D}}$	$0.1405^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{plik}}^2$	$770.5 (\nu: 13.4)$
$H_0$	$69.2^{+2.0}_{-1.9}$	$100\theta_{\mathrm{D}}$	$0.16100^{+0.00065}_{-0.00065}$	$\chi_{\mathrm{H073p45}}^2$	$6.6 (\nu: 2.8)$
$\Omega_{\Lambda}$	$0.702^{+0.017}_{-0.019}$	$z_{\mathrm{eq}}$	$3396^{+76}_{-78}$	$\chi_{\mathrm{JLA}}^2$	$1036.2 (\nu: 1.4)$
$\Omega_{\mathrm{m}}$	$0.298^{+0.019}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01036^{+0.00023}_{-0.00024}$	$\chi_{6\mathrm{DF}}^2$	$0.14 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1427^{+0.0032}_{-0.0033}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.015}_{-0.014}$	$\chi_{\mathrm{MGS}}^2$	$2.72 (\nu: 0.3)$
$\Omega_{\mathrm{m}}h^3$	$0.0988^{+0.0037}_{-0.0037}$	$100\theta_{\mathrm{s,eq}}$	$0.4499^{+0.0077}_{-0.0072}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.3 (\nu: 1.0)$
$\sigma_8$	$0.830^{+0.031}_{-0.031}$	$H(0.15)$	$74.2^{+1.9}_{-1.7}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.8)$
$S_8$	$0.827^{+0.034}_{-0.033}$	$D_{\mathrm{M}}(0.15)$	$628^{+16}_{-16}$	$\chi_{\mathrm{CMB}}^2$	$1199.9 (\nu: 14.4)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.018}_{-0.018}$	$H(0.38)$	$83.6^{+1.6}_{-1.6}$	$\chi_{\mathrm{BAO}}^2$	$8.1 (\nu: 2.2)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.613^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1504^{+32}_{-34}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2258.12; R - 1 = 0.01181$$



19.37 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022393	$0.02237^{+0.00039}_{-0.00037}$ (+1.0 $\sigma$ )	$\sigma_8$	0.8335	$0.833^{+0.034}_{-0.035}$ (−0.2 $\sigma$ )	$H(0.38)$	83.78	$83.8^{+1.6}_{-1.6}$ (+0.3 $\sigma$ )
$\Omega_c h^2$	0.12021	$0.1203^{+0.0032}_{-0.0033}$ (−0.2 $\sigma$ )	$S_8$	0.8297	$0.831^{+0.036}_{-0.037}$ (−0.2 $\sigma$ )	$D_M(0.38)$	1501.0	$1501^{+32}_{-34}$ (−0.2 $\sigma$ )
$100\theta_{MC}$	1.04092	$1.04092^{+0.00082}_{-0.00079}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.5}$	0.4545	$0.455^{+0.020}_{-0.020}$ (−0.2 $\sigma$ )	$H(0.51)$	90.08	$90.1^{+1.3}_{-1.3}$ (+0.4 $\sigma$ )
$\tau$	0.0538	$0.054^{+0.022}_{-0.020}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_m^{0.25}$	0.6155	$0.616^{+0.025}_{-0.025}$ (−0.2 $\sigma$ )	$D_M(0.51)$	1949.8	$1950^{+39}_{-40}$ (−0.2 $\sigma$ )
$w_0$	−1.003	$−0.99^{+0.21}_{-0.20}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	1.0004	$1.001^{+0.036}_{-0.037}$ (−0.2 $\sigma$ )	$H(0.61)$	95.41	$95.4^{+1.0}_{-0.98}$ (+0.5 $\sigma$ )
$w_a$	−0.26	$−0.32^{+0.75}_{-0.96}$ (+0.1 $\sigma$ )	$r_{drag}h$	102.05	$102.0^{+2.9}_{-2.8}$ (+0.0 $\sigma$ )	$D_M(0.61)$	2273.3	$2273^{+42}_{-43}$ (−0.2 $\sigma$ )
$\ln(10^{10} A_s)$	3.0444	$3.044^{+0.044}_{-0.041}$ (+0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.464	$2.466^{+0.079}_{-0.082}$ (−0.2 $\sigma$ )	$H(2.33)$	234.92	$234.9^{+2.4}_{-2.3}$ (+0.1 $\sigma$ )
$n_s$	0.9655	$0.965^{+0.011}_{-0.011}$ (+0.4 $\sigma$ )	$z_{re}$	7.61	$7.6^{+2.1}_{-2.2}$ (+0.2 $\sigma$ )	$D_M(2.33)$	5749.8	$5751^{+26}_{-25}$ (−0.8 $\sigma$ )
$y_{cal}$	1.0007	$1.0006^{+0.0062}_{-0.0063}$ (+0.1 $\sigma$ )	$10^9 A_s$	2.100	$2.100^{+0.094}_{-0.085}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4625	$0.462^{+0.021}_{-0.021}$ (−0.2 $\sigma$ )
$A_{217}^{CIB}$	47.2	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_s e^{-2\tau}$	1.8856	$1.885^{+0.029}_{-0.029}$ (−0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7715	$0.771^{+0.033}_{-0.033}$ (−0.1 $\sigma$ )
$\xi^{tSZ \times CIB}$	0.41	—	$D_{40}$	1230.0	$1231^{+32}_{-31}$ (−0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4877	$0.488^{+0.025}_{-0.025}$ (−0.2 $\sigma$ )
$A_{143}^{tSZ}$	7.22	$5.5^{+4.4}_{-4.6}$ (+0.2 $\sigma$ )	$D_{220}$	5736	$5733^{+100}_{-95}$ (+0.4 $\sigma$ )	$\sigma_8(0.38)$	0.6848	$0.685^{+0.029}_{-0.029}$ (−0.1 $\sigma$ )
$A_{100}^{PS}$	249	$258^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{810}$	2541.9	$2540^{+34}_{-34}$ (+0.2 $\sigma$ )	$f\sigma_8(0.51)$	0.4891	$0.489^{+0.027}_{-0.026}$ (−0.2 $\sigma$ )
$A_{143}^{PS}$	46.9	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{1420}$	818.4	$817^{+12}_{-12}$ (+0.5 $\sigma$ )	$\sigma_8(0.51)$	0.6409	$0.641^{+0.027}_{-0.027}$ (−0.1 $\sigma$ )
$A_{143 \times 217}^{PS}$	47.0	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{2000}$	231.40	$231.0^{+4.0}_{-4.0}$ (+0.7 $\sigma$ )	$f\sigma_8(0.61)$	0.4857	$0.486^{+0.027}_{-0.026}$ (−0.2 $\sigma$ )
$A_{217}^{PS}$	119.7	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$n_{s,0.002}$	0.9655	$0.965^{+0.011}_{-0.011}$ (+0.4 $\sigma$ )	$\sigma_8(0.61)$	0.6098	$0.610^{+0.025}_{-0.025}$ (−0.1 $\sigma$ )
$A^{kSZ}$	0.0	—	$Y_P$	0.245405	$0.24539^{+0.00014}_{-0.00015}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3081	$0.308^{+0.013}_{-0.013}$ (−0.1 $\sigma$ )
$A_{100}^{dustTT}$	8.81	$8.9^{+4.7}_{-4.6}$ (−0.0 $\sigma$ )	$Y_P^{BBN}$	0.246731	$0.24672^{+0.00014}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3148	$0.315^{+0.010}_{-0.010}$ (−0.0 $\sigma$ )
$A_{143}^{dustTT}$	10.94	$10.9^{+4.5}_{-4.6}$ (+0.1 $\sigma$ )	$10^5 D/H$	2.581	$2.587^{+0.070}_{-0.069}$ (−1.0 $\sigma$ )	$f_{2000}^{143}$	28.7	$29^{+7}_{-7}$ (−0.5 $\sigma$ )
$A_{143 \times 217}^{dustTT}$	19.7	$18.6^{+8.4}_{-8.4}$ (+0.1 $\sigma$ )	Age/Gyr	13.734	$13.735^{+0.077}_{-0.073}$ (−0.6 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.90	$32^{+5}_{-5}$ (−0.6 $\sigma$ )
$A_{217}^{dustTT}$	94.8	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$z_*$	1089.91	$1089.95^{+0.65}_{-0.67}$ (−0.9 $\sigma$ )	$f_{2000}^{217}$	106.65	$106.9^{+4.6}_{-4.5}$ (−0.5 $\sigma$ )
$A_{100}^{dustTE}$	0.115	$0.114^{+0.10}_{-0.096}$	$r_*$	144.36	$144.36^{+0.74}_{-0.72}$ (−0.1 $\sigma$ )	$\chi_{small}^2$	395.99	$397.0$ ( $\nu$ : 1.7) (+0.1 $\sigma$ )
$A_{100 \times 143}^{dustTE}$	0.134	$0.135^{+0.075}_{-0.075}$	$100\theta_*$	1.04110	$1.04110^{+0.00082}_{-0.00078}$ (+0.2 $\sigma$ )	$\chi_{lowl}^2$	23.21	$23.42$ ( $\nu$ : 0.4) (−0.2 $\sigma$ )
$A_{100 \times 217}^{dustTE}$	0.480	$0.48^{+0.22}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	13.866	$13.866^{+0.068}_{-0.067}$ (−0.2 $\sigma$ )	$\chi_{plik}^2$	2343.7	$2358.6$ ( $\nu$ : 16.4) (+297.7 $\sigma$ )
$A_{143}^{dustTE}$	0.226	$0.22^{+0.14}_{-0.14}$	$z_{drag}$	1060.01	$1059.95^{+0.79}_{-0.78}$ (+1.1 $\sigma$ )	$\chi_{H073p45}^2$	5.9	$6.3$ ( $\nu$ : 2.6) (−0.1 $\sigma$ )
$A_{143 \times 217}^{dustTE}$	0.665	$0.67^{+0.21}_{-0.21}$	$r_{drag}$	147.01	$147.02^{+0.73}_{-0.72}$ (−0.3 $\sigma$ )	$\chi_{JLA}^2$	1035.39	$1036.2$ ( $\nu$ : 1.3) (−0.1 $\sigma$ )
$A_{217}^{dustTE}$	2.07	$2.09^{+0.68}_{-0.69}$	$k_D$	0.14097	$0.14094^{+0.00081}_{-0.00081}$ (+0.6 $\sigma$ )	$\chi_{6DF}^2$	0.097	$0.14$ ( $\nu$ : 0.0) (+0.0 $\sigma$ )
$c_{100}$	0.99971	$0.9997^{+0.0016}_{-0.0015}$ (+0.1 $\sigma$ )	$100\theta_D$	0.160719	$0.16076^{+0.00045}_{-0.00044}$ (−1.0 $\sigma$ )	$\chi_{MGS}^2$	2.67	$2.73$ ( $\nu$ : 0.3) (+0.0 $\sigma$ )
$c_{217}$	0.99815	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$z_{eq}$	3408	$3409^{+73}_{-75}$ (−0.1 $\sigma$ )	$\chi_{DR12BAO}^2$	4.50	$5.3$ ( $\nu$ : 1.1) (−0.1 $\sigma$ )
$H_0$	69.42	$69.3^{+1.9}_{-1.9}$ (+0.1 $\sigma$ )	$k_{eq}$	0.010401	$0.01040^{+0.00022}_{-0.00023}$ (−0.1 $\sigma$ )	$\chi_{prior}^2$	1.7	$11.5$ ( $\nu$ : 10.1) (+1.2 $\sigma$ )
$\Omega_\Lambda$	0.7027	$0.702^{+0.017}_{-0.018}$ (+0.1 $\sigma$ )	$100\theta_{eq}$	0.8124	$0.812^{+0.014}_{-0.013}$ (+0.2 $\sigma$ )	$\chi_{BAO}^2$	7.3	$8.2$ ( $\nu$ : 2.3) (−0.1 $\sigma$ )
$\Omega_m$	0.2973	$0.298^{+0.018}_{-0.017}$ (−0.1 $\sigma$ )	$100\theta_{s,eq}$	0.4489	$0.4488^{+0.0074}_{-0.0069}$ (+0.1 $\sigma$ )	$\chi_{CMB}^2$	2762.9	$2779.1$ ( $\nu$ : 16.7) (+290.8 $\sigma$ )
$\Omega_m h^2$	0.14325	$0.1433^{+0.0030}_{-0.0031}$ (−0.1 $\sigma$ )	$H(0.15)$	74.41	$74.4^{+1.9}_{-1.7}$ (+0.1 $\sigma$ )			
$\Omega_m h^3$	0.09944	$0.0994^{+0.0035}_{-0.0036}$ (−0.0 $\sigma$ )	$D_M(0.15)$	626.1	$626^{+15}_{-16}$ (−0.1 $\sigma$ )			

Best-fit  $\chi_{eff}^2 = 3813.17$ ;  $\Delta\chi_{eff}^2 = 1585.59$ ;  $\bar{\chi}_{eff}^2 = 3841.27$ ;  $\Delta\bar{\chi}_{eff}^2 = 1591.67$ ;  $R - 1 = 0.00757$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.10 ( $\Delta$  0.00) MGS: 2.67 ( $\Delta$  0.00) DR12BAO: 4.50 ( $\Delta$  -0.11) CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.99 ( $\Delta$  0.13) commander\_dx12\_v3\_2\_29: 23.21 ( $\Delta$  -0.17) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.68 Hubble - H073p45: 5.90 ( $\Delta$  -0.29) SN - JLA Pantheon18: 1035.39 ( $\Delta$  -0.02)



19.38 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022407	$0.02239^{+0.00037}_{-0.00036}$ (+1.0 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09912	$0.0991^{+0.0033}_{-0.0033}$ (+0.1 $\sigma$ )	$H(0.15)$	74.39	$74.4^{+1.9}_{-1.7}$ (+0.2 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.11988	$0.1199^{+0.0028}_{-0.0028}$ (−0.1 $\sigma$ )	$\sigma_8$	0.8298	$0.830^{+0.028}_{-0.028}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	626.5	$627^{+15}_{-15}$ (−0.1 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04093	$1.04094^{+0.00081}_{-0.00077}$ (+0.2 $\sigma$ )	$S_8$	0.8259	$0.826^{+0.028}_{-0.028}$ (−0.1 $\sigma$ )	$H(0.38)$	83.82	$83.8^{+1.6}_{-1.5}$ (+0.2 $\sigma$ )
$\tau$	0.0531	$0.053^{+0.021}_{-0.019}$ (+0.2 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4523	$0.452^{+0.015}_{-0.015}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1501.2	$1502^{+32}_{-34}$ (−0.2 $\sigma$ )
$w_0$	−0.998	$−0.996^{+0.21}_{-0.19}$ (+0.0 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6126	$0.613^{+0.019}_{-0.018}$ (−0.1 $\sigma$ )	$H(0.51)$	90.14	$90.1^{+1.3}_{-1.3}$ (+0.3 $\sigma$ )
$w_a$	−0.26	$−0.28^{+0.70}_{-0.87}$ (+0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9964	$0.996^{+0.027}_{-0.026}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1949.8	$1950^{+37}_{-40}$ (−0.2 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0421	$3.042^{+0.040}_{-0.038}$ (+0.3 $\sigma$ )	$r_{\mathrm{drag}}h$	102.00	$102.0^{+3.0}_{-2.8}$ (−0.0 $\sigma$ )	$H(0.61)$	95.47	$95.4^{+1.1}_{-1.0}$ (+0.4 $\sigma$ )
$n_{\mathrm{s}}$	0.9663	$0.965^{+0.010}_{-0.010}$ (+0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.455	$2.457^{+0.060}_{-0.062}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2273.0	$2274^{+40}_{-43}$ (−0.2 $\sigma$ )
$y_{\mathrm{cal}}$	1.0005	$1.0005^{+0.0061}_{-0.0060}$ (+0.1 $\sigma$ )	$z_{\mathrm{re}}$	7.53	$7.5^{+2.0}_{-2.1}$ (+0.2 $\sigma$ )	$H(2.33)$	234.82	$234.9^{+2.4}_{-2.4}$ (+0.2 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	45.9	$47^{+20}_{-20}$ (−0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.095	$2.094^{+0.086}_{-0.079}$ (+0.3 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5748.8	$5750^{+26}_{-25}$ (−0.7 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.65	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8840	$1.883^{+0.027}_{-0.026}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4599	$0.460^{+0.017}_{-0.017}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.05	$5.5^{+4.4}_{-4.6}$ (+0.2 $\sigma$ )	$D_{40}$	1227.6	$1229^{+29}_{-28}$ (−0.0 $\sigma$ )	$\sigma_8(0.15)$	0.7681	$0.768^{+0.026}_{-0.026}$ (−0.0 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	248	$259^{+70}_{-70}$ (−0.2 $\sigma$ )	$D_{220}$	5735	$5734^{+100}_{-93}$ (+0.4 $\sigma$ )	$f\sigma_8(0.38)$	0.4847	$0.485^{+0.020}_{-0.020}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	50.8	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$D_{810}$	2541.5	$2539^{+33}_{-33}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	0.6819	$0.682^{+0.023}_{-0.023}$ (−0.0 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	53.1	$42^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{1420}$	818.6	$817^{+12}_{-12}$ (+0.5 $\sigma$ )	$f\sigma_8(0.51)$	0.4861	$0.486^{+0.021}_{-0.021}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	122.0	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{2000}$	231.44	$230.9^{+4.0}_{-4.0}$ (+0.7 $\sigma$ )	$\sigma_8(0.51)$	0.6383	$0.638^{+0.022}_{-0.022}$ (−0.0 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$n_{\mathrm{s},0.002}$	0.9663	$0.965^{+0.010}_{-0.010}$ (+0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4827	$0.483^{+0.021}_{-0.021}$ (−0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.88	$8.9^{+4.5}_{-4.6}$ (−0.0 $\sigma$ )	$Y_{\mathrm{P}}$	0.245410	$0.24540^{+0.00014}_{-0.00015}$ (+1.0 $\sigma$ )	$\sigma_8(0.61)$	0.6073	$0.607^{+0.021}_{-0.021}$ (+0.0 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	11.01	$10.9^{+4.5}_{-4.5}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246737	$0.24673^{+0.00014}_{-0.00015}$ (+1.0 $\sigma$ )	$f\sigma_8(2.33)$	0.3070	$0.307^{+0.011}_{-0.011}$ (+0.0 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.1	$18.6^{+8.3}_{-8.2}$ (+0.1 $\sigma$ )	$10^5 \mathrm{D}/\mathrm{H}$	2.579	$2.583^{+0.069}_{-0.065}$ (−1.0 $\sigma$ )	$\sigma_8(2.33)$	0.3138	$0.3136^{+0.0089}_{-0.0087}$ (+0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.5	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	Age/Gyr	13.734	$13.737^{+0.076}_{-0.073}$ (−0.6 $\sigma$ )	$\chi^2_{\mathrm{lensing}}$	8.77	$9.20$ ( $\nu$ : 0.3) (−0.2 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.115	$0.114^{+0.10}_{-0.096}$	$z_*$	1089.86	$1089.89^{+0.61}_{-0.60}$ (−0.8 $\sigma$ )	$\chi^2_{\mathrm{small}}$	395.84	$396.8$ ( $\nu$ : 1.2) (+0.0 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.135	$0.135^{+0.075}_{-0.074}$	$r_*$	144.43	$144.43^{+0.62}_{-0.64}$ (−0.4 $\sigma$ )	$\chi^2_{\mathrm{lowl}}$	23.04	$23.27$ ( $\nu$ : 0.3) (−0.2 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04111	$1.04113^{+0.00080}_{-0.00076}$ (+0.1 $\sigma$ )	$\chi^2_{\mathrm{plik}}$	2344.2	$2358.7$ ( $\nu$ : 15.7) (+307.2 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.226	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.873	$13.873^{+0.057}_{-0.060}$ (−0.4 $\sigma$ )	$\chi^2_{\mathrm{H073p45}}$	6.1	$6.4$ ( $\nu$ : 2.6) (−0.1 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.666	$0.66^{+0.21}_{-0.20}$	$z_{\mathrm{drag}}$	1060.01	$1059.97^{+0.76}_{-0.76}$ (+1.0 $\sigma$ )	$\chi^2_{\mathrm{JLA}}$	1035.24	$1036.1$ ( $\nu$ : 1.3) (−0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.09	$2.08^{+0.69}_{-0.69}$	$r_{\mathrm{drag}}$	147.08	$147.09^{+0.63}_{-0.64}$ (−0.6 $\sigma$ )	$\chi^2_{6\mathrm{DF}}$	0.095	$0.14$ ( $\nu$ : 0.0) (+0.0 $\sigma$ )
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.14091	$0.14088^{+0.00075}_{-0.00073}$ (+0.8 $\sigma$ )	$\chi^2_{\mathrm{MGS}}$	2.67	$2.73$ ( $\nu$ : 0.3) (+0.0 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.160713	$0.16074^{+0.00045}_{-0.00043}$ (−1.0 $\sigma$ )	$\chi^2_{\mathrm{DR12BAO}}$	4.44	$5.2$ ( $\nu$ : 1.1) (−0.1 $\sigma$ )
$H_0$	69.35	$69.3^{+1.9}_{-1.9}$ (+0.1 $\sigma$ )	$z_{\mathrm{eq}}$	3400	$3401^{+64}_{-62}$ (+0.1 $\sigma$ )	$\chi^2_{\mathrm{prior}}$	1.6	$11.5$ ( $\nu$ : 9.6) (+1.1 $\sigma$ )
$\Omega_{\Lambda}$	0.7028	$0.702^{+0.017}_{-0.018}$ (+0.1 $\sigma$ )	$k_{\mathrm{eq}}$	0.010378	$0.01038^{+0.00019}_{-0.00019}$ (+0.1 $\sigma$ )	$\chi^2_{\mathrm{CMB}}$	2771.9	$2788.0$ ( $\nu$ : 16.8) (+293.5 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.2972	$0.298^{+0.018}_{-0.017}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8138	$0.814^{+0.012}_{-0.012}$ (+0.0 $\sigma$ )	$\chi^2_{\mathrm{BAO}}$	7.2	$8.1$ ( $\nu$ : 2.4) (−0.0 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	0.14293	$0.1430^{+0.0027}_{-0.0026}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4496	$0.4495^{+0.0062}_{-0.0060}$ (−0.0 $\sigma$ )			

Best-fit  $\chi^2_{\mathrm{eff}} = 3821.98$ ;  $\Delta\chi^2_{\mathrm{eff}} = 1585.53$ ;  $\bar{\chi}^2_{\mathrm{eff}} = 3850.02$ ;  $\Delta\bar{\chi}^2_{\mathrm{eff}} = 1591.63$ ;  $R - 1 = 0.01297$   
 $\chi^2_{\mathrm{eff}}$ : BAO - 6DF: 0.10 ( $\Delta$  0.01) MGS: 2.67 ( $\Delta$  0.08) DR12BAO: 4.44 ( $\Delta$  0.07) CMB - smicadx12\_Dec5\_ft1\_mv2\_ndclpp\_p\_teb\_consext8: 8.77 ( $\Delta$  0.03) small\_100x143\_offlike5\_EE\_Aplanck.L  
395.84 ( $\Delta$  0.14) commander\_dx12\_v3.2.29: 23.04 ( $\Delta$  -0.12) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.24 Hubble - H073p45: 6.10 ( $\Delta$  -0.42) SN - JLA Pantheon18: 1035.24 ( $\Delta$  -0.02)



19.39 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02237^{+0.00038}_{-0.00037} \quad (+1.0\sigma)$	$\sigma_8$	$0.834^{+0.034}_{-0.035} \quad (-0.2\sigma)$	$H(0.38)$	$83.8^{+1.6}_{-1.6} \quad (+0.3\sigma)$
$\Omega_c h^2$	$0.1202^{+0.0032}_{-0.0033} \quad (-0.2\sigma)$	$S_8$	$0.831^{+0.036}_{-0.037} \quad (-0.2\sigma)$	$D_M(0.38)$	$1501^{+32}_{-34} \quad (-0.2\sigma)$
$100\theta_{MC}$	$1.04092^{+0.00083}_{-0.00079} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.455^{+0.020}_{-0.020} \quad (-0.2\sigma)$	$H(0.51)$	$90.1^{+1.3}_{-1.3} \quad (+0.4\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.616^{+0.024}_{-0.025} \quad (-0.2\sigma)$	$D_M(0.51)$	$1950^{+39}_{-40} \quad (-0.2\sigma)$
$w_0$	$-0.99^{+0.22}_{-0.19} \quad (-0.0\sigma)$	$\sigma_8/h^{0.5}$	$1.002^{+0.036}_{-0.036} \quad (-0.2\sigma)$	$H(0.61)$	$95.4^{+1.0}_{-0.98} \quad (+0.5\sigma)$
$w_a$	$-0.31^{+0.74}_{-0.95} \quad (+0.1\sigma)$	$r_{drag} h$	$102.0^{+2.9}_{-2.9} \quad (+0.0\sigma)$	$D_M(0.61)$	$2273^{+42}_{-43} \quad (-0.2\sigma)$
$\ln(10^{10} A_s)$	$3.047^{+0.042}_{-0.029} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.468^{+0.078}_{-0.081} \quad (-0.2\sigma)$	$H(2.33)$	$234.9^{+2.4}_{-2.3} \quad (+0.1\sigma)$
$n_s$	$0.965^{+0.011}_{-0.010} \quad (+0.4\sigma)$	$z_{re}$	$< 9.50 \quad (+0.1\sigma)$	$D_M(2.33)$	$5751^{+26}_{-25} \quad (-0.8\sigma)$
$y_{cal}$	$1.0006^{+0.0062}_{-0.0063} \quad (+0.1\sigma)$	$10^9 A_s$	$2.104^{+0.090}_{-0.061} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.463^{+0.021}_{-0.021} \quad (-0.2\sigma)$
$A_{217}^{CIB}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.885^{+0.029}_{-0.029} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.772^{+0.032}_{-0.032} \quad (-0.2\sigma)$
$\xi^{tSZ \times CIB}$	—	$D_{40}$	$1231^{+32}_{-31} \quad (-0.1\sigma)$	$f\sigma_8(0.38)$	$0.488^{+0.025}_{-0.025} \quad (-0.2\sigma)$
$A_{143}^{tSZ}$	$5.5^{+4.4}_{-4.6} \quad (+0.2\sigma)$	$D_{220}$	$5733^{+100}_{-94} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.685^{+0.029}_{-0.029} \quad (-0.1\sigma)$
$A_{100}^{PS}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{810}$	$2540^{+34}_{-34} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.489^{+0.027}_{-0.026} \quad (-0.2\sigma)$
$A_{143}^{PS}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.641^{+0.027}_{-0.027} \quad (-0.1\sigma)$
$A_{143 \times 217}^{PS}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$231.0^{+4.1}_{-4.0} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.486^{+0.027}_{-0.026} \quad (-0.2\sigma)$
$A_{217}^{PS}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$n_{s,0.002}$	$0.965^{+0.011}_{-0.010} \quad (+0.4\sigma)$	$\sigma_8(0.61)$	$0.610^{+0.025}_{-0.025} \quad (-0.1\sigma)$
$A^{kSZ}$	—	$Y_P$	$0.24539^{+0.00014}_{-0.00015} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.308^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$A_{100}^{dustTT}$	$8.9^{+4.7}_{-4.6} \quad (+0.0\sigma)$	$Y_P^{BBN}$	$0.24672^{+0.00014}_{-0.00015} \quad (+1.0\sigma)$	$\sigma_8(2.33)$	$0.315^{+0.010}_{-0.010} \quad (-0.1\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.5}_{-4.6} \quad (+0.1\sigma)$	$10^5 D/H$	$2.586^{+0.070}_{-0.069} \quad (-1.0\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.6^{+8.4}_{-8.5} \quad (+0.1\sigma)$	Age/Gyr	$13.735^{+0.077}_{-0.072} \quad (-0.6\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$z_*$	$1089.94^{+0.65}_{-0.67} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.9^{+4.6}_{-4.4} \quad (-0.5\sigma)$
$A_{100}^{dustTE}$	$0.114^{+0.10}_{-0.097}$	$r_*$	$144.37^{+0.74}_{-0.72} \quad (-0.2\sigma)$	$\chi_{small}^2$	$397.0 \quad (\nu: 1.8) \quad (+0.1\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.135^{+0.074}_{-0.076}$	$100\theta_*$	$1.04111^{+0.00082}_{-0.00078} \quad (+0.2\sigma)$	$\chi_{lowl}^2$	$23.43 \quad (\nu: 0.4) \quad (-0.2\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	$13.867^{+0.068}_{-0.067} \quad (-0.2\sigma)$	$\chi_{plik}^2$	$2358.5 \quad (\nu: 16.2) \quad (+298.3\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.14}$	$z_{drag}$	$1059.95^{+0.78}_{-0.78} \quad (+1.0\sigma)$	$\chi_{H073p45}^2$	$6.3 \quad (\nu: 2.6) \quad (-0.1\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.67^{+0.21}_{-0.21}$	$r_{drag}$	$147.03^{+0.73}_{-0.72} \quad (-0.3\sigma)$	$\chi_{JLA}^2$	$1036.2 \quad (\nu: 1.3) \quad (-0.1\sigma)$
$A_{217}^{dustTE}$	$2.09^{+0.68}_{-0.69}$	$k_D$	$0.14093^{+0.00080}_{-0.00081} \quad (+0.6\sigma)$	$\chi_{6DF}^2$	$0.14 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$100\theta_D$	$0.16075^{+0.00045}_{-0.00044} \quad (-1.0\sigma)$	$\chi_{MGS}^2$	$2.73 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{eq}$	$3408^{+73}_{-75} \quad (-0.1\sigma)$	$\chi_{DR12BAO}^2$	$5.3 \quad (\nu: 1.1) \quad (-0.1\sigma)$
$H_0$	$69.3^{+1.9}_{-1.9} \quad (+0.1\sigma)$	$k_{eq}$	$0.01040^{+0.00022}_{-0.00023} \quad (-0.1\sigma)$	$\chi_{prior}^2$	$11.5 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$\Omega_\Lambda$	$0.702^{+0.017}_{-0.018} \quad (+0.1\sigma)$	$100\theta_{eq}$	$0.812^{+0.014}_{-0.013} \quad (+0.2\sigma)$	$\chi_{BAO}^2$	$8.2 \quad (\nu: 2.4) \quad (-0.1\sigma)$
$\Omega_m$	$0.298^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$100\theta_{s,eq}$	$0.4489^{+0.0074}_{-0.0068} \quad (+0.1\sigma)$	$\chi_{CMB}^2$	$2778.9 \quad (\nu: 16.4) \quad (+293.8\sigma)$
$\Omega_m h^2$	$0.1433^{+0.0030}_{-0.0031} \quad (-0.1\sigma)$	$H(0.15)$	$74.4^{+1.9}_{-1.7} \quad (+0.1\sigma)$		
$\Omega_m h^3$	$0.0993^{+0.0035}_{-0.0036} \quad (+0.0\sigma)$	$D_M(0.15)$	$626^{+15}_{-16} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\text{eff}}^2 = 3841.05; \Delta\bar{\chi}_{\text{eff}}^2 = 1591.72; R - 1 = 0.00883$$



## 19.40 base\_w\_wa\_plikHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00037}_{-0.00037} \quad (+1.0\sigma)$	$\sigma_8$	$0.830^{+0.028}_{-0.027} \quad (-0.0\sigma)$	$H(0.38)$	$83.8^{+1.7}_{-1.5} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1199^{+0.0027}_{-0.0027} \quad (-0.0\sigma)$	$S_8$	$0.826^{+0.028}_{-0.028} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1502^{+32}_{-34} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00081}_{-0.00076} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.016}_{-0.015} \quad (-0.1\sigma)$	$H(0.51)$	$90.1^{+1.3}_{-1.2} \quad (+0.3\sigma)$
$\tau$	$0.054^{+0.018}_{-0.013} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.613^{+0.019}_{-0.018} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1950^{+38}_{-40} \quad (-0.2\sigma)$
$w_0$	$-0.998^{+0.21}_{-0.19} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.997^{+0.027}_{-0.026} \quad (-0.1\sigma)$	$H(0.61)$	$95.4^{+1.1}_{-1.0} \quad (+0.4\sigma)$
$w_a$	$-0.26^{+0.69}_{-0.87} \quad (+0.0\sigma)$	$r_{\mathrm{drag}}h$	$102.0^{+3.0}_{-2.9} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2274^{+40}_{-43} \quad (-0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.039}_{-0.027} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.458^{+0.060}_{-0.062} \quad (-0.0\sigma)$	$H(2.33)$	$234.9^{+2.4}_{-2.4} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.010}_{-0.0097} \quad (+0.3\sigma)$	$z_{\mathrm{re}}$	$< 9.35 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5750^{+26}_{-25} \quad (-0.7\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0062}_{-0.0060} \quad (+0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.099^{+0.082}_{-0.056} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.017}_{-0.017} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.026}_{-0.025} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.768^{+0.026}_{-0.026} \quad (-0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{40}$	$1229^{+29}_{-28} \quad (-0.0\sigma)$	$f\sigma_8(0.38)$	$0.485^{+0.020}_{-0.020} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.4}_{-4.6} \quad (+0.2\sigma)$	$D_{220}$	$5734^{+100}_{-93} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.682^{+0.023}_{-0.023} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{810}$	$2539^{+33}_{-33} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.486^{+0.021}_{-0.021} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{1420}$	$817^{+12}_{-12} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.638^{+0.022}_{-0.022} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{2000}$	$231.0^{+4.0}_{-3.9} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.483^{+0.021}_{-0.021} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.965^{+0.010}_{-0.0097} \quad (+0.3\sigma)$	$\sigma_8(0.61)$	$0.607^{+0.020}_{-0.020} \quad (+0.0\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.24540^{+0.00014}_{-0.00015} \quad (+1.0\sigma)$	$f\sigma_8(2.33)$	$0.307^{+0.011}_{-0.011} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.5}_{-4.5} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24673^{+0.00014}_{-0.00015} \quad (+1.0\sigma)$	$\sigma_8(2.33)$	$0.3138^{+0.0087}_{-0.0084} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.5}_{-4.5} \quad (+0.1\sigma)$	$10^5 \mathrm{D}/\mathrm{H}$	$2.582^{+0.069}_{-0.065} \quad (-1.0\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.4}_{-8.1} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.737^{+0.076}_{-0.074} \quad (-0.6\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$z_*$	$1089.88^{+0.61}_{-0.59} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.9^{+4.5}_{-4.3} \quad (-0.5\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.114^{+0.10}_{-0.096}$	$r_*$	$144.45^{+0.62}_{-0.61} \quad (-0.4\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.20 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.134^{+0.073}_{-0.075}$	$100\theta_*$	$1.04113^{+0.00080}_{-0.00076} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$396.7 \quad (\nu: 1.2) \quad (+0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.874^{+0.057}_{-0.058} \quad (-0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.26 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.98^{+0.76}_{-0.77} \quad (+1.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2358.5 \quad (\nu: 15.5) \quad (+306.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.21}_{-0.20}$	$r_{\mathrm{drag}}$	$147.10^{+0.62}_{-0.63} \quad (-0.6\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$6.3 \quad (\nu: 2.6) \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.69}_{-0.69}$	$k_{\mathrm{D}}$	$0.14087^{+0.00075}_{-0.00072} \quad (+0.9\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1036.2 \quad (\nu: 1.3) \quad (-0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16074^{+0.00045}_{-0.00043} \quad (-1.0\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.14 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3400^{+61}_{-62} \quad (+0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$2.73 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$H_0$	$69.3^{+2.0}_{-1.9} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01038^{+0.00019}_{-0.00019} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.2 \quad (\nu: 1.1) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.703^{+0.018}_{-0.018} \quad (+0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.012}_{-0.011} \quad (-0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 9.6) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.297^{+0.018}_{-0.018} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4497^{+0.0061}_{-0.0058} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2787.7 \quad (\nu: 16.4) \quad (+295.6\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1429^{+0.0026}_{-0.0026} \quad (+0.1\sigma)$	$H(0.15)$	$74.4^{+1.9}_{-1.7} \quad (+0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$8.1 \quad (\nu: 2.4) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.0991^{+0.0033}_{-0.0033} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$627^{+16}_{-16} \quad (-0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 3849.79; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.67; R - 1 = 0.01314$$



19.41 base\_w\_wa\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02214	$0.02217^{+0.00055}_{-0.00051}$	$\sigma_8 \Omega_m^{0.25}$	0.6189	$0.617^{+0.034}_{-0.035}$	$D_M(0.38)$	1508.8	$1503^{+33}_{-34}$
$\Omega_c h^2$	0.12049	$0.1205^{+0.0046}_{-0.0046}$	$\sigma_8/h^{0.5}$	1.0059	$1.003^{+0.048}_{-0.050}$	$H(0.51)$	89.62	$89.9^{+1.3}_{-1.3}$
$100\theta_{MC}$	1.04093	$1.0409^{+0.0012}_{-0.0012}$	$r_{drag}h$	102.03	$101.9^{+2.9}_{-2.9}$	$D_M(0.51)$	1960.1	$1953^{+39}_{-41}$
$\tau$	0.0560	$0.052^{+0.021}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.476	$2.47^{+0.11}_{-0.11}$	$H(0.61)$	95.00	$95.2^{+1.1}_{-1.1}$
$w_0$	-1.045	$-0.99^{+0.24}_{-0.21}$	$z_{re}$	7.89	$7.5^{+2.1}_{-2.5}$	$D_M(0.61)$	2285.1	$2277^{+43}_{-43}$
$w_a$	-0.13	$-0.34^{+0.83}_{-1.2}$	$10^9 A_s$	2.107	$2.089^{+0.092}_{-0.093}$	$H(2.33)$	235.19	$234.8^{+2.5}_{-2.4}$
$\ln(10^{10} A_s)$	3.0480	$3.039^{+0.043}_{-0.045}$	$10^9 A_s e^{-2\tau}$	1.8841	$1.882^{+0.034}_{-0.033}$	$D_M(2.33)$	5763.7	$5761^{+32}_{-33}$
$n_s$	0.9629	$0.964^{+0.013}_{-0.013}$	$D_{40}$	1233.5	$1229^{+37}_{-37}$	$f\sigma_8(0.15)$	0.4675	$0.464^{+0.028}_{-0.028}$
$y_{cal}$	1.0011	$1.0004^{+0.0064}_{-0.0065}$	$D_{220}$	5716	$5706^{+100}_{-110}$	$\sigma_8(0.15)$	0.7748	$0.772^{+0.041}_{-0.042}$
$A_{100}^{PS}$	249	$242^{+60}_{-60}$	$D_{810}$	2536.4	$2534^{+36}_{-35}$	$f\sigma_8(0.38)$	0.4927	$0.489^{+0.033}_{-0.033}$
$A_{143}^{PS}$	40.3	$41^{+20}_{-20}$	$D_{1420}$	814.5	$814^{+13}_{-13}$	$\sigma_8(0.38)$	0.6872	$0.685^{+0.036}_{-0.037}$
$A_{217}^{PS}$	96.7	$101^{+30}_{-40}$	$D_{2000}$	229.74	$229.7^{+4.7}_{-4.6}$	$f\sigma_8(0.51)$	0.4934	$0.491^{+0.035}_{-0.034}$
$A_{217}^{CIB}$	42.7	$41^{+20}_{-20}$	$n_{s,0.002}$	0.9629	$0.964^{+0.013}_{-0.013}$	$\sigma_8(0.51)$	0.6429	$0.641^{+0.033}_{-0.034}$
$A_{143}^{tSZ}$	2.99	$< 8.82$	$Y_P$	0.245302	$0.24531^{+0.00021}_{-0.00024}$	$f\sigma_8(0.61)$	0.4893	$0.487^{+0.036}_{-0.034}$
$r_{143 \times 217}^{PS}$	0.577	$0.65^{+0.32}_{-0.32}$	$Y_P^{BBN}$	0.246628	$0.24663^{+0.00021}_{-0.00024}$	$\sigma_8(0.61)$	0.6115	$0.610^{+0.031}_{-0.032}$
$r_{143 \times 217}^{CIB}$	0.66	—	$10^5 D/H$	2.629	$2.625^{+0.099}_{-0.10}$	$f\sigma_8(2.33)$	0.3086	$0.308^{+0.015}_{-0.017}$
$\xi^{tSZ \times CIB}$	0.34	—	Age/Gyr	13.767	$13.754^{+0.089}_{-0.085}$	$\sigma_8(2.33)$	0.3156	$0.314^{+0.012}_{-0.012}$
$A^{kSZ}$	5.8	—	$z_*$	1090.25	$1090.23^{+0.91}_{-0.93}$	$f_{2000}^{143}$	31.4	$31^{+8}_{-8}$
$A_{100}^{dust}$	1.00	$1.01^{+0.50}_{-0.50}$	$r_*$	144.48	$144.5^{+1.1}_{-1.1}$	$f_{2000}^{217}$	107.9	$107.4^{+5.2}_{-5.1}$
$A_{143}^{dust}$	0.980	$0.98^{+0.45}_{-0.45}$	$100\theta_*$	1.04113	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.1	$33^{+5}_{-5}$
$A_{217}^{dust}$	0.958	$0.97^{+0.26}_{-0.27}$	$D_M(z_*)/\text{Gpc}$	13.877	$13.88^{+0.10}_{-0.10}$	$\chi_{small}^2$	396.52	$396.9 (\nu: 1.4)$
$A_{143 \times 217}^{dust}$	0.983	$1.03^{+0.42}_{-0.41}$	$z_{drag}$	1059.44	$1059.5^{+1.1}_{-1.1}$	$\chi_{lowl}^2$	23.60	$23.4 (\nu: 0.6)$
$c_{100}$	0.99737	$0.9975^{+0.0028}_{-0.0027}$	$r_{drag}$	147.22	$147.2^{+1.1}_{-1.1}$	$\chi_{CamSpec}^2$	7049.0	$7062.4 (\nu: 14.0)$
$c_{217}$	1.00146	$1.0012^{+0.0041}_{-0.0041}$	$k_D$	0.14056	$0.1406^{+0.0013}_{-0.0013}$	$\chi_{H073p45}^2$	6.2	$6.6 (\nu: 2.8)$
$H_0$	69.31	$69.3^{+2.0}_{-2.0}$	$100\theta_D$	0.16106	$0.16103^{+0.00066}_{-0.00066}$	$\chi_{JLA}^2$	1035.91	$1036.3 (\nu: 1.5)$
$\Omega_\Lambda$	0.7017	$0.701^{+0.018}_{-0.020}$	$z_{eq}$	3409	$3410^{+110}_{-110}$	$\chi_{6DF}^2$	0.065	$0.14 (\nu: 0.0)$
$\Omega_m$	0.2983	$0.299^{+0.020}_{-0.018}$	$k_{eq}$	0.010403	$0.01041^{+0.00032}_{-0.00032}$	$\chi_{MGS}^2$	2.43	$2.71 (\nu: 0.3)$
$\Omega_m h^2$	0.14328	$0.1433^{+0.0044}_{-0.0044}$	$100\theta_{eq}$	0.8115	$0.811^{+0.020}_{-0.019}$	$\chi_{DR12BAO}^2$	4.45	$5.4 (\nu: 1.0)$
$\Omega_m h^3$	0.09931	$0.0993^{+0.0042}_{-0.0043}$	$100\theta_{s,eq}$	0.4486	$0.449^{+0.010}_{-0.0098}$	$\chi_{prior}^2$	2.6	$7.6 (\nu: 5.9)$
$\sigma_8$	0.8374	$0.834^{+0.044}_{-0.045}$	$H(0.15)$	74.00	$74.3^{+2.0}_{-1.8}$	$\chi_{BAO}^2$	6.9	$8.3 (\nu: 2.2)$
$S_8$	0.835	$0.833^{+0.052}_{-0.051}$	$D_M(0.15)$	628.6	$627^{+16}_{-16}$	$\chi_{CMB}^2$	7469.2	$7482.7 (\nu: 14.4)$
$\sigma_8 \Omega_m^{0.5}$	0.4574	$0.456^{+0.028}_{-0.028}$	$H(0.38)$	83.28	$83.6^{+1.6}_{-1.6}$			

Best-fit  $\chi_{\text{eff}}^2 = 8520.89$ ;  $\bar{\chi}_{\text{eff}}^2 = 8541.50$ ;  $R - 1 = 0.00869$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.07 MGS: 2.43 DR12BAO: 4.45 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.52 commander\_dx12\_v3.2.29: 23.60 CamSpec like\_10.7HM: 7049.04  
Hubble - H073p45: 6.22 SN - JLA Pantheon18: 1035.91



19.42 base\_w\_wa\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02219^{+0.00054}_{-0.00049}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.614^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1504^{+32}_{-33}$
$\Omega_{\mathrm{c}} h^2$	$0.1201^{+0.0034}_{-0.0034}$	$\sigma_8/h^{0.5}$	$0.998^{+0.031}_{-0.031}$	$H(0.51)$	$89.9^{+1.3}_{-1.4}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	$102.0^{+2.8}_{-2.9}$	$D_{\mathrm{M}}(0.51)$	$1953^{+39}_{-39}$
$\tau$	$0.052^{+0.021}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	$2.457^{+0.068}_{-0.070}$	$H(0.61)$	$95.2^{+1.1}_{-1.1}$
$w_0$	$-0.999^{+0.22}_{-0.20}$	$z_{\mathrm{re}}$	$7.4^{+2.0}_{-2.4}$	$D_{\mathrm{M}}(0.61)$	$2277^{+42}_{-42}$
$w_a$	$-0.29^{+0.75}_{-0.96}$	$10^9 A_{\mathrm{s}}$	$2.086^{+0.083}_{-0.085}$	$H(2.33)$	$234.7^{+2.6}_{-2.4}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.038^{+0.039}_{-0.041}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.028}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5759^{+32}_{-33}$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.011}$	$D_{40}$	$1227^{+32}_{-31}$	$f\sigma_8(0.15)$	$0.461^{+0.020}_{-0.020}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0063}_{-0.0065}$	$D_{220}$	$5708^{+100}_{-110}$	$\sigma_8(0.15)$	$0.769^{+0.029}_{-0.029}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{810}$	$2533^{+34}_{-35}$	$f\sigma_8(0.38)$	$0.486^{+0.024}_{-0.023}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.38)$	$0.682^{+0.026}_{-0.025}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{2000}$	$229.7^{+4.5}_{-4.6}$	$f\sigma_8(0.51)$	$0.488^{+0.024}_{-0.024}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.638^{+0.024}_{-0.024}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87$	$Y_{\mathrm{P}}$	$0.24532^{+0.00021}_{-0.00023}$	$f\sigma_8(0.61)$	$0.484^{+0.025}_{-0.024}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.32}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00021}_{-0.00024}$	$\sigma_8(0.61)$	$0.607^{+0.022}_{-0.022}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.620^{+0.095}_{-0.098}$	$f\sigma_8(2.33)$	$0.307^{+0.011}_{-0.012}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.755^{+0.088}_{-0.084}$	$\sigma_8(2.33)$	$0.3134^{+0.0090}_{-0.0093}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.16^{+0.79}_{-0.83}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$r_*$	$144.55^{+0.84}_{-0.82}$	$f_{2000}^{217}$	$107.4^{+5.1}_{-5.2}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.46}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.884^{+0.081}_{-0.078}$	$\chi_{\mathrm{lensing}}^2$	$9.36 (\nu: 0.4)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$z_{\mathrm{drag}}$	$1059.5^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.2)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.27^{+0.91}_{-0.87}$	$\chi_{\mathrm{lowl}}^2$	$23.21 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$k_{\mathrm{D}}$	$0.1405^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.3 (\nu: 13.2)$
$H_0$	$69.3^{+1.9}_{-1.9}$	$100\theta_{\mathrm{D}}$	$0.16101^{+0.00065}_{-0.00066}$	$\chi_{\mathrm{H073p45}}^2$	$6.6 (\nu: 2.8)$
$\Omega_{\Lambda}$	$0.702^{+0.017}_{-0.019}$	$z_{\mathrm{eq}}$	$3400^{+78}_{-77}$	$\chi_{\mathrm{JLA}}^2$	$1036.2 (\nu: 1.4)$
$\Omega_{\mathrm{m}}$	$0.298^{+0.019}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01038^{+0.00024}_{-0.00024}$	$\chi_{6\mathrm{DF}}^2$	$0.14 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1429^{+0.0032}_{-0.0032}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.015}_{-0.014}$	$\chi_{\mathrm{MGS}}^2$	$2.72 (\nu: 0.3)$
$\Omega_{\mathrm{m}} h^3$	$0.0990^{+0.0037}_{-0.0036}$	$100\theta_{\mathrm{s,eq}}$	$0.4495^{+0.0075}_{-0.0073}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.3 (\nu: 1.0)$
$\sigma_8$	$0.830^{+0.031}_{-0.031}$	$H(0.15)$	$74.3^{+1.8}_{-1.7}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.8)$
$S_8$	$0.828^{+0.033}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$627^{+16}_{-15}$	$\chi_{\mathrm{CMB}}^2$	$7491.6 (\nu: 14.5)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.018}_{-0.019}$	$H(0.38)$	$83.6^{+1.6}_{-1.6}$	$\chi_{\mathrm{BAO}}^2$	$8.2 (\nu: 2.2)$
$\bar{\chi}_{\mathrm{eff}}^2 = 8550.26; R - 1 = 0.01140$					



19.43 base\_w\_wa\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02217^{+0.00055}_{-0.00051}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.617^{+0.034}_{-0.034}$	$D_{\mathrm{M}}(0.38)$	$1503^{+33}_{-34}$
$\Omega_{\mathrm{c}} h^2$	$0.1205^{+0.0046}_{-0.0046}$	$\sigma_8/h^{0.5}$	$1.004^{+0.048}_{-0.049}$	$H(0.51)$	$89.9^{+1.3}_{-1.3}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0012}_{-0.0012}$	$r_{\mathrm{drag}} h$	$102.0^{+2.8}_{-2.9}$	$D_{\mathrm{M}}(0.51)$	$1953^{+39}_{-41}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.47^{+0.11}_{-0.11}$	$H(0.61)$	$95.2^{+1.1}_{-1.1}$
$w_0$	$-0.99^{+0.24}_{-0.20}$	$z_{\mathrm{re}}$	$< 9.38$	$D_{\mathrm{M}}(0.61)$	$2277^{+42}_{-43}$
$w_a$	$-0.33^{+0.82}_{-1.2}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.087}_{-0.061}$	$H(2.33)$	$234.8^{+2.5}_{-2.4}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.041}_{-0.029}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.034}_{-0.033}$	$D_{\mathrm{M}}(2.33)$	$5760^{+33}_{-33}$
$n_{\mathrm{s}}$	$0.964^{+0.013}_{-0.013}$	$D_{40}$	$1229^{+37}_{-36}$	$f\sigma_8(0.15)$	$0.464^{+0.028}_{-0.029}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0064}_{-0.0065}$	$D_{220}$	$5706^{+100}_{-110}$	$\sigma_8(0.15)$	$0.773^{+0.041}_{-0.042}$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-60}$	$D_{810}$	$2534^{+36}_{-36}$	$f\sigma_8(0.38)$	$0.490^{+0.033}_{-0.033}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.38)$	$0.686^{+0.036}_{-0.037}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{2000}$	$229.8^{+4.7}_{-4.6}$	$f\sigma_8(0.51)$	$0.491^{+0.035}_{-0.034}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.964^{+0.013}_{-0.013}$	$\sigma_8(0.51)$	$0.642^{+0.033}_{-0.034}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.81$	$Y_{\mathrm{P}}$	$0.24531^{+0.00021}_{-0.00024}$	$f\sigma_8(0.61)$	$0.488^{+0.036}_{-0.035}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.32}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24664^{+0.00022}_{-0.00025}$	$\sigma_8(0.61)$	$0.611^{+0.030}_{-0.032}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.624^{+0.099}_{-0.10}$	$f\sigma_8(2.33)$	$0.308^{+0.015}_{-0.017}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.754^{+0.089}_{-0.085}$	$\sigma_8(2.33)$	$0.315^{+0.011}_{-0.012}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.21^{+0.91}_{-0.93}$	$f_{2000}^{143}$	$30^{+8}_{-8}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$r_*$	$144.5^{+1.1}_{-1.1}$	$f_{2000}^{217}$	$107.3^{+5.2}_{-5.1}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.45}_{-0.45}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0012}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.88^{+0.10}_{-0.10}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.3)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.1}$	$\chi_{\mathrm{lowl}}^2$	$23.4 (\nu: 0.6)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.2^{+1.1}_{-1.1}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.3 (\nu: 13.9)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$k_{\mathrm{D}}$	$0.1406^{+0.0013}_{-0.0013}$	$\chi_{\mathrm{H073p45}}^2$	$6.6 (\nu: 2.7)$
$H_0$	$69.3^{+2.0}_{-1.9}$	$100\theta_{\mathrm{D}}$	$0.16102^{+0.00066}_{-0.00066}$	$\chi_{\mathrm{JLA}}^2$	$1036.3 (\nu: 1.5)$
$\Omega_{\Lambda}$	$0.701^{+0.018}_{-0.019}$	$z_{\mathrm{eq}}$	$3408^{+110}_{-100}$	$\chi_{6\mathrm{DF}}^2$	$0.14 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.299^{+0.019}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01040^{+0.00032}_{-0.00032}$	$\chi_{\mathrm{MGS}}^2$	$2.70 (\nu: 0.3)$
$\Omega_{\mathrm{m}} h^2$	$0.1433^{+0.0044}_{-0.0044}$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.020}_{-0.019}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.4 (\nu: 1.0)$
$\Omega_{\mathrm{m}} h^3$	$0.0992^{+0.0043}_{-0.0043}$	$100\theta_{\mathrm{s,eq}}$	$0.449^{+0.010}_{-0.0099}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.9)$
$\sigma_8$	$0.835^{+0.044}_{-0.045}$	$H(0.15)$	$74.3^{+2.0}_{-1.8}$	$\chi_{\mathrm{BAO}}^2$	$8.2 (\nu: 2.2)$
$S_8$	$0.833^{+0.052}_{-0.051}$	$D_{\mathrm{M}}(0.15)$	$627^{+16}_{-16}$	$\chi_{\mathrm{CMB}}^2$	$7482.5 (\nu: 14.0)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.028}_{-0.028}$	$H(0.38)$	$83.6^{+1.6}_{-1.6}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 8541.22; R - 1 = 0.00801$					



## 19.44 base\_w\_wa\_CamSpecHM\_TT\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02220^{+0.00053}_{-0.00050}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.614^{+0.022}_{-0.022}$	$D_{\mathrm{M}}(0.38)$	$1504^{+32}_{-33}$
$\Omega_{\mathrm{c}} h^2$	$0.1200^{+0.0033}_{-0.0033}$	$\sigma_8/h^{0.5}$	$0.998^{+0.031}_{-0.031}$	$H(0.51)$	$89.9^{+1.3}_{-1.4}$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0011}_{-0.0011}$	$r_{\mathrm{drag}} h$	$102.0^{+2.8}_{-2.8}$	$D_{\mathrm{M}}(0.51)$	$1954^{+39}_{-39}$
$\tau$	$0.054^{+0.018}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.458^{+0.068}_{-0.070}$	$H(0.61)$	$95.2^{+1.1}_{-1.1}$
$w_0$	$-1.00^{+0.22}_{-0.20}$	$z_{\mathrm{re}}$	$< 9.33$	$D_{\mathrm{M}}(0.61)$	$2278^{+42}_{-42}$
$w_a$	$-0.27^{+0.75}_{-0.93}$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.078}_{-0.055}$	$H(2.33)$	$234.7^{+2.6}_{-2.4}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.037}_{-0.026}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.028}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5759^{+33}_{-32}$
$n_{\mathrm{s}}$	$0.965^{+0.011}_{-0.011}$	$D_{40}$	$1227^{+32}_{-31}$	$f\sigma_8(0.15)$	$0.461^{+0.020}_{-0.020}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0063}_{-0.0065}$	$D_{220}$	$5708^{+100}_{-110}$	$\sigma_8(0.15)$	$0.769^{+0.029}_{-0.029}$
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-60}$	$D_{810}$	$2533^{+34}_{-35}$	$f\sigma_8(0.38)$	$0.486^{+0.024}_{-0.023}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{1420}$	$814^{+13}_{-13}$	$\sigma_8(0.38)$	$0.682^{+0.025}_{-0.026}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-40}$	$D_{2000}$	$229.8^{+4.5}_{-4.6}$	$f\sigma_8(0.51)$	$0.488^{+0.025}_{-0.024}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.965^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.639^{+0.024}_{-0.024}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87$	$Y_{\mathrm{P}}$	$0.24532^{+0.00021}_{-0.00024}$	$f\sigma_8(0.61)$	$0.484^{+0.025}_{-0.024}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.32}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24665^{+0.00021}_{-0.00024}$	$\sigma_8(0.61)$	$0.608^{+0.022}_{-0.022}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.619^{+0.097}_{-0.098}$	$f\sigma_8(2.33)$	$0.307^{+0.011}_{-0.012}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.756^{+0.088}_{-0.084}$	$\sigma_8(2.33)$	$0.3137^{+0.0088}_{-0.0090}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.14^{+0.79}_{-0.82}$	$f_{2000}^{143}$	$31^{+8}_{-8}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.50}$	$r_*$	$144.57^{+0.82}_{-0.80}$	$f_{2000}^{217}$	$107.3^{+5.2}_{-5.1}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.45}_{-0.46}$	$100\theta_*$	$1.0411^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$33^{+6}_{-5}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.886^{+0.080}_{-0.077}$	$\chi_{\mathrm{lensing}}^2$	$9.36 (\nu: 0.5)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$z_{\mathrm{drag}}$	$1059.5^{+1.2}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.1)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.30^{+0.89}_{-0.86}$	$\chi_{\mathrm{lowl}}^2$	$23.19 (\nu: 0.4)$
$c_{217}$	$1.0012^{+0.0040}_{-0.0041}$	$k_{\mathrm{D}}$	$0.1405^{+0.0011}_{-0.0011}$	$\chi_{\mathrm{CamSpec}}^2$	$7062.2 (\nu: 13.1)$
$H_0$	$69.3^{+1.9}_{-1.9}$	$100\theta_{\mathrm{D}}$	$0.16101^{+0.00067}_{-0.00067}$	$\chi_{\mathrm{H073p45}}^2$	$6.6 (\nu: 2.7)$
$\Omega_{\Lambda}$	$0.702^{+0.017}_{-0.018}$	$z_{\mathrm{eq}}$	$3397^{+76}_{-76}$	$\chi_{\mathrm{JLA}}^2$	$1036.2 (\nu: 1.4)$
$\Omega_{\mathrm{m}}$	$0.298^{+0.018}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01037^{+0.00023}_{-0.00023}$	$\chi_{6\mathrm{DF}}^2$	$0.14 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1428^{+0.0032}_{-0.0032}$	$100\theta_{\mathrm{eq}}$	$0.814^{+0.014}_{-0.014}$	$\chi_{\mathrm{MGS}}^2$	$2.71 (\nu: 0.3)$
$\Omega_{\mathrm{m}} h^3$	$0.0989^{+0.0037}_{-0.0035}$	$100\theta_{\mathrm{s,eq}}$	$0.4498^{+0.0074}_{-0.0071}$	$\chi_{\mathrm{DR12BAO}}^2$	$5.3 (\nu: 1.0)$
$\sigma_8$	$0.831^{+0.031}_{-0.031}$	$H(0.15)$	$74.3^{+1.8}_{-1.7}$	$\chi_{\mathrm{prior}}^2$	$7.6 (\nu: 5.8)$
$S_8$	$0.828^{+0.033}_{-0.034}$	$D_{\mathrm{M}}(0.15)$	$628^{+16}_{-15}$	$\chi_{\mathrm{CMB}}^2$	$7491.4 (\nu: 14.1)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.018}_{-0.019}$	$H(0.38)$	$83.6^{+1.6}_{-1.6}$	$\chi_{\mathrm{BAO}}^2$	$8.1 (\nu: 2.1)$
$\bar{\chi}_{\mathrm{eff}}^2 = 8549.95; R - 1 = 0.01139$					



19.45 base\_w\_wa\_CamSpecHM\_TTTEEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.022321	$0.02231^{+0.00040}_{-0.00039}$ $(+0.7\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4501	$0.451^{+0.021}_{-0.021}$ $(-0.5\sigma)$	$D_{\mathrm{M}}(0.38)$	1503.4	$1504^{+33}_{-32}$ $(+0.0\sigma)$
$\Omega_{\mathrm{c}} h^2$	0.11954	$0.1197^{+0.0033}_{-0.0033}$ $(-0.5\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6100	$0.610^{+0.025}_{-0.025}$ $(-0.5\sigma)$	$H(0.51)$	90.02	$90.0^{+1.2}_{-1.3}$ $(+0.2\sigma)$
$100\theta_{\mathrm{MC}}$	1.04091	$1.04089^{+0.00080}_{-0.00080}$ $(+0.0\sigma)$	$\sigma_8/h^{0.5}$	0.9928	$0.993^{+0.037}_{-0.037}$ $(-0.5\sigma)$	$D_{\mathrm{M}}(0.51)$	1952.7	$1953^{+39}_{-38}$ $(-0.0\sigma)$
$\tau$	0.0528	$0.052^{+0.021}_{-0.021}$ $(+0.0\sigma)$	$r_{\mathrm{drag}} h$	102.09	$102.0^{+2.9}_{-2.9}$ $(+0.0\sigma)$	$H(0.61)$	95.37	$95.3^{+1.0}_{-1.1}$ $(+0.4\sigma)$
$w_0$	-1.010	$-1.00^{+0.21}_{-0.19}$ $(-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	2.446	$2.448^{+0.083}_{-0.083}$ $(-0.5\sigma)$	$D_{\mathrm{M}}(0.61)$	2276.3	$2277^{+43}_{-40}$ $(-0.0\sigma)$
$w_a$	-0.20	$-0.24^{+0.72}_{-0.91}$ $(+0.3\sigma)$	$z_{\mathrm{re}}$	7.51	$7.5^{+2.0}_{-2.3}$ $(-0.0\sigma)$	$H(2.33)$	234.70	$234.8^{+2.4}_{-2.3}$ $(-0.0\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	3.0385	$3.038^{+0.043}_{-0.043}$ $(-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	2.087	$2.087^{+0.090}_{-0.088}$ $(-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	5753.5	$5755^{+29}_{-27}$ $(-0.5\sigma)$
$n_{\mathrm{s}}$	0.9666	$0.966^{+0.011}_{-0.011}$ $(+0.4\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8782	$1.879^{+0.030}_{-0.029}$ $(-0.2\sigma)$	$f\sigma_8(0.15)$	0.4582	$0.458^{+0.022}_{-0.022}$ $(-0.5\sigma)$
$y_{\mathrm{cal}}$	1.0003	$1.0004^{+0.0067}_{-0.0062}$ $(-0.0\sigma)$	$D_{40}$	1223.5	$1225^{+32}_{-32}$ $(-0.2\sigma)$	$\sigma_8(0.15)$	0.7652	$0.765^{+0.032}_{-0.033}$ $(-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	232	$239^{+60}_{-60}$ $(-0.1\sigma)$	$D_{220}$	5717	$5719^{+100}_{-99}$ $(+0.3\sigma)$	$f\sigma_8(0.38)$	0.4829	$0.483^{+0.024}_{-0.025}$ $(-0.5\sigma)$
$A_{143}^{\mathrm{PS}}$	42.0	$39^{+20}_{-20}$ $(-0.2\sigma)$	$D_{810}$	2535.0	$2535^{+36}_{-34}$ $(+0.0\sigma)$	$\sigma_8(0.38)$	0.6793	$0.679^{+0.028}_{-0.030}$ $(-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	103.0	$103^{+30}_{-40}$ $(+0.1\sigma)$	$D_{1420}$	816.0	$816^{+13}_{-12}$ $(+0.3\sigma)$	$f\sigma_8(0.51)$	0.4842	$0.484^{+0.025}_{-0.026}$ $(-0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	43.7	$40^{+20}_{-20}$ $(-0.2\sigma)$	$D_{2000}$	230.48	$230.3^{+4.2}_{-4.2}$ $(+0.3\sigma)$	$\sigma_8(0.51)$	0.6359	$0.636^{+0.026}_{-0.028}$ $(-0.4\sigma)$
$A_{143}^{\mathrm{tSZ}}$	6.62	$< 8.81$ $(+0.1\sigma)$	$n_{\mathrm{s},0.002}$	0.9666	$0.966^{+0.011}_{-0.011}$ $(+0.4\sigma)$	$f\sigma_8(0.61)$	0.4806	$0.481^{+0.026}_{-0.027}$ $(-0.5\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	0.642	$0.66^{+0.31}_{-0.34}$ $(+0.1\sigma)$	$Y_{\mathrm{P}}$	0.245376	$0.24537^{+0.00015}_{-0.00017}$ $(+0.7\sigma)$	$\sigma_8(0.61)$	0.6051	$0.605^{+0.025}_{-0.026}$ $(-0.4\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	0.79	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.246702	$0.24670^{+0.00015}_{-0.00017}$ $(+0.7\sigma)$	$f\sigma_8(2.33)$	0.3057	$0.306^{+0.013}_{-0.014}$ $(-0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.28	—	$10^5 \mathrm{D}/\mathrm{H}$	2.595	$2.597^{+0.075}_{-0.073}$ $(-0.7\sigma)$	$\sigma_8(2.33)$	0.3129	$0.313^{+0.010}_{-0.011}$ $(-0.4\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	Age/Gyr	13.748	$13.749^{+0.084}_{-0.072}$ $(-0.1\sigma)$	$f_{2000}^{143}$	29.7	$30^{+7}_{-7}$ $(-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	1.01	$1.01^{+0.50}_{-0.51}$ $(+0.0\sigma)$	$z_*$	1089.94	$1089.96^{+0.70}_{-0.70}$ $(-0.7\sigma)$	$f_{2000}^{217}$	106.53	$106.8^{+4.9}_{-5.0}$ $(-0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	0.972	$0.96^{+0.45}_{-0.45}$ $(-0.1\sigma)$	$r_*$	144.59	$144.56^{+0.75}_{-0.77}$ $(+0.3\sigma)$	$f_{2000}^{143 \times 217}$	31.9	$32^{+5}_{-5}$ $(-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	0.972	$0.98^{+0.27}_{-0.27}$ $(+0.1\sigma)$	$100\theta_*$	1.04109	$1.04108^{+0.00079}_{-0.00079}$ $(-0.0\sigma)$	$\chi_{\mathrm{small}}^2$	395.84	$396.8$ $(\nu: 1.2)$ $(-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	1.011	$1.03^{+0.41}_{-0.41}$ $(-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.888	$13.886^{+0.071}_{-0.073}$ $(+0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	22.83	$23.03$ $(\nu: 0.4)$ $(-0.3\sigma)$
$c_{100}$	0.99770	$0.9975^{+0.0027}_{-0.0027}$ $(+0.1\sigma)$	$z_{\mathrm{drag}}$	1059.78	$1059.78^{+0.84}_{-0.84}$ $(+0.6\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	11499.2	$11514.1$ $(\nu: 15.6)$ $(+841.7\sigma)$
$c_{217}$	1.00127	$1.0011^{+0.0040}_{-0.0040}$ $(-0.0\sigma)$	$r_{\mathrm{drag}}$	147.27	$147.24^{+0.77}_{-0.78}$ $(+0.1\sigma)$	$\chi_{\mathrm{H073p45}}^2$	6.2	$6.6$ $(\nu: 2.7)$ $(-0.0\sigma)$
$c_{TE}$	0.9962	$0.996^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	0.14064	$0.14066^{+0.00089}_{-0.00087}$ $(+0.1\sigma)$	$\chi_{\mathrm{JLA}}^2$	1035.34	$1036.1$ $(\nu: 1.3)$ $(-0.1\sigma)$
$c_{EE}$	0.9916	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	0.160838	$0.16085^{+0.00049}_{-0.00049}$ $(-0.7\sigma)$	$\chi_{6\mathrm{DF}}^2$	0.098	$0.14$ $(\nu: 0.0)$ $(-0.0\sigma)$
$H_0$	69.32	$69.3^{+2.0}_{-2.0}$ $(+0.0\sigma)$	$z_{\mathrm{eq}}$	3390	$3393^{+76}_{-74}$ $(-0.4\sigma)$	$\chi_{\mathrm{MGS}}^2$	2.67	$2.70$ $(\nu: 0.3)$ $(-0.0\sigma)$
$\Omega_{\Lambda}$	0.7035	$0.703^{+0.017}_{-0.019}$ $(+0.2\sigma)$	$k_{\mathrm{eq}}$	0.010347	$0.01036^{+0.00023}_{-0.00023}$ $(-0.4\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	4.36	$5.2$ $(\nu: 0.9)$ $(-0.2\sigma)$
$\Omega_{\mathrm{m}}$	0.2965	$0.297^{+0.019}_{-0.017}$ $(-0.2\sigma)$	$100\theta_{\mathrm{eq}}$	0.8153	$0.815^{+0.014}_{-0.014}$ $(+0.4\sigma)$	$\chi_{\mathrm{prior}}^2$	2.1	$7.8$ $(\nu: 5.7)$ $(+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	0.14251	$0.1426^{+0.0032}_{-0.0031}$ $(-0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4505	$0.4502^{+0.0073}_{-0.0071}$ $(+0.4\sigma)$	$\chi_{\mathrm{BAO}}^2$	7.1	$8.0$ $(\nu: 2.1)$ $(-0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	0.09879	$0.0988^{+0.0035}_{-0.0037}$ $(-0.3\sigma)$	$H(0.15)$	74.27	$74.3^{+1.8}_{-1.8}$ $(-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	11917.9	$11933.9$ $(\nu: 16.1)$ $(+829.1\sigma)$
$\sigma_8$	0.8266	$0.827^{+0.034}_{-0.036}$ $(-0.5\sigma)$	$D_{\mathrm{M}}(0.15)$	627.2	$628^{+16}_{-15}$ $(+0.0\sigma)$			
$S_8$	0.8218	$0.823^{+0.039}_{-0.038}$ $(-0.5\sigma)$	$H(0.38)$	83.69	$83.7^{+1.6}_{-1.6}$ $(+0.1\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 12968.70$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 4447.81$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 12992.43$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.94$ ;  $R - 1 = 0.01047$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.10 ( $\Delta$  0.03) MGS: 2.67 ( $\Delta$  0.24) DR12BAO: 4.36 ( $\Delta$  -0.09) CMB - small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.84 ( $\Delta$  -0.69) commander\_dx12\_v3\_2\_29: 22.83 ( $\Delta$  -0.77) CamSpec like\_10.7HM\_1400\_unified: 11499.24 Hubble - H073p45: 6.18 ( $\Delta$  -0.04) SN - JLA Pantheon18: 1035.34 ( $\Delta$  -0.57)



19.46 base\_w\_wa\_CamSpecHM\_TTTEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02232^{+0.00039}_{-0.00038} \quad (+0.6\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.451^{+0.016}_{-0.015} \quad (-0.4\sigma)$	$D_M(0.38)$	$1503^{+32}_{-31} \quad (-0.1\sigma)$
$\Omega_c h^2$	$0.1196^{+0.0028}_{-0.0028} \quad (-0.3\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.610^{+0.019}_{-0.019} \quad (-0.4\sigma)$	$H(0.51)$	$90.0^{+1.2}_{-1.3} \quad (+0.2\sigma)$
$100\theta_{MC}$	$1.04089^{+0.00078}_{-0.00078} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.993^{+0.028}_{-0.028} \quad (-0.4\sigma)$	$D_M(0.51)$	$1952^{+39}_{-36} \quad (-0.1\sigma)$
$\tau$	$0.053^{+0.020}_{-0.020} \quad (+0.1\sigma)$	$r_{drag} h$	$102.0^{+2.9}_{-2.9} \quad (+0.0\sigma)$	$H(0.61)$	$95.4^{+1.0}_{-1.1} \quad (+0.3\sigma)$
$w_0$	$-1.00^{+0.21}_{-0.19} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.062}_{-0.062} \quad (-0.3\sigma)$	$D_M(0.61)$	$2276^{+42}_{-39} \quad (-0.1\sigma)$
$w_a$	$-0.24^{+0.69}_{-0.83} \quad (+0.1\sigma)$	$z_{re}$	$7.5^{+1.9}_{-2.1} \quad (+0.0\sigma)$	$H(2.33)$	$234.7^{+2.4}_{-2.3} \quad (+0.0\sigma)$
$\ln(10^{10} A_s)$	$3.038^{+0.038}_{-0.038} \quad (+0.0\sigma)$	$10^9 A_s$	$2.087^{+0.080}_{-0.079} \quad (+0.0\sigma)$	$D_M(2.33)$	$5754^{+28}_{-27} \quad (-0.4\sigma)$
$n_s$	$0.966^{+0.010}_{-0.010} \quad (+0.3\sigma)$	$10^9 A_s e^{-2\tau}$	$1.879^{+0.028}_{-0.027} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.017} \quad (-0.4\sigma)$
$y_{cal}$	$1.0004^{+0.0066}_{-0.0061} \quad (+0.0\sigma)$	$D_{40}$	$1226^{+30}_{-29} \quad (-0.1\sigma)$	$\sigma_8(0.15)$	$0.765^{+0.026}_{-0.027} \quad (-0.3\sigma)$
$A_{100}^{PS}$	$240^{+60}_{-60} \quad (-0.1\sigma)$	$D_{220}$	$5721^{+100}_{-97} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.483^{+0.020}_{-0.021} \quad (-0.4\sigma)$
$A_{143}^{PS}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2535^{+36}_{-33} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.679^{+0.024}_{-0.024} \quad (-0.3\sigma)$
$A_{217}^{PS}$	$103^{+30}_{-40} \quad (+0.1\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.484^{+0.021}_{-0.021} \quad (-0.4\sigma)$
$A_{217}^{CIB}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{2000}$	$230.3^{+4.1}_{-4.1} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.636^{+0.022}_{-0.022} \quad (-0.3\sigma)$
$A_{143}^{tSZ}$	$< 8.68 \quad (+0.0\sigma)$	$n_{s,0.002}$	$0.966^{+0.010}_{-0.010} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.481^{+0.021}_{-0.021} \quad (-0.3\sigma)$
$r_{143 \times 217}^{PS}$	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$Y_P$	$0.24537^{+0.00015}_{-0.00017} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.605^{+0.021}_{-0.021} \quad (-0.3\sigma)$
$r_{143 \times 217}^{CIB}$	—	$Y_P^{BBN}$	$0.24670^{+0.00015}_{-0.00017} \quad (+0.6\sigma)$	$f\sigma_8(2.33)$	$0.306^{+0.011}_{-0.011} \quad (-0.2\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^5 D/H$	$2.596^{+0.073}_{-0.071} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.3127^{+0.0086}_{-0.0089} \quad (-0.2\sigma)$
$A^{kSZ}$	—	Age/Gyr	$13.748^{+0.081}_{-0.071} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{100}^{dust}$	$1.01^{+0.50}_{-0.48} \quad (-0.0\sigma)$	$z_*$	$1089.96^{+0.63}_{-0.64} \quad (-0.6\sigma)$	$f_{2000}^{217}$	$106.8^{+4.9}_{-5.1} \quad (-0.3\sigma)$
$A_{143}^{dust}$	$0.96^{+0.44}_{-0.45} \quad (-0.1\sigma)$	$r_*$	$144.57^{+0.65}_{-0.65} \quad (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$A_{217}^{dust}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$100\theta_*$	$1.04108^{+0.00077}_{-0.00078} \quad (-0.1\sigma)$	$\chi_{lensing}^2$	$9.13 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$A_{143 \times 217}^{dust}$	$1.03^{+0.42}_{-0.42} \quad (-0.0\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.886^{+0.061}_{-0.062} \quad (+0.1\sigma)$	$\chi_{small}^2$	$396.7 \quad (\nu: 1.0) \quad (-0.1\sigma)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027} \quad (+0.1\sigma)$	$z_{drag}$	$1059.79^{+0.83}_{-0.84} \quad (+0.6\sigma)$	$\chi_{lowl}^2$	$23.05 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040} \quad (-0.1\sigma)$	$r_{drag}$	$147.25^{+0.67}_{-0.68} \quad (-0.1\sigma)$	$\chi_{CamSpec}^2$	$11513.7 \quad (\nu: 15.0) \quad (+865.5\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$k_D$	$0.14066^{+0.00084}_{-0.00081} \quad (+0.3\sigma)$	$\chi_{H073p45}^2$	$6.5 \quad (\nu: 2.7) \quad (-0.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_D$	$0.16084^{+0.00049}_{-0.00048} \quad (-0.7\sigma)$	$\chi_{JLA}^2$	$1036.1 \quad (\nu: 1.3) \quad (-0.1\sigma)$
$H_0$	$69.3^{+2.0}_{-1.9} \quad (+0.0\sigma)$	$z_{eq}$	$3392^{+63}_{-63} \quad (-0.3\sigma)$	$\chi_{6DF}^2$	$0.14 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$\Omega_\Lambda$	$0.703^{+0.017}_{-0.018} \quad (+0.1\sigma)$	$k_{eq}$	$0.01035^{+0.00019}_{-0.00019} \quad (-0.3\sigma)$	$\chi_{MGS}^2$	$2.73 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$\Omega_m$	$0.297^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$100\theta_{eq}$	$0.815^{+0.012}_{-0.012} \quad (+0.3\sigma)$	$\chi_{DR12BAO}^2$	$5.2 \quad (\nu: 1.0) \quad (-0.1\sigma)$
$\Omega_m h^2$	$0.1426^{+0.0026}_{-0.0026} \quad (-0.3\sigma)$	$100\theta_{s,eq}$	$0.4503^{+0.0062}_{-0.0061} \quad (+0.3\sigma)$	$\chi_{prior}^2$	$7.8 \quad (\nu: 5.7) \quad (+0.0\sigma)$
$\Omega_m h^3$	$0.0988^{+0.0034}_{-0.0033} \quad (-0.1\sigma)$	$H(0.15)$	$74.3^{+1.7}_{-1.7} \quad (+0.0\sigma)$	$\chi_{CMB}^2$	$11942.6 \quad (\nu: 16.3) \quad (+825.7\sigma)$
$\sigma_8$	$0.827^{+0.028}_{-0.028} \quad (-0.3\sigma)$	$D_M(0.15)$	$627^{+15}_{-14} \quad (-0.0\sigma)$	$\chi_{BAO}^2$	$8.1 \quad (\nu: 2.2) \quad (-0.0\sigma)$
$S_8$	$0.823^{+0.029}_{-0.028} \quad (-0.4\sigma)$	$H(0.38)$	$83.7^{+1.6}_{-1.6} \quad (+0.1\sigma)$		

$$\bar{\chi}_{eff}^2 = 13001.06; \Delta\bar{\chi}_{eff}^2 = 4450.80; R - 1 = 0.01205$$



## 19.47 base\_w\_wa\_CamSpecHM\_TTTEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02232^{+0.00041}_{-0.00039} \quad (+0.7\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.021}_{-0.021} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.38)$	$1504^{+33}_{-32} \quad (+0.0\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1196^{+0.0033}_{-0.0033} \quad (-0.5\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.025}_{-0.025} \quad (-0.5\sigma)$	$H(0.51)$	$90.0^{+1.2}_{-1.3} \quad (+0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04090^{+0.00080}_{-0.00079} \quad (+0.0\sigma)$	$\sigma_8/h^{0.5}$	$0.994^{+0.036}_{-0.036} \quad (-0.5\sigma)$	$D_{\mathrm{M}}(0.51)$	$1953^{+39}_{-38} \quad (-0.0\sigma)$
$\tau$	$0.054^{+0.018}_{-0.012} \quad (+0.0\sigma)$	$r_{\mathrm{drag}} h$	$102.0^{+2.9}_{-2.9} \quad (+0.0\sigma)$	$H(0.61)$	$95.3^{+1.0}_{-1.0} \quad (+0.4\sigma)$
$w_0$	$-1.00^{+0.21}_{-0.19} \quad (-0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.451^{+0.081}_{-0.082} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	$2277^{+42}_{-40} \quad (-0.0\sigma)$
$w_{\mathrm{a}}$	$-0.23^{+0.71}_{-0.90} \quad (+0.3\sigma)$	$z_{\mathrm{re}}$	$< 9.33 \quad (-0.0\sigma)$	$H(2.33)$	$234.8^{+2.4}_{-2.3} \quad (-0.0\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.040}_{-0.029} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.093^{+0.086}_{-0.059} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5755^{+29}_{-26} \quad (-0.5\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.030}_{-0.029} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	$0.459^{+0.021}_{-0.021} \quad (-0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0004^{+0.0066}_{-0.0062} \quad (-0.0\sigma)$	$D_{40}$	$1226^{+32}_{-33} \quad (-0.2\sigma)$	$\sigma_8(0.15)$	$0.766^{+0.032}_{-0.033} \quad (-0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{220}$	$5719^{+100}_{-98} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.484^{+0.024}_{-0.025} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2535^{+36}_{-34} \quad (+0.0\sigma)$	$\sigma_8(0.38)$	$0.680^{+0.028}_{-0.029} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{PS}}$	$103^{+30}_{-40} \quad (+0.1\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.485^{+0.025}_{-0.026} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20} \quad (-0.2\sigma)$	$D_{2000}$	$230.4^{+4.2}_{-4.2} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.637^{+0.026}_{-0.027} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.81 \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.011} \quad (+0.4\sigma)$	$f\sigma_8(0.61)$	$0.481^{+0.026}_{-0.027} \quad (-0.5\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.34} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24537^{+0.00015}_{-0.00017} \quad (+0.7\sigma)$	$\sigma_8(0.61)$	$0.606^{+0.024}_{-0.026} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00015}_{-0.00017} \quad (+0.7\sigma)$	$f\sigma_8(2.33)$	$0.306^{+0.012}_{-0.014} \quad (-0.4\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^5 \mathrm{D}/\mathrm{H}$	$2.596^{+0.075}_{-0.073} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.313^{+0.010}_{-0.010} \quad (-0.4\sigma)$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.749^{+0.085}_{-0.072} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51} \quad (+0.0\sigma)$	$z_*$	$1089.95^{+0.69}_{-0.70} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$106.7^{+4.9}_{-5.0} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.45} \quad (-0.1\sigma)$	$r_*$	$144.57^{+0.75}_{-0.77} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$100\theta_*$	$1.04109^{+0.00079}_{-0.00078} \quad (-0.0\sigma)$	$\chi_{\mathrm{small}}^2$	$396.7 \quad (\nu: 1.2) \quad (-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.886^{+0.071}_{-0.073} \quad (+0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.04 \quad (\nu: 0.4) \quad (-0.3\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.79^{+0.83}_{-0.85} \quad (+0.6\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.9 \quad (\nu: 15.5) \quad (+844.7\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}$	$147.25^{+0.77}_{-0.78} \quad (+0.1\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$6.6 \quad (\nu: 2.7) \quad (-0.0\sigma)$
$c_{\mathrm{TE}}$	$0.996^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.14066^{+0.00089}_{-0.00087} \quad (+0.1\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1036.1 \quad (\nu: 1.3) \quad (-0.1\sigma)$
$c_{\mathrm{EE}}$	$0.992^{+0.013}_{-0.012}$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00049}_{-0.00049} \quad (-0.7\sigma)$	$\chi_{\mathrm{6DF}}^2$	$0.14 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$H_0$	$69.3^{+2.0}_{-2.0} \quad (+0.0\sigma)$	$z_{\mathrm{eq}}$	$3392^{+76}_{-74} \quad (-0.4\sigma)$	$\chi_{\mathrm{MGS}}^2$	$2.70 \quad (\nu: 0.3) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.703^{+0.017}_{-0.019} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01035^{+0.00023}_{-0.00022} \quad (-0.4\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.1 \quad (\nu: 0.9) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.297^{+0.019}_{-0.017} \quad (-0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.014}_{-0.014} \quad (+0.4\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.7) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1426^{+0.0032}_{-0.0031} \quad (-0.4\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4503^{+0.0073}_{-0.0071} \quad (+0.4\sigma)$	$\chi_{\mathrm{BAO}}^2$	$8.0 \quad (\nu: 2.1) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0988^{+0.0035}_{-0.0037} \quad (-0.3\sigma)$	$H(0.15)$	$74.3^{+1.8}_{-1.8} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11933.7 \quad (\nu: 15.7) \quad (+839.9\sigma)$
$\sigma_8$	$0.828^{+0.034}_{-0.035} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$628^{+16}_{-15} \quad (+0.0\sigma)$		
$S_8$	$0.824^{+0.039}_{-0.037} \quad (-0.5\sigma)$	$H(0.38)$	$83.7^{+1.6}_{-1.6} \quad (+0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 12992.15; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.93; R - 1 = 0.01047$$



## 19.48 base\_w\_wa\_CamSpecHM\_TTTEE\_lowl\_lowE\_BAO\_Riess18\_Pantheon18\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02232^{+0.00039}_{-0.00038} \quad (+0.6\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.016}_{-0.015} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1503^{+32}_{-31} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1196^{+0.0028}_{-0.0028} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.019}_{-0.019} \quad (-0.4\sigma)$	$H(0.51)$	$90.0^{+1.2}_{-1.3} \quad (+0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04090^{+0.00077}_{-0.00078} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.994^{+0.027}_{-0.027} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1952^{+39}_{-37} \quad (-0.1\sigma)$
$\tau$	$0.054^{+0.017}_{-0.012} \quad (+0.0\sigma)$	$r_{\mathrm{drag}}h$	$102.0^{+2.9}_{-2.9} \quad (+0.0\sigma)$	$H(0.61)$	$95.4^{+1.0}_{-1.1} \quad (+0.3\sigma)$
$w_0$	$-1.00^{+0.21}_{-0.19} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.450^{+0.061}_{-0.061} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.61)$	$2276^{+42}_{-39} \quad (-0.1\sigma)$
$w_{\mathrm{a}}$	$-0.23^{+0.68}_{-0.83} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.21 \quad (-0.0\sigma)$	$H(2.33)$	$234.7^{+2.4}_{-2.3} \quad (+0.0\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.036}_{-0.026} \quad (+0.0\sigma)$	$10^9A_{\mathrm{s}}$	$2.093^{+0.077}_{-0.054} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5754^{+29}_{-26} \quad (-0.4\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$10^9A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.027}_{-0.026} \quad (-0.1\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.017} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0004^{+0.0066}_{-0.0061} \quad (+0.0\sigma)$	$D_{40}$	$1226^{+30}_{-30} \quad (-0.1\sigma)$	$\sigma_8(0.15)$	$0.766^{+0.026}_{-0.027} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60} \quad (-0.1\sigma)$	$D_{220}$	$5721^{+100}_{-97} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.483^{+0.020}_{-0.021} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2535^{+35}_{-33} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.680^{+0.023}_{-0.024} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.1\sigma)$	$D_{1420}$	$816^{+13}_{-12} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.484^{+0.021}_{-0.021} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.2\sigma)$	$D_{2000}$	$230.3^{+4.0}_{-4.1} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.636^{+0.022}_{-0.022} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.72 \quad (+0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.010} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.481^{+0.021}_{-0.022} \quad (-0.3\sigma)$
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.24537^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$\sigma_8(0.61)$	$0.605^{+0.021}_{-0.021} \quad (-0.3\sigma)$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.24670^{+0.00015}_{-0.00016} \quad (+0.6\sigma)$	$f\sigma_8(2.33)$	$0.306^{+0.011}_{-0.011} \quad (-0.2\sigma)$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$10^5\mathrm{D}/\mathrm{H}$	$2.595^{+0.072}_{-0.070} \quad (-0.6\sigma)$	$\sigma_8(2.33)$	$0.3130^{+0.0084}_{-0.0086} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$\mathrm{Age}/\mathrm{Gyr}$	$13.748^{+0.081}_{-0.071} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$30^{+7}_{-7} \quad (-0.3\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.48} \quad (-0.0\sigma)$	$z_*$	$1089.94^{+0.63}_{-0.63} \quad (-0.6\sigma)$	$f_{2000}^{217}$	$106.7^{+4.9}_{-5.2} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.44}_{-0.45} \quad (-0.1\sigma)$	$r_*$	$144.58^{+0.64}_{-0.65} \quad (+0.0\sigma)$	$f_{2000}^{143\times 217}$	$32^{+5}_{-5} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.26} \quad (+0.1\sigma)$	$100\theta_*$	$1.04109^{+0.00077}_{-0.00077} \quad (-0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.10 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.42} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.888^{+0.061}_{-0.061} \quad (+0.0\sigma)$	$\chi_{\mathrm{small}}^2$	$396.6 \quad (\nu: 1.0) \quad (-0.0\sigma)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027} \quad (+0.1\sigma)$	$z_{\mathrm{drag}}$	$1059.79^{+0.82}_{-0.85} \quad (+0.6\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.04 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}$	$147.26^{+0.67}_{-0.67} \quad (-0.1\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11513.6 \quad (\nu: 14.9) \quad (+869.6\sigma)$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.14065^{+0.00084}_{-0.00081} \quad (+0.3\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$6.5 \quad (\nu: 2.7) \quad (-0.0\sigma)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16084^{+0.00049}_{-0.00048} \quad (-0.7\sigma)$	$\chi_{\mathrm{JLA}}^2$	$1036.1 \quad (\nu: 1.3) \quad (-0.0\sigma)$
$H_0$	$69.3^{+2.0}_{-1.9} \quad (+0.0\sigma)$	$z_{\mathrm{eq}}$	$3390^{+63}_{-63} \quad (-0.2\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.14 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.703^{+0.017}_{-0.018} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01035^{+0.00019}_{-0.00019} \quad (-0.2\sigma)$	$\chi_{\mathrm{MGS}}^2$	$2.73 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.297^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.012}_{-0.012} \quad (+0.3\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$5.2 \quad (\nu: 1.0) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1425^{+0.0026}_{-0.0026} \quad (-0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4505^{+0.0061}_{-0.0060} \quad (+0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.0987^{+0.0033}_{-0.0032} \quad (-0.1\sigma)$	$H(0.15)$	$74.3^{+1.7}_{-1.7} \quad (+0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11942.3 \quad (\nu: 15.9) \quad (+839.0\sigma)$
$\sigma_8$	$0.827^{+0.027}_{-0.028} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.15)$	$627^{+15}_{-14} \quad (-0.0\sigma)$	$\chi_{\mathrm{BAO}}^2$	$8.0 \quad (\nu: 2.2) \quad (-0.0\sigma)$
$S_8$	$0.823^{+0.029}_{-0.028} \quad (-0.4\sigma)$	$H(0.38)$	$83.7^{+1.6}_{-1.6} \quad (+0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 13000.80; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.85; R - 1 = 0.01150$$



## 20 yhe

### 20.1 base\_yhe\_plikHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02210	$0.02212^{+0.00080}_{-0.00076}$	$\sigma_8 \Omega_m^{0.5}$	0.4596	$0.460^{+0.035}_{-0.034}$	$H(0.15)$	72.21	$72.3^{+2.6}_{-2.4}$
$\Omega_c h^2$	0.1206	$0.1206^{+0.0055}_{-0.0055}$	$\sigma_8 \Omega_m^{0.25}$	0.6106	$0.611^{+0.030}_{-0.030}$	$D_M(0.15)$	648.0	$648^{+25}_{-25}$
$100\theta_{MC}$	1.04067	$1.0408^{+0.0023}_{-0.0023}$	$\sigma_8/h^{0.5}$	0.9924	$0.992^{+0.041}_{-0.041}$	$H(0.38)$	82.48	$82.5^{+2.0}_{-1.8}$
$\tau$	0.0518	$0.052^{+0.022}_{-0.023}$	$r_{drag} h$	98.40	$98.5^{+4.7}_{-4.5}$	$D_M(0.38)$	1543	$1542^{+50}_{-51}$
$Y_P$	0.242	$0.246^{+0.051}_{-0.054}$	$\langle d^2 \rangle^{1/2}$	2.452	$2.45^{+0.11}_{-0.11}$	$H(0.51)$	89.28	$89.3^{+1.7}_{-1.5}$
$\ln(10^{10} A_s)$	3.0391	$3.040^{+0.047}_{-0.047}$	$z_{re}$	7.48	$7.5^{+2.2}_{-2.6}$	$D_M(0.51)$	1997	$1996^{+58}_{-60}$
$n_s$	0.9627	$0.963^{+0.029}_{-0.028}$	$10^9 A_s$	2.089	$2.09^{+0.10}_{-0.097}$	$H(0.61)$	94.97	$95.0^{+1.4}_{-1.3}$
$y_{cal}$	1.0004	$1.0004^{+0.0067}_{-0.0063}$	$10^9 A_s e^{-2\tau}$	1.8831	$1.885^{+0.040}_{-0.039}$	$D_M(0.61)$	2323	$2322^{+63}_{-65}$
$A_{217}^{CIB}$	48.2	$48^{+20}_{-20}$	$D_{40}$	1232	$1233^{+57}_{-55}$	$H(2.33)$	236.68	$236.7^{+3.3}_{-3.2}$
$\xi^{tSZ \times CIB}$	0.38	—	$D_{220}$	5709	$5713^{+100}_{-110}$	$D_M(2.33)$	5780	$5777^{+64}_{-69}$
$A_{143}^{tSZ}$	7.0	—	$D_{810}$	2537.4	$2536^{+37}_{-36}$	$f\sigma_8(0.15)$	0.4634	$0.463^{+0.031}_{-0.032}$
$A_{100}^{PS}$	254	$264^{+70}_{-80}$	$D_{1420}$	815.9	$814^{+14}_{-14}$	$\sigma_8(0.15)$	0.7487	$0.749^{+0.023}_{-0.021}$
$A_{143}^{PS}$	49.8	$49^{+20}_{-20}$	$D_{2000}$	230.3	$229.4^{+6.5}_{-6.1}$	$f\sigma_8(0.38)$	0.4797	$0.480^{+0.024}_{-0.025}$
$A_{143 \times 217}^{PS}$	48.3	$43^{+20}_{-20}$	$n_{s,0.002}$	0.9627	$0.963^{+0.029}_{-0.028}$	$\sigma_8(0.38)$	0.6627	$0.663^{+0.020}_{-0.019}$
$A_{217}^{PS}$	119.9	$115^{+30}_{-30}$	$Y_P$	0.242	$0.246^{+0.051}_{-0.054}$	$f\sigma_8(0.51)$	0.4771	$0.477^{+0.021}_{-0.021}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.243	$0.247^{+0.051}_{-0.055}$	$\sigma_8(0.51)$	0.6197	$0.620^{+0.019}_{-0.018}$
$A_{100}^{dustTT}$	8.89	$9.0^{+4.7}_{-4.8}$	Age/Gyr	13.835	$13.83^{+0.15}_{-0.16}$	$f\sigma_8(0.61)$	0.4714	$0.471^{+0.018}_{-0.019}$
$A_{143}^{dustTT}$	10.88	$10.7^{+4.7}_{-4.6}$	$z_*$	1090.18	$1090.3^{+1.7}_{-1.7}$	$\sigma_8(0.61)$	0.5894	$0.590^{+0.018}_{-0.017}$
$A_{143 \times 217}^{dustTT}$	19.4	$18.3^{+8.6}_{-8.4}$	$r_*$	144.49	$144.5^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	0.2968	$0.2970^{+0.0095}_{-0.0090}$
$A_{217}^{dustTT}$	94.7	$93^{+20}_{-20}$	$100\theta_*$	1.04096	$1.0410^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	0.3056	$0.306^{+0.010}_{-0.010}$
$c_{100}$	0.99965	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.880	$13.88^{+0.12}_{-0.12}$	$f_{2000}^{143}$	30.0	$31^{+10}_{-10}$
$c_{217}$	0.99823	$0.9983^{+0.0016}_{-0.0016}$	$z_{drag}$	1059.25	$1059.4^{+3.1}_{-3.1}$	$f_{2000}^{143 \times 217}$	33.0	$34^{+7}_{-7}$
$H_0$	66.83	$66.9^{+2.9}_{-2.8}$	$r_{drag}$	147.24	$147.2^{+1.3}_{-1.3}$	$f_{2000}^{217}$	107.5	$108.3^{+6.7}_{-6.6}$
$\Omega_\Lambda$	0.6790	$0.679^{+0.036}_{-0.039}$	$k_D$	0.14064	$0.1405^{+0.0019}_{-0.0019}$	$\chi_{simall}^2$	395.83	$396.9 (\nu: 1.4)$
$\Omega_m$	0.3210	$0.321^{+0.039}_{-0.036}$	$100\theta_D$	0.16093	$0.1611^{+0.0019}_{-0.0020}$	$\chi_{lowl}^2$	23.7	$24.0 (\nu: 2.1)$
$\Omega_m h^2$	0.1434	$0.1434^{+0.0051}_{-0.0051}$	$z_{eq}$	3411	$3411^{+120}_{-120}$	$\chi_{plik}^2$	758.7	$772.2 (\nu: 16.6)$
$\Omega_m h^3$	0.09582	$0.0959^{+0.0021}_{-0.0020}$	$k_{eq}$	0.010410	$0.01041^{+0.00037}_{-0.00037}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.8)$
$\sigma_8$	0.8113	$0.812^{+0.025}_{-0.024}$	$100\theta_{eq}$	0.8109	$0.811^{+0.024}_{-0.023}$	$\chi_{CMB}^2$	1178.2	$1193.1 (\nu: 16.1)$
$S_8$	0.839	$0.839^{+0.063}_{-0.063}$	$100\theta_{s,eq}$	0.4483	$0.448^{+0.012}_{-0.012}$			

Best-fit  $\chi_{\text{eff}}^2 = 1179.56$ ;  $\bar{\chi}_{\text{eff}}^2 = 1200.43$ ;  $R - 1 = 0.00562$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.83 commander\_dx12\_v3.2\_29: 23.69 plik\_rd12\_HM\_v22\_TT: 758.72



## 20.2 base\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02225	$0.02227^{+0.00065}_{-0.00063}$	$\sigma_8 \Omega_m^{0.25}$	0.6030	$0.603^{+0.022}_{-0.020}$	$H(0.38)$	83.02	$83.1^{+1.1}_{-1.1}$
$\Omega_c h^2$	0.11890	$0.1190^{+0.0032}_{-0.0032}$	$\sigma_8/h^{0.5}$	0.9827	$0.983^{+0.033}_{-0.029}$	$D_M(0.38)$	1528.1	$1527^{+28}_{-28}$
$100\theta_{MC}$	1.04108	$1.0413^{+0.0019}_{-0.0019}$	$r_{drag}h$	99.86	$99.9^{+2.5}_{-2.5}$	$H(0.51)$	89.72	$89.8^{+1.0}_{-0.97}$
$\tau$	0.0545	$0.054^{+0.022}_{-0.020}$	$\langle d^2 \rangle^{1/2}$	2.425	$2.424^{+0.074}_{-0.075}$	$D_M(0.51)$	1979.9	$1979^{+34}_{-33}$
$Y_P$	0.2484	$0.253^{+0.048}_{-0.049}$	$z_{re}$	7.73	$7.6^{+2.1}_{-2.2}$	$H(0.61)$	95.31	$95.37^{+0.92}_{-0.88}$
$\ln(10^{10} A_s)$	3.0423	$3.042^{+0.047}_{-0.042}$	$10^9 A_s$	2.095	$2.09^{+0.10}_{-0.087}$	$D_M(0.61)$	2304.2	$2303^{+37}_{-36}$
$n_s$	0.9688	$0.969^{+0.022}_{-0.021}$	$10^9 A_s e^{-2\tau}$	1.8788	$1.881^{+0.039}_{-0.037}$	$H(2.33)$	235.73	$235.8^{+2.1}_{-2.1}$
$y_{cal}$	1.0005	$1.0005^{+0.0068}_{-0.0063}$	$D_{40}$	1221.0	$1221^{+44}_{-43}$	$D_M(2.33)$	5764.1	$5761^{+47}_{-50}$
$A_{217}^{CIB}$	49.2	$49^{+20}_{-20}$	$D_{220}$	5716	$5720^{+100}_{-100}$	$f\sigma_8(0.15)$	0.4545	$0.455^{+0.020}_{-0.019}$
$\xi^{tSZ \times CIB}$	0.24	—	$D_{810}$	2537.3	$2537^{+37}_{-35}$	$\sigma_8(0.15)$	0.7473	$0.748^{+0.023}_{-0.020}$
$A_{143}^{tSZ}$	7.0	—	$D_{1420}$	816.0	$815^{+14}_{-13}$	$f\sigma_8(0.38)$	0.4732	$0.473^{+0.018}_{-0.016}$
$A_{100}^{PS}$	256	$267^{+70}_{-70}$	$D_{2000}$	230.0	$229.1^{+6.3}_{-6.0}$	$\sigma_8(0.38)$	0.6627	$0.663^{+0.020}_{-0.018}$
$A_{143}^{PS}$	49.1	$50^{+20}_{-20}$	$n_{s,0.002}$	0.9688	$0.969^{+0.022}_{-0.021}$	$f\sigma_8(0.51)$	0.4721	$0.472^{+0.017}_{-0.015}$
$A_{143 \times 217}^{PS}$	45.0	$44^{+20}_{-20}$	$Y_P$	0.2484	$0.253^{+0.048}_{-0.049}$	$\sigma_8(0.51)$	0.6202	$0.621^{+0.019}_{-0.016}$
$A_{217}^{PS}$	118.6	$115^{+30}_{-30}$	$Y_P^{BBN}$	0.2498	$0.255^{+0.048}_{-0.049}$	$f\sigma_8(0.61)$	0.4673	$0.468^{+0.016}_{-0.014}$
$A^{kSZ}$	0.0	—	Age/Gyr	13.800	$13.79^{+0.11}_{-0.12}$	$\sigma_8(0.61)$	0.5902	$0.591^{+0.018}_{-0.016}$
$A_{100}^{dustTT}$	8.93	$9.0^{+4.8}_{-5.0}$	$z_*$	1090.10	$1090.3^{+1.7}_{-1.7}$	$f\sigma_8(2.33)$	0.2977	$0.2978^{+0.0092}_{-0.0082}$
$A_{143}^{dustTT}$	10.77	$10.8^{+4.7}_{-4.9}$	$r_*$	144.80	$144.73^{+0.94}_{-0.95}$	$\sigma_8(2.33)$	0.3070	$0.3072^{+0.0099}_{-0.0086}$
$A_{143 \times 217}^{dustTT}$	19.5	$18.3^{+8.6}_{-8.3}$	$100\theta_*$	1.04121	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	30.7	$32^{+10}_{-10}$
$A_{217}^{dustTT}$	94.8	$93^{+20}_{-20}$	$D_M(z_*)/\text{Gpc}$	13.907	$13.900^{+0.094}_{-0.097}$	$f_{2000}^{143 \times 217}$	33.4	$34^{+7}_{-7}$
$c_{100}$	0.99961	$0.9996^{+0.0015}_{-0.0017}$	$z_{drag}$	1059.67	$1059.9^{+2.9}_{-2.7}$	$f_{2000}^{217}$	107.9	$108.7^{+6.6}_{-6.6}$
$c_{217}$	0.99828	$0.9983^{+0.0017}_{-0.0016}$	$r_{drag}$	147.51	$147.4^{+1.1}_{-1.1}$	$\chi_{small}^2$	396.06	$397.0 (\nu: 1.5)$
$H_0$	67.70	$67.7^{+1.6}_{-1.6}$	$k_D$	0.14021	$0.1401^{+0.0015}_{-0.0015}$	$\chi_{lowl}^2$	22.64	$22.8 (\nu: 0.9)$
$\Omega_\Lambda$	0.6906	$0.691^{+0.019}_{-0.020}$	$100\theta_D$	0.16112	$0.1613^{+0.0018}_{-0.0019}$	$\chi_{plik}^2$	760.1	$773.3 (\nu: 16.3)$
$\Omega_m$	0.3094	$0.309^{+0.020}_{-0.019}$	$z_{eq}$	3373	$3376^{+74}_{-74}$	$\chi_{6DF}^2$	0.016	$0.056 (\nu: 0.0)$
$\Omega_m h^2$	0.14179	$0.1419^{+0.0031}_{-0.0031}$	$k_{eq}$	0.010295	$0.01030^{+0.00023}_{-0.00023}$	$\chi_{MGS}^2$	1.34	$1.41 (\nu: 0.2)$
$\Omega_m h^3$	0.09599	$0.0961^{+0.0020}_{-0.0019}$	$100\theta_{eq}$	0.8183	$0.818^{+0.014}_{-0.013}$	$\chi_{DR12BAO}^2$	4.05	$4.7 (\nu: 1.3)$
$\sigma_8$	0.8085	$0.809^{+0.025}_{-0.022}$	$100\theta_{s,eq}$	0.4521	$0.4519^{+0.0072}_{-0.0069}$	$\chi_{prior}^2$	1.5	$7.3 (\nu: 6.9)$
$S_8$	0.8211	$0.822^{+0.039}_{-0.037}$	$H(0.15)$	72.95	$73.0^{+1.4}_{-1.4}$	$\chi_{BAO}^2$	5.41	$6.2 (\nu: 0.9)$
$\sigma_8 \Omega_m^{0.5}$	0.4497	$0.450^{+0.022}_{-0.020}$	$D_M(0.15)$	640.5	$640^{+14}_{-13}$	$\chi_{CMB}^2$	1178.8	$1193.1 (\nu: 15.7)$

Best-fit  $\chi_{eff}^2 = 1185.74$ ;  $\bar{\chi}_{eff}^2 = 1206.53$ ;  $R - 1 = 0.01126$

$\chi_{eff}^2$ : BAO - 6DF: 0.02 MGS: 1.34 DR12BAO: 4.05 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 396.06 commander\_dx12\_v3.2.29: 22.64 plik\_rd12\_HM\_v22.TT: 760.12



### 20.3 base\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02213	$0.02213^{+0.00074}_{-0.00073}$	$\sigma_8 \Omega_m^{0.5}$	0.4568	$0.457^{+0.023}_{-0.023}$	$H(0.15)$	72.36	$72.4^{+2.0}_{-2.0}$
$\Omega_c h^2$	0.12014	$0.1203^{+0.0041}_{-0.0042}$	$\sigma_8 \Omega_m^{0.25}$	0.6081	$0.609^{+0.020}_{-0.020}$	$D_M(0.15)$	646.5	$646^{+20}_{-19}$
$100\theta_{MC}$	1.04064	$1.0408^{+0.0022}_{-0.0022}$	$\sigma_8/h^{0.5}$	0.9890	$0.990^{+0.027}_{-0.028}$	$H(0.38)$	82.57	$82.6^{+1.6}_{-1.5}$
$\tau$	0.0525	$0.052^{+0.022}_{-0.023}$	$r_{drag} h$	98.74	$98.7^{+3.6}_{-3.5}$	$D_M(0.38)$	1540.2	$1540^{+41}_{-40}$
$Y_P$	0.239	$0.244^{+0.050}_{-0.054}$	$\langle d^2 \rangle^{1/2}$	2.448	$2.448^{+0.074}_{-0.074}$	$H(0.51)$	89.35	$89.4^{+1.4}_{-1.3}$
$\ln(10^{10} A_s)$	3.0392	$3.039^{+0.045}_{-0.045}$	$z_{re}$	7.53	$7.5^{+2.2}_{-2.5}$	$D_M(0.51)$	1994.1	$1994^{+49}_{-48}$
$n_s$	0.9626	$0.963^{+0.026}_{-0.025}$	$10^9 A_s$	2.089	$2.089^{+0.097}_{-0.091}$	$H(0.61)$	95.01	$95.0^{+1.2}_{-1.2}$
$y_{cal}$	1.0005	$1.0004^{+0.0066}_{-0.0062}$	$10^9 A_s e^{-2\tau}$	1.8806	$1.882^{+0.038}_{-0.036}$	$D_M(0.61)$	2320	$2319^{+53}_{-52}$
$A_{217}^{CIB}$	47.8	$48^{+20}_{-20}$	$D_{40}$	1232.7	$1233^{+49}_{-49}$	$H(2.33)$	236.39	$236.5^{+2.5}_{-2.5}$
$\xi^{tSZ \times CIB}$	0.46	—	$D_{220}$	5715	$5716^{+100}_{-110}$	$D_M(2.33)$	5778	$5776^{+60}_{-61}$
$A_{143}^{tSZ}$	6.9	—	$D_{810}$	2537.6	$2536^{+37}_{-35}$	$f\sigma_8(0.15)$	0.4608	$0.461^{+0.021}_{-0.021}$
$A_{100}^{PS}$	252	$264^{+70}_{-70}$	$D_{1420}$	816.7	$814^{+14}_{-14}$	$\sigma_8(0.15)$	0.7475	$0.748^{+0.020}_{-0.018}$
$A_{143}^{PS}$	50.2	$49^{+20}_{-20}$	$D_{2000}$	230.7	$229.6^{+6.4}_{-6.1}$	$f\sigma_8(0.38)$	0.4776	$0.478^{+0.016}_{-0.016}$
$A_{143 \times 217}^{PS}$	49.5	$43^{+20}_{-20}$	$n_{s,0.002}$	0.9626	$0.963^{+0.026}_{-0.025}$	$\sigma_8(0.38)$	0.6618	$0.662^{+0.018}_{-0.017}$
$A_{217}^{PS}$	119.9	$115^{+30}_{-30}$	$Y_P$	0.239	$0.244^{+0.050}_{-0.054}$	$f\sigma_8(0.51)$	0.4754	$0.476^{+0.014}_{-0.014}$
$A^{kSZ}$	0.0	—	$Y_P^{BBN}$	0.241	$0.246^{+0.050}_{-0.054}$	$\sigma_8(0.51)$	0.6191	$0.619^{+0.018}_{-0.017}$
$A_{100}^{dustTT}$	8.86	$8.9^{+4.7}_{-5.0}$	Age/Gyr	13.831	$13.83^{+0.14}_{-0.14}$	$f\sigma_8(0.61)$	0.4699	$0.470^{+0.013}_{-0.013}$
$A_{143}^{dustTT}$	10.77	$10.7^{+4.7}_{-4.7}$	$z_*$	1090.00	$1090.2^{+1.7}_{-1.6}$	$\sigma_8(0.61)$	0.5889	$0.589^{+0.017}_{-0.016}$
$A_{143 \times 217}^{dustTT}$	19.5	$18.3^{+8.7}_{-8.4}$	$r_*$	144.60	$144.6^{+1.0}_{-0.97}$	$f\sigma_8(2.33)$	0.2967	$0.2968^{+0.0093}_{-0.0087}$
$A_{217}^{dustTT}$	94.8	$93^{+20}_{-20}$	$100\theta_*$	1.04100	$1.0410^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.3055	$0.306^{+0.010}_{-0.0098}$
$c_{100}$	0.99965	$0.9996^{+0.0015}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.891	$13.886^{+0.095}_{-0.093}$	$f_{2000}^{143}$	29.6	$31^{+10}_{-10}$
$c_{217}$	0.99824	$0.9983^{+0.0017}_{-0.0016}$	$z_{drag}$	1059.17	$1059.4^{+3.1}_{-3.0}$	$f_{2000}^{143 \times 217}$	32.6	$34^{+7}_{-7}$
$H_0$	67.01	$67.0^{+2.3}_{-2.2}$	$r_{drag}$	147.34	$147.3^{+1.1}_{-1.1}$	$f_{2000}^{217}$	107.0	$108.1^{+6.8}_{-6.5}$
$\Omega_\Lambda$	0.6817	$0.681^{+0.028}_{-0.029}$	$k_D$	0.14065	$0.1405^{+0.0017}_{-0.0017}$	$\chi_{lensing}^2$	8.83	$9.48 (\nu: 0.4)$
$\Omega_m$	0.3183	$0.319^{+0.029}_{-0.028}$	$100\theta_D$	0.16080	$0.1610^{+0.0020}_{-0.0020}$	$\chi_{small}^2$	395.86	$396.8 (\nu: 1.2)$
$\Omega_m h^2$	0.14291	$0.1430^{+0.0039}_{-0.0039}$	$z_{eq}$	3400	$3403^{+92}_{-93}$	$\chi_{lowl}^2$	23.69	$23.9 (\nu: 1.6)$
$\Omega_m h^3$	0.09577	$0.0959^{+0.0021}_{-0.0020}$	$k_{eq}$	0.010376	$0.01038^{+0.00028}_{-0.00029}$	$\chi_{plik}^2$	758.8	$771.8 (\nu: 15.4)$
$\sigma_8$	0.8096	$0.810^{+0.020}_{-0.019}$	$100\theta_{eq}$	0.8128	$0.813^{+0.018}_{-0.017}$	$\chi_{prior}^2$	1.3	$7.3 (\nu: 6.9)$
$S_8$	0.8339	$0.835^{+0.042}_{-0.042}$	$100\theta_{s,eq}$	0.4493	$0.4492^{+0.0094}_{-0.0088}$	$\chi_{CMB}^2$	1187.2	$1202.1 (\nu: 16.4)$

Best-fit  $\chi_{\text{eff}}^2 = 1188.45$ ;  $\bar{\chi}_{\text{eff}}^2 = 1209.39$ ;  $R - 1 = 0.00784$

$\chi_{\text{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.83 small\_100x143\_offlike5\_EE\_Aplanck\_B: 395.86 commander\_dx12\_v3.2\_29: 23.69 plik\_rd12\_HM.v22.TT: 758.77



## 20.4 base\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02224	$0.02226^{+0.00066}_{-0.00062}$	$\sigma_8/h^{0.5}$	0.9849	$0.985^{+0.025}_{-0.025}$	$H(0.51)$	89.66	$89.7^{+1.0}_{-0.95}$
$\Omega_c h^2$	0.11918	$0.1191^{+0.0028}_{-0.0028}$	$r_{\text{drag}} h$	99.65	$99.7^{+2.3}_{-2.3}$	$D_M(0.51)$	1982.2	$1981^{+32}_{-32}$
$100\theta_{\text{MC}}$	1.04106	$1.0412^{+0.0019}_{-0.0019}$	$\langle d^2 \rangle^{1/2}$	2.432	$2.431^{+0.060}_{-0.059}$	$H(0.61)$	95.28	$95.33^{+0.93}_{-0.87}$
$\tau$	0.0549	$0.055^{+0.021}_{-0.019}$	$z_{\text{re}}$	7.77	$7.8^{+2.0}_{-2.0}$	$D_M(0.61)$	2306.6	$2305^{+35}_{-35}$
$Y_{\text{P}}$	0.2480	$0.251^{+0.049}_{-0.049}$	$10^9 A_{\text{s}}$	2.098	$2.100^{+0.093}_{-0.080}$	$H(2.33)$	235.90	$235.9^{+1.9}_{-1.9}$
$\ln(10^{10} A_{\text{s}})$	3.0437	$3.045^{+0.043}_{-0.039}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8802	$1.882^{+0.038}_{-0.035}$	$D_M(2.33)$	5765.6	$5763^{+47}_{-50}$
$n_{\text{s}}$	0.9674	$0.968^{+0.021}_{-0.020}$	$D_{40}$	1224.6	$1224^{+42}_{-42}$	$f\sigma_8(0.15)$	0.4562	$0.456^{+0.016}_{-0.016}$
$y_{\text{cal}}$	1.0005	$1.0006^{+0.0067}_{-0.0062}$	$D_{220}$	5720	$5724^{+100}_{-100}$	$\sigma_8(0.15)$	0.7482	$0.749^{+0.019}_{-0.018}$
$A_{217}^{\text{CIB}}$	50.2	$48^{+20}_{-20}$	$D_{810}$	2537.4	$2538^{+36}_{-34}$	$f\sigma_8(0.38)$	0.4746	$0.475^{+0.014}_{-0.014}$
$\xi^{\text{tSZ} \times \text{CIB}}$	0.12	—	$D_{1420}$	815.7	$815^{+13}_{-13}$	$\sigma_8(0.38)$	0.6633	$0.664^{+0.018}_{-0.016}$
$A_{143}^{\text{tSZ}}$	7.2	—	$D_{2000}$	229.9	$229.4^{+6.2}_{-6.0}$	$f\sigma_8(0.51)$	0.4732	$0.473^{+0.013}_{-0.013}$
$A_{100}^{\text{PS}}$	256	$266^{+70}_{-70}$	$n_{\text{s},0.002}$	0.9674	$0.968^{+0.021}_{-0.020}$	$\sigma_8(0.51)$	0.6207	$0.621^{+0.017}_{-0.015}$
$A_{143}^{\text{PS}}$	46.8	$50^{+20}_{-20}$	$Y_{\text{P}}$	0.2480	$0.251^{+0.049}_{-0.049}$	$f\sigma_8(0.61)$	0.4683	$0.468^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\text{PS}}$	41.9	$44^{+20}_{-20}$	$Y_{\text{P}}^{\text{BBN}}$	0.2494	$0.253^{+0.049}_{-0.049}$	$\sigma_8(0.61)$	0.5906	$0.591^{+0.017}_{-0.015}$
$A_{217}^{\text{PS}}$	117.1	$115^{+30}_{-30}$	Age/Gyr	13.803	$13.80^{+0.11}_{-0.12}$	$f\sigma_8(2.33)$	0.2978	$0.2981^{+0.0085}_{-0.0076}$
$A^{\text{kSZ}}$	0.0	—	$z_*$	1090.13	$1090.2^{+1.7}_{-1.6}$	$\sigma_8(2.33)$	0.3071	$0.3074^{+0.0090}_{-0.0081}$
$A_{100}^{\text{dustTT}}$	8.95	$9.0^{+4.6}_{-4.9}$	$r_*$	144.74	$144.72^{+0.91}_{-0.91}$	$f_{2000}^{143}$	30.8	$32^{+10}_{-10}$
$A_{143}^{\text{dustTT}}$	10.80	$10.7^{+4.7}_{-4.9}$	$100\theta_*$	1.04119	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	33.5	$34^{+7}_{-7}$
$A_{143 \times 217}^{\text{dustTT}}$	19.2	$18.3^{+8.6}_{-8.3}$	$D_M(z_*)/\text{Gpc}$	13.901	$13.899^{+0.091}_{-0.093}$	$f_{2000}^{217}$	108.0	$108.6^{+6.6}_{-6.6}$
$A_{217}^{\text{dustTT}}$	94.2	$93^{+20}_{-20}$	$z_{\text{drag}}$	1059.67	$1059.8^{+3.0}_{-2.7}$	$\chi_{\text{lensing}}^2$	8.88	$9.36 (\nu: 0.3)$
$c_{100}$	0.99965	$0.9996^{+0.0015}_{-0.0017}$	$r_{\text{drag}}$	147.45	$147.4^{+1.0}_{-1.1}$	$\chi_{\text{small}}^2$	396.18	$397.0 (\nu: 1.5)$
$c_{217}$	0.99826	$0.9983^{+0.0017}_{-0.0016}$	$k_{\text{D}}$	0.14028	$0.1402^{+0.0015}_{-0.0015}$	$\chi_{\text{lowl}}^2$	22.92	$23.0 (\nu: 0.9)$
$H_0$	67.58	$67.7^{+1.5}_{-1.5}$	$100\theta_{\text{D}}$	0.16110	$0.1613^{+0.0019}_{-0.0018}$	$\chi_{\text{plik}}^2$	759.5	$772.7 (\nu: 15.5)$
$\Omega_{\Lambda}$	0.6890	$0.690^{+0.017}_{-0.018}$	$z_{\text{eq}}$	3379	$3379^{+66}_{-68}$	$\chi_{6\text{DF}}^2$	0.029	$0.057 (\nu: 0.0)$
$\Omega_{\text{m}}$	0.3110	$0.310^{+0.018}_{-0.017}$	$k_{\text{eq}}$	0.010314	$0.01031^{+0.00020}_{-0.00021}$	$\chi_{\text{MGS}}^2$	1.22	$1.33 (\nu: 0.1)$
$\Omega_{\text{m}} h^2$	0.14206	$0.1421^{+0.0028}_{-0.0028}$	$100\theta_{\text{eq}}$	0.8171	$0.817^{+0.012}_{-0.012}$	$\chi_{\text{DR12BAO}}^2$	4.37	$4.8 (\nu: 1.2)$
$\Omega_{\text{m}} h^3$	0.09601	$0.0961^{+0.0020}_{-0.0019}$	$100\theta_{\text{s,eq}}$	0.4515	$0.4516^{+0.0064}_{-0.0061}$	$\chi_{\text{prior}}^2$	1.5	$7.3 (\nu: 7.0)$
$\sigma_8$	0.8096	$0.810^{+0.021}_{-0.019}$	$H(0.15)$	72.85	$72.9^{+1.4}_{-1.3}$	$\chi_{\text{CMB}}^2$	1187.5	$1202.1 (\nu: 15.9)$
$S_8$	0.8244	$0.824^{+0.032}_{-0.031}$	$D_M(0.15)$	641.5	$641^{+13}_{-13}$	$\chi_{\text{BAO}}^2$	5.62	$6.2 (\nu: 0.8)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4515	$0.451^{+0.017}_{-0.017}$	$H(0.38)$	82.95	$83.0^{+1.1}_{-1.1}$			
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6046	$0.605^{+0.017}_{-0.017}$	$D_M(0.38)$	1530.1	$1529^{+27}_{-27}$			

Best-fit  $\chi_{\text{eff}}^2 = 1194.68$ ;  $\bar{\chi}_{\text{eff}}^2 = 1215.53$ ;  $R - 1 = 0.01408$   
 $\chi_{\text{eff}}^2$ : BAO - 6DF: 0.03 MGS: 1.22 DR12BAO: 4.37 CMB - smicadx12\_Dec5.ftl\_mv2\_ndclpp\_p.teb\_consext8: 8.88 small\_100x143.offlike5\_EE\_Aplanck\_B: 396.18 commander\_dx12.v3.2.29: 22.92 plik\_rd12\_HM.v22\_TT: 759.54



## 20.5 base\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02254	$0.02257^{+0.00063}_{-0.00071}$	$\sigma_8 \Omega_m^{0.5}$	0.4379	$0.437^{+0.031}_{-0.029}$	$H(0.15)$	74.00	$74.1^{+2.1}_{-2.2}$
$\Omega_c h^2$	0.11695	$0.1168^{+0.0049}_{-0.0046}$	$\sigma_8 \Omega_m^{0.25}$	0.5940	$0.594^{+0.029}_{-0.028}$	$D_M(0.15)$	630.5	$629^{+21}_{-20}$
$100\theta_{MC}$	1.04184	$1.0420^{+0.0020}_{-0.0021}$	$\sigma_8/h^{0.5}$	0.9709	$0.970^{+0.040}_{-0.038}$	$H(0.38)$	83.83	$84.0^{+1.6}_{-1.7}$
$\tau$	0.0566	$0.057^{+0.023}_{-0.021}$	$r_{drag} h$	101.72	$101.9^{+4.1}_{-4.1}$	$D_M(0.38)$	1507.6	$1505^{+43}_{-40}$
$Y_P$	0.2625	$0.268^{+0.045}_{-0.050}$	$\langle d^2 \rangle^{1/2}$	2.387	$2.38^{+0.10}_{-0.10}$	$H(0.51)$	90.39	$90.5^{+1.3}_{-1.4}$
$\ln(10^{10} A_s)$	3.0460	$3.047^{+0.053}_{-0.043}$	$z_{re}$	7.91	$7.9^{+2.1}_{-2.2}$	$D_M(0.51)$	1955.5	$1952^{+51}_{-48}$
$n_s$	0.9787	$0.981^{+0.026}_{-0.025}$	$10^9 A_s$	2.103	$2.11^{+0.11}_{-0.088}$	$H(0.61)$	95.89	$96.0^{+1.2}_{-1.2}$
$y_{cal}$	1.0006	$1.0004^{+0.0079}_{-0.0066}$	$10^9 A_s e^{-2\tau}$	1.8778	$1.879^{+0.042}_{-0.040}$	$D_M(0.61)$	2278	$2274^{+55}_{-52}$
$A_{217}^{CIB}$	50.3	$50^{+20}_{-20}$	$D_{40}$	1204	$1201^{+52}_{-63}$	$H(2.33)$	234.81	$234.8^{+3.0}_{-2.8}$
$\xi^{tSZ \times CIB}$	0.17	—	$D_{220}$	5729	$5729^{+130}_{-120}$	$D_M(2.33)$	5737	$5733^{+58}_{-57}$
$A_{143}^{tSZ}$	6.9	—	$D_{810}$	2539.4	$2538^{+41}_{-38}$	$f\sigma_8(0.15)$	0.4437	$0.443^{+0.029}_{-0.027}$
$A_{100}^{PS}$	259	$271^{+70}_{-70}$	$D_{1420}$	816.3	$815^{+15}_{-13}$	$\sigma_8(0.15)$	0.7462	$0.747^{+0.026}_{-0.021}$
$A_{143}^{PS}$	49.2	$52^{+20}_{-20}$	$D_{2000}$	229.4	$228.5^{+6.1}_{-6.5}$	$f\sigma_8(0.38)$	0.4656	$0.465^{+0.024}_{-0.021}$
$A_{143 \times 217}^{PS}$	44	$44^{+30}_{-20}$	$n_{s,0.002}$	0.9787	$0.981^{+0.026}_{-0.025}$	$\sigma_8(0.38)$	0.6633	$0.664^{+0.022}_{-0.018}$
$A_{217}^{PS}$	117.7	$114^{+20}_{-30}$	$Y_P$	0.2625	$0.268^{+0.045}_{-0.050}$	$f\sigma_8(0.51)$	0.4661	$0.466^{+0.021}_{-0.020}$
$A^{kSZ}$	0.6	—	$Y_P^{BBN}$	0.2639	$0.270^{+0.045}_{-0.050}$	$\sigma_8(0.51)$	0.6215	$0.622^{+0.020}_{-0.016}$
$A_{100}^{dustTT}$	8.98	$9.0^{+4.8}_{-4.7}$	Age/Gyr	13.740	$13.73^{+0.13}_{-0.13}$	$f\sigma_8(0.61)$	0.4624	$0.462^{+0.019}_{-0.018}$
$A_{143}^{dustTT}$	10.87	$10.8^{+4.6}_{-4.6}$	$z_*$	1090.14	$1090.3^{+1.6}_{-1.7}$	$\sigma_8(0.61)$	0.5918	$0.592^{+0.019}_{-0.016}$
$A_{143 \times 217}^{dustTT}$	19.2	$18.3^{+8.7}_{-8.3}$	$r_*$	145.03	$145.0^{+1.1}_{-1.2}$	$f\sigma_8(2.33)$	0.2991	$0.2994^{+0.0097}_{-0.0084}$
$A_{217}^{dustTT}$	93.9	$92^{+20}_{-20}$	$100\theta_*$	1.04156	$1.0416^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	0.3091	$0.310^{+0.010}_{-0.0091}$
$c_{100}$	0.99963	$0.9996^{+0.0016}_{-0.0016}$	$D_M(z_*)/\text{Gpc}$	13.925	$13.92^{+0.10}_{-0.12}$	$f_{2000}^{143}$	31.8	$33^{+9}_{-9}$
$c_{217}$	0.99825	$0.9983^{+0.0014}_{-0.0014}$	$z_{drag}$	1060.66	$1060.9^{+2.6}_{-3.0}$	$f_{2000}^{143 \times 217}$	34.3	$35^{+8}_{-8}$
$H_0$	68.88	$69.0^{+2.4}_{-2.5}$	$r_{drag}$	147.67	$147.7^{+1.1}_{-1.3}$	$f_{2000}^{217}$	108.7	$109.5^{+6.7}_{-6.4}$
$\Omega_\Lambda$	0.7047	$0.706^{+0.028}_{-0.031}$	$k_D$	0.13970	$0.1395^{+0.0018}_{-0.0020}$	$\chi_{simall}^2$	396.3	$397.3 (\nu: 2.3)$
$\Omega_m$	0.2953	$0.294^{+0.031}_{-0.028}$	$100\theta_D$	0.16150	$0.1618^{+0.0018}_{-0.0019}$	$\chi_{lowl}^2$	21.31	$21.4 (\nu: 0.7)$
$\Omega_m h^2$	0.14014	$0.1400^{+0.0047}_{-0.0048}$	$z_{eq}$	3333	$3331^{+110}_{-110}$	$\chi_{plik}^2$	764.1	$778.0 (\nu: 23.1)$
$\Omega_m h^3$	0.09653	$0.0967^{+0.0018}_{-0.0019}$	$k_{eq}$	0.010174	$0.01017^{+0.00034}_{-0.00035}$	$\chi_{H073p45}^2$	7.6	$7.4 (\nu: 5.3)$
$\sigma_8$	0.8058	$0.806^{+0.029}_{-0.023}$	$100\theta_{eq}$	0.8270	$0.828^{+0.021}_{-0.021}$	$\chi_{prior}^2$	1.6	$7.5 (\nu: 7.7)$
$S_8$	0.800	$0.798^{+0.057}_{-0.052}$	$100\theta_{s,eq}$	0.4564	$0.457^{+0.011}_{-0.011}$	$\chi_{CMB}^2$	1181.6	$1196.7 (\nu: 20.3)$

Best-fit  $\chi_{\text{eff}}^2 = 1190.84$ ;  $\bar{\chi}_{\text{eff}}^2 = 1211.61$ ;  $R - 1 = 0.08259$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.26 commander\_dx12\_v3.2\_29: 21.31 plik\_rd12\_HM\_v22\_TT: 764.07 Hubble - H073p45: 7.57



## 20.6 base\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02213^{+0.00080}_{-0.00075}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.460^{+0.035}_{-0.034}$	$H(0.15)$	$72.3^{+2.6}_{-2.4}$
$\Omega_{\mathrm{c}}h^2$	$0.1205^{+0.0055}_{-0.0055}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.030}_{-0.030}$	$D_{\mathrm{M}}(0.15)$	$647^{+25}_{-25}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0023}_{-0.0023}$	$\sigma_8/h^{0.5}$	$0.993^{+0.040}_{-0.040}$	$H(0.38)$	$82.6^{+2.0}_{-1.8}$
$\tau$	$0.054^{+0.019}_{-0.012}$	$r_{\mathrm{drag}}h$	$98.6^{+4.7}_{-4.5}$	$D_{\mathrm{M}}(0.38)$	$1541^{+49}_{-51}$
$Y_{\mathrm{P}}$	$0.247^{+0.051}_{-0.054}$	$\langle d^2 \rangle^{1/2}$	$2.45^{+0.11}_{-0.11}$	$H(0.51)$	$89.4^{+1.7}_{-1.5}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.045}_{-0.032}$	$z_{\mathrm{re}}$	$< 9.46$	$D_{\mathrm{M}}(0.51)$	$1995^{+58}_{-60}$
$n_{\mathrm{s}}$	$0.964^{+0.028}_{-0.027}$	$10^9 A_{\mathrm{s}}$	$2.098^{+0.096}_{-0.066}$	$H(0.61)$	$95.1^{+1.4}_{-1.2}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0066}_{-0.0063}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.885^{+0.040}_{-0.039}$	$D_{\mathrm{M}}(0.61)$	$2320^{+63}_{-66}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{40}$	$1233^{+56}_{-55}$	$H(2.33)$	$236.7^{+3.2}_{-3.2}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{220}$	$5713^{+100}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5776^{+64}_{-69}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{810}$	$2536^{+37}_{-36}$	$f\sigma_8(0.15)$	$0.464^{+0.031}_{-0.032}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-80}$	$D_{1420}$	$814^{+14}_{-14}$	$\sigma_8(0.15)$	$0.750^{+0.022}_{-0.019}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$D_{2000}$	$229.4^{+6.5}_{-6.1}$	$f\sigma_8(0.38)$	$0.480^{+0.024}_{-0.025}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.964^{+0.028}_{-0.027}$	$\sigma_8(0.38)$	$0.664^{+0.019}_{-0.016}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}$	$0.247^{+0.051}_{-0.054}$	$f\sigma_8(0.51)$	$0.478^{+0.020}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.248^{+0.051}_{-0.054}$	$\sigma_8(0.51)$	$0.621^{+0.018}_{-0.015}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.7}_{-4.8}$	Age/Gyr	$13.83^{+0.15}_{-0.16}$	$f\sigma_8(0.61)$	$0.472^{+0.018}_{-0.019}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.7}_{-4.6}$	$z_*$	$1090.3^{+1.7}_{-1.6}$	$\sigma_8(0.61)$	$0.591^{+0.017}_{-0.014}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.5}_{-8.4}$	$r_*$	$144.5^{+1.2}_{-1.2}$	$f\sigma_8(2.33)$	$0.2976^{+0.0091}_{-0.0072}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0410^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	$0.3065^{+0.0099}_{-0.0081}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.88^{+0.12}_{-0.11}$	$f_{2000}^{143}$	$31^{+10}_{-10}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.5^{+3.2}_{-3.1}$	$f_{2000}^{143 \times 217}$	$34^{+7}_{-7}$
$H_0$	$67.0^{+2.9}_{-2.7}$	$r_{\mathrm{drag}}$	$147.2^{+1.3}_{-1.3}$	$f_{2000}^{217}$	$108.3^{+6.7}_{-6.6}$
$\Omega_{\Lambda}$	$0.680^{+0.036}_{-0.039}$	$k_{\mathrm{D}}$	$0.1405^{+0.0019}_{-0.0019}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.3)$
$\Omega_{\mathrm{m}}$	$0.320^{+0.039}_{-0.036}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0019}_{-0.0020}$	$\chi_{\mathrm{lowl}}^2$	$23.9 (\nu: 2.1)$
$\Omega_{\mathrm{m}}h^2$	$0.1433^{+0.0051}_{-0.0051}$	$z_{\mathrm{eq}}$	$3409^{+120}_{-120}$	$\chi_{\mathrm{plik}}^2$	$772.1 (\nu: 16.7)$
$\Omega_{\mathrm{m}}h^3$	$0.0959^{+0.0021}_{-0.0020}$	$k_{\mathrm{eq}}$	$0.01040^{+0.00037}_{-0.00037}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.8)$
$\sigma_8$	$0.813^{+0.025}_{-0.022}$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.024}_{-0.023}$	$\chi_{\mathrm{CMB}}^2$	$1192.9 (\nu: 15.6)$
$S_8$	$0.839^{+0.063}_{-0.063}$	$100\theta_{\mathrm{s,eq}}$	$0.449^{+0.012}_{-0.012}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1200.15; R - 1 = 0.00514$$



## 20.7 base\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02228^{+0.00065}_{-0.00063}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.022}_{-0.020}$	$H(0.38)$	$83.1^{+1.1}_{-1.1}$
$\Omega_{\mathrm{c}} h^2$	$0.1190^{+0.0032}_{-0.0032}$	$\sigma_8 / h^{0.5}$	$0.984^{+0.032}_{-0.029}$	$D_{\mathrm{M}}(0.38)$	$1527^{+28}_{-28}$
$100\theta_{\mathrm{MC}}$	$1.0413^{+0.0019}_{-0.0019}$	$r_{\mathrm{drag}} h$	$99.9^{+2.5}_{-2.5}$	$H(0.51)$	$89.8^{+1.0}_{-0.98}$
$\tau$	$0.055^{+0.019}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.426^{+0.072}_{-0.070}$	$D_{\mathrm{M}}(0.51)$	$1979^{+34}_{-33}$
$Y_{\mathrm{P}}$	$0.253^{+0.048}_{-0.049}$	$z_{\mathrm{re}}$	$< 9.58$	$H(0.61)$	$95.37^{+0.92}_{-0.88}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.045}_{-0.033}$	$10^9 A_{\mathrm{s}}$	$2.100^{+0.097}_{-0.068}$	$D_{\mathrm{M}}(0.61)$	$2303^{+37}_{-36}$
$n_{\mathrm{s}}$	$0.969^{+0.022}_{-0.021}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.881^{+0.040}_{-0.037}$	$H(2.33)$	$235.8^{+2.1}_{-2.1}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0068}_{-0.0064}$	$D_{40}$	$1221^{+43}_{-43}$	$D_{\mathrm{M}}(2.33)$	$5761^{+47}_{-50}$
$A_{217}^{\mathrm{CIB}}$	$49^{+20}_{-20}$	$D_{220}$	$5719^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.455^{+0.020}_{-0.019}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{810}$	$2537^{+37}_{-35}$	$\sigma_8(0.15)$	$0.749^{+0.022}_{-0.018}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.474^{+0.017}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$267^{+70}_{-80}$	$D_{2000}$	$229.1^{+6.3}_{-6.0}$	$\sigma_8(0.38)$	$0.664^{+0.020}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.969^{+0.022}_{-0.021}$	$f\sigma_8(0.51)$	$0.473^{+0.016}_{-0.015}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.253^{+0.048}_{-0.049}$	$\sigma_8(0.51)$	$0.621^{+0.018}_{-0.015}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.255^{+0.048}_{-0.049}$	$f\sigma_8(0.61)$	$0.468^{+0.015}_{-0.014}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.79^{+0.11}_{-0.12}$	$\sigma_8(0.61)$	$0.591^{+0.017}_{-0.014}$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.8}_{-5.0}$	$z_{*}$	$1090.3^{+1.7}_{-1.7}$	$f\sigma_8(2.33)$	$0.2982^{+0.0091}_{-0.0069}$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.7}_{-4.9}$	$r_{*}$	$144.74^{+0.95}_{-0.96}$	$\sigma_8(2.33)$	$0.3076^{+0.0096}_{-0.0074}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.5}_{-8.3}$	$100\theta_{*}$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143}$	$32^{+10}_{-10}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.900^{+0.094}_{-0.098}$	$f_{2000}^{143 \times 217}$	$34^{+7}_{-7}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0017}$	$z_{\mathrm{drag}}$	$1059.9^{+2.9}_{-2.7}$	$f_{2000}^{217}$	$108.7^{+6.6}_{-6.7}$
$c_{217}$	$0.9983^{+0.0017}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.4^{+1.1}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.6)$
$H_0$	$67.8^{+1.6}_{-1.6}$	$k_{\mathrm{D}}$	$0.1401^{+0.0015}_{-0.0015}$	$\chi_{\mathrm{lowl}}^2$	$22.8 (\nu: 0.9)$
$\Omega_{\Lambda}$	$0.691^{+0.019}_{-0.020}$	$100\theta_{\mathrm{D}}$	$0.1613^{+0.0018}_{-0.0019}$	$\chi_{\mathrm{plik}}^2$	$773.2 (\nu: 16.3)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.020}_{-0.019}$	$z_{\mathrm{eq}}$	$3376^{+74}_{-74}$	$\chi_{6\mathrm{DF}}^2$	$0.055 (\nu: 0.0)$
$\Omega_{\mathrm{m}} h^2$	$0.1419^{+0.0031}_{-0.0031}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00023}_{-0.00023}$	$\chi_{\mathrm{MGS}}^2$	$1.43 (\nu: 0.2)$
$\Omega_{\mathrm{m}} h^3$	$0.0961^{+0.0020}_{-0.0019}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.014}_{-0.013}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.2)$
$\sigma_8$	$0.810^{+0.024}_{-0.020}$	$100\theta_{\mathrm{s,eq}}$	$0.4520^{+0.0071}_{-0.0069}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.9)$
$S_8$	$0.822^{+0.039}_{-0.037}$	$H(0.15)$	$73.0^{+1.4}_{-1.4}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.8)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.021}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$640^{+14}_{-13}$	$\chi_{\mathrm{CMB}}^2$	$1192.9 (\nu: 15.4)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1206.38; R - 1 = 0.01225$$



## 20.8 base\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02215^{+0.00074}_{-0.00072}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.023}_{-0.023}$	$H(0.15)$	$72.4^{+2.0}_{-1.9}$
$\Omega_{\mathrm{c}}h^2$	$0.1201^{+0.0040}_{-0.0041}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.020}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$646^{+19}_{-19}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0022}_{-0.0021}$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.028}$	$H(0.38)$	$82.7^{+1.6}_{-1.5}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$r_{\mathrm{drag}}h$	$98.9^{+3.5}_{-3.3}$	$D_{\mathrm{M}}(0.38)$	$1538^{+39}_{-39}$
$Y_{\mathrm{P}}$	$0.245^{+0.050}_{-0.053}$	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.074}_{-0.074}$	$H(0.51)$	$89.4^{+1.4}_{-1.3}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.042^{+0.043}_{-0.030}$	$z_{\mathrm{re}}$	$< 9.40$	$D_{\mathrm{M}}(0.51)$	$1992^{+46}_{-46}$
$n_{\mathrm{s}}$	$0.964^{+0.026}_{-0.025}$	$10^9 A_{\mathrm{s}}$	$2.095^{+0.092}_{-0.063}$	$H(0.61)$	$95.1^{+1.2}_{-1.1}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0066}_{-0.0062}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.037}_{-0.036}$	$D_{\mathrm{M}}(0.61)$	$2317^{+50}_{-51}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{40}$	$1232^{+49}_{-48}$	$H(2.33)$	$236.4^{+2.4}_{-2.5}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{220}$	$5716^{+100}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5775^{+59}_{-61}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{810}$	$2536^{+36}_{-35}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021}$
$A_{100}^{\mathrm{PS}}$	$264^{+70}_{-80}$	$D_{1420}$	$814^{+14}_{-13}$	$\sigma_8(0.15)$	$0.749^{+0.019}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$D_{2000}$	$229.5^{+6.4}_{-6.0}$	$f\sigma_8(0.38)$	$0.478^{+0.016}_{-0.016}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.964^{+0.026}_{-0.025}$	$\sigma_8(0.38)$	$0.663^{+0.018}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}$	$0.245^{+0.050}_{-0.053}$	$f\sigma_8(0.51)$	$0.476^{+0.014}_{-0.014}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.246^{+0.050}_{-0.054}$	$\sigma_8(0.51)$	$0.620^{+0.017}_{-0.014}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.7}_{-4.9}$	Age/Gyr	$13.82^{+0.14}_{-0.14}$	$f\sigma_8(0.61)$	$0.470^{+0.013}_{-0.013}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.7}_{-4.7}$	$z_*$	$1090.2^{+1.7}_{-1.6}$	$\sigma_8(0.61)$	$0.590^{+0.017}_{-0.013}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.7}_{-8.3}$	$r_*$	$144.6^{+1.0}_{-0.97}$	$f\sigma_8(2.33)$	$0.2973^{+0.0088}_{-0.0070}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	$0.306^{+0.010}_{-0.0079}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0017}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.888^{+0.095}_{-0.093}$	$f_{2000}^{143}$	$31^{+10}_{-10}$
$c_{217}$	$0.9983^{+0.0017}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.4^{+3.1}_{-3.0}$	$f_{2000}^{143 \times 217}$	$34^{+7}_{-7}$
$H_0$	$67.1^{+2.2}_{-2.1}$	$r_{\mathrm{drag}}$	$147.3^{+1.1}_{-1.1}$	$f_{2000}^{217}$	$108.1^{+6.7}_{-6.6}$
$\Omega_{\Lambda}$	$0.682^{+0.027}_{-0.028}$	$k_{\mathrm{D}}$	$0.1404^{+0.0017}_{-0.0017}$	$\chi_{\mathrm{lensing}}^2$	$9.46 (\nu: 0.4)$
$\Omega_{\mathrm{m}}$	$0.318^{+0.028}_{-0.027}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0020}_{-0.0019}$	$\chi_{\mathrm{simall}}^2$	$396.7 (\nu: 1.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1429^{+0.0038}_{-0.0038}$	$z_{\mathrm{eq}}$	$3399^{+90}_{-92}$	$\chi_{\mathrm{lowl}}^2$	$23.8 (\nu: 1.5)$
$\Omega_{\mathrm{m}}h^3$	$0.0959^{+0.0021}_{-0.0020}$	$k_{\mathrm{eq}}$	$0.01038^{+0.00027}_{-0.00028}$	$\chi_{\mathrm{plik}}^2$	$771.8 (\nu: 15.4)$
$\sigma_8$	$0.811^{+0.020}_{-0.017}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.018}_{-0.017}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 6.8)$
$S_8$	$0.834^{+0.042}_{-0.042}$	$100\theta_{\mathrm{s,eq}}$	$0.4495^{+0.0091}_{-0.0086}$	$\chi_{\mathrm{CMB}}^2$	$1201.8 (\nu: 15.9)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1209.13; R - 1 = 0.00826$$



## 20.9 base\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02226^{+0.00065}_{-0.00063}$	$\sigma_8/h^{0.5}$	$0.985^{+0.025}_{-0.024}$	$H(0.51)$	$89.73^{+0.99}_{-0.95}$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0028}_{-0.0028}$	$r_{\mathrm{drag}}h$	$99.8^{+2.3}_{-2.2}$	$D_{\mathrm{M}}(0.51)$	$1980^{+32}_{-32}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0019}_{-0.0018}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.059}_{-0.058}$	$H(0.61)$	$95.33^{+0.94}_{-0.87}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$z_{\mathrm{re}}$	$< 9.57$	$D_{\mathrm{M}}(0.61)$	$2304^{+35}_{-35}$
$Y_{\mathrm{P}}$	$0.251^{+0.049}_{-0.049}$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.090}_{-0.065}$	$H(2.33)$	$235.9^{+1.9}_{-1.9}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.046^{+0.042}_{-0.031}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.037}_{-0.035}$	$D_{\mathrm{M}}(2.33)$	$5763^{+47}_{-50}$
$n_{\mathrm{s}}$	$0.968^{+0.022}_{-0.020}$	$D_{40}$	$1224^{+42}_{-42}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.016}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0067}_{-0.0063}$	$D_{220}$	$5723^{+98}_{-100}$	$\sigma_8(0.15)$	$0.749^{+0.019}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2537^{+36}_{-34}$	$f\sigma_8(0.38)$	$0.475^{+0.014}_{-0.014}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.38)$	$0.664^{+0.017}_{-0.015}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$229.4^{+6.2}_{-6.0}$	$f\sigma_8(0.51)$	$0.474^{+0.013}_{-0.012}$
$A_{100}^{\mathrm{PS}}$	$266^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.968^{+0.022}_{-0.020}$	$\sigma_8(0.51)$	$0.622^{+0.017}_{-0.014}$
$A_{143}^{\mathrm{PS}}$	$50^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.251^{+0.049}_{-0.049}$	$f\sigma_8(0.61)$	$0.469^{+0.012}_{-0.012}$
$A_{143 \times 217}^{\mathrm{PS}}$	$44^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.253^{+0.049}_{-0.049}$	$\sigma_8(0.61)$	$0.592^{+0.016}_{-0.013}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	Age/Gyr	$13.80^{+0.11}_{-0.12}$	$f\sigma_8(2.33)$	$0.2983^{+0.0084}_{-0.0068}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.2^{+1.7}_{-1.6}$	$\sigma_8(2.33)$	$0.3076^{+0.0088}_{-0.0074}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.6}_{-5.0}$	$r_*$	$144.72^{+0.91}_{-0.91}$	$f_{2000}^{143}$	$32^{+10}_{-10}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.7}_{-4.9}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{143 \times 217}$	$34^{+7}_{-7}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.6}_{-8.3}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.899^{+0.091}_{-0.093}$	$f_{2000}^{217}$	$108.6^{+6.6}_{-6.6}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.8^{+3.0}_{-2.7}$	$\chi_{\mathrm{lensing}}^2$	$9.32 (\nu: 0.3)$
$c_{100}$	$0.9996^{+0.0015}_{-0.0017}$	$r_{\mathrm{drag}}$	$147.4^{+1.0}_{-1.1}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.6)$
$c_{217}$	$0.9983^{+0.0017}_{-0.0016}$	$k_{\mathrm{D}}$	$0.1402^{+0.0015}_{-0.0015}$	$\chi_{\mathrm{lowl}}^2$	$23.0 (\nu: 0.9)$
$H_0$	$67.7^{+1.5}_{-1.5}$	$100\theta_{\mathrm{D}}$	$0.1613^{+0.0019}_{-0.0018}$	$\chi_{\mathrm{plik}}^2$	$772.6 (\nu: 15.5)$
$\Omega_{\Lambda}$	$0.690^{+0.017}_{-0.018}$	$z_{\mathrm{eq}}$	$3378^{+66}_{-67}$	$\chi_{6\mathrm{DF}}^2$	$0.055 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.018}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00020}_{-0.00020}$	$\chi_{\mathrm{MGS}}^2$	$1.35 (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0028}_{-0.0028}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 1.1)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0020}_{-0.0019}$	$100\theta_{\mathrm{s,eq}}$	$0.4517^{+0.0064}_{-0.0061}$	$\chi_{\mathrm{prior}}^2$	$7.3 (\nu: 7.0)$
$\sigma_8$	$0.811^{+0.020}_{-0.018}$	$H(0.15)$	$72.9^{+1.3}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$1202.0 (\nu: 15.7)$
$S_8$	$0.824^{+0.031}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$641^{+13}_{-13}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.7)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.017}$	$H(0.38)$	$83.0^{+1.1}_{-1.1}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.017}_{-0.017}$	$D_{\mathrm{M}}(0.38)$	$1529^{+27}_{-27}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1215.38; R - 1 = 0.01428$$



# 20.10 base\_yhe\_plikHM\_TT\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02258^{+0.00063}_{-0.00071}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.437^{+0.031}_{-0.029}$	$H(0.15)$	$74.2^{+2.1}_{-2.2}$
$\Omega_{\mathrm{c}}h^2$	$0.1168^{+0.0049}_{-0.0051}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.594^{+0.029}_{-0.028}$	$D_{\mathrm{M}}(0.15)$	$629^{+21}_{-19}$
$100\theta_{\mathrm{MC}}$	$1.0421^{+0.0020}_{-0.0021}$	$\sigma_8/h^{0.5}$	$0.971^{+0.040}_{-0.039}$	$H(0.38)$	$84.0^{+1.6}_{-1.7}$
$\tau$	$0.058^{+0.022}_{-0.017}$	$r_{\mathrm{drag}}h$	$102.0^{+4.1}_{-4.1}$	$D_{\mathrm{M}}(0.38)$	$1504^{+43}_{-40}$
$Y_{\mathrm{P}}$	$0.268^{+0.045}_{-0.050}$	$\langle d^2 \rangle^{1/2}$	$2.38^{+0.10}_{-0.10}$	$H(0.51)$	$90.5^{+1.4}_{-1.4}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.048^{+0.053}_{-0.036}$	$z_{\mathrm{re}}$	$< 9.86$	$D_{\mathrm{M}}(0.51)$	$1952^{+51}_{-47}$
$n_{\mathrm{s}}$	$0.981^{+0.026}_{-0.026}$	$10^9 A_{\mathrm{s}}$	$2.11^{+0.11}_{-0.074}$	$H(0.61)$	$96.0^{+1.2}_{-1.2}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0080}_{-0.0065}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.042}_{-0.040}$	$D_{\mathrm{M}}(0.61)$	$2273^{+55}_{-51}$
$A_{217}^{\mathrm{CIB}}$	$50^{+20}_{-20}$	$D_{40}$	$1201^{+52}_{-62}$	$H(2.33)$	$234.7^{+3.0}_{-2.7}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{220}$	$5729^{+130}_{-120}$	$D_{\mathrm{M}}(2.33)$	$5732^{+59}_{-57}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{810}$	$2538^{+41}_{-38}$	$f\sigma_8(0.15)$	$0.443^{+0.029}_{-0.027}$
$A_{100}^{\mathrm{PS}}$	$271^{+70}_{-70}$	$D_{1420}$	$815^{+15}_{-13}$	$\sigma_8(0.15)$	$0.747^{+0.027}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	$52^{+20}_{-20}$	$D_{2000}$	$228.5^{+6.1}_{-6.5}$	$f\sigma_8(0.38)$	$0.465^{+0.024}_{-0.021}$
$A_{143\times 217}^{\mathrm{PS}}$	$44^{+30}_{-20}$	$n_{\mathrm{s},0.002}$	$0.981^{+0.026}_{-0.026}$	$\sigma_8(0.38)$	$0.664^{+0.022}_{-0.016}$
$A_{217}^{\mathrm{PS}}$	$114^{+20}_{-30}$	$Y_{\mathrm{P}}$	$0.268^{+0.045}_{-0.050}$	$f\sigma_8(0.51)$	$0.466^{+0.021}_{-0.020}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.270^{+0.045}_{-0.050}$	$\sigma_8(0.51)$	$0.623^{+0.020}_{-0.015}$
$A_{100}^{\mathrm{dust}TT}$	$9.0^{+4.9}_{-4.8}$	Age/Gyr	$13.73^{+0.13}_{-0.13}$	$f\sigma_8(0.61)$	$0.462^{+0.019}_{-0.018}$
$A_{143}^{\mathrm{dust}TT}$	$10.8^{+4.6}_{-4.6}$	$z_*$	$1090.3^{+1.6}_{-1.7}$	$\sigma_8(0.61)$	$0.593^{+0.018}_{-0.014}$
$A_{143\times 217}^{\mathrm{dust}TT}$	$18.2^{+8.7}_{-8.3}$	$r_*$	$145.0^{+1.1}_{-1.2}$	$f\sigma_8(2.33)$	$0.2997^{+0.0094}_{-0.0071}$
$A_{217}^{\mathrm{dust}TT}$	$92^{+20}_{-20}$	$100\theta_*$	$1.0416^{+0.0011}_{-0.0012}$	$\sigma_8(2.33)$	$0.3098^{+0.0099}_{-0.0079}$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.92^{+0.10}_{-0.12}$	$f_{2000}^{143}$	$33^{+9}_{-9}$
$c_{217}$	$0.9983^{+0.0014}_{-0.0014}$	$z_{\mathrm{drag}}$	$1061.0^{+2.6}_{-3.0}$	$f_{2000}^{143\times 217}$	$35^{+8}_{-8}$
$H_0$	$69.1^{+2.4}_{-2.5}$	$r_{\mathrm{drag}}$	$147.7^{+1.1}_{-1.3}$	$f_{2000}^{217}$	$109.5^{+6.7}_{-6.3}$
$\Omega_{\Lambda}$	$0.706^{+0.028}_{-0.031}$	$k_{\mathrm{D}}$	$0.1395^{+0.0018}_{-0.0020}$	$\chi_{\mathrm{simall}}^2$	$397.3 (\nu: 2.4)$
$\Omega_{\mathrm{m}}$	$0.294^{+0.031}_{-0.028}$	$100\theta_{\mathrm{D}}$	$0.1618^{+0.0018}_{-0.0019}$	$\chi_{\mathrm{lowl}}^2$	$21.4 (\nu: 0.7)$
$\Omega_{\mathrm{m}}h^2$	$0.1400^{+0.0047}_{-0.0048}$	$z_{\mathrm{eq}}$	$3330^{+110}_{-110}$	$\chi_{\mathrm{plik}}^2$	$777.9 (\nu: 22.8)$
$\Omega_{\mathrm{m}}h^3$	$0.0967^{+0.0018}_{-0.0019}$	$k_{\mathrm{eq}}$	$0.01016^{+0.00034}_{-0.00035}$	$\chi_{\mathrm{H073p45}}^2$	$7.3 (\nu: 5.3)$
$\sigma_8$	$0.807^{+0.027}_{-0.023}$	$100\theta_{\mathrm{eq}}$	$0.828^{+0.021}_{-0.021}$	$\chi_{\mathrm{prior}}^2$	$7.5 (\nu: 7.8)$
$S_8$	$0.798^{+0.057}_{-0.052}$	$100\theta_{\mathrm{s,eq}}$	$0.457^{+0.011}_{-0.011}$	$\chi_{\mathrm{CMB}}^2$	$1196.6 (\nu: 19.8)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 1211.44; R - 1 = 0.09941$$



# 20.11 base\_yhe\_plikHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02228	$0.02229^{+0.00051}_{-0.00052}$ (+0.6 $\sigma$ )	$\Omega_{\mathrm{m}}h^2$	0.14325	$0.1432^{+0.0032}_{-0.0033}$ (−0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8118	$0.812^{+0.015}_{-0.014}$ (+0.1 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	0.12033	$0.1202^{+0.0035}_{-0.0035}$ (−0.2 $\sigma$ )	$\Omega_{\mathrm{m}}h^3$	0.09606	$0.0961^{+0.0014}_{-0.0014}$ (+0.3 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4486	$0.4489^{+0.0078}_{-0.0074}$ (+0.1 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04058	$1.0407^{+0.0015}_{-0.0014}$ (−0.1 $\sigma$ )	$\sigma_8$	0.8109	$0.810^{+0.021}_{-0.021}$ (−0.1 $\sigma$ )	$H(0.15)$	72.41	$72.5^{+1.5}_{-1.5}$ (+0.2 $\sigma$ )
$\tau$	0.0540	$0.054^{+0.024}_{-0.022}$ (+0.2 $\sigma$ )	$S_8$	0.8357	$0.834^{+0.040}_{-0.042}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	646.0	$645^{+15}_{-15}$ (−0.2 $\sigma$ )
$Y_{\mathrm{P}}$	0.2365	$0.240^{+0.032}_{-0.034}$ (−0.3 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4577	$0.457^{+0.022}_{-0.023}$ (−0.2 $\sigma$ )	$H(0.38)$	82.64	$82.7^{+1.2}_{-1.1}$ (+0.2 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	3.0431	$3.042^{+0.048}_{-0.046}$ (+0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6093	$0.609^{+0.021}_{-0.021}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1539.0	$1538^{+31}_{-30}$ (−0.2 $\sigma$ )
$n_{\mathrm{s}}$	0.9621	$0.962^{+0.018}_{-0.018}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9903	$0.989^{+0.030}_{-0.031}$ (−0.2 $\sigma$ )	$H(0.51)$	89.43	$89.48^{+0.98}_{-0.93}$ (+0.2 $\sigma$ )
$y_{\mathrm{cal}}$	1.0006	$1.0006^{+0.0061}_{-0.0063}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}h$	98.65	$98.8^{+2.9}_{-2.8}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1992.5	$1991^{+36}_{-36}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	44.3	$46^{+20}_{-20}$ (−0.2 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.454	$2.452^{+0.075}_{-0.075}$ (−0.0 $\sigma$ )	$H(0.61)$	95.10	$95.15^{+0.84}_{-0.79}$ (+0.2 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.85	—	$z_{\mathrm{re}}$	7.63	$7.6^{+2.2}_{-2.4}$ (+0.2 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2317.7	$2316^{+39}_{-39}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	6.95	> 1.02 (+0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.097	$2.10^{+0.10}_{-0.095}$ (+0.1 $\sigma$ )	$H(2.33)$	236.66	$236.6^{+2.0}_{-2.1}$ (−0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	245	$257^{+70}_{-70}$ (−0.3 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8823	$1.882^{+0.031}_{-0.032}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5772.5	$5770^{+41}_{-42}$ (−0.3 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	51.3	$45^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{40}$	1236.4	$1236^{+41}_{-41}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	0.4617	$0.461^{+0.020}_{-0.021}$ (−0.2 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	56.6	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5733	$5733^{+100}_{-100}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.7487	$0.748^{+0.019}_{-0.019}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	123.5	$115^{+20}_{-30}$ (+0.0 $\sigma$ )	$D_{810}$	2541.3	$2538^{+33}_{-35}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	0.4785	$0.478^{+0.017}_{-0.017}$ (−0.2 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{1420}$	819.4	$817^{+12}_{-13}$ (+0.6 $\sigma$ )	$\sigma_8(0.38)$	0.6629	$0.663^{+0.017}_{-0.017}$ (−0.1 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.71	$8.9^{+4.6}_{-4.7}$ (−0.0 $\sigma$ )	$D_{2000}$	232.13	$231.2^{+4.8}_{-4.7}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4763	$0.476^{+0.015}_{-0.016}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	10.88	$10.8^{+4.7}_{-4.8}$ (+0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9621	$0.962^{+0.018}_{-0.018}$ (−0.1 $\sigma$ )	$\sigma_8(0.51)$	0.6200	$0.620^{+0.017}_{-0.016}$ (−0.0 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.1	$18.5^{+8.5}_{-8.3}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.2365	$0.240^{+0.032}_{-0.034}$ (−0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4707	$0.470^{+0.014}_{-0.014}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.7	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2378	$0.241^{+0.032}_{-0.034}$ (−0.3 $\sigma$ )	$\sigma_8(0.61)$	0.5898	$0.590^{+0.016}_{-0.015}$ (−0.0 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.114^{+0.097}_{-0.095}$	Age/Gyr	13.818	$13.813^{+0.095}_{-0.095}$ (−0.3 $\sigma$ )	$f\sigma_8(2.33)$	0.2971	$0.2970^{+0.0084}_{-0.0076}$ (−0.0 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.135	$0.134^{+0.075}_{-0.075}$	$z_*$	1089.71	$1089.8^{+1.1}_{-1.1}$ (−0.8 $\sigma$ )	$\sigma_8(2.33)$	0.3060	$0.3060^{+0.0091}_{-0.0082}$ (+0.0 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.484	$0.48^{+0.22}_{-0.21}$	$r_*$	144.45	$144.45^{+0.83}_{-0.79}$ (−0.0 $\sigma$ )	$f_{2000}^{143}$	27.4	$29^{+8}_{-8}$ (−0.6 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.224	$0.22^{+0.13}_{-0.14}$	$100\theta_*$	1.04100	$1.04103^{+0.00087}_{-0.00085}$ (+0.1 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.1	$32^{+6}_{-6}$ (−0.7 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.665	$0.67^{+0.21}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.876	$13.876^{+0.079}_{-0.078}$ (−0.0 $\sigma$ )	$f_{2000}^{217}$	105.7	$106.6^{+5.5}_{-5.1}$ (−0.6 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.09	$2.09^{+0.69}_{-0.69}$	$z_{\mathrm{drag}}$	1059.47	$1059.6^{+2.0}_{-2.0}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.06	397.1 ( $\nu$ : 1.9) (+0.1 $\sigma$ )
$c_{100}$	0.99975	$0.9997^{+0.0016}_{-0.0015}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}$	147.13	$147.13^{+0.86}_{-0.83}$ (−0.2 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.94	24.1 ( $\nu$ : 1.1) (+0.0 $\sigma$ )
$c_{217}$	0.99815	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.14111	$0.1410^{+0.0011}_{-0.0011}$ (+0.6 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2343.8	2359.9 ( $\nu$ : 18.0) (+275.2 $\sigma$ )
$H_0$	67.05	$67.1^{+1.8}_{-1.7}$ (+0.2 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16045	$0.1606^{+0.0012}_{-0.0012}$ (−0.7 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.4	11.5 ( $\nu$ : 10.1) (+1.1 $\sigma$ )
$\Omega_{\Lambda}$	0.6814	$0.682^{+0.022}_{-0.023}$ (+0.2 $\sigma$ )	$z_{\mathrm{eq}}$	3408	$3406^{+77}_{-79}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2763.8	2781.1 ( $\nu$ : 17.9) (+280.2 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3186	$0.318^{+0.023}_{-0.022}$ (−0.2 $\sigma$ )	$k_{\mathrm{eq}}$	0.010401	$0.01040^{+0.00024}_{-0.00024}$ (−0.1 $\sigma$ )			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2765.27$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.70$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2792.56$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.14$ ;  $R - 1 = 0.00867$

$\chi_{\mathrm{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.06 ( $\Delta$  0.23) commander\_dx12\_v3.2.29: 23.95 ( $\Delta$  0.26) plik\_rd12\_HM\_v22b\_TTTEEE: 2343.82



## 20.12 base\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022389	$0.02239^{+0.00045}_{-0.00047} \quad (+0.5\sigma)$	$\Omega_m h^3$	0.09619	$0.0962^{+0.0013}_{-0.0013} \quad (+0.1\sigma)$	$H(0.15)$	72.87	$72.9^{+1.1}_{-1.1} \quad (-0.2\sigma)$
$\Omega_c h^2$	0.11930	$0.1193^{+0.0026}_{-0.0026} \quad (+0.2\sigma)$	$\sigma_8$	0.8090	$0.809^{+0.023}_{-0.021} \quad (+0.0\sigma)$	$D_M(0.15)$	641.4	$641^{+11}_{-11} \quad (+0.2\sigma)$
$100\theta_{MC}$	1.04082	$1.0409^{+0.0013}_{-0.0013} \quad (-0.5\sigma)$	$S_8$	0.8244	$0.824^{+0.033}_{-0.033} \quad (+0.2\sigma)$	$H(0.38)$	82.98	$83.01^{+0.87}_{-0.89} \quad (-0.1\sigma)$
$\tau$	0.0553	$0.056^{+0.024}_{-0.022} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4516	$0.451^{+0.018}_{-0.018} \quad (+0.2\sigma)$	$D_M(0.38)$	1529.8	$1529^{+23}_{-22} \quad (+0.2\sigma)$
$Y_P$	0.2402	$0.243^{+0.030}_{-0.032} \quad (-0.6\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6044	$0.604^{+0.020}_{-0.018} \quad (+0.1\sigma)$	$H(0.51)$	89.70	$89.73^{+0.76}_{-0.77} \quad (-0.1\sigma)$
$\ln(10^{10} A_s)$	3.0444	$3.044^{+0.050}_{-0.044} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	0.9840	$0.984^{+0.028}_{-0.027} \quad (+0.1\sigma)$	$D_M(0.51)$	1981.7	$1981^{+27}_{-26} \quad (+0.2\sigma)$
$n_s$	0.9658	$0.966^{+0.016}_{-0.016} \quad (-0.4\sigma)$	$r_{drag} h$	99.54	$99.6^{+2.0}_{-2.1} \quad (-0.3\sigma)$	$H(0.61)$	95.32	$95.35^{+0.68}_{-0.68} \quad (-0.1\sigma)$
$y_{cal}$	1.0007	$1.0006^{+0.0062}_{-0.0068} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	2.437	$2.437^{+0.066}_{-0.064} \quad (+0.4\sigma)$	$D_M(0.61)$	2305.9	$2305^{+30}_{-28} \quad (+0.1\sigma)$
$A_{217}^{CIB}$	44.9	$47^{+20}_{-20} \quad (-0.3\sigma)$	$z_{re}$	7.75	$7.8^{+2.3}_{-2.4} \quad (+0.2\sigma)$	$H(2.33)$	236.11	$236.1^{+1.7}_{-1.6} \quad (+0.3\sigma)$
$\xi^{tSZ \times CIB}$	0.78	—	$10^9 A_s$	2.100	$2.10^{+0.11}_{-0.091} \quad (+0.2\sigma)$	$D_M(2.33)$	5762.4	$5761^{+36}_{-35} \quad (+0.0\sigma)$
$A_{143}^{tSZ}$	6.99	$> 1.02 \quad (+0.3\sigma)$	$10^9 A_s e^{-2\tau}$	1.8798	$1.879^{+0.030}_{-0.032} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	0.4561	$0.456^{+0.017}_{-0.017} \quad (+0.2\sigma)$
$A_{100}^{PS}$	246	$257^{+70}_{-70} \quad (-0.3\sigma)$	$D_{40}$	1229.6	$1229^{+37}_{-39} \quad (+0.5\sigma)$	$\sigma_8(0.15)$	0.7475	$0.748^{+0.021}_{-0.019} \quad (-0.0\sigma)$
$A_{143}^{PS}$	50.9	$45^{+20}_{-20} \quad (-0.6\sigma)$	$D_{220}$	5739	$5737^{+100}_{-100} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	0.4744	$0.474^{+0.016}_{-0.015} \quad (+0.1\sigma)$
$A_{143 \times 217}^{PS}$	55.1	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	2541.4	$2539^{+34}_{-35} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	0.6626	$0.663^{+0.018}_{-0.017} \quad (-0.0\sigma)$
$A_{217}^{PS}$	122.6	$115^{+20}_{-30} \quad (-0.0\sigma)$	$D_{1420}$	819.8	$818^{+12}_{-12} \quad (+0.6\sigma)$	$f\sigma_8(0.51)$	0.4730	$0.473^{+0.015}_{-0.014} \quad (+0.1\sigma)$
$A^{kSZ}$	0.0	—	$D_{2000}$	232.10	$231.3^{+4.8}_{-4.8} \quad (+0.9\sigma)$	$\sigma_8(0.51)$	0.6201	$0.620^{+0.017}_{-0.016} \quad (-0.1\sigma)$
$A_{100}^{dustTT}$	8.79	$8.9^{+4.8}_{-4.6} \quad (-0.0\sigma)$	$n_{s,0.002}$	0.9658	$0.966^{+0.016}_{-0.016} \quad (-0.4\sigma)$	$f\sigma_8(0.61)$	0.4680	$0.468^{+0.014}_{-0.013} \quad (+0.1\sigma)$
$A_{143}^{dustTT}$	10.95	$10.9^{+4.8}_{-4.6} \quad (+0.1\sigma)$	$Y_P$	0.2402	$0.243^{+0.030}_{-0.032} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	0.5900	$0.590^{+0.016}_{-0.016} \quad (-0.1\sigma)$
$A_{143 \times 217}^{dustTT}$	20.2	$18.6^{+8.2}_{-8.4} \quad (+0.1\sigma)$	$Y_P^{BBN}$	0.2415	$0.244^{+0.030}_{-0.032} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	0.2975	$0.2976^{+0.0086}_{-0.0079} \quad (-0.1\sigma)$
$A_{217}^{dustTT}$	95.7	$94^{+20}_{-20} \quad (+0.1\sigma)$	Age/Gyr	13.795	$13.793^{+0.083}_{-0.080} \quad (-0.0\sigma)$	$\sigma_8(2.33)$	0.3067	$0.3068^{+0.0090}_{-0.0081} \quad (-0.1\sigma)$
$A_{100}^{dustTE}$	0.113	$0.113^{+0.098}_{-0.091}$	$z_*$	1089.62	$1089.7^{+1.1}_{-1.0} \quad (-0.9\sigma)$	$f_{2000}^{143}$	27.8	$29^{+8}_{-8} \quad (-0.8\sigma)$
$A_{100 \times 143}^{dustTE}$	0.136	$0.134^{+0.074}_{-0.076}$	$r_*$	144.62	$144.61^{+0.69}_{-0.72} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	31.3	$32^{+6}_{-5} \quad (-0.9\sigma)$
$A_{100 \times 217}^{dustTE}$	0.482	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	1.04114	$1.04116^{+0.00083}_{-0.00079} \quad (-0.2\sigma)$	$f_{2000}^{217}$	105.8	$106.6^{+5.7}_{-5.2} \quad (-0.8\sigma)$
$A_{143}^{dustTE}$	0.227	$0.22^{+0.14}_{-0.13}$	$D_M(z_*)/\text{Gpc}$	13.890	$13.890^{+0.066}_{-0.069} \quad (-0.3\sigma)$	$\chi_{small}^2$	396.2	$397.4 \quad (\nu: 2.5) \quad (+0.2\sigma)$
$A_{143 \times 217}^{dustTE}$	0.664	$0.66^{+0.20}_{-0.20}$	$z_{drag}$	1059.74	$1059.8^{+1.9}_{-1.9} \quad (-0.1\sigma)$	$\chi_{lowl}^2$	23.25	$23.4 \quad (\nu: 0.7) \quad (+0.5\sigma)$
$A_{217}^{dustTE}$	2.07	$2.08^{+0.68}_{-0.68}$	$r_{drag}$	147.27	$147.27^{+0.78}_{-0.78} \quad (-0.4\sigma)$	$\chi_{plik}^2$	2344.9	$2360.4 \quad (\nu: 18.2) \quad (+277.6\sigma)$
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_D$	0.14090	$0.14080^{+0.00096}_{-0.00094} \quad (+1.2\sigma)$	$\chi_{6DF}^2$	0.038	$0.061 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_D$	0.16052	$0.1606^{+0.0012}_{-0.0011} \quad (-0.9\sigma)$	$\chi_{MGS}^2$	1.16	$1.24 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$H_0$	67.59	$67.6^{+1.3}_{-1.3} \quad (-0.2\sigma)$	$z_{eq}$	3386	$3385^{+60}_{-58} \quad (+0.3\sigma)$	$\chi_{DR12BAO}^2$	4.62	$5.0 \quad (\nu: 1.2) \quad (+0.2\sigma)$
$\Omega_\Lambda$	0.6884	$0.689^{+0.016}_{-0.017} \quad (-0.2\sigma)$	$k_{eq}$	0.010334	$0.01033^{+0.00018}_{-0.00018} \quad (+0.3\sigma)$	$\chi_{prior}^2$	1.5	$11.6 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_m$	0.3116	$0.311^{+0.017}_{-0.016} \quad (+0.2\sigma)$	$100\theta_{eq}$	0.8162	$0.816^{+0.011}_{-0.011} \quad (-0.3\sigma)$	$\chi_{BAO}^2$	5.82	$6.3 \quad (\nu: 0.8) \quad (+0.1\sigma)$
$\Omega_m h^2$	0.14233	$0.1423^{+0.0025}_{-0.0024} \quad (+0.3\sigma)$	$100\theta_{s,eq}$	0.4509	$0.4510^{+0.0057}_{-0.0057} \quad (-0.3\sigma)$	$\chi_{CMB}^2$	2764.3	$2781.1 \quad (\nu: 17.7) \quad (+283.5\sigma)$

Best-fit  $\chi_{eff}^2 = 2771.70$ ;  $\Delta\chi_{eff}^2 = 1585.96$ ;  $\bar{\chi}_{eff}^2 = 2798.91$ ;  $\Delta\bar{\chi}_{eff}^2 = 1592.38$ ;  $R - 1 = 0.02958$   
 $\chi_{eff}^2$ : BAO - 6DF: 0.04 ( $\Delta$  0.02) MGS: 1.16 ( $\Delta$  -0.19) DR12BAO: 4.62 ( $\Delta$  0.57) CMB - smalll\_100x143\_offlike5\_EE\_Aplanck\_B: 396.22 ( $\Delta$  0.16) commander\_dx12\_v3\_2\_29: 23.25 ( $\Delta$  0.61) plik\_rd12\_HM\_v22b\_TTTEEE: 2344.87



### 20.13 base\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02230	$0.02230^{+0.00052}_{-0.00051}$ (+0.6 $\sigma$ )	$\Omega_{\mathrm{m}} h^2$	0.14297	$0.1430^{+0.0029}_{-0.0029}$ (−0.0 $\sigma$ )	$100\theta_{\mathrm{eq}}$	0.8131	$0.813^{+0.013}_{-0.013}$ (+0.1 $\sigma$ )
$\Omega_{\mathrm{c}} h^2$	0.12002	$0.1201^{+0.0031}_{-0.0030}$ (−0.1 $\sigma$ )	$\Omega_{\mathrm{m}} h^3$	0.09606	$0.0961^{+0.0014}_{-0.0014}$ (+0.3 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	0.4493	$0.4492^{+0.0067}_{-0.0065}$ (+0.0 $\sigma$ )
$100\theta_{\mathrm{MC}}$	1.04061	$1.0407^{+0.0014}_{-0.0014}$ (−0.1 $\sigma$ )	$\sigma_8$	0.8097	$0.810^{+0.019}_{-0.017}$ (−0.1 $\sigma$ )	$H(0.15)$	72.52	$72.5^{+1.5}_{-1.4}$ (+0.2 $\sigma$ )
$\tau$	0.0541	$0.054^{+0.022}_{-0.020}$ (+0.2 $\sigma$ )	$S_8$	0.8319	$0.832^{+0.032}_{-0.033}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	644.9	$645^{+14}_{-14}$ (−0.2 $\sigma$ )
$Y_{\mathrm{P}}$	0.2366	$0.239^{+0.032}_{-0.033}$ (−0.3 $\sigma$ )	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4557	$0.456^{+0.017}_{-0.018}$ (−0.2 $\sigma$ )	$H(0.38)$	82.72	$82.7^{+1.1}_{-1.1}$ (+0.2 $\sigma$ )
$\ln(10^{10} A_{\mathrm{s}})$	3.0422	$3.042^{+0.044}_{-0.041}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6074	$0.607^{+0.016}_{-0.017}$ (−0.2 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	1536.7	$1537^{+28}_{-29}$ (−0.2 $\sigma$ )
$n_{\mathrm{s}}$	0.9629	$0.962^{+0.018}_{-0.017}$ (−0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9878	$0.988^{+0.024}_{-0.024}$ (−0.2 $\sigma$ )	$H(0.51)$	89.49	$89.50^{+0.94}_{-0.90}$ (+0.2 $\sigma$ )
$y_{\mathrm{cal}}$	1.0005	$1.0005^{+0.0062}_{-0.0064}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}} h$	98.89	$98.9^{+2.6}_{-2.5}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	1989.8	$1990^{+33}_{-34}$ (−0.2 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	44.7	$46^{+20}_{-20}$ (−0.3 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	2.448	$2.450^{+0.059}_{-0.060}$ (+0.1 $\sigma$ )	$H(0.61)$	95.15	$95.16^{+0.80}_{-0.77}$ (+0.2 $\sigma$ )
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.78	—	$z_{\mathrm{re}}$	7.64	$7.6^{+2.1}_{-2.2}$ (+0.1 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	2314.8	$2315^{+36}_{-37}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	7.00	> 1.04 (+0.2 $\sigma$ )	$10^9 A_{\mathrm{s}}$	2.095	$2.094^{+0.094}_{-0.084}$ (+0.2 $\sigma$ )	$H(2.33)$	236.48	$236.5^{+1.8}_{-1.8}$ (+0.0 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	245	$257^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8801	$1.881^{+0.029}_{-0.030}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	5770.5	$5770^{+40}_{-40}$ (−0.3 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	50.0	$45^{+20}_{-20}$ (−0.5 $\sigma$ )	$D_{40}$	1234.0	$1236^{+38}_{-39}$ (+0.2 $\sigma$ )	$f\sigma_8(0.15)$	0.4598	$0.460^{+0.016}_{-0.017}$ (−0.2 $\sigma$ )
$A_{143 \times 217}^{\mathrm{PS}}$	54.6	$42^{+20}_{-20}$ (−0.2 $\sigma$ )	$D_{220}$	5731	$5735^{+100}_{-100}$ (+0.5 $\sigma$ )	$\sigma_8(0.15)$	0.7477	$0.747^{+0.018}_{-0.016}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	122.5	$115^{+20}_{-30}$ (+0.0 $\sigma$ )	$D_{810}$	2540.0	$2538^{+34}_{-33}$ (+0.2 $\sigma$ )	$f\sigma_8(0.38)$	0.4770	$0.477^{+0.013}_{-0.014}$ (−0.2 $\sigma$ )
$A^{\mathrm{kSZ}}$	0.0	—	$D_{1420}$	819.3	$818^{+12}_{-12}$ (+0.6 $\sigma$ )	$\sigma_8(0.38)$	0.6622	$0.662^{+0.016}_{-0.015}$ (−0.0 $\sigma$ )
$A_{100}^{\mathrm{dustTT}}$	8.70	$8.9^{+4.7}_{-4.5}$ (−0.0 $\sigma$ )	$D_{2000}$	232.10	$231.3^{+4.8}_{-4.7}$ (+0.7 $\sigma$ )	$f\sigma_8(0.51)$	0.4750	$0.475^{+0.012}_{-0.012}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{dustTT}}$	10.94	$10.8^{+4.7}_{-4.7}$ (+0.1 $\sigma$ )	$n_{\mathrm{s},0.002}$	0.9629	$0.962^{+0.018}_{-0.017}$ (−0.1 $\sigma$ )	$\sigma_8(0.51)$	0.6195	$0.619^{+0.016}_{-0.014}$ (−0.0 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.0	$18.6^{+8.3}_{-8.3}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}$	0.2366	$0.239^{+0.032}_{-0.033}$ (−0.3 $\sigma$ )	$f\sigma_8(0.61)$	0.4696	$0.469^{+0.011}_{-0.011}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{dustTT}}$	95.7	$94^{+20}_{-20}$ (+0.1 $\sigma$ )	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2379	$0.240^{+0.032}_{-0.034}$ (−0.3 $\sigma$ )	$\sigma_8(0.61)$	0.5893	$0.589^{+0.015}_{-0.014}$ (−0.0 $\sigma$ )
$A_{100}^{\mathrm{dustTE}}$	0.115	$0.113^{+0.099}_{-0.092}$	Age/Gyr	13.814	$13.812^{+0.093}_{-0.091}$ (−0.3 $\sigma$ )	$f\sigma_8(2.33)$	0.2969	$0.2968^{+0.0080}_{-0.0073}$ (+0.0 $\sigma$ )
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.136	$0.134^{+0.074}_{-0.076}$	$z_*$	1089.66	$1089.8^{+1.1}_{-1.0}$ (−0.7 $\sigma$ )	$\sigma_8(2.33)$	0.3059	$0.3058^{+0.0087}_{-0.0079}$ (+0.0 $\sigma$ )
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.482	$0.48^{+0.21}_{-0.21}$	$r_*$	144.51	$144.49^{+0.73}_{-0.72}$ (−0.2 $\sigma$ )	$f_{2000}^{143}$	27.4	$29^{+8}_{-8}$ (−0.6 $\sigma$ )
$A_{143}^{\mathrm{dustTE}}$	0.226	$0.22^{+0.13}_{-0.14}$	$100\theta_*$	1.04102	$1.04103^{+0.00085}_{-0.00083}$ (+0.1 $\sigma$ )	$f_{2000}^{143 \times 217}$	31.0	$32^{+6}_{-5}$ (−0.7 $\sigma$ )
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.666	$0.67^{+0.20}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.881	$13.880^{+0.071}_{-0.068}$ (−0.2 $\sigma$ )	$f_{2000}^{217}$	105.6	$106.5^{+5.7}_{-5.1}$ (−0.6 $\sigma$ )
$A_{217}^{\mathrm{dustTE}}$	2.09	$2.08^{+0.69}_{-0.68}$	$z_{\mathrm{drag}}$	1059.51	$1059.6^{+1.9}_{-2.0}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{lensing}}^2$	8.76	9.18 ( $\nu$ : 0.2) (−0.3 $\sigma$ )
$c_{100}$	0.99973	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$r_{\mathrm{drag}}$	147.19	$147.17^{+0.78}_{-0.75}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{small}}^2$	396.05	397.0 ( $\nu$ : 1.5) (+0.1 $\sigma$ )
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$k_{\mathrm{D}}$	0.14107	$0.14098^{+0.00099}_{-0.0010}$ (+0.7 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	23.75	24.0 ( $\nu$ : 0.9) (+0.1 $\sigma$ )
$H_0$	67.19	$67.2^{+1.7}_{-1.6}$ (+0.2 $\sigma$ )	$100\theta_{\mathrm{D}}$	0.16043	$0.1605^{+0.0012}_{-0.0011}$ (−0.7 $\sigma$ )	$\chi_{\mathrm{plik}}^2$	2344.0	2359.6 ( $\nu$ : 17.1) (+286.0 $\sigma$ )
$\Omega_{\Lambda}$	0.6833	$0.683^{+0.020}_{-0.021}$ (+0.2 $\sigma$ )	$z_{\mathrm{eq}}$	3401	$3402^{+68}_{-68}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	1.5	11.5 ( $\nu$ : 10.3) (+1.1 $\sigma$ )
$\Omega_{\mathrm{m}}$	0.3167	$0.317^{+0.021}_{-0.020}$ (−0.2 $\sigma$ )	$k_{\mathrm{eq}}$	0.010380	$0.01038^{+0.00021}_{-0.00021}$ (−0.0 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	2772.6	2789.9 ( $\nu$ : 18.1) (+277.6 $\sigma$ )

Best-fit  $\chi_{\mathrm{eff}}^2 = 2774.06$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.61$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2801.34$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.95$ ;  $R - 1 = 0.01603$

$\chi_{\mathrm{eff}}^2$ : CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p.teb.consext8: 8.76 ( $\Delta$  -0.07) small\_100x143\_offlike5\_EE\_Aplanck\_B: 396.05 ( $\Delta$  0.19) commander\_dx12.v3.2.29: 23.75 ( $\Delta$  0.06) plik\_rd12\_HM.v22b.TTTEEE: 2344.00



# 20.14 base\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022390	$0.02239^{+0.00045}_{-0.00046}$ $(+0.5\sigma)$	$\sigma_8$	0.8089	$0.809^{+0.019}_{-0.018}$ $(-0.1\sigma)$	$H(0.38)$	82.98	$83.00^{+0.88}_{-0.87}$ $(-0.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.11926	$0.1193^{+0.0024}_{-0.0023}$ $(+0.1\sigma)$	$S_8$	0.8243	$0.825^{+0.027}_{-0.027}$ $(+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	1529.8	$1530^{+22}_{-22}$ $(+0.1\sigma)$
$100\theta_{\mathrm{MC}}$	1.04080	$1.0409^{+0.0013}_{-0.0013}$ $(-0.4\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4515	$0.452^{+0.015}_{-0.015}$ $(+0.1\sigma)$	$H(0.51)$	89.70	$89.72^{+0.75}_{-0.76}$ $(-0.0\sigma)$
$\tau$	0.0559	$0.056^{+0.021}_{-0.019}$ $(+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6043	$0.605^{+0.016}_{-0.015}$ $(+0.0\sigma)$	$D_{\mathrm{M}}(0.51)$	1981.7	$1981^{+26}_{-26}$ $(+0.1\sigma)$
$Y_{\mathrm{P}}$	0.2395	$0.242^{+0.030}_{-0.031}$ $(-0.5\sigma)$	$\sigma_8/h^{0.5}$	0.9840	$0.985^{+0.023}_{-0.023}$ $(-0.0\sigma)$	$H(0.61)$	95.32	$95.34^{+0.68}_{-0.68}$ $(+0.0\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.0450	$3.046^{+0.044}_{-0.040}$ $(+0.1\sigma)$	$r_{\mathrm{drag}}h$	99.55	$99.6^{+1.9}_{-1.9}$ $(-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	2305.9	$2306^{+29}_{-28}$ $(+0.1\sigma)$
$n_{\mathrm{s}}$	0.9653	$0.965^{+0.016}_{-0.016}$ $(-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	2.439	$2.440^{+0.056}_{-0.056}$ $(+0.4\sigma)$	$H(2.33)$	236.08	$236.1^{+1.6}_{-1.4}$ $(+0.3\sigma)$
$y_{\mathrm{cal}}$	1.0007	$1.0007^{+0.0062}_{-0.0066}$ $(+0.1\sigma)$	$z_{\mathrm{re}}$	7.80	$7.8^{+2.0}_{-2.0}$ $(+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	5762.6	$5762^{+36}_{-35}$ $(-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	46.0	$46^{+20}_{-20}$ $(-0.3\sigma)$	$10^9 A_{\mathrm{s}}$	2.101	$2.103^{+0.094}_{-0.083}$ $(+0.1\sigma)$	$f\sigma_8(0.15)$	0.4561	$0.456^{+0.014}_{-0.014}$ $(+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.57	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8788	$1.879^{+0.029}_{-0.029}$ $(-0.2\sigma)$	$\sigma_8(0.15)$	0.7475	$0.748^{+0.018}_{-0.017}$ $(-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	7.15	$> 1.04$ $(+0.3\sigma)$	$D_{40}$	1230.4	$1231^{+36}_{-35}$ $(+0.4\sigma)$	$f\sigma_8(0.38)$	0.4744	$0.475^{+0.012}_{-0.012}$ $(+0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	248	$257^{+70}_{-70}$ $(-0.3\sigma)$	$D_{220}$	5739	$5740^{+100}_{-98}$ $(+0.4\sigma)$	$\sigma_8(0.38)$	0.6626	$0.663^{+0.017}_{-0.015}$ $(-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	47.5	$45^{+20}_{-20}$ $(-0.6\sigma)$	$D_{810}$	2540.4	$2539^{+34}_{-33}$ $(+0.1\sigma)$	$f\sigma_8(0.51)$	0.4730	$0.473^{+0.012}_{-0.012}$ $(-0.0\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	49.7	$42^{+20}_{-20}$ $(-0.2\sigma)$	$D_{1420}$	819.4	$818^{+12}_{-12}$ $(+0.6\sigma)$	$\sigma_8(0.51)$	0.6201	$0.621^{+0.016}_{-0.014}$ $(-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	120.5	$115^{+20}_{-30}$ $(-0.0\sigma)$	$D_{2000}$	232.04	$231.4^{+4.7}_{-4.8}$ $(+0.9\sigma)$	$f\sigma_8(0.61)$	0.4680	$0.468^{+0.011}_{-0.011}$ $(-0.0\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$n_{\mathrm{s},0.002}$	0.9653	$0.965^{+0.016}_{-0.016}$ $(-0.3\sigma)$	$\sigma_8(0.61)$	0.5900	$0.590^{+0.015}_{-0.013}$ $(-0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	8.80	$8.9^{+4.7}_{-4.5}$ $(-0.0\sigma)$	$Y_{\mathrm{P}}$	0.2395	$0.242^{+0.030}_{-0.031}$ $(-0.5\sigma)$	$f\sigma_8(2.33)$	0.2975	$0.2977^{+0.0078}_{-0.0069}$ $(-0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	10.92	$10.9^{+4.8}_{-4.6}$ $(+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2408	$0.243^{+0.030}_{-0.031}$ $(-0.5\sigma)$	$\sigma_8(2.33)$	0.3067	$0.3069^{+0.0082}_{-0.0074}$ $(-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	19.8	$18.6^{+8.1}_{-8.3}$ $(+0.1\sigma)$	Age/Gyr	13.796	$13.794^{+0.083}_{-0.079}$ $(-0.1\sigma)$	$f_{2000}^{143}$	27.8	$29^{+8}_{-7}$ $(-0.8\sigma)$
$A_{217}^{\mathrm{dustTT}}$	95.3	$94^{+20}_{-20}$ $(+0.1\sigma)$	$z_*$	1089.59	$1089.7^{+1.1}_{-1.0}$ $(-0.9\sigma)$	$f_{2000}^{143 \times 217}$	31.2	$32^{+6}_{-5}$ $(-0.9\sigma)$
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.112^{+0.098}_{-0.091}$	$r_*$	144.63	$144.61^{+0.66}_{-0.66}$ $(-0.3\sigma)$	$f_{2000}^{217}$	106.0	$106.5^{+5.8}_{-5.2}$ $(-0.8\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.134	$0.134^{+0.074}_{-0.076}$	$100\theta_*$	1.04113	$1.04115^{+0.00080}_{-0.00079}$ $(-0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	8.66	$9.08$ $(\nu: 0.2)$ $(-0.4\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.483	$0.48^{+0.21}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.891	$13.890^{+0.064}_{-0.064}$ $(-0.3\sigma)$	$\chi_{\mathrm{small}}^2$	396.3	$397.3$ $(\nu: 2.1)$ $(+0.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	0.224	$0.22^{+0.13}_{-0.13}$	$z_{\mathrm{drag}}$	1059.74	$1059.8^{+1.9}_{-1.9}$ $(-0.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	23.34	$23.5$ $(\nu: 0.7)$ $(+0.4\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.664	$0.67^{+0.20}_{-0.20}$	$r_{\mathrm{drag}}$	147.28	$147.27^{+0.72}_{-0.71}$ $(-0.4\sigma)$	$\chi_{\mathrm{plik}}^2$	2344.6	$2360.0$ $(\nu: 17.4)$ $(+285.3\sigma)$
$A_{217}^{\mathrm{dustTE}}$	2.08	$2.08^{+0.68}_{-0.68}$	$k_{\mathrm{D}}$	0.14092	$0.14083^{+0.00093}_{-0.00093}$ $(+1.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	0.037	$0.060$ $(\nu: 0.0)$ $(+0.0\sigma)$
$c_{100}$	0.99974	$0.9997^{+0.0016}_{-0.0016}$ $(+0.1\sigma)$	$100\theta_{\mathrm{D}}$	0.16049	$0.1606^{+0.0012}_{-0.0012}$ $(-0.9\sigma)$	$\chi_{\mathrm{MGS}}^2$	1.16	$1.22$ $(\nu: 0.1)$ $(-0.2\sigma)$
$c_{217}$	0.99818	$0.9982^{+0.0016}_{-0.0016}$ $(-0.1\sigma)$	$z_{\mathrm{eq}}$	3385	$3386^{+56}_{-53}$ $(+0.3\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	4.61	$5.0$ $(\nu: 1.1)$ $(+0.1\sigma)$
$H_0$	67.59	$67.6^{+1.3}_{-1.2}$ $(-0.1\sigma)$	$k_{\mathrm{eq}}$	0.010332	$0.01033^{+0.00017}_{-0.00016}$ $(+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	1.6	$11.6$ $(\nu: 10.2)$ $(+1.1\sigma)$
$\Omega_{\Lambda}$	0.6885	$0.688^{+0.015}_{-0.016}$ $(-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	0.8163	$0.816^{+0.010}_{-0.010}$ $(-0.2\sigma)$	$\chi_{\mathrm{CMB}}^2$	2773.0	$2789.8$ $(\nu: 17.9)$ $(+281.6\sigma)$
$\Omega_{\mathrm{m}}$	0.3115	$0.312^{+0.016}_{-0.015}$ $(+0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4509	$0.4509^{+0.0051}_{-0.0053}$ $(-0.3\sigma)$	$\chi_{\mathrm{BAO}}^2$	5.80	$6.2$ $(\nu: 0.7)$ $(+0.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	0.14230	$0.1423^{+0.0023}_{-0.0022}$ $(+0.3\sigma)$	$H(0.15)$	72.87	$72.9^{+1.1}_{-1.1}$ $(-0.1\sigma)$			
$\Omega_{\mathrm{m}}h^3$	0.09618	$0.0962^{+0.0013}_{-0.0013}$ $(+0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	641.4	$641^{+11}_{-11}$ $(+0.1\sigma)$			

Best-fit  $\chi_{\mathrm{eff}}^2 = 2780.41$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1585.73$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2807.64$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.11$ ;  $R - 1 = 0.02881$   
 $\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.04 ( $\Delta$  0.01) MGS: 1.16 ( $\Delta$  -0.06) DR12BAO: 4.61 ( $\Delta$  0.24) CMB - smicadx12\_Dec5\_ftl\_mv2\_ndclpp\_p\_teb\_consext8: 8.66 ( $\Delta$  -0.21) simall\_100x143\_offlike5\_EE\_Aplanck  
396.33 ( $\Delta$  0.15) commander\_dx12.v3.2.29: 23.34 ( $\Delta$  0.42) plik\_rd12\_HM.v22b\_TTTEEE: 2344.62



20.15 base\_yhe\_plikHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.022494	$0.02250^{+0.00050}_{-0.00048} \quad (-0.2\sigma)$	$\Omega_{\mathrm{m}}h^2$	0.14177	$0.1417^{+0.0031}_{-0.0030} \quad (+0.9\sigma)$	$100\theta_{\mathrm{eq}}$	0.8191	$0.819^{+0.015}_{-0.014} \quad (-0.9\sigma)$
$\Omega_{\mathrm{c}}h^2$	0.11863	$0.1186^{+0.0033}_{-0.0031} \quad (+0.9\sigma)$	$\Omega_{\mathrm{m}}h^3$	0.09639	$0.0964^{+0.0013}_{-0.0013} \quad (-0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	0.4523	$0.4525^{+0.0075}_{-0.0072} \quad (-1.0\sigma)$
$100\theta_{\mathrm{MC}}$	1.04107	$1.0412^{+0.0013}_{-0.0014} \quad (-1.1\sigma)$	$\sigma_8$	0.8080	$0.809^{+0.024}_{-0.021} \quad (+0.3\sigma)$	$H(0.15)$	73.22	$73.3^{+1.5}_{-1.4} \quad (-1.0\sigma)$
$\tau$	0.0563	$0.058^{+0.025}_{-0.024} \quad (+0.1\sigma)$	$S_8$	0.8169	$0.817^{+0.039}_{-0.032} \quad (+0.9\sigma)$	$D_{\mathrm{M}}(0.15)$	638.0	$637^{+14}_{-14} \quad (+1.0\sigma)$
$Y_{\mathrm{P}}$	0.2448	$0.247^{+0.030}_{-0.033} \quad (-1.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4475	$0.448^{+0.021}_{-0.018} \quad (+0.9\sigma)$	$H(0.38)$	83.26	$83.3^{+1.1}_{-1.1} \quad (-0.9\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	3.045	$3.048^{+0.055}_{-0.047} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.6013	$0.602^{+0.022}_{-0.018} \quad (+0.7\sigma)$	$D_{\mathrm{M}}(0.38)$	1522.7	$1522^{+29}_{-29} \quad (+1.0\sigma)$
$n_{\mathrm{s}}$	0.9694	$0.970^{+0.017}_{-0.018} \quad (-1.1\sigma)$	$\sigma_8/h^{0.5}$	0.9799	$0.981^{+0.031}_{-0.028} \quad (+0.7\sigma)$	$H(0.51)$	89.93	$89.98^{+0.91}_{-0.91} \quad (-0.9\sigma)$
$y_{\mathrm{cal}}$	1.0005	$1.0007^{+0.0062}_{-0.0071} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}h$	100.16	$100.3^{+2.9}_{-2.7} \quad (-1.0\sigma)$	$D_{\mathrm{M}}(0.51)$	1973.2	$1972^{+34}_{-34} \quad (+1.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	45.6	$47^{+20}_{-20} \quad (-0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	2.423	$2.425^{+0.074}_{-0.064} \quad (+1.1\sigma)$	$H(0.61)$	95.52	$95.56^{+0.81}_{-0.79} \quad (-0.9\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	0.70	—	$z_{\mathrm{re}}$	7.83	$7.9^{+2.4}_{-2.5} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	2296.8	$2295^{+37}_{-37} \quad (+1.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	7.11	$5.5^{+4.3}_{-4.7} \quad (+0.4\sigma)$	$10^9 A_{\mathrm{s}}$	2.102	$2.11^{+0.12}_{-0.098} \quad (+0.1\sigma)$	$H(2.33)$	235.80	$235.8^{+2.0}_{-1.8} \quad (+0.9\sigma)$
$A_{100}^{\mathrm{PS}}$	247	$259^{+70}_{-70} \quad (-0.5\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.8779	$1.878^{+0.030}_{-0.029} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	5753.1	$5751^{+39}_{-40} \quad (+0.8\sigma)$
$A_{143}^{\mathrm{PS}}$	49.9	$45^{+20}_{-20} \quad (-0.8\sigma)$	$D_{40}$	1222.2	$1223^{+41}_{-39} \quad (+1.0\sigma)$	$f\sigma_8(0.15)$	0.4524	$0.453^{+0.020}_{-0.017} \quad (+0.8\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	53.4	$42^{+20}_{-20} \quad (-0.3\sigma)$	$D_{220}$	5738	$5740^{+99}_{-100} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	0.7471	$0.748^{+0.022}_{-0.019} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	121.9	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{810}$	2540.5	$2539^{+33}_{-36} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	0.4718	$0.472^{+0.017}_{-0.015} \quad (+0.8\sigma)$
$A^{\mathrm{kSZ}}$	0.0	—	$D_{1420}$	819.5	$818^{+12}_{-14} \quad (+0.7\sigma)$	$\sigma_8(0.38)$	0.6628	$0.664^{+0.019}_{-0.017} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dustTT}}$	8.82	$9.0^{+4.8}_{-4.9} \quad (-0.0\sigma)$	$D_{2000}$	231.85	$231.3^{+4.7}_{-5.1} \quad (+1.1\sigma)$	$f\sigma_8(0.51)$	0.4710	$0.471^{+0.016}_{-0.014} \quad (+0.7\sigma)$
$A_{143}^{\mathrm{dustTT}}$	11.09	$11.0^{+4.9}_{-4.7} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	0.9694	$0.970^{+0.017}_{-0.018} \quad (-1.1\sigma)$	$\sigma_8(0.51)$	0.6205	$0.621^{+0.018}_{-0.016} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	20.2	$18.6^{+8.2}_{-7.9} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	0.2448	$0.247^{+0.030}_{-0.033} \quad (-1.1\sigma)$	$f\sigma_8(0.61)$	0.4664	$0.467^{+0.015}_{-0.014} \quad (+0.6\sigma)$
$A_{217}^{\mathrm{dustTT}}$	95.5	$94^{+20}_{-20} \quad (+0.2\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.2461	$0.249^{+0.031}_{-0.033} \quad (-1.1\sigma)$	$\sigma_8(0.61)$	0.5905	$0.591^{+0.018}_{-0.016} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dustTE}}$	0.114	$0.112^{+0.094}_{-0.094}$	Age/Gyr	13.774	$13.770^{+0.089}_{-0.092} \quad (+0.8\sigma)$	$f\sigma_8(2.33)$	0.2979	$0.2984^{+0.0093}_{-0.0082} \quad (-0.3\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	0.135	$0.133^{+0.075}_{-0.074}$	$z_*$	1089.62	$1089.7^{+1.1}_{-1.0} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	0.3074	$0.308^{+0.010}_{-0.0084} \quad (-0.4\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	0.481	$0.48^{+0.28}_{-0.22}$	$r_*$	144.69	$144.69^{+0.81}_{-0.81} \quad (-0.7\sigma)$	$f_{2000}^{143}$	28.0	$29^{+8}_{-8} \quad (-1.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	0.222	$0.22^{+0.14}_{-0.13}$	$100\theta_*$	1.04127	$1.04130^{+0.00085}_{-0.00082} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	31.5	$32^{+6}_{-6} \quad (-1.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	0.661	$0.67^{+0.22}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.896	$13.895^{+0.080}_{-0.076} \quad (-0.6\sigma)$	$f_{2000}^{217}$	106.1	$106.8^{+5.6}_{-5.5} \quad (-1.0\sigma)$
$A_{217}^{\mathrm{dustTE}}$	2.07	$2.08^{+0.70}_{-0.65}$	$z_{\mathrm{drag}}$	1060.12	$1060.2^{+1.9}_{-1.9} \quad (-0.7\sigma)$	$\chi_{\mathrm{simall}}^2$	396.3	$397.7 \quad (\nu: 3.5) \quad (+0.2\sigma)$
$c_{100}$	0.99973	$0.9997^{+0.0015}_{-0.0015} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	147.32	$147.32^{+0.88}_{-0.83} \quad (-0.7\sigma)$	$\chi_{\mathrm{lowl}}^2$	22.65	$22.8 \quad (\nu: 0.7) \quad (+1.2\sigma)$
$c_{217}$	0.99817	$0.9982^{+0.0015}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	0.14075	$0.1406^{+0.0010}_{-0.0012} \quad (+1.6\sigma)$	$\chi_{\mathrm{plik}}^2$	2346.5	$2362.1 \quad (\nu: 21.6) \quad (+233.1\sigma)$
$H_0$	67.99	$68.1^{+1.7}_{-1.6} \quad (-1.0\sigma)$	$100\theta_{\mathrm{D}}$	0.16063	$0.1608^{+0.0011}_{-0.0012} \quad (-1.3\sigma)$	$\chi_{\mathrm{H073p45}}^2$	10.8	$10.7 \quad (\nu: 3.1) \quad (+1.0\sigma)$
$\Omega_{\Lambda}$	0.6933	$0.694^{+0.021}_{-0.021} \quad (-1.0\sigma)$	$z_{\mathrm{eq}}$	3373	$3371^{+75}_{-71} \quad (+0.9\sigma)$	$\chi_{\mathrm{prior}}^2$	1.6	$11.6 \quad (\nu: 11.6) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	0.3067	$0.306^{+0.021}_{-0.021} \quad (+1.0\sigma)$	$k_{\mathrm{eq}}$	0.010293	$0.01029^{+0.00023}_{-0.00022} \quad (+0.9\sigma)$	$\chi_{\mathrm{CMB}}^2$	2765.5	$2782.6 \quad (\nu: 20.7) \quad (+249.0\sigma)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 2777.94$ ;  $\Delta\chi_{\mathrm{eff}}^2 = 1587.10$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 2804.95$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1593.34$ ;  $R - 1 = 0.08230$

$\chi_{\mathrm{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 396.34 ( $\Delta$  0.08) commander\_dx12\_v3.2.29: 22.65 ( $\Delta$  1.34) plik\_rd12\_HM\_v22b\_TTTEEE: 2346.53 Hubble - H073p45: 10.82 ( $\Delta$  3.25)



20.16 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02230^{+0.00051}_{-0.00052} \quad (+0.6\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1432^{+0.0032}_{-0.0033} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.015}_{-0.015} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1202^{+0.0035}_{-0.0035} \quad (-0.1\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0014}_{-0.0014} \quad (+0.2\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4490^{+0.0077}_{-0.0074} \quad (+0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0014}_{-0.0014} \quad (-0.2\sigma)$	$\sigma_8$	$0.811^{+0.020}_{-0.018} \quad (-0.2\sigma)$	$H(0.15)$	$72.5^{+1.5}_{-1.5} \quad (+0.2\sigma)$
$\tau$	$0.055^{+0.020}_{-0.014} \quad (+0.2\sigma)$	$S_8$	$0.835^{+0.040}_{-0.042} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$645^{+15}_{-15} \quad (-0.2\sigma)$
$Y_{\mathrm{P}}$	$0.240^{+0.032}_{-0.033} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.022}_{-0.023} \quad (-0.2\sigma)$	$H(0.38)$	$82.7^{+1.2}_{-1.1} \quad (+0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.045}_{-0.031} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.020}_{-0.021} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1537^{+31}_{-31} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.962^{+0.018}_{-0.018} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.990^{+0.029}_{-0.029} \quad (-0.2\sigma)$	$H(0.51)$	$89.49^{+0.98}_{-0.94} \quad (+0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0061}_{-0.0063} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}h$	$98.8^{+2.9}_{-2.8} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1990^{+36}_{-36} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.455^{+0.074}_{-0.073} \quad (+0.0\sigma)$	$H(0.61)$	$95.16^{+0.83}_{-0.79} \quad (+0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_{\mathrm{re}}$	$< 9.61 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2315^{+39}_{-39} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.02 \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.101^{+0.097}_{-0.065} \quad (+0.1\sigma)$	$H(2.33)$	$236.6^{+2.0}_{-2.1} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.3\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.882^{+0.031}_{-0.031} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5770^{+41}_{-41} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{40}$	$1236^{+41}_{-41} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.461^{+0.020}_{-0.021} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5733^{+100}_{-99} \quad (+0.5\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.019}_{-0.016} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{810}$	$2538^{+33}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.478^{+0.017}_{-0.017} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{1420}$	$817^{+12}_{-13} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.017}_{-0.014} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.6}_{-4.7} \quad (-0.0\sigma)$	$D_{2000}$	$231.3^{+4.7}_{-4.7} \quad (+0.8\sigma)$	$f\sigma_8(0.51)$	$0.476^{+0.015}_{-0.015} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.7}_{-4.8} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.962^{+0.018}_{-0.018} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.016}_{-0.013} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.5^{+8.5}_{-8.3} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.240^{+0.032}_{-0.033} \quad (-0.3\sigma)$	$f\sigma_8(0.61)$	$0.471^{+0.013}_{-0.014} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.241^{+0.032}_{-0.033} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.015}_{-0.012} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.114^{+0.097}_{-0.095}$	Age/Gyr	$13.812^{+0.094}_{-0.095} \quad (-0.2\sigma)$	$f\sigma_8(2.33)$	$0.2975^{+0.0080}_{-0.0061} \quad (-0.1\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.076}_{-0.074}$	$z_*$	$1089.8^{+1.1}_{-1.1} \quad (-0.8\sigma)$	$\sigma_8(2.33)$	$0.3064^{+0.0087}_{-0.0065} \quad (-0.0\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.21}$	$r_*$	$144.45^{+0.84}_{-0.79} \quad (-0.0\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.04103^{+0.00088}_{-0.00086} \quad (+0.1\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.876^{+0.079}_{-0.078} \quad (-0.1\sigma)$	$f_{2000}^{217}$	$106.6^{+5.6}_{-5.1} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.09^{+0.69}_{-0.69}$	$z_{\mathrm{drag}}$	$1059.6^{+1.9}_{-2.0} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 2.0) \quad (+0.2\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.13^{+0.87}_{-0.83} \quad (-0.2\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.1 \quad (\nu: 1.1) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.1410^{+0.0011}_{-0.0011} \quad (+0.7\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.7 \quad (\nu: 17.9) \quad (+274.6\sigma)$
$H_0$	$67.2^{+1.8}_{-1.7} \quad (+0.2\sigma)$	$100\theta_{\mathrm{D}}$	$0.1606^{+0.0012}_{-0.0012} \quad (-0.7\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.1) \quad (+1.1\sigma)$
$\Omega_{\Lambda}$	$0.682^{+0.022}_{-0.023} \quad (+0.2\sigma)$	$z_{\mathrm{eq}}$	$3406^{+78}_{-78} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2780.8 \quad (\nu: 17.5) \quad (+284.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.318^{+0.023}_{-0.022} \quad (-0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01039^{+0.00024}_{-0.00024} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2792.32; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.17; R - 1 = 0.01241$$



20.17 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02239^{+0.00044}_{-0.00046} \quad (+0.5\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0962^{+0.0013}_{-0.0013} \quad (+0.1\sigma)$	$H(0.15)$	$72.9^{+1.1}_{-1.1} \quad (-0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1193^{+0.0026}_{-0.0026} \quad (+0.2\sigma)$	$\sigma_8$	$0.810^{+0.022}_{-0.019} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$641^{+11}_{-11} \quad (+0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0013}_{-0.0013} \quad (-0.5\sigma)$	$S_8$	$0.825^{+0.033}_{-0.032} \quad (+0.2\sigma)$	$H(0.38)$	$83.02^{+0.87}_{-0.87} \quad (-0.1\sigma)$
$\tau$	$0.057^{+0.021}_{-0.015} \quad (+0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.018} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1529^{+23}_{-22} \quad (+0.2\sigma)$
$Y_{\mathrm{P}}$	$0.243^{+0.030}_{-0.032} \quad (-0.6\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.019}_{-0.018} \quad (+0.1\sigma)$	$H(0.51)$	$89.74^{+0.77}_{-0.76} \quad (-0.1\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.048}_{-0.034} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.028}_{-0.026} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1981^{+27}_{-26} \quad (+0.2\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.016}_{-0.015} \quad (-0.4\sigma)$	$r_{\mathrm{drag}}h$	$99.6^{+2.1}_{-2.1} \quad (-0.3\sigma)$	$H(0.61)$	$95.36^{+0.69}_{-0.68} \quad (-0.1\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0062}_{-0.0066} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.065}_{-0.059} \quad (+0.4\sigma)$	$D_{\mathrm{M}}(0.61)$	$2305^{+29}_{-29} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.3\sigma)$	$z_{\mathrm{re}}$	$< 9.83 \quad (+0.2\sigma)$	$H(2.33)$	$236.1^{+1.7}_{-1.6} \quad (+0.3\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.071} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5761^{+35}_{-35} \quad (+0.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.02 \quad (+0.3\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.030}_{-0.031} \quad (-0.2\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.017}_{-0.017} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.3\sigma)$	$D_{40}$	$1229^{+38}_{-38} \quad (+0.5\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.020}_{-0.017} \quad (-0.0\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.6\sigma)$	$D_{220}$	$5736^{+100}_{-100} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.015}_{-0.014} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{810}$	$2539^{+34}_{-35} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.018}_{-0.015} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (-0.0\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.014}_{-0.013} \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.3^{+4.8}_{-4.8} \quad (+0.9\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.016}_{-0.014} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.5} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.966^{+0.016}_{-0.015} \quad (-0.4\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.013}_{-0.012} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.9}_{-4.6} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.243^{+0.030}_{-0.032} \quad (-0.6\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.016}_{-0.013} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.1}_{-8.2} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.244^{+0.030}_{-0.032} \quad (-0.6\sigma)$	$f\sigma_8(2.33)$	$0.2979^{+0.0083}_{-0.0064} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.792^{+0.082}_{-0.080} \quad (-0.0\sigma)$	$\sigma_8(2.33)$	$0.3071^{+0.0088}_{-0.0068} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.113^{+0.098}_{-0.091}$	$z_*$	$1089.7^{+1.1}_{-1.0} \quad (-0.9\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.8\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.074}_{-0.076}$	$r_*$	$144.61^{+0.69}_{-0.72} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-5} \quad (-0.9\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$100\theta_*$	$1.04117^{+0.00082}_{-0.00078} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.6^{+5.8}_{-5.2} \quad (-0.8\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.13}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.889^{+0.066}_{-0.070} \quad (-0.3\sigma)$	$\chi_{\mathrm{small}}^2$	$397.3 \quad (\nu: 2.6) \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.20}_{-0.20}$	$z_{\mathrm{drag}}$	$1059.9^{+1.9}_{-1.9} \quad (-0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.4 \quad (\nu: 0.7) \quad (+0.4\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.68}_{-0.68}$	$r_{\mathrm{drag}}$	$147.27^{+0.78}_{-0.78} \quad (-0.4\sigma)$	$\chi_{\mathrm{plik}}^2$	$2360.2 \quad (\nu: 17.9) \quad (+277.8\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14080^{+0.00096}_{-0.00094} \quad (+1.2\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.060 \quad (\nu: 0.0) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.1606^{+0.0012}_{-0.0011} \quad (-0.9\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.25 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$H_0$	$67.6^{+1.3}_{-1.3} \quad (-0.2\sigma)$	$z_{\mathrm{eq}}$	$3385^{+61}_{-58} \quad (+0.3\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 \quad (\nu: 1.2) \quad (+0.2\sigma)$
$\Omega_{\Lambda}$	$0.689^{+0.015}_{-0.017} \quad (-0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01033^{+0.00018}_{-0.00018} \quad (+0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 10.3) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.017}_{-0.015} \quad (+0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.011}_{-0.011} \quad (-0.3\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.2 \quad (\nu: 0.8) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1423^{+0.0025}_{-0.0024} \quad (+0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4510^{+0.0057}_{-0.0057} \quad (-0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2780.9 \quad (\nu: 17.3) \quad (+285.8\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 2798.67; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.30; R - 1 = 0.03223$$



20.18 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02231^{+0.00051}_{-0.00050} \quad (+0.6\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1430^{+0.0028}_{-0.0028} \quad (+0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.013}_{-0.012} \quad (+0.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1200^{+0.0030}_{-0.0030} \quad (-0.1\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0013}_{-0.0014} \quad (+0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4494^{+0.0065}_{-0.0064} \quad (-0.0\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0014}_{-0.0014} \quad (-0.2\sigma)$	$\sigma_8$	$0.810^{+0.018}_{-0.015} \quad (-0.1\sigma)$	$H(0.15)$	$72.6^{+1.4}_{-1.3} \quad (+0.2\sigma)$
$\tau$	$0.055^{+0.019}_{-0.014} \quad (+0.2\sigma)$	$S_8$	$0.832^{+0.032}_{-0.033} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$645^{+13}_{-14} \quad (-0.2\sigma)$
$Y_{\mathrm{P}}$	$0.239^{+0.031}_{-0.034} \quad (-0.3\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.017}_{-0.018} \quad (-0.1\sigma)$	$H(0.38)$	$82.8^{+1.1}_{-1.0} \quad (+0.2\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.042}_{-0.030} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.016}_{-0.017} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1536^{+27}_{-28} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.963^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.988^{+0.023}_{-0.023} \quad (-0.2\sigma)$	$H(0.51)$	$89.52^{+0.92}_{-0.88} \quad (+0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0062}_{-0.0064} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}h$	$99.0^{+2.6}_{-2.5} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1989^{+33}_{-33} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.451^{+0.059}_{-0.059} \quad (+0.1\sigma)$	$H(0.61)$	$95.18^{+0.79}_{-0.77} \quad (+0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_{\mathrm{re}}$	$< 9.50 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2314^{+35}_{-36} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 1.04 \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.099^{+0.090}_{-0.061} \quad (+0.1\sigma)$	$H(2.33)$	$236.5^{+1.8}_{-1.8} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.029}_{-0.030} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5769^{+40}_{-39} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.5\sigma)$	$D_{40}$	$1236^{+38}_{-38} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.016}_{-0.017} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{220}$	$5735^{+100}_{-99} \quad (+0.5\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.017}_{-0.014} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{810}$	$2538^{+34}_{-33} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.013}_{-0.014} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{1420}$	$818^{+12}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.012} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.5} \quad (-0.0\sigma)$	$D_{2000}$	$231.3^{+4.8}_{-4.8} \quad (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.7}_{-4.7} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.963^{+0.018}_{-0.017} \quad (-0.1\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.015}_{-0.012} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.2}_{-8.2} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.239^{+0.031}_{-0.034} \quad (-0.3\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.011} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.240^{+0.031}_{-0.034} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.015}_{-0.011} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.113^{+0.10}_{-0.092}$	Age/Gyr	$13.810^{+0.092}_{-0.091} \quad (-0.2\sigma)$	$f\sigma_8(2.33)$	$0.2972^{+0.0078}_{-0.0059} \quad (-0.0\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.074}_{-0.076}$	$z_*$	$1089.8^{+1.1}_{-1.0} \quad (-0.7\sigma)$	$\sigma_8(2.33)$	$0.3062^{+0.0084}_{-0.0064} \quad (-0.0\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.21}_{-0.21}$	$r_*$	$144.50^{+0.74}_{-0.72} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-8} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.13}_{-0.14}$	$100\theta_*$	$1.04104^{+0.00085}_{-0.00083} \quad (+0.0\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-6} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.20}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.880^{+0.071}_{-0.069} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.5^{+5.7}_{-5.1} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.68}_{-0.68}$	$z_{\mathrm{drag}}$	$1059.6^{+1.9}_{-2.0} \quad (+0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.17 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.18^{+0.78}_{-0.76} \quad (-0.3\sigma)$	$\chi_{\mathrm{simall}}^2$	$396.9 \quad (\nu: 1.6) \quad (+0.1\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14097^{+0.00099}_{-0.0010} \quad (+0.8\sigma)$	$\chi_{\mathrm{lowl}}^2$	$24.0 \quad (\nu: 0.9) \quad (+0.1\sigma)$
$H_0$	$67.2^{+1.6}_{-1.5} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.1606^{+0.0012}_{-0.0012} \quad (-0.7\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.5 \quad (\nu: 17.0) \quad (+285.9\sigma)$
$\Omega_{\Lambda}$	$0.684^{+0.020}_{-0.021} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3401^{+68}_{-67} \quad (+0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.2) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.316^{+0.021}_{-0.020} \quad (-0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01038^{+0.00021}_{-0.00020} \quad (+0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.6 \quad (\nu: 17.6) \quad (+282.0\sigma)$

$\bar{\chi}_{\mathrm{eff}}^2 = 2801.11$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1591.98$ ;  $R - 1 = 0.01737$



20.19 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02239^{+0.00045}_{-0.00045} \quad (+0.5\sigma)$	$\sigma_8$	$0.810^{+0.019}_{-0.016} \quad (-0.1\sigma)$	$H(0.38)$	$83.01^{+0.87}_{-0.85} \quad (-0.0\sigma)$
$\Omega_c h^2$	$0.1193^{+0.0024}_{-0.0023} \quad (+0.1\sigma)$	$S_8$	$0.825^{+0.027}_{-0.027} \quad (+0.1\sigma)$	$D_M(0.38)$	$1529^{+22}_{-22} \quad (+0.1\sigma)$
$100\theta_{MC}$	$1.0409^{+0.0013}_{-0.0013} \quad (-0.4\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.452^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$H(0.51)$	$89.72^{+0.76}_{-0.75} \quad (-0.0\sigma)$
$\tau$	$0.057^{+0.019}_{-0.015} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.605^{+0.015}_{-0.015} \quad (+0.0\sigma)$	$D_M(0.51)$	$1981^{+26}_{-26} \quad (+0.1\sigma)$
$Y_P$	$0.242^{+0.030}_{-0.031} \quad (-0.5\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.022}_{-0.021} \quad (-0.0\sigma)$	$H(0.61)$	$95.34^{+0.67}_{-0.66} \quad (+0.0\sigma)$
$\ln(10^{10} A_s)$	$3.047^{+0.043}_{-0.032} \quad (+0.1\sigma)$	$r_{drag} h$	$99.6^{+2.0}_{-1.9} \quad (-0.2\sigma)$	$D_M(0.61)$	$2305^{+28}_{-28} \quad (+0.1\sigma)$
$n_s$	$0.965^{+0.016}_{-0.015} \quad (-0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.055}_{-0.053} \quad (+0.4\sigma)$	$H(2.33)$	$236.1^{+1.6}_{-1.4} \quad (+0.3\sigma)$
$y_{cal}$	$1.0007^{+0.0062}_{-0.0066} \quad (+0.1\sigma)$	$z_{re}$	$< 9.66 \quad (+0.1\sigma)$	$D_M(2.33)$	$5762^{+35}_{-34} \quad (-0.1\sigma)$
$A_{217}^{CIB}$	$46^{+20}_{-20} \quad (-0.3\sigma)$	$10^9 A_s$	$2.106^{+0.092}_{-0.067} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.014}_{-0.014} \quad (+0.1\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s e^{-2\tau}$	$1.879^{+0.029}_{-0.029} \quad (-0.2\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.018}_{-0.015} \quad (-0.1\sigma)$
$A_{143}^{tSZ}$	$> 1.02 \quad (+0.3\sigma)$	$D_{40}$	$1231^{+36}_{-35} \quad (+0.4\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.012}_{-0.012} \quad (+0.0\sigma)$
$A_{100}^{PS}$	$257^{+70}_{-70} \quad (-0.3\sigma)$	$D_{220}$	$5740^{+100}_{-98} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.013} \quad (-0.1\sigma)$
$A_{143}^{PS}$	$45^{+20}_{-20} \quad (-0.6\sigma)$	$D_{810}$	$2539^{+34}_{-33} \quad (+0.1\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.011} \quad (-0.0\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.2\sigma)$	$D_{1420}$	$818^{+12}_{-12} \quad (+0.6\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.015}_{-0.012} \quad (-0.1\sigma)$
$A_{217}^{PS}$	$115^{+20}_{-30} \quad (-0.0\sigma)$	$D_{2000}$	$231.4^{+4.7}_{-4.8} \quad (+0.9\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.010} \quad (-0.0\sigma)$
$A^{kSZ}$	—	$n_{s,0.002}$	$0.965^{+0.016}_{-0.015} \quad (-0.3\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.015}_{-0.012} \quad (-0.1\sigma)$
$A_{100}^{dustTT}$	$8.9^{+4.7}_{-4.5} \quad (-0.0\sigma)$	$Y_P$	$0.242^{+0.030}_{-0.031} \quad (-0.5\sigma)$	$f\sigma_8(2.33)$	$0.2979^{+0.0076}_{-0.0061} \quad (-0.1\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.8}_{-4.6} \quad (+0.1\sigma)$	$Y_P^{BBN}$	$0.243^{+0.030}_{-0.031} \quad (-0.5\sigma)$	$\sigma_8(2.33)$	$0.3071^{+0.0080}_{-0.0064} \quad (-0.2\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.6^{+8.1}_{-8.2} \quad (+0.1\sigma)$	Age/Gyr	$13.793^{+0.081}_{-0.079} \quad (-0.1\sigma)$	$f_{2000}^{143}$	$29^{+8}_{-7} \quad (-0.8\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.7^{+1.1}_{-1.0} \quad (-0.8\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-5} \quad (-0.9\sigma)$
$A_{100}^{dustTE}$	$0.112^{+0.098}_{-0.091}$	$r_*$	$144.62^{+0.65}_{-0.66} \quad (-0.3\sigma)$	$f_{2000}^{217}$	$106.5^{+5.8}_{-5.2} \quad (-0.8\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.134^{+0.074}_{-0.076}$	$100\theta_*$	$1.04115^{+0.00081}_{-0.00078} \quad (-0.1\sigma)$	$\chi_{lensing}^2$	$9.05 \quad (\nu: 0.2) \quad (-0.4\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.21}_{-0.22}$	$D_M(z_*)/\text{Gpc}$	$13.890^{+0.063}_{-0.064} \quad (-0.3\sigma)$	$\chi_{small}^2$	$397.3 \quad (\nu: 2.1) \quad (+0.2\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.14}$	$z_{drag}$	$1059.8^{+1.9}_{-1.9} \quad (-0.0\sigma)$	$\chi_{lowl}^2$	$23.5 \quad (\nu: 0.7) \quad (+0.4\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.67^{+0.20}_{-0.20}$	$r_{drag}$	$147.27^{+0.73}_{-0.71} \quad (-0.4\sigma)$	$\chi_{plik}^2$	$2359.9 \quad (\nu: 17.3) \quad (+285.5\sigma)$
$A_{217}^{dustTE}$	$2.08^{+0.67}_{-0.68}$	$k_D$	$0.14082^{+0.00093}_{-0.00092} \quad (+1.1\sigma)$	$\chi_{6DF}^2$	$0.058 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_D$	$0.1606^{+0.0012}_{-0.0011} \quad (-0.9\sigma)$	$\chi_{MGS}^2$	$1.23 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{eq}$	$3385^{+56}_{-53} \quad (+0.3\sigma)$	$\chi_{DR12BAO}^2$	$4.9 \quad (\nu: 1.0) \quad (+0.1\sigma)$
$H_0$	$67.6^{+1.3}_{-1.2} \quad (-0.1\sigma)$	$k_{eq}$	$0.01033^{+0.00017}_{-0.00016} \quad (+0.3\sigma)$	$\chi_{prior}^2$	$11.6 \quad (\nu: 10.2) \quad (+1.1\sigma)$
$\Omega_\Lambda$	$0.689^{+0.015}_{-0.016} \quad (-0.2\sigma)$	$100\theta_{eq}$	$0.8164^{+0.0099}_{-0.010} \quad (-0.2\sigma)$	$\chi_{CMB}^2$	$2789.7 \quad (\nu: 17.6) \quad (+283.6\sigma)$
$\Omega_m$	$0.311^{+0.016}_{-0.015} \quad (+0.2\sigma)$	$100\theta_{s,eq}$	$0.4510^{+0.0051}_{-0.0053} \quad (-0.3\sigma)$	$\chi_{BAO}^2$	$6.2 \quad (\nu: 0.7) \quad (+0.1\sigma)$
$\Omega_m h^2$	$0.1423^{+0.0023}_{-0.0022} \quad (+0.3\sigma)$	$H(0.15)$	$72.9^{+1.1}_{-1.1} \quad (-0.1\sigma)$		
$\Omega_m h^3$	$0.0962^{+0.0013}_{-0.0013} \quad (+0.2\sigma)$	$D_M(0.15)$	$641^{+11}_{-11} \quad (+0.1\sigma)$		

$$\bar{\chi}_{eff}^2 = 2807.47; \Delta \bar{\chi}_{eff}^2 = 1592.10; R - 1 = 0.03003$$



20.20 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02251^{+0.00049}_{-0.00048} \quad (-0.3\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1417^{+0.0031}_{-0.0029} \quad (+0.9\sigma)$	$100\theta_{\mathrm{eq}}$	$0.820^{+0.014}_{-0.014} \quad (-1.0\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1186^{+0.0033}_{-0.0031} \quad (+0.9\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.0965^{+0.0013}_{-0.0013} \quad (-0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4526^{+0.0074}_{-0.0073} \quad (-1.0\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0013}_{-0.0014} \quad (-1.1\sigma)$	$\sigma_8$	$0.810^{+0.023}_{-0.019} \quad (+0.3\sigma)$	$H(0.15)$	$73.3^{+1.5}_{-1.4} \quad (-1.0\sigma)$
$\tau$	$0.058^{+0.023}_{-0.017} \quad (+0.1\sigma)$	$S_8$	$0.818^{+0.039}_{-0.032} \quad (+0.9\sigma)$	$D_{\mathrm{M}}(0.15)$	$637^{+14}_{-14} \quad (+1.0\sigma)$
$Y_{\mathrm{P}}$	$0.248^{+0.030}_{-0.032} \quad (-1.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.021}_{-0.018} \quad (+0.9\sigma)$	$H(0.38)$	$83.3^{+1.1}_{-1.1} \quad (-0.9\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.050^{+0.053}_{-0.037} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.021}_{-0.019} \quad (+0.7\sigma)$	$D_{\mathrm{M}}(0.38)$	$1521^{+29}_{-28} \quad (+1.0\sigma)$
$n_{\mathrm{s}}$	$0.970^{+0.017}_{-0.018} \quad (-1.1\sigma)$	$\sigma_8/h^{0.5}$	$0.981^{+0.031}_{-0.025} \quad (+0.7\sigma)$	$H(0.51)$	$89.99^{+0.90}_{-0.90} \quad (-0.9\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0062}_{-0.0068} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}h$	$100.3^{+2.9}_{-2.7} \quad (-1.0\sigma)$	$D_{\mathrm{M}}(0.51)$	$1972^{+34}_{-34} \quad (+1.0\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.5\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.426^{+0.073}_{-0.061} \quad (+1.1\sigma)$	$H(0.61)$	$95.57^{+0.80}_{-0.78} \quad (-0.9\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_{\mathrm{re}}$	$< 10.1 \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2295^{+37}_{-36} \quad (+1.0\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.5}_{-4.4} \quad (+0.4\sigma)$	$10^9 A_{\mathrm{s}}$	$2.11^{+0.11}_{-0.076} \quad (+0.1\sigma)$	$H(2.33)$	$235.8^{+2.0}_{-1.8} \quad (+0.9\sigma)$
$A_{100}^{\mathrm{PS}}$	$259^{+70}_{-70} \quad (-0.4\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.030}_{-0.029} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5751^{+39}_{-40} \quad (+0.8\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.8\sigma)$	$D_{40}$	$1223^{+41}_{-39} \quad (+1.0\sigma)$	$f\sigma_8(0.15)$	$0.453^{+0.020}_{-0.018} \quad (+0.8\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.3\sigma)$	$D_{220}$	$5740^{+99}_{-100} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.021}_{-0.017} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{810}$	$2539^{+34}_{-35} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.017}_{-0.015} \quad (+0.8\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{1420}$	$818^{+12}_{-14} \quad (+0.7\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.019}_{-0.015} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$9.0^{+4.8}_{-4.8} \quad (-0.0\sigma)$	$D_{2000}$	$231.3^{+4.7}_{-5.1} \quad (+1.1\sigma)$	$f\sigma_8(0.51)$	$0.472^{+0.016}_{-0.013} \quad (+0.7\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$11.0^{+4.9}_{-4.6} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.970^{+0.017}_{-0.018} \quad (-1.1\sigma)$	$\sigma_8(0.51)$	$0.622^{+0.018}_{-0.014} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.1}_{-7.7} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.248^{+0.030}_{-0.032} \quad (-1.1\sigma)$	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.012} \quad (+0.6\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.2\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.249^{+0.030}_{-0.033} \quad (-1.1\sigma)$	$\sigma_8(0.61)$	$0.592^{+0.017}_{-0.013} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.111^{+0.094}_{-0.094}$	Age/Gyr	$13.769^{+0.088}_{-0.091} \quad (+0.8\sigma)$	$f\sigma_8(2.33)$	$0.2987^{+0.0090}_{-0.0067} \quad (-0.3\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.133^{+0.075}_{-0.073}$	$z_*$	$1089.7^{+1.1}_{-1.0} \quad (-1.0\sigma)$	$\sigma_8(2.33)$	$0.3082^{+0.0097}_{-0.0070} \quad (-0.5\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.28}_{-0.22}$	$r_*$	$144.69^{+0.80}_{-0.81} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-8} \quad (-1.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$100\theta_*$	$1.04130^{+0.00084}_{-0.00083} \quad (-0.7\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+6}_{-5} \quad (-1.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.22}_{-0.20}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.896^{+0.080}_{-0.076} \quad (-0.6\sigma)$	$f_{2000}^{217}$	$106.8^{+5.6}_{-5.3} \quad (-1.0\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.70}_{-0.65}$	$z_{\mathrm{drag}}$	$1060.2^{+1.8}_{-1.9} \quad (-0.7\sigma)$	$\chi_{\mathrm{small}}^2$	$397.7 \quad (\nu: 3.6) \quad (+0.2\sigma)$
$c_{100}$	$0.9997^{+0.0015}_{-0.0015} \quad (+0.0\sigma)$	$r_{\mathrm{drag}}$	$147.32^{+0.88}_{-0.83} \quad (-0.7\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.8 \quad (\nu: 0.7) \quad (+1.2\sigma)$
$c_{217}$	$0.9982^{+0.0015}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.1406^{+0.0010}_{-0.0012} \quad (+1.6\sigma)$	$\chi_{\mathrm{plik}}^2$	$2362.0 \quad (\nu: 21.5) \quad (+234.8\sigma)$
$H_0$	$68.1^{+1.7}_{-1.6} \quad (-1.0\sigma)$	$100\theta_{\mathrm{D}}$	$0.1608^{+0.0011}_{-0.0012} \quad (-1.3\sigma)$	$\chi_{\mathrm{H073p45}}^2$	$10.6 \quad (\nu: 3.1) \quad (+1.0\sigma)$
$\Omega_{\Lambda}$	$0.694^{+0.021}_{-0.021} \quad (-1.0\sigma)$	$z_{\mathrm{eq}}$	$3371^{+75}_{-70} \quad (+0.9\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.6 \quad (\nu: 11.6) \quad (+1.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.306^{+0.021}_{-0.021} \quad (+1.0\sigma)$	$k_{\mathrm{eq}}$	$0.01029^{+0.00023}_{-0.00021} \quad (+0.9\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2782.5 \quad (\nu: 20.3) \quad (+252.2\sigma)$

$\bar{\chi}_{\mathrm{eff}}^2 = 2804.74$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1593.31$ ;  $R - 1 = 0.08577$



## 20.21 base\_yhe\_CamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02213	$0.02211^{+0.00077}_{-0.00076}$	$S_8$	0.837	$0.838^{+0.069}_{-0.065}$	$100\theta_{s,eq}$	0.4488	$0.449^{+0.013}_{-0.012}$
$\Omega_c h^2$	0.1204	$0.1205^{+0.0059}_{-0.0058}$	$\sigma_8 \Omega_m^{0.5}$	0.4583	$0.459^{+0.038}_{-0.036}$	$H(0.15)$	72.37	$72.3^{+2.6}_{-2.5}$
$100\theta_{MC}$	1.04094	$1.0407^{+0.0022}_{-0.0023}$	$\sigma_8 \Omega_m^{0.25}$	0.6099	$0.610^{+0.032}_{-0.031}$	$D_M(0.15)$	646.4	$648^{+27}_{-25}$
$\tau$	0.0525	$0.052^{+0.022}_{-0.022}$	$\sigma_8/h^{0.5}$	0.9914	$0.991^{+0.043}_{-0.042}$	$H(0.38)$	82.61	$82.5^{+2.0}_{-1.9}$
$Y_P$	0.248	$0.242^{+0.052}_{-0.056}$	$r_{drag} h$	98.67	$98.5^{+5.0}_{-4.8}$	$D_M(0.38)$	1540	$1542^{+53}_{-52}$
$\ln(10^{10} A_s)$	3.0397	$3.038^{+0.047}_{-0.047}$	$\langle d^2 \rangle^{1/2}$	2.447	$2.45^{+0.12}_{-0.11}$	$H(0.51)$	89.39	$89.3^{+1.6}_{-1.5}$
$n_s$	0.9644	$0.963^{+0.028}_{-0.029}$	$z_{re}$	7.57	$7.5^{+2.2}_{-2.4}$	$D_M(0.51)$	1994	$1996^{+62}_{-61}$
$y_{cal}$	1.0003	$1.0004^{+0.0064}_{-0.0062}$	$10^9 A_s$	2.090	$2.09^{+0.10}_{-0.096}$	$H(0.61)$	95.07	$95.0^{+1.4}_{-1.3}$
$A_{100}^{PS}$	247	$242^{+70}_{-70}$	$10^9 A_s e^{-2\tau}$	1.8815	$1.880^{+0.040}_{-0.039}$	$D_M(0.61)$	2319	$2322^{+67}_{-66}$
$A_{143}^{PS}$	38	$40^{+30}_{-20}$	$D_{40}$	1228	$1232^{+59}_{-56}$	$H(2.33)$	236.61	$236.6^{+3.5}_{-3.3}$
$A_{217}^{PS}$	99.1	$101^{+30}_{-30}$	$D_{220}$	5701	$5703^{+110}_{-110}$	$D_M(2.33)$	5775	$5778^{+65}_{-65}$
$A_{217}^{CIB}$	43.2	$41^{+20}_{-20}$	$D_{810}$	2532.9	$2534^{+36}_{-35}$	$f\sigma_8(0.15)$	0.4623	$0.463^{+0.034}_{-0.033}$
$A_{143}^{tSZ}$	3.96	$< 8.79$	$D_{1420}$	813.2	$814^{+14}_{-14}$	$\sigma_8(0.15)$	0.7492	$0.748^{+0.022}_{-0.022}$
$r_{143 \times 217}^{PS}$	0.554	$0.65^{+0.32}_{-0.33}$	$D_{2000}$	229.0	$229.8^{+6.5}_{-6.5}$	$f\sigma_8(0.38)$	0.4790	$0.479^{+0.026}_{-0.025}$
$r_{143 \times 217}^{CIB}$	0.63	—	$n_{s,0.002}$	0.9644	$0.963^{+0.028}_{-0.029}$	$\sigma_8(0.38)$	0.6633	$0.662^{+0.019}_{-0.019}$
$\xi^{tSZ \times CIB}$	0.00	—	$Y_P$	0.248	$0.242^{+0.052}_{-0.056}$	$f\sigma_8(0.51)$	0.4767	$0.477^{+0.022}_{-0.022}$
$A^{kSZ}$	4.3	—	$Y_P^{BBN}$	0.249	$0.244^{+0.052}_{-0.056}$	$\sigma_8(0.51)$	0.6204	$0.619^{+0.018}_{-0.018}$
$A_{100}^{dust}$	1.01	$1.01^{+0.52}_{-0.51}$	Age/Gyr	13.823	$13.83^{+0.15}_{-0.15}$	$f\sigma_8(0.61)$	0.4711	$0.471^{+0.019}_{-0.019}$
$A_{143}^{dust}$	0.979	$0.97^{+0.45}_{-0.44}$	$z_*$	1090.36	$1090.2^{+1.8}_{-1.7}$	$\sigma_8(0.61)$	0.5901	$0.589^{+0.018}_{-0.017}$
$A_{217}^{dust}$	0.962	$0.97^{+0.26}_{-0.27}$	$r_*$	144.49	$144.5^{+1.3}_{-1.3}$	$f\sigma_8(2.33)$	0.2973	$0.2967^{+0.0094}_{-0.0089}$
$A_{143 \times 217}^{dust}$	1.011	$1.03^{+0.42}_{-0.42}$	$100\theta_*$	1.04108	$1.0410^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	0.3061	$0.306^{+0.010}_{-0.0097}$
$c_{100}$	0.99736	$0.9975^{+0.0027}_{-0.0028}$	$D_M(z_*)/\text{Gpc}$	13.879	$13.88^{+0.12}_{-0.12}$	$f_{2000}^{143}$	31.7	$30^{+10}_{-10}$
$c_{217}$	1.00131	$1.0012^{+0.0041}_{-0.0040}$	$z_{drag}$	1059.51	$1059.3^{+3.1}_{-3.1}$	$f_{2000}^{217}$	108.1	$107.3^{+7.1}_{-7.1}$
$H_0$	67.01	$66.9^{+3.0}_{-2.9}$	$r_{drag}$	147.23	$147.3^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	33.5	$33^{+8}_{-8}$
$\Omega_\Lambda$	0.6811	$0.679^{+0.038}_{-0.042}$	$k_D$	0.14043	$0.1406^{+0.0021}_{-0.0020}$	$\chi_{simall}^2$	395.89	$397.0 (\nu: 1.4)$
$\Omega_m$	0.3189	$0.321^{+0.042}_{-0.038}$	$100\theta_D$	0.16118	$0.1610^{+0.0020}_{-0.0020}$	$\chi_{lowl}^2$	23.3	$23.9 (\nu: 2.2)$
$\Omega_m h^2$	0.1432	$0.1433^{+0.0055}_{-0.0054}$	$z_{eq}$	3407	$3409^{+130}_{-130}$	$\chi_{CamSpec}^2$	7050.2	$7063.9 (\nu: 15.9)$
$\Omega_m h^3$	0.09597	$0.0958^{+0.0020}_{-0.0019}$	$k_{eq}$	0.010398	$0.01040^{+0.00040}_{-0.00039}$	$\chi_{prior}^2$	2.4	$7.6 (\nu: 5.9)$
$\sigma_8$	0.8116	$0.811^{+0.025}_{-0.025}$	$100\theta_{eq}$	0.8118	$0.811^{+0.026}_{-0.024}$	$\chi_{CMB}^2$	7469.4	$7484.8 (\nu: 16.2)$

Best-fit  $\chi_{eff}^2 = 7471.80$ ;  $\bar{\chi}_{eff}^2 = 7492.39$ ;  $R - 1 = 0.00648$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.89 commander\_dx12\_v3.2\_29: 23.34 CamSpec like\_10.7HM: 7050.19



## 20.22 base\_yhe\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02226^{+0.00064}_{-0.00065}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.022}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1527^{+29}_{-27}$
$\Omega_{\mathrm{c}}h^2$	$0.1189^{+0.0032}_{-0.0031}$	$\sigma_8/h^{0.5}$	$0.982^{+0.031}_{-0.031}$	$H(0.51)$	$89.75^{+0.98}_{-0.98}$
$100\theta_{\mathrm{MC}}$	$1.0412^{+0.0018}_{-0.0019}$	$r_{\mathrm{drag}}h$	$99.9^{+2.5}_{-2.5}$	$D_{\mathrm{M}}(0.51)$	$1979^{+34}_{-33}$
$\tau$	$0.054^{+0.022}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	$2.422^{+0.073}_{-0.073}$	$H(0.61)$	$95.35^{+0.90}_{-0.89}$
$Y_{\mathrm{P}}$	$0.250^{+0.046}_{-0.051}$	$z_{\mathrm{re}}$	$7.7^{+2.1}_{-2.4}$	$D_{\mathrm{M}}(0.61)$	$2303^{+37}_{-36}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.045}_{-0.047}$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.097}_{-0.097}$	$H(2.33)$	$235.8^{+2.1}_{-2.1}$
$n_{\mathrm{s}}$	$0.969^{+0.021}_{-0.022}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.877^{+0.037}_{-0.039}$	$D_{\mathrm{M}}(2.33)$	$5762^{+48}_{-47}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0062}_{-0.0066}$	$D_{40}$	$1219^{+44}_{-43}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.020}$
$A_{100}^{\mathrm{PS}}$	$244^{+60}_{-70}$	$D_{220}$	$5709^{+110}_{-110}$	$\sigma_8(0.15)$	$0.747^{+0.021}_{-0.021}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2534^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.473^{+0.018}_{-0.017}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.662^{+0.019}_{-0.019}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.5^{+6.4}_{-6.2}$	$f\sigma_8(0.51)$	$0.472^{+0.016}_{-0.016}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87$	$n_{\mathrm{s},0.002}$	$0.969^{+0.021}_{-0.022}$	$\sigma_8(0.51)$	$0.620^{+0.018}_{-0.018}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.32}$	$Y_{\mathrm{P}}$	$0.250^{+0.046}_{-0.051}$	$f\sigma_8(0.61)$	$0.467^{+0.015}_{-0.015}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.251^{+0.047}_{-0.052}$	$\sigma_8(0.61)$	$0.590^{+0.017}_{-0.017}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	Age/Gyr	$13.80^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	$0.2976^{+0.0089}_{-0.0087}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.2^{+1.7}_{-1.7}$	$\sigma_8(2.33)$	$0.3069^{+0.0095}_{-0.0092}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.54}_{-0.51}$	$r_*$	$144.78^{+0.98}_{-0.99}$	$f_{2000}^{143}$	$31^{+10}_{-10}$
$A_{143}^{\mathrm{dust}}$	$0.98^{+0.47}_{-0.44}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.8^{+7.0}_{-7.1}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.25}_{-0.27}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.904^{+0.096}_{-0.096}$	$f_{2000}^{143\times 217}$	$33^{+8}_{-8}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.41}$	$z_{\mathrm{drag}}$	$1059.8^{+2.8}_{-2.8}$	$\chi_{\mathrm{simall}}^2$	$397.1\ (\nu: 1.6)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$r_{\mathrm{drag}}$	$147.5^{+1.1}_{-1.1}$	$\chi_{\mathrm{lowl}}^2$	$22.7\ (\nu: 0.8)$
$c_{217}$	$1.0012^{+0.0043}_{-0.0040}$	$k_{\mathrm{D}}$	$0.1402^{+0.0016}_{-0.0016}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.8\ (\nu: 15.4)$
$H_0$	$67.7^{+1.6}_{-1.6}$	$100\theta_{\mathrm{D}}$	$0.1612^{+0.0019}_{-0.0020}$	$\chi_{6\mathrm{DF}}^2$	$0.054\ (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.691^{+0.019}_{-0.020}$	$z_{\mathrm{eq}}$	$3374^{+76}_{-74}$	$\chi_{\mathrm{MGS}}^2$	$1.43\ (\nu: 0.2)$
$\Omega_{\mathrm{m}}$	$0.309^{+0.020}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00023}_{-0.00022}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6\ (\nu: 1.2)$
$\Omega_{\mathrm{m}}h^2$	$0.1418^{+0.0032}_{-0.0031}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.014}_{-0.014}$	$\chi_{\mathrm{prior}}^2$	$7.7\ (\nu: 6.1)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0019}_{-0.0019}$	$100\theta_{\mathrm{s,eq}}$	$0.4521^{+0.0071}_{-0.0071}$	$\chi_{\mathrm{BAO}}^2$	$6.1\ (\nu: 0.8)$
$\sigma_8$	$0.808^{+0.023}_{-0.024}$	$H(0.15)$	$73.0^{+1.4}_{-1.4}$	$\chi_{\mathrm{CMB}}^2$	$7484.5\ (\nu: 15.3)$
$S_8$	$0.820^{+0.039}_{-0.038}$	$D_{\mathrm{M}}(0.15)$	$640^{+14}_{-13}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.021}_{-0.021}$	$H(0.38)$	$83.1^{+1.1}_{-1.1}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7498.32; R - 1 = 0.01513$



## 20.23 base\_yhe\_CamSpecHM\_TT\_lowl\_lowE\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02211^{+0.00074}_{-0.00073}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.023}_{-0.024}$	$D_{\mathrm{M}}(0.15)$	$647^{+20}_{-20}$
$\Omega_{\mathrm{c}}h^2$	$0.1203^{+0.0042}_{-0.0042}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.020}_{-0.020}$	$H(0.38)$	$82.6^{+1.6}_{-1.6}$
$100\theta_{\mathrm{MC}}$	$1.0407^{+0.0022}_{-0.0022}$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.028}$	$D_{\mathrm{M}}(0.38)$	$1541^{+42}_{-41}$
$\tau$	$0.053^{+0.023}_{-0.022}$	$r_{\mathrm{drag}}h$	$98.7^{+3.7}_{-3.6}$	$H(0.51)$	$89.3^{+1.4}_{-1.3}$
$Y_{\mathrm{P}}$	$0.241^{+0.051}_{-0.056}$	$\langle d^2 \rangle^{1/2}$	$2.449^{+0.074}_{-0.074}$	$D_{\mathrm{M}}(0.51)$	$1995^{+50}_{-48}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.038^{+0.045}_{-0.045}$	$z_{\mathrm{re}}$	$7.5^{+2.2}_{-2.4}$	$H(0.61)$	$95.0^{+1.2}_{-1.2}$
$n_{\mathrm{s}}$	$0.962^{+0.026}_{-0.025}$	$10^9 A_{\mathrm{s}}$	$2.087^{+0.096}_{-0.093}$	$D_{\mathrm{M}}(0.61)$	$2320^{+54}_{-53}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0062}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.037}_{-0.036}$	$H(2.33)$	$236.5^{+2.5}_{-2.5}$
$A_{100}^{\mathrm{PS}}$	$241^{+70}_{-70}$	$D_{40}$	$1232^{+49}_{-49}$	$D_{\mathrm{M}}(2.33)$	$5778^{+61}_{-61}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5707^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.022}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{810}$	$2533^{+36}_{-34}$	$\sigma_8(0.15)$	$0.748^{+0.019}_{-0.018}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$815^{+14}_{-13}$	$f\sigma_8(0.38)$	$0.478^{+0.016}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.81$	$D_{2000}$	$230.0^{+6.4}_{-6.5}$	$\sigma_8(0.38)$	$0.662^{+0.018}_{-0.017}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.962^{+0.026}_{-0.025}$	$f\sigma_8(0.51)$	$0.476^{+0.014}_{-0.014}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.241^{+0.051}_{-0.056}$	$\sigma_8(0.51)$	$0.619^{+0.018}_{-0.016}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.242^{+0.051}_{-0.056}$	$f\sigma_8(0.61)$	$0.470^{+0.013}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.83^{+0.14}_{-0.14}$	$\sigma_8(0.61)$	$0.589^{+0.017}_{-0.016}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.52}_{-0.50}$	$z_*$	$1090.1^{+1.7}_{-1.7}$	$f\sigma_8(2.33)$	$0.2966^{+0.0095}_{-0.0086}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.46}_{-0.45}$	$r_*$	$144.57^{+0.99}_{-0.99}$	$\sigma_8(2.33)$	$0.305^{+0.011}_{-0.0096}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.24}_{-0.27}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	$30^{+10}_{-10}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.887^{+0.095}_{-0.096}$	$f_{2000}^{217}$	$107.1^{+7.2}_{-7.2}$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$z_{\mathrm{drag}}$	$1059.2^{+3.2}_{-3.1}$	$f_{2000}^{143\times 217}$	$32^{+8}_{-8}$
$c_{217}$	$1.0011^{+0.0042}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.3^{+1.1}_{-1.1}$	$\chi_{\mathrm{lensing}}^2$	$9.50\ (\nu: 0.4)$
$H_0$	$67.0^{+2.3}_{-2.3}$	$k_{\mathrm{D}}$	$0.1406^{+0.0018}_{-0.0018}$	$\chi_{\mathrm{simall}}^2$	$396.9\ (\nu: 1.4)$
$\Omega_{\Lambda}$	$0.681^{+0.028}_{-0.031}$	$100\theta_{\mathrm{D}}$	$0.1609^{+0.0020}_{-0.0020}$	$\chi_{\mathrm{lowl}}^2$	$23.9\ (\nu: 1.6)$
$\Omega_{\mathrm{m}}$	$0.319^{+0.031}_{-0.028}$	$z_{\mathrm{eq}}$	$3403^{+95}_{-94}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.4\ (\nu: 14.4)$
$\Omega_{\mathrm{m}}h^2$	$0.1431^{+0.0040}_{-0.0039}$	$k_{\mathrm{eq}}$	$0.01039^{+0.00029}_{-0.00029}$	$\chi_{\mathrm{prior}}^2$	$7.5\ (\nu: 5.8)$
$\Omega_{\mathrm{m}}h^3$	$0.0958^{+0.0020}_{-0.0019}$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.019}_{-0.018}$	$\chi_{\mathrm{CMB}}^2$	$7493.8\ (\nu: 15.9)$
$\sigma_8$	$0.810^{+0.020}_{-0.020}$	$100\theta_{\mathrm{s,eq}}$	$0.4491^{+0.0095}_{-0.0091}$		
$S_8$	$0.835^{+0.043}_{-0.043}$	$H(0.15)$	$72.3^{+2.0}_{-2.0}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7501.32; R - 1 = 0.00730$$



## 20.24 base\_yhe\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02225^{+0.00065}_{-0.00062}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.017}_{-0.017}$	$D_{\mathrm{M}}(0.38)$	$1529^{+27}_{-27}$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0028}_{-0.0028}$	$\sigma_8/h^{0.5}$	$0.985^{+0.025}_{-0.025}$	$H(0.51)$	$89.70^{+0.98}_{-0.96}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0018}_{-0.0019}$	$r_{\mathrm{drag}}h$	$99.7^{+2.4}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	$1981^{+33}_{-32}$
$\tau$	$0.056^{+0.021}_{-0.019}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.060}_{-0.060}$	$H(0.61)$	$95.31^{+0.90}_{-0.87}$
$Y_{\mathrm{P}}$	$0.248^{+0.046}_{-0.052}$	$z_{\mathrm{re}}$	$7.8^{+2.0}_{-2.0}$	$D_{\mathrm{M}}(0.61)$	$2305^{+36}_{-36}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.041}_{-0.040}$	$10^9 A_{\mathrm{s}}$	$2.101^{+0.088}_{-0.082}$	$H(2.33)$	$235.9^{+1.9}_{-1.9}$
$n_{\mathrm{s}}$	$0.968^{+0.021}_{-0.021}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.035}_{-0.035}$	$D_{\mathrm{M}}(2.33)$	$5764^{+47}_{-47}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0066}$	$D_{40}$	$1223^{+42}_{-42}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$243^{+60}_{-70}$	$D_{220}$	$5715^{+100}_{-100}$	$\sigma_8(0.15)$	$0.749^{+0.019}_{-0.019}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2535^{+36}_{-34}$	$f\sigma_8(0.38)$	$0.475^{+0.014}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{1420}$	$815^{+14}_{-14}$	$\sigma_8(0.38)$	$0.664^{+0.017}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.8^{+6.5}_{-6.4}$	$f\sigma_8(0.51)$	$0.473^{+0.013}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87$	$n_{\mathrm{s},0.002}$	$0.968^{+0.021}_{-0.021}$	$\sigma_8(0.51)$	$0.621^{+0.016}_{-0.016}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.31}$	$Y_{\mathrm{P}}$	$0.248^{+0.046}_{-0.052}$	$f\sigma_8(0.61)$	$0.468^{+0.012}_{-0.012}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.249^{+0.046}_{-0.052}$	$\sigma_8(0.61)$	$0.591^{+0.016}_{-0.015}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	Age/Gyr	$13.80^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	$0.2980^{+0.0084}_{-0.0078}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.1^{+1.7}_{-1.7}$	$\sigma_8(2.33)$	$0.3073^{+0.0091}_{-0.0084}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.54}_{-0.51}$	$r_*$	$144.74^{+0.86}_{-0.92}$	$f_{2000}^{143}$	$31^{+10}_{-10}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.47}_{-0.44}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.6^{+7.0}_{-7.0}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.25}_{-0.27}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.901^{+0.086}_{-0.090}$	$f_{2000}^{143\times 217}$	$33^{+8}_{-8}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.41}$	$z_{\mathrm{drag}}$	$1059.7^{+2.8}_{-2.7}$	$\chi_{\mathrm{lensing}}^2$	$9.42\ (\nu: 0.3)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$r_{\mathrm{drag}}$	$147.5^{+1.0}_{-1.0}$	$\chi_{\mathrm{simall}}^2$	$397.2\ (\nu: 1.9)$
$c_{217}$	$1.0012^{+0.0043}_{-0.0040}$	$k_{\mathrm{D}}$	$0.1403^{+0.0015}_{-0.0016}$	$\chi_{\mathrm{lowl}}^2$	$23.0\ (\nu: 0.9)$
$H_0$	$67.6^{+1.5}_{-1.5}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0019}_{-0.0020}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.1\ (\nu: 14.6)$
$\Omega_{\Lambda}$	$0.689^{+0.018}_{-0.019}$	$z_{\mathrm{eq}}$	$3378^{+67}_{-66}$	$\chi_{6\mathrm{DF}}^2$	$0.057\ (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.019}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00020}_{-0.00020}$	$\chi_{\mathrm{MGS}}^2$	$1.33\ (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0028}_{-0.0027}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.012}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8\ (\nu: 1.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0960^{+0.0019}_{-0.0018}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0064}_{-0.0062}$	$\chi_{\mathrm{prior}}^2$	$7.6\ (\nu: 6.1)$
$\sigma_8$	$0.810^{+0.020}_{-0.020}$	$H(0.15)$	$72.9^{+1.4}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$7493.7\ (\nu: 15.4)$
$S_8$	$0.824^{+0.032}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$641^{+13}_{-13}$	$\chi_{\mathrm{BAO}}^2$	$6.2\ (\nu: 0.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.017}$	$H(0.38)$	$83.0^{+1.1}_{-1.1}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 7507.45$ ;  $R - 1 = 0.01905$



20.25    base\_yhe\_CamSpecHM\_TT\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02213^{+0.00076}_{-0.00075}$	$S_8$	$0.838^{+0.069}_{-0.065}$	$100\theta_{\text{s,eq}}$	$0.449^{+0.013}_{-0.013}$
$\Omega_{\text{c}}h^2$	$0.1204^{+0.0058}_{-0.0058}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.459^{+0.038}_{-0.036}$	$H(0.15)$	$72.3^{+2.6}_{-2.5}$
$100\theta_{\text{MC}}$	$1.0408^{+0.0022}_{-0.0023}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.610^{+0.032}_{-0.031}$	$D_{\text{M}}(0.15)$	$647^{+26}_{-25}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$\sigma_8/h^{0.5}$	$0.992^{+0.043}_{-0.042}$	$H(0.38)$	$82.6^{+2.0}_{-1.9}$
$Y_{\text{P}}$	$0.243^{+0.051}_{-0.054}$	$r_{\text{drag}}h$	$98.6^{+5.0}_{-4.8}$	$D_{\text{M}}(0.38)$	$1541^{+52}_{-51}$
$\ln(10^{10}A_{\text{s}})$	$3.042^{+0.044}_{-0.033}$	$\langle d^2 \rangle^{1/2}$	$2.45^{+0.12}_{-0.11}$	$H(0.51)$	$89.4^{+1.6}_{-1.5}$
$n_{\text{s}}$	$0.963^{+0.028}_{-0.028}$	$z_{\text{re}}$	$< 9.49$	$D_{\text{M}}(0.51)$	$1995^{+62}_{-61}$
$y_{\text{cal}}$	$1.0004^{+0.0064}_{-0.0063}$	$10^9 A_{\text{s}}$	$2.095^{+0.095}_{-0.068}$	$H(0.61)$	$95.0^{+1.4}_{-1.3}$
$A_{100}^{\text{PS}}$	$242^{+70}_{-70}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.880^{+0.040}_{-0.039}$	$D_{\text{M}}(0.61)$	$2320^{+67}_{-66}$
$A_{143}^{\text{PS}}$	$40^{+30}_{-20}$	$D_{40}$	$1231^{+59}_{-55}$	$H(2.33)$	$236.6^{+3.5}_{-3.3}$
$A_{217}^{\text{PS}}$	$101^{+30}_{-30}$	$D_{220}$	$5704^{+110}_{-110}$	$D_{\text{M}}(2.33)$	$5777^{+63}_{-64}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$D_{810}$	$2534^{+36}_{-35}$	$f\sigma_8(0.15)$	$0.463^{+0.034}_{-0.033}$
$A_{143}^{\text{tSZ}}$	$< 8.83$	$D_{1420}$	$814^{+14}_{-14}$	$\sigma_8(0.15)$	$0.749^{+0.022}_{-0.020}$
$r_{143 \times 217}^{\text{PS}}$	$0.65^{+0.32}_{-0.33}$	$D_{2000}$	$229.8^{+6.5}_{-6.5}$	$f\sigma_8(0.38)$	$0.479^{+0.026}_{-0.026}$
$r_{143 \times 217}^{\text{CIB}}$	—	$n_{\text{s},0.002}$	$0.963^{+0.028}_{-0.028}$	$\sigma_8(0.38)$	$0.663^{+0.019}_{-0.016}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$Y_{\text{P}}$	$0.243^{+0.051}_{-0.054}$	$f\sigma_8(0.51)$	$0.477^{+0.022}_{-0.022}$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.244^{+0.052}_{-0.054}$	$\sigma_8(0.51)$	$0.621^{+0.018}_{-0.015}$
$A_{100}^{\text{dust}}$	$1.01^{+0.52}_{-0.51}$	Age/Gyr	$13.83^{+0.14}_{-0.14}$	$f\sigma_8(0.61)$	$0.471^{+0.019}_{-0.019}$
$A_{143}^{\text{dust}}$	$0.97^{+0.45}_{-0.44}$	$z_*$	$1090.2^{+1.8}_{-1.7}$	$\sigma_8(0.61)$	$0.590^{+0.017}_{-0.014}$
$A_{217}^{\text{dust}}$	$0.97^{+0.26}_{-0.26}$	$r_*$	$144.5^{+1.3}_{-1.3}$	$f\sigma_8(2.33)$	$0.2973^{+0.0090}_{-0.0073}$
$A_{143 \times 217}^{\text{dust}}$	$1.03^{+0.42}_{-0.42}$	$100\theta_*$	$1.0410^{+0.0013}_{-0.0013}$	$\sigma_8(2.33)$	$0.3062^{+0.0099}_{-0.0080}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0028}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.88^{+0.12}_{-0.12}$	$f_{2000}^{143}$	$30^{+10}_{-10}$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$	$z_{\text{drag}}$	$1059.3^{+3.1}_{-3.0}$	$f_{2000}^{217}$	$107.4^{+7.0}_{-7.1}$
$H_0$	$67.0^{+3.0}_{-2.9}$	$r_{\text{drag}}$	$147.3^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$33^{+8}_{-8}$
$\Omega_{\Lambda}$	$0.680^{+0.038}_{-0.042}$	$k_{\text{D}}$	$0.1406^{+0.0020}_{-0.0020}$	$\chi_{\text{simall}}^2$	$396.9 (\nu: 1.5)$
$\Omega_{\text{m}}$	$0.320^{+0.042}_{-0.038}$	$100\theta_{\text{D}}$	$0.1610^{+0.0020}_{-0.0020}$	$\chi_{\text{lowl}}^2$	$23.8 (\nu: 2.1)$
$\Omega_{\text{m}}h^2$	$0.1432^{+0.0056}_{-0.0054}$	$z_{\text{eq}}$	$3407^{+130}_{-130}$	$\chi_{\text{CamSpec}}^2$	$7063.8 (\nu: 15.9)$
$\Omega_{\text{m}}h^3$	$0.0959^{+0.0020}_{-0.0019}$	$k_{\text{eq}}$	$0.01040^{+0.00041}_{-0.00039}$	$\chi_{\text{prior}}^2$	$7.6 (\nu: 5.9)$
$\sigma_8$	$0.812^{+0.024}_{-0.023}$	$100\theta_{\text{eq}}$	$0.812^{+0.026}_{-0.024}$	$\chi_{\text{CMB}}^2$	$7484.5 (\nu: 15.8)$

$\bar{\chi}_{\text{eff}}^2 = 7492.12; R - 1 = 0.00634$



20.26    base\_yhe\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02227^{+0.00064}_{-0.00064}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.603^{+0.021}_{-0.021}$	$D_{\text{M}}(0.38)$	$1527^{+29}_{-27}$
$\Omega_{\text{c}}h^2$	$0.1189^{+0.0032}_{-0.0031}$	$\sigma_8/h^{0.5}$	$0.983^{+0.031}_{-0.030}$	$H(0.51)$	$89.76^{+0.98}_{-0.97}$
$100\theta_{\text{MC}}$	$1.0412^{+0.0018}_{-0.0019}$	$r_{\text{drag}}h$	$99.9^{+2.5}_{-2.5}$	$D_{\text{M}}(0.51)$	$1979^{+34}_{-32}$
$\tau$	$0.055^{+0.019}_{-0.014}$	$\langle d^2 \rangle^{1/2}$	$2.425^{+0.072}_{-0.070}$	$H(0.61)$	$95.36^{+0.89}_{-0.88}$
$Y_{\text{P}}$	$0.250^{+0.046}_{-0.051}$	$z_{\text{re}}$	$< 9.53$	$D_{\text{M}}(0.61)$	$2303^{+37}_{-35}$
$\ln(10^{10}A_{\text{s}})$	$3.043^{+0.045}_{-0.035}$	$10^9 A_{\text{s}}$	$2.097^{+0.096}_{-0.073}$	$H(2.33)$	$235.8^{+2.2}_{-2.0}$
$n_{\text{s}}$	$0.969^{+0.021}_{-0.021}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.877^{+0.037}_{-0.038}$	$D_{\text{M}}(2.33)$	$5762^{+48}_{-47}$
$y_{\text{cal}}$	$1.0005^{+0.0063}_{-0.0066}$	$D_{40}$	$1219^{+44}_{-42}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.020}$
$A_{100}^{\text{PS}}$	$244^{+60}_{-70}$	$D_{220}$	$5710^{+110}_{-110}$	$\sigma_8(0.15)$	$0.748^{+0.021}_{-0.019}$
$A_{143}^{\text{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2534^{+36}_{-35}$	$f\sigma_8(0.38)$	$0.473^{+0.017}_{-0.017}$
$A_{217}^{\text{PS}}$	$101^{+30}_{-30}$	$D_{1420}$	$815^{+14}_{-13}$	$\sigma_8(0.38)$	$0.663^{+0.018}_{-0.017}$
$A_{217}^{\text{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.5^{+6.4}_{-6.3}$	$f\sigma_8(0.51)$	$0.472^{+0.016}_{-0.016}$
$A_{143}^{\text{tSZ}}$	$< 8.88$	$n_{\text{s},0.002}$	$0.969^{+0.021}_{-0.021}$	$\sigma_8(0.51)$	$0.621^{+0.017}_{-0.016}$
$r_{143\times 217}^{\text{PS}}$	$0.65^{+0.32}_{-0.32}$	$Y_{\text{P}}$	$0.250^{+0.046}_{-0.051}$	$f\sigma_8(0.61)$	$0.467^{+0.015}_{-0.015}$
$r_{143\times 217}^{\text{CIB}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.251^{+0.046}_{-0.051}$	$\sigma_8(0.61)$	$0.591^{+0.016}_{-0.015}$
$\xi^{\text{tSZ}\times\text{CIB}}$	—	Age/Gyr	$13.79^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	$0.2979^{+0.0086}_{-0.0075}$
$A^{\text{kSZ}}$	—	$z_*$	$1090.2^{+1.7}_{-1.7}$	$\sigma_8(2.33)$	$0.3073^{+0.0091}_{-0.0079}$
$A_{100}^{\text{dust}}$	$1.01^{+0.54}_{-0.52}$	$r_*$	$144.78^{+0.96}_{-1.0}$	$f_{2000}^{143}$	$31^{+10}_{-10}$
$A_{143}^{\text{dust}}$	$0.98^{+0.46}_{-0.44}$	$100\theta_*$	$1.0413^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.8^{+6.9}_{-7.1}$
$A_{217}^{\text{dust}}$	$0.97^{+0.25}_{-0.27}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.904^{+0.094}_{-0.098}$	$f_{2000}^{143\times 217}$	$33^{+8}_{-8}$
$A_{143\times 217}^{\text{dust}}$	$1.03^{+0.43}_{-0.41}$	$z_{\text{drag}}$	$1059.8^{+2.7}_{-2.8}$	$\chi_{\text{simall}}^2$	$397.0\ (\nu: 1.7)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0028}$	$r_{\text{drag}}$	$147.5^{+1.1}_{-1.1}$	$\chi_{\text{lowl}}^2$	$22.7\ (\nu: 0.8)$
$c_{217}$	$1.0012^{+0.0043}_{-0.0040}$	$k_{\text{D}}$	$0.1402^{+0.0016}_{-0.0016}$	$\chi_{\text{CamSpec}}^2$	$7064.7\ (\nu: 15.5)$
$H_0$	$67.8^{+1.6}_{-1.6}$	$100\theta_{\text{D}}$	$0.1612^{+0.0019}_{-0.0019}$	$\chi_{6\text{DF}}^2$	$0.053\ (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.691^{+0.019}_{-0.020}$	$z_{\text{eq}}$	$3373^{+76}_{-73}$	$\chi_{\text{MGS}}^2$	$1.45\ (\nu: 0.2)$
$\Omega_{\text{m}}$	$0.309^{+0.020}_{-0.019}$	$k_{\text{eq}}$	$0.01030^{+0.00023}_{-0.00022}$	$\chi_{\text{DR12BAO}}^2$	$4.6\ (\nu: 1.2)$
$\Omega_{\text{m}}h^2$	$0.1418^{+0.0032}_{-0.0031}$	$100\theta_{\text{eq}}$	$0.818^{+0.014}_{-0.014}$	$\chi_{\text{prior}}^2$	$7.7\ (\nu: 6.2)$
$\Omega_{\text{m}}h^3$	$0.0961^{+0.0019}_{-0.0019}$	$100\theta_{\text{s,eq}}$	$0.4522^{+0.0071}_{-0.0071}$	$\chi_{\text{BAO}}^2$	$6.1\ (\nu: 0.8)$
$\sigma_8$	$0.809^{+0.022}_{-0.022}$	$H(0.15)$	$73.0^{+1.4}_{-1.4}$	$\chi_{\text{CMB}}^2$	$7484.4\ (\nu: 15.1)$
$S_8$	$0.821^{+0.039}_{-0.038}$	$D_{\text{M}}(0.15)$	$640^{+14}_{-13}$		
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.450^{+0.021}_{-0.021}$	$H(0.38)$	$83.1^{+1.1}_{-1.1}$		

$\bar{\chi}_{\text{eff}}^2 = 7498.14; R - 1 = 0.01531$



## 20.27 base\_yhe\_CamSpecHM\_TT\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02213^{+0.00074}_{-0.00068}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.024}_{-0.024}$	$D_{\mathrm{M}}(0.15)$	$646^{+19}_{-19}$
$\Omega_{\mathrm{c}}h^2$	$0.1201^{+0.0040}_{-0.0041}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.020}_{-0.020}$	$H(0.38)$	$82.6^{+1.6}_{-1.5}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0021}_{-0.0021}$	$\sigma_8/h^{0.5}$	$0.990^{+0.027}_{-0.027}$	$D_{\mathrm{M}}(0.38)$	$1539^{+38}_{-39}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$r_{\mathrm{drag}}h$	$98.8^{+3.6}_{-3.4}$	$H(0.51)$	$89.4^{+1.3}_{-1.2}$
$Y_{\mathrm{P}}$	$0.242^{+0.050}_{-0.054}$	$\langle d^2 \rangle^{1/2}$	$2.449^{+0.074}_{-0.074}$	$D_{\mathrm{M}}(0.51)$	$1993^{+46}_{-47}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.041^{+0.043}_{-0.031}$	$z_{\mathrm{re}}$	$< 9.49$	$H(0.61)$	$95.1^{+1.2}_{-1.1}$
$n_{\mathrm{s}}$	$0.963^{+0.026}_{-0.025}$	$10^9 A_{\mathrm{s}}$	$2.094^{+0.092}_{-0.065}$	$D_{\mathrm{M}}(0.61)$	$2318^{+50}_{-51}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0062}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.036}_{-0.036}$	$H(2.33)$	$236.4^{+2.4}_{-2.4}$
$A_{100}^{\mathrm{PS}}$	$241^{+70}_{-70}$	$D_{40}$	$1231^{+48}_{-49}$	$D_{\mathrm{M}}(2.33)$	$5776^{+56}_{-59}$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$	$D_{220}$	$5707^{+110}_{-100}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.022}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{810}$	$2533^{+36}_{-34}$	$\sigma_8(0.15)$	$0.748^{+0.019}_{-0.017}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{1420}$	$815^{+14}_{-14}$	$f\sigma_8(0.38)$	$0.478^{+0.016}_{-0.017}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87$	$D_{2000}$	$230.0^{+6.4}_{-6.5}$	$\sigma_8(0.38)$	$0.663^{+0.018}_{-0.015}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.963^{+0.026}_{-0.025}$	$f\sigma_8(0.51)$	$0.476^{+0.014}_{-0.014}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.242^{+0.050}_{-0.054}$	$\sigma_8(0.51)$	$0.620^{+0.017}_{-0.014}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.243^{+0.051}_{-0.054}$	$f\sigma_8(0.61)$	$0.470^{+0.013}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.83^{+0.13}_{-0.14}$	$\sigma_8(0.61)$	$0.590^{+0.017}_{-0.014}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.52}_{-0.50}$	$z_*$	$1090.1^{+1.7}_{-1.7}$	$f\sigma_8(2.33)$	$0.2971^{+0.0091}_{-0.0073}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.46}_{-0.44}$	$r_*$	$144.59^{+0.99}_{-0.97}$	$\sigma_8(2.33)$	$0.306^{+0.010}_{-0.0082}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.24}_{-0.26}$	$100\theta_*$	$1.0411^{+0.0012}_{-0.0012}$	$f_{2000}^{143}$	$30^{+10}_{-10}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.889^{+0.095}_{-0.095}$	$f_{2000}^{217}$	$107.2^{+7.0}_{-7.2}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.3^{+3.2}_{-3.0}$	$f_{2000}^{143\times 217}$	$33^{+8}_{-8}$
$c_{217}$	$1.0012^{+0.0042}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.3^{+1.1}_{-1.1}$	$\chi_{\mathrm{lensing}}^2$	$9.48\ (\nu: 0.4)$
$H_0$	$67.1^{+2.3}_{-2.1}$	$k_{\mathrm{D}}$	$0.1406^{+0.0017}_{-0.0018}$	$\chi_{\mathrm{simall}}^2$	$396.9\ (\nu: 1.4)$
$\Omega_{\Lambda}$	$0.682^{+0.028}_{-0.029}$	$100\theta_{\mathrm{D}}$	$0.1609^{+0.0020}_{-0.0020}$	$\chi_{\mathrm{lowl}}^2$	$23.8\ (\nu: 1.5)$
$\Omega_{\mathrm{m}}$	$0.318^{+0.029}_{-0.028}$	$z_{\mathrm{eq}}$	$3400^{+90}_{-92}$	$\chi_{\mathrm{CamSpec}}^2$	$7063.4\ (\nu: 14.5)$
$\Omega_{\mathrm{m}}h^2$	$0.1429^{+0.0037}_{-0.0039}$	$k_{\mathrm{eq}}$	$0.01038^{+0.00027}_{-0.00028}$	$\chi_{\mathrm{prior}}^2$	$7.5\ (\nu: 5.9)$
$\Omega_{\mathrm{m}}h^3$	$0.0958^{+0.0020}_{-0.0019}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.018}_{-0.017}$	$\chi_{\mathrm{CMB}}^2$	$7493.5\ (\nu: 15.5)$
$\sigma_8$	$0.811^{+0.020}_{-0.018}$	$100\theta_{\mathrm{s,eq}}$	$0.4494^{+0.0092}_{-0.0086}$		
$S_8$	$0.835^{+0.043}_{-0.043}$	$H(0.15)$	$72.4^{+2.0}_{-1.8}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7501.05; R - 1 = 0.00841$$



20.28 base\_yhe\_CamSpecHM\_TT\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02226^{+0.00065}_{-0.00063}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.017}_{-0.017}$	$D_{\mathrm{M}}(0.38)$	$1529^{+27}_{-27}$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0028}_{-0.0028}$	$\sigma_8/h^{0.5}$	$0.985^{+0.025}_{-0.024}$	$H(0.51)$	$89.71^{+0.98}_{-0.95}$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0018}_{-0.0019}$	$r_{\mathrm{drag}}h$	$99.8^{+2.3}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	$1981^{+32}_{-32}$
$\tau$	$0.056^{+0.019}_{-0.015}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.060}_{-0.058}$	$H(0.61)$	$95.32^{+0.89}_{-0.87}$
$Y_{\mathrm{P}}$	$0.248^{+0.046}_{-0.052}$	$z_{\mathrm{re}}$	$< 9.57$	$D_{\mathrm{M}}(0.61)$	$2305^{+35}_{-35}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.040}_{-0.033}$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.086}_{-0.069}$	$H(2.33)$	$235.9^{+1.9}_{-1.9}$
$n_{\mathrm{s}}$	$0.968^{+0.021}_{-0.022}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.035}_{-0.035}$	$D_{\mathrm{M}}(2.33)$	$5764^{+47}_{-47}$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0066}$	$D_{40}$	$1223^{+42}_{-43}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$244^{+60}_{-70}$	$D_{220}$	$5715^{+100}_{-100}$	$\sigma_8(0.15)$	$0.749^{+0.019}_{-0.017}$
$A_{143}^{\mathrm{PS}}$	$41^{+20}_{-20}$	$D_{810}$	$2535^{+36}_{-34}$	$f\sigma_8(0.38)$	$0.475^{+0.014}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{1420}$	$815^{+14}_{-14}$	$\sigma_8(0.38)$	$0.664^{+0.017}_{-0.015}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{2000}$	$229.8^{+6.3}_{-6.4}$	$f\sigma_8(0.51)$	$0.473^{+0.013}_{-0.012}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.87$	$n_{\mathrm{s},0.002}$	$0.968^{+0.021}_{-0.022}$	$\sigma_8(0.51)$	$0.621^{+0.016}_{-0.015}$
$r_{143\times 217}^{\mathrm{PS}}$	$0.65^{+0.32}_{-0.31}$	$Y_{\mathrm{P}}$	$0.248^{+0.046}_{-0.052}$	$f\sigma_8(0.61)$	$0.469^{+0.012}_{-0.012}$
$r_{143\times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.249^{+0.046}_{-0.052}$	$\sigma_8(0.61)$	$0.591^{+0.015}_{-0.014}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	Age/Gyr	$13.80^{+0.11}_{-0.11}$	$f\sigma_8(2.33)$	$0.2982^{+0.0083}_{-0.0074}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.1^{+1.7}_{-1.7}$	$\sigma_8(2.33)$	$0.3075^{+0.0089}_{-0.0079}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.54}_{-0.51}$	$r_*$	$144.74^{+0.86}_{-0.92}$	$f_{2000}^{143}$	$31^{+10}_{-10}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.47}_{-0.44}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0011}$	$f_{2000}^{217}$	$107.6^{+7.0}_{-7.0}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.25}_{-0.27}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.901^{+0.086}_{-0.090}$	$f_{2000}^{143\times 217}$	$33^{+8}_{-8}$
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.41}$	$z_{\mathrm{drag}}$	$1059.7^{+2.8}_{-2.8}$	$\chi_{\mathrm{lensing}}^2$	$9.38\ (\nu: 0.3)$
$c_{100}$	$0.9975^{+0.0026}_{-0.0027}$	$r_{\mathrm{drag}}$	$147.5^{+1.0}_{-1.0}$	$\chi_{\mathrm{simall}}^2$	$397.2\ (\nu: 1.9)$
$c_{217}$	$1.0012^{+0.0043}_{-0.0040}$	$k_{\mathrm{D}}$	$0.1403^{+0.0015}_{-0.0016}$	$\chi_{\mathrm{lowl}}^2$	$22.9\ (\nu: 0.9)$
$H_0$	$67.7^{+1.5}_{-1.5}$	$100\theta_{\mathrm{D}}$	$0.1611^{+0.0019}_{-0.0020}$	$\chi_{\mathrm{CamSpec}}^2$	$7064.1\ (\nu: 14.6)$
$\Omega_{\Lambda}$	$0.690^{+0.018}_{-0.018}$	$z_{\mathrm{eq}}$	$3378^{+67}_{-66}$	$\chi_{6\mathrm{DF}}^2$	$0.055\ (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.018}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00020}_{-0.00020}$	$\chi_{\mathrm{MGS}}^2$	$1.34\ (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0028}_{-0.0027}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.012}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7\ (\nu: 1.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0019}_{-0.0018}$	$100\theta_{\mathrm{s,eq}}$	$0.4517^{+0.0063}_{-0.0062}$	$\chi_{\mathrm{prior}}^2$	$7.6\ (\nu: 6.1)$
$\sigma_8$	$0.810^{+0.020}_{-0.019}$	$H(0.15)$	$72.9^{+1.4}_{-1.3}$	$\chi_{\mathrm{CMB}}^2$	$7493.6\ (\nu: 15.3)$
$S_8$	$0.824^{+0.032}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$641^{+13}_{-13}$	$\chi_{\mathrm{BAO}}^2$	$6.1\ (\nu: 0.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.017}$	$H(0.38)$	$83.0^{+1.1}_{-1.1}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 7507.34; R - 1 = 0.01969$$



## 20.29 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE

Parameter	Best fit	99% limits		Parameter	Best fit	99% limits		Parameter	Best fit	99% limits	
$\Omega_b h^2$	0.02231	$0.02230^{+0.00058}_{-0.00055}$	$(+0.6\sigma)$	$\sigma_8$	0.8081	$0.808^{+0.022}_{-0.022}$	$(-0.3\sigma)$	$100\theta_{s,eq}$	0.4507	$0.4504^{+0.0083}_{-0.0078}$	$(+0.4\sigma)$
$\Omega_c h^2$	0.11944	$0.1196^{+0.0036}_{-0.0037}$	$(-0.4\sigma)$	$S_8$	0.8248	$0.826^{+0.042}_{-0.043}$	$(-0.5\sigma)$	$H(0.15)$	72.79	$72.7^{+1.8}_{-1.7}$	$(+0.5\sigma)$
$100\theta_{MC}$	1.04093	$1.0409^{+0.0019}_{-0.0018}$	$(+0.2\sigma)$	$\sigma_8 \Omega_m^{0.5}$	0.4517	$0.452^{+0.023}_{-0.024}$	$(-0.5\sigma)$	$D_M(0.15)$	642.2	$643^{+17}_{-17}$	$(-0.5\sigma)$
$\tau$	0.0532	$0.053^{+0.023}_{-0.021}$	$(+0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	0.6042	$0.605^{+0.022}_{-0.022}$	$(-0.4\sigma)$	$H(0.38)$	82.92	$82.9^{+1.4}_{-1.3}$	$(+0.5\sigma)$
$Y_P$	0.2463	$0.246^{+0.045}_{-0.047}$	$(+0.2\sigma)$	$\sigma_8/h^{0.5}$	0.9835	$0.984^{+0.031}_{-0.032}$	$(-0.4\sigma)$	$D_M(0.38)$	1531.3	$1532^{+34}_{-35}$	$(-0.5\sigma)$
$\ln(10^{10} A_s)$	3.0389	$3.039^{+0.048}_{-0.045}$	$(+0.0\sigma)$	$r_{drag} h$	99.43	$99.3^{+3.2}_{-3.1}$	$(+0.4\sigma)$	$H(0.51)$	89.65	$89.6^{+1.2}_{-1.1}$	$(+0.5\sigma)$
$n_s$	0.9671	$0.966^{+0.023}_{-0.021}$	$(+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	2.430	$2.433^{+0.079}_{-0.084}$	$(-0.4\sigma)$	$D_M(0.51)$	1983.5	$1985^{+40}_{-42}$	$(-0.5\sigma)$
$y_{cal}$	1.0002	$1.0004^{+0.0065}_{-0.0063}$	$(-0.0\sigma)$	$z_{re}$	7.57	$7.5^{+2.2}_{-2.3}$	$(+0.0\sigma)$	$H(0.61)$	95.28	$95.3^{+1.0}_{-0.94}$	$(+0.5\sigma)$
$A_{100}^{PS}$	232	$240^{+60}_{-70}$	$(-0.0\sigma)$	$10^9 A_s$	2.088	$2.09^{+0.10}_{-0.092}$	$(+0.0\sigma)$	$D_M(0.61)$	2307.9	$2309^{+43}_{-45}$	$(-0.5\sigma)$
$A_{143}^{PS}$	41	$40^{+20}_{-20}$	$(-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	1.8777	$1.879^{+0.037}_{-0.034}$	$(-0.1\sigma)$	$H(2.33)$	236.14	$236.2^{+2.1}_{-2.1}$	$(-0.3\sigma)$
$A_{217}^{PS}$	102.7	$102^{+30}_{-40}$	$(+0.0\sigma)$	$D_{40}$	1223.0	$1226^{+44}_{-44}$	$(-0.3\sigma)$	$D_M(2.33)$	5764.8	$5766^{+48}_{-51}$	$(-0.5\sigma)$
$A_{217}^{CIB}$	44.1	$40^{+20}_{-20}$	$(-0.1\sigma)$	$D_{220}$	5714	$5718^{+99}_{-99}$	$(+0.3\sigma)$	$f\sigma_8(0.15)$	0.4562	$0.457^{+0.021}_{-0.022}$	$(-0.5\sigma)$
$A_{143}^{tSZ}$	6.67	$< 8.77$	$(+0.0\sigma)$	$D_{810}$	2534.5	$2535^{+36}_{-34}$	$(+0.1\sigma)$	$\sigma_8(0.15)$	0.7466	$0.747^{+0.020}_{-0.020}$	$(-0.2\sigma)$
$r_{143 \times 217}^{PS}$	0.625	$0.66^{+0.31}_{-0.33}$	$(+0.0\sigma)$	$D_{1420}$	815.7	$816^{+13}_{-13}$	$(+0.2\sigma)$	$f\sigma_8(0.38)$	0.4743	$0.475^{+0.018}_{-0.018}$	$(-0.4\sigma)$
$r_{143 \times 217}^{CIB}$	0.80	—		$D_{2000}$	230.2	$230.1^{+5.8}_{-5.9}$	$(+0.1\sigma)$	$\sigma_8(0.38)$	0.6617	$0.662^{+0.018}_{-0.018}$	$(-0.1\sigma)$
$\xi^{tSZ \times CIB}$	0.21	—		$n_{s,0.002}$	0.9671	$0.966^{+0.023}_{-0.021}$	$(+0.3\sigma)$	$f\sigma_8(0.51)$	0.4728	$0.473^{+0.016}_{-0.016}$	$(-0.4\sigma)$
$A^{kSZ}$	0.0	—		$Y_P$	0.2463	$0.246^{+0.045}_{-0.047}$	$(+0.2\sigma)$	$\sigma_8(0.51)$	0.6192	$0.619^{+0.017}_{-0.017}$	$(-0.1\sigma)$
$A_{100}^{dust}$	1.01	$1.01^{+0.51}_{-0.51}$	$(-0.0\sigma)$	$Y_P^{BBN}$	0.2477	$0.247^{+0.045}_{-0.047}$	$(+0.2\sigma)$	$f\sigma_8(0.61)$	0.4677	$0.468^{+0.015}_{-0.015}$	$(-0.4\sigma)$
$A_{143}^{dust}$	0.979	$0.96^{+0.46}_{-0.45}$	$(-0.1\sigma)$	Age/Gyr	13.801	$13.80^{+0.11}_{-0.12}$	$(-0.5\sigma)$	$\sigma_8(0.61)$	0.5891	$0.589^{+0.016}_{-0.016}$	$(-0.0\sigma)$
$A_{217}^{dust}$	0.973	$0.97^{+0.27}_{-0.27}$	$(+0.0\sigma)$	$z_*$	1089.98	$1090.0^{+1.5}_{-1.4}$	$(-0.3\sigma)$	$f\sigma_8(2.33)$	0.2970	$0.2969^{+0.0086}_{-0.0082}$	$(+0.0\sigma)$
$A_{143 \times 217}^{dust}$	1.008	$1.03^{+0.41}_{-0.41}$	$(-0.0\sigma)$	$r_*$	144.62	$144.59^{+0.84}_{-0.83}$	$(+0.2\sigma)$	$\sigma_8(2.33)$	0.3062	$0.3060^{+0.0094}_{-0.0088}$	$(+0.1\sigma)$
$c_{100}$	0.99764	$0.9975^{+0.0027}_{-0.0027}$	$(+0.0\sigma)$	$100\theta_*$	1.04109	$1.04107^{+0.00090}_{-0.00092}$	$(+0.1\sigma)$	$f_{2000}^{143}$	30.0	$30^{+10}_{-10}$	$(-0.1\sigma)$
$c_{217}$	1.00130	$1.0012^{+0.0042}_{-0.0040}$	$(-0.0\sigma)$	$D_M(z_*)/\text{Gpc}$	13.891	$13.889^{+0.080}_{-0.079}$	$(+0.2\sigma)$	$f_{2000}^{217}$	106.8	$107.0^{+6.6}_{-6.7}$	$(-0.1\sigma)$
$c_{TE}$	0.9968	$0.997^{+0.014}_{-0.014}$		$z_{drag}$	1059.78	$1059.8^{+2.6}_{-2.5}$	$(+0.4\sigma)$	$f_{2000}^{143 \times 217}$	32.2	$32^{+7}_{-7}$	$(-0.1\sigma)$
$c_{EE}$	0.9923	$0.992^{+0.017}_{-0.017}$		$r_{drag}$	147.30	$147.28^{+0.88}_{-0.86}$	$(+0.1\sigma)$	$\chi_{small}^2$	395.88	$396.9 (\nu: 1.5)$	$(-0.0\sigma)$
$H_0$	67.50	$67.4^{+2.0}_{-1.9}$	$(+0.5\sigma)$	$k_D$	0.14056	$0.1406^{+0.0015}_{-0.0015}$	$(-0.0\sigma)$	$\chi_{lowl}^2$	22.85	$23.2 (\nu: 1.0)$	$(-0.4\sigma)$
$\Omega_\Lambda$	0.6875	$0.686^{+0.024}_{-0.025}$	$(+0.5\sigma)$	$100\theta_D$	0.16090	$0.1609^{+0.0018}_{-0.0017}$	$(-0.1\sigma)$	$\chi_{CamSpec}^2$	11499.8	$11515.4 (\nu: 17.0)$	$(+789.7\sigma)$
$\Omega_m$	0.3125	$0.314^{+0.025}_{-0.024}$	$(-0.5\sigma)$	$z_{eq}$	3388	$3391^{+81}_{-81}$	$(-0.4\sigma)$	$\chi_{prior}^2$	2.2	$7.9 (\nu: 6.0)$	$(+0.1\sigma)$
$\Omega_m h^2$	0.14240	$0.1425^{+0.0034}_{-0.0034}$	$(-0.4\sigma)$	$k_{eq}$	0.010339	$0.01035^{+0.00025}_{-0.00025}$	$(-0.4\sigma)$	$\chi_{CMB}^2$	11918.5	$11935.5 (\nu: 17.2)$	$(+782.7\sigma)$
$\Omega_m h^3$	0.09612	$0.0961^{+0.0016}_{-0.0015}$	$(+0.4\sigma)$	$100\theta_{eq}$	0.8158	$0.815^{+0.016}_{-0.015}$	$(+0.4\sigma)$				

Best-fit  $\chi_{eff}^2 = 11920.73$ ;  $\Delta\chi_{eff}^2 = 4448.93$ ;  $\bar{\chi}_{eff}^2 = 11943.34$ ;  $\Delta\bar{\chi}_{eff}^2 = 4450.95$ ;  $R - 1 = 0.01242$

$\chi_{eff}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.88 ( $\Delta$  -0.01) commander\_dx12.v3.2.29: 22.85 ( $\Delta$  -0.49) CamSpec like\_10.7HM\_1400.unified: 11499.82



### 20.30 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02237^{+0.00048}_{-0.00048} \quad (+0.4\sigma)$	$S_8$	$0.819^{+0.034}_{-0.035} \quad (-0.1\sigma)$	$D_M(0.15)$	$640^{+12}_{-12} \quad (-0.1\sigma)$
$\Omega_c h^2$	$0.1189^{+0.0026}_{-0.0027} \quad (+0.0\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.449^{+0.018}_{-0.019} \quad (-0.1\sigma)$	$H(0.38)$	$83.1^{+1.0}_{-0.95} \quad (+0.1\sigma)$
$100\theta_{MC}$	$1.0411^{+0.0017}_{-0.0016} \quad (-0.1\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.602^{+0.019}_{-0.020} \quad (-0.1\sigma)$	$D_M(0.38)$	$1526^{+24}_{-25} \quad (-0.1\sigma)$
$\tau$	$0.054^{+0.023}_{-0.022} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.980^{+0.029}_{-0.029} \quad (-0.1\sigma)$	$H(0.51)$	$89.81^{+0.87}_{-0.83} \quad (+0.2\sigma)$
$Y_P$	$0.250^{+0.041}_{-0.045} \quad (+0.0\sigma)$	$r_{drag} h$	$99.9^{+2.2}_{-2.1} \quad (+0.0\sigma)$	$D_M(0.51)$	$1977^{+29}_{-30} \quad (-0.1\sigma)$
$\ln(10^{10} A_s)$	$3.040^{+0.049}_{-0.047} \quad (-0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.421^{+0.069}_{-0.070} \quad (-0.0\sigma)$	$H(0.61)$	$95.41^{+0.78}_{-0.74} \quad (+0.2\sigma)$
$n_s$	$0.969^{+0.020}_{-0.018} \quad (+0.0\sigma)$	$z_{re}$	$7.6^{+2.2}_{-2.4} \quad (-0.1\sigma)$	$D_M(0.61)$	$2301^{+31}_{-33} \quad (-0.1\sigma)$
$y_{cal}$	$1.0005^{+0.0064}_{-0.0065} \quad (-0.0\sigma)$	$10^9 A_s$	$2.09^{+0.10}_{-0.096} \quad (-0.0\sigma)$	$H(2.33)$	$235.9^{+1.7}_{-1.7} \quad (+0.1\sigma)$
$A_{100}^{PS}$	$242^{+60}_{-70} \quad (-0.1\sigma)$	$10^9 A_s e^{-2\tau}$	$1.878^{+0.036}_{-0.033} \quad (+0.1\sigma)$	$D_M(2.33)$	$5759^{+39}_{-40} \quad (-0.2\sigma)$
$A_{143}^{PS}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{40}$	$1220^{+39}_{-39} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.453^{+0.018}_{-0.018} \quad (-0.1\sigma)$
$A_{217}^{PS}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{220}$	$5721^{+98}_{-98} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.746^{+0.021}_{-0.021} \quad (-0.1\sigma)$
$A_{217}^{CIB}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2535^{+36}_{-34} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.016} \quad (-0.1\sigma)$
$A_{143}^{tSZ}$	$< 8.75 \quad (+0.0\sigma)$	$D_{1420}$	$815^{+13}_{-14} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.018}_{-0.019} \quad (-0.1\sigma)$
$r_{143 \times 217}^{PS}$	$0.65^{+0.31}_{-0.33} \quad (+0.0\sigma)$	$D_{2000}$	$229.9^{+5.8}_{-6.1} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.471^{+0.014}_{-0.015} \quad (-0.1\sigma)$
$r_{143 \times 217}^{CIB}$	—	$n_{s,0.002}$	$0.969^{+0.020}_{-0.018} \quad (+0.0\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.017}_{-0.017} \quad (-0.1\sigma)$
$\xi^{tSZ \times CIB}$	—	$Y_P$	$0.250^{+0.041}_{-0.045} \quad (+0.0\sigma)$	$f\sigma_8(0.61)$	$0.466^{+0.014}_{-0.014} \quad (-0.1\sigma)$
$A^{kSZ}$	—	$Y_P^{BBN}$	$0.251^{+0.042}_{-0.045} \quad (+0.0\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.016}_{-0.016} \quad (-0.1\sigma)$
$A_{100}^{dust}$	$1.01^{+0.49}_{-0.52} \quad (-0.0\sigma)$	Age/Gyr	$13.787^{+0.089}_{-0.092} \quad (-0.2\sigma)$	$f\sigma_8(2.33)$	$0.2973^{+0.0085}_{-0.0083} \quad (-0.1\sigma)$
$A_{143}^{dust}$	$0.97^{+0.47}_{-0.46} \quad (-0.1\sigma)$	$z_*$	$1090.0^{+1.5}_{-1.4} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.3067^{+0.0090}_{-0.0086} \quad (-0.1\sigma)$
$A_{217}^{dust}$	$0.97^{+0.26}_{-0.26} \quad (+0.1\sigma)$	$r_*$	$144.69^{+0.77}_{-0.74} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$30^{+9}_{-10} \quad (-0.2\sigma)$
$A_{143 \times 217}^{dust}$	$1.03^{+0.40}_{-0.43} \quad (-0.0\sigma)$	$100\theta_*$	$1.04118^{+0.00081}_{-0.00081} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$107.3^{+6.4}_{-6.7} \quad (-0.2\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$D_M(z_*)/\text{Gpc}$	$13.897^{+0.074}_{-0.072} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$33^{+7}_{-8} \quad (-0.2\sigma)$
$c_{217}$	$1.0012^{+0.0042}_{-0.0039} \quad (-0.0\sigma)$	$z_{drag}$	$1060.0^{+2.3}_{-2.3} \quad (+0.2\sigma)$	$\chi_{small}^2$	$397.0 \quad (\nu: 1.7) \quad (-0.0\sigma)$
$c_{TE}$	$0.997^{+0.014}_{-0.014}$	$r_{drag}$	$147.36^{+0.82}_{-0.80} \quad (-0.3\sigma)$	$\chi_{lowl}^2$	$22.7 \quad (\nu: 0.7) \quad (-0.0\sigma)$
$c_{EE}$	$0.994^{+0.017}_{-0.016}$	$k_D$	$0.1404^{+0.0013}_{-0.0013} \quad (+0.3\sigma)$	$\chi_{CamSpec}^2$	$11515.5 \quad (\nu: 16.4) \quad (+801.6\sigma)$
$H_0$	$67.8^{+1.4}_{-1.4} \quad (+0.1\sigma)$	$100\theta_D$	$0.1610^{+0.0017}_{-0.0017} \quad (-0.2\sigma)$	$\chi_{6DF}^2$	$0.044 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$\Omega_\Lambda$	$0.691^{+0.017}_{-0.017} \quad (+0.0\sigma)$	$z_{eq}$	$3377^{+61}_{-61} \quad (+0.1\sigma)$	$\chi_{MGS}^2$	$1.42 \quad (\nu: 0.1) \quad (-0.0\sigma)$
$\Omega_m$	$0.309^{+0.017}_{-0.017} \quad (-0.0\sigma)$	$k_{eq}$	$0.01031^{+0.00019}_{-0.00019} \quad (+0.1\sigma)$	$\chi_{DR12BAO}^2$	$4.5 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$\Omega_m h^2$	$0.1419^{+0.0026}_{-0.0025} \quad (+0.1\sigma)$	$100\theta_{eq}$	$0.818^{+0.012}_{-0.011} \quad (-0.1\sigma)$	$\chi_{prior}^2$	$7.9 \quad (\nu: 6.0) \quad (+0.0\sigma)$
$\Omega_m h^3$	$0.0962^{+0.0014}_{-0.0015} \quad (+0.2\sigma)$	$100\theta_{s,eq}$	$0.4519^{+0.0060}_{-0.0058} \quad (-0.1\sigma)$	$\chi_{BAO}^2$	$6.0 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$\sigma_8$	$0.807^{+0.023}_{-0.023} \quad (-0.1\sigma)$	$H(0.15)$	$73.1^{+1.3}_{-1.2} \quad (+0.1\sigma)$	$\chi_{CMB}^2$	$11935.2 \quad (\nu: 16.5) \quad (+804.8\sigma)$

$$\bar{\chi}_{eff}^2 = 11949.00; \Delta\bar{\chi}_{eff}^2 = 4450.67; R - 1 = 0.01838$$



### 20.31 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02228^{+0.00054}_{-0.00052} \quad (+0.6\sigma)$	$\sigma_8$	$0.809^{+0.019}_{-0.018} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4501^{+0.0072}_{-0.0072} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1197^{+0.0033}_{-0.0033} \quad (-0.4\sigma)$	$S_8$	$0.828^{+0.034}_{-0.034} \quad (-0.4\sigma)$	$H(0.15)$	$72.7^{+1.6}_{-1.5} \quad (+0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0018}_{-0.0017} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.454^{+0.019}_{-0.018} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+15}_{-16} \quad (-0.4\sigma)$
$\tau$	$0.054^{+0.022}_{-0.020} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.017}_{-0.017} \quad (-0.4\sigma)$	$H(0.38)$	$82.8^{+1.3}_{-1.2} \quad (+0.4\sigma)$
$Y_{\mathrm{P}}$	$0.244^{+0.044}_{-0.047} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.986^{+0.024}_{-0.025} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1534^{+31}_{-32} \quad (-0.4\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.041}_{-0.041} \quad (+0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.2^{+2.8}_{-2.7} \quad (+0.4\sigma)$	$H(0.51)$	$89.6^{+1.1}_{-1.0} \quad (+0.4\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.022}_{-0.020} \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.062}_{-0.065} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1987^{+37}_{-38} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0064}_{-0.0063} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$7.6^{+2.1}_{-2.1} \quad (+0.1\sigma)$	$H(0.61)$	$95.21^{+0.95}_{-0.87} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-70} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.088}_{-0.084} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2311^{+40}_{-41} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.036}_{-0.030} \quad (+0.0\sigma)$	$H(2.33)$	$236.3^{+1.9}_{-1.9} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{40}$	$1229^{+41}_{-43} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5768^{+46}_{-47} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5721^{+99}_{-100} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.017} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.70 \quad (+0.0\sigma)$	$D_{810}$	$2535^{+35}_{-33} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.747^{+0.018}_{-0.017} \quad (-0.0\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.0\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.013}_{-0.014} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$230.4^{+5.7}_{-6.0} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.662^{+0.016}_{-0.016} \quad (+0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.022}_{-0.020} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.012}_{-0.012} \quad (-0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.244^{+0.044}_{-0.047} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.619^{+0.016}_{-0.015} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.51} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.044}_{-0.047} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.012} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.47}_{-0.45} \quad (-0.1\sigma)$	Age/Gyr	$13.81^{+0.11}_{-0.11} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.589^{+0.015}_{-0.015} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$z_*$	$1090.0^{+1.5}_{-1.4} \quad (-0.2\sigma)$	$f\sigma_8(2.33)$	$0.2970^{+0.0081}_{-0.0078} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.42} \quad (-0.0\sigma)$	$r_*$	$144.58^{+0.75}_{-0.76} \quad (+0.0\sigma)$	$\sigma_8(2.33)$	$0.3061^{+0.0091}_{-0.0085} \quad (+0.2\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.04104^{+0.00087}_{-0.00091} \quad (+0.0\sigma)$	$f_{2000}^{143}$	$30^{+10}_{-10} \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0041}_{-0.0040} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.888^{+0.073}_{-0.073} \quad (+0.0\sigma)$	$f_{2000}^{217}$	$106.8^{+6.6}_{-6.6} \quad (-0.1\sigma)$
$c_{TE}$	$0.996^{+0.014}_{-0.014}$	$z_{\mathrm{drag}}$	$1059.7^{+2.5}_{-2.4} \quad (+0.4\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+7}_{-7} \quad (-0.1\sigma)$
$c_{EE}$	$0.992^{+0.017}_{-0.017}$	$r_{\mathrm{drag}}$	$147.27^{+0.82}_{-0.81} \quad (-0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.29 \quad (\nu: 0.3) \quad (-0.2\sigma)$
$H_0$	$67.4^{+1.8}_{-1.7} \quad (+0.4\sigma)$	$k_{\mathrm{D}}$	$0.1407^{+0.0014}_{-0.0015} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.4) \quad (-0.0\sigma)$
$\Omega_{\Lambda}$	$0.685^{+0.021}_{-0.022} \quad (+0.4\sigma)$	$100\theta_{\mathrm{D}}$	$0.1608^{+0.0017}_{-0.0017} \quad (-0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.4 \quad (\nu: 1.0) \quad (-0.3\sigma)$
$\Omega_{\mathrm{m}}$	$0.315^{+0.022}_{-0.021} \quad (-0.4\sigma)$	$z_{\mathrm{eq}}$	$3393^{+73}_{-72} \quad (-0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.7 \quad (\nu: 15.9) \quad (+828.4\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1426^{+0.0031}_{-0.0030} \quad (-0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01036^{+0.00022}_{-0.00022} \quad (-0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0961^{+0.0016}_{-0.0015} \quad (+0.4\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.014}_{-0.014} \quad (+0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.3 \quad (\nu: 17.1) \quad (+788.2\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 11952.12; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.81; R - 1 = 0.01489$$



# 20.32 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02236^{+0.00048}_{-0.00047} \quad (+0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.015}_{-0.015} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1528^{+23}_{-24} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1191^{+0.0024}_{-0.0025} \quad (-0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.015}_{-0.016} \quad (-0.1\sigma)$	$H(0.51)$	$89.76^{+0.88}_{-0.82} \quad (+0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0017}_{-0.0016} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.983^{+0.023}_{-0.023} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1979^{+28}_{-29} \quad (-0.1\sigma)$
$\tau$	$0.055^{+0.021}_{-0.019} \quad (-0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.8^{+2.1}_{-2.0} \quad (+0.0\sigma)$	$H(0.61)$	$95.37^{+0.79}_{-0.73} \quad (+0.2\sigma)$
$Y_{\mathrm{P}}$	$0.248^{+0.042}_{-0.044} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.430^{+0.055}_{-0.057} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2303^{+30}_{-32} \quad (-0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.039}_{-0.040} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$7.8^{+2.0}_{-2.0} \quad (-0.1\sigma)$	$H(2.33)$	$236.0^{+1.6}_{-1.6} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.020}_{-0.018} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.099^{+0.083}_{-0.083} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5760^{+38}_{-40} \quad (-0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0065}_{-0.0065} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.035}_{-0.030} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.014} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-70} \quad (-0.1\sigma)$	$D_{40}$	$1224^{+38}_{-40} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.018}_{-0.017} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5725^{+96}_{-98} \quad (+0.3\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.012}_{-0.013} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2536^{+36}_{-33} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.016} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.83 \quad (+0.0\sigma)$	$D_{2000}$	$230.2^{+5.8}_{-6.0} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.015}_{-0.015} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.968^{+0.020}_{-0.018} \quad (+0.0\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.248^{+0.042}_{-0.044} \quad (+0.0\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.015}_{-0.014} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.250^{+0.042}_{-0.044} \quad (+0.0\sigma)$	$f\sigma_8(2.33)$	$0.2978^{+0.0078}_{-0.0074} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.791^{+0.088}_{-0.092} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.3071^{+0.0083}_{-0.0080} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.52} \quad (-0.0\sigma)$	$z_*$	$1090.0^{+1.5}_{-1.4} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$30^{+9}_{-10} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.48}_{-0.45} \quad (-0.1\sigma)$	$r_*$	$144.67^{+0.69}_{-0.70} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$107.1^{+6.4}_{-6.6} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26} \quad (+0.1\sigma)$	$100\theta_*$	$1.04115^{+0.00080}_{-0.00080} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+7}_{-7} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.43} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.895^{+0.068}_{-0.069} \quad (-0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.33 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$z_{\mathrm{drag}}$	$1059.9^{+2.2}_{-2.3} \quad (+0.2\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.7) \quad (-0.1\sigma)$
$c_{217}$	$1.0012^{+0.0042}_{-0.0040} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}$	$147.34^{+0.78}_{-0.77} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.9 \quad (\nu: 0.7) \quad (-0.0\sigma)$
$c_{TE}$	$0.997^{+0.014}_{-0.013}$	$k_{\mathrm{D}}$	$0.1405^{+0.0013}_{-0.0013} \quad (+0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.8 \quad (\nu: 15.8) \quad (+824.8\sigma)$
$c_{EE}$	$0.993^{+0.016}_{-0.017}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0017}_{-0.0016} \quad (-0.2\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.048 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$H_0$	$67.7^{+1.4}_{-1.3} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3380^{+56}_{-57} \quad (+0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.34 \quad (\nu: 0.1) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.016}_{-0.016} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01032^{+0.00017}_{-0.00017} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 \quad (\nu: 0.9) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.011}_{-0.010} \quad (-0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 6.0) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1421^{+0.0023}_{-0.0024} \quad (+0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4515^{+0.0055}_{-0.0053} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.2 \quad (\nu: 16.6) \quad (+801.4\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0962^{+0.0014}_{-0.0014} \quad (+0.2\sigma)$	$H(0.15)$	$73.0^{+1.2}_{-1.1} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.0 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$\sigma_8$	$0.809^{+0.019}_{-0.018} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+11}_{-12} \quad (-0.1\sigma)$		
$S_8$	$0.822^{+0.028}_{-0.028} \quad (-0.1\sigma)$	$H(0.38)$	$83.1^{+1.0}_{-0.92} \quad (+0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11958.04; \Delta\chi_{\mathrm{eff}}^2 = 4450.58; R - 1 = 0.02077$$



### 20.33 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Riess18

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02255^{+0.00053}_{-0.00053}$	$\sigma_8$	$0.807^{+0.023}_{-0.023}$	$100\theta_{\mathrm{s,eq}}$	$0.4545^{+0.0067}_{-0.0077}$
$\Omega_{\mathrm{c}}h^2$	$0.1178^{+0.0035}_{-0.0030}$	$S_8$	$0.807^{+0.041}_{-0.036}$	$H(0.15)$	$73.7^{+1.4}_{-1.6}$
$100\theta_{\mathrm{MC}}$	$1.0416^{+0.0015}_{-0.0018}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.442^{+0.023}_{-0.020}$	$D_{\mathrm{M}}(0.15)$	$633^{+16}_{-13}$
$\tau$	$0.056^{+0.021}_{-0.023}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.597^{+0.022}_{-0.020}$	$H(0.38)$	$83.6^{+1.1}_{-1.2}$
$Y_{\mathrm{P}}$	$0.261^{+0.037}_{-0.043}$	$\sigma_8/h^{0.5}$	$0.975^{+0.031}_{-0.030}$	$D_{\mathrm{M}}(0.38)$	$1513^{+32}_{-28}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.044^{+0.047}_{-0.048}$	$r_{\mathrm{drag}}h$	$101.1^{+2.6}_{-2.9}$	$H(0.51)$	$90.24^{+0.91}_{-1.1}$
$n_{\mathrm{s}}$	$0.976^{+0.019}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	$2.398^{+0.080}_{-0.076}$	$D_{\mathrm{M}}(0.51)$	$1962^{+38}_{-33}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0062}_{-0.0065}$	$z_{\mathrm{re}}$	$7.8^{+2.1}_{-2.4}$	$H(0.61)$	$95.78^{+0.83}_{-0.92}$
$A_{100}^{\mathrm{PS}}$	$244^{+60}_{-70}$	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.099}$	$D_{\mathrm{M}}(0.61)$	$2285^{+41}_{-36}$
$A_{143}^{\mathrm{PS}}$	$42^{+20}_{-20}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.034}_{-0.032}$	$H(2.33)$	$235.3^{+2.0}_{-1.9}$
$A_{217}^{\mathrm{PS}}$	$101^{+30}_{-30}$	$D_{40}$	$1208^{+43}_{-37}$	$D_{\mathrm{M}}(2.33)$	$5741^{+46}_{-43}$
$A_{217}^{\mathrm{CIB}}$	$41^{+20}_{-20}$	$D_{220}$	$5727^{+92}_{-99}$	$f\sigma_8(0.15)$	$0.447^{+0.021}_{-0.019}$
$A_{143}^{\mathrm{tSZ}}$	$< 9.07$	$D_{810}$	$2537^{+33}_{-33}$	$\sigma_8(0.15)$	$0.747^{+0.020}_{-0.021}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.65^{+0.29}_{-0.31}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.468^{+0.018}_{-0.016}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$229.3^{+6.6}_{-5.9}$	$\sigma_8(0.38)$	$0.663^{+0.017}_{-0.019}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.976^{+0.019}_{-0.021}$	$f\sigma_8(0.51)$	$0.468^{+0.016}_{-0.015}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.261^{+0.037}_{-0.043}$	$\sigma_8(0.51)$	$0.621^{+0.017}_{-0.018}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.46}_{-0.53}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.262^{+0.038}_{-0.043}$	$f\sigma_8(0.61)$	$0.464^{+0.015}_{-0.014}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.42}_{-0.47}$	Age/Gyr	$13.75^{+0.11}_{-0.098}$	$\sigma_8(0.61)$	$0.591^{+0.016}_{-0.018}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.27}$	$z_*$	$1090.1^{+1.5}_{-1.5}$	$f\sigma_8(2.33)$	$0.2986^{+0.0082}_{-0.0088}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.04^{+0.38}_{-0.40}$	$r_*$	$144.82^{+0.76}_{-0.82}$	$\sigma_8(2.33)$	$0.3084^{+0.0080}_{-0.0093}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0026}$	$100\theta_*$	$1.04140^{+0.00080}_{-0.00088}$	$f_{2000}^{143}$	$31^{+9}_{-10}$
$c_{217}$	$1.0013^{+0.0042}_{-0.0043}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.907^{+0.075}_{-0.078}$	$f_{2000}^{217}$	$108.1^{+6.7}_{-7.3}$
$c_{TE}$	$0.999^{+0.014}_{-0.014}$	$z_{\mathrm{drag}}$	$1060.7^{+2.2}_{-2.3}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-7}$
$c_{EE}$	$0.996^{+0.015}_{-0.017}$	$r_{\mathrm{drag}}$	$147.44^{+0.83}_{-0.83}$	$\chi_{\mathrm{simall}}^2$	$397.2 (\nu: 2.0)$
$H_0$	$68.5^{+1.6}_{-1.8}$	$k_{\mathrm{D}}$	$0.1400^{+0.0014}_{-0.0012}$	$\chi_{\mathrm{lowl}}^2$	$21.8 (\nu: 0.6)$
$\Omega_{\Lambda}$	$0.700^{+0.018}_{-0.023}$	$100\theta_{\mathrm{D}}$	$0.1614^{+0.0017}_{-0.0018}$	$\chi_{\mathrm{CamSpec}}^2$	$11518.2 (\nu: 20.7)$
$\Omega_{\mathrm{m}}$	$0.300^{+0.023}_{-0.018}$	$z_{\mathrm{eq}}$	$3353^{+76}_{-71}$	$\chi_{\mathrm{H073p45}}^2$	$8.9 (\nu: 3.3)$
$\Omega_{\mathrm{m}}h^2$	$0.1409^{+0.0032}_{-0.0030}$	$k_{\mathrm{eq}}$	$0.01023^{+0.00023}_{-0.00022}$	$\chi_{\mathrm{prior}}^2$	$7.9 (\nu: 6.2)$
$\Omega_{\mathrm{m}}h^3$	$0.0966^{+0.0014}_{-0.0015}$	$100\theta_{\mathrm{eq}}$	$0.823^{+0.013}_{-0.015}$	$\chi_{\mathrm{CMB}}^2$	$11937.2 (\nu: 19.4)$
$\bar{\chi}_{\mathrm{eff}}^2 = 11954.03; R - 1 = 0.04865$					



### 20.34 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02231^{+0.00058}_{-0.00054} \quad (+0.6\sigma)$	$\sigma_8$	$0.809^{+0.021}_{-0.018} \quad (-0.3\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4505^{+0.0082}_{-0.0077} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1195^{+0.0035}_{-0.0037} \quad (-0.4\sigma)$	$S_8$	$0.827^{+0.042}_{-0.043} \quad (-0.4\sigma)$	$H(0.15)$	$72.8^{+1.8}_{-1.6} \quad (+0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0409^{+0.0019}_{-0.0018} \quad (+0.2\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.023}_{-0.023} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$642^{+17}_{-17} \quad (-0.5\sigma)$
$\tau$	$0.054^{+0.020}_{-0.013} \quad (+0.1\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.021}_{-0.021} \quad (-0.4\sigma)$	$H(0.38)$	$82.9^{+1.4}_{-1.3} \quad (+0.5\sigma)$
$Y_{\mathrm{P}}$	$0.246^{+0.045}_{-0.046} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.030}_{-0.029} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.38)$	$1532^{+34}_{-36} \quad (-0.5\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.045}_{-0.032} \quad (-0.0\sigma)$	$r_{\mathrm{drag}} h$	$99.4^{+3.2}_{-3.0} \quad (+0.4\sigma)$	$H(0.51)$	$89.6^{+1.2}_{-1.1} \quad (+0.5\sigma)$
$n_{\mathrm{s}}$	$0.967^{+0.023}_{-0.021} \quad (+0.3\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.435^{+0.078}_{-0.081} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.51)$	$1984^{+40}_{-42} \quad (-0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0004^{+0.0065}_{-0.0063} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.54 \quad (-0.0\sigma)$	$H(0.61)$	$95.3^{+1.0}_{-0.94} \quad (+0.5\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-70} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.094^{+0.097}_{-0.065} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(0.61)$	$2309^{+43}_{-46} \quad (-0.5\sigma)$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.036}_{-0.033} \quad (-0.1\sigma)$	$H(2.33)$	$236.2^{+2.1}_{-2.1} \quad (-0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40} \quad (+0.0\sigma)$	$D_{40}$	$1225^{+44}_{-44} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5765^{+48}_{-51} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5717^{+99}_{-99} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.021}_{-0.022} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.81 \quad (+0.0\sigma)$	$D_{810}$	$2535^{+35}_{-34} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.019}_{-0.016} \quad (-0.2\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.0\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.017}_{-0.017} \quad (-0.4\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$230.1^{+5.8}_{-6.0} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.017}_{-0.014} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.967^{+0.023}_{-0.021} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.015}_{-0.015} \quad (-0.4\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.246^{+0.045}_{-0.046} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.016}_{-0.013} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.51}_{-0.51} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.248^{+0.045}_{-0.046} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.014}_{-0.013} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.45} \quad (-0.1\sigma)$	Age/Gyr	$13.80^{+0.11}_{-0.12} \quad (-0.5\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.016}_{-0.013} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.27} \quad (+0.0\sigma)$	$z_*$	$1090.0^{+1.5}_{-1.4} \quad (-0.3\sigma)$	$f\sigma_8(2.33)$	$0.2974^{+0.0083}_{-0.0066} \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.41} \quad (+0.0\sigma)$	$r_*$	$144.59^{+0.84}_{-0.82} \quad (+0.2\sigma)$	$\sigma_8(2.33)$	$0.3065^{+0.0090}_{-0.0072} \quad (+0.1\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.04108^{+0.00090}_{-0.00092} \quad (+0.1\sigma)$	$f_{2000}^{143}$	$30^{+10}_{-10} \quad (-0.1\sigma)$
$c_{217}$	$1.0012^{+0.0041}_{-0.0040} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.889^{+0.079}_{-0.078} \quad (+0.2\sigma)$	$f_{2000}^{217}$	$107.0^{+6.6}_{-6.7} \quad (-0.1\sigma)$
$c_{TE}$	$0.997^{+0.014}_{-0.014}$	$z_{\mathrm{drag}}$	$1059.8^{+2.5}_{-2.5} \quad (+0.4\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+7}_{-7} \quad (-0.1\sigma)$
$c_{EE}$	$0.992^{+0.018}_{-0.017}$	$r_{\mathrm{drag}}$	$147.28^{+0.88}_{-0.86} \quad (+0.0\sigma)$	$\chi_{\mathrm{small}}^2$	$396.8 \quad (\nu: 1.5) \quad (-0.0\sigma)$
$H_0$	$67.5^{+2.0}_{-1.9} \quad (+0.4\sigma)$	$k_{\mathrm{D}}$	$0.1406^{+0.0015}_{-0.0015} \quad (-0.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.2 \quad (\nu: 1.0) \quad (-0.3\sigma)$
$\Omega_{\Lambda}$	$0.687^{+0.024}_{-0.024} \quad (+0.4\sigma)$	$100\theta_{\mathrm{D}}$	$0.1609^{+0.0018}_{-0.0017} \quad (-0.1\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11515.2 \quad (\nu: 16.9) \quad (+788.5\sigma)$
$\Omega_{\mathrm{m}}$	$0.313^{+0.024}_{-0.024} \quad (-0.4\sigma)$	$z_{\mathrm{eq}}$	$3390^{+79}_{-81} \quad (-0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.9 \quad (\nu: 6.0) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1425^{+0.0033}_{-0.0034} \quad (-0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01035^{+0.00024}_{-0.00025} \quad (-0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11935.1 \quad (\nu: 16.8) \quad (+792.0\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0961^{+0.0016}_{-0.0015} \quad (+0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.016}_{-0.015} \quad (+0.4\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11943.03; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.91; R - 1 = 0.01121$$



20.35 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02237^{+0.00049}_{-0.00048}$ (+0.4 $\sigma$ )	$S_8$	$0.820^{+0.033}_{-0.033}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.15)$	$640^{+12}_{-12}$ (−0.1 $\sigma$ )
$\Omega_{\mathrm{c}}h^2$	$0.1189^{+0.0026}_{-0.0027}$ (+0.0 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.018}_{-0.018}$ (−0.1 $\sigma$ )	$H(0.38)$	$83.1^{+1.0}_{-0.95}$ (+0.1 $\sigma$ )
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0017}_{-0.0016}$ (−0.1 $\sigma$ )	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.019}_{-0.018}$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.38)$	$1526^{+24}_{-25}$ (−0.1 $\sigma$ )
$\tau$	$0.055^{+0.020}_{-0.014}$ (−0.0 $\sigma$ )	$\sigma_8/h^{0.5}$	$0.982^{+0.027}_{-0.025}$ (−0.1 $\sigma$ )	$H(0.51)$	$89.82^{+0.87}_{-0.81}$ (+0.2 $\sigma$ )
$Y_{\mathrm{P}}$	$0.250^{+0.041}_{-0.043}$ (+0.0 $\sigma$ )	$r_{\mathrm{drag}}h$	$99.9^{+2.2}_{-2.1}$ (−0.0 $\sigma$ )	$D_{\mathrm{M}}(0.51)$	$1977^{+29}_{-30}$ (−0.1 $\sigma$ )
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.047}_{-0.032}$ (−0.0 $\sigma$ )	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.066}_{-0.065}$ (−0.0 $\sigma$ )	$H(0.61)$	$95.42^{+0.78}_{-0.73}$ (+0.2 $\sigma$ )
$n_{\mathrm{s}}$	$0.969^{+0.020}_{-0.018}$ (+0.0 $\sigma$ )	$z_{\mathrm{re}}$	$< 9.62$ (−0.1 $\sigma$ )	$D_{\mathrm{M}}(0.61)$	$2301^{+31}_{-33}$ (−0.1 $\sigma$ )
$y_{\mathrm{cal}}$	$1.0005^{+0.0064}_{-0.0064}$ (−0.0 $\sigma$ )	$10^9 A_{\mathrm{s}}$	$2.10^{+0.10}_{-0.067}$ (−0.0 $\sigma$ )	$H(2.33)$	$235.9^{+1.7}_{-1.7}$ (+0.1 $\sigma$ )
$A_{100}^{\mathrm{PS}}$	$242^{+60}_{-70}$ (−0.1 $\sigma$ )	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.035}_{-0.033}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(2.33)$	$5758^{+38}_{-40}$ (−0.2 $\sigma$ )
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{40}$	$1220^{+39}_{-39}$ (+0.1 $\sigma$ )	$f\sigma_8(0.15)$	$0.454^{+0.017}_{-0.017}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$ (+0.1 $\sigma$ )	$D_{220}$	$5720^{+97}_{-97}$ (+0.3 $\sigma$ )	$\sigma_8(0.15)$	$0.747^{+0.020}_{-0.016}$ (−0.1 $\sigma$ )
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{810}$	$2535^{+35}_{-34}$ (+0.1 $\sigma$ )	$f\sigma_8(0.38)$	$0.473^{+0.015}_{-0.015}$ (−0.1 $\sigma$ )
$A_{143}^{\mathrm{tSZ}}$	$< 8.81$ (+0.0 $\sigma$ )	$D_{1420}$	$815^{+13}_{-14}$ (+0.2 $\sigma$ )	$\sigma_8(0.38)$	$0.663^{+0.017}_{-0.014}$ (−0.1 $\sigma$ )
$r_{143\times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33}$ (+0.0 $\sigma$ )	$D_{2000}$	$229.9^{+5.8}_{-6.2}$ (+0.2 $\sigma$ )	$f\sigma_8(0.51)$	$0.472^{+0.014}_{-0.013}$ (−0.1 $\sigma$ )
$r_{143\times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.969^{+0.020}_{-0.018}$ (+0.0 $\sigma$ )	$\sigma_8(0.51)$	$0.620^{+0.016}_{-0.013}$ (−0.1 $\sigma$ )
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.250^{+0.041}_{-0.043}$ (+0.0 $\sigma$ )	$f\sigma_8(0.61)$	$0.467^{+0.013}_{-0.012}$ (−0.1 $\sigma$ )
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.251^{+0.041}_{-0.044}$ (+0.0 $\sigma$ )	$\sigma_8(0.61)$	$0.590^{+0.016}_{-0.013}$ (−0.1 $\sigma$ )
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.52}$ (+0.0 $\sigma$ )	Age/Gyr	$13.786^{+0.089}_{-0.092}$ (−0.2 $\sigma$ )	$f\sigma_8(2.33)$	$0.2978^{+0.0081}_{-0.0066}$ (−0.0 $\sigma$ )
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.47}_{-0.45}$ (−0.1 $\sigma$ )	$z_*$	$1090.0^{+1.5}_{-1.4}$ (−0.2 $\sigma$ )	$\sigma_8(2.33)$	$0.3071^{+0.0086}_{-0.0069}$ (−0.0 $\sigma$ )
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.26}_{-0.26}$ (+0.1 $\sigma$ )	$r_*$	$144.69^{+0.76}_{-0.74}$ (−0.2 $\sigma$ )	$f_{2000}^{143}$	$30^{+9}_{-10}$ (−0.2 $\sigma$ )
$A_{143\times 217}^{\mathrm{dust}}$	$1.03^{+0.41}_{-0.43}$ (−0.0 $\sigma$ )	$100\theta_*$	$1.04118^{+0.00084}_{-0.00081}$ (−0.2 $\sigma$ )	$f_{2000}^{217}$	$107.3^{+6.3}_{-6.6}$ (−0.2 $\sigma$ )
$c_{100}$	$0.9975^{+0.0027}_{-0.0027}$ (+0.0 $\sigma$ )	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.897^{+0.074}_{-0.072}$ (−0.2 $\sigma$ )	$f_{2000}^{143\times 217}$	$33^{+7}_{-7}$ (−0.2 $\sigma$ )
$c_{217}$	$1.0012^{+0.0041}_{-0.0040}$ (−0.0 $\sigma$ )	$z_{\mathrm{drag}}$	$1060.0^{+2.3}_{-2.3}$ (+0.2 $\sigma$ )	$\chi_{\mathrm{small}}^2$	$396.9$ ( $\nu$ : 1.7) (−0.0 $\sigma$ )
$c_{TE}$	$0.997^{+0.014}_{-0.014}$	$r_{\mathrm{drag}}$	$147.36^{+0.82}_{-0.80}$ (−0.3 $\sigma$ )	$\chi_{\mathrm{lowl}}^2$	$22.7$ ( $\nu$ : 0.7) (−0.0 $\sigma$ )
$c_{EE}$	$0.994^{+0.017}_{-0.016}$	$k_{\mathrm{D}}$	$0.1404^{+0.0013}_{-0.0013}$ (+0.3 $\sigma$ )	$\chi_{\mathrm{CamSpec}}^2$	$11515.3$ ( $\nu$ : 16.2) (+800.6 $\sigma$ )
$H_0$	$67.8^{+1.4}_{-1.4}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0017}_{-0.0017}$ (−0.2 $\sigma$ )	$\chi_{6\mathrm{DF}}^2$	$0.043$ ( $\nu$ : 0.0) (−0.1 $\sigma$ )
$\Omega_{\Lambda}$	$0.691^{+0.017}_{-0.017}$ (+0.0 $\sigma$ )	$z_{\mathrm{eq}}$	$3376^{+61}_{-61}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{MGS}}^2$	$1.43$ ( $\nu$ : 0.1) (−0.0 $\sigma$ )
$\Omega_{\mathrm{m}}$	$0.309^{+0.017}_{-0.017}$ (−0.0 $\sigma$ )	$k_{\mathrm{eq}}$	$0.01030^{+0.00019}_{-0.00019}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{DR12BAO}}^2$	$4.5$ ( $\nu$ : 0.8) (−0.1 $\sigma$ )
$\Omega_{\mathrm{m}}h^2$	$0.1419^{+0.0025}_{-0.0026}$ (+0.1 $\sigma$ )	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.011}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{prior}}^2$	$7.9$ ( $\nu$ : 5.9) (+0.0 $\sigma$ )
$\Omega_{\mathrm{m}}h^3$	$0.0962^{+0.0015}_{-0.0015}$ (+0.2 $\sigma$ )	$100\theta_{\mathrm{s,eq}}$	$0.4519^{+0.0060}_{-0.0058}$ (−0.1 $\sigma$ )	$\chi_{\mathrm{BAO}}^2$	$5.95$ ( $\nu$ : 0.5) (−0.1 $\sigma$ )
$\sigma_8$	$0.808^{+0.022}_{-0.018}$ (−0.1 $\sigma$ )	$H(0.15)$	$73.1^{+1.3}_{-1.2}$ (+0.1 $\sigma$ )	$\chi_{\mathrm{CMB}}^2$	$11934.9$ ( $\nu$ : 16.0) (+809.1 $\sigma$ )

$$\bar{\chi}_{\mathrm{eff}}^2 = 11948.72; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.58; R - 1 = 0.01724$$



### 20.36 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02229^{+0.00054}_{-0.00052} \quad (+0.6\sigma)$	$\sigma_8$	$0.810^{+0.018}_{-0.016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4503^{+0.0072}_{-0.0068} \quad (+0.3\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1196^{+0.0031}_{-0.0032} \quad (-0.3\sigma)$	$S_8$	$0.828^{+0.034}_{-0.034} \quad (-0.4\sigma)$	$H(0.15)$	$72.7^{+1.6}_{-1.5} \quad (+0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0018}_{-0.0017} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.454^{+0.019}_{-0.018} \quad (-0.4\sigma)$	$D_{\mathrm{M}}(0.15)$	$643^{+14}_{-15} \quad (-0.4\sigma)$
$\tau$	$0.055^{+0.019}_{-0.013} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.016}_{-0.017} \quad (-0.3\sigma)$	$H(0.38)$	$82.9^{+1.3}_{-1.1} \quad (+0.4\sigma)$
$Y_{\mathrm{P}}$	$0.244^{+0.044}_{-0.046} \quad (+0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.986^{+0.023}_{-0.023} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.38)$	$1533^{+30}_{-31} \quad (-0.4\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.039}_{-0.030} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}h$	$99.3^{+2.8}_{-2.6} \quad (+0.3\sigma)$	$H(0.51)$	$89.6^{+1.1}_{-0.98} \quad (+0.4\sigma)$
$n_{\mathrm{s}}$	$0.965^{+0.022}_{-0.019} \quad (+0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.440^{+0.062}_{-0.064} \quad (-0.3\sigma)$	$D_{\mathrm{M}}(0.51)$	$1986^{+35}_{-37} \quad (-0.4\sigma)$
$y_{\mathrm{cal}}$	$1.0005^{+0.0063}_{-0.0062} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.51 \quad (+0.0\sigma)$	$H(0.61)$	$95.23^{+0.93}_{-0.87} \quad (+0.4\sigma)$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-70} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.084}_{-0.063} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2310^{+38}_{-41} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.879^{+0.034}_{-0.030} \quad (+0.0\sigma)$	$H(2.33)$	$236.2^{+1.9}_{-1.9} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{40}$	$1228^{+41}_{-43} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5767^{+46}_{-47} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5721^{+98}_{-100} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.458^{+0.017}_{-0.017} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.73 \quad (+0.0\sigma)$	$D_{810}$	$2535^{+35}_{-33} \quad (+0.1\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.017}_{-0.015} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.0\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.476^{+0.013}_{-0.014} \quad (-0.3\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$230.4^{+5.7}_{-6.0} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.013} \quad (-0.0\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.022}_{-0.019} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.012}_{-0.012} \quad (-0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.244^{+0.044}_{-0.046} \quad (+0.1\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.015}_{-0.013} \quad (+0.0\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.50}_{-0.51} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.246^{+0.044}_{-0.046} \quad (+0.1\sigma)$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.011} \quad (-0.3\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.47}_{-0.45} \quad (-0.1\sigma)$	Age/Gyr	$13.81^{+0.11}_{-0.11} \quad (-0.4\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.015}_{-0.012} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.27}_{-0.27} \quad (+0.1\sigma)$	$z_*$	$1090.0^{+1.5}_{-1.4} \quad (-0.2\sigma)$	$f\sigma_8(2.33)$	$0.2974^{+0.0079}_{-0.0065} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.42} \quad (-0.0\sigma)$	$r_*$	$144.59^{+0.75}_{-0.75} \quad (-0.0\sigma)$	$\sigma_8(2.33)$	$0.3065^{+0.0087}_{-0.0071} \quad (+0.1\sigma)$
$c_{100}$	$0.9975^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$100\theta_*$	$1.04105^{+0.00086}_{-0.00090} \quad (-0.0\sigma)$	$f_{2000}^{143}$	$30^{+10}_{-10} \quad (-0.1\sigma)$
$c_{217}$	$1.0011^{+0.0040}_{-0.0040} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.889^{+0.072}_{-0.072} \quad (-0.0\sigma)$	$f_{2000}^{217}$	$106.8^{+6.6}_{-6.6} \quad (-0.1\sigma)$
$c_{TE}$	$0.996^{+0.014}_{-0.014}$	$z_{\mathrm{drag}}$	$1059.7^{+2.4}_{-2.4} \quad (+0.4\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+7}_{-7} \quad (-0.1\sigma)$
$c_{EE}$	$0.992^{+0.017}_{-0.017}$	$r_{\mathrm{drag}}$	$147.28^{+0.82}_{-0.80} \quad (-0.1\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.26 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$H_0$	$67.4^{+1.8}_{-1.6} \quad (+0.4\sigma)$	$k_{\mathrm{D}}$	$0.1406^{+0.0014}_{-0.0015} \quad (+0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.4) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.686^{+0.021}_{-0.021} \quad (+0.4\sigma)$	$100\theta_{\mathrm{D}}$	$0.1608^{+0.0018}_{-0.0017} \quad (-0.1\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.4 \quad (\nu: 0.9) \quad (-0.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.314^{+0.021}_{-0.021} \quad (-0.4\sigma)$	$z_{\mathrm{eq}}$	$3392^{+70}_{-71} \quad (-0.2\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.6 \quad (\nu: 15.9) \quad (+826.3\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1426^{+0.0029}_{-0.0030} \quad (-0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01035^{+0.00021}_{-0.00022} \quad (-0.2\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 5.8) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.0961^{+0.0015}_{-0.0015} \quad (+0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.014}_{-0.013} \quad (+0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.1 \quad (\nu: 16.7) \quad (+800.0\sigma)$

$$\bar{\chi}_{\mathrm{eff}}^2 = 11951.89; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.84; R - 1 = 0.01571$$



# 20.37 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02236^{+0.00048}_{-0.00048} \quad (+0.4\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.015}_{-0.015} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1527^{+23}_{-24} \quad (-0.1\sigma)$
$\Omega_{\mathrm{c}} h^2$	$0.1191^{+0.0024}_{-0.0024} \quad (-0.0\sigma)$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.015}_{-0.015} \quad (-0.1\sigma)$	$H(0.51)$	$89.77^{+0.88}_{-0.80} \quad (+0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.0411^{+0.0017}_{-0.0016} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.023}_{-0.021} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1979^{+27}_{-29} \quad (-0.1\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (-0.1\sigma)$	$r_{\mathrm{drag}} h$	$99.8^{+2.1}_{-2.0} \quad (+0.0\sigma)$	$H(0.61)$	$95.38^{+0.78}_{-0.71} \quad (+0.2\sigma)$
$Y_{\mathrm{P}}$	$0.248^{+0.041}_{-0.043} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.055}_{-0.055} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2303^{+30}_{-31} \quad (-0.1\sigma)$
$\ln(10^{10} A_{\mathrm{s}})$	$3.045^{+0.038}_{-0.032} \quad (-0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.60 \quad (-0.1\sigma)$	$H(2.33)$	$235.9^{+1.5}_{-1.6} \quad (+0.1\sigma)$
$n_{\mathrm{s}}$	$0.968^{+0.020}_{-0.017} \quad (+0.0\sigma)$	$10^9 A_{\mathrm{s}}$	$2.102^{+0.082}_{-0.066} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5760^{+38}_{-40} \quad (-0.2\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0063}_{-0.0065} \quad (-0.0\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.879^{+0.034}_{-0.030} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.014} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$241^{+60}_{-70} \quad (-0.1\sigma)$	$D_{40}$	$1224^{+37}_{-40} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.017}_{-0.015} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5725^{+96}_{-98} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30} \quad (+0.1\sigma)$	$D_{810}$	$2536^{+35}_{-33} \quad (+0.1\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.014} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$816^{+13}_{-13} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$< 8.85 \quad (+0.0\sigma)$	$D_{2000}$	$230.2^{+5.7}_{-6.0} \quad (+0.2\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.015}_{-0.013} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.968^{+0.020}_{-0.017} \quad (+0.0\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.010} \quad (-0.1\sigma)$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.248^{+0.041}_{-0.043} \quad (+0.0\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.014}_{-0.013} \quad (-0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.250^{+0.042}_{-0.044} \quad (+0.0\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0076}_{-0.0065} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.790^{+0.088}_{-0.092} \quad (-0.2\sigma)$	$\sigma_8(2.33)$	$0.3073^{+0.0082}_{-0.0069} \quad (-0.1\sigma)$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.52} \quad (-0.0\sigma)$	$z_*$	$1090.0^{+1.5}_{-1.4} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$30^{+9}_{-10} \quad (-0.2\sigma)$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.48}_{-0.45} \quad (-0.1\sigma)$	$r_*$	$144.67^{+0.68}_{-0.70} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$107.1^{+6.4}_{-6.6} \quad (-0.2\sigma)$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26} \quad (+0.1\sigma)$	$100\theta_*$	$1.04116^{+0.00079}_{-0.00080} \quad (-0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+7}_{-7} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.02^{+0.41}_{-0.43} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.895^{+0.068}_{-0.069} \quad (-0.2\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.28 \quad (\nu: 0.3) \quad (-0.1\sigma)$
$c_{100}$	$0.9976^{+0.0027}_{-0.0027} \quad (+0.0\sigma)$	$z_{\mathrm{drag}}$	$1060.0^{+2.3}_{-2.3} \quad (+0.2\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.7) \quad (-0.1\sigma)$
$c_{217}$	$1.0012^{+0.0042}_{-0.0040} \quad (-0.0\sigma)$	$r_{\mathrm{drag}}$	$147.34^{+0.77}_{-0.77} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$22.9 \quad (\nu: 0.7) \quad (-0.0\sigma)$
$c_{TE}$	$0.997^{+0.014}_{-0.013}$	$k_{\mathrm{D}}$	$0.1405^{+0.0013}_{-0.0013} \quad (+0.3\sigma)$	$\chi_{\mathrm{CamSpec}}^2$	$11514.8 \quad (\nu: 15.7) \quad (+823.8\sigma)$
$c_{EE}$	$0.993^{+0.017}_{-0.017}$	$100\theta_{\mathrm{D}}$	$0.1610^{+0.0017}_{-0.0016} \quad (-0.2\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.046 \quad (\nu: 0.0) \quad (-0.1\sigma)$
$H_0$	$67.7^{+1.4}_{-1.3} \quad (+0.1\sigma)$	$z_{\mathrm{eq}}$	$3379^{+56}_{-57} \quad (+0.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.35 \quad (\nu: 0.1) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.690^{+0.016}_{-0.016} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01031^{+0.00017}_{-0.00017} \quad (+0.1\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.011}_{-0.010} \quad (-0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$7.8 \quad (\nu: 6.0) \quad (+0.1\sigma)$
$\Omega_{\mathrm{m}} h^2$	$0.1421^{+0.0023}_{-0.0024} \quad (+0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0055}_{-0.0053} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$11944.0 \quad (\nu: 16.2) \quad (+804.4\sigma)$
$\Omega_{\mathrm{m}} h^3$	$0.0962^{+0.0014}_{-0.0014} \quad (+0.2\sigma)$	$H(0.15)$	$73.0^{+1.2}_{-1.1} \quad (+0.1\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.00 \quad (\nu: 0.5) \quad (-0.1\sigma)$
$\sigma_8$	$0.810^{+0.019}_{-0.017} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$640^{+11}_{-12} \quad (-0.1\sigma)$		
$S_8$	$0.823^{+0.027}_{-0.027} \quad (-0.1\sigma)$	$H(0.38)$	$83.07^{+0.99}_{-0.91} \quad (+0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11957.86; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 4450.52; R - 1 = 0.02091$$



20.38 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_post\_Riess18\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02256^{+0.00052}_{-0.00053}$	$\sigma_8$	$0.808^{+0.022}_{-0.020}$	$100\theta_{s,eq}$	$0.4546^{+0.0066}_{-0.0076}$
$\Omega_c h^2$	$0.1177^{+0.0034}_{-0.0030}$	$S_8$	$0.808^{+0.041}_{-0.037}$	$H(0.15)$	$73.7^{+1.4}_{-1.6}$
$100\theta_{MC}$	$1.0417^{+0.0014}_{-0.0018}$	$\sigma_8 \Omega_m^{0.5}$	$0.442^{+0.022}_{-0.020}$	$D_M(0.15)$	$633^{+16}_{-13}$
$\tau$	$0.057^{+0.021}_{-0.015}$	$\sigma_8 \Omega_m^{0.25}$	$0.598^{+0.021}_{-0.018}$	$H(0.38)$	$83.6^{+1.1}_{-1.2}$
$Y_P$	$0.261^{+0.037}_{-0.043}$	$\sigma_8/h^{0.5}$	$0.975^{+0.031}_{-0.028}$	$D_M(0.38)$	$1513^{+32}_{-27}$
$\ln(10^{10} A_s)$	$3.046^{+0.045}_{-0.035}$	$r_{drag} h$	$101.1^{+2.6}_{-2.9}$	$H(0.51)$	$90.3^{+1.0}_{-1.0}$
$n_s$	$0.976^{+0.018}_{-0.021}$	$\langle d^2 \rangle^{1/2}$	$2.400^{+0.077}_{-0.069}$	$D_M(0.51)$	$1962^{+38}_{-33}$
$y_{cal}$	$1.0006^{+0.0062}_{-0.0065}$	$z_{re}$	$< 9.83$	$H(0.61)$	$95.79^{+0.88}_{-0.92}$
$A_{100}^{PS}$	$244^{+60}_{-70}$	$10^9 A_s$	$2.104^{+0.097}_{-0.072}$	$D_M(0.61)$	$2284^{+41}_{-36}$
$A_{143}^{PS}$	$42^{+20}_{-20}$	$10^9 A_s e^{-2\tau}$	$1.878^{+0.034}_{-0.031}$	$H(2.33)$	$235.3^{+2.0}_{-1.9}$
$A_{217}^{PS}$	$101^{+30}_{-30}$	$D_{40}$	$1208^{+43}_{-37}$	$D_M(2.33)$	$5741^{+46}_{-43}$
$A_{217}^{CIB}$	$41^{+20}_{-20}$	$D_{220}$	$5727^{+91}_{-96}$	$f\sigma_8(0.15)$	$0.448^{+0.021}_{-0.019}$
$A_{143}^{tSZ}$	$< 9.08$	$D_{810}$	$2537^{+33}_{-33}$	$\sigma_8(0.15)$	$0.748^{+0.020}_{-0.018}$
$r_{143 \times 217}^{PS}$	$0.65^{+0.30}_{-0.31}$	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.469^{+0.017}_{-0.015}$
$r_{143 \times 217}^{CIB}$	—	$D_{2000}$	$229.3^{+6.7}_{-6.0}$	$\sigma_8(0.38)$	$0.664^{+0.017}_{-0.015}$
$\xi^{tSZ \times CIB}$	—	$n_{s,0.002}$	$0.976^{+0.018}_{-0.021}$	$f\sigma_8(0.51)$	$0.469^{+0.016}_{-0.014}$
$A^{kSZ}$	—	$Y_P$	$0.261^{+0.037}_{-0.043}$	$\sigma_8(0.51)$	$0.622^{+0.016}_{-0.014}$
$A_{100}^{dust}$	$1.01^{+0.46}_{-0.52}$	$Y_P^{BBN}$	$0.262^{+0.037}_{-0.044}$	$f\sigma_8(0.61)$	$0.465^{+0.015}_{-0.013}$
$A_{143}^{dust}$	$0.97^{+0.42}_{-0.47}$	Age/Gyr	$13.75^{+0.10}_{-0.097}$	$\sigma_8(0.61)$	$0.592^{+0.015}_{-0.013}$
$A_{217}^{dust}$	$0.97^{+0.26}_{-0.27}$	$z_*$	$1090.1^{+1.5}_{-1.5}$	$f\sigma_8(2.33)$	$0.2990^{+0.0080}_{-0.0070}$
$A_{143 \times 217}^{dust}$	$1.04^{+0.39}_{-0.40}$	$r_*$	$144.82^{+0.74}_{-0.82}$	$\sigma_8(2.33)$	$0.3088^{+0.0082}_{-0.0075}$
$c_{100}$	$0.9975^{+0.0027}_{-0.0026}$	$100\theta_*$	$1.04140^{+0.00079}_{-0.00088}$	$f_{2000}^{143}$	$31^{+10}_{-10}$
$c_{217}$	$1.0013^{+0.0042}_{-0.0043}$	$D_M(z_*)/\text{Gpc}$	$13.907^{+0.071}_{-0.078}$	$f_{2000}^{217}$	$108.1^{+6.7}_{-7.3}$
$c_{TE}$	$0.999^{+0.015}_{-0.014}$	$z_{drag}$	$1060.7^{+2.2}_{-2.4}$	$f_{2000}^{143 \times 217}$	$34^{+6}_{-7}$
$c_{EE}$	$0.996^{+0.015}_{-0.017}$	$r_{drag}$	$147.44^{+0.83}_{-0.83}$	$\chi_{simall}^2$	$397.1 (\nu: 2.1)$
$H_0$	$68.6^{+1.6}_{-1.8}$	$k_D$	$0.1400^{+0.0014}_{-0.0012}$	$\chi_{lowl}^2$	$21.8 (\nu: 0.6)$
$\Omega_\Lambda$	$0.700^{+0.019}_{-0.023}$	$100\theta_D$	$0.1614^{+0.0017}_{-0.0018}$	$\chi_{CamSpec}^2$	$11518.1 (\nu: 20.3)$
$\Omega_m$	$0.300^{+0.023}_{-0.019}$	$z_{eq}$	$3352^{+75}_{-70}$	$\chi_{H073p45}^2$	$8.9 (\nu: 3.3)$
$\Omega_m h^2$	$0.1409^{+0.0032}_{-0.0029}$	$k_{eq}$	$0.01023^{+0.00023}_{-0.00021}$	$\chi_{prior}^2$	$7.9 (\nu: 6.2)$
$\Omega_m h^3$	$0.0966^{+0.0014}_{-0.0015}$	$100\theta_{eq}$	$0.823^{+0.013}_{-0.015}$	$\chi_{CMB}^2$	$11937.0 (\nu: 18.7)$

$$\bar{\chi}_{eff}^2 = 11953.75; R - 1 = 0.05858$$



## 20.39 base\_yhe\_plikHM\_TE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02218	$0.02222^{+0.00097}_{-0.00084}$	$r_{\text{drag}} h$	99.4	$99.6^{+5.8}_{-4.9}$	$H(0.15)$	72.47	$72.6^{+3.5}_{-2.8}$
$\Omega_c h^2$	0.1185	$0.1184^{+0.0054}_{-0.0055}$	$\langle d^2 \rangle^{1/2}$	2.434	$2.43^{+0.14}_{-0.16}$	$D_M(0.15)$	645.1	$644^{+28}_{-32}$
$100\theta_{\text{MC}}$	1.03933	$1.0396^{+0.0050}_{-0.0037}$	$z_{\text{re}}$	7.00	$6.9^{+2.2}_{-2.9}$	$H(0.38)$	82.57	$82.7^{+2.9}_{-2.1}$
$\tau$	0.0498	$0.049^{+0.021}_{-0.026}$	$10^9 A_s$	2.045	$2.04^{+0.10}_{-0.12}$	$D_M(0.38)$	1538	$1535^{+57}_{-68}$
$Y_P$	0.186	$< 0.314$	$10^9 A_s e^{-2\tau}$	1.8509	$1.852^{+0.048}_{-0.045}$	$H(0.51)$	89.27	$89.4^{+2.5}_{-1.8}$
$\ln(10^{10} A_s)$	3.018	$3.016^{+0.049}_{-0.058}$	$D_{40}$	1251	$1247^{+100}_{-110}$	$D_M(0.51)$	1992	$1989^{+68}_{-82}$
$n_s$	0.9500	$0.952^{+0.049}_{-0.042}$	$D_{220}$	5746	$5741^{+180}_{-190}$	$H(0.61)$	94.88	$95.0^{+2.2}_{-1.6}$
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.098}_{-0.095}$	$D_{810}$	2532	$2530^{+82}_{-86}$	$D_M(0.61)$	2318	$2314^{+74}_{-90}$
$A_{100 \times 143}^{\text{dustTE}}$	0.136	$0.135^{+0.076}_{-0.076}$	$D_{1420}$	826	$825^{+49}_{-53}$	$H(2.33)$	235.22	$235.2^{+3.1}_{-3.1}$
$A_{100 \times 217}^{\text{dustTE}}$	0.477	$0.48^{+0.22}_{-0.22}$	$D_{2000}$	237.6	$237^{+22}_{-25}$	$D_M(2.33)$	5789	$5783^{+81}_{-110}$
$A_{143}^{\text{dustTE}}$	0.223	$0.22^{+0.14}_{-0.14}$	$n_{s,0.002}$	0.9500	$0.952^{+0.049}_{-0.042}$	$f\sigma_8(0.15)$	0.4465	$0.445^{+0.033}_{-0.034}$
$A_{143 \times 217}^{\text{dustTE}}$	0.658	$0.66^{+0.20}_{-0.21}$	$Y_P$	0.186	$0.191^{+0.13}_{-0.098}$	$\sigma_8(0.15)$	0.7302	$0.730^{+0.027}_{-0.026}$
$A_{217}^{\text{dustTE}}$	2.05	$2.04^{+0.71}_{-0.70}$	$Y_P^{\text{BBN}}$	0.187	$0.192^{+0.13}_{-0.098}$	$f\sigma_8(0.38)$	0.4641	$0.463^{+0.026}_{-0.027}$
$c_{100}$	1.00016	$1.0002^{+0.0018}_{-0.0018}$	Age/Gyr	13.858	$13.85^{+0.19}_{-0.26}$	$\sigma_8(0.38)$	0.6471	$0.647^{+0.024}_{-0.023}$
$c_{217}$	0.99798	$0.9980^{+0.0016}_{-0.0017}$	$z_*$	1087.79	$1088.0^{+4.3}_{-3.1}$	$f\sigma_8(0.51)$	0.4625	$0.462^{+0.022}_{-0.023}$
$y_{\text{cal}}$	0.99999	$1.0001^{+0.0064}_{-0.0064}$	$r_*$	145.17	$145.1^{+1.3}_{-1.3}$	$\sigma_8(0.51)$	0.6055	$0.606^{+0.023}_{-0.022}$
$H_0$	67.19	$67.4^{+3.9}_{-3.1}$	$100\theta_*$	1.04097	$1.0410^{+0.0020}_{-0.0017}$	$f\sigma_8(0.61)$	0.4576	$0.457^{+0.020}_{-0.021}$
$\Omega_\Lambda$	0.6870	$0.688^{+0.041}_{-0.041}$	$D_M(z_*)/\text{Gpc}$	13.945	$13.94^{+0.13}_{-0.14}$	$\sigma_8(0.61)$	0.5761	$0.576^{+0.022}_{-0.021}$
$\Omega_m$	0.3130	$0.312^{+0.041}_{-0.041}$	$z_{\text{drag}}$	1057.5	$1057.9^{+5.8}_{-4.3}$	$f\sigma_8(2.33)$	0.2904	$0.291^{+0.012}_{-0.011}$
$\Omega_m h^2$	0.1413	$0.1413^{+0.0050}_{-0.0050}$	$r_{\text{drag}}$	147.88	$147.8^{+1.4}_{-1.4}$	$\sigma_8(2.33)$	0.2994	$0.300^{+0.013}_{-0.012}$
$\Omega_m h^3$	0.09495	$0.0951^{+0.0037}_{-0.0026}$	$k_D$	0.14219	$0.1420^{+0.0033}_{-0.0045}$	$\chi_{\text{simall}}^2$	395.56	$396.7 (\nu: 1.2)$
$\sigma_8$	0.7904	$0.790^{+0.029}_{-0.029}$	$100\theta_D$	0.15843	$0.1587^{+0.0054}_{-0.0038}$	$\chi_{\text{plikTE}}^2$	851.8	$859.4 (\nu: 7.3)$
$S_8$	0.807	$0.805^{+0.066}_{-0.067}$	$z_{\text{eq}}$	3361	$3360^{+120}_{-120}$	$\chi_{\text{prior}}^2$	0.4	$7.4 (\nu: 6.9)$
$\sigma_8 \Omega_m^{0.5}$	0.4422	$0.441^{+0.036}_{-0.037}$	$k_{\text{eq}}$	0.010259	$0.01026^{+0.00036}_{-0.00037}$	$\chi_{\text{CMB}}^2$	1247.4	$1256.1 (\nu: 8.6)$
$\sigma_8 \Omega_m^{0.25}$	0.5912	$0.590^{+0.031}_{-0.033}$	$100\theta_{\text{eq}}$	0.8189	$0.820^{+0.026}_{-0.023}$			
$\sigma_8/h^{0.5}$	0.9642	$0.963^{+0.044}_{-0.046}$	$100\theta_{s,\text{eq}}$	0.4524	$0.453^{+0.013}_{-0.012}$			

Best-fit  $\chi_{\text{eff}}^2 = 1247.84$ ;  $\bar{\chi}_{\text{eff}}^2 = 1263.54$ ;  $R - 1 = 0.00777$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.56 plik\_rd12\_HM\_v22\_TE: 851.83



## 20.40 base\_yhe\_plikHM\_TE\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.02225	$0.02230^{+0.00073}_{-0.00074}$	$\langle d^2 \rangle^{1/2}$	2.416	$2.409^{+0.095}_{-0.10}$	$H(0.38)$	82.87	$83.0^{+1.5}_{-1.3}$
$\Omega_c h^2$	0.11773	$0.1178^{+0.0033}_{-0.0033}$	$z_{\text{re}}$	7.01	$6.9^{+2.1}_{-2.9}$	$D_{\text{M}}(0.38)$	1530.0	$1528^{+33}_{-34}$
$100\theta_{\text{MC}}$	1.03971	$1.0400^{+0.0042}_{-0.0032}$	$10^9 A_{\text{s}}$	2.043	$2.04^{+0.11}_{-0.11}$	$H(0.51)$	89.52	$89.6^{+1.4}_{-1.2}$
$\tau$	0.0498	$0.049^{+0.021}_{-0.026}$	$10^9 A_{\text{s}} e^{-2\tau}$	1.8489	$1.850^{+0.044}_{-0.042}$	$D_{\text{M}}(0.51)$	1982.7	$1980^{+40}_{-41}$
$Y_{\text{P}}$	0.195	$< 0.301$	$D_{40}$	1243	$1237^{+84}_{-84}$	$H(0.61)$	95.09	$95.2^{+1.3}_{-1.2}$
$\ln(10^{10} A_{\text{s}})$	3.017	$3.016^{+0.050}_{-0.057}$	$D_{220}$	5742	$5733^{+180}_{-170}$	$D_{\text{M}}(0.61)$	2307.7	$2305^{+44}_{-45}$
$n_{\text{s}}$	0.9539	$0.956^{+0.037}_{-0.034}$	$D_{810}$	2528	$2526^{+80}_{-79}$	$H(2.33)$	234.82	$234.9^{+2.6}_{-2.5}$
$y_{\text{cal}}$	1.0001	$1.0001^{+0.0063}_{-0.0065}$	$D_{1420}$	823.9	$822^{+47}_{-47}$	$D_{\text{M}}(2.33)$	5779	$5774^{+63}_{-72}$
$A_{100}^{\text{dustTE}}$	0.114	$0.114^{+0.096}_{-0.094}$	$D_{2000}$	236.2	$235^{+22}_{-22}$	$f\sigma_8(0.15)$	0.4419	$0.442^{+0.021}_{-0.021}$
$A_{100 \times 143}^{\text{dustTE}}$	0.136	$0.135^{+0.074}_{-0.076}$	$n_{\text{s},0.002}$	0.9539	$0.956^{+0.037}_{-0.034}$	$\sigma_8(0.15)$	0.7291	$0.730^{+0.027}_{-0.024}$
$A_{100 \times 217}^{\text{dustTE}}$	0.478	$0.48^{+0.22}_{-0.22}$	$Y_{\text{P}}$	0.195	$0.201^{+0.11}_{-0.097}$	$f\sigma_8(0.38)$	0.4607	$0.461^{+0.019}_{-0.019}$
$A_{143}^{\text{dustTE}}$	0.222	$0.22^{+0.15}_{-0.14}$	$Y_{\text{P}}^{\text{BBN}}$	0.197	$0.203^{+0.11}_{-0.098}$	$\sigma_8(0.38)$	0.6468	$0.647^{+0.024}_{-0.022}$
$A_{143 \times 217}^{\text{dustTE}}$	0.658	$0.65^{+0.20}_{-0.20}$	Age/Gyr	13.836	$13.82^{+0.15}_{-0.17}$	$f\sigma_8(0.51)$	0.4598	$0.460^{+0.018}_{-0.017}$
$A_{217}^{\text{dustTE}}$	2.03	$2.03^{+0.73}_{-0.69}$	$z_*$	1087.98	$1088.2^{+4.1}_{-3.1}$	$\sigma_8(0.51)$	0.6055	$0.606^{+0.023}_{-0.021}$
$c_{100}$	1.00018	$1.0002^{+0.0019}_{-0.0018}$	$r_*$	145.28	$145.2^{+1.2}_{-1.4}$	$f\sigma_8(0.61)$	0.4553	$0.455^{+0.018}_{-0.016}$
$c_{217}$	0.99799	$0.9980^{+0.0016}_{-0.0017}$	$100\theta_*$	1.04113	$1.0412^{+0.0015}_{-0.0015}$	$\sigma_8(0.61)$	0.5762	$0.577^{+0.022}_{-0.020}$
$H_0$	67.65	$67.8^{+1.9}_{-1.8}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.954	$13.95^{+0.13}_{-0.14}$	$f\sigma_8(2.33)$	0.2907	$0.291^{+0.011}_{-0.010}$
$\Omega_{\Lambda}$	0.6928	$0.694^{+0.020}_{-0.020}$	$z_{\text{drag}}$	1057.95	$1058.3^{+5.1}_{-4.0}$	$\sigma_8(2.33)$	0.2999	$0.300^{+0.011}_{-0.011}$
$\Omega_{\text{m}}$	0.3072	$0.306^{+0.020}_{-0.020}$	$r_{\text{drag}}$	147.97	$147.9^{+1.3}_{-1.5}$	$\chi_{\text{small}}^2$	395.6	$396.7 (\nu: 1.2)$
$\Omega_{\text{m}} h^2$	0.14062	$0.1407^{+0.0035}_{-0.0034}$	$k_{\text{D}}$	0.14179	$0.1416^{+0.0029}_{-0.0032}$	$\chi_{\text{plikTE}}^2$	852.0	$859.0 (\nu: 7.0)$
$\Omega_{\text{m}} h^3$	0.09514	$0.0954^{+0.0032}_{-0.0026}$	$100\theta_{\text{D}}$	0.15878	$0.1591^{+0.0047}_{-0.0037}$	$\chi_{6\text{DF}}^2$	0.006	$0.047 (\nu: 0.0)$
$\sigma_8$	0.7886	$0.789^{+0.030}_{-0.026}$	$z_{\text{eq}}$	3345	$3347^{+84}_{-81}$	$\chi_{\text{MGS}}^2$	1.47	$1.62 (\nu: 0.2)$
$S_8$	0.7981	$0.798^{+0.042}_{-0.041}$	$k_{\text{eq}}$	0.010209	$0.01022^{+0.00026}_{-0.00025}$	$\chi_{\text{DR12BAO}}^2$	3.79	$4.4 (\nu: 0.9)$
$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4371	$0.437^{+0.023}_{-0.022}$	$100\theta_{\text{eq}}$	0.8224	$0.822^{+0.014}_{-0.014}$	$\chi_{\text{prior}}^2$	0.4	$7.4 (\nu: 6.9)$
$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.5871	$0.587^{+0.024}_{-0.023}$	$100\theta_{\text{s,eq}}$	0.4542	$0.4542^{+0.0073}_{-0.0072}$	$\chi_{\text{BAO}}^2$	5.26	$6.0 (\nu: 0.7)$
$\sigma_8/h^{0.5}$	0.9588	$0.959^{+0.036}_{-0.034}$	$H(0.15)$	72.87	$73.0^{+1.7}_{-1.6}$	$\chi_{\text{CMB}}^2$	1247.6	$1255.7 (\nu: 8.2)$
$r_{\text{drag}} h$	100.11	$100.2^{+2.7}_{-2.6}$	$D_{\text{M}}(0.15)$	641.1	$640^{+16}_{-16}$			

Best-fit  $\chi_{\text{eff}}^2 = 1253.32$ ;  $\bar{\chi}_{\text{eff}}^2 = 1269.20$ ;  $R - 1 = 0.01067$

$\chi_{\text{eff}}^2$ : BAO - 6DF: 0.01 MGS: 1.47 DR12BAO: 3.79 CMB - small\_100x143.offlike5\_EE\_Aplanck\_B: 395.61 plik\_rd12\_HM\_v22\_TE: 852.01



20.41    base\_yhe\_plikHM\_TE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02226^{+0.00096}_{-0.00084}$	$r_{\text{drag}}h$	$99.8^{+5.9}_{-4.9}$	$H(0.15)$	$72.7^{+3.5}_{-2.8}$
$\Omega_{\text{c}}h^2$	$0.1182^{+0.0053}_{-0.0055}$	$\langle d^2 \rangle^{1/2}$	$2.43^{+0.14}_{-0.16}$	$D_{\text{M}}(0.15)$	$643^{+28}_{-33}$
$100\theta_{\text{MC}}$	$1.0397^{+0.0050}_{-0.0038}$	$z_{\text{re}}$	$< 8.94$	$H(0.38)$	$82.8^{+2.9}_{-2.1}$
$\tau$	$0.053^{+0.017}_{-0.010}$	$10^9 A_{\text{s}}$	$2.059^{+0.092}_{-0.067}$	$D_{\text{M}}(0.38)$	$1533^{+57}_{-69}$
$Y_{\text{P}}$	$< 0.318$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.852^{+0.047}_{-0.045}$	$H(0.51)$	$89.5^{+2.6}_{-1.8}$
$\ln(10^{10}A_{\text{s}})$	$3.025^{+0.044}_{-0.033}$	$D_{40}$	$1243^{+100}_{-110}$	$D_{\text{M}}(0.51)$	$1986^{+68}_{-82}$
$n_{\text{s}}$	$0.955^{+0.049}_{-0.041}$	$D_{220}$	$5736^{+180}_{-190}$	$H(0.61)$	$95.1^{+2.3}_{-1.6}$
$A_{100}^{\text{dustTE}}$	$0.114^{+0.098}_{-0.096}$	$D_{810}$	$2529^{+82}_{-86}$	$D_{\text{M}}(0.61)$	$2311^{+74}_{-91}$
$A_{100 \times 143}^{\text{dustTE}}$	$0.135^{+0.076}_{-0.076}$	$D_{1420}$	$824^{+49}_{-54}$	$H(2.33)$	$235.2^{+3.1}_{-3.0}$
$A_{100 \times 217}^{\text{dustTE}}$	$0.48^{+0.21}_{-0.22}$	$D_{2000}$	$236^{+22}_{-25}$	$D_{\text{M}}(2.33)$	$5779^{+83}_{-110}$
$A_{143}^{\text{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$n_{\text{s},0.002}$	$0.955^{+0.049}_{-0.041}$	$f\sigma_8(0.15)$	$0.446^{+0.033}_{-0.035}$
$A_{143 \times 217}^{\text{dustTE}}$	$0.66^{+0.20}_{-0.21}$	$Y_{\text{P}}$	$0.20^{+0.13}_{-0.10}$	$\sigma_8(0.15)$	$0.733^{+0.025}_{-0.021}$
$A_{217}^{\text{dustTE}}$	$2.04^{+0.70}_{-0.70}$	$Y_{\text{P}}^{\text{BBN}}$	$0.20^{+0.13}_{-0.10}$	$f\sigma_8(0.38)$	$0.465^{+0.025}_{-0.027}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0018}$	Age/Gyr	$13.84^{+0.19}_{-0.26}$	$\sigma_8(0.38)$	$0.650^{+0.022}_{-0.017}$
$c_{217}$	$0.9980^{+0.0016}_{-0.0017}$	$z_*$	$1088.1^{+4.3}_{-3.2}$	$f\sigma_8(0.51)$	$0.463^{+0.021}_{-0.023}$
$y_{\text{cal}}$	$1.0001^{+0.0064}_{-0.0064}$	$r_*$	$145.1^{+1.3}_{-1.3}$	$\sigma_8(0.51)$	$0.609^{+0.022}_{-0.016}$
$H_0$	$67.5^{+3.9}_{-3.1}$	$100\theta_*$	$1.0411^{+0.0019}_{-0.0017}$	$f\sigma_8(0.61)$	$0.459^{+0.019}_{-0.020}$
$\Omega_{\Lambda}$	$0.690^{+0.042}_{-0.040}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.94^{+0.13}_{-0.14}$	$\sigma_8(0.61)$	$0.579^{+0.021}_{-0.016}$
$\Omega_{\text{m}}$	$0.310^{+0.040}_{-0.042}$	$z_{\text{drag}}$	$1058.1^{+5.9}_{-4.5}$	$f\sigma_8(2.33)$	$0.292^{+0.011}_{-0.0080}$
$\Omega_{\text{m}}h^2$	$0.1411^{+0.0049}_{-0.0050}$	$r_{\text{drag}}$	$147.8^{+1.4}_{-1.4}$	$\sigma_8(2.33)$	$0.301^{+0.012}_{-0.0089}$
$\Omega_{\text{m}}h^3$	$0.0952^{+0.0036}_{-0.0026}$	$k_{\text{D}}$	$0.1419^{+0.0035}_{-0.0043}$	$\chi_{\text{simall}}^2$	$396.4 (\nu: 0.7)$
$\sigma_8$	$0.793^{+0.027}_{-0.024}$	$100\theta_{\text{D}}$	$0.1589^{+0.0054}_{-0.0040}$	$\chi_{\text{plikTE}}^2$	$859.5 (\nu: 7.5)$
$S_8$	$0.807^{+0.065}_{-0.068}$	$z_{\text{eq}}$	$3357^{+120}_{-120}$	$\chi_{\text{prior}}^2$	$7.4 (\nu: 6.8)$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.442^{+0.036}_{-0.037}$	$k_{\text{eq}}$	$0.01025^{+0.00036}_{-0.00036}$	$\chi_{\text{CMB}}^2$	$1255.9 (\nu: 8.4)$
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.592^{+0.031}_{-0.032}$	$100\theta_{\text{eq}}$	$0.820^{+0.026}_{-0.023}$		
$\sigma_8/h^{0.5}$	$0.966^{+0.043}_{-0.044}$	$100\theta_{\text{s,eq}}$	$0.453^{+0.013}_{-0.012}$		

$\bar{\chi}_{\text{eff}}^2 = 1263.26$ ;  $R - 1 = 0.00933$



20.42    base\_yhe\_plikHM\_TE\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\rm b} h^2$	$0.02231^{+0.00073}_{-0.00074}$	$\langle d^2 \rangle^{1/2}$	$2.417^{+0.092}_{-0.091}$	$H(0.38)$	$83.0^{+1.5}_{-1.3}$
$\Omega_{\rm c} h^2$	$0.1178^{+0.0033}_{-0.0032}$	$z_{\rm re}$	$< 8.95$	$D_{\rm M}(0.38)$	$1527^{+33}_{-34}$
$100\theta_{\rm MC}$	$1.0400^{+0.0041}_{-0.0032}$	$10^9 A_{\rm s}$	$2.058^{+0.091}_{-0.068}$	$H(0.51)$	$89.7^{+1.4}_{-1.2}$
$\tau$	$0.053^{+0.017}_{-0.011}$	$10^9 A_{\rm s} e^{-2\tau}$	$1.851^{+0.045}_{-0.043}$	$D_{\rm M}(0.51)$	$1979^{+40}_{-42}$
$Y_{\rm P}$	$< 0.301$	$D_{40}$	$1236^{+81}_{-85}$	$H(0.61)$	$95.2^{+1.3}_{-1.2}$
$\ln(10^{10} A_{\rm s})$	$3.024^{+0.043}_{-0.033}$	$D_{220}$	$5731^{+170}_{-180}$	$D_{\rm M}(0.61)$	$2304^{+44}_{-46}$
$n_{\rm s}$	$0.958^{+0.037}_{-0.034}$	$D_{810}$	$2527^{+82}_{-79}$	$H(2.33)$	$234.9^{+2.7}_{-2.5}$
$y_{\rm cal}$	$1.0001^{+0.0063}_{-0.0065}$	$D_{1420}$	$822^{+49}_{-47}$	$D_{\rm M}(2.33)$	$5772^{+64}_{-72}$
$A_{100}^{\rm dustTE}$	$0.114^{+0.097}_{-0.094}$	$D_{2000}$	$235^{+22}_{-22}$	$f\sigma_8(0.15)$	$0.444^{+0.021}_{-0.020}$
$A_{100\times 143}^{\rm dustTE}$	$0.135^{+0.074}_{-0.076}$	$n_{\rm s,0.002}$	$0.958^{+0.037}_{-0.034}$	$\sigma_8(0.15)$	$0.733^{+0.026}_{-0.021}$
$A_{100\times 217}^{\rm dustTE}$	$0.48^{+0.21}_{-0.22}$	$Y_{\rm P}$	$0.203^{+0.11}_{-0.099}$	$f\sigma_8(0.38)$	$0.463^{+0.018}_{-0.018}$
$A_{143}^{\rm dustTE}$	$0.22^{+0.14}_{-0.14}$	$Y_{\rm P}^{\rm BBN}$	$0.20^{+0.11}_{-0.10}$	$\sigma_8(0.38)$	$0.650^{+0.022}_{-0.019}$
$A_{143\times 217}^{\rm dustTE}$	$0.66^{+0.20}_{-0.20}$	Age/Gyr	$13.82^{+0.15}_{-0.17}$	$f\sigma_8(0.51)$	$0.462^{+0.018}_{-0.016}$
$A_{217}^{\rm dustTE}$	$2.03^{+0.71}_{-0.68}$	$z_*$	$1088.3^{+4.0}_{-3.1}$	$\sigma_8(0.51)$	$0.609^{+0.021}_{-0.017}$
$c_{100}$	$1.0002^{+0.0018}_{-0.0017}$	$r_*$	$145.2^{+1.3}_{-1.4}$	$f\sigma_8(0.61)$	$0.457^{+0.017}_{-0.015}$
$c_{217}$	$0.9980^{+0.0016}_{-0.0017}$	$100\theta_*$	$1.0412^{+0.0015}_{-0.0015}$	$\sigma_8(0.61)$	$0.580^{+0.020}_{-0.016}$
$H_0$	$67.8^{+1.9}_{-1.8}$	$D_{\rm M}(z_*)/\text{Gpc}$	$13.94^{+0.13}_{-0.14}$	$f\sigma_8(2.33)$	$0.292^{+0.011}_{-0.0083}$
$\Omega_{\Lambda}$	$0.694^{+0.019}_{-0.020}$	$z_{\rm drag}$	$1058.4^{+5.0}_{-4.0}$	$\sigma_8(2.33)$	$0.302^{+0.011}_{-0.0086}$
$\Omega_{\rm m}$	$0.306^{+0.020}_{-0.019}$	$r_{\rm drag}$	$147.9^{+1.4}_{-1.5}$	$\chi^2_{\rm simall}$	$396.4\ (\nu: 0.7)$
$\Omega_{\rm m} h^2$	$0.1407^{+0.0035}_{-0.0033}$	$k_{\rm D}$	$0.1416^{+0.0029}_{-0.0031}$	$\chi^2_{\rm plikTE}$	$859.1\ (\nu: 7.3)$
$\Omega_{\rm m} h^3$	$0.0954^{+0.0032}_{-0.0027}$	$100\theta_{\rm D}$	$0.1591^{+0.0046}_{-0.0037}$	$\chi^2_{6\text{DF}}$	$0.046\ (\nu: 0.0)$
$\sigma_8$	$0.793^{+0.028}_{-0.023}$	$z_{\rm eq}$	$3347^{+85}_{-80}$	$\chi^2_{\rm MGS}$	$1.64\ (\nu: 0.2)$
$S_8$	$0.801^{+0.040}_{-0.039}$	$k_{\rm eq}$	$0.01022^{+0.00026}_{-0.00024}$	$\chi^2_{\rm DR12BAO}$	$4.3\ (\nu: 0.8)$
$\sigma_8 \Omega_{\rm m}^{0.5}$	$0.439^{+0.022}_{-0.021}$	$100\theta_{\rm eq}$	$0.822^{+0.014}_{-0.014}$	$\chi^2_{\rm prior}$	$7.4\ (\nu: 6.8)$
$\sigma_8 \Omega_{\rm m}^{0.25}$	$0.590^{+0.023}_{-0.022}$	$100\theta_{\rm s,eq}$	$0.4542^{+0.0072}_{-0.0072}$	$\chi^2_{\rm BAO}$	$6.0\ (\nu: 0.6)$
$\sigma_8/h^{0.5}$	$0.963^{+0.034}_{-0.031}$	$H(0.15)$	$73.0^{+1.7}_{-1.6}$	$\chi^2_{\rm CMB}$	$1255.4\ (\nu: 8.1)$
$r_{\rm drag} h$	$100.3^{+2.6}_{-2.6}$	$D_{\rm M}(0.15)$	$640^{+16}_{-16}$		

$\bar{\chi}^2_{\rm eff} = 1268.83; R - 1 = 0.01490$



## 20.43 base\_yhe\_plikHM\_EE\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\text{b}}h^2$	0.02336	$0.0235^{+0.0038}_{-0.0035}$	$D_{40}$	1259	$1254^{+110}_{-140}$	$H(0.38)$	83.7	$84.0^{+6.3}_{-5.7}$
$\Omega_{\text{c}}h^2$	0.1161	$0.116^{+0.013}_{-0.011}$	$D_{220}$	5977	$5981^{+510}_{-510}$	$D_{\text{M}}(0.38)$	1511	$1506^{+150}_{-140}$
$100\theta_{\text{MC}}$	1.0382	$1.0386^{+0.0074}_{-0.0049}$	$D_{810}$	2612	$2606^{+120}_{-130}$	$H(0.51)$	90.2	$90.6^{+5.6}_{-4.8}$
$\tau$	0.0521	$0.052^{+0.023}_{-0.025}$	$D_{1420}$	859	$856^{+66}_{-75}$	$D_{\text{M}}(0.51)$	1960	$1954^{+180}_{-160}$
$Y_{\text{P}}$	0.196	$< 0.365$	$D_{2000}$	249.1	$247^{+30}_{-30}$	$H(0.61)$	95.73	$96.0^{+5.1}_{-4.3}$
$\ln(10^{10}A_{\text{s}})$	3.049	$3.050^{+0.057}_{-0.058}$	$n_{\text{s},0.002}$	0.966	$0.969^{+0.067}_{-0.052}$	$D_{\text{M}}(0.61)$	2283	$2275^{+190}_{-180}$
$n_{\text{s}}$	0.966	$0.969^{+0.067}_{-0.052}$	$Y_{\text{P}}$	0.196	$0.20^{+0.16}_{-0.11}$	$H(2.33)$	234.7	$234.9^{+6.1}_{-5.3}$
$y_{\text{cal}}$	1.0001	$1.0001^{+0.0064}_{-0.0062}$	$Y_{\text{P}}^{\text{BBN}}$	0.197	$0.21^{+0.16}_{-0.11}$	$D_{\text{M}}(2.33)$	5746	$5732^{+220}_{-240}$
$H_0$	68.7	$69^{+8}_{-8}$	Age/Gyr	13.76	$13.73^{+0.52}_{-0.55}$	$f\sigma_8(0.15)$	0.438	$0.437^{+0.086}_{-0.074}$
$\Omega_{\Lambda}$	0.703	$0.703^{+0.074}_{-0.11}$	$z_*$	1086.6	$1086.9^{+6.5}_{-5.1}$	$\sigma_8(0.15)$	0.7344	$0.734^{+0.039}_{-0.040}$
$\Omega_{\text{m}}$	0.297	$0.297^{+0.11}_{-0.074}$	$r_*$	144.85	$144.7^{+2.1}_{-2.5}$	$f\sigma_8(0.38)$	0.459	$0.458^{+0.062}_{-0.060}$
$\Omega_{\text{m}}h^2$	0.1401	$0.140^{+0.010}_{-0.0090}$	$100\theta_*$	1.03950	$1.0396^{+0.0031}_{-0.0028}$	$\sigma_8(0.38)$	0.6526	$0.652^{+0.032}_{-0.031}$
$\Omega_{\text{m}}h^3$	0.0962	$0.0967^{+0.0084}_{-0.0065}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.935	$13.92^{+0.21}_{-0.27}$	$f\sigma_8(0.51)$	0.459	$0.458^{+0.051}_{-0.052}$
$\sigma_8$	0.7933	$0.793^{+0.048}_{-0.050}$	$z_{\text{drag}}$	1060.4	$1061^{+12}_{-9.7}$	$\sigma_8(0.51)$	0.6114	$0.611^{+0.030}_{-0.027}$
$S_8$	0.789	$0.79^{+0.17}_{-0.14}$	$r_{\text{drag}}$	147.18	$147.0^{+2.5}_{-3.1}$	$f\sigma_8(0.61)$	0.4556	$0.454^{+0.044}_{-0.047}$
$\sigma_8\Omega_{\text{m}}^{0.5}$	0.432	$0.431^{+0.095}_{-0.077}$	$k_{\text{D}}$	0.14341	$0.1433^{+0.0041}_{-0.0045}$	$\sigma_8(0.61)$	0.5822	$0.582^{+0.029}_{-0.025}$
$\sigma_8\Omega_{\text{m}}^{0.25}$	0.586	$0.584^{+0.077}_{-0.070}$	$100\theta_{\text{D}}$	0.1572	$0.1576^{+0.0069}_{-0.0050}$	$f\sigma_8(2.33)$	0.2941	$0.294^{+0.015}_{-0.012}$
$\sigma_8/h^{0.5}$	0.957	$0.96^{+0.11}_{-0.10}$	$z_{\text{eq}}$	3332	$3334^{+250}_{-210}$	$\sigma_8(2.33)$	0.3039	$0.304^{+0.017}_{-0.013}$
$r_{\text{drag}}h$	101.1	$101^{+11}_{-12}$	$k_{\text{eq}}$	0.01017	$0.01018^{+0.00076}_{-0.00065}$	$\chi_{\text{simall}}^2$	395.57	$396.7 (\nu: 1.2)$
$\langle d^2 \rangle^{1/2}$	2.411	$2.40^{+0.24}_{-0.23}$	$100\theta_{\text{eq}}$	0.827	$0.828^{+0.049}_{-0.053}$	$\chi_{\text{plikEE}}^2$	738.5	$744.0 (\nu: 5.6)$
$z_{\text{re}}$	6.99	$7.0^{+2.2}_{-2.6}$	$100\theta_{\text{s,eq}}$	0.4556	$0.456^{+0.024}_{-0.026}$	$\chi_{\text{prior}}^2$	0.00	$0.99 (\nu: 0.9)$
$10^9 A_{\text{s}}$	2.110	$2.11^{+0.12}_{-0.12}$	$H(0.15)$	73.8	$74.2^{+7.5}_{-7.1}$	$\chi_{\text{CMB}}^2$	1134.1	$1140.7 (\nu: 6.9)$
$10^9 A_{\text{s}}e^{-2\tau}$	1.901	$1.902^{+0.064}_{-0.063}$	$D_{\text{M}}(0.15)$	632	$630^{+70}_{-60}$			

Best-fit  $\chi_{\text{eff}}^2 = 1134.10$ ;  $\bar{\chi}_{\text{eff}}^2 = 1141.72$ ;  $R - 1 = 0.00767$

$\chi_{\text{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.57 plik\_rd12\_HM\_v22\_EE: 738.53



## 20.44 base\_yhe\_plikHM\_EE\_lowE\_post\_BAO

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}}h^2$	0.02321	$0.0233^{+0.0018}_{-0.0018}$	$D_{220}$	5981	$5957^{+380}_{-430}$	$H(0.51)$	89.97	$90.1^{+2.4}_{-1.9}$
$\Omega_{\mathrm{c}}h^2$	0.11641	$0.1167^{+0.0054}_{-0.0044}$	$D_{810}$	2610	$2605^{+110}_{-140}$	$D_{\mathrm{M}}(0.51)$	1968	$1966^{+56}_{-61}$
$100\theta_{\mathrm{MC}}$	1.0379	$1.0384^{+0.0063}_{-0.0045}$	$D_{1420}$	859	$855^{+56}_{-82}$	$H(0.61)$	95.50	$95.6^{+2.3}_{-1.8}$
$\tau$	0.0512	$0.052^{+0.021}_{-0.022}$	$D_{2000}$	249.3	$248^{+27}_{-34}$	$D_{\mathrm{M}}(0.61)$	2292	$2289^{+61}_{-69}$
$Y_{\mathrm{P}}$	0.188	$< 0.348$	$n_{\mathrm{s},0.002}$	0.9608	$0.965^{+0.048}_{-0.038}$	$H(2.33)$	234.74	$235.0^{+4.7}_{-3.6}$
$\ln(10^{10}A_{\mathrm{s}})$	3.047	$3.049^{+0.056}_{-0.056}$	$Y_{\mathrm{P}}$	0.188	$0.20^{+0.15}_{-0.11}$	$D_{\mathrm{M}}(2.33)$	5758	$5750^{+100}_{-130}$
$n_{\mathrm{s}}$	0.9608	$0.965^{+0.048}_{-0.038}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.189	$0.20^{+0.16}_{-0.11}$	$f\sigma_8(0.15)$	0.4397	$0.442^{+0.029}_{-0.026}$
$y_{\mathrm{cal}}$	0.9999	$1.0001^{+0.0068}_{-0.0063}$	Age/Gyr	13.787	$13.77^{+0.25}_{-0.31}$	$\sigma_8(0.15)$	0.7332	$0.736^{+0.036}_{-0.031}$
$H_0$	68.31	$68.4^{+2.6}_{-2.3}$	$z_*$	1086.5	$1087.0^{+6.0}_{-4.2}$	$f\sigma_8(0.38)$	0.4600	$0.462^{+0.027}_{-0.024}$
$\Omega_{\Lambda}$	0.6994	$0.699^{+0.023}_{-0.023}$	$r_*$	144.90	$144.7^{+2.0}_{-2.6}$	$\sigma_8(0.38)$	0.6511	$0.654^{+0.034}_{-0.025}$
$\Omega_{\mathrm{m}}$	0.3006	$0.301^{+0.023}_{-0.023}$	$100\theta_*$	1.03934	$1.0395^{+0.0028}_{-0.0023}$	$f\sigma_8(0.51)$	0.4599	$0.462^{+0.027}_{-0.022}$
$\Omega_{\mathrm{m}}h^2$	0.1403	$0.1406^{+0.0059}_{-0.0046}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.942	$13.92^{+0.20}_{-0.27}$	$\sigma_8(0.51)$	0.6098	$0.613^{+0.032}_{-0.023}$
$\Omega_{\mathrm{m}}h^3$	0.0958	$0.0962^{+0.0061}_{-0.0044}$	$z_{\mathrm{drag}}$	1059.9	$1060.4^{+8.5}_{-6.3}$	$f\sigma_8(0.61)$	0.4559	$0.458^{+0.026}_{-0.021}$
$\sigma_8$	0.7923	$0.796^{+0.044}_{-0.031}$	$r_{\mathrm{drag}}$	147.27	$147.1^{+2.6}_{-3.0}$	$\sigma_8(0.61)$	0.5805	$0.583^{+0.031}_{-0.022}$
$S_8$	0.793	$0.797^{+0.054}_{-0.050}$	$k_{\mathrm{D}}$	0.14351	$0.1432^{+0.0038}_{-0.0046}$	$f\sigma_8(2.33)$	0.2932	$0.294^{+0.015}_{-0.011}$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	0.4344	$0.436^{+0.030}_{-0.027}$	$100\theta_{\mathrm{D}}$	0.1570	$0.1576^{+0.0068}_{-0.0047}$	$\sigma_8(2.33)$	0.3027	$0.304^{+0.016}_{-0.012}$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	0.5866	$0.589^{+0.034}_{-0.030}$	$z_{\mathrm{eq}}$	3336	$3345^{+140}_{-110}$	$\chi_{\mathrm{small}}^2$	395.52	$396.7 (\nu: 1.1)$
$\sigma_8/h^{0.5}$	0.9586	$0.962^{+0.047}_{-0.043}$	$k_{\mathrm{eq}}$	0.010183	$0.01021^{+0.00043}_{-0.00034}$	$\chi_{\mathrm{plikEE}}^2$	738.5	$743.1 (\nu: 4.7)$
$r_{\mathrm{drag}}h$	100.60	$100.6^{+3.0}_{-2.8}$	$100\theta_{\mathrm{eq}}$	0.8252	$0.824^{+0.018}_{-0.020}$	$\chi_{6\mathrm{DF}}^2$	0.000	$0.054 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	2.423	$2.42^{+0.10}_{-0.11}$	$100\theta_{\mathrm{s,eq}}$	0.4549	$0.4544^{+0.0094}_{-0.010}$	$\chi_{\mathrm{MGS}}^2$	1.75	$1.84 (\nu: 0.2)$
$z_{\mathrm{re}}$	6.91	$7.0^{+2.1}_{-2.4}$	$H(0.15)$	73.47	$73.6^{+2.5}_{-2.2}$	$\chi_{\mathrm{DR12BAO}}^2$	3.72	$4.5 (\nu: 0.8)$
$10^9 A_{\mathrm{s}}$	2.105	$2.11^{+0.12}_{-0.12}$	$D_{\mathrm{M}}(0.15)$	635.4	$635^{+21}_{-22}$	$\chi_{\mathrm{prior}}^2$	0.00	$0.98 (\nu: 1.0)$
$10^9 A_{\mathrm{s}}e^{-2\tau}$	1.900	$1.902^{+0.066}_{-0.064}$	$H(0.38)$	83.37	$83.5^{+2.4}_{-2.0}$	$\chi_{\mathrm{BAO}}^2$	5.47	$6.4 (\nu: 0.8)$
$D_{40}$	1269	$1259^{+110}_{-140}$	$D_{\mathrm{M}}(0.38)$	1518.1	$1516^{+46}_{-49}$	$\chi_{\mathrm{CMB}}^2$	1134.0	$1139.8 (\nu: 6.2)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 1139.52$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 1147.22$ ;  $R - 1 = 0.01379$

$\chi_{\mathrm{eff}}^2$ : BAO - 6DF: 0.00 MGS: 1.75 DR12BAO: 3.72 CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 395.52 plik\_rd12\_HM\_v22\_EE: 738.52



20.45    base\_yhe\_plikHM\_EE\_lowE\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\rm b} h^2$	$0.0236^{+0.0038}_{-0.0037}$	$D_{40}$	$1249^{+110}_{-140}$	$H(0.38)$	$84.1^{+6.4}_{-5.8}$
$\Omega_{\rm c} h^2$	$0.116^{+0.014}_{-0.011}$	$D_{220}$	$5966^{+510}_{-500}$	$D_{\rm M}(0.38)$	$1505^{+150}_{-140}$
$100\theta_{\rm MC}$	$1.0389^{+0.0073}_{-0.0050}$	$D_{810}$	$2602^{+120}_{-130}$	$H(0.51)$	$90.6^{+5.7}_{-5.0}$
$\tau$	$0.056^{+0.019}_{-0.014}$	$D_{1420}$	$853^{+64}_{-76}$	$D_{\rm M}(0.51)$	$1952^{+180}_{-160}$
$Y_{\rm P}$	$< 0.369$	$D_{2000}$	$246^{+30}_{-30}$	$H(0.61)$	$96.1^{+5.2}_{-4.4}$
$\ln(10^{10} A_{\rm s})$	$3.057^{+0.051}_{-0.046}$	$n_{\rm s,0.002}$	$0.971^{+0.066}_{-0.053}$	$D_{\rm M}(0.61)$	$2273^{+200}_{-180}$
$n_{\rm s}$	$0.971^{+0.066}_{-0.053}$	$Y_{\rm P}$	$0.21^{+0.16}_{-0.12}$	$H(2.33)$	$235.0^{+6.2}_{-5.4}$
$y_{\rm cal}$	$1.0001^{+0.0066}_{-0.0062}$	$Y_{\rm P}^{\rm BBN}$	$0.21^{+0.16}_{-0.12}$	$D_{\rm M}(2.33)$	$5728^{+230}_{-250}$
$H_0$	$69^{+8}_{-8}$	Age/Gyr	$13.72^{+0.53}_{-0.56}$	$f\sigma_8(0.15)$	$0.438^{+0.086}_{-0.073}$
$\Omega_{\Lambda}$	$0.704^{+0.074}_{-0.11}$	$z_*$	$1087.1^{+6.5}_{-5.2}$	$\sigma_8(0.15)$	$0.738^{+0.037}_{-0.037}$
$\Omega_{\rm m}$	$0.296^{+0.11}_{-0.074}$	$r_*$	$144.6^{+2.2}_{-2.5}$	$f\sigma_8(0.38)$	$0.460^{+0.062}_{-0.060}$
$\Omega_{\rm m} h^2$	$0.140^{+0.010}_{-0.0090}$	$100\theta_*$	$1.0397^{+0.0030}_{-0.0028}$	$\sigma_8(0.38)$	$0.656^{+0.031}_{-0.027}$
$\Omega_{\rm m} h^3$	$0.0969^{+0.0084}_{-0.0067}$	$D_{\rm M}(z_*)/\text{Gpc}$	$13.91^{+0.22}_{-0.27}$	$f\sigma_8(0.51)$	$0.460^{+0.051}_{-0.052}$
$\sigma_8$	$0.797^{+0.045}_{-0.047}$	$z_{\rm drag}$	$1061^{+12}_{-10}$	$\sigma_8(0.51)$	$0.614^{+0.029}_{-0.023}$
$S_8$	$0.79^{+0.18}_{-0.14}$	$r_{\rm drag}$	$146.9^{+2.5}_{-3.1}$	$f\sigma_8(0.61)$	$0.457^{+0.043}_{-0.046}$
$\sigma_8 \Omega_{\rm m}^{0.5}$	$0.433^{+0.097}_{-0.077}$	$k_{\rm D}$	$0.1431^{+0.0041}_{-0.0045}$	$\sigma_8(0.61)$	$0.585^{+0.027}_{-0.021}$
$\sigma_8 \Omega_{\rm m}^{0.25}$	$0.587^{+0.077}_{-0.069}$	$100\theta_{\rm D}$	$0.1579^{+0.0069}_{-0.0050}$	$f\sigma_8(2.33)$	$0.296^{+0.014}_{-0.010}$
$\sigma_8/h^{0.5}$	$0.96^{+0.11}_{-0.10}$	$z_{\rm eq}$	$3336^{+250}_{-220}$	$\sigma_8(2.33)$	$0.306^{+0.016}_{-0.012}$
$r_{\rm drag} h$	$102^{+10}_{-10}$	$k_{\rm eq}$	$0.01018^{+0.00076}_{-0.00066}$	$\chi_{\rm small}^2$	$396.5 (\nu: 0.9)$
$\langle d^2 \rangle^{1/2}$	$2.41^{+0.25}_{-0.23}$	$100\theta_{\rm eq}$	$0.828^{+0.050}_{-0.054}$	$\chi_{\rm plikEE}^2$	$744.0 (\nu: 5.7)$
$z_{\rm re}$	$< 8.99$	$100\theta_{\rm s,eq}$	$0.456^{+0.024}_{-0.026}$	$\chi_{\rm prior}^2$	$1.0 (\nu: 1.0)$
$10^9 A_{\rm s}$	$2.13^{+0.11}_{-0.097}$	$H(0.15)$	$74.2^{+7.6}_{-7.3}$	$\chi_{\rm CMB}^2$	$1140.4 (\nu: 6.7)$
$10^9 A_{\rm s} e^{-2\tau}$	$1.902^{+0.065}_{-0.063}$	$D_{\rm M}(0.15)$	$629^{+80}_{-60}$		

$\bar{\chi}_{\rm eff}^2 = 1141.45; R - 1 = 0.00566$



20.46    base\_yhe\_plikHM\_EE\_lowE\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.0233^{+0.0019}_{-0.0019}$	$D_{220}$	$5943^{+390}_{-460}$	$H(0.51)$	$90.1^{+2.4}_{-1.9}$
$\Omega_{\text{c}}h^2$	$0.1168^{+0.0055}_{-0.0044}$	$D_{810}$	$2601^{+110}_{-150}$	$D_{\text{M}}(0.51)$	$1965^{+55}_{-62}$
$100\theta_{\text{MC}}$	$1.0386^{+0.0064}_{-0.0045}$	$D_{1420}$	$853^{+62}_{-76}$	$H(0.61)$	$95.7^{+2.4}_{-1.8}$
$\tau$	$0.055^{+0.017}_{-0.012}$	$D_{2000}$	$246^{+30}_{-30}$	$D_{\text{M}}(0.61)$	$2288^{+61}_{-70}$
$Y_{\text{P}}$	$< 0.355$	$n_{\text{s},0.002}$	$0.967^{+0.048}_{-0.039}$	$H(2.33)$	$235.1^{+4.8}_{-3.7}$
$\ln(10^{10}A_{\text{s}})$	$3.056^{+0.052}_{-0.046}$	$Y_{\text{P}}$	$0.20^{+0.16}_{-0.12}$	$D_{\text{M}}(2.33)$	$5748^{+100}_{-130}$
$n_{\text{s}}$	$0.967^{+0.048}_{-0.039}$	$Y_{\text{P}}^{\text{BBN}}$	$0.20^{+0.16}_{-0.12}$	$f\sigma_8(0.15)$	$0.444^{+0.029}_{-0.025}$
$y_{\text{cal}}$	$1.0001^{+0.0066}_{-0.0060}$	Age/Gyr	$13.76^{+0.25}_{-0.31}$	$\sigma_8(0.15)$	$0.740^{+0.038}_{-0.026}$
$H_0$	$68.4^{+2.6}_{-2.3}$	$z_*$	$1087.2^{+6.1}_{-4.3}$	$f\sigma_8(0.38)$	$0.464^{+0.027}_{-0.022}$
$\Omega_{\Lambda}$	$0.699^{+0.023}_{-0.023}$	$r_*$	$144.7^{+2.1}_{-2.6}$	$\sigma_8(0.38)$	$0.657^{+0.033}_{-0.022}$
$\Omega_{\text{m}}$	$0.301^{+0.023}_{-0.023}$	$100\theta_*$	$1.0396^{+0.0027}_{-0.0024}$	$f\sigma_8(0.51)$	$0.464^{+0.026}_{-0.020}$
$\Omega_{\text{m}}h^2$	$0.1407^{+0.0063}_{-0.0046}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.92^{+0.20}_{-0.27}$	$\sigma_8(0.51)$	$0.615^{+0.031}_{-0.020}$
$\Omega_{\text{m}}h^3$	$0.0963^{+0.0063}_{-0.0045}$	$z_{\text{drag}}$	$1060.5^{+8.8}_{-6.2}$	$f\sigma_8(0.61)$	$0.460^{+0.026}_{-0.019}$
$\sigma_8$	$0.800^{+0.042}_{-0.028}$	$r_{\text{drag}}$	$147.1^{+2.6}_{-3.1}$	$\sigma_8(0.61)$	$0.586^{+0.029}_{-0.019}$
$S_8$	$0.800^{+0.055}_{-0.047}$	$k_{\text{D}}$	$0.1431^{+0.0039}_{-0.0051}$	$f\sigma_8(2.33)$	$0.296^{+0.015}_{-0.0099}$
$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.438^{+0.030}_{-0.026}$	$100\theta_{\text{D}}$	$0.1578^{+0.0069}_{-0.0049}$	$\sigma_8(2.33)$	$0.305^{+0.015}_{-0.010}$
$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.592^{+0.034}_{-0.027}$	$z_{\text{eq}}$	$3348^{+150}_{-110}$	$\chi_{\text{small}}^2$	$396.5 (\nu: 1.0)$
$\sigma_8/h^{0.5}$	$0.967^{+0.046}_{-0.038}$	$k_{\text{eq}}$	$0.01022^{+0.00046}_{-0.00034}$	$\chi_{\text{plikEE}}^2$	$743.1 (\nu: 4.7)$
$r_{\text{drag}}h$	$100.6^{+3.0}_{-2.8}$	$100\theta_{\text{eq}}$	$0.824^{+0.018}_{-0.020}$	$\chi_{6\text{DF}}^2$	$0.054 (\nu: 0.0)$
$\langle d^2 \rangle^{1/2}$	$2.425^{+0.098}_{-0.10}$	$100\theta_{\text{s,eq}}$	$0.4542^{+0.0096}_{-0.011}$	$\chi_{\text{MGS}}^2$	$1.85 (\nu: 0.2)$
$z_{\text{re}}$	$< 8.98$	$H(0.15)$	$73.6^{+2.5}_{-2.2}$	$\chi_{\text{DR12BAO}}^2$	$4.5 (\nu: 0.8)$
$10^9A_{\text{s}}$	$2.12^{+0.11}_{-0.096}$	$D_{\text{M}}(0.15)$	$634^{+21}_{-22}$	$\chi_{\text{prior}}^2$	$1.0 (\nu: 1.0)$
$10^9A_{\text{s}}e^{-2\tau}$	$1.901^{+0.066}_{-0.065}$	$H(0.38)$	$83.5^{+2.5}_{-2.0}$	$\chi_{\text{BAO}}^2$	$6.4 (\nu: 0.8)$
$D_{40}$	$1256^{+100}_{-140}$	$D_{\text{M}}(0.38)$	$1516^{+45}_{-49}$	$\chi_{\text{CMB}}^2$	$1139.6 (\nu: 5.7)$
$\bar{\chi}_{\text{eff}}^2 = 1146.96; R - 1 = 0.01420$					



20.47    base\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\text{b}}h^2$	$0.02209^{+0.00056}_{-0.00056}$	$\sigma_8\Omega_{\text{m}}^{0.5}$	$0.460^{+0.035}_{-0.033}$	$H(0.15)$	$72.2^{+2.1}_{-2.0}$
$\Omega_{\text{c}}h^2$	$0.1207^{+0.0055}_{-0.0055}$	$\sigma_8\Omega_{\text{m}}^{0.25}$	$0.611^{+0.030}_{-0.030}$	$D_{\text{M}}(0.15)$	$648^{+21}_{-20}$
$100\theta_{\text{MC}}$	$1.0407^{+0.0013}_{-0.0013}$	$\sigma_8/h^{0.5}$	$0.993^{+0.041}_{-0.042}$	$H(0.38)$	$82.5^{+1.5}_{-1.4}$
$\tau$	$0.052^{+0.023}_{-0.023}$	$r_{\text{drag}}h$	$98.4^{+4.3}_{-4.2}$	$D_{\text{M}}(0.38)$	$1543^{+42}_{-41}$
$Y_{\text{P}}$	$0.2437^{+0.0099}_{-0.010}$	$\langle d^2 \rangle^{1/2}$	$2.455^{+0.098}_{-0.096}$	$H(0.51)$	$89.3^{+1.2}_{-1.1}$
$\ln(10^{10}A_{\text{s}})$	$3.040^{+0.045}_{-0.045}$	$z_{\text{re}}$	$7.5^{+2.2}_{-2.5}$	$D_{\text{M}}(0.51)$	$1997^{+49}_{-48}$
$n_{\text{s}}$	$0.962^{+0.015}_{-0.016}$	$10^9 A_{\text{s}}$	$2.091^{+0.095}_{-0.092}$	$H(0.61)$	$94.98^{+0.96}_{-0.88}$
$y_{\text{cal}}$	$1.0005^{+0.0064}_{-0.0064}$	$10^9 A_{\text{s}}e^{-2\tau}$	$1.884^{+0.035}_{-0.035}$	$D_{\text{M}}(0.61)$	$2323^{+53}_{-51}$
$A_{217}^{\text{CIB}}$	$48^{+20}_{-20}$	$D_{40}$	$1235^{+41}_{-38}$	$H(2.33)$	$236.7^{+3.3}_{-3.3}$
$\xi^{\text{tSZ} \times \text{CIB}}$	—	$D_{220}$	$5712^{+100}_{-110}$	$D_{\text{M}}(2.33)$	$5779^{+43}_{-43}$
$A_{143}^{\text{tSZ}}$	—	$D_{810}$	$2536^{+36}_{-35}$	$f\sigma_8(0.15)$	$0.464^{+0.032}_{-0.031}$
$A_{100}^{\text{PS}}$	$263^{+70}_{-70}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.749^{+0.020}_{-0.020}$
$A_{143}^{\text{PS}}$	$49^{+20}_{-20}$	$D_{2000}$	$229.7^{+4.6}_{-4.6}$	$f\sigma_8(0.38)$	$0.480^{+0.024}_{-0.025}$
$A_{143 \times 217}^{\text{PS}}$	$44^{+20}_{-20}$	$n_{\text{s},0.002}$	$0.962^{+0.015}_{-0.016}$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.016}$
$A_{217}^{\text{PS}}$	$115^{+30}_{-30}$	$Y_{\text{P}}$	$0.2437^{+0.0099}_{-0.010}$	$f\sigma_8(0.51)$	$0.477^{+0.021}_{-0.022}$
$A^{\text{kSZ}}$	—	$Y_{\text{P}}^{\text{BBN}}$	$0.2450^{+0.0099}_{-0.010}$	$\sigma_8(0.51)$	$0.620^{+0.015}_{-0.015}$
$A_{100}^{\text{dustTT}}$	$8.9^{+4.8}_{-4.7}$	Age/Gyr	$13.833^{+0.097}_{-0.097}$	$f\sigma_8(0.61)$	$0.472^{+0.018}_{-0.019}$
$A_{143}^{\text{dustTT}}$	$10.7^{+4.6}_{-4.6}$	$z_*$	$1090.3^{+1.1}_{-1.1}$	$\sigma_8(0.61)$	$0.590^{+0.014}_{-0.014}$
$A_{143 \times 217}^{\text{dustTT}}$	$18.3^{+8.6}_{-8.4}$	$r_*$	$144.5^{+1.3}_{-1.2}$	$f\sigma_8(2.33)$	$0.2969^{+0.0070}_{-0.0070}$
$A_{217}^{\text{dustTT}}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	$0.3057^{+0.0074}_{-0.0074}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$D_{\text{M}}(z_*)/\text{Gpc}$	$13.88^{+0.12}_{-0.11}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0017}$	$z_{\text{drag}}$	$1059.3^{+1.3}_{-1.3}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$H_0$	$66.8^{+2.4}_{-2.4}$	$r_{\text{drag}}$	$147.2^{+1.3}_{-1.2}$	$f_{2000}^{217}$	$108.0^{+5.0}_{-4.9}$
$\Omega_{\Lambda}$	$0.679^{+0.033}_{-0.036}$	$k_{\text{D}}$	$0.1406^{+0.0014}_{-0.0014}$	$\chi_{\text{simall}}^2$	$397.0 \ (\nu: 1.5)$
$\Omega_{\text{m}}$	$0.321^{+0.036}_{-0.033}$	$100\theta_{\text{D}}$	$0.16103^{+0.00078}_{-0.00074}$	$\chi_{\text{lowl}}^2$	$24.0 \ (\nu: 0.9)$
$\Omega_{\text{m}}h^2$	$0.1434^{+0.0052}_{-0.0052}$	$z_{\text{eq}}$	$3412^{+130}_{-120}$	$\chi_{\text{plik}}^2$	$771.3 \ (\nu: 15.0)$
$\Omega_{\text{m}}h^3$	$0.0958^{+0.0012}_{-0.0012}$	$k_{\text{eq}}$	$0.01041^{+0.00038}_{-0.00038}$	$\chi_{\text{Aver15}}^2$	$0.98 \ (\nu: 1.0)$
$\sigma_8$	$0.812^{+0.023}_{-0.024}$	$100\theta_{\text{eq}}$	$0.811^{+0.024}_{-0.023}$	$\chi_{\text{prior}}^2$	$7.3 \ (\nu: 6.7)$
$S_8$	$0.840^{+0.063}_{-0.061}$	$100\theta_{\text{s,eq}}$	$0.448^{+0.012}_{-0.012}$	$\chi_{\text{CMB}}^2$	$1192.2 \ (\nu: 15.5)$

$\bar{\chi}_{\text{eff}}^2 = 1200.47; R - 1 = 0.00717$



## 20.48 base\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02219^{+0.00051}_{-0.00048}$	$\sigma_8/h^{0.5}$	$0.982^{+0.031}_{-0.030}$	$H(0.51)$	$89.63^{+0.74}_{-0.73}$
$\Omega_{\mathrm{c}}h^2$	$0.1190^{+0.0032}_{-0.0031}$	$r_{\mathrm{drag}}h$	$99.7^{+2.4}_{-2.4}$	$D_{\mathrm{M}}(0.51)$	$1982^{+28}_{-28}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.429^{+0.074}_{-0.069}$	$H(0.61)$	$95.24^{+0.64}_{-0.62}$
$\tau$	$0.054^{+0.024}_{-0.022}$	$z_{\mathrm{re}}$	$7.6^{+2.2}_{-2.4}$	$D_{\mathrm{M}}(0.61)$	$2307^{+31}_{-30}$
$Y_{\mathrm{P}}$	$0.2440^{+0.0097}_{-0.010}$	$10^9 A_{\mathrm{s}}$	$2.09^{+0.10}_{-0.089}$	$H(2.33)$	$235.7^{+2.1}_{-2.1}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.040^{+0.047}_{-0.044}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.877^{+0.029}_{-0.029}$	$D_{\mathrm{M}}(2.33)$	$5768^{+31}_{-31}$
$n_{\mathrm{s}}$	$0.966^{+0.012}_{-0.011}$	$D_{40}$	$1226^{+33}_{-32}$	$f\sigma_8(0.15)$	$0.454^{+0.020}_{-0.020}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0061}_{-0.0063}$	$D_{220}$	$5719^{+100}_{-98}$	$\sigma_8(0.15)$	$0.746^{+0.019}_{-0.019}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2535^{+33}_{-34}$	$f\sigma_8(0.38)$	$0.473^{+0.017}_{-0.017}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$816^{+12}_{-12}$	$\sigma_8(0.38)$	$0.661^{+0.016}_{-0.016}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$230.0^{+4.5}_{-4.6}$	$f\sigma_8(0.51)$	$0.472^{+0.016}_{-0.015}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.012}_{-0.011}$	$\sigma_8(0.51)$	$0.619^{+0.015}_{-0.015}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2440^{+0.0097}_{-0.010}$	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.014}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2454^{+0.0098}_{-0.010}$	$\sigma_8(0.61)$	$0.589^{+0.014}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	Age/Gyr	$13.810^{+0.070}_{-0.073}$	$f\sigma_8(2.33)$	$0.2970^{+0.0072}_{-0.0068}$
$A^{\mathrm{kSZ}}$	—	$z_{*}$	$1090.01^{+0.82}_{-0.80}$	$\sigma_8(2.33)$	$0.3063^{+0.0076}_{-0.0075}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.9}_{-4.7}$	$r_{*}$	$144.84^{+0.84}_{-0.83}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.8}$	$100\theta_{*}$	$1.0412^{+0.0011}_{-0.0010}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.8}_{-8.2}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.911^{+0.079}_{-0.082}$	$f_{2000}^{217}$	$107.8^{+5.0}_{-4.8}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.4^{+1.2}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.8)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.57^{+0.91}_{-0.92}$	$\chi_{\mathrm{lowl}}^2$	$23.15 (\nu: 0.4)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017}$	$k_{\mathrm{D}}$	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{plik}}^2$	$772.1 (\nu: 14.5)$
$H_0$	$67.6^{+1.4}_{-1.4}$	$100\theta_{\mathrm{D}}$	$0.16100^{+0.00079}_{-0.00074}$	$\chi_{\mathrm{Aver15}}^2$	$0.98 (\nu: 1.0)$
$\Omega_{\Lambda}$	$0.689^{+0.018}_{-0.019}$	$z_{\mathrm{eq}}$	$3373^{+74}_{-74}$	$\chi_{6\mathrm{DF}}^2$	$0.060 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.019}_{-0.018}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00023}_{-0.00023}$	$\chi_{\mathrm{MGS}}^2$	$1.34 (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^2$	$0.1418^{+0.0031}_{-0.0031}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.014}_{-0.013}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.3)$
$\Omega_{\mathrm{m}}h^3$	$0.0958^{+0.0012}_{-0.0011}$	$100\theta_{\mathrm{s,eq}}$	$0.4520^{+0.0071}_{-0.0070}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.3)$
$\sigma_8$	$0.807^{+0.021}_{-0.021}$	$H(0.15)$	$72.9^{+1.2}_{-1.2}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.9)$
$S_8$	$0.821^{+0.039}_{-0.038}$	$D_{\mathrm{M}}(0.15)$	$642^{+12}_{-11}$	$\chi_{\mathrm{CMB}}^2$	$1192.3 (\nu: 14.5)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.021}_{-0.021}$	$H(0.38)$	$82.94^{+0.90}_{-0.89}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.021}_{-0.021}$	$D_{\mathrm{M}}(0.38)$	$1530^{+24}_{-24}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1206.67; R - 1 = 0.01453$$



# 20.49 base\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02212^{+0.00053}_{-0.00055}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.019}_{-0.020}$	$H(0.38)$	$82.6^{+1.1}_{-1.2}$
$\Omega_{\mathrm{c}}h^2$	$0.1202^{+0.0041}_{-0.0041}$	$\sigma_8/h^{0.5}$	$0.990^{+0.026}_{-0.027}$	$D_{\mathrm{M}}(0.38)$	$1540^{+32}_{-31}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0013}_{-0.0012}$	$r_{\mathrm{drag}}h$	$98.7^{+3.1}_{-3.1}$	$H(0.51)$	$89.37^{+0.92}_{-0.93}$
$\tau$	$0.052^{+0.023}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.063}_{-0.064}$	$D_{\mathrm{M}}(0.51)$	$1994^{+38}_{-37}$
$Y_{\mathrm{P}}$	$0.2437^{+0.0097}_{-0.010}$	$z_{\mathrm{re}}$	$7.5^{+2.2}_{-2.4}$	$H(0.61)$	$95.04^{+0.76}_{-0.77}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.039^{+0.041}_{-0.039}$	$10^9 A_{\mathrm{s}}$	$2.090^{+0.087}_{-0.080}$	$D_{\mathrm{M}}(0.61)$	$2319^{+41}_{-39}$
$n_{\mathrm{s}}$	$0.963^{+0.013}_{-0.013}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.031}_{-0.030}$	$H(2.33)$	$236.5^{+2.5}_{-2.5}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0061}_{-0.0065}$	$D_{40}$	$1233^{+34}_{-33}$	$D_{\mathrm{M}}(2.33)$	$5777^{+38}_{-37}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{220}$	$5715^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021}$
$\xi^{\mathrm{tSZ}\times\mathrm{CIB}}$	—	$D_{810}$	$2536^{+34}_{-34}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.014}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.478^{+0.016}_{-0.016}$
$A_{100}^{\mathrm{PS}}$	$263^{+70}_{-70}$	$D_{2000}$	$229.8^{+4.6}_{-4.6}$	$\sigma_8(0.38)$	$0.662^{+0.013}_{-0.012}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.963^{+0.013}_{-0.013}$	$f\sigma_8(0.51)$	$0.476^{+0.013}_{-0.014}$
$A_{143\times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2437^{+0.0097}_{-0.010}$	$\sigma_8(0.51)$	$0.619^{+0.013}_{-0.012}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2450^{+0.0097}_{-0.010}$	$f\sigma_8(0.61)$	$0.470^{+0.012}_{-0.013}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.828^{+0.084}_{-0.083}$	$\sigma_8(0.61)$	$0.589^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.7}_{-4.7}$	$z_{*}$	$1090.20^{+0.94}_{-0.89}$	$f\sigma_8(2.33)$	$0.2968^{+0.0065}_{-0.0063}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.6}_{-4.8}$	$r_{*}$	$144.57^{+0.97}_{-0.97}$	$\sigma_8(2.33)$	$0.3057^{+0.0074}_{-0.0070}$
$A_{143\times 217}^{\mathrm{dustTT}}$	$18.3^{+8.6}_{-8.2}$	$100\theta_{*}$	$1.0410^{+0.0012}_{-0.0011}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$D_{\mathrm{M}}(z_{*})/\mathrm{Gpc}$	$13.887^{+0.091}_{-0.091}$	$f_{2000}^{143\times 217}$	$33^{+5}_{-5}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$z_{\mathrm{drag}}$	$1059.3^{+1.2}_{-1.3}$	$f_{2000}^{217}$	$108.0^{+5.0}_{-4.7}$
$c_{217}$	$0.9982^{+0.0015}_{-0.0017}$	$r_{\mathrm{drag}}$	$147.3^{+1.0}_{-1.0}$	$\chi_{\mathrm{lensing}}^2$	$9.45\,(\nu: 0.4)$
$H_0$	$67.0^{+1.8}_{-1.8}$	$k_{\mathrm{D}}$	$0.1405^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{simall}}^2$	$396.9\,(\nu: 1.3)$
$\Omega_{\Lambda}$	$0.681^{+0.024}_{-0.027}$	$100\theta_{\mathrm{D}}$	$0.16102^{+0.00078}_{-0.00072}$	$\chi_{\mathrm{lowl}}^2$	$23.8\,(\nu: 0.6)$
$\Omega_{\mathrm{m}}$	$0.319^{+0.027}_{-0.024}$	$z_{\mathrm{eq}}$	$3402^{+95}_{-93}$	$\chi_{\mathrm{plik}}^2$	$771.1\,(\nu: 13.8)$
$\Omega_{\mathrm{m}}h^2$	$0.1430^{+0.0040}_{-0.0039}$	$k_{\mathrm{eq}}$	$0.01038^{+0.00029}_{-0.00028}$	$\chi_{\mathrm{Aver15}}^2$	$0.97\,(\nu: 0.9)$
$\Omega_{\mathrm{m}}h^3$	$0.0958^{+0.0012}_{-0.0012}$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.018}_{-0.017}$	$\chi_{\mathrm{prior}}^2$	$7.2\,(\nu: 6.5)$
$\sigma_8$	$0.810^{+0.016}_{-0.017}$	$100\theta_{\mathrm{s,eq}}$	$0.4492^{+0.0091}_{-0.0089}$	$\chi_{\mathrm{CMB}}^2$	$1201.2\,(\nu: 15.3)$
$S_8$	$0.835^{+0.042}_{-0.041}$	$H(0.15)$	$72.4^{+1.6}_{-1.6}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.15)$	$646^{+16}_{-15}$		
$\bar{\chi}_{\mathrm{eff}}^2 = 1209.34; R - 1 = 0.01600$					



20.50 base\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02219^{+0.00051}_{-0.00048}$	$\sigma_8/h^{0.5}$	$0.984^{+0.023}_{-0.023}$	$H(0.51)$	$89.61^{+0.68}_{-0.70}$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0028}_{-0.0029}$	$r_{\mathrm{drag}}h$	$99.6^{+2.2}_{-2.1}$	$D_{\mathrm{M}}(0.51)$	$1984^{+26}_{-26}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0012}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.436^{+0.055}_{-0.055}$	$H(0.61)$	$95.22^{+0.60}_{-0.60}$
$\tau$	$0.055^{+0.022}_{-0.019}$	$z_{\mathrm{re}}$	$7.8^{+2.1}_{-2.0}$	$D_{\mathrm{M}}(0.61)$	$2308^{+28}_{-28}$
$Y_{\mathrm{P}}$	$0.2440^{+0.0097}_{-0.010}$	$10^9 A_{\mathrm{s}}$	$2.098^{+0.089}_{-0.076}$	$H(2.33)$	$235.8^{+1.9}_{-1.8}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.042}_{-0.037}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.027}_{-0.027}$	$D_{\mathrm{M}}(2.33)$	$5769^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011}$	$D_{40}$	$1228^{+31}_{-30}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.016}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0060}_{-0.0063}$	$D_{220}$	$5723^{+100}_{-97}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{810}$	$2537^{+33}_{-34}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$816^{+12}_{-12}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.012}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$230.1^{+4.4}_{-4.4}$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.012}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2440^{+0.0097}_{-0.010}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2453^{+0.0098}_{-0.010}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.011}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	Age/Gyr	$13.811^{+0.069}_{-0.069}$	$f\sigma_8(2.33)$	$0.2975^{+0.0064}_{-0.0058}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.02^{+0.80}_{-0.79}$	$\sigma_8(2.33)$	$0.3067^{+0.0068}_{-0.0061}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.9}_{-4.7}$	$r_*$	$144.80^{+0.75}_{-0.75}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.5}_{-4.8}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0010}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.8}_{-8.1}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.907^{+0.075}_{-0.075}$	$f_{2000}^{217}$	$107.8^{+4.8}_{-4.7}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.4^{+1.2}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$9.25 (\nu: 0.3)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.53^{+0.84}_{-0.86}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.8)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017}$	$k_{\mathrm{D}}$	$0.1403^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{lowl}}^2$	$23.30 (\nu: 0.4)$
$H_0$	$67.5^{+1.3}_{-1.3}$	$100\theta_{\mathrm{D}}$	$0.16099^{+0.00080}_{-0.00074}$	$\chi_{\mathrm{plik}}^2$	$771.5 (\nu: 13.5)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.017}$	$z_{\mathrm{eq}}$	$3377^{+67}_{-67}$	$\chi_{\mathrm{Aver15}}^2$	$0.98 (\nu: 0.9)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.017}_{-0.016}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00020}_{-0.00020}$	$\chi_{6\mathrm{DF}}^2$	$0.060 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1420^{+0.0028}_{-0.0028}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.013}_{-0.012}$	$\chi_{\mathrm{MGS}}^2$	$1.27 (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^3$	$0.0959^{+0.0012}_{-0.0012}$	$100\theta_{\mathrm{s,eq}}$	$0.4517^{+0.0066}_{-0.0063}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 (\nu: 1.2)$
$\sigma_8$	$0.809^{+0.016}_{-0.016}$	$H(0.15)$	$72.8^{+1.1}_{-1.1}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.3)$
$S_8$	$0.824^{+0.031}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$642^{+11}_{-11}$	$\chi_{\mathrm{CMB}}^2$	$1201.2 (\nu: 14.5)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.017}$	$H(0.38)$	$82.90^{+0.83}_{-0.84}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.8)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.016}_{-0.016}$	$D_{\mathrm{M}}(0.38)$	$1531^{+22}_{-22}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 1215.53; R - 1 = 0.02107$$



# 20.51 base\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02210^{+0.00056}_{-0.00056}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.460^{+0.035}_{-0.033}$	$H(0.15)$	$72.3^{+2.0}_{-2.0}$
$\Omega_{\mathrm{c}} h^2$	$0.1206^{+0.0054}_{-0.0054}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.611^{+0.030}_{-0.030}$	$D_{\mathrm{M}}(0.15)$	$648^{+21}_{-20}$
$100\theta_{\mathrm{MC}}$	$1.0408^{+0.0013}_{-0.0013}$	$\sigma_8/h^{0.5}$	$0.994^{+0.041}_{-0.041}$	$H(0.38)$	$82.5^{+1.5}_{-1.4}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$r_{\mathrm{drag}} h$	$98.5^{+4.2}_{-4.1}$	$D_{\mathrm{M}}(0.38)$	$1542^{+42}_{-40}$
$Y_{\mathrm{P}}$	$0.2437^{+0.0099}_{-0.010}$	$\langle d^2 \rangle^{1/2}$	$2.457^{+0.097}_{-0.095}$	$H(0.51)$	$89.3^{+1.2}_{-1.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.043^{+0.042}_{-0.030}$	$z_{\mathrm{re}}$	$< 9.47$	$D_{\mathrm{M}}(0.51)$	$1996^{+48}_{-47}$
$n_{\mathrm{s}}$	$0.962^{+0.015}_{-0.016}$	$10^9 A_{\mathrm{s}}$	$2.097^{+0.090}_{-0.062}$	$H(0.61)$	$95.00^{+0.95}_{-0.88}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0062}_{-0.0063}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.035}_{-0.034}$	$D_{\mathrm{M}}(0.61)$	$2322^{+52}_{-51}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{40}$	$1234^{+40}_{-38}$	$H(2.33)$	$236.7^{+3.3}_{-3.3}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{220}$	$5712^{+100}_{-110}$	$D_{\mathrm{M}}(2.33)$	$5778^{+42}_{-43}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{810}$	$2536^{+34}_{-35}$	$f\sigma_8(0.15)$	$0.464^{+0.032}_{-0.031}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$D_{1420}$	$815^{+13}_{-13}$	$\sigma_8(0.15)$	$0.750^{+0.019}_{-0.018}$
$A_{143}^{\mathrm{PS}}$	$49^{+20}_{-20}$	$D_{2000}$	$229.8^{+4.6}_{-4.6}$	$f\sigma_8(0.38)$	$0.480^{+0.024}_{-0.025}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$n_{\mathrm{s},0.002}$	$0.962^{+0.015}_{-0.016}$	$\sigma_8(0.38)$	$0.664^{+0.016}_{-0.013}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	$Y_{\mathrm{P}}$	$0.2437^{+0.0099}_{-0.010}$	$f\sigma_8(0.51)$	$0.478^{+0.021}_{-0.021}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.010}$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.012}$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.8}_{-4.7}$	Age/Gyr	$13.832^{+0.096}_{-0.096}$	$f\sigma_8(0.61)$	$0.472^{+0.018}_{-0.019}$
$A_{143}^{\mathrm{dust}TT}$	$10.7^{+4.6}_{-4.6}$	$z_*$	$1090.3^{+1.1}_{-1.1}$	$\sigma_8(0.61)$	$0.590^{+0.013}_{-0.011}$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.3^{+8.6}_{-8.4}$	$r_*$	$144.5^{+1.3}_{-1.2}$	$f\sigma_8(2.33)$	$0.2974^{+0.0066}_{-0.0049}$
$A_{217}^{\mathrm{dust}TT}$	$93^{+20}_{-20}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0012}$	$\sigma_8(2.33)$	$0.3062^{+0.0071}_{-0.0049}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.88^{+0.12}_{-0.11}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$c_{217}$	$0.9983^{+0.0016}_{-0.0017}$	$z_{\mathrm{drag}}$	$1059.3^{+1.2}_{-1.3}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$H_0$	$66.9^{+2.4}_{-2.4}$	$r_{\mathrm{drag}}$	$147.2^{+1.3}_{-1.2}$	$f_{2000}^{217}$	$108.0^{+4.9}_{-4.9}$
$\Omega_{\Lambda}$	$0.679^{+0.032}_{-0.035}$	$k_{\mathrm{D}}$	$0.1406^{+0.0014}_{-0.0014}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.5)$
$\Omega_{\mathrm{m}}$	$0.321^{+0.035}_{-0.032}$	$100\theta_{\mathrm{D}}$	$0.16103^{+0.00079}_{-0.00075}$	$\chi_{\mathrm{lowl}}^2$	$24.0 (\nu: 0.9)$
$\Omega_{\mathrm{m}} h^2$	$0.1433^{+0.0051}_{-0.0052}$	$z_{\mathrm{eq}}$	$3410^{+120}_{-120}$	$\chi_{\mathrm{plik}}^2$	$771.1 (\nu: 14.8)$
$\Omega_{\mathrm{m}} h^3$	$0.0958^{+0.0012}_{-0.0012}$	$k_{\mathrm{eq}}$	$0.01041^{+0.00037}_{-0.00038}$	$\chi_{\mathrm{Aver15}}^2$	$0.98 (\nu: 1.0)$
$\sigma_8$	$0.813^{+0.023}_{-0.022}$	$100\theta_{\mathrm{eq}}$	$0.811^{+0.024}_{-0.022}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.7)$
$S_8$	$0.840^{+0.063}_{-0.061}$	$100\theta_{\mathrm{s,eq}}$	$0.448^{+0.012}_{-0.012}$	$\chi_{\mathrm{CMB}}^2$	$1191.9 (\nu: 14.8)$

$\bar{\chi}_{\mathrm{eff}}^2 = 1200.15$ ;  $R - 1 = 0.00690$



20.52 base\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02219^{+0.00051}_{-0.00049}$	$\sigma_8/h^{0.5}$	$0.983^{+0.031}_{-0.029}$	$H(0.51)$	$89.64^{+0.74}_{-0.74}$
$\Omega_{\mathrm{c}}h^2$	$0.1189^{+0.0032}_{-0.0030}$	$r_{\mathrm{drag}}h$	$99.8^{+2.4}_{-2.4}$	$D_{\mathrm{M}}(0.51)$	$1982^{+28}_{-28}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0011}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.431^{+0.073}_{-0.066}$	$H(0.61)$	$95.25^{+0.64}_{-0.62}$
$\tau$	$0.055^{+0.020}_{-0.014}$	$z_{\mathrm{re}}$	$< 9.66$	$D_{\mathrm{M}}(0.61)$	$2307^{+31}_{-30}$
$Y_{\mathrm{P}}$	$0.2441^{+0.0097}_{-0.010}$	$10^9 A_{\mathrm{s}}$	$2.095^{+0.090}_{-0.069}$	$H(2.33)$	$235.7^{+2.0}_{-2.1}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.046}_{-0.031}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.029}_{-0.029}$	$D_{\mathrm{M}}(2.33)$	$5768^{+31}_{-31}$
$n_{\mathrm{s}}$	$0.966^{+0.012}_{-0.011}$	$D_{40}$	$1226^{+33}_{-32}$	$f\sigma_8(0.15)$	$0.455^{+0.020}_{-0.019}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0060}_{-0.0065}$	$D_{220}$	$5719^{+100}_{-96}$	$\sigma_8(0.15)$	$0.747^{+0.019}_{-0.015}$
$A_{217}^{\mathrm{CIB}}$	$48^{+20}_{-20}$	$D_{810}$	$2535^{+33}_{-34}$	$f\sigma_8(0.38)$	$0.473^{+0.017}_{-0.016}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$815^{+12}_{-12}$	$\sigma_8(0.38)$	$0.662^{+0.016}_{-0.012}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$230.0^{+4.4}_{-4.7}$	$f\sigma_8(0.51)$	$0.472^{+0.016}_{-0.014}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.012}_{-0.011}$	$\sigma_8(0.51)$	$0.620^{+0.015}_{-0.011}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2441^{+0.0097}_{-0.010}$	$f\sigma_8(0.61)$	$0.467^{+0.014}_{-0.013}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2454^{+0.0097}_{-0.010}$	$\sigma_8(0.61)$	$0.590^{+0.014}_{-0.010}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	Age/Gyr	$13.809^{+0.070}_{-0.073}$	$f\sigma_8(2.33)$	$0.2973^{+0.0070}_{-0.0051}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.00^{+0.82}_{-0.81}$	$\sigma_8(2.33)$	$0.3066^{+0.0073}_{-0.0052}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.9}_{-4.7}$	$r_*$	$144.85^{+0.84}_{-0.82}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.6}_{-4.8}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0010}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.8}_{-8.2}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.911^{+0.082}_{-0.082}$	$f_{2000}^{217}$	$107.8^{+4.8}_{-4.8}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.4^{+1.2}_{-1.2}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.8)$
$c_{100}$	$0.9996^{+0.0016}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.57^{+0.90}_{-0.91}$	$\chi_{\mathrm{lowl}}^2$	$23.16 (\nu: 0.4)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017}$	$k_{\mathrm{D}}$	$0.1403^{+0.0012}_{-0.0012}$	$\chi_{\mathrm{plik}}^2$	$771.9 (\nu: 14.3)$
$H_0$	$67.6^{+1.4}_{-1.4}$	$100\theta_{\mathrm{D}}$	$0.16100^{+0.00079}_{-0.00075}$	$\chi_{\mathrm{Aver15}}^2$	$0.97 (\nu: 1.0)$
$\Omega_{\Lambda}$	$0.690^{+0.017}_{-0.019}$	$z_{\mathrm{eq}}$	$3373^{+74}_{-73}$	$\chi_{6\mathrm{DF}}^2$	$0.058 (\nu: 0.0)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.019}_{-0.017}$	$k_{\mathrm{eq}}$	$0.01029^{+0.00023}_{-0.00022}$	$\chi_{\mathrm{MGS}}^2$	$1.35 (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^2$	$0.1418^{+0.0031}_{-0.0031}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.014}_{-0.013}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.3)$
$\Omega_{\mathrm{m}}h^3$	$0.0958^{+0.0012}_{-0.0012}$	$100\theta_{\mathrm{s,eq}}$	$0.4521^{+0.0071}_{-0.0070}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.3)$
$\sigma_8$	$0.808^{+0.021}_{-0.019}$	$H(0.15)$	$72.9^{+1.2}_{-1.2}$	$\chi_{\mathrm{BAO}}^2$	$6.2 (\nu: 0.9)$
$S_8$	$0.822^{+0.039}_{-0.038}$	$D_{\mathrm{M}}(0.15)$	$641^{+12}_{-11}$	$\chi_{\mathrm{CMB}}^2$	$1192.1 (\nu: 14.1)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.021}_{-0.021}$	$H(0.38)$	$82.95^{+0.89}_{-0.89}$		
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.021}_{-0.020}$	$D_{\mathrm{M}}(0.38)$	$1530^{+24}_{-23}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1206.42; R - 1 = 0.01542$



20.53    base\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\rm b} h^2$	$0.02213^{+0.00053}_{-0.00052}$	$\sigma_8 \Omega_{\rm m}^{0.25}$	$0.609^{+0.019}_{-0.020}$	$H(0.38)$	$82.6^{+1.1}_{-1.1}$
$\Omega_{\rm c} h^2$	$0.1201^{+0.0039}_{-0.0039}$	$\sigma_8/h^{0.5}$	$0.990^{+0.026}_{-0.027}$	$D_{\rm M}(0.38)$	$1539^{+31}_{-30}$
$100\theta_{\rm MC}$	$1.0408^{+0.0012}_{-0.0012}$	$r_{\rm drag} h$	$98.8^{+3.1}_{-3.0}$	$H(0.51)$	$89.40^{+0.89}_{-0.87}$
$\tau$	$0.054^{+0.019}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	$2.449^{+0.063}_{-0.065}$	$D_{\rm M}(0.51)$	$1993^{+36}_{-35}$
$Y_{\rm P}$	$0.2437^{+0.0097}_{-0.010}$	$z_{\rm re}$	$< 9.39$	$H(0.61)$	$95.06^{+0.75}_{-0.73}$
$\ln(10^{10} A_{\rm s})$	$3.042^{+0.040}_{-0.027}$	$10^9 A_{\rm s}$	$2.095^{+0.086}_{-0.056}$	$D_{\rm M}(0.61)$	$2318^{+38}_{-38}$
$n_{\rm s}$	$0.963^{+0.013}_{-0.013}$	$10^9 A_{\rm s} e^{-2\tau}$	$1.881^{+0.030}_{-0.029}$	$H(2.33)$	$236.4^{+2.4}_{-2.4}$
$y_{\rm cal}$	$1.0005^{+0.0061}_{-0.0064}$	$D_{40}$	$1232^{+33}_{-33}$	$D_{\rm M}(2.33)$	$5776^{+36}_{-36}$
$A_{217}^{\rm CIB}$	$48^{+20}_{-20}$	$D_{220}$	$5715^{+100}_{-100}$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021}$
$\xi^{\rm tSZ \times CIB}$	—	$D_{810}$	$2536^{+33}_{-34}$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.013}$
$A_{143}^{\rm tSZ}$	—	$D_{1420}$	$815^{+13}_{-13}$	$f\sigma_8(0.38)$	$0.478^{+0.016}_{-0.017}$
$A_{100}^{\rm PS}$	$263^{+70}_{-70}$	$D_{2000}$	$229.8^{+4.5}_{-4.6}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.010}$
$A_{143}^{\rm PS}$	$49^{+20}_{-20}$	$n_{\rm s,0.002}$	$0.963^{+0.013}_{-0.013}$	$f\sigma_8(0.51)$	$0.476^{+0.013}_{-0.014}$
$A_{143 \times 217}^{\rm PS}$	$43^{+20}_{-20}$	$Y_{\rm P}$	$0.2437^{+0.0097}_{-0.010}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0092}$
$A_{217}^{\rm PS}$	$115^{+30}_{-30}$	$Y_{\rm P}^{\rm BBN}$	$0.2450^{+0.0097}_{-0.010}$	$f\sigma_8(0.61)$	$0.470^{+0.012}_{-0.013}$
$A^{\rm kSZ}$	—	Age/Gyr	$13.826^{+0.081}_{-0.082}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.0087}$
$A_{100}^{\rm dustTT}$	$8.9^{+4.7}_{-4.7}$	$z_*$	$1090.18^{+0.93}_{-0.87}$	$f\sigma_8(2.33)$	$0.2972^{+0.0063}_{-0.0044}$
$A_{143}^{\rm dustTT}$	$10.7^{+4.6}_{-4.7}$	$r_*$	$144.60^{+0.95}_{-0.94}$	$\sigma_8(2.33)$	$0.3062^{+0.0071}_{-0.0048}$
$A_{143 \times 217}^{\rm dustTT}$	$18.3^{+8.6}_{-8.1}$	$100\theta_*$	$1.0410^{+0.0012}_{-0.0011}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{217}^{\rm dustTT}$	$93^{+20}_{-20}$	$D_{\rm M}(z_*)/\text{Gpc}$	$13.890^{+0.091}_{-0.088}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$z_{\rm drag}$	$1059.3^{+1.2}_{-1.3}$	$f_{2000}^{217}$	$107.9^{+4.9}_{-4.7}$
$c_{217}$	$0.9983^{+0.0015}_{-0.0017}$	$r_{\rm drag}$	$147.3^{+1.0}_{-1.0}$	$\chi_{\rm lensing}^2$	$9.43 \, (\nu: 0.4)$
$H_0$	$67.1^{+1.8}_{-1.8}$	$k_{\rm D}$	$0.1405^{+0.0012}_{-0.0012}$	$\chi_{\rm simall}^2$	$396.8 \, (\nu: 1.3)$
$\Omega_{\Lambda}$	$0.682^{+0.023}_{-0.025}$	$100\theta_{\rm D}$	$0.16101^{+0.00078}_{-0.00072}$	$\chi_{\rm lowl}^2$	$23.7 \, (\nu: 0.5)$
$\Omega_{\rm m}$	$0.318^{+0.025}_{-0.023}$	$z_{\rm eq}$	$3399^{+91}_{-92}$	$\chi_{\rm plik}^2$	$770.9 \, (\nu: 13.8)$
$\Omega_{\rm m} h^2$	$0.1429^{+0.0038}_{-0.0038}$	$k_{\rm eq}$	$0.01037^{+0.00028}_{-0.00028}$	$\chi_{\rm Aver15}^2$	$0.97 \, (\nu: 0.9)$
$\Omega_{\rm m} h^3$	$0.0958^{+0.0012}_{-0.0012}$	$100\theta_{\rm eq}$	$0.813^{+0.017}_{-0.016}$	$\chi_{\rm prior}^2$	$7.2 \, (\nu: 6.5)$
$\sigma_8$	$0.811^{+0.016}_{-0.015}$	$100\theta_{\rm s,eq}$	$0.4495^{+0.0090}_{-0.0085}$	$\chi_{\rm CMB}^2$	$1200.9 \, (\nu: 14.9)$
$S_8$	$0.834^{+0.042}_{-0.041}$	$H(0.15)$	$72.4^{+1.5}_{-1.5}$		
$\sigma_8 \Omega_{\rm m}^{0.5}$	$0.457^{+0.023}_{-0.023}$	$D_{\rm M}(0.15)$	$646^{+15}_{-15}$		

$\bar{\chi}_{\rm eff}^2 = 1209.04$ ;  $R - 1 = 0.01844$



20.54 base\_yhe\_plikHM\_TT\_lowl\_lowE\_Aver15\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02219^{+0.00051}_{-0.00048}$	$\sigma_8/h^{0.5}$	$0.985^{+0.023}_{-0.023}$	$H(0.51)$	$89.62^{+0.68}_{-0.69}$
$\Omega_{\mathrm{c}}h^2$	$0.1191^{+0.0028}_{-0.0028}$	$r_{\mathrm{drag}}h$	$99.7^{+2.2}_{-2.1}$	$D_{\mathrm{M}}(0.51)$	$1983^{+26}_{-26}$
$100\theta_{\mathrm{MC}}$	$1.0410^{+0.0012}_{-0.0011}$	$\langle d^2 \rangle^{1/2}$	$2.436^{+0.055}_{-0.054}$	$H(0.61)$	$95.23^{+0.59}_{-0.59}$
$\tau$	$0.056^{+0.020}_{-0.015}$	$z_{\mathrm{re}}$	$< 9.63$	$D_{\mathrm{M}}(0.61)$	$2308^{+28}_{-28}$
$Y_{\mathrm{P}}$	$0.2440^{+0.0097}_{-0.010}$	$10^9 A_{\mathrm{s}}$	$2.100^{+0.088}_{-0.060}$	$H(2.33)$	$235.8^{+1.8}_{-1.8}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.041}_{-0.029}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.026}_{-0.027}$	$D_{\mathrm{M}}(2.33)$	$5769^{+30}_{-30}$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011}$	$D_{40}$	$1228^{+31}_{-30}$	$f\sigma_8(0.15)$	$0.456^{+0.016}_{-0.016}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0060}_{-0.0064}$	$D_{220}$	$5722^{+100}_{-97}$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.013}$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20}$	$D_{810}$	$2536^{+33}_{-34}$	$f\sigma_8(0.38)$	$0.474^{+0.013}_{-0.013}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$D_{1420}$	$816^{+12}_{-12}$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.010}$
$A_{143}^{\mathrm{tSZ}}$	—	$D_{2000}$	$230.1^{+4.4}_{-4.4}$	$f\sigma_8(0.51)$	$0.473^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{PS}}$	$262^{+70}_{-70}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.011}$	$\sigma_8(0.51)$	$0.620^{+0.013}_{-0.0097}$
$A_{143}^{\mathrm{PS}}$	$48^{+20}_{-20}$	$Y_{\mathrm{P}}$	$0.2440^{+0.0097}_{-0.010}$	$f\sigma_8(0.61)$	$0.468^{+0.011}_{-0.011}$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2453^{+0.0098}_{-0.010}$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.0092}$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30}$	Age/Gyr	$13.810^{+0.069}_{-0.068}$	$f\sigma_8(2.33)$	$0.2976^{+0.0063}_{-0.0046}$
$A^{\mathrm{kSZ}}$	—	$z_*$	$1090.01^{+0.80}_{-0.78}$	$\sigma_8(2.33)$	$0.3069^{+0.0066}_{-0.0049}$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.9}_{-4.7}$	$r_*$	$144.81^{+0.76}_{-0.75}$	$f_{2000}^{143}$	$31^{+8}_{-7}$
$A_{143}^{\mathrm{dustTT}}$	$10.7^{+4.5}_{-4.8}$	$100\theta_*$	$1.0412^{+0.0011}_{-0.0010}$	$f_{2000}^{143 \times 217}$	$33^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.3^{+8.8}_{-8.1}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.908^{+0.075}_{-0.073}$	$f_{2000}^{217}$	$107.8^{+4.8}_{-4.7}$
$A_{217}^{\mathrm{dustTT}}$	$93^{+20}_{-20}$	$z_{\mathrm{drag}}$	$1059.4^{+1.2}_{-1.2}$	$\chi_{\mathrm{lensing}}^2$	$9.22 (\nu: 0.2)$
$c_{100}$	$0.9996^{+0.0015}_{-0.0016}$	$r_{\mathrm{drag}}$	$147.54^{+0.83}_{-0.84}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.8)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0017}$	$k_{\mathrm{D}}$	$0.1403^{+0.0012}_{-0.0011}$	$\chi_{\mathrm{lowl}}^2$	$23.30 (\nu: 0.4)$
$H_0$	$67.5^{+1.3}_{-1.3}$	$100\theta_{\mathrm{D}}$	$0.16099^{+0.00079}_{-0.00074}$	$\chi_{\mathrm{plik}}^2$	$771.4 (\nu: 13.4)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.017}$	$z_{\mathrm{eq}}$	$3376^{+66}_{-66}$	$\chi_{\mathrm{Aver15}}^2$	$0.97 (\nu: 0.9)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.017}_{-0.016}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00020}_{-0.00020}$	$\chi_{6\mathrm{DF}}^2$	$0.057 (\nu: 0.0)$
$\Omega_{\mathrm{m}}h^2$	$0.1419^{+0.0027}_{-0.0028}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.013}_{-0.012}$	$\chi_{\mathrm{MGS}}^2$	$1.28 (\nu: 0.1)$
$\Omega_{\mathrm{m}}h^3$	$0.0959^{+0.0012}_{-0.0012}$	$100\theta_{\mathrm{s,eq}}$	$0.4517^{+0.0065}_{-0.0061}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.8 (\nu: 1.1)$
$\sigma_8$	$0.809^{+0.016}_{-0.014}$	$H(0.15)$	$72.8^{+1.1}_{-1.1}$	$\chi_{\mathrm{prior}}^2$	$7.2 (\nu: 6.3)$
$S_8$	$0.824^{+0.031}_{-0.031}$	$D_{\mathrm{M}}(0.15)$	$642^{+11}_{-11}$	$\chi_{\mathrm{CMB}}^2$	$1201.0 (\nu: 14.3)$
$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.451^{+0.017}_{-0.017}$	$H(0.38)$	$82.91^{+0.83}_{-0.84}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.7)$
$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.604^{+0.016}_{-0.016}$	$D_{\mathrm{M}}(0.38)$	$1531^{+22}_{-22}$		

$\bar{\chi}_{\mathrm{eff}}^2 = 1215.36; R - 1 = 0.02251$



20.55 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022339	$0.02233^{+0.00040}_{-0.00038}$ (+1.1 $\sigma$ )	$\Omega_m$	0.3175	$0.317^{+0.023}_{-0.021}$ (−0.3 $\sigma$ )	$z_{\text{eq}}$	3409	$3407^{+81}_{-78}$ (−0.1 $\sigma$ )
$\Omega_c h^2$	0.12031	$0.1202^{+0.0036}_{-0.0034}$ (−0.2 $\sigma$ )	$\Omega_m h^2$	0.14330	$0.1432^{+0.0034}_{-0.0032}$ (−0.1 $\sigma$ )	$k_{\text{eq}}$	0.010404	$0.01040^{+0.00025}_{-0.00024}$ (−0.1 $\sigma$ )
$100\theta_{\text{MC}}$	1.04081	$1.04083^{+0.00085}_{-0.00090}$ (+0.2 $\sigma$ )	$\Omega_m h^3$	0.09627	$0.09625^{+0.00085}_{-0.00082}$ (+0.9 $\sigma$ )	$100\theta_{\text{eq}}$	0.8119	$0.812^{+0.015}_{-0.015}$ (+0.2 $\sigma$ )
$\tau$	0.0542	$0.054^{+0.021}_{-0.021}$ (+0.3 $\sigma$ )	$\sigma_8$	0.8123	$0.812^{+0.020}_{-0.019}$ (−0.0 $\sigma$ )	$100\theta_{\text{s,eq}}$	0.4487	$0.4489^{+0.0076}_{-0.0077}$ (+0.1 $\sigma$ )
$Y_{\text{P}}$	0.2431	$0.2433^{+0.0093}_{-0.0096}$ (−0.1 $\sigma$ )	$S_8$	0.8356	$0.834^{+0.042}_{-0.041}$ (−0.2 $\sigma$ )	$H(0.15)$	72.53	$72.6^{+1.4}_{-1.3}$ (+0.4 $\sigma$ )
$\ln(10^{10} A_{\text{s}})$	3.0445	$3.044^{+0.043}_{-0.043}$ (+0.2 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.5}$	0.4577	$0.457^{+0.023}_{-0.022}$ (−0.2 $\sigma$ )	$D_{\text{M}}(0.15)$	644.9	$645^{+14}_{-14}$ (−0.4 $\sigma$ )
$n_{\text{s}}$	0.9647	$0.964^{+0.012}_{-0.012}$ (+0.3 $\sigma$ )	$\sigma_8 \Omega_{\text{m}}^{0.25}$	0.6097	$0.609^{+0.022}_{-0.021}$ (−0.2 $\sigma$ )	$H(0.38)$	82.75	$82.8^{+1.0}_{-0.96}$ (+0.5 $\sigma$ )
$y_{\text{cal}}$	1.0005	$1.0006^{+0.0061}_{-0.0065}$ (+0.1 $\sigma$ )	$\sigma_8/h^{0.5}$	0.9910	$0.990^{+0.032}_{-0.030}$ (−0.2 $\sigma$ )	$D_{\text{M}}(0.38)$	1536.6	$1536^{+27}_{-27}$ (−0.4 $\sigma$ )
$A_{217}^{\text{CIB}}$	45.9	$47^{+20}_{-20}$ (−0.2 $\sigma$ )	$r_{\text{drag}} h$	98.79	$98.9^{+2.8}_{-2.7}$ (+0.3 $\sigma$ )	$H(0.51)$	89.53	$89.54^{+0.81}_{-0.76}$ (+0.6 $\sigma$ )
$\xi^{\text{tSZ} \times \text{CIB}}$	0.60	—	$\langle d^2 \rangle^{1/2}$	2.450	$2.450^{+0.073}_{-0.072}$ (−0.1 $\sigma$ )	$D_{\text{M}}(0.51)$	1989.5	$1989^{+32}_{-32}$ (−0.5 $\sigma$ )
$A_{143}^{\text{tSZ}}$	7.09	> 0.856 (+0.2 $\sigma$ )	$z_{\text{re}}$	7.67	$7.6^{+2.0}_{-2.3}$ (+0.2 $\sigma$ )	$H(0.61)$	95.20	$95.21^{+0.65}_{-0.61}$ (+0.6 $\sigma$ )
$A_{100}^{\text{PS}}$	248	$257^{+70}_{-70}$ (−0.2 $\sigma$ )	$10^9 A_{\text{s}}$	2.100	$2.099^{+0.093}_{-0.090}$ (+0.2 $\sigma$ )	$D_{\text{M}}(0.61)$	2314.3	$2314^{+34}_{-35}$ (−0.5 $\sigma$ )
$A_{143}^{\text{PS}}$	49.4	$46^{+20}_{-20}$ (−0.4 $\sigma$ )	$10^9 A_{\text{s}} e^{-2\tau}$	1.8844	$1.884^{+0.031}_{-0.030}$ (−0.0 $\sigma$ )	$H(2.33)$	236.73	$236.7^{+2.2}_{-2.0}$ (−0.0 $\sigma$ )
$A_{143 \times 217}^{\text{PS}}$	51.7	$43^{+20}_{-20}$ (−0.1 $\sigma$ )	$D_{40}$	1231.4	$1234^{+34}_{-32}$ (−0.1 $\sigma$ )	$D_{\text{M}}(2.33)$	5767.2	$5767^{+29}_{-30}$ (−0.7 $\sigma$ )
$A_{217}^{\text{PS}}$	121.7	$115^{+30}_{-30}$ (+0.0 $\sigma$ )	$D_{220}$	5729	$5732^{+100}_{-98}$ (+0.5 $\sigma$ )	$f\sigma_8(0.15)$	0.4618	$0.461^{+0.022}_{-0.021}$ (−0.2 $\sigma$ )
$A^{\text{kSZ}}$	0.0	—	$D_{810}$	2541.3	$2540^{+34}_{-35}$ (+0.2 $\sigma$ )	$\sigma_8(0.15)$	0.7500	$0.749^{+0.018}_{-0.018}$ (+0.0 $\sigma$ )
$A_{100}^{\text{dustTT}}$	8.78	$8.9^{+4.8}_{-4.8}$ (−0.0 $\sigma$ )	$D_{1420}$	818.6	$817^{+12}_{-13}$ (+0.6 $\sigma$ )	$f\sigma_8(0.38)$	0.4788	$0.478^{+0.018}_{-0.017}$ (−0.2 $\sigma$ )
$A_{143}^{\text{dustTT}}$	11.01	$10.9^{+4.6}_{-4.5}$ (+0.1 $\sigma$ )	$D_{2000}$	231.49	$231.1^{+4.1}_{-4.2}$ (+0.7 $\sigma$ )	$\sigma_8(0.38)$	0.6641	$0.664^{+0.015}_{-0.015}$ (+0.1 $\sigma$ )
$A_{143 \times 217}^{\text{dustTT}}$	19.9	$18.6^{+8.5}_{-8.8}$ (+0.1 $\sigma$ )	$n_{\text{s},0.002}$	0.9647	$0.964^{+0.012}_{-0.012}$ (+0.3 $\sigma$ )	$f\sigma_8(0.51)$	0.4767	$0.476^{+0.016}_{-0.015}$ (−0.2 $\sigma$ )
$A_{217}^{\text{dustTT}}$	95.4	$94^{+20}_{-20}$ (+0.0 $\sigma$ )	$Y_{\text{P}}$	0.2431	$0.2433^{+0.0093}_{-0.0096}$ (−0.1 $\sigma$ )	$\sigma_8(0.51)$	0.6213	$0.621^{+0.014}_{-0.014}$ (+0.2 $\sigma$ )
$A_{100}^{\text{dustTE}}$	0.115	$0.115^{+0.097}_{-0.095}$	$Y_{\text{P}}^{\text{BBN}}$	0.2444	$0.2446^{+0.0093}_{-0.0096}$ (−0.1 $\sigma$ )	$f\sigma_8(0.61)$	0.4712	$0.471^{+0.015}_{-0.014}$ (−0.1 $\sigma$ )
$A_{100 \times 143}^{\text{dustTE}}$	0.135	$0.135^{+0.073}_{-0.076}$	Age/Gyr	13.805	$13.805^{+0.064}_{-0.066}$ (−0.8 $\sigma$ )	$\sigma_8(0.61)$	0.5910	$0.591^{+0.013}_{-0.013}$ (+0.2 $\sigma$ )
$A_{100 \times 217}^{\text{dustTE}}$	0.482	$0.48^{+0.22}_{-0.22}$	$z_*$	1089.89	$1089.91^{+0.76}_{-0.75}$ (−0.9 $\sigma$ )	$f\sigma_8(2.33)$	0.2977	$0.2975^{+0.0067}_{-0.0067}$ (+0.2 $\sigma$ )
$A_{143}^{\text{dustTE}}$	0.224	$0.23^{+0.14}_{-0.14}$	$r_*$	144.38	$144.41^{+0.77}_{-0.79}$ (−0.1 $\sigma$ )	$\sigma_8(2.33)$	0.3067	$0.3065^{+0.0071}_{-0.0070}$ (+0.3 $\sigma$ )
$A_{143 \times 217}^{\text{dustTE}}$	0.666	$0.67^{+0.21}_{-0.21}$	$100\theta_*$	1.04105	$1.04107^{+0.00077}_{-0.00085}$ (+0.2 $\sigma$ )	$\chi_{\text{small}}^2$	396.06	$397.1$ ( $\nu$ : 1.7) (+0.1 $\sigma$ )
$A_{217}^{\text{dustTE}}$	2.09	$2.09^{+0.70}_{-0.68}$	$D_{\text{M}}(z_*)/\text{Gpc}$	13.869	$13.871^{+0.071}_{-0.075}$ (−0.2 $\sigma$ )	$\chi_{\text{lowl}}^2$	23.48	$23.7$ ( $\nu$ : 0.5) (−0.2 $\sigma$ )
$c_{100}$	0.99972	$0.9997^{+0.0016}_{-0.0016}$ (+0.1 $\sigma$ )	$z_{\text{drag}}$	1059.82	$1059.79^{+0.98}_{-0.92}$ (+1.0 $\sigma$ )	$\chi_{\text{plik}}^2$	2344.4	$2359.5$ ( $\nu$ : 17.2) (+290.0 $\sigma$ )
$c_{217}$	0.99816	$0.9982^{+0.0016}_{-0.0016}$ (−0.1 $\sigma$ )	$r_{\text{drag}}$	147.05	$147.08^{+0.77}_{-0.80}$ (−0.3 $\sigma$ )	$\chi_{\text{Aver15}}^2$	0.02	$0.9$ ( $\nu$ : 0.8) (−0.1 $\sigma$ )
$H_0$	67.18	$67.2^{+1.6}_{-1.6}$ (+0.4 $\sigma$ )	$k_{\text{D}}$	0.14098	$0.14093^{+0.00087}_{-0.00083}$ (+0.7 $\sigma$ )	$\chi_{\text{prior}}^2$	1.6	$11.5$ ( $\nu$ : 9.9) (+1.1 $\sigma$ )
$\Omega_{\Lambda}$	0.6825	$0.683^{+0.021}_{-0.023}$ (+0.3 $\sigma$ )	$100\theta_{\text{D}}$	0.16067	$0.16071^{+0.00057}_{-0.00053}$ (−1.1 $\sigma$ )	$\chi_{\text{CMB}}^2$	2764.0	$2780.3$ ( $\nu$ : 17.4) (+285.5 $\sigma$ )

Best-fit  $\chi_{\text{eff}}^2 = 2765.57$ ;  $\bar{\chi}_{\text{eff}}^2 = 2792.71$ ;  $\Delta\bar{\chi}_{\text{eff}}^2 = 1592.24$ ;  $R - 1 = 0.01459$

$\chi_{\text{eff}}^2$ : Abund - Yp\_Aver2015: 0.02 CMB - simall\_100x143.offlike5\_EE\_Aplanck\_B: 396.06 commander\_dx12\_v3.2.29: 23.48 plik\_rd12\_HM\_v22b\_TTTEE: 2344.42



20.56 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_Aver15\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_b h^2$	$0.02239^{+0.00038}_{-0.00035} \quad (+1.0\sigma)$	$\sigma_8$	$0.809^{+0.020}_{-0.019} \quad (+0.3\sigma)$	$H(0.38)$	$83.02^{+0.77}_{-0.73} \quad (+0.2\sigma)$
$\Omega_c h^2$	$0.1193^{+0.0026}_{-0.0026} \quad (+0.3\sigma)$	$S_8$	$0.824^{+0.033}_{-0.032} \quad (+0.2\sigma)$	$D_M(0.38)$	$1529^{+20}_{-20} \quad (-0.1\sigma)$
$100\theta_{MC}$	$1.04095^{+0.00078}_{-0.00081} \quad (-0.0\sigma)$	$\sigma_8 \Omega_m^{0.5}$	$0.452^{+0.018}_{-0.018} \quad (+0.2\sigma)$	$H(0.51)$	$89.74^{+0.62}_{-0.59} \quad (+0.4\sigma)$
$\tau$	$0.055^{+0.021}_{-0.021} \quad (+0.2\sigma)$	$\sigma_8 \Omega_m^{0.25}$	$0.604^{+0.018}_{-0.017} \quad (+0.2\sigma)$	$D_M(0.51)$	$1981^{+23}_{-24} \quad (-0.2\sigma)$
$Y_P$	$0.2435^{+0.0089}_{-0.0097} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.984^{+0.027}_{-0.026} \quad (+0.2\sigma)$	$H(0.61)$	$95.36^{+0.52}_{-0.49} \quad (+0.5\sigma)$
$\ln(10^{10} A_s)$	$3.044^{+0.046}_{-0.043} \quad (+0.3\sigma)$	$r_{drag} h$	$99.6^{+2.1}_{-2.0} \quad (-0.2\sigma)$	$D_M(0.61)$	$2305^{+25}_{-26} \quad (-0.2\sigma)$
$n_s$	$0.966^{+0.010}_{-0.010} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.064}_{-0.062} \quad (+0.3\sigma)$	$H(2.33)$	$236.1^{+1.6}_{-1.5} \quad (+0.5\sigma)$
$y_{cal}$	$1.0007^{+0.0058}_{-0.0065} \quad (+0.1\sigma)$	$z_{re}$	$7.7^{+2.0}_{-2.3} \quad (+0.1\sigma)$	$D_M(2.33)$	$5761^{+24}_{-25} \quad (-0.6\sigma)$
$A_{217}^{CIB}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_s$	$2.100^{+0.099}_{-0.088} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.017}_{-0.016} \quad (+0.2\sigma)$
$\xi^{tSZ \times CIB}$	—	$10^9 A_s e^{-2\tau}$	$1.880^{+0.027}_{-0.028} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.017}_{-0.017} \quad (+0.3\sigma)$
$A_{143}^{tSZ}$	$> 0.795 \quad (+0.2\sigma)$	$D_{40}$	$1229^{+32}_{-31} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.474^{+0.015}_{-0.014} \quad (+0.2\sigma)$
$A_{100}^{PS}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5737^{+98}_{-95} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.016}_{-0.015} \quad (+0.3\sigma)$
$A_{143}^{PS}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2539^{+33}_{-34} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.013}_{-0.013} \quad (+0.2\sigma)$
$A_{143 \times 217}^{PS}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-13} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.015}_{-0.014} \quad (+0.3\sigma)$
$A_{217}^{PS}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.3^{+4.1}_{-4.4} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.013}_{-0.012} \quad (+0.3\sigma)$
$A^{kSZ}$	—	$n_{s,0.002}$	$0.966^{+0.010}_{-0.010} \quad (+0.0\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.014}_{-0.013} \quad (+0.3\sigma)$
$A_{100}^{dustTT}$	$8.9^{+4.9}_{-4.8} \quad (-0.0\sigma)$	$Y_P$	$0.2435^{+0.0089}_{-0.0097} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.2976^{+0.0070}_{-0.0067} \quad (+0.2\sigma)$
$A_{143}^{dustTT}$	$10.9^{+4.6}_{-4.5} \quad (+0.1\sigma)$	$Y_P^{BBN}$	$0.2448^{+0.0089}_{-0.0097} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.3069^{+0.0074}_{-0.0068} \quad (+0.2\sigma)$
$A_{143 \times 217}^{dustTT}$	$18.6^{+8.2}_{-8.7} \quad (+0.1\sigma)$	Age/Gyr	$13.791^{+0.055}_{-0.056} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{217}^{dustTT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.76^{+0.64}_{-0.63} \quad (-0.8\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100}^{dustTE}$	$0.115^{+0.094}_{-0.091}$	$r_*$	$144.60^{+0.61}_{-0.62} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.8^{+4.6}_{-4.9} \quad (-0.5\sigma)$
$A_{100 \times 143}^{dustTE}$	$0.134^{+0.080}_{-0.075}$	$100\theta_*$	$1.04118^{+0.00073}_{-0.00076} \quad (-0.1\sigma)$	$\chi_{small}^2$	$397.3 \quad (\nu: 2.0) \quad (+0.1\sigma)$
$A_{100 \times 217}^{dustTE}$	$0.48^{+0.22}_{-0.23}$	$D_M(z_*)/\text{Gpc}$	$13.888^{+0.059}_{-0.060} \quad (-0.7\sigma)$	$\chi_{lowl}^2$	$23.26 \quad (\nu: 0.4) \quad (+0.1\sigma)$
$A_{143}^{dustTE}$	$0.22^{+0.14}_{-0.14}$	$z_{drag}$	$1059.88^{+0.93}_{-0.90} \quad (+1.0\sigma)$	$\chi_{plik}^2$	$2359.8 \quad (\nu: 18.0) \quad (+295.1\sigma)$
$A_{143 \times 217}^{dustTE}$	$0.66^{+0.21}_{-0.21}$	$r_{drag}$	$147.25^{+0.64}_{-0.65} \quad (-0.9\sigma)$	$\chi_{Aver15}^2$	$0.9 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$A_{217}^{dustTE}$	$2.08^{+0.69}_{-0.67}$	$k_D$	$0.14079^{+0.00081}_{-0.00076} \quad (+1.1\sigma)$	$\chi_{6DF}^2$	$0.059 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_D$	$0.16067^{+0.00056}_{-0.00053} \quad (-1.1\sigma)$	$\chi_{MGS}^2$	$1.24 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0016} \quad (-0.1\sigma)$	$z_{eq}$	$3386^{+59}_{-58} \quad (+0.5\sigma)$	$\chi_{DR12BAO}^2$	$4.9 \quad (\nu: 1.1) \quad (+0.1\sigma)$
$H_0$	$67.6^{+1.2}_{-1.2} \quad (+0.1\sigma)$	$k_{eq}$	$0.01034^{+0.00018}_{-0.00018} \quad (+0.5\sigma)$	$\chi_{prior}^2$	$11.5 \quad (\nu: 10.2) \quad (+1.2\sigma)$
$\Omega_\Lambda$	$0.689^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$100\theta_{eq}$	$0.816^{+0.011}_{-0.011} \quad (-0.3\sigma)$	$\chi_{BAO}^2$	$6.2 \quad (\nu: 0.7) \quad (+0.0\sigma)$
$\Omega_m$	$0.311^{+0.016}_{-0.016} \quad (+0.1\sigma)$	$100\theta_{s,eq}$	$0.4509^{+0.0056}_{-0.0056} \quad (-0.4\sigma)$	$\chi_{CMB}^2$	$2780.4 \quad (\nu: 17.5) \quad (+295.1\sigma)$
$\Omega_m h^2$	$0.1424^{+0.0025}_{-0.0024} \quad (+0.5\sigma)$	$H(0.15)$	$72.9^{+1.0}_{-1.0} \quad (+0.1\sigma)$		
$\Omega_m h^3$	$0.09627^{+0.00083}_{-0.00081} \quad (+0.9\sigma)$	$D_M(0.15)$	$641^{+10}_{-10} \quad (-0.1\sigma)$		

$$\bar{\chi}_{eff}^2 = 2799.01; \Delta \bar{\chi}_{eff}^2 = 1592.33; R - 1 = 0.02003$$



20.57 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_Aver15\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02234^{+0.00040}_{-0.00038} \quad (+1.1\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09624^{+0.00086}_{-0.00080} \quad (+0.9\sigma)$	$H(0.15)$	$72.6^{+1.3}_{-1.2} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1200^{+0.0031}_{-0.0031} \quad (-0.1\sigma)$	$\sigma_8$	$0.811^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.15)$	$644^{+12}_{-12} \quad (-0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04084^{+0.00081}_{-0.00090} \quad (+0.1\sigma)$	$S_8$	$0.832^{+0.033}_{-0.032} \quad (-0.2\sigma)$	$H(0.38)$	$82.82^{+0.93}_{-0.88} \quad (+0.5\sigma)$
$\tau$	$0.054^{+0.020}_{-0.019} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.018}_{-0.018} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1535^{+25}_{-25} \quad (-0.4\sigma)$
$Y_{\mathrm{P}}$	$0.2432^{+0.0089}_{-0.0097} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$H(0.51)$	$89.58^{+0.74}_{-0.70} \quad (+0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.043^{+0.039}_{-0.039} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.988^{+0.023}_{-0.024} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1987^{+29}_{-29} \quad (-0.5\sigma)$
$n_{\mathrm{s}}$	$0.964^{+0.011}_{-0.011} \quad (+0.3\sigma)$	$r_{\mathrm{drag}}h$	$99.0^{+2.4}_{-2.4} \quad (+0.2\sigma)$	$H(0.61)$	$95.24^{+0.60}_{-0.58} \quad (+0.7\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0059}_{-0.0064} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.447^{+0.056}_{-0.056} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2312^{+31}_{-32} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	$7.6^{+1.9}_{-2.0} \quad (+0.2\sigma)$	$H(2.33)$	$236.5^{+1.9}_{-1.9} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.097^{+0.082}_{-0.080} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(2.33)$	$5766^{+28}_{-28} \quad (-0.8\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.028}_{-0.027} \quad (+0.0\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.017}_{-0.016} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$258^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1233^{+32}_{-30} \quad (-0.0\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.014} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5734^{+98}_{-97} \quad (+0.5\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2539^{+33}_{-35} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.013} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.012}_{-0.012} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.0^{+4.1}_{-4.3} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.012} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.9}_{-4.8} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.964^{+0.011}_{-0.011} \quad (+0.3\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.011} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.7}_{-4.4} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.2432^{+0.0089}_{-0.0097} \quad (-0.1\sigma)$	$\sigma_8(0.61)$	$0.590^{+0.012}_{-0.011} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.6}_{-8.9} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2445^{+0.0090}_{-0.0097} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.2974^{+0.0060}_{-0.0060} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	Age/Gyr	$13.802^{+0.064}_{-0.062} \quad (-0.8\sigma)$	$\sigma_8(2.33)$	$0.3064^{+0.0065}_{-0.0063} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.094}_{-0.093}$	$z_*$	$1089.87^{+0.68}_{-0.72} \quad (-0.9\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.077}_{-0.075}$	$r_*$	$144.45^{+0.69}_{-0.70} \quad (-0.3\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04109^{+0.00075}_{-0.00085} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$106.9^{+4.6}_{-5.0} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.875^{+0.064}_{-0.067} \quad (-0.3\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.21 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.8^{+1.0}_{-0.90} \quad (+1.0\sigma)$	$\chi_{\mathrm{small}}^2$	$397.0 \quad (\nu: 1.4) \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.09^{+0.70}_{-0.68}$	$r_{\mathrm{drag}}$	$147.12^{+0.69}_{-0.71} \quad (-0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.64 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14090^{+0.00079}_{-0.00078} \quad (+0.8\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.3 \quad (\nu: 16.5) \quad (+301.9\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16069^{+0.00057}_{-0.00053} \quad (-1.1\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.9 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$H_0$	$67.3^{+1.5}_{-1.4} \quad (+0.4\sigma)$	$z_{\mathrm{eq}}$	$3402^{+70}_{-70} \quad (+0.0\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.684^{+0.019}_{-0.020} \quad (+0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01038^{+0.00021}_{-0.00021} \quad (+0.0\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.1 \quad (\nu: 17.4) \quad (+287.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.316^{+0.020}_{-0.019} \quad (-0.3\sigma)$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.013}_{-0.013} \quad (+0.1\sigma)$		
$\Omega_{\mathrm{m}}h^2$	$0.1430^{+0.0029}_{-0.0029} \quad (+0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4493^{+0.0068}_{-0.0067} \quad (+0.0\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2801.50; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.16; R - 1 = 0.01555$$



20.58 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_Aver15\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00038}_{-0.00035} \quad (+1.1\sigma)$	$\sigma_8$	$0.810^{+0.016}_{-0.016} \quad (+0.2\sigma)$	$H(0.38)$	$83.02^{+0.75}_{-0.70} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1193^{+0.0024}_{-0.0025} \quad (+0.2\sigma)$	$S_8$	$0.825^{+0.027}_{-0.027} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1529^{+19}_{-20} \quad (-0.3\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00074}_{-0.00081} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$H(0.51)$	$89.74^{+0.60}_{-0.57} \quad (+0.5\sigma)$
$\tau$	$0.056^{+0.020}_{-0.019} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1981^{+22}_{-23} \quad (-0.3\sigma)$
$Y_{\mathrm{P}}$	$0.2434^{+0.0089}_{-0.0099} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.022}_{-0.021} \quad (+0.1\sigma)$	$H(0.61)$	$95.36^{+0.50}_{-0.48} \quad (+0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.038}_{-0.038} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$99.6^{+1.9}_{-1.9} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2305^{+24}_{-25} \quad (-0.3\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.052}_{-0.052} \quad (+0.1\sigma)$	$H(2.33)$	$236.1^{+1.5}_{-1.5} \quad (+0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0058}_{-0.0065} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$7.8^{+1.9}_{-2.1} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5761^{+24}_{-24} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.103^{+0.081}_{-0.079} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.014}_{-0.014} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.026}_{-0.027} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.015}_{-0.014} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 0.777 \quad (+0.2\sigma)$	$D_{40}$	$1230^{+31}_{-29} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.012}_{-0.012} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5739^{+96}_{-93} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.013}_{-0.012} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2539^{+33}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.011}_{-0.011} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-13} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.012} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.3^{+4.1}_{-4.3} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.010}_{-0.010} \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.010} \quad (+0.1\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.012}_{-0.011} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dust}TT}$	$8.9^{+4.9}_{-4.8} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2434^{+0.0089}_{-0.0099} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.2978^{+0.0059}_{-0.0058} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dust}TT}$	$10.9^{+4.7}_{-4.4} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2448^{+0.0090}_{-0.0099} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.3071^{+0.0064}_{-0.0061} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TT}$	$18.6^{+8.3}_{-8.9} \quad (+0.1\sigma)$	Age/Gyr	$13.791^{+0.054}_{-0.055} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{dust}TT}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.75^{+0.63}_{-0.62} \quad (-0.9\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{dust}TE}$	$0.116^{+0.094}_{-0.092}$	$r_*$	$144.59^{+0.57}_{-0.57} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$106.8^{+4.5}_{-4.9} \quad (-0.5\sigma)$
$A_{100 \times 143}^{\mathrm{dust}TE}$	$0.134^{+0.080}_{-0.074}$	$100\theta_*$	$1.04118^{+0.00070}_{-0.00076} \quad (-0.0\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.08 \quad (\nu: 0.2) \quad (-0.2\sigma)$
$A_{100 \times 217}^{\mathrm{dust}TE}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.888^{+0.054}_{-0.056} \quad (-0.7\sigma)$	$\chi_{\mathrm{small}}^2$	$397.2 \quad (\nu: 1.8) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dust}TE}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.88^{+0.96}_{-0.87} \quad (+1.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.32 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dust}TE}$	$0.66^{+0.20}_{-0.21}$	$r_{\mathrm{drag}}$	$147.25^{+0.60}_{-0.62} \quad (-0.9\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.4 \quad (\nu: 17.0) \quad (+305.2\sigma)$
$A_{217}^{\mathrm{dust}TE}$	$2.08^{+0.68}_{-0.67}$	$k_{\mathrm{D}}$	$0.14080^{+0.00079}_{-0.00072} \quad (+1.1\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.9 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16067^{+0.00054}_{-0.00052} \quad (-1.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.056 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3387^{+55}_{-55} \quad (+0.4\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.23 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$H_0$	$67.6^{+1.2}_{-1.1} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01034^{+0.00017}_{-0.00017} \quad (+0.4\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 \quad (\nu: 0.9) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.689^{+0.015}_{-0.015} \quad (+0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.011}_{-0.010} \quad (-0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.015}_{-0.015} \quad (-0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4509^{+0.0054}_{-0.0052} \quad (-0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.1 \quad (\nu: 17.5) \quad (+294.9\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1424^{+0.0023}_{-0.0023} \quad (+0.4\sigma)$	$H(0.15)$	$72.9^{+1.0}_{-0.94} \quad (+0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.2 \quad (\nu: 0.6) \quad (-0.0\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09627^{+0.00083}_{-0.00081} \quad (+0.9\sigma)$	$D_{\mathrm{M}}(0.15)$	$641.1^{+9.4}_{-9.8} \quad (-0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2807.65; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.11; R - 1 = 0.02242$$



20.59 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_Aver15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02233^{+0.00040}_{-0.00038} \quad (+1.1\sigma)$	$\Omega_{\mathrm{m}}h^2$	$0.1432^{+0.0034}_{-0.0032} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.812^{+0.015}_{-0.015} \quad (+0.1\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1202^{+0.0035}_{-0.0035} \quad (-0.2\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09625^{+0.00085}_{-0.00082} \quad (+0.9\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4490^{+0.0075}_{-0.0076} \quad (+0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04084^{+0.00085}_{-0.00090} \quad (+0.2\sigma)$	$\sigma_8$	$0.812^{+0.020}_{-0.017} \quad (-0.0\sigma)$	$H(0.15)$	$72.6^{+1.4}_{-1.3} \quad (+0.4\sigma)$
$\tau$	$0.055^{+0.019}_{-0.014} \quad (+0.2\sigma)$	$S_8$	$0.835^{+0.042}_{-0.040} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.15)$	$645^{+14}_{-14} \quad (-0.4\sigma)$
$Y_{\mathrm{P}}$	$0.2433^{+0.0093}_{-0.0096} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.457^{+0.023}_{-0.022} \quad (-0.2\sigma)$	$H(0.38)$	$82.8^{+1.0}_{-0.96} \quad (+0.5\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.039}_{-0.031} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.609^{+0.022}_{-0.021} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1536^{+27}_{-27} \quad (-0.4\sigma)$
$n_{\mathrm{s}}$	$0.964^{+0.012}_{-0.012} \quad (+0.3\sigma)$	$\sigma_8/h^{0.5}$	$0.991^{+0.031}_{-0.029} \quad (-0.2\sigma)$	$H(0.51)$	$89.55^{+0.80}_{-0.76} \quad (+0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0061}_{-0.0065} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}h$	$98.9^{+2.8}_{-2.7} \quad (+0.3\sigma)$	$D_{\mathrm{M}}(0.51)$	$1989^{+32}_{-32} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.452^{+0.072}_{-0.069} \quad (-0.1\sigma)$	$H(0.61)$	$95.22^{+0.65}_{-0.61} \quad (+0.6\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$z_{\mathrm{re}}$	$< 9.46 \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2313^{+34}_{-34} \quad (-0.4\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 0.896 \quad (+0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.084}_{-0.066} \quad (+0.2\sigma)$	$H(2.33)$	$236.6^{+2.1}_{-2.0} \quad (-0.0\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.883^{+0.031}_{-0.029} \quad (-0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5767^{+29}_{-30} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{PS}}$	$46^{+20}_{-20} \quad (-0.4\sigma)$	$D_{40}$	$1234^{+34}_{-32} \quad (-0.0\sigma)$	$f\sigma_8(0.15)$	$0.461^{+0.021}_{-0.021} \quad (-0.2\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$43^{+20}_{-20} \quad (-0.1\sigma)$	$D_{220}$	$5732^{+100}_{-97} \quad (+0.5\sigma)$	$\sigma_8(0.15)$	$0.750^{+0.017}_{-0.014} \quad (+0.0\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+30}_{-30} \quad (+0.0\sigma)$	$D_{810}$	$2539^{+34}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.479^{+0.018}_{-0.017} \quad (-0.2\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{1420}$	$817^{+12}_{-13} \quad (+0.6\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.015}_{-0.011} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.8}_{-4.8} \quad (-0.0\sigma)$	$D_{2000}$	$231.1^{+4.1}_{-4.2} \quad (+0.7\sigma)$	$f\sigma_8(0.51)$	$0.477^{+0.016}_{-0.015} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.8^{+4.7}_{-4.5} \quad (+0.1\sigma)$	$n_{\mathrm{s},0.002}$	$0.964^{+0.012}_{-0.012} \quad (+0.3\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.014}_{-0.010} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.5^{+8.5}_{-8.9} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.2433^{+0.0093}_{-0.0096} \quad (-0.1\sigma)$	$f\sigma_8(0.61)$	$0.471^{+0.014}_{-0.013} \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2446^{+0.0093}_{-0.0097} \quad (-0.1\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.013}_{-0.0096} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.115^{+0.098}_{-0.095}$	Age/Gyr	$13.804^{+0.064}_{-0.066} \quad (-0.8\sigma)$	$f\sigma_8(2.33)$	$0.2979^{+0.0065}_{-0.0047} \quad (+0.2\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.073}_{-0.076}$	$z_*$	$1089.90^{+0.77}_{-0.75} \quad (-0.9\sigma)$	$\sigma_8(2.33)$	$0.3069^{+0.0067}_{-0.0049} \quad (+0.3\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$r_*$	$144.42^{+0.77}_{-0.78} \quad (-0.2\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.23^{+0.14}_{-0.14}$	$100\theta_*$	$1.04108^{+0.00077}_{-0.00085} \quad (+0.2\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.7\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.21}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.872^{+0.071}_{-0.074} \quad (-0.2\sigma)$	$f_{2000}^{217}$	$106.9^{+4.7}_{-4.7} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.70}_{-0.68}$	$z_{\mathrm{drag}}$	$1059.80^{+0.98}_{-0.89} \quad (+1.0\sigma)$	$\chi_{\mathrm{small}}^2$	$397.1 \quad (\nu: 1.8) \quad (+0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$r_{\mathrm{drag}}$	$147.09^{+0.76}_{-0.79} \quad (-0.3\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.7 \quad (\nu: 0.5) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$k_{\mathrm{D}}$	$0.14093^{+0.00087}_{-0.00083} \quad (+0.7\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.3 \quad (\nu: 17.1) \quad (+291.5\sigma)$
$H_0$	$67.2^{+1.6}_{-1.6} \quad (+0.4\sigma)$	$100\theta_{\mathrm{D}}$	$0.16070^{+0.00056}_{-0.00053} \quad (-1.1\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.9 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$\Omega_{\Lambda}$	$0.683^{+0.021}_{-0.023} \quad (+0.3\sigma)$	$z_{\mathrm{eq}}$	$3406^{+80}_{-77} \quad (-0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 9.9) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.317^{+0.023}_{-0.021} \quad (-0.3\sigma)$	$k_{\mathrm{eq}}$	$0.01040^{+0.00025}_{-0.00024} \quad (-0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2780.1 \quad (\nu: 17.0) \quad (+291.4\sigma)$

$\bar{\chi}_{\mathrm{eff}}^2 = 2792.46$ ;  $\Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.31$ ;  $R - 1 = 0.01390$



20.60 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_Aver15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00038}_{-0.00035} \quad (+1.0\sigma)$	$\sigma_8$	$0.810^{+0.019}_{-0.015} \quad (+0.3\sigma)$	$H(0.38)$	$83.03^{+0.78}_{-0.73} \quad (+0.2\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1193^{+0.0026}_{-0.0026} \quad (+0.3\sigma)$	$S_8$	$0.825^{+0.032}_{-0.031} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1529^{+20}_{-20} \quad (-0.1\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04096^{+0.00078}_{-0.00081} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.018}_{-0.017} \quad (+0.2\sigma)$	$H(0.51)$	$89.74^{+0.62}_{-0.59} \quad (+0.4\sigma)$
$\tau$	$0.056^{+0.019}_{-0.014} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.018}_{-0.016} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1980^{+23}_{-24} \quad (-0.2\sigma)$
$Y_{\mathrm{P}}$	$0.2436^{+0.0088}_{-0.0099} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.026}_{-0.024} \quad (+0.2\sigma)$	$H(0.61)$	$95.36^{+0.52}_{-0.50} \quad (+0.5\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.046^{+0.041}_{-0.032} \quad (+0.3\sigma)$	$r_{\mathrm{drag}}h$	$99.6^{+2.1}_{-2.0} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.61)$	$2305^{+25}_{-26} \quad (-0.2\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010} \quad (+0.0\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.438^{+0.063}_{-0.058} \quad (+0.3\sigma)$	$H(2.33)$	$236.1^{+1.6}_{-1.6} \quad (+0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0058}_{-0.0065} \quad (+0.1\sigma)$	$z_{\mathrm{re}}$	$< 9.59 \quad (+0.1\sigma)$	$D_{\mathrm{M}}(2.33)$	$5760^{+24}_{-25} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.2\sigma)$	$10^9 A_{\mathrm{s}}$	$2.104^{+0.087}_{-0.068} \quad (+0.3\sigma)$	$f\sigma_8(0.15)$	$0.456^{+0.017}_{-0.016} \quad (+0.2\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.028}_{-0.028} \quad (+0.3\sigma)$	$\sigma_8(0.15)$	$0.748^{+0.017}_{-0.013} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$5.5^{+4.5}_{-4.6} \quad (+0.2\sigma)$	$D_{40}$	$1229^{+32}_{-31} \quad (+0.2\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.014}_{-0.013} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5737^{+100}_{-95} \quad (+0.5\sigma)$	$\sigma_8(0.38)$	$0.663^{+0.015}_{-0.011} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2539^{+33}_{-35} \quad (+0.3\sigma)$	$f\sigma_8(0.51)$	$0.473^{+0.013}_{-0.012} \quad (+0.3\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-13} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.013}_{-0.011} \quad (+0.3\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.3^{+4.1}_{-4.3} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.468^{+0.012}_{-0.011} \quad (+0.3\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.010} \quad (+0.0\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.013}_{-0.010} \quad (+0.3\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.9}_{-4.8} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2436^{+0.0088}_{-0.0099} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.2979^{+0.0063}_{-0.0051} \quad (+0.3\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.7}_{-4.5} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2449^{+0.0088}_{-0.010} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.3072^{+0.0066}_{-0.0053} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.2}_{-8.8} \quad (+0.1\sigma)$	Age/Gyr	$13.791^{+0.056}_{-0.056} \quad (-0.6\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.75^{+0.64}_{-0.63} \quad (-0.8\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.116^{+0.095}_{-0.091}$	$r_*$	$144.60^{+0.62}_{-0.62} \quad (-0.8\sigma)$	$f_{2000}^{217}$	$106.8^{+4.6}_{-5.0} \quad (-0.5\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.080}_{-0.074}$	$100\theta_*$	$1.04119^{+0.00073}_{-0.00076} \quad (-0.1\sigma)$	$\chi_{\mathrm{small}}^2$	$397.2 \quad (\nu: 2.1) \quad (+0.1\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.23}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.888^{+0.059}_{-0.059} \quad (-0.7\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.27 \quad (\nu: 0.4) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.88^{+0.93}_{-0.87} \quad (+1.0\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.7 \quad (\nu: 17.9) \quad (+296.9\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$r_{\mathrm{drag}}$	$147.26^{+0.65}_{-0.65} \quad (-0.9\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.9 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.07^{+0.68}_{-0.66}$	$k_{\mathrm{D}}$	$0.14079^{+0.00081}_{-0.00080} \quad (+1.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.058 \quad (\nu: 0.0) \quad (+0.0\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16067^{+0.00056}_{-0.00053} \quad (-1.1\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.25 \quad (\nu: 0.1) \quad (-0.2\sigma)$
$c_{217}$	$0.9982^{+0.0017}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3386^{+59}_{-59} \quad (+0.5\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 \quad (\nu: 1.1) \quad (+0.1\sigma)$
$H_0$	$67.6^{+1.2}_{-1.2} \quad (+0.1\sigma)$	$k_{\mathrm{eq}}$	$0.01033^{+0.00018}_{-0.00018} \quad (+0.5\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.689^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.011}_{-0.011} \quad (-0.4\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.2 \quad (\nu: 0.7) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.016}_{-0.016} \quad (+0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4510^{+0.0057}_{-0.0056} \quad (-0.4\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2780.2 \quad (\nu: 17.2) \quad (+298.7\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1423^{+0.0025}_{-0.0025} \quad (+0.5\sigma)$	$H(0.15)$	$72.9^{+1.0}_{-0.99} \quad (+0.1\sigma)$		
$\Omega_{\mathrm{m}}h^3$	$0.09627^{+0.00083}_{-0.00081} \quad (+0.9\sigma)$	$D_{\mathrm{M}}(0.15)$	$641^{+10}_{-10} \quad (-0.1\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2798.81; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.39; R - 1 = 0.02120$$



## 20.61 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_Aver15\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02235^{+0.00040}_{-0.00038} \quad (+1.1\sigma)$	$\Omega_{\mathrm{m}}h^3$	$0.09625^{+0.00085}_{-0.00079} \quad (+0.9\sigma)$	$H(0.15)$	$72.7^{+1.2}_{-1.2} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1200^{+0.0031}_{-0.0031} \quad (-0.1\sigma)$	$\sigma_8$	$0.811^{+0.015}_{-0.014} \quad (+0.0\sigma)$	$D_{\mathrm{M}}(0.15)$	$644^{+12}_{-12} \quad (-0.4\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04085^{+0.00080}_{-0.00087} \quad (+0.1\sigma)$	$S_8$	$0.832^{+0.033}_{-0.032} \quad (-0.2\sigma)$	$H(0.38)$	$82.84^{+0.91}_{-0.88} \quad (+0.5\sigma)$
$\tau$	$0.055^{+0.018}_{-0.013} \quad (+0.2\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.456^{+0.018}_{-0.018} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.38)$	$1534^{+24}_{-25} \quad (-0.4\sigma)$
$Y_{\mathrm{P}}$	$0.2433^{+0.0089}_{-0.0097} \quad (-0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.608^{+0.016}_{-0.016} \quad (-0.1\sigma)$	$H(0.51)$	$89.60^{+0.73}_{-0.70} \quad (+0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.045^{+0.037}_{-0.027} \quad (+0.2\sigma)$	$\sigma_8/h^{0.5}$	$0.989^{+0.023}_{-0.022} \quad (-0.2\sigma)$	$D_{\mathrm{M}}(0.51)$	$1987^{+29}_{-29} \quad (-0.4\sigma)$
$n_{\mathrm{s}}$	$0.964^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$99.1^{+2.4}_{-2.4} \quad (+0.2\sigma)$	$H(0.61)$	$95.25^{+0.60}_{-0.57} \quad (+0.6\sigma)$
$y_{\mathrm{cal}}$	$1.0006^{+0.0058}_{-0.0064} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.448^{+0.055}_{-0.054} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2311^{+31}_{-31} \quad (-0.4\sigma)$
$A_{217}^{\mathrm{CIB}}$	$47^{+20}_{-20} \quad (-0.2\sigma)$	$z_{\mathrm{re}}$	$< 9.37 \quad (+0.1\sigma)$	$H(2.33)$	$236.5^{+1.8}_{-1.8} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}}$	$2.101^{+0.079}_{-0.056} \quad (+0.2\sigma)$	$D_{\mathrm{M}}(2.33)$	$5765^{+27}_{-27} \quad (-0.7\sigma)$
$A_{143}^{\mathrm{tSZ}}$	—	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.882^{+0.028}_{-0.027} \quad (+0.1\sigma)$	$f\sigma_8(0.15)$	$0.460^{+0.017}_{-0.016} \quad (-0.2\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{40}$	$1233^{+32}_{-30} \quad (+0.0\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.012} \quad (+0.1\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{220}$	$5734^{+99}_{-96} \quad (+0.5\sigma)$	$f\sigma_8(0.38)$	$0.477^{+0.013}_{-0.013} \quad (-0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{810}$	$2539^{+33}_{-35} \quad (+0.2\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.012}_{-0.0098} \quad (+0.1\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{1420}$	$817^{+12}_{-13} \quad (+0.5\sigma)$	$f\sigma_8(0.51)$	$0.475^{+0.012}_{-0.011} \quad (-0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$D_{2000}$	$231.1^{+4.1}_{-4.3} \quad (+0.7\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0091} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.9}_{-4.8} \quad (-0.0\sigma)$	$n_{\mathrm{s},0.002}$	$0.964^{+0.011}_{-0.011} \quad (+0.2\sigma)$	$f\sigma_8(0.61)$	$0.470^{+0.011}_{-0.010} \quad (-0.1\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.7}_{-4.4} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}$	$0.2433^{+0.0089}_{-0.0097} \quad (-0.1\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0086} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.6}_{-8.9} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2446^{+0.0089}_{-0.0098} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.2977^{+0.0058}_{-0.0044} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.0\sigma)$	$\mathrm{Age}/\mathrm{Gyr}$	$13.801^{+0.061}_{-0.061} \quad (-0.8\sigma)$	$\sigma_8(2.33)$	$0.3067^{+0.0062}_{-0.0048} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.116^{+0.094}_{-0.093}$	$z_*$	$1089.86^{+0.68}_{-0.71} \quad (-0.9\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.6\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.135^{+0.078}_{-0.074}$	$r_*$	$144.47^{+0.68}_{-0.69} \quad (-0.4\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$100\theta_*$	$1.04109^{+0.00075}_{-0.00083} \quad (+0.1\sigma)$	$f_{2000}^{217}$	$106.9^{+4.5}_{-4.9} \quad (-0.6\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.876^{+0.064}_{-0.065} \quad (-0.4\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.20 \quad (\nu: 0.2) \quad (-0.3\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.67^{+0.21}_{-0.21}$	$z_{\mathrm{drag}}$	$1059.8^{+1.0}_{-0.91} \quad (+1.0\sigma)$	$\chi_{\mathrm{small}}^2$	$396.9 \quad (\nu: 1.4) \quad (+0.1\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.68}_{-0.68}$	$r_{\mathrm{drag}}$	$147.13^{+0.68}_{-0.69} \quad (-0.5\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.62 \quad (\nu: 0.4) \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0016} \quad (+0.1\sigma)$	$k_{\mathrm{D}}$	$0.14089^{+0.00080}_{-0.00077} \quad (+0.9\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.1 \quad (\nu: 16.5) \quad (+302.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16069^{+0.00056}_{-0.00053} \quad (-1.1\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.9 \quad (\nu: 0.8) \quad (-0.1\sigma)$
$H_0$	$67.3^{+1.4}_{-1.4} \quad (+0.4\sigma)$	$z_{\mathrm{eq}}$	$3401^{+69}_{-68} \quad (+0.1\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.3) \quad (+1.2\sigma)$
$\Omega_{\Lambda}$	$0.685^{+0.018}_{-0.020} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01038^{+0.00021}_{-0.00021} \quad (+0.1\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2788.9 \quad (\nu: 17.0) \quad (+290.9\sigma)$
$\Omega_{\mathrm{m}}$	$0.315^{+0.020}_{-0.018} \quad (-0.2\sigma)$	$100\theta_{\mathrm{eq}}$	$0.813^{+0.013}_{-0.013} \quad (+0.0\sigma)$		
$\Omega_{\mathrm{m}}h^2$	$0.1430^{+0.0029}_{-0.0028} \quad (+0.1\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4495^{+0.0067}_{-0.0065} \quad (-0.0\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2801.26; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.22; R - 1 = 0.01556$$



20.62 base\_yhe\_plikHM\_TTTEE\_lowl\_lowE\_Aver15\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02240^{+0.00038}_{-0.00035} \quad (+1.1\sigma)$	$\sigma_8$	$0.810^{+0.015}_{-0.013} \quad (+0.2\sigma)$	$H(0.38)$	$83.03^{+0.74}_{-0.69} \quad (+0.4\sigma)$
$\Omega_{\mathrm{c}}h^2$	$0.1193^{+0.0024}_{-0.0024} \quad (+0.2\sigma)$	$S_8$	$0.825^{+0.027}_{-0.027} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.38)$	$1529^{+19}_{-20} \quad (-0.2\sigma)$
$100\theta_{\mathrm{MC}}$	$1.04095^{+0.00075}_{-0.00080} \quad (-0.0\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.452^{+0.015}_{-0.015} \quad (+0.1\sigma)$	$H(0.51)$	$89.74^{+0.60}_{-0.57} \quad (+0.5\sigma)$
$\tau$	$0.057^{+0.018}_{-0.014} \quad (+0.1\sigma)$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.015}_{-0.014} \quad (+0.1\sigma)$	$D_{\mathrm{M}}(0.51)$	$1981^{+22}_{-23} \quad (-0.3\sigma)$
$Y_{\mathrm{P}}$	$0.2435^{+0.0089}_{-0.0099} \quad (-0.1\sigma)$	$\sigma_8/h^{0.5}$	$0.985^{+0.021}_{-0.020} \quad (+0.1\sigma)$	$H(0.61)$	$95.36^{+0.50}_{-0.48} \quad (+0.6\sigma)$
$\ln(10^{10}A_{\mathrm{s}})$	$3.047^{+0.037}_{-0.029} \quad (+0.2\sigma)$	$r_{\mathrm{drag}}h$	$99.6^{+1.9}_{-1.8} \quad (-0.1\sigma)$	$D_{\mathrm{M}}(0.61)$	$2305^{+24}_{-25} \quad (-0.3\sigma)$
$n_{\mathrm{s}}$	$0.966^{+0.010}_{-0.010} \quad (+0.1\sigma)$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.052}_{-0.050} \quad (+0.1\sigma)$	$H(2.33)$	$236.1^{+1.5}_{-1.5} \quad (+0.5\sigma)$
$y_{\mathrm{cal}}$	$1.0007^{+0.0058}_{-0.0065} \quad (+0.0\sigma)$	$z_{\mathrm{re}}$	$< 9.47 \quad (+0.0\sigma)$	$D_{\mathrm{M}}(2.33)$	$5760^{+24}_{-24} \quad (-0.7\sigma)$
$A_{217}^{\mathrm{CIB}}$	$46^{+20}_{-20} \quad (-0.1\sigma)$	$10^9 A_{\mathrm{s}}$	$2.105^{+0.079}_{-0.060} \quad (+0.2\sigma)$	$f\sigma_8(0.15)$	$0.457^{+0.014}_{-0.014} \quad (+0.1\sigma)$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.880^{+0.027}_{-0.027} \quad (+0.2\sigma)$	$\sigma_8(0.15)$	$0.749^{+0.014}_{-0.012} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{tSZ}}$	$> 0.777 \quad (+0.2\sigma)$	$D_{40}$	$1230^{+31}_{-29} \quad (+0.1\sigma)$	$f\sigma_8(0.38)$	$0.475^{+0.012}_{-0.011} \quad (+0.1\sigma)$
$A_{100}^{\mathrm{PS}}$	$257^{+70}_{-70} \quad (-0.2\sigma)$	$D_{220}$	$5739^{+97}_{-92} \quad (+0.4\sigma)$	$\sigma_8(0.38)$	$0.664^{+0.013}_{-0.010} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{PS}}$	$45^{+20}_{-20} \quad (-0.4\sigma)$	$D_{810}$	$2539^{+32}_{-35} \quad (+0.2\sigma)$	$f\sigma_8(0.51)$	$0.474^{+0.011}_{-0.010} \quad (+0.1\sigma)$
$A_{143 \times 217}^{\mathrm{PS}}$	$42^{+20}_{-20} \quad (-0.1\sigma)$	$D_{1420}$	$818^{+12}_{-13} \quad (+0.5\sigma)$	$\sigma_8(0.51)$	$0.621^{+0.012}_{-0.0093} \quad (+0.2\sigma)$
$A_{217}^{\mathrm{PS}}$	$115^{+20}_{-30} \quad (+0.0\sigma)$	$D_{2000}$	$231.3^{+4.1}_{-4.3} \quad (+0.7\sigma)$	$f\sigma_8(0.61)$	$0.4686^{+0.0099}_{-0.0094} \quad (+0.1\sigma)$
$A^{\mathrm{kSZ}}$	—	$n_{\mathrm{s},0.002}$	$0.966^{+0.010}_{-0.010} \quad (+0.1\sigma)$	$\sigma_8(0.61)$	$0.591^{+0.011}_{-0.0089} \quad (+0.2\sigma)$
$A_{100}^{\mathrm{dustTT}}$	$8.9^{+4.9}_{-4.8} \quad (-0.0\sigma)$	$Y_{\mathrm{P}}$	$0.2435^{+0.0089}_{-0.0099} \quad (-0.1\sigma)$	$f\sigma_8(2.33)$	$0.2980^{+0.0058}_{-0.0046} \quad (+0.2\sigma)$
$A_{143}^{\mathrm{dustTT}}$	$10.9^{+4.7}_{-4.4} \quad (+0.1\sigma)$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2448^{+0.0089}_{-0.0099} \quad (-0.1\sigma)$	$\sigma_8(2.33)$	$0.3072^{+0.0063}_{-0.0049} \quad (+0.2\sigma)$
$A_{143 \times 217}^{\mathrm{dustTT}}$	$18.6^{+8.3}_{-8.9} \quad (+0.1\sigma)$	Age/Gyr	$13.791^{+0.054}_{-0.055} \quad (-0.7\sigma)$	$f_{2000}^{143}$	$29^{+7}_{-7} \quad (-0.5\sigma)$
$A_{217}^{\mathrm{dustTT}}$	$94^{+20}_{-20} \quad (+0.1\sigma)$	$z_*$	$1089.75^{+0.63}_{-0.63} \quad (-0.9\sigma)$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5} \quad (-0.6\sigma)$
$A_{100}^{\mathrm{dustTE}}$	$0.116^{+0.094}_{-0.092}$	$r_*$	$144.60^{+0.57}_{-0.56} \quad (-0.7\sigma)$	$f_{2000}^{217}$	$106.8^{+4.5}_{-5.0} \quad (-0.5\sigma)$
$A_{100 \times 143}^{\mathrm{dustTE}}$	$0.134^{+0.080}_{-0.073}$	$100\theta_*$	$1.04118^{+0.00070}_{-0.00077} \quad (-0.0\sigma)$	$\chi_{\mathrm{lensing}}^2$	$9.05 \quad (\nu: 0.1) \quad (-0.3\sigma)$
$A_{100 \times 217}^{\mathrm{dustTE}}$	$0.48^{+0.22}_{-0.22}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.888^{+0.054}_{-0.055} \quad (-0.7\sigma)$	$\chi_{\mathrm{small}}^2$	$397.2 \quad (\nu: 1.9) \quad (+0.1\sigma)$
$A_{143}^{\mathrm{dustTE}}$	$0.22^{+0.14}_{-0.14}$	$z_{\mathrm{drag}}$	$1059.89^{+0.96}_{-0.87} \quad (+1.0\sigma)$	$\chi_{\mathrm{lowl}}^2$	$23.32 \quad (\nu: 0.3) \quad (+0.0\sigma)$
$A_{143 \times 217}^{\mathrm{dustTE}}$	$0.66^{+0.21}_{-0.21}$	$r_{\mathrm{drag}}$	$147.25^{+0.60}_{-0.61} \quad (-0.9\sigma)$	$\chi_{\mathrm{plik}}^2$	$2359.4 \quad (\nu: 17.0) \quad (+306.2\sigma)$
$A_{217}^{\mathrm{dustTE}}$	$2.08^{+0.68}_{-0.67}$	$k_{\mathrm{D}}$	$0.14080^{+0.00079}_{-0.00072} \quad (+1.1\sigma)$	$\chi_{\mathrm{Aver15}}^2$	$0.9 \quad (\nu: 0.7) \quad (-0.1\sigma)$
$c_{100}$	$0.9997^{+0.0016}_{-0.0015} \quad (+0.1\sigma)$	$100\theta_{\mathrm{D}}$	$0.16066^{+0.00054}_{-0.00053} \quad (-1.1\sigma)$	$\chi_{6\mathrm{DF}}^2$	$0.055 \quad (\nu: 0.0) \quad (-0.0\sigma)$
$c_{217}$	$0.9982^{+0.0016}_{-0.0016} \quad (-0.1\sigma)$	$z_{\mathrm{eq}}$	$3386^{+54}_{-54} \quad (+0.4\sigma)$	$\chi_{\mathrm{MGS}}^2$	$1.24 \quad (\nu: 0.1) \quad (-0.1\sigma)$
$H_0$	$67.6^{+1.1}_{-1.1} \quad (+0.2\sigma)$	$k_{\mathrm{eq}}$	$0.01033^{+0.00017}_{-0.00017} \quad (+0.4\sigma)$	$\chi_{\mathrm{DR12BAO}}^2$	$4.9 \quad (\nu: 0.9) \quad (+0.0\sigma)$
$\Omega_{\Lambda}$	$0.689^{+0.014}_{-0.015} \quad (-0.0\sigma)$	$100\theta_{\mathrm{eq}}$	$0.816^{+0.010}_{-0.010} \quad (-0.3\sigma)$	$\chi_{\mathrm{prior}}^2$	$11.5 \quad (\nu: 10.1) \quad (+1.2\sigma)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.015}_{-0.014} \quad (+0.0\sigma)$	$100\theta_{\mathrm{s,eq}}$	$0.4509^{+0.0053}_{-0.0052} \quad (-0.3\sigma)$	$\chi_{\mathrm{CMB}}^2$	$2789.0 \quad (\nu: 17.3) \quad (+297.3\sigma)$
$\Omega_{\mathrm{m}}h^2$	$0.1423^{+0.0023}_{-0.0023} \quad (+0.4\sigma)$	$H(0.15)$	$72.9^{+1.0}_{-0.93} \quad (+0.2\sigma)$	$\chi_{\mathrm{BAO}}^2$	$6.2 \quad (\nu: 0.6) \quad (+0.0\sigma)$
$\Omega_{\mathrm{m}}h^3$	$0.09627^{+0.00083}_{-0.00081} \quad (+0.9\sigma)$	$D_{\mathrm{M}}(0.15)$	$641.0^{+9.3}_{-9.7} \quad (-0.2\sigma)$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 2807.50; \Delta\bar{\chi}_{\mathrm{eff}}^2 = 1592.14; R - 1 = 0.02309$$



# 20.63 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_b h^2$	0.022378	$0.02228^{+0.00042}_{-0.00042}$	$\sigma_8$	0.8229	$0.808^{+0.020}_{-0.019}$	$100\theta_{s,eq}$	0.4516	$0.4503^{+0.0079}_{-0.0079}$
$\Omega_c h^2$	0.11902	$0.1196^{+0.0037}_{-0.0036}$	$S_8$	0.8360	$0.826^{+0.042}_{-0.042}$	$H(0.15)$	72.99	$72.7^{+1.4}_{-1.4}$
$100\theta_{MC}$	1.04099	$1.04081^{+0.00090}_{-0.00088}$	$\sigma_8 \Omega_m^{0.5}$	0.4579	$0.453^{+0.023}_{-0.023}$	$D_M(0.15)$	640.2	$643^{+14}_{-14}$
$\tau$	0.0706	$0.053^{+0.021}_{-0.022}$	$\sigma_8 \Omega_m^{0.25}$	0.6138	$0.605^{+0.021}_{-0.021}$	$H(0.38)$	83.07	$82.8^{+1.0}_{-0.99}$
$Y_P$	0.2447	$0.2438^{+0.0099}_{-0.0097}$	$\sigma_8/h^{0.5}$	0.9999	$0.984^{+0.031}_{-0.030}$	$D_M(0.38)$	1527.4	$1534^{+28}_{-28}$
$\ln(10^{10} A_s)$	3.0785	$3.038^{+0.044}_{-0.043}$	$r_{drag} h$	99.79	$99.2^{+2.8}_{-2.8}$	$H(0.51)$	89.77	$89.58^{+0.82}_{-0.78}$
$n_s$	0.9681	$0.965^{+0.013}_{-0.013}$	$\langle d^2 \rangle^{1/2}$	2.471	$2.434^{+0.074}_{-0.072}$	$D_M(0.51)$	1978.9	$1986^{+32}_{-33}$
$y_{cal}$	1.0030	$1.0004^{+0.0063}_{-0.0063}$	$z_{re}$	9.24	$7.5^{+2.1}_{-2.4}$	$H(0.61)$	95.38	$95.21^{+0.67}_{-0.63}$
$A_{100}^{PS}$	235	$240^{+60}_{-60}$	$10^9 A_s$	2.173	$2.086^{+0.093}_{-0.087}$	$D_M(0.61)$	2302.9	$2311^{+35}_{-35}$
$A_{143}^{PS}$	42.8	$39^{+20}_{-20}$	$10^9 A_s e^{-2\tau}$	1.8866	$1.877^{+0.031}_{-0.029}$	$H(2.33)$	235.93	$236.2^{+2.2}_{-2.2}$
$A_{217}^{PS}$	105.0	$102^{+30}_{-30}$	$D_{40}$	1234.2	$1227^{+34}_{-33}$	$D_M(2.33)$	5760.1	$5768^{+29}_{-31}$
$A_{217}^{CIB}$	40.7	$40^{+20}_{-20}$	$D_{220}$	5753	$5717^{+100}_{-98}$	$f\sigma_8(0.15)$	0.4627	$0.457^{+0.021}_{-0.021}$
$A_{143}^{tSZ}$	5.24	$< 8.83$	$D_{810}$	2548.6	$2534^{+35}_{-34}$	$\sigma_8(0.15)$	0.7605	$0.746^{+0.018}_{-0.017}$
$r_{143 \times 217}^{PS}$	0.674	$0.66^{+0.31}_{-0.33}$	$D_{1420}$	821.0	$816^{+12}_{-12}$	$f\sigma_8(0.38)$	0.4818	$0.475^{+0.017}_{-0.017}$
$r_{143 \times 217}^{CIB}$	0.73	—	$D_{2000}$	232.37	$230.3^{+4.1}_{-4.3}$	$\sigma_8(0.38)$	0.6744	$0.661^{+0.015}_{-0.014}$
$\xi^{tSZ \times CIB}$	0.54	—	$n_{s,0.002}$	0.9681	$0.965^{+0.013}_{-0.013}$	$f\sigma_8(0.51)$	0.4806	$0.473^{+0.015}_{-0.015}$
$A^{kSZ}$	1.7	—	$Y_P$	0.2447	$0.2438^{+0.0099}_{-0.0097}$	$\sigma_8(0.51)$	0.6312	$0.618^{+0.014}_{-0.013}$
$A_{100}^{dust}$	1.009	$1.01^{+0.49}_{-0.50}$	$Y_P^{BBN}$	0.2460	$0.245^{+0.010}_{-0.0097}$	$f\sigma_8(0.61)$	0.4756	$0.468^{+0.014}_{-0.014}$
$A_{143}^{dust}$	0.953	$0.96^{+0.44}_{-0.45}$	Age/Gyr	13.791	$13.808^{+0.067}_{-0.069}$	$\sigma_8(0.61)$	0.6006	$0.588^{+0.013}_{-0.013}$
$A_{217}^{dust}$	0.981	$0.97^{+0.27}_{-0.26}$	$z_*$	1089.80	$1089.94^{+0.82}_{-0.77}$	$f\sigma_8(2.33)$	0.3029	$0.2966^{+0.0068}_{-0.0066}$
$A_{143 \times 217}^{dust}$	0.997	$1.03^{+0.42}_{-0.41}$	$r_*$	144.68	$144.61^{+0.82}_{-0.82}$	$\sigma_8(2.33)$	0.3124	$0.3056^{+0.0072}_{-0.0070}$
$c_{100}$	0.99773	$0.9975^{+0.0028}_{-0.0027}$	$100\theta_*$	1.04119	$1.04105^{+0.00081}_{-0.00081}$	$f_{2000}^{143}$	28.8	$30^{+7}_{-7}$
$c_{217}$	1.00116	$1.0011^{+0.0041}_{-0.0039}$	$D_M(z_*)/\text{Gpc}$	13.896	$13.890^{+0.076}_{-0.076}$	$f_{2000}^{217}$	106.4	$106.8^{+5.1}_{-5.0}$
$c_{TE}$	0.9951	$0.996^{+0.013}_{-0.013}$	$z_{drag}$	1059.86	$1059.64^{+0.98}_{-1.0}$	$f_{2000}^{143 \times 217}$	31.2	$32^{+5}_{-5}$
$c_{EE}$	0.9916	$0.992^{+0.013}_{-0.013}$	$r_{drag}$	147.34	$147.30^{+0.83}_{-0.83}$	$\chi_{small}^2$	402.51	$396.9 (\nu: 1.4)$
$H_0$	67.73	$67.4^{+1.7}_{-1.6}$	$k_D$	0.14064	$0.14064^{+0.00096}_{-0.00096}$	$\chi_{lowl}^2$	23.31	$23.3 (\nu: 0.5)$
$\Omega_\Lambda$	0.6903	$0.686^{+0.022}_{-0.023}$	$100\theta_D$	0.16076	$0.16082^{+0.00065}_{-0.00059}$	$\chi_{CamSpec}^2$	11498.1	$11514.6 (\nu: 15.7)$
$\Omega_m$	0.3097	$0.314^{+0.023}_{-0.022}$	$z_{eq}$	3379	$3391^{+83}_{-81}$	$\chi_{Aver15}^2$	0.08	$0.9 (\nu: 0.8)$
$\Omega_m h^2$	0.14204	$0.1425^{+0.0035}_{-0.0034}$	$k_{eq}$	0.010313	$0.01035^{+0.00025}_{-0.00025}$	$\chi_{prior}^2$	3.4	$7.8 (\nu: 5.7)$
$\Omega_m h^3$	0.09620	$0.09604^{+0.00088}_{-0.00088}$	$100\theta_{eq}$	0.8175	$0.815^{+0.016}_{-0.016}$	$\chi_{CMB}^2$	11923.9	$11934.8 (\nu: 16.1)$

Best-fit  $\chi_{eff}^2 = 11927.35$ ;  $\bar{\chi}_{eff}^2 = 11943.52$ ;  $R - 1 = 0.01118$

$\chi_{eff}^2$ : Abund - Yp\_Aver2015: 0.08 CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 402.51 commander\_dx12\_v3.2\_29: 23.31 CamSpec like\_10.7HM\_1400\_unified: 11498.08



# 20.64 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_BAO

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02232^{+0.00039}_{-0.00039}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.448^{+0.018}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1528^{+21}_{-20}$
$\Omega_{\mathrm{c}} h^2$	$0.1189^{+0.0026}_{-0.0026}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.601^{+0.019}_{-0.018}$	$H(0.51)$	$89.73^{+0.63}_{-0.62}$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00083}_{-0.00085}$	$\sigma_8/h^{0.5}$	$0.979^{+0.028}_{-0.025}$	$D_{\mathrm{M}}(0.51)$	$1980^{+24}_{-24}$
$\tau$	$0.053^{+0.021}_{-0.021}$	$r_{\mathrm{drag}} h$	$99.8^{+2.1}_{-2.0}$	$H(0.61)$	$95.33^{+0.53}_{-0.52}$
$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.0098}$	$\langle d^2 \rangle^{1/2}$	$2.424^{+0.068}_{-0.061}$	$D_{\mathrm{M}}(0.61)$	$2304^{+26}_{-26}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.038^{+0.045}_{-0.041}$	$z_{\mathrm{re}}$	$7.6^{+2.1}_{-2.2}$	$H(2.33)$	$235.8^{+1.6}_{-1.6}$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.011}$	$10^9 A_{\mathrm{s}}$	$2.087^{+0.095}_{-0.085}$	$D_{\mathrm{M}}(2.33)$	$5763^{+25}_{-25}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0062}_{-0.0062}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.875^{+0.029}_{-0.027}$	$f\sigma_8(0.15)$	$0.453^{+0.017}_{-0.017}$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60}$	$D_{40}$	$1224^{+32}_{-31}$	$\sigma_8(0.15)$	$0.745^{+0.018}_{-0.016}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{220}$	$5721^{+98}_{-100}$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2534^{+34}_{-33}$	$\sigma_8(0.38)$	$0.660^{+0.016}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+12}_{-12}$	$f\sigma_8(0.51)$	$0.471^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.83$	$D_{2000}$	$230.4^{+3.9}_{-4.3}$	$\sigma_8(0.51)$	$0.618^{+0.015}_{-0.013}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.967^{+0.011}_{-0.011}$	$f\sigma_8(0.61)$	$0.466^{+0.013}_{-0.012}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.244^{+0.010}_{-0.0098}$	$\sigma_8(0.61)$	$0.588^{+0.014}_{-0.013}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.0098}$	$f\sigma_8(2.33)$	$0.2966^{+0.0070}_{-0.0064}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.798^{+0.057}_{-0.057}$	$\sigma_8(2.33)$	$0.3059^{+0.0072}_{-0.0067}$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.49}_{-0.51}$	$z_*$	$1089.83^{+0.68}_{-0.66}$	$f_{2000}^{143}$	$29^{+8}_{-7}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.46}_{-0.45}$	$r_*$	$144.75^{+0.65}_{-0.64}$	$f_{2000}^{217}$	$106.6^{+5.1}_{-4.9}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.28}_{-0.27}$	$100\theta_*$	$1.04113^{+0.00075}_{-0.00074}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.40}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.903^{+0.063}_{-0.061}$	$\chi_{\mathrm{simall}}^2$	$397.0 (\nu: 1.5)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$z_{\mathrm{drag}}$	$1059.70^{+0.96}_{-1.0}$	$\chi_{\mathrm{lowl}}^2$	$22.93 (\nu: 0.4)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.44^{+0.71}_{-0.67}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.7 (\nu: 15.9)$
$c_{TE}$	$0.997^{+0.012}_{-0.013}$	$k_{\mathrm{D}}$	$0.14053^{+0.00083}_{-0.00086}$	$\chi_{\mathrm{Aver15}}^2$	$0.9 (\nu: 0.8)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16080^{+0.00063}_{-0.00058}$	$\chi_{6\mathrm{DF}}^2$	$0.046 (\nu: 0.0)$
$H_0$	$67.7^{+1.2}_{-1.2}$	$z_{\mathrm{eq}}$	$3375^{+61}_{-61}$	$\chi_{\mathrm{MGS}}^2$	$1.36 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.690^{+0.016}_{-0.016}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00019}_{-0.00018}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 (\nu: 0.8)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.016}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.011}_{-0.011}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 5.8)$
$\Omega_{\mathrm{m}} h^2$	$0.1419^{+0.0025}_{-0.0025}$	$100\theta_{\mathrm{s,eq}}$	$0.4519^{+0.0060}_{-0.0058}$	$\chi_{\mathrm{BAO}}^2$	$6.0 (\nu: 0.5)$
$\Omega_{\mathrm{m}} h^3$	$0.09604^{+0.00088}_{-0.00085}$	$H(0.15)$	$73.0^{+1.0}_{-1.0}$	$\chi_{\mathrm{CMB}}^2$	$11934.6 (\nu: 15.8)$
$\sigma_8$	$0.806^{+0.020}_{-0.018}$	$D_{\mathrm{M}}(0.15)$	$641^{+10}_{-10}$		
$S_8$	$0.819^{+0.033}_{-0.032}$	$H(0.38)$	$83.03^{+0.77}_{-0.75}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11949.33; R - 1 = 0.01547$$



20.65 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02228^{+0.00042}_{-0.00041}$	$S_8$	$0.828^{+0.033}_{-0.033}$	$D_{\mathrm{M}}(0.15)$	$644^{+12}_{-13}$
$\Omega_{\mathrm{c}} h^2$	$0.1197^{+0.0031}_{-0.0031}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.454^{+0.018}_{-0.018}$	$H(0.38)$	$82.81^{+0.96}_{-0.88}$
$100\theta_{\mathrm{MC}}$	$1.04080^{+0.00091}_{-0.00086}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.016}_{-0.017}$	$D_{\mathrm{M}}(0.38)$	$1534^{+24}_{-25}$
$\tau$	$0.053^{+0.020}_{-0.020}$	$\sigma_8/h^{0.5}$	$0.986^{+0.023}_{-0.024}$	$H(0.51)$	$89.56^{+0.78}_{-0.71}$
$Y_{\mathrm{P}}$	$0.2437^{+0.0095}_{-0.0095}$	$r_{\mathrm{drag}} h$	$99.2^{+2.5}_{-2.4}$	$D_{\mathrm{M}}(0.51)$	$1987^{+29}_{-30}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.040^{+0.040}_{-0.039}$	$\langle d^2 \rangle^{1/2}$	$2.439^{+0.057}_{-0.057}$	$H(0.61)$	$95.20^{+0.63}_{-0.57}$
$n_{\mathrm{s}}$	$0.965^{+0.012}_{-0.012}$	$z_{\mathrm{re}}$	$7.6^{+1.9}_{-2.1}$	$D_{\mathrm{M}}(0.61)$	$2312^{+31}_{-32}$
$y_{\mathrm{cal}}$	$1.0005^{+0.0062}_{-0.0063}$	$10^9 A_{\mathrm{s}}$	$2.091^{+0.084}_{-0.080}$	$H(2.33)$	$236.3^{+1.9}_{-1.9}$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-60}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.878^{+0.028}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5769^{+28}_{-29}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{40}$	$1229^{+31}_{-32}$	$f\sigma_8(0.15)$	$0.458^{+0.016}_{-0.017}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-40}$	$D_{220}$	$5720^{+100}_{-100}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{810}$	$2535^{+34}_{-34}$	$f\sigma_8(0.38)$	$0.476^{+0.013}_{-0.014}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.82$	$D_{1420}$	$816^{+12}_{-12}$	$\sigma_8(0.38)$	$0.662^{+0.013}_{-0.013}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33}$	$D_{2000}$	$230.3^{+4.0}_{-4.4}$	$f\sigma_8(0.51)$	$0.474^{+0.012}_{-0.012}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.012}_{-0.012}$	$\sigma_8(0.51)$	$0.619^{+0.012}_{-0.012}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2437^{+0.0095}_{-0.0095}$	$f\sigma_8(0.61)$	$0.469^{+0.011}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2450^{+0.0095}_{-0.0096}$	$\sigma_8(0.61)$	$0.589^{+0.012}_{-0.012}$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.49}_{-0.51}$	Age/Gyr	$13.809^{+0.064}_{-0.067}$	$f\sigma_8(2.33)$	$0.2969^{+0.0062}_{-0.0060}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.45}$	$z_*$	$1089.95^{+0.77}_{-0.73}$	$\sigma_8(2.33)$	$0.3059^{+0.0066}_{-0.0067}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.28}_{-0.26}$	$r_*$	$144.58^{+0.72}_{-0.72}$	$f_{2000}^{143}$	$30^{+7}_{-7}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$100\theta_*$	$1.04103^{+0.00080}_{-0.00077}$	$f_{2000}^{217}$	$106.8^{+5.0}_{-4.9}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.888^{+0.067}_{-0.069}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$c_{217}$	$1.0011^{+0.0042}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.6^{+1.0}_{-1.0}$	$\chi_{\mathrm{lensing}}^2$	$9.28 (\nu: 0.2)$
$c_{TE}$	$0.996^{+0.013}_{-0.012}$	$r_{\mathrm{drag}}$	$147.27^{+0.73}_{-0.74}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.3)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.14067^{+0.00086}_{-0.00092}$	$\chi_{\mathrm{lowl}}^2$	$23.40 (\nu: 0.4)$
$H_0$	$67.3^{+1.5}_{-1.4}$	$100\theta_{\mathrm{D}}$	$0.16081^{+0.00065}_{-0.00057}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.0 (\nu: 14.8)$
$\Omega_{\Lambda}$	$0.685^{+0.019}_{-0.020}$	$z_{\mathrm{eq}}$	$3393^{+70}_{-70}$	$\chi_{\mathrm{Aver15}}^2$	$0.9 (\nu: 0.8)$
$\Omega_{\mathrm{m}}$	$0.315^{+0.020}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01036^{+0.00021}_{-0.00022}$	$\chi_{\mathrm{prior}}^2$	$7.9 (\nu: 5.7)$
$\Omega_{\mathrm{m}} h^2$	$0.1426^{+0.0029}_{-0.0029}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.014}_{-0.013}$	$\chi_{\mathrm{CMB}}^2$	$11943.6 (\nu: 16.1)$
$\Omega_{\mathrm{m}} h^3$	$0.09605^{+0.00088}_{-0.00087}$	$100\theta_{\mathrm{s,eq}}$	$0.4501^{+0.0069}_{-0.0066}$		
$\sigma_8$	$0.809^{+0.016}_{-0.016}$	$H(0.15)$	$72.6^{+1.3}_{-1.2}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11952.40; R - 1 = 0.01479$$



20.66 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_BAO\_lensing

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02232^{+0.00039}_{-0.00039}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.015}_{-0.015}$	$D_{\mathrm{M}}(0.38)$	$1529^{+19}_{-20}$
$\Omega_{\mathrm{c}} h^2$	$0.1191^{+0.0025}_{-0.0024}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.015}_{-0.015}$	$H(0.51)$	$89.70^{+0.62}_{-0.59}$
$100\theta_{\mathrm{MC}}$	$1.04089^{+0.00084}_{-0.00085}$	$\sigma_8/h^{0.5}$	$0.982^{+0.022}_{-0.021}$	$D_{\mathrm{M}}(0.51)$	$1981^{+23}_{-23}$
$\tau$	$0.055^{+0.019}_{-0.019}$	$r_{\mathrm{drag}} h$	$99.7^{+2.0}_{-1.9}$	$H(0.61)$	$95.31^{+0.52}_{-0.51}$
$Y_{\mathrm{P}}$	$0.2439^{+0.0097}_{-0.0097}$	$\langle d^2 \rangle^{1/2}$	$2.432^{+0.054}_{-0.052}$	$D_{\mathrm{M}}(0.61)$	$2305^{+25}_{-25}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.042^{+0.039}_{-0.038}$	$z_{\mathrm{re}}$	$7.7^{+1.9}_{-2.0}$	$H(2.33)$	$235.9^{+1.5}_{-1.5}$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.011}$	$10^9 A_{\mathrm{s}}$	$2.096^{+0.084}_{-0.078}$	$D_{\mathrm{M}}(2.33)$	$5764^{+25}_{-25}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0061}_{-0.0061}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.876^{+0.027}_{-0.027}$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.014}$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60}$	$D_{40}$	$1226^{+30}_{-30}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.014}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{220}$	$5725^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.473^{+0.012}_{-0.012}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2535^{+33}_{-34}$	$\sigma_8(0.38)$	$0.662^{+0.013}_{-0.013}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$816^{+12}_{-12}$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.011}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.80$	$D_{2000}$	$230.5^{+3.9}_{-4.2}$	$\sigma_8(0.51)$	$0.619^{+0.012}_{-0.012}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.011}$	$f\sigma_8(0.61)$	$0.467^{+0.011}_{-0.010}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2439^{+0.0097}_{-0.0097}$	$\sigma_8(0.61)$	$0.589^{+0.012}_{-0.011}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2452^{+0.0098}_{-0.0098}$	$f\sigma_8(2.33)$	$0.2973^{+0.0061}_{-0.0057}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.799^{+0.057}_{-0.058}$	$\sigma_8(2.33)$	$0.3065^{+0.0064}_{-0.0061}$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.49}_{-0.50}$	$z_*$	$1089.84^{+0.67}_{-0.65}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.46}_{-0.44}$	$r_*$	$144.71^{+0.60}_{-0.59}$	$f_{2000}^{217}$	$106.6^{+5.0}_{-5.0}$
$A_{217}^{\mathrm{dust}}$	$0.98^{+0.28}_{-0.27}$	$100\theta_*$	$1.04112^{+0.00076}_{-0.00073}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.900^{+0.058}_{-0.057}$	$\chi_{\mathrm{lensing}}^2$	$9.29 (\nu: 0.3)$
$c_{100}$	$0.9975^{+0.0029}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.71^{+0.99}_{-1.0}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.6)$
$c_{217}$	$1.0011^{+0.0042}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.40^{+0.64}_{-0.63}$	$\chi_{\mathrm{lowl}}^2$	$23.11 (\nu: 0.3)$
$c_{TE}$	$0.996^{+0.013}_{-0.012}$	$k_{\mathrm{D}}$	$0.14057^{+0.00080}_{-0.00085}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.1 (\nu: 15.0)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16079^{+0.00063}_{-0.00057}$	$\chi_{\mathrm{Aver15}}^2$	$0.9 (\nu: 0.8)$
$H_0$	$67.6^{+1.2}_{-1.1}$	$z_{\mathrm{eq}}$	$3379^{+56}_{-55}$	$\chi_{6\mathrm{DF}}^2$	$0.050 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.689^{+0.015}_{-0.015}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00017}_{-0.00017}$	$\chi_{\mathrm{MGS}}^2$	$1.29 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.311^{+0.015}_{-0.015}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.010}_{-0.010}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 0.8)$
$\Omega_{\mathrm{m}} h^2$	$0.1420^{+0.0024}_{-0.0023}$	$100\theta_{\mathrm{s,eq}}$	$0.4515^{+0.0054}_{-0.0054}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 5.8)$
$\Omega_{\mathrm{m}} h^3$	$0.09606^{+0.00088}_{-0.00086}$	$H(0.15)$	$72.9^{+1.0}_{-0.96}$	$\chi_{\mathrm{CMB}}^2$	$11943.5 (\nu: 15.9)$
$\sigma_8$	$0.808^{+0.016}_{-0.015}$	$D_{\mathrm{M}}(0.15)$	$641.1^{+9.7}_{-9.8}$	$\chi_{\mathrm{BAO}}^2$	$6.1 (\nu: 0.5)$
$S_8$	$0.822^{+0.028}_{-0.027}$	$H(0.38)$	$83.00^{+0.76}_{-0.72}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11958.34; R - 1 = 0.01579$$



20.67 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02228^{+0.00042}_{-0.00042}$	$\sigma_8$	$0.809^{+0.019}_{-0.017}$	$100\theta_{\mathrm{s,eq}}$	$0.4505^{+0.0079}_{-0.0078}$
$\Omega_{\mathrm{c}} h^2$	$0.1196^{+0.0036}_{-0.0036}$	$S_8$	$0.827^{+0.042}_{-0.042}$	$H(0.15)$	$72.7^{+1.4}_{-1.3}$
$100\theta_{\mathrm{MC}}$	$1.04082^{+0.00091}_{-0.00088}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.453^{+0.023}_{-0.023}$	$D_{\mathrm{M}}(0.15)$	$643^{+14}_{-14}$
$\tau$	$0.054^{+0.018}_{-0.013}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.605^{+0.021}_{-0.021}$	$H(0.38)$	$82.9^{+1.0}_{-0.97}$
$Y_{\mathrm{P}}$	$0.2438^{+0.0099}_{-0.0096}$	$\sigma_8/h^{0.5}$	$0.985^{+0.030}_{-0.029}$	$D_{\mathrm{M}}(0.38)$	$1533^{+27}_{-28}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.041}_{-0.029}$	$r_{\mathrm{drag}} h$	$99.3^{+2.8}_{-2.8}$	$H(0.51)$	$89.59^{+0.81}_{-0.76}$
$n_{\mathrm{s}}$	$0.965^{+0.013}_{-0.012}$	$\langle d^2 \rangle^{1/2}$	$2.437^{+0.072}_{-0.071}$	$D_{\mathrm{M}}(0.51)$	$1986^{+32}_{-33}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0063}_{-0.0063}$	$z_{\mathrm{re}}$	$< 9.41$	$H(0.61)$	$95.23^{+0.67}_{-0.61}$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-60}$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.088}_{-0.060}$	$D_{\mathrm{M}}(0.61)$	$2310^{+34}_{-35}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.877^{+0.030}_{-0.029}$	$H(2.33)$	$236.2^{+2.2}_{-2.2}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{40}$	$1227^{+34}_{-33}$	$D_{\mathrm{M}}(2.33)$	$5768^{+29}_{-31}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{220}$	$5717^{+100}_{-98}$	$f\sigma_8(0.15)$	$0.457^{+0.021}_{-0.022}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.83$	$D_{810}$	$2534^{+34}_{-34}$	$\sigma_8(0.15)$	$0.747^{+0.017}_{-0.015}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.31}_{-0.33}$	$D_{1420}$	$816^{+12}_{-12}$	$f\sigma_8(0.38)$	$0.475^{+0.017}_{-0.018}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$D_{2000}$	$230.3^{+4.1}_{-4.3}$	$\sigma_8(0.38)$	$0.662^{+0.014}_{-0.012}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.013}_{-0.012}$	$f\sigma_8(0.51)$	$0.473^{+0.015}_{-0.015}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}$	$0.2438^{+0.0099}_{-0.0096}$	$\sigma_8(0.51)$	$0.619^{+0.013}_{-0.010}$
$A_{100}^{\mathrm{dust}}$	$1.01^{+0.49}_{-0.50}$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.0097}$	$f\sigma_8(0.61)$	$0.468^{+0.014}_{-0.014}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.44}_{-0.45}$	Age/Gyr	$13.807^{+0.067}_{-0.069}$	$\sigma_8(0.61)$	$0.589^{+0.013}_{-0.0097}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$z_*$	$1089.93^{+0.80}_{-0.78}$	$f\sigma_8(2.33)$	$0.2970^{+0.0065}_{-0.0048}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.41}$	$r_*$	$144.62^{+0.81}_{-0.82}$	$\sigma_8(2.33)$	$0.3061^{+0.0068}_{-0.0049}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$100\theta_*$	$1.04105^{+0.00082}_{-0.00081}$	$f_{2000}^{143}$	$30^{+7}_{-7}$
$c_{217}$	$1.0011^{+0.0041}_{-0.0039}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.891^{+0.076}_{-0.076}$	$f_{2000}^{217}$	$106.7^{+5.0}_{-5.0}$
$c_{TE}$	$0.996^{+0.013}_{-0.013}$	$z_{\mathrm{drag}}$	$1059.7^{+1.0}_{-1.0}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$r_{\mathrm{drag}}$	$147.31^{+0.84}_{-0.83}$	$\chi_{\mathrm{simall}}^2$	$396.8 (\nu: 1.4)$
$H_0$	$67.4^{+1.6}_{-1.6}$	$k_{\mathrm{D}}$	$0.14063^{+0.00096}_{-0.00096}$	$\chi_{\mathrm{lowl}}^2$	$23.3 (\nu: 0.5)$
$\Omega_{\Lambda}$	$0.686^{+0.022}_{-0.023}$	$100\theta_{\mathrm{D}}$	$0.16081^{+0.00064}_{-0.00059}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.4 (\nu: 15.6)$
$\Omega_{\mathrm{m}}$	$0.314^{+0.023}_{-0.022}$	$z_{\mathrm{eq}}$	$3390^{+83}_{-81}$	$\chi_{\mathrm{Aver15}}^2$	$0.9 (\nu: 0.8)$
$\Omega_{\mathrm{m}} h^2$	$0.1425^{+0.0035}_{-0.0034}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00025}_{-0.00025}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 5.6)$
$\Omega_{\mathrm{m}} h^3$	$0.09604^{+0.00088}_{-0.00089}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.015}_{-0.015}$	$\chi_{\mathrm{CMB}}^2$	$11934.5 (\nu: 15.7)$
$\bar{\chi}_{\mathrm{eff}}^2 = 11943.23; R - 1 = 0.01041$					



20.68 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_BAO\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02233^{+0.00039}_{-0.00039}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.449^{+0.018}_{-0.018}$	$D_{\mathrm{M}}(0.38)$	$1528^{+20}_{-20}$
$\Omega_{\mathrm{c}} h^2$	$0.1189^{+0.0026}_{-0.0026}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.602^{+0.018}_{-0.017}$	$H(0.51)$	$89.73^{+0.63}_{-0.62}$
$100\theta_{\mathrm{MC}}$	$1.04091^{+0.00084}_{-0.00086}$	$\sigma_8/h^{0.5}$	$0.980^{+0.027}_{-0.025}$	$D_{\mathrm{M}}(0.51)$	$1980^{+24}_{-24}$
$\tau$	$0.055^{+0.019}_{-0.013}$	$r_{\mathrm{drag}} h$	$99.8^{+2.1}_{-2.0}$	$H(0.61)$	$95.33^{+0.53}_{-0.52}$
$Y_{\mathrm{P}}$	$0.2440^{+0.0099}_{-0.0098}$	$\langle d^2 \rangle^{1/2}$	$2.427^{+0.066}_{-0.059}$	$D_{\mathrm{M}}(0.61)$	$2304^{+26}_{-26}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.041^{+0.043}_{-0.030}$	$z_{\mathrm{re}}$	$< 9.47$	$H(2.33)$	$235.8^{+1.6}_{-1.7}$
$n_{\mathrm{s}}$	$0.967^{+0.011}_{-0.011}$	$10^9 A_{\mathrm{s}}$	$2.092^{+0.092}_{-0.062}$	$D_{\mathrm{M}}(2.33)$	$5763^{+25}_{-25}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0061}_{-0.0062}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.874^{+0.028}_{-0.027}$	$f\sigma_8(0.15)$	$0.454^{+0.017}_{-0.017}$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60}$	$D_{40}$	$1224^{+32}_{-30}$	$\sigma_8(0.15)$	$0.746^{+0.017}_{-0.014}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{220}$	$5721^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.472^{+0.015}_{-0.014}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2534^{+34}_{-34}$	$\sigma_8(0.38)$	$0.661^{+0.015}_{-0.011}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{1420}$	$816^{+12}_{-12}$	$f\sigma_8(0.51)$	$0.471^{+0.014}_{-0.013}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.82$	$D_{2000}$	$230.4^{+4.0}_{-4.2}$	$\sigma_8(0.51)$	$0.619^{+0.014}_{-0.010}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.32}_{-0.34}$	$n_{\mathrm{s},0.002}$	$0.967^{+0.011}_{-0.011}$	$f\sigma_8(0.61)$	$0.466^{+0.013}_{-0.012}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2440^{+0.0099}_{-0.0098}$	$\sigma_8(0.61)$	$0.589^{+0.014}_{-0.0096}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.245^{+0.010}_{-0.0098}$	$f\sigma_8(2.33)$	$0.2970^{+0.0068}_{-0.0049}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.797^{+0.057}_{-0.057}$	$\sigma_8(2.33)$	$0.3063^{+0.0069}_{-0.0049}$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.48}_{-0.49}$	$z_*$	$1089.82^{+0.68}_{-0.66}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$A_{143}^{\mathrm{dust}}$	$0.97^{+0.46}_{-0.44}$	$r_*$	$144.76^{+0.65}_{-0.64}$	$f_{2000}^{217}$	$106.6^{+5.2}_{-5.0}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.28}_{-0.26}$	$100\theta_*$	$1.04113^{+0.00075}_{-0.00074}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.41}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.904^{+0.063}_{-0.061}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.5)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0028}$	$z_{\mathrm{drag}}$	$1059.71^{+0.99}_{-1.0}$	$\chi_{\mathrm{lowl}}^2$	$22.95 (\nu: 0.4)$
$c_{217}$	$1.0011^{+0.0043}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.44^{+0.71}_{-0.67}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.5 (\nu: 15.8)$
$c_{TE}$	$0.997^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.14052^{+0.00084}_{-0.00086}$	$\chi_{\mathrm{Aver15}}^2$	$0.9 (\nu: 0.8)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16079^{+0.00063}_{-0.00058}$	$\chi_{6\mathrm{DF}}^2$	$0.044 (\nu: 0.0)$
$H_0$	$67.7^{+1.2}_{-1.2}$	$z_{\mathrm{eq}}$	$3375^{+60}_{-61}$	$\chi_{\mathrm{MGS}}^2$	$1.37 (\nu: 0.1)$
$\Omega_{\Lambda}$	$0.690^{+0.016}_{-0.016}$	$k_{\mathrm{eq}}$	$0.01030^{+0.00018}_{-0.00019}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.6 (\nu: 0.8)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.016}_{-0.016}$	$100\theta_{\mathrm{eq}}$	$0.818^{+0.012}_{-0.011}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 5.8)$
$\Omega_{\mathrm{m}} h^2$	$0.1419^{+0.0025}_{-0.0026}$	$100\theta_{\mathrm{s,eq}}$	$0.4520^{+0.0059}_{-0.0058}$	$\chi_{\mathrm{BAO}}^2$	$5.97 (\nu: 0.5)$
$\Omega_{\mathrm{m}} h^3$	$0.09605^{+0.00089}_{-0.00084}$	$H(0.15)$	$73.0^{+1.0}_{-1.0}$	$\chi_{\mathrm{CMB}}^2$	$11934.4 (\nu: 15.6)$
$\sigma_8$	$0.807^{+0.019}_{-0.016}$	$D_{\mathrm{M}}(0.15)$	$640^{+10}_{-9.9}$		
$S_8$	$0.819^{+0.033}_{-0.033}$	$H(0.38)$	$83.04^{+0.78}_{-0.76}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11949.07; R - 1 = 0.01536$$



## 20.69 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}}h^2$	$0.02228^{+0.00041}_{-0.00042}$	$S_8$	$0.828^{+0.032}_{-0.033}$	$D_{\mathrm{M}}(0.15)$	$643^{+12}_{-12}$
$\Omega_{\mathrm{c}}h^2$	$0.1196^{+0.0030}_{-0.0031}$	$\sigma_8\Omega_{\mathrm{m}}^{0.5}$	$0.454^{+0.018}_{-0.018}$	$H(0.38)$	$82.83^{+0.95}_{-0.84}$
$100\theta_{\mathrm{MC}}$	$1.04081^{+0.00090}_{-0.00087}$	$\sigma_8\Omega_{\mathrm{m}}^{0.25}$	$0.606^{+0.016}_{-0.016}$	$D_{\mathrm{M}}(0.38)$	$1534^{+23}_{-25}$
$\tau$	$0.055^{+0.018}_{-0.013}$	$\sigma_8/h^{0.5}$	$0.986^{+0.023}_{-0.023}$	$H(0.51)$	$89.58^{+0.77}_{-0.68}$
$Y_{\mathrm{P}}$	$0.2437^{+0.0095}_{-0.0096}$	$r_{\mathrm{drag}}h$	$99.2^{+2.5}_{-2.3}$	$D_{\mathrm{M}}(0.51)$	$1986^{+28}_{-30}$
$\ln(10^{10}A_{\mathrm{s}})$	$3.042^{+0.038}_{-0.028}$	$\langle d^2 \rangle^{1/2}$	$2.441^{+0.057}_{-0.056}$	$H(0.61)$	$95.21^{+0.62}_{-0.56}$
$n_{\mathrm{s}}$	$0.965^{+0.012}_{-0.011}$	$z_{\mathrm{re}}$	$< 9.38$	$D_{\mathrm{M}}(0.61)$	$2311^{+30}_{-32}$
$y_{\mathrm{cal}}$	$1.0004^{+0.0062}_{-0.0063}$	$10^9 A_{\mathrm{s}}$	$2.095^{+0.081}_{-0.057}$	$H(2.33)$	$236.2^{+1.8}_{-1.9}$
$A_{100}^{\mathrm{PS}}$	$240^{+60}_{-60}$	$10^9 A_{\mathrm{s}}e^{-2\tau}$	$1.878^{+0.027}_{-0.028}$	$D_{\mathrm{M}}(2.33)$	$5768^{+28}_{-30}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{40}$	$1229^{+31}_{-31}$	$f\sigma_8(0.15)$	$0.458^{+0.016}_{-0.017}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{220}$	$5720^{+100}_{-100}$	$\sigma_8(0.15)$	$0.748^{+0.014}_{-0.012}$
$A_{217}^{\mathrm{CIB}}$	$40^{+20}_{-20}$	$D_{810}$	$2534^{+33}_{-34}$	$f\sigma_8(0.38)$	$0.476^{+0.013}_{-0.014}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.77$	$D_{1420}$	$816^{+12}_{-12}$	$\sigma_8(0.38)$	$0.662^{+0.012}_{-0.010}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.32}_{-0.33}$	$D_{2000}$	$230.3^{+4.0}_{-4.4}$	$f\sigma_8(0.51)$	$0.474^{+0.011}_{-0.012}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$n_{\mathrm{s},0.002}$	$0.965^{+0.012}_{-0.011}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0093}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2437^{+0.0095}_{-0.0096}$	$f\sigma_8(0.61)$	$0.469^{+0.010}_{-0.011}$
$A^{\mathrm{kSZ}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2450^{+0.0095}_{-0.0096}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0088}$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.49}_{-0.51}$	Age/Gyr	$13.808^{+0.063}_{-0.066}$	$f\sigma_8(2.33)$	$0.2972^{+0.0059}_{-0.0045}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.44}_{-0.45}$	$z_*$	$1089.93^{+0.73}_{-0.72}$	$\sigma_8(2.33)$	$0.3063^{+0.0064}_{-0.0048}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.27}_{-0.26}$	$r_*$	$144.60^{+0.72}_{-0.71}$	$f_{2000}^{143}$	$30^{+7}_{-7}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.42}_{-0.42}$	$100\theta_*$	$1.04104^{+0.00080}_{-0.00077}$	$f_{2000}^{217}$	$106.7^{+4.9}_{-4.9}$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.890^{+0.068}_{-0.068}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$c_{217}$	$1.0011^{+0.0042}_{-0.0040}$	$z_{\mathrm{drag}}$	$1059.7^{+1.0}_{-1.0}$	$\chi_{\mathrm{lensing}}^2$	$9.23 (\nu: 0.2)$
$c_{TE}$	$0.996^{+0.012}_{-0.012}$	$r_{\mathrm{drag}}$	$147.29^{+0.72}_{-0.73}$	$\chi_{\mathrm{simall}}^2$	$396.9 (\nu: 1.4)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$k_{\mathrm{D}}$	$0.14066^{+0.00087}_{-0.00091}$	$\chi_{\mathrm{lowl}}^2$	$23.38 (\nu: 0.4)$
$H_0$	$67.4^{+1.5}_{-1.3}$	$100\theta_{\mathrm{D}}$	$0.16081^{+0.00063}_{-0.00057}$	$\chi_{\mathrm{CamSpec}}^2$	$11513.9 (\nu: 14.7)$
$\Omega_{\Lambda}$	$0.686^{+0.019}_{-0.019}$	$z_{\mathrm{eq}}$	$3392^{+68}_{-69}$	$\chi_{\mathrm{Aver15}}^2$	$0.9 (\nu: 0.8)$
$\Omega_{\mathrm{m}}$	$0.314^{+0.019}_{-0.019}$	$k_{\mathrm{eq}}$	$0.01035^{+0.00021}_{-0.00021}$	$\chi_{\mathrm{prior}}^2$	$7.9 (\nu: 5.7)$
$\Omega_{\mathrm{m}}h^2$	$0.1426^{+0.0028}_{-0.0029}$	$100\theta_{\mathrm{eq}}$	$0.815^{+0.013}_{-0.013}$	$\chi_{\mathrm{CMB}}^2$	$11943.4 (\nu: 15.7)$
$\Omega_{\mathrm{m}}h^3$	$0.09605^{+0.00088}_{-0.00089}$	$100\theta_{\mathrm{s,eq}}$	$0.4503^{+0.0069}_{-0.0064}$		
$\sigma_8$	$0.809^{+0.015}_{-0.014}$	$H(0.15)$	$72.7^{+1.3}_{-1.2}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11952.14; R - 1 = 0.01491$$



20.70 base\_yhe\_CamSpecHM\_TTTEEE\_lowl\_lowE\_Aver15\_post\_BAO\_lensing\_zre6p5

Parameter	99% limits	Parameter	99% limits	Parameter	99% limits
$\Omega_{\mathrm{b}} h^2$	$0.02233^{+0.00039}_{-0.00039}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	$0.450^{+0.015}_{-0.015}$	$D_{\mathrm{M}}(0.38)$	$1529^{+19}_{-20}$
$\Omega_{\mathrm{c}} h^2$	$0.1190^{+0.0024}_{-0.0024}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	$0.603^{+0.015}_{-0.014}$	$H(0.51)$	$89.71^{+0.62}_{-0.60}$
$100\theta_{\mathrm{MC}}$	$1.04089^{+0.00084}_{-0.00085}$	$\sigma_8/h^{0.5}$	$0.983^{+0.022}_{-0.021}$	$D_{\mathrm{M}}(0.51)$	$1981^{+23}_{-23}$
$\tau$	$0.056^{+0.018}_{-0.014}$	$r_{\mathrm{drag}} h$	$99.7^{+1.9}_{-1.9}$	$H(0.61)$	$95.32^{+0.52}_{-0.51}$
$Y_{\mathrm{P}}$	$0.2439^{+0.0097}_{-0.0097}$	$\langle d^2 \rangle^{1/2}$	$2.433^{+0.053}_{-0.051}$	$D_{\mathrm{M}}(0.61)$	$2305^{+25}_{-25}$
$\ln(10^{10} A_{\mathrm{s}})$	$3.044^{+0.038}_{-0.029}$	$z_{\mathrm{re}}$	$< 9.46$	$H(2.33)$	$235.9^{+1.5}_{-1.5}$
$n_{\mathrm{s}}$	$0.966^{+0.011}_{-0.010}$	$10^9 A_{\mathrm{s}}$	$2.099^{+0.082}_{-0.060}$	$D_{\mathrm{M}}(2.33)$	$5764^{+25}_{-25}$
$y_{\mathrm{cal}}$	$1.0006^{+0.0060}_{-0.0061}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	$1.876^{+0.027}_{-0.027}$	$f\sigma_8(0.15)$	$0.455^{+0.014}_{-0.014}$
$A_{100}^{\mathrm{PS}}$	$239^{+60}_{-60}$	$D_{40}$	$1226^{+30}_{-30}$	$\sigma_8(0.15)$	$0.747^{+0.015}_{-0.012}$
$A_{143}^{\mathrm{PS}}$	$39^{+20}_{-20}$	$D_{220}$	$5725^{+100}_{-100}$	$f\sigma_8(0.38)$	$0.474^{+0.012}_{-0.012}$
$A_{217}^{\mathrm{PS}}$	$102^{+30}_{-30}$	$D_{810}$	$2535^{+33}_{-34}$	$\sigma_8(0.38)$	$0.662^{+0.013}_{-0.010}$
$A_{217}^{\mathrm{CIB}}$	$39^{+20}_{-20}$	$D_{1420}$	$816^{+11}_{-12}$	$f\sigma_8(0.51)$	$0.472^{+0.011}_{-0.010}$
$A_{143}^{\mathrm{tSZ}}$	$< 8.77$	$D_{2000}$	$230.5^{+3.9}_{-4.1}$	$\sigma_8(0.51)$	$0.620^{+0.012}_{-0.0095}$
$r_{143 \times 217}^{\mathrm{PS}}$	$0.66^{+0.32}_{-0.33}$	$n_{\mathrm{s},0.002}$	$0.966^{+0.011}_{-0.010}$	$f\sigma_8(0.61)$	$0.467^{+0.010}_{-0.0095}$
$r_{143 \times 217}^{\mathrm{CIB}}$	—	$Y_{\mathrm{P}}$	$0.2439^{+0.0097}_{-0.0097}$	$\sigma_8(0.61)$	$0.590^{+0.011}_{-0.0090}$
$\xi^{\mathrm{tSZ} \times \mathrm{CIB}}$	—	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	$0.2452^{+0.0097}_{-0.0098}$	$f\sigma_8(2.33)$	$0.2975^{+0.0060}_{-0.0046}$
$A^{\mathrm{kSZ}}$	—	Age/Gyr	$13.799^{+0.057}_{-0.058}$	$\sigma_8(2.33)$	$0.3067^{+0.0062}_{-0.0048}$
$A_{100}^{\mathrm{dust}}$	$1.00^{+0.49}_{-0.50}$	$z_*$	$1089.84^{+0.67}_{-0.65}$	$f_{2000}^{143}$	$29^{+7}_{-7}$
$A_{143}^{\mathrm{dust}}$	$0.96^{+0.45}_{-0.44}$	$r_*$	$144.72^{+0.60}_{-0.59}$	$f_{2000}^{217}$	$106.6^{+5.0}_{-5.0}$
$A_{217}^{\mathrm{dust}}$	$0.97^{+0.28}_{-0.27}$	$100\theta_*$	$1.04112^{+0.00077}_{-0.00073}$	$f_{2000}^{143 \times 217}$	$32^{+5}_{-5}$
$A_{143 \times 217}^{\mathrm{dust}}$	$1.03^{+0.43}_{-0.42}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	$13.900^{+0.057}_{-0.057}$	$\chi_{\mathrm{lensing}}^2$	$9.23 (\nu: 0.2)$
$c_{100}$	$0.9975^{+0.0028}_{-0.0027}$	$z_{\mathrm{drag}}$	$1059.71^{+0.98}_{-1.0}$	$\chi_{\mathrm{simall}}^2$	$397.1 (\nu: 1.6)$
$c_{217}$	$1.0011^{+0.0043}_{-0.0040}$	$r_{\mathrm{drag}}$	$147.40^{+0.63}_{-0.63}$	$\chi_{\mathrm{lowl}}^2$	$23.11 (\nu: 0.3)$
$c_{TE}$	$0.996^{+0.012}_{-0.012}$	$k_{\mathrm{D}}$	$0.14056^{+0.00080}_{-0.00085}$	$\chi_{\mathrm{CamSpec}}^2$	$11514.0 (\nu: 14.9)$
$c_{EE}$	$0.992^{+0.013}_{-0.013}$	$100\theta_{\mathrm{D}}$	$0.16079^{+0.00063}_{-0.00058}$	$\chi_{\mathrm{Aver15}}^2$	$0.9 (\nu: 0.8)$
$H_0$	$67.6^{+1.1}_{-1.1}$	$z_{\mathrm{eq}}$	$3378^{+55}_{-55}$	$\chi_{6\mathrm{DF}}^2$	$0.048 (\nu: 0.0)$
$\Omega_{\Lambda}$	$0.690^{+0.015}_{-0.015}$	$k_{\mathrm{eq}}$	$0.01031^{+0.00017}_{-0.00017}$	$\chi_{\mathrm{MGS}}^2$	$1.30 (\nu: 0.1)$
$\Omega_{\mathrm{m}}$	$0.310^{+0.015}_{-0.015}$	$100\theta_{\mathrm{eq}}$	$0.817^{+0.010}_{-0.010}$	$\chi_{\mathrm{DR12BAO}}^2$	$4.7 (\nu: 0.8)$
$\Omega_{\mathrm{m}} h^2$	$0.1420^{+0.0023}_{-0.0023}$	$100\theta_{\mathrm{s,eq}}$	$0.4516^{+0.0053}_{-0.0053}$	$\chi_{\mathrm{prior}}^2$	$7.8 (\nu: 5.8)$
$\Omega_{\mathrm{m}} h^3$	$0.09606^{+0.00088}_{-0.00086}$	$H(0.15)$	$72.9^{+1.0}_{-0.95}$	$\chi_{\mathrm{CMB}}^2$	$11943.4 (\nu: 15.6)$
$\sigma_8$	$0.808^{+0.016}_{-0.014}$	$D_{\mathrm{M}}(0.15)$	$641.0^{+9.6}_{-9.7}$	$\chi_{\mathrm{BAO}}^2$	$6.02 (\nu: 0.5)$
$S_8$	$0.822^{+0.028}_{-0.027}$	$H(0.38)$	$83.00^{+0.75}_{-0.72}$		

$$\bar{\chi}_{\mathrm{eff}}^2 = 11958.15; R - 1 = 0.01663$$



# 20.71 base\_yhe\_CleanedCamSpecHM\_TT\_lowl\_lowE

Parameter	Best fit	99% limits	Parameter	Best fit	99% limits	Parameter	Best fit	99% limits
$\Omega_{\mathrm{b}} h^2$	0.02214	$0.02212^{+0.00077}_{-0.00077}$	$\sigma_8 \Omega_{\mathrm{m}}^{0.25}$	0.6098	$0.608^{+0.031}_{-0.030}$	$H(0.15)$	72.42	$72.4^{+2.5}_{-2.5}$
$\Omega_{\mathrm{c}} h^2$	0.1204	$0.1203^{+0.0058}_{-0.0053}$	$\sigma_8/h^{0.5}$	0.9914	$0.989^{+0.042}_{-0.042}$	$D_{\mathrm{M}}(0.15)$	645.9	$646^{+26}_{-24}$
$100\theta_{\mathrm{MC}}$	1.04103	$1.0408^{+0.0024}_{-0.0024}$	$r_{\mathrm{drag}} h$	98.75	$98.7^{+4.6}_{-4.7}$	$H(0.38)$	82.64	$82.6^{+2.0}_{-1.9}$
$\tau$	0.0524	$0.052^{+0.022}_{-0.022}$	$\langle d^2 \rangle^{1/2}$	2.446	$2.45^{+0.11}_{-0.11}$	$D_{\mathrm{M}}(0.38)$	1539	$1540^{+52}_{-50}$
$Y_{\mathrm{P}}$	0.253	$0.246^{+0.054}_{-0.056}$	$z_{\mathrm{re}}$	7.57	$7.5^{+2.1}_{-2.5}$	$H(0.51)$	89.43	$89.4^{+1.6}_{-1.5}$
$\ln(10^{10} A_{\mathrm{s}})$	3.0406	$3.038^{+0.050}_{-0.048}$	$10^9 A_{\mathrm{s}}$	2.092	$2.09^{+0.11}_{-0.097}$	$D_{\mathrm{M}}(0.51)$	1992	$1994^{+61}_{-59}$
$n_{\mathrm{s}}$	0.9647	$0.963^{+0.029}_{-0.028}$	$10^9 A_{\mathrm{s}} e^{-2\tau}$	1.8836	$1.880^{+0.041}_{-0.040}$	$H(0.61)$	95.10	$95.1^{+1.4}_{-1.3}$
$y_{\mathrm{cal}}$	1.0004	$1.0004^{+0.0065}_{-0.0063}$	$D_{40}$	1229	$1231^{+59}_{-55}$	$D_{\mathrm{M}}(0.61)$	2318	$2319^{+66}_{-64}$
$A_{100}^{\mathrm{PS}}$	260	$257^{+70}_{-80}$	$D_{220}$	5706	$5707^{+110}_{-110}$	$H(2.33)$	236.58	$236.5^{+3.4}_{-3.1}$
$A_{143}^{\mathrm{tSZ}}$	6.00	$< 8.94$	$D_{810}$	2532.5	$2531^{+37}_{-38}$	$D_{\mathrm{M}}(2.33)$	5773	$5776^{+67}_{-68}$
$A^{\mathrm{kSZ}}$	0.6	—	$D_{1420}$	811.5	$812^{+14}_{-15}$	$f\sigma_8(0.15)$	0.4621	$0.461^{+0.033}_{-0.031}$
$A_{100}^{\mathrm{dust}}$	1.001	$1.01^{+0.50}_{-0.49}$	$D_{2000}$	228.1	$228.8^{+6.6}_{-7.0}$	$\sigma_8(0.15)$	0.7496	$0.748^{+0.023}_{-0.023}$
$A_{143}^{\mathrm{power}}$	13.4	$10.7^{+8.2}_{-6.7}$	$n_{\mathrm{s},0.002}$	0.9647	$0.963^{+0.029}_{-0.028}$	$f\sigma_8(0.38)$	0.4789	$0.478^{+0.025}_{-0.025}$
$A_{217}^{\mathrm{power}}$	12.8	$8.5^{+8.5}_{-5.4}$	$Y_{\mathrm{P}}$	0.253	$0.246^{+0.054}_{-0.056}$	$\sigma_8(0.38)$	0.6637	$0.662^{+0.020}_{-0.019}$
$A_{143 \times 217}^{\mathrm{power}}$	9.0	$< 12.4$	$Y_{\mathrm{P}}^{\mathrm{BBN}}$	0.254	$0.247^{+0.054}_{-0.056}$	$f\sigma_8(0.51)$	0.4767	$0.475^{+0.021}_{-0.022}$
$\gamma_{143}^{\mathrm{power}}$	1.27	$> 0.342$	Age/Gyr	13.819	$13.83^{+0.15}_{-0.15}$	$\sigma_8(0.51)$	0.6208	$0.619^{+0.019}_{-0.018}$
$\gamma_{217}^{\mathrm{power}}$	1.06	—	$z_*$	1090.55	$1090.3^{+1.8}_{-1.7}$	$f\sigma_8(0.61)$	0.4712	$0.470^{+0.019}_{-0.019}$
$\gamma_{143 \times 217}^{\mathrm{power}}$	1.04	—	$r_*$	144.49	$144.5^{+1.2}_{-1.2}$	$\sigma_8(0.61)$	0.5905	$0.589^{+0.018}_{-0.017}$
$c_{100}$	0.99799	$0.9978^{+0.0027}_{-0.0028}$	$100\theta_*$	1.04104	$1.0410^{+0.0013}_{-0.0013}$	$f\sigma_8(2.33)$	0.2975	$0.2967^{+0.0095}_{-0.0089}$
$c_{217}$	0.99944	$0.9994^{+0.0045}_{-0.0035}$	$D_{\mathrm{M}}(z_*)/\mathrm{Gpc}$	13.879	$13.89^{+0.12}_{-0.12}$	$\sigma_8(2.33)$	0.3064	$0.306^{+0.010}_{-0.0098}$
$H_0$	67.07	$67.0^{+2.9}_{-2.9}$	$z_{\mathrm{drag}}$	1059.67	$1059.4^{+3.3}_{-3.2}$	$f_{2000}^{143}$	25.2	$24^{+10}_{-10}$
$\Omega_{\Lambda}$	0.6818	$0.681^{+0.035}_{-0.041}$	$r_{\mathrm{drag}}$	147.23	$147.3^{+1.3}_{-1.3}$	$f_{2000}^{217}$	18.0	$17.1^{+7.7}_{-7.1}$
$\Omega_{\mathrm{m}}$	0.3182	$0.319^{+0.041}_{-0.035}$	$k_{\mathrm{D}}$	0.14024	$0.1404^{+0.0020}_{-0.0019}$	$f_{2000}^{143 \times 217}$	12.8	$11.4^{+8.5}_{-7.6}$
$\Omega_{\mathrm{m}} h^2$	0.1431	$0.1431^{+0.0053}_{-0.0049}$	$100\theta_{\mathrm{D}}$	0.16140	$0.1611^{+0.0021}_{-0.0020}$	$\chi_{\mathrm{simall}}^2$	395.88	$396.9 (\nu: 1.4)$
$\Omega_{\mathrm{m}} h^3$	0.09601	$0.0959^{+0.0021}_{-0.0020}$	$z_{\mathrm{eq}}$	3405	$3403^{+130}_{-120}$	$\chi_{\mathrm{lowl}}^2$	23.3	$23.9 (\nu: 2.2)$
$\sigma_8$	0.8119	$0.810^{+0.026}_{-0.026}$	$k_{\mathrm{eq}}$	0.010394	$0.01039^{+0.00039}_{-0.00036}$	$\chi_{\mathrm{CamSpec}}^2$	6704.6	$6717.0 (\nu: 14.9)$
$S_8$	0.836	$0.835^{+0.065}_{-0.062}$	$100\theta_{\mathrm{eq}}$	0.8122	$0.812^{+0.023}_{-0.024}$	$\chi_{\mathrm{prior}}^2$	1.2	$5.3 (\nu: 4.3)$
$\sigma_8 \Omega_{\mathrm{m}}^{0.5}$	0.4580	$0.457^{+0.036}_{-0.034}$	$100\theta_{\mathrm{s,eq}}$	0.4490	$0.449^{+0.012}_{-0.012}$	$\chi_{\mathrm{CMB}}^2$	7123.8	$7137.8 (\nu: 14.9)$

Best-fit  $\chi_{\mathrm{eff}}^2 = 7125.00$ ;  $\bar{\chi}_{\mathrm{eff}}^2 = 7143.10$ ;  $R - 1 = 0.00767$

$\chi_{\mathrm{eff}}^2$ : CMB - simall\_100x143\_offlike5\_EE\_Aplanck\_B: 395.88 commander\_dx12\_v3\_2\_29: 23.34 CamSpec like\_10.7cleaned: 6704.60